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A revision of the genus *Yllenus* Simon, 1868 (Arachnida, Araneae, Salticidae)

by

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Illustrated by the authors

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Kirill G. Mikhailov (the editor)

This is a worldwide taxonomic revision of the genus *Yllenus*, with 65 valid species being diagnosed, figured and (re)described. A key to three species groups and distribution maps for all revised species are also provided. The ♂ neotype is designated for *Yllenus albifrons* (Lucas, 1846). Lectotypes are designated for the four following species: *Attus albocinctus* Kroneberg, 1885 (♀); *Attus vittatus* Thorell, 1875 (♂); *Yllenus hamifer* Simon, 1895 (♀); *Attulus validus* Simon, 1889 (♂). Three species names are newly synonymized: *Yllenus somonensis* Prószyński, 1982 with *Y. validus* Simon, 1889; *Yllenus israelensis* Logunov, 1996 with *Y. tschoni* (Caporiacco, 1936); *Yllenus probatus* Wesołowska, 1996 with *Y. mirandus* Wesołowska, 1996. Three new combinations are proposed: *Yllenus auriceps* (Denis, 1966) comb.n. (ex *Attulus*), *Yllenus maoniuensis* (Liu, Wang et Peng, 1991) comb.n. (ex *Philaeus*) and *Euophrys skalanicus* (Dobroruka, 2003) comb.n. (ex *Yllenus*). Three specific names are treated as *nomina dubia*: *Attus pusio* Simon, 1871, *Euophrys skalanicus* (Dobroruka, 2003) and *Yllenus kronebergi* Roewer, 1951. Twenty nine new species are described: *Yllenus algarvensis* sp.n. (♂; from Portugal); *Y. aralicus* sp.n. (♂♀; from the E. Caucasus and Middle Asia); *Y. bakanas* sp.n. (♂♀; from Kazakhstan); *Y. bucharaensis* sp.n. (♀; from Uzbekistan); *Y. charynensis* sp.n. (♀; from Kazakhstan); *Y. dalaensis* sp.n. (♂♀; from Kazakhstan); *Y. dunini* sp.n. (♂♀; from Azerbaijan and Kazakhstan); *Y. erzinenis* sp.n. (♂♀; from S. Siberia and Mongolia); *Y. gavdos* sp.n. (♂♀; from W. Mediterranean); *Y. guseinovi* sp.n. (♂♀; from the E. Caucasus and Middle Asia); *Y. halugim* sp.n. (♂; from Israel); *Y. karakumensis* sp.n. (♂♀; from Turkmenistan); *Y. karnai* sp.n. (♂♀; from NW India); *Y. kononenkoi* sp.n. (♂♀; from Kyrghyzstan); *Y. kotchevnik* sp.n. (♂; from Turkmenistan); *Y. mirabilis* sp.n. (♂; from Uzbekistan and Turkmenistan); *Y. murgabicus* sp.n. (♂♀; from Tajikistan); *Y. nigritarsis* sp.n. (♂; from Turkmenistan); *Y. nurataus* sp.n. (♀; from Uzbekistan); *Y. pamiricus* sp.n. (♂♀; from Tajikistan); *Y. pseudobajan* sp.n. (♂♀; from SW China); *Y. pseudovalidus* sp.n. (♂♀; from Turkmenistan and Kazakhstan); *Y. shakhsenem* sp.n. (♂; from Turkmenistan); *Y. tamdybulak* sp.n. (♀; from Uzbekistan); *Y. turkestanicus* sp.n. (♂♀; from Middle Asia); *Y. uiguricus* sp.n. (♂♀; from Kazakhstan); *Y. uzbekistanicus* sp.n. (♂♀; from Uzbekistan and Turkmenistan); *Y. zhilgaensis* sp.n. (♂♀; from Kalmykia and Kazakhstan); *Y. zyuzini* sp.n. (♂♀; from Kazakhstan and Turkmenistan).

This work is intended for arachnologists, mainly taxonomists, as well as for biogeographers, local biologists and naturalists.

Данная работа представляет собой мировую ревизию рода *Yllenus*, в которой 65 валидных видов описаны или переописаны и иллюстрированы. Составлен диагностический ключ для трех групп видов и даны карты распространения для всех видов. Выделен неотип для *Yllenus albifrons* (Lucas, 1846). Обозначены лектотипы для четырех видов: *Attus albocinctus* Kroneberg, 1885 (♀); *Attus vittatus* Thorell, 1875 (♂); *Yllenus hamifer* Simon, 1895 (♀); *Attulus validus* Simon, 1889 (♂). Три вида синонимизированы: *Yllenus somonensis* Prószyński, 1982 с *Y. validus* Simon, 1889; *Yllenus israelensis* Logunov, 1996 с *Y. tschoni* (Caporiacco, 1936); *Yllenus probatus* Wesołowska, 1996 с *Y. mirandus* Wesołowska, 1996. Предложено три новые комбинации: *Yllenus auriceps* (Denis, 1966) comb.n. (ex *Attulus*), *Yllenus maoniuensis* (Liu, Wang et Peng, 1991) comb.n. (ex *Philaeus*) и *Euophrys skalanicus* (Dobroruka, 2003) comb.n. (ex *Yllenus*). Три видовых названия трактуются как *nomina dubia*: *Attus pusio* Simon, 1871, *Euophrys skalanicus* (Dobroruka, 2003) и *Yllenus kronebergi* Roewer, 1951. Описано 29 новых видов.

Работа предназначена для арахнологов, главным образом таксономистов, а также для биогеографов, краеведов и натуралистов.

Cover illustration (front): landscape, sandy desert with *Haloxylon* sp. in Central Kyzylkumy (N. Uzbekistan), where a number of *Yllenus* species occur (a photo by DL); spider, the male of *Yllenus arenarius* from sand dunes in Poland (courtesy by Dr M. Bartos; Łódź, Poland).

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Contents

Introduction

The genus *Yllenus* was erected by Simon [1868]. It was revised by Prószyński [1968], who assigned 22 species to it. After Prószyński's revision a few species were added by Punda [1975; 2 species], Ponomarev [1978; 1 species], Liu *et al*. [1991; 1 species], Logunov [1993b; 1 species], Logunov & Marusik [2000a; 5 species] and Hu [2001; 1 species]. Taking into account currently established synonymies, 32 valid species were known before this second revision, which covers 65 valid species.

The main aim of the present work is to provide an up-dated taxonomic account of the genus *Yllenus* which will (1) redefine the genus, (2) establish new synonymies (3) (re)describe all valid species, (4) refine their distributions, and (5) comment on all invalid, doubtful or problematic species names.

Material and methods

A total of 992 adult specimens (both museum and newly collected ones) were used in this study; all of them were borrowed from or distributed among the following depositaria and personal collections:

AMNH — The American Museum of Natural History, New York, USA (Dr N. Platnick)
BMNH — Department of Entomology, the British Natural History Museum, London, UK (Ms J. Beccaloni)
HECO — Hope Entomological Collection, Oxford, UK (Mr. J. Hogan)
HNHM — Hungarian Natural History Museum, Budapest, Hungary, (Dr S. Mahunka and Mr. T. Szuts)
HUJI — The Hebrew University of Jerusalem (Zoological Department), Israel (Dr G. Levy)
JMPC — The personal collection of Dr John Murphy (Hampton, UK)
JWPC — The personal collection of Mr Jorg Wunderlich (Straubenhardt, Germany)
NHMB — Naturhistorisches Museum, Basel, Switzerland (Dr A. Hänggi)
MCZH — Museum of Comparative Zoology, Harvard University, Cambridge, USA (Ms L. Leibensperger)
MMUM — The Manchester Museum, The University of Manchester, Manchester, UK (Dr D. V. Logunov)
MNHN — Muséum national d'Histoire naturelle, Paris, France (Dr C. Rollard)
MRAC — Musée Royal de l'Afrique Centrale, Tervuren, Belgium (Dr R. Jocqué);
MZSF — Museo Zoologico de "La Specola", Sezione del Museo di Storia Naturale, Firenze, Italy (Mrs S. Whitman)
NHMC — Natural History Museum, University of Crete, Crete, Greece (Dr M. Chatzaki)
PSUN — Department of Zoology of the Perm State University, Perm, Russia (Dr S. L. Esyunin)
SMNH — Swedish Museum of Natural History, Stockholm, Sweden (Dr T. Kronestedt)
SNMC — Museum of Natural History, Slovak National Museum, Bratislava, Slovakia (Mr J. Svatoò)
SZMN — Siberian Zoological Museum of the Institute for Systematics and Ecology of Animals, Novosibirsk, Russia (Ms G. N. Azarkina)
YMPC — The personal collection of Mr Yvan Montardi (Paris, France)
ZISP — Zoological Institute, Russian Academy of Science, St. Petersburg, Russia (Dr V. A. Krivokhatsky)
ZMCD — Zoological Museum, Copenhagen, Denmark (Dr N. Scharff)
ZMHU — Zoological Museum of the Helsinki University, Helsinki, Finland (Dr J. Terhivuo)
ZMPA — Institute of Zoology, Warsaw, Poland (Dr T. Huflejt and Prof. J. Prószyński)
ZMTU — Zoological Museum of the Turku University, Turku, Finland (Drs S. Koponen and M. Saaristo)
ZMUM — Zoological Museum of the Moscow State University, Moscow, Russia (Dr K. G. Mikhailov)

Terminology

Most of the terminology and nomenclature for the copulatory organs follows Comstock [1910], Sierwald [1990] and Coddington [1990], with a few amendments and relevant additional terms.

The term cymbial process is used to describe a retrolateral, proximal ridge-shaped process or bulge on the cymbium, which is often described in the salticids, for example, in *Phlegra* [see Logunov, 1996b: as the lateral cymbial process], *Paramarpissa* [see Logunov & Cutler, 1999] and others. A similar process found in the orb-weaving spiders is called the

paracymbium, but it does not appear to be homologous to the cymbial process of the salticids, or other spider taxa having such the process, *viz*. the Mimetidae and some Oxyopidae (*e.g*. *Tapinillus*) [for further discussion see Scharff & Coddington, 1997 and Griswold *et al*., 1998].

The terms salticid radix and functional tegulum are used in the same sense as in Logunov [1999] and Logunov & Cutler [1999]. The former is used to describe the intercalary sclerite present between the tegulum and the embolus, through which the sperm duct runs (Figs 48, 60, 64), the latter to emphasize the composite nature of the salticid tegulum, which often consists of the simple tegulum [*sensu* Comstock, 1910] and the salticid radix (Figs 59, 62) [*sensu* Logunov & Cutler, 1999].

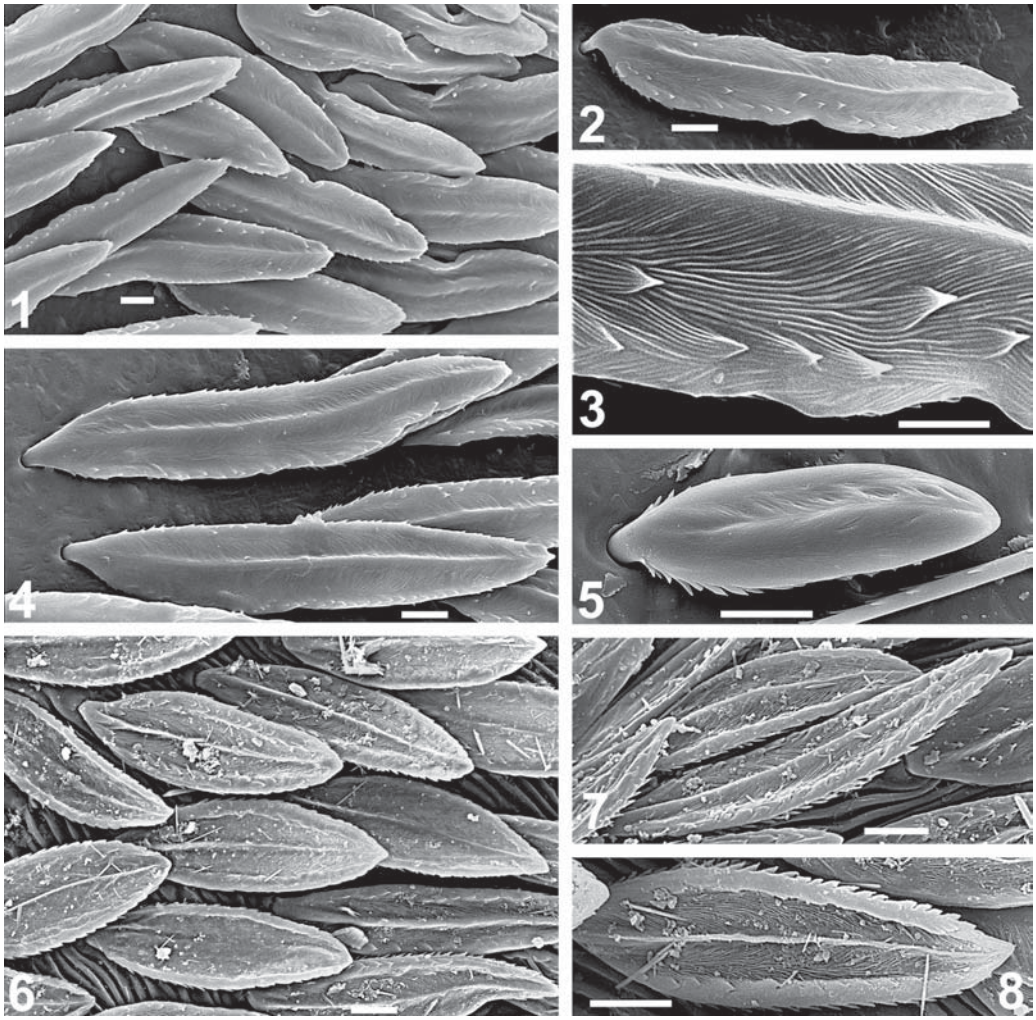
The use of the term compound terminal apophysis (CTA) follows that of Logunov *et al*. [1999], who considered this sclerite to be homologous to the whole embolic division in other spider families rather than to a particular sclerite.

The term embolus-tegulum membrane is here used in a slightly different and wider meaning than was adopted by Hormiga *et al*. [1995] and Griswold *et al.* [1998]. What we earlier called the distal haematodocha [*e.g.* Logunov, 1998, 1999; Logunov & Cutler, 1999] seems not to be strictly homologous to that in the araneids, for which is was originally described [Comstock, 1910]. This membrane in the salticids does not always lie distad of the radix, but more often connects the tegulum to the salticid radix and the embolic division. When the radix and tegulum are partly or totally fused forming the functional tegulum, this membrane directly connects the functional tegulum to the embolic division. Thus, there are strong grounds to believe that this membrane in many salticids is of a composite nature and involves several membranous structures (*e.g*. the duct membrane according to Merrett [1963]), including the distal haematodocha. The neutral term "embolus-tegulum membrane" is therefore used to describe this membrane in *Yllenus*. As was noted above, this membrane was earlier coded as the distal haematodocha in *Paramarpissa*, *Pseudeuophrys*, *Habrocestoides* and some other genera [Logunov, 1996b, 1998, 1999; Logunov & Cutler, 1999].

Details of terminology are illustrated in Figs 42–76. Abbreviations used in the text and figures: BH — basal haematodocha, C — cymbium, CO — copulatory openings, CP — cymbial process, CTA — compound terminal apophysis, D — described; d — dorsally, E — embolus, EP — epigynal pocket, ETM — embolus-tegulum membrane, F — fulcrum, FD — fertilisation duct, Fm — femur, GD — glandular duct; ID — insemination duct, MH — median haematodocha, Mt — metatarsus, P — petiolus, pr — prolaterally, Pt — patella, R — receptacle; rt — retrolaterally, RTA — retrolateral tibial apophysis, Rx — radix; SD — seminal duct, St — subtegulum, T — transferred, Tg — tegulum, v — ventrally, VTA — ventral tibial apophysis.

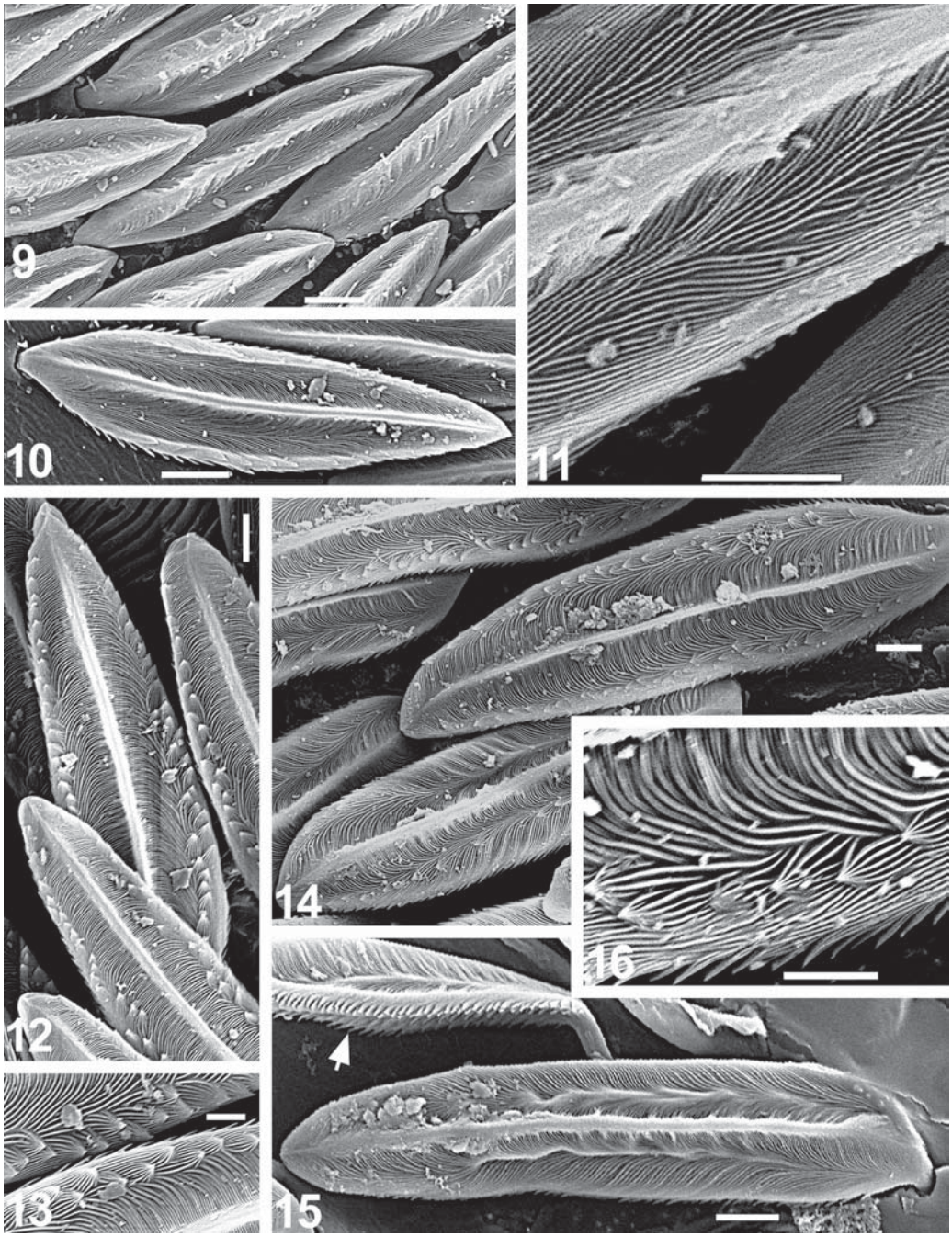
The format of the descriptions follows Logunov [1998]. For the leg spination the system and terminology adopted is that used by Ono [1988]; for description of body scales we follow Hill [1979]. The sequence of leg segment measurements is as follows: femur + patella + tibia + metatarsus + tarsus. All measurements are in mm.

Acknowledgements. We wish to express our deep gratitude to the following colleagues who loaned or gave us type/comparative material from their museums or personal collections: Ms G. N. Azarkina (SZMN), Ms J. Beccaloni (BMNH), Dr R. Bosmans (Gent, Belgium), Dr M. Chatzaki (NHMC), Dr S. L. Esyunin (PSUN), Dr E. F. Guseinov (Baku, Azerbaijan), Dr A. Hänggi (NHMB), Mr. J. Hogan (HECO), Dr R. Jocqué (MRAC), Dr S. Koponen (ZMTU), Dr V. I. Krivokhatsky (ZISP), Dr T. Kronestedt (SMNH), Ms L. Leibensperger (MCZH), Dr G. Levy (HUJI), Dr K. G. Mikhailov (ZMUM), Dr J. Murphy (Hampton, UK), Dr N. Platnick (AMNH), Prof. J. Prószyński (ZMPA), Dr C. Rollard (MNHN), Dr N. Scharff (ZMCD), Mr J. Svatoň (SNMC), Mr. T. Szuts (HNHM), Dr J. Terhivuo (ZMHU), Mrs S. Whitman (MZSF) and Mr J. Wunderlich (Straubenhardt, Germany). We are much obliged to Mr A. V. Gromov (Alma-Ata, Kazakhstan) who checked Central Asian and some Mediterranean localities and provided us with several contour maps used in the present work. Dr E. F. Guseinov (Baku, Azerbaijan) kindly provided us with his unpublished biological information for two *Yllenus* species from Azerbaijan. We thank our colleagues Drs A. Hänggi (NHMB), T. Kronestedt (SMNH), H. Tanaka (Osaka, Japan), K. Thaler (Innsbruck, Austria) and Mr T. Szuts (HNHM) for help in obtaining rare/old arachnological literature. Dr R. Bosmans (Gent, Belgium) kindly helped with the Algerian locality for *Y. albifrons*. We thank Dr M. Bartos (Łódź, Poland) for providing us with his unpublished distributional data on and an original photo of *Y. arenarius*; the latter was used for the cover design of this book. We are obliged to Dr X. Peng (Beijing, China) for his help with some Chinese localities. Drs T. Blick (Hummental, Germany) and O.-D. Finch (Oldenburg, Germany) kindly clarified the distribution of *Y. arenarius* in Germany, Mr



Figs 1–8. Body scales of *Yllenus arenarius* (♀): 1–4 — carapace scales; 5 — a scale of the metatarsus I; 6–8 — abdominal scales. Scale lines: 10 μm (1–2, 4–8), 5 μm (3).

Y. Montardi (Paris, France) helped with the French records of *Y. univittatus*, Mr T. Szuts (HNHM) kindly provided us with the biographical data about Dr G. Hovarth, and Dr A. Zyuzin (Almaty, Kazakhstan) helped with the etymology of old specific names and some bibliography. We are deeply grateful to Mr Donald J. Buckle (Saskatoon, Canada) for valuable comments on the typescript and improving the English. Finally, we wish to express our warmest thanks to our friend, Dr Seppo Koponen (Turku, Finland), for providing us with the opportunity to use the scanning electron microscope in his lab and for his hospitality during our visits to Turku. Publication of this book, and part of the research, was sponsored by the grant for young scientists (No. 266) from the Russian Academy of Sciences. The research activity of the second author was partially supported by the RFFI (Russian Foundation for Basic Research) grant no. 01-04-48989. Two visits of the second author to the Manchester Museum (October-November 2002 and March 2003), where a substantial part of this revision work was undertaken, were possible due to a research grant secured by the first author from the Linnean Society of London (UK).



Figs 9–16. Body scales of *Yllenus mongolicus* (♀) (9–11) and *Y. coreanus* (♀) (12–16): 9–11, 14–16 — carapace scales; 12–13 — abdominal scales. Scale lines: 10 μm (9–10, 12, 14–15), 5 μm (11, 13, 16).

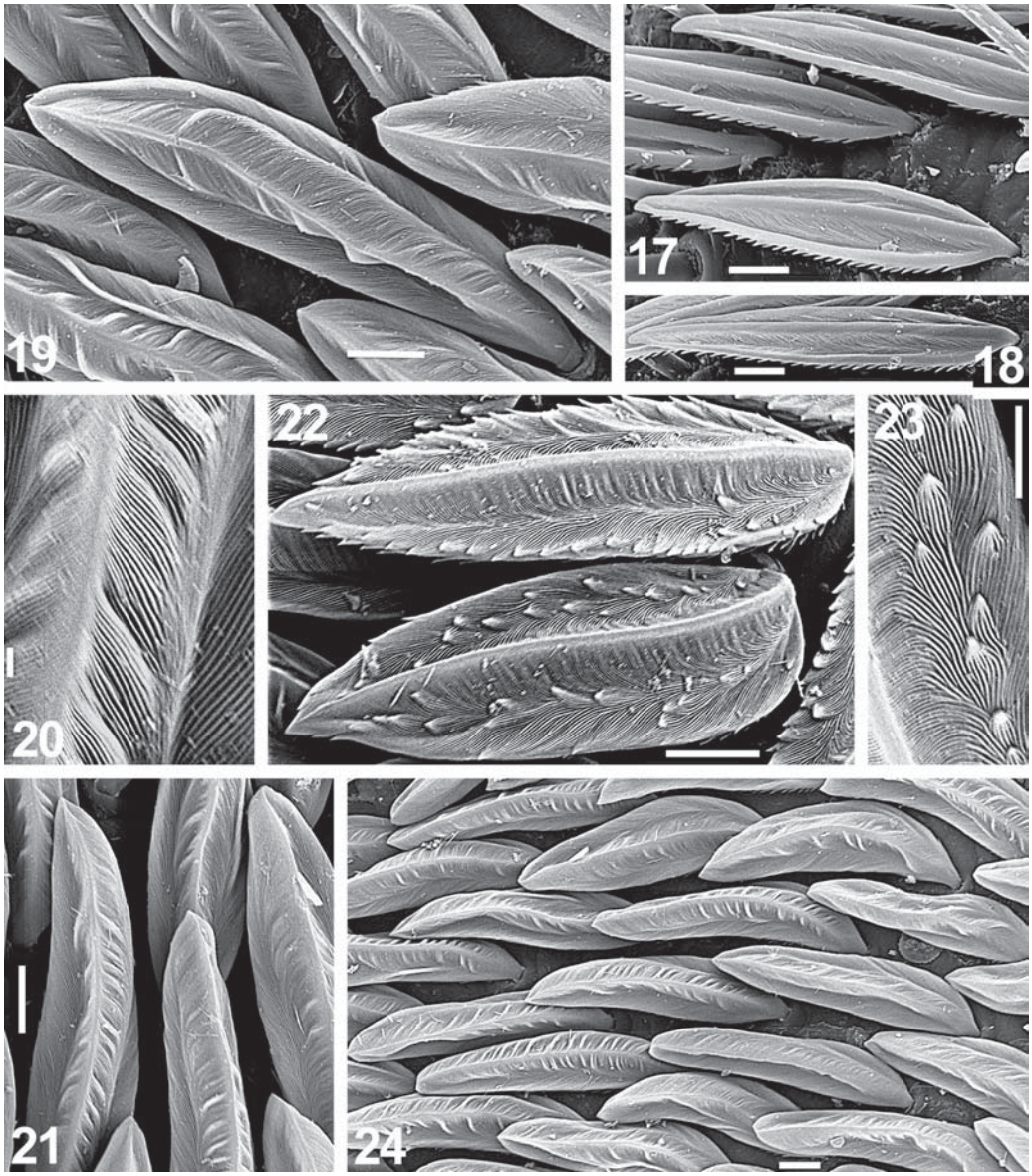
Genus *Yllenus* Simon, 1868

Yllenus Simon, 1868: 633. Type species: *Yllenus arenarius* Menge in Simon 1868; by original designation of Simon [1868].

Pseudomogrus Simon, 1937: 1257. Type species: *Attus univittatus* Simon, 1871; by original designation of Simon [1937]. Synonymized with *Yllenus* by Prószyński [1968: 415].

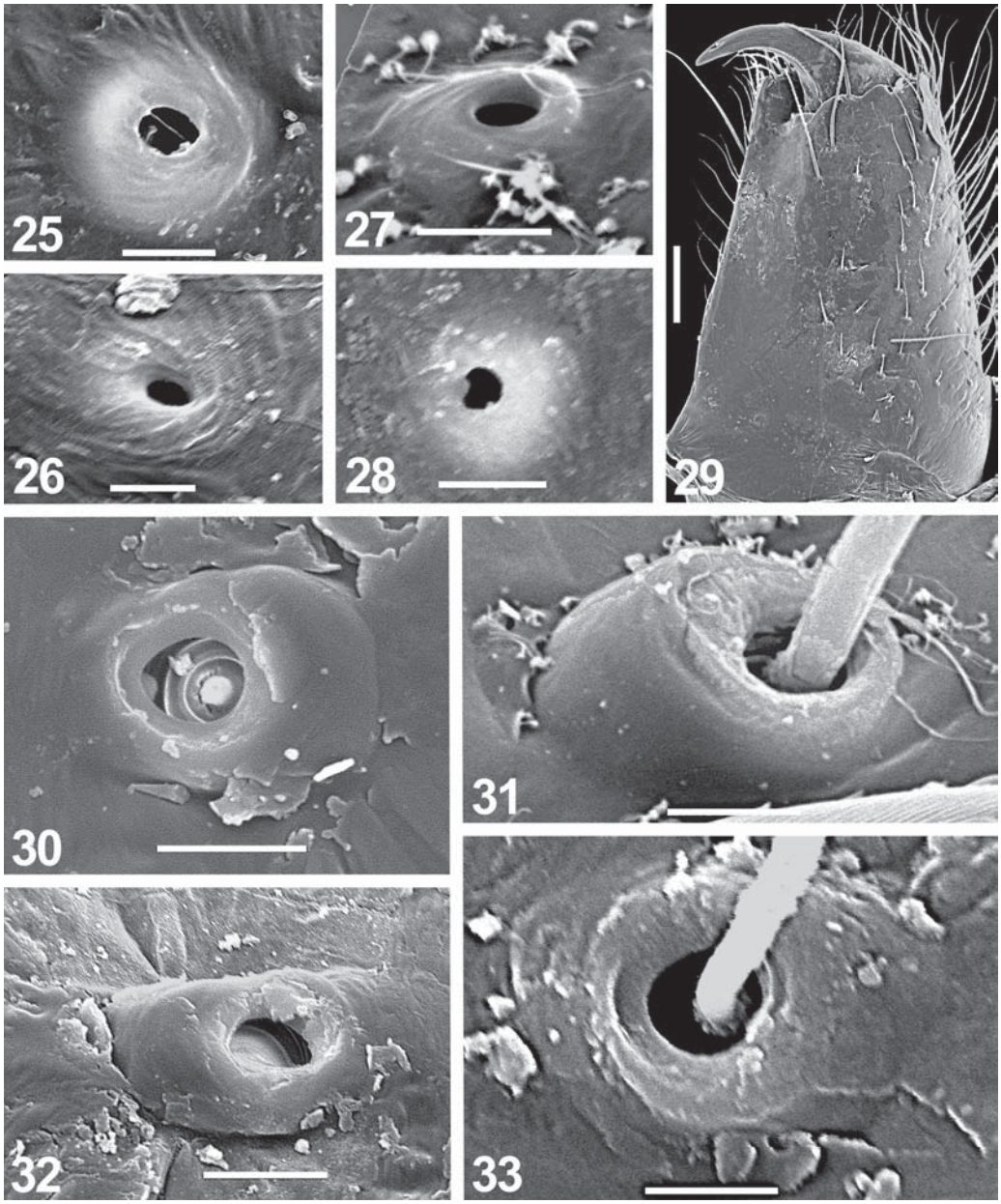
Definition

Small to medium sized spiders ranging from about 3.00 to 7.20 mm in length. Sexes similar in general body form; sexual dimorphism is poorly marked and seen only in the brighter colouration of males [usually the colour markings on the dorsum better defined and their first legs are darker, contrastingly coloured (*e.g.* Figs 200, 421) or bear strong fringes of black bristles/hairs (*e.g.* Fig. 482)]. *Carapace*: rather high, highest approximately at PLE level and with smoothly declining thoracic part (Figs 77–78); densely covered with scales (Figs 1–4, 9–11, 14–16, 19–24); fovea present, but usually hidden beneath a dense covering of scales. *Eyes*: in three rows; anterior row narrower in both sexes, so the quadrangle is trapezoid-shaped; second row midway between ALE and PLE; quadrangle length 35–56% of carapace length. *Clypeus*: narrow to medium; about 35–68% of AME diameter (Fig. 508); vertical or slightly backward sloping (Figs 77–78). *Chelicerae*: small to medium, subvertical; promargin with a narrow keel-shaped tooth; retromargin with no teeth (Figs 29, 41). *Maxillae*: slightly convergent; usual shape. *Labium*: subtriangular. *Sternum*: oval and elongate, sometimes slightly drop-shaped. *Pedicel*: short, not visible in dorsal view. *Abdomen*: elongate, densely covered with scales (Figs 6–8, 12–13); scutum absent in both sexes; colour markings on the dorsum simple, either reticulate (Figs 352, 393), or more often consisting of a wide median stripe (Figs 249, 275, 295, 533, *etc*.). *Body scales*: the entire body of all *Yllenus* species is densely covered with scales of nearly the same structure (Figs 1–24) (sometimes the keel of central shaft is less marked in leg scales, Fig. 5); all scales flat and wide, having the keel and strongly striated (Figs 3, 12, 22); lateral shafts often well-marked (Figs 8, 18); marginal spines are well developed and often look like sharpened knots formed by fusing striae (Figs 3, 16, 23), inferior spines are well marked as well (arrowed in Fig. 15). *Spinnerets*: subequal in length and thickness. *Legs*: subequally developed, but femora I and II slightly thicker; legs usually densely covered with hairs and scales as in Figs 5, 17–18; trichobothrial bases are relatively flat, elongated and smooth (without striae) (Figs 30–33, 40) and are hidden beneath the cover of scales; tarsal organ a rounded or ovoid pit (Figs 25–28), sometimes surrounded by a low bolster-shaped ridge (Fig. 27); legs I and II differ in the structure of claw tufts from legs III and IV; the claw tufts I–II are a dense brush of setae (called the scopula by Prószyński [1968]) covering a half to two thirds of the ventral surface of tarsi (Figs 34, 36, 39), while the claw tufts III–IV look ordinary, *i.e*. as dense groups of setae under the paired tarsal claw (Figs 35, 37, 38); the claw tufts on legs I and II seem to be unique within the Salticidae and to be related to the digging behavior of *Yllenus* species (see below); tarsal claws of legs I–II are more robust and stronger than those of the legs III–IV (cf Figs 38 and 39), these differences seem to be related to digging behavior as well. *Leg formula*: IV, III, I, II or IV, I, III, II in both sexes. *Leg spination*: all legs with spines; while a genus-specific pattern is hardly recognizable, the most frequent patterns are: femora d 0-0-1/2ap; patellae I-II pr 0-1-0, patellae IV pr and rt 0-1-0; tibiae I pr 0-1 (or more rarely 1-1), tibiae IV pr and rt 1-1-1; metatarsi I–II v 2-2ap, metatarsi III–IV pr and rt 1-2ap. *Female palp*: general form; without apical claws. *Male palp*: femora always with a proximal-ventral protuberance (Figs 146, 239, 345, 474, *etc*.); cymbium either of general form (Fig. 49) or strongly elongated (Fig. 51), always with a well developed (bulge- or ridge-shaped) cymbial process (Figs 46–47, 52), forming apparently an articulating apparatus with the RTA (Figs 47, 50); one (Figs 45–47) or two (Figs 44) tibial apophyses present; both basal and median haematodochae developed (Figs 57–

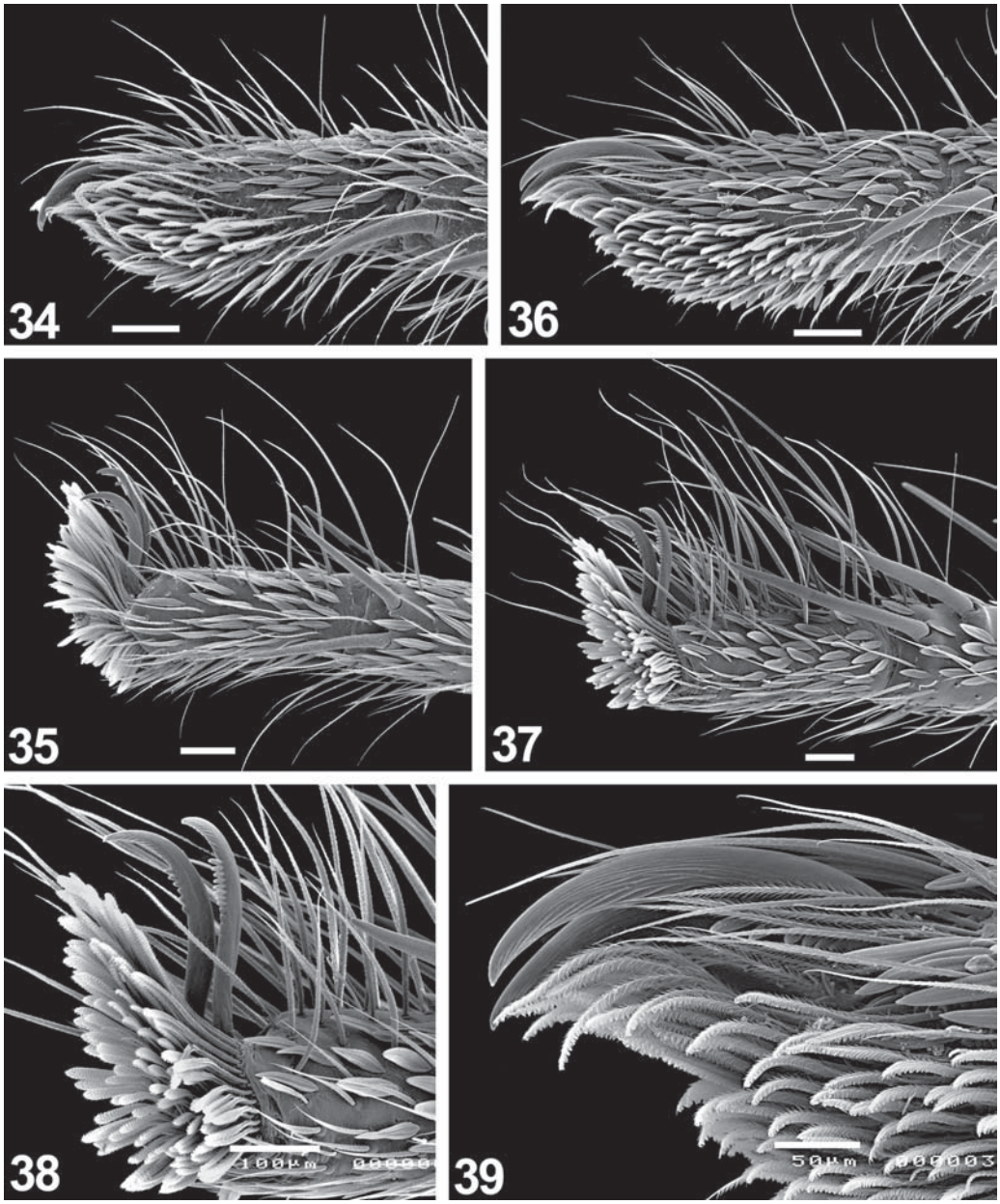


Figs 17–24. Body scales of *Yllenus albocinctus* (♀):17–18 — scales of the metatarsus I; 19–24 — carapace scales. Scale lines: 10 μm (17–19, 21–22, 24), 5 μm (23), 1 μm (20).

58, 65–66); the tegulum relatively small, easily recognizable by a thick loop of the sperm duct seen through its integument (Figs 57, 64–65); the salticid radix [*sensu* Logunov, 1999] is well-developed (Figs 57, 62–68), but sometimes partially or totally fused with the tegulum (Figs 58–61), forming the so-called functional tegulum [*sensu* Logunov & Cutler, 1999]; the sperm duct rather simple; the embolic division consists of the embolus and the compound terminal apophysis (CTA; called the conductor by Prószyński [1968]) (Figs 48, 53–56); the CTA either as thin as the embolus (Fig. 48, 54, 58–61), or much stronger and thicker, usually crescent-shaped (Figs 42–43, 55–56, 62–68); the embolus-tegulum membrane is well developed

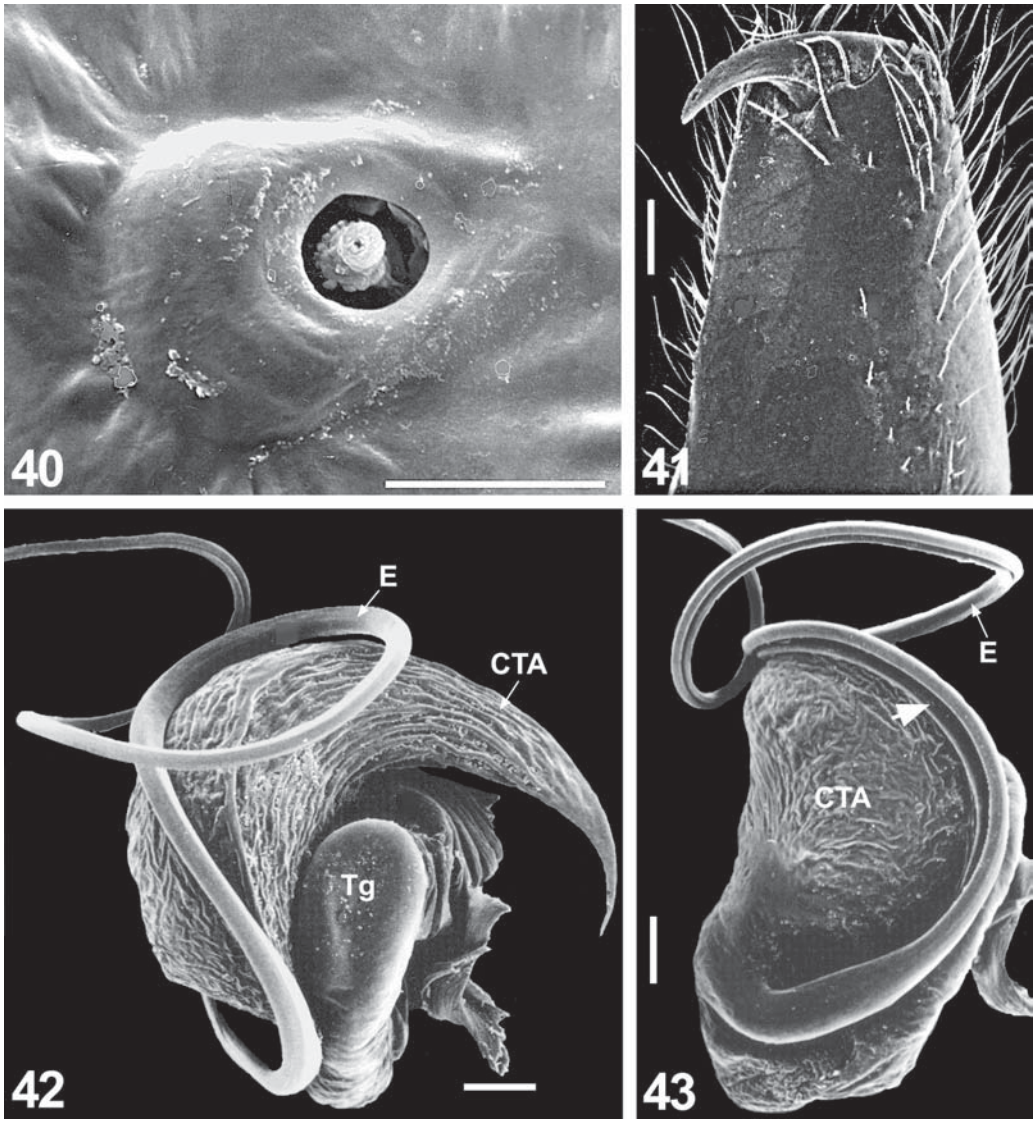


Figs 25–33. Tarsal organs (25–28), trichobotrial bases (30–33) and chelicera (29) of *Yllenus* spp.: 25 — *Yllenus arenarius* (♀, tarsus I); 26 — *Y. coreanus* (♀, tarsus IV); 27 — *Y. albocinctus* (♀, tarsus IV); 28 — *Y. mongolicus* (♀, tarsus I); 29 — *Y. albocinctus* (♀); 30, 32 — *Y. coreanus* (♀, tarsus II); 31 — *Y. albocinctus* (♀, tarsus IV); 33 — *Y. mongolicus* (♀, tarsus I). Scale lines: 100 μm (29), 10 μm (30, 32), 5 μm (25–28, 31, 33).



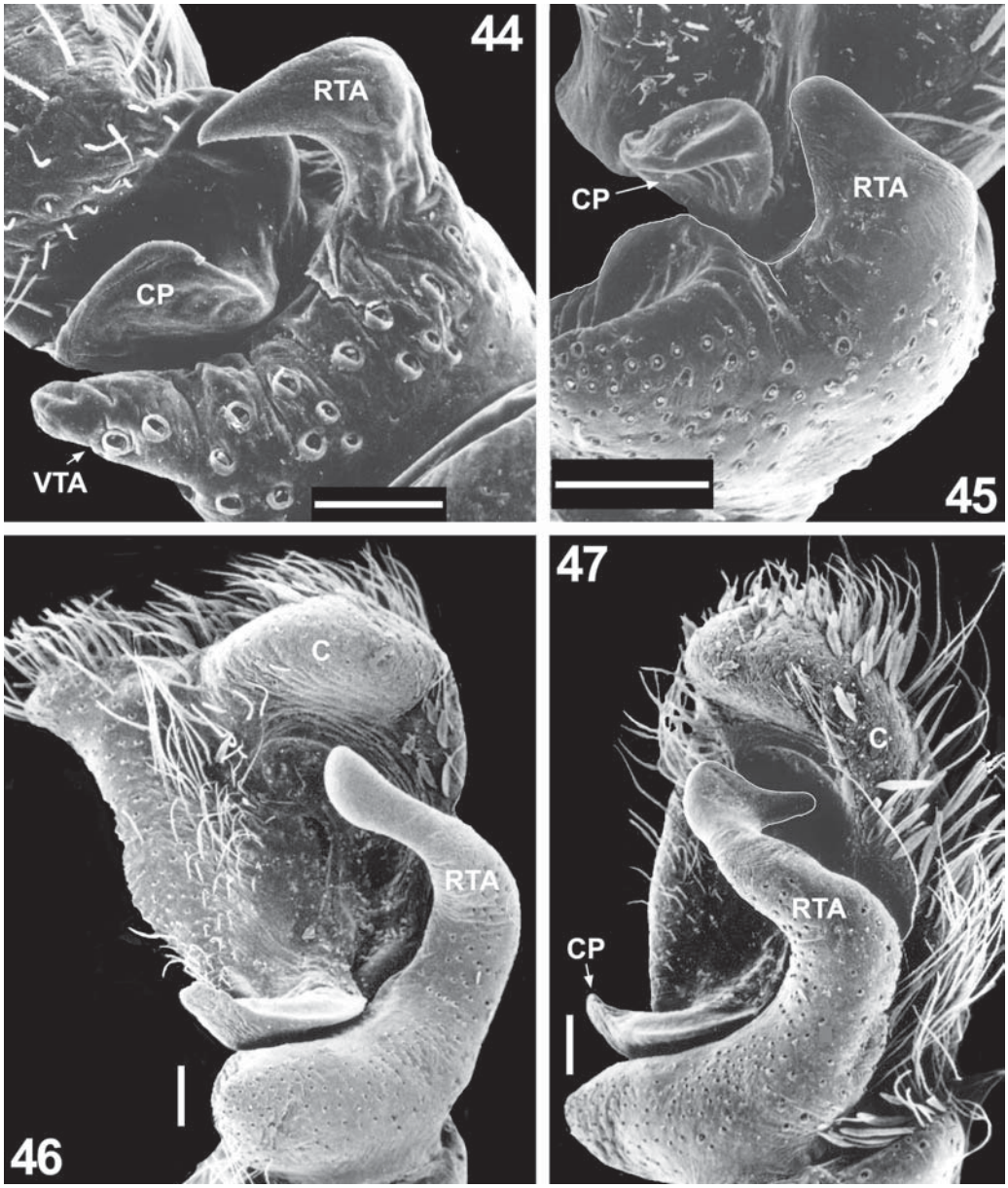
Figs 34–39. Claw tufts of *Yllenus arenarius* (♀) (36–37, 39) and *Y. albocinctus* (♀) (34–35, 38): 34, 36, 39 — leg I; 35, 37, 38 — leg IV. Scale lines: 100 µm (34–38), 50 µm (39).

(Figs 57, 59, 62, 65, 67); the embolus is of the spiral type [*sensu* Comstock, 1910], having both the truncus and pars pendula (Figs 62–63), on SEM photos the pars pendula looks like a groove along the truncus of the embolus (arrowed in Fig. 43). *Female copulatory organs*: relatively simple; copulatory openings rounded, ovoid or slit-shaped (Figs 69, 71–72); a well developed epigynal pocket present, it is usually bell-shaped (Figs 70, 73, 106, 141, *etc*.) but sometimes as a bulging plate overhanging the epigastric furrow (Figs 72, 349); the medi-



Figs 40–43. Somatic characters of *Yllenus arenarius* (♀) (40–41) and the male bulb of *Y. kalkamanicus* (42–43): 40 — trichobotrial base (tarsus I); 41 — chelicera; 42–43 — embolar division, apical view. Scale lines: 100 μm (41–43), 10 μm (40). Abbreviations as explained in the text under "Terminology".

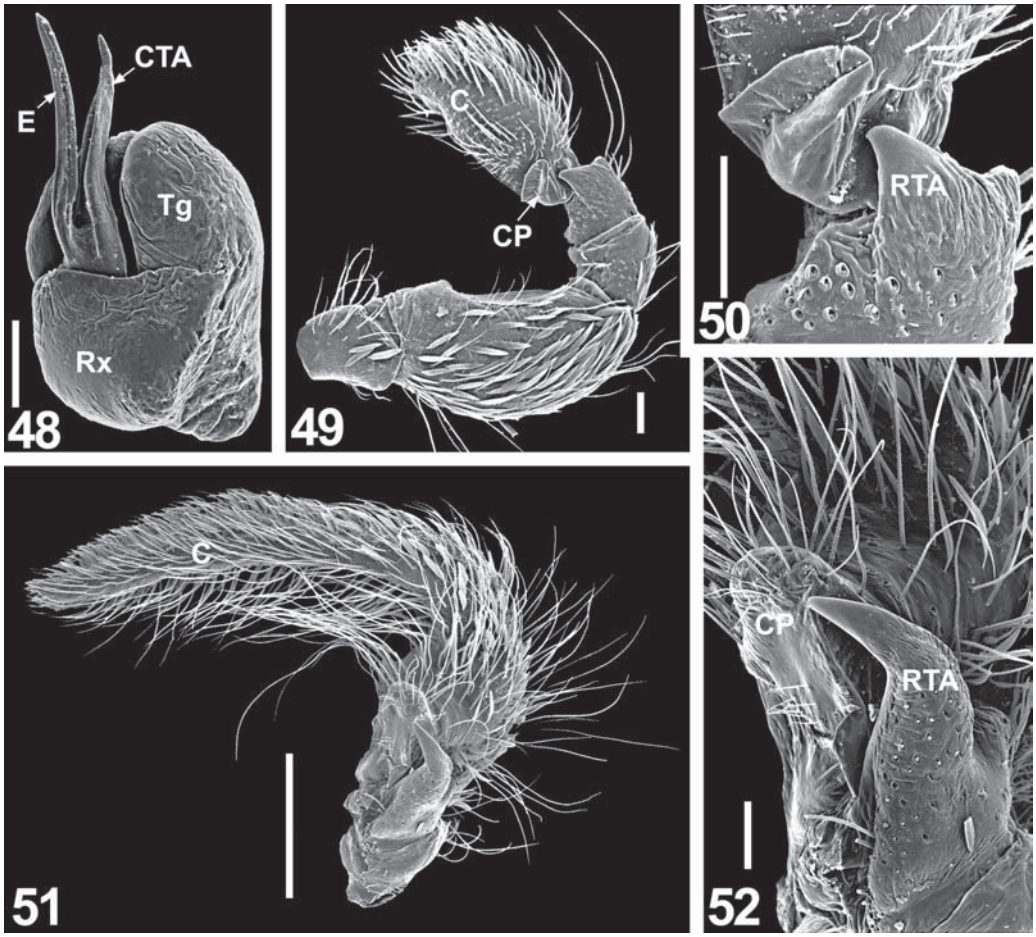
an septum usually absent, but sometimes the space between the copulatory openings looks like a septum (Figs 127, 193, 216); the spermathecae relatively simple, their structure varying from a round receptacle with a simple short insemination duct (Figs 75, 81–83) to an elongated receptacle (sometimes looking as if it consisted of primary and secondary receptacles) with very long, coiled insemination ducts (Figs 84–85) [in some cases, *e.g.* in the *arenicola* group, the spermathecae are heavily sclerotized and with poorly marked receptacles (Figs 79–80)]; each long insemination duct always consists of a thin transparent and strongly coiled proximal part and more heavily sclerotized and less coiled or straight distal part (Figs 76, 84–85); the number of coils and the shape of the receptacles are usually species-specific.



Figs 44–47. The RTA and cymbial processes of *Yllenus saliens* (44; Egypt), *Y. zyuzini* (45; Kazakhstan, Charyn) and *Y. arenarius* (46–47; Poland). Scale lines: 100 μm (45–47), 50 μm (44). Abbreviations as explained in the text under "Terminology".

Diagnosis and affinities

The relationships of *Yllenus* remains unresolved. This genus was earlier placed into two different groups, the group Sitticeae [s. Simon, 1901, 1937] (later treated as the subfamily Sitticinae by Petrunkevitch [1928]) and the subfamily Aelurillinae [s. Prószyński, 1976], but actually belongs with neither. As compared to the former subfamily, *Yllenus* is characterized by the different conformation of the copulatory organs (*e.g.* none of the Sitticinae representatives has the well-devel-

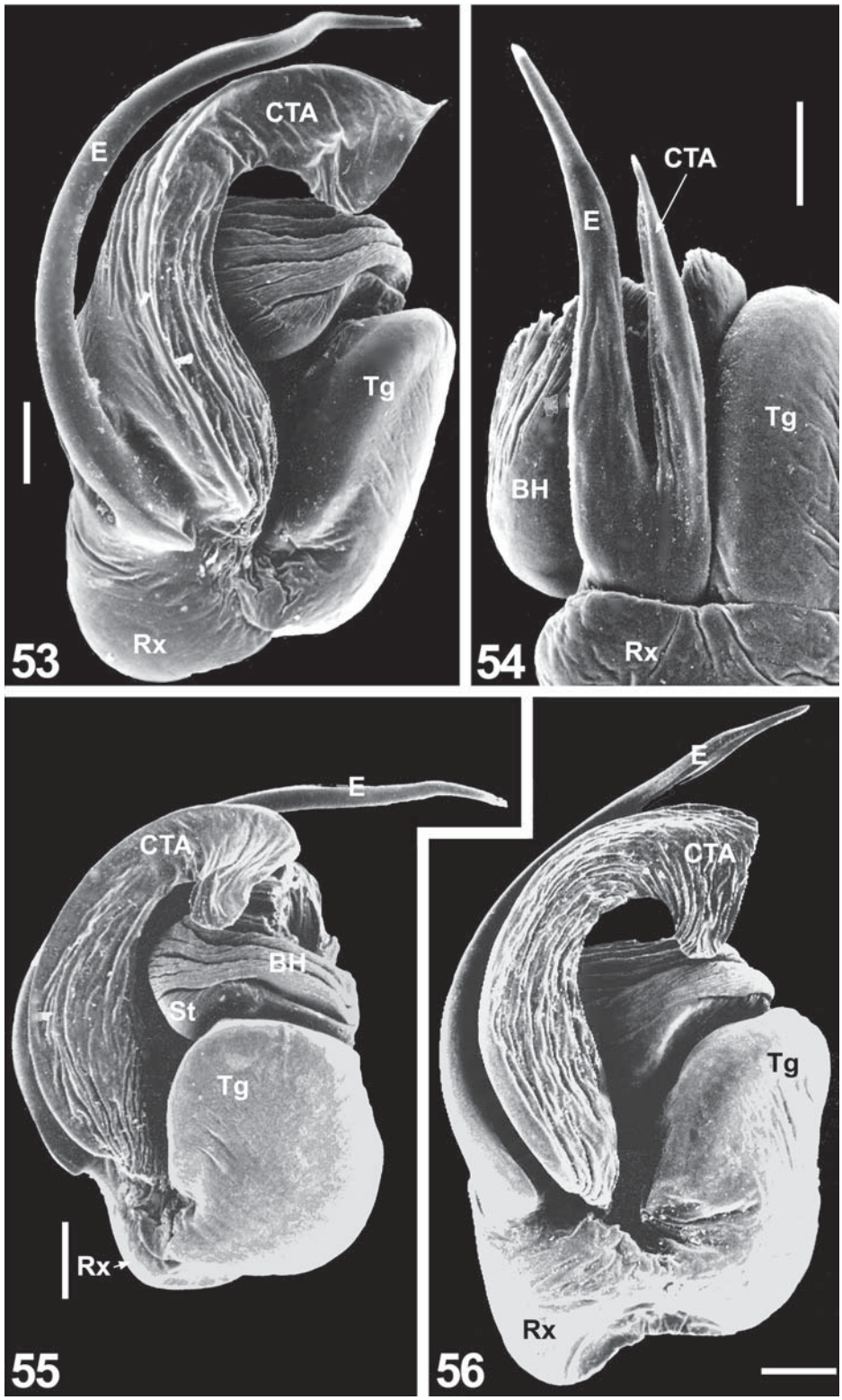


Figs 48–52. Male copulatory organs of *Yllenus albocinctus* (48–50; Uzbekistan, Kokand) and *Y. coreanus* (51–52; Tuva): 48 — bulb, ventral view; 49, 51 — entire palp, retrolateral view; 50, 52 — tibial apophysis and cymbial process. Scale lines: 100 μm (48–50, 52), 500 μm (51). Abbreviations as explained in the text under "Terminology".

oped CTA separated from the embolus). The same is also correct for the Aelurillinae; furthermore, *Yllenus* is lacking the key character of the latter subfamily, *viz*. the cymbial pocket.

At the moment, we have no clear idea where to place the genus *Yllenus* and consider it *insertae sedis*. Only a few salticid genera have been examined with regard to the detailed structure of their copulatory organs, therefore the conformation of the genitalia cannot yet be widely used for resolving taxonomic controversies in salticid taxonomy. Of the studied genera, *Paramarpissa* from N. America shows the most similar conformation of the copulatory organs, especially in males (*viz*. the embolic division consists of the embolus and CTA; the salticid radix present and well marked; the functional tegulum consists of the radix and the true tegulum; *etc.*); also, *Paramarpissa* has the same structure of chelicerae, which lack retromarginal teeth and possess a ridge-shaped pro-

Figs 53–56. Male bulbs of *Yllenus zyuzini* (53, 55; Kazakhstan, Charyn), *Y. saliens* (54; Egypt) and *Y. arenarius* (56; Poland) in ventral view. Scale lines: 100 μm (53, 55–56), 50 μm (54). Abbreviations as explained in the text under "Terminology".


CTA
E
Tg
Rx
53
CTA
E
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BH
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54
E
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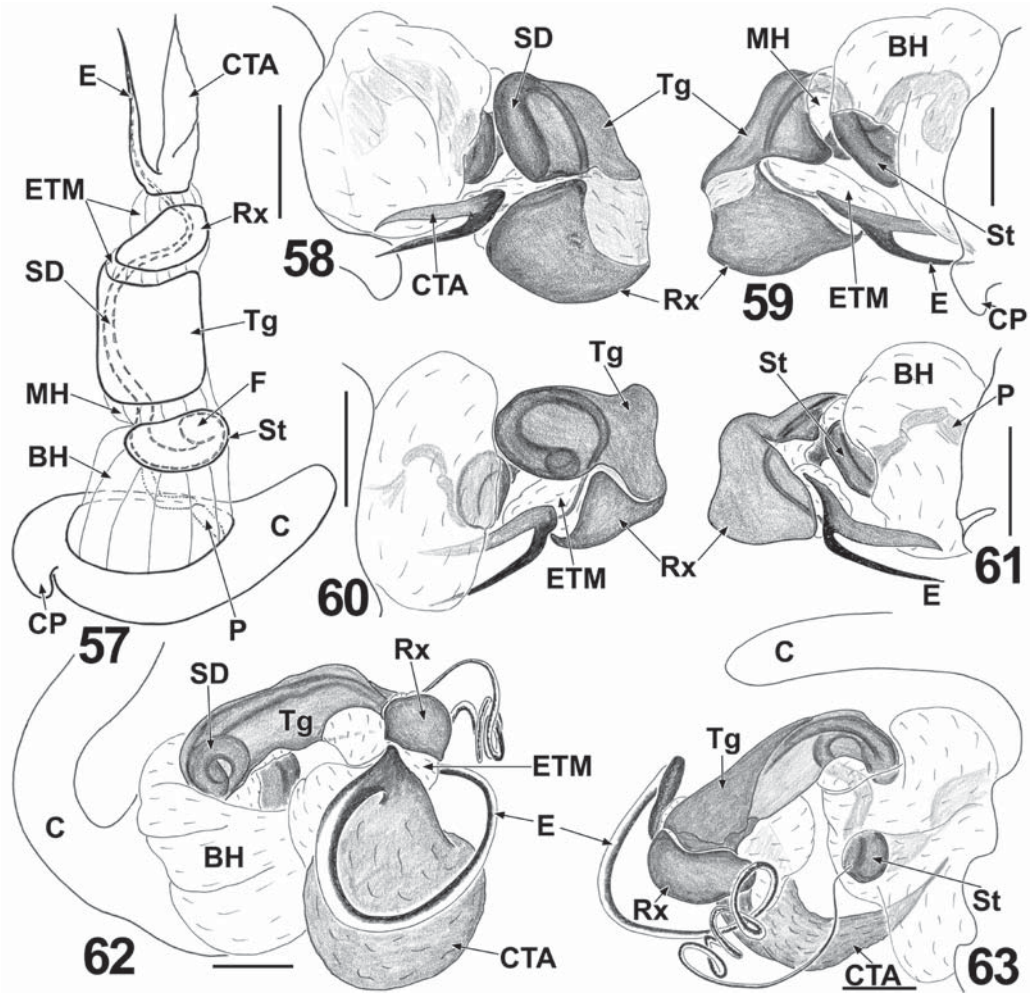
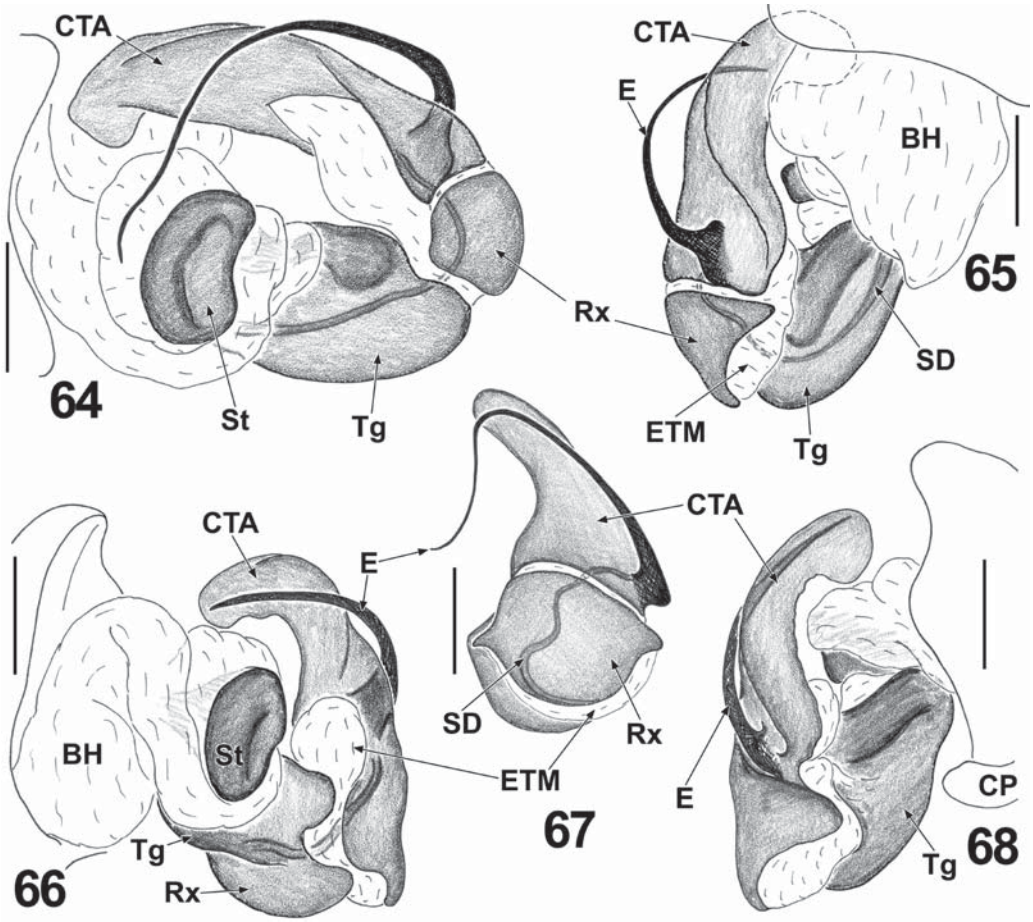


Figs 57–63. Expanded male bulbs of *Yllenus* spp.: 57 — schematic drawing of the generalised expanded bulb of *Yllenus*; 58–59 — bulb of *Y. albocinctus* (Uzbekistan, Kokand), median and lateral views; 60–61 — bulb of *Y. vittatus* (Russia, the Altai), median and lateral views; 62–63 — bulb of *Y. kalkamanicus* (Kazakhstan, Saur Mt. Range), median and lateral views. Scale lines: 0.25 mm. Abbreviations as explained in the text under "Terminology".

marginal tooth [s. Logunov & Cutler, 1999: fig. 3]. Thus, *Paramarpissa* may be related to *Yllenus*. Of the Old World genera, relationships with *Habrocestum* (*s.str*., the *pulex* species group excluded), *Menemerus* and some plexippines (*e.g*. *Plexippus*) are worth considering.

Composition

A total of 65 valid species are now included in *Yllenus* (see below), of which 29 are described hereinafter as new. According to the structure of the copulatory organs, the genus *Yllenus* can be divided into three species groups, which may represent separate subgenera. In this work, we do not scrutinize this problem further and do not provide subgeneric names. It should be remembered that, if someone proves that the taxonomic status of the present species groups is to be treated as a subgeneric one, at least one suitable name already exists, *viz*. *Pseudo-*



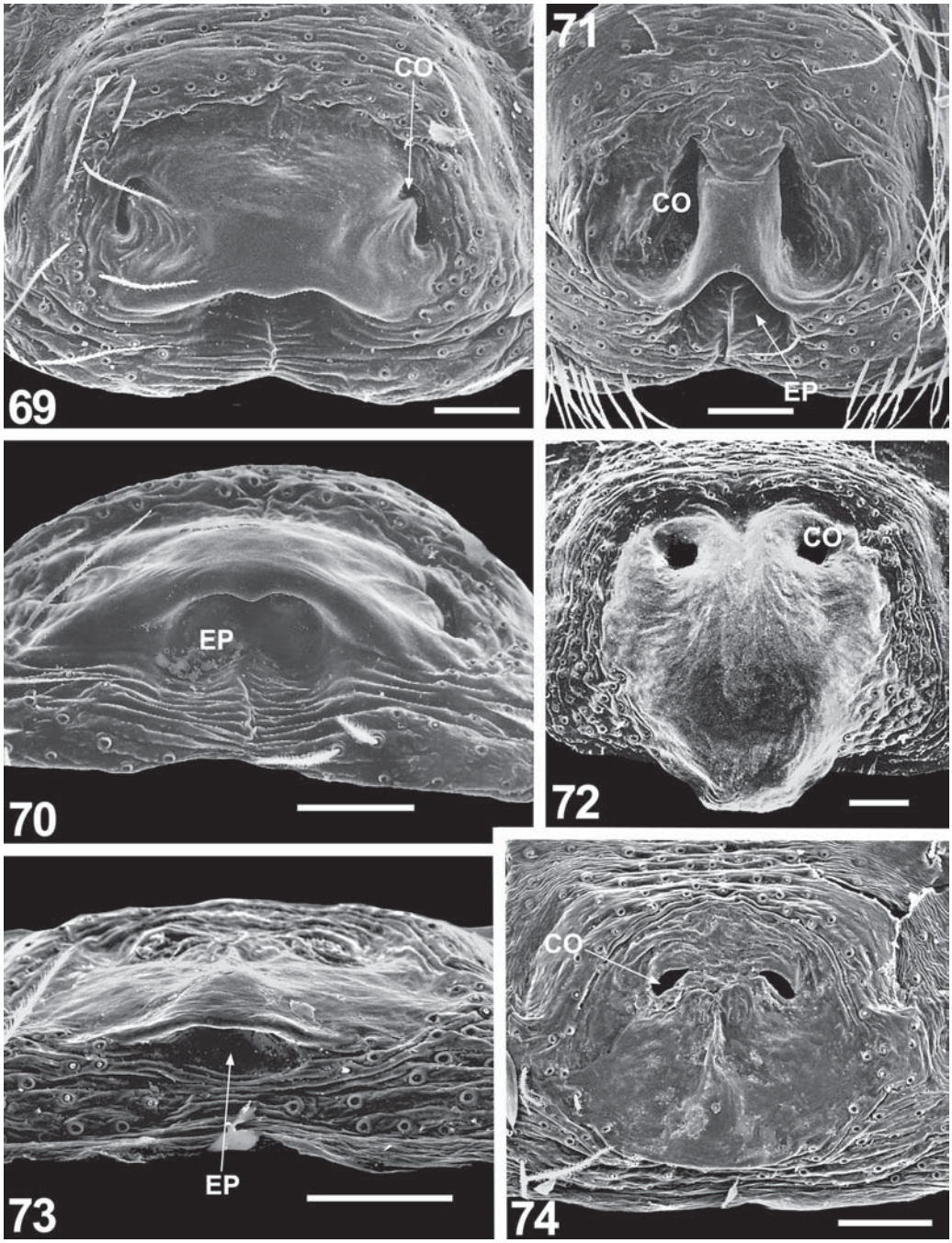
Figs 64–68. Expanded male bulbs of *Yllenus dunini* (64–65, 67; Azerbaijan, Absheron) and *Y. arenarius* (66, 68; Poland): 64, 66 — median view; 65, 68 — lateral view; 67 — apical view. Scale lines: 0.25 mm. Abbreviations as explained in the text under "Terminology".

mogrus (the type species *Attus uni-vittatus*) to be used for the *albocinctus* species group. Diagnoses, distributions and short characterizations are provided for each species group.

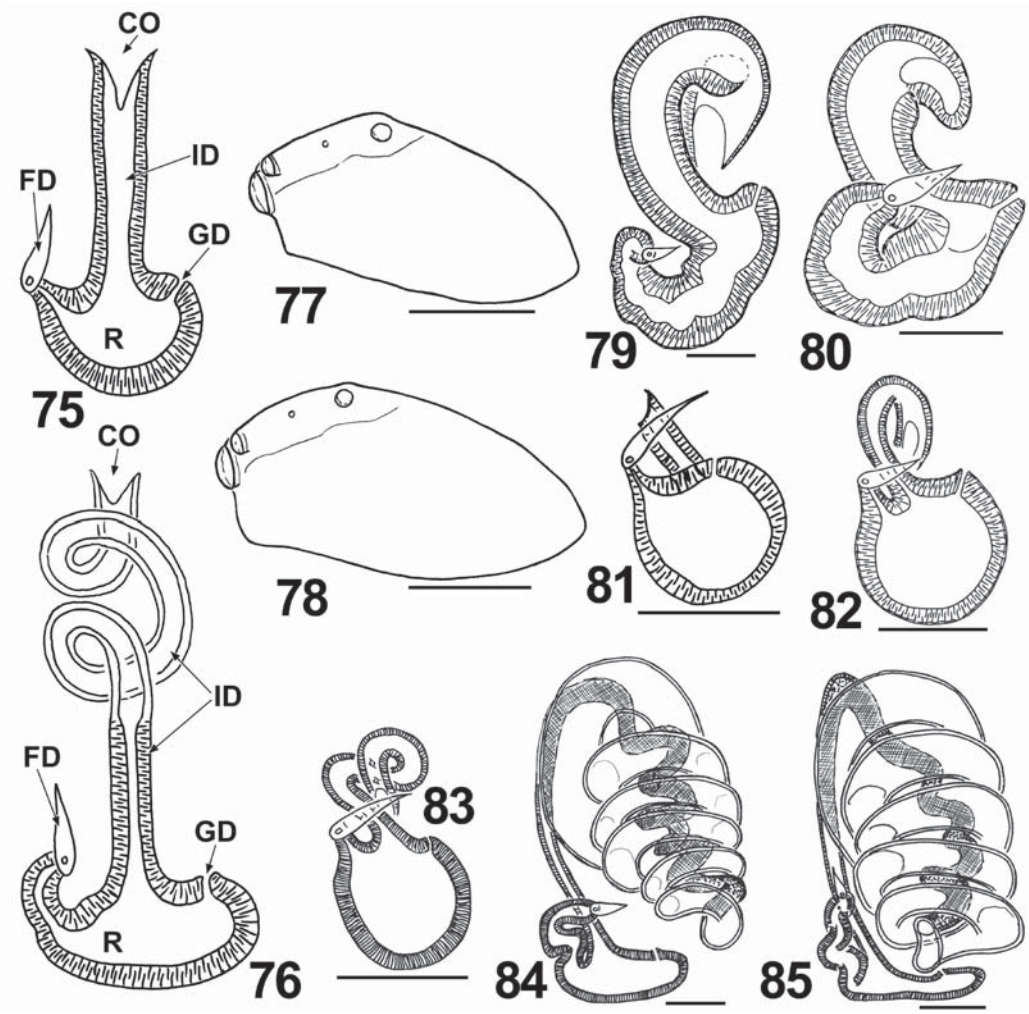
Distribution

Yllenus can be considered a true Palaearctic authochtonous genus; its known range is almost entirely restricted to the Mediterranean, the Scythian and Saharan-Gobian Subregions of the Palaearctic [*sensu* Sergeev, 1992] (Map 1), with no species of *Yllenus* being known from outside the Palaearctic Region. In Central Europe, representatives of *Yllenus* are recorded from intrazonal habitats like sandy dunes as far northward as ca 55ºN; in northern Asia, the northernmost limit of *Yllenus* distribution practically coincides with that of the zonal steppe belt.

The main modern center of diversity of *Yllenus* lies in the Turan Province, from where 29 described species, belonging to all of the three species groups, are known (Map 2). Smaller centers of diversity lie in the Gobian and Tibetan Provinces (18 and 8 species respectively), the Middle East and the western Mediterranean (each of the two latter numbers 7 species) (Map 2). Considering the distributions of the differ-



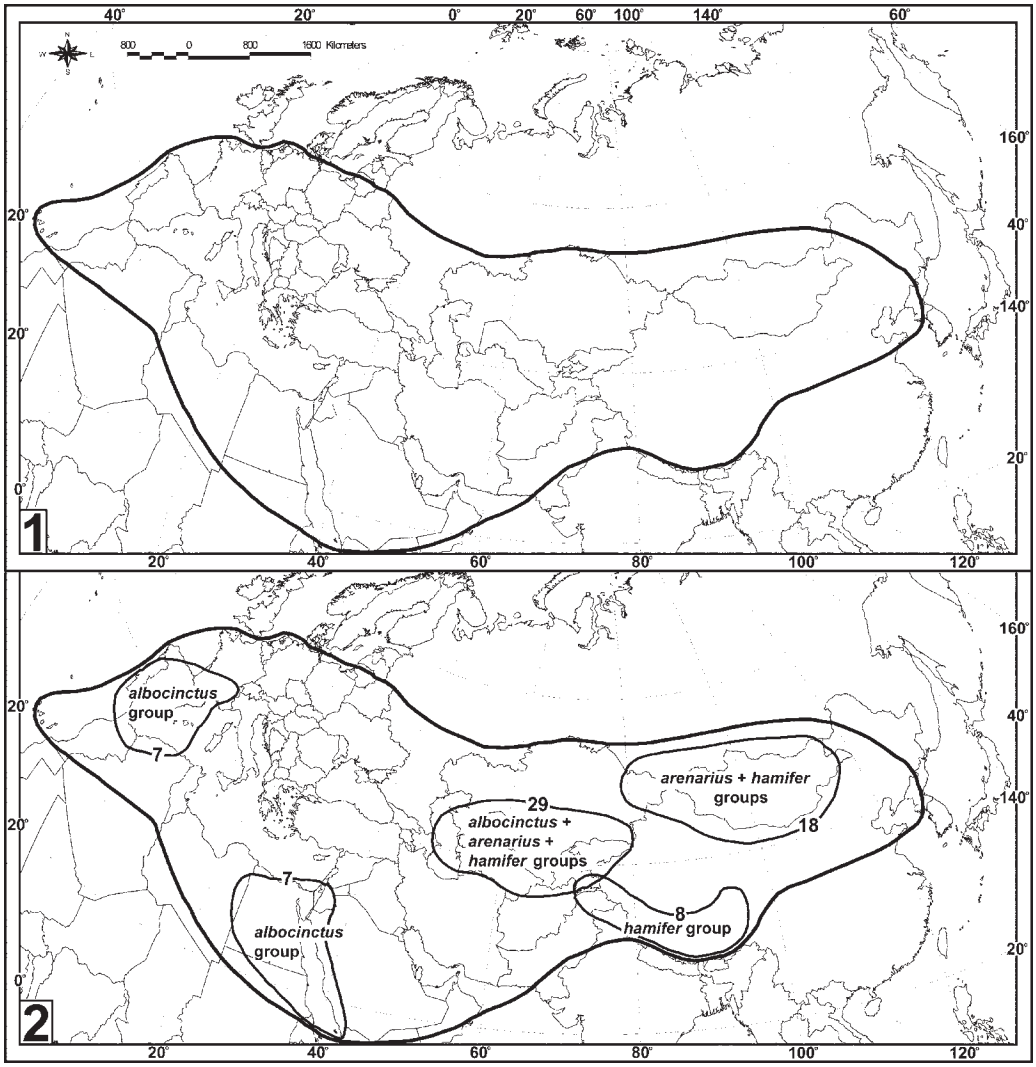
Figs 69–74. Epigynes of *Yllenus zyuzini* (69–70; the paratype from Kazakhstan, Charyn), *Y. aralicus* (71; Kazakhstan, Barsakel'mes Isl.), *Y. arenarius* (72; Poland) and *Y. albocinctus* (73–74; Uzbekistan, Kokand): 69, 71, 72, 74 — ventral view; 70, 73 — rear view. Scale lines: 100 μm. Abbreviations as explained in the text under "Terminology".



Figs 75–85. Spemathecae and carapaces of *Yllenus* spp.: 75–76 — schematic course of spermathecal channels in *Yllenus* spp.; 77 — *Y. kalkamanicus* (♂), lateral view; 78 — *Y. arenarius* (♂), lateral view; 79 — *Y. turkestanicus*; 80 — *Y. flavociliatus*; 81 — *Y. knappi*; 82 — *Y. validus*; 83 — *Y. squamifer*; 84 — *Y. robustior*; 85 — *Y. tuvinicus*. Scale lines: 1 mm (77–78), 0.1 mm (79–85). Abbreviations as explained in the text under "Terminology".

ent species groups (Maps 3–5), three main conclusions can be drawn: (1) all groups show their main centers of diversity either in the Turan, or in the Gobian Province; (2) no representatives of the *arenarius* and *hamifer* groups are known from the Mediterranean Subregion, the Arabian Peninsula and Sahara, only the members of the *albocinctus* groups have so far been recorded there (Maps 2–3); and (3) the Tibetan center of diversity (8 species) is formed by representatives of the *hamifer* group only (Maps 2, 5). It is necessary to note that the Mediterranean and Saharan faunas of *Yllenus* remain poorly studied as compared to those of Middle and Central Asia and therefore their actual diversity may be higher.

It is common knowledge that the modern centers of diversity and endemism rarely coincide with the regions where a taxon originated, but as all the described species of *Yllenus* are

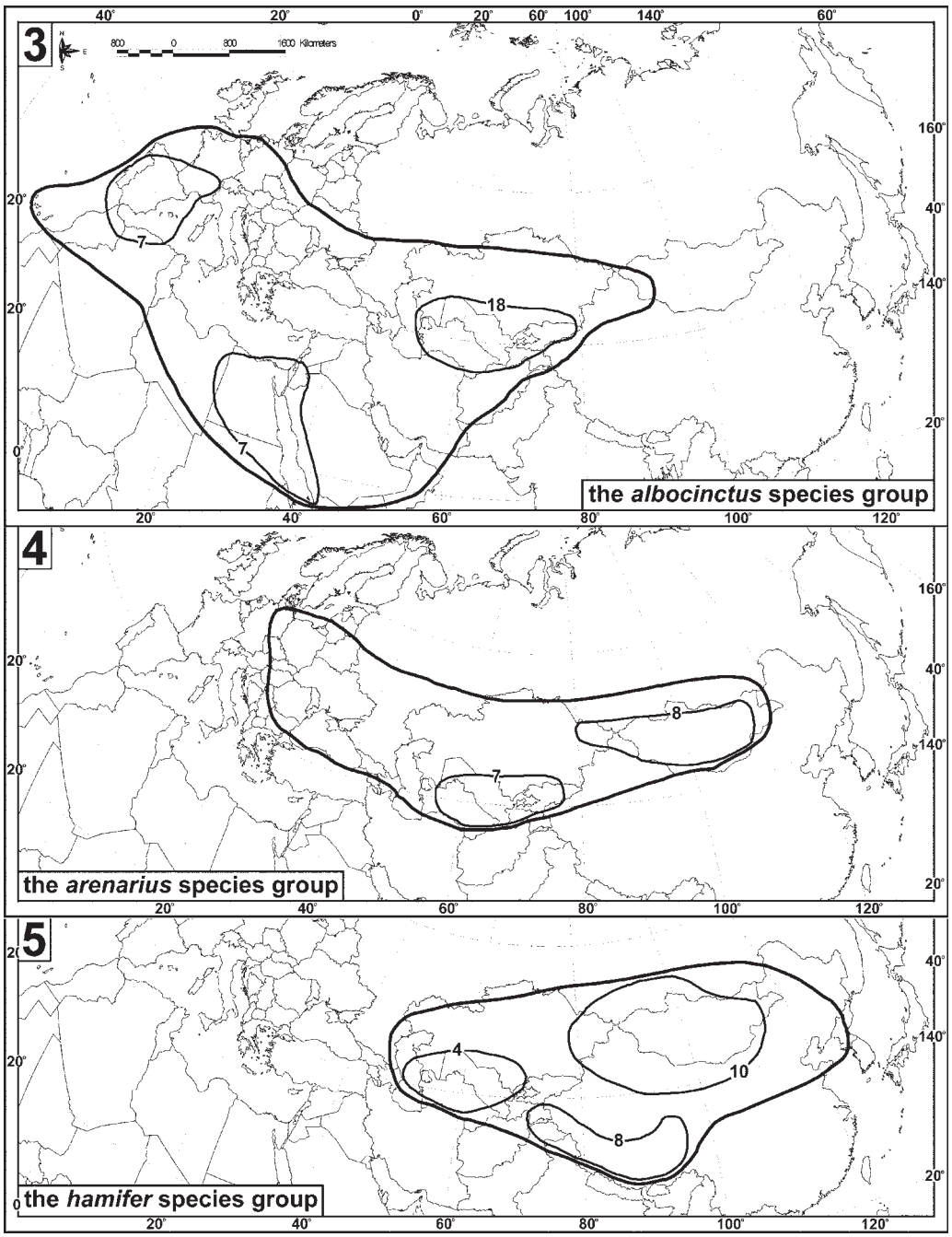


Maps 1–2. Distribution of the genus *Yllenus* (1) and its main modern centers of diversity (2). Each figure shows the number of species occurring within the outlined area.

known to occur in (semi)arid habitats (steppes, deserts, sandy shores, dunes, *etc*.) and appear to be naturally associated with these ecosystems, it is relatively safe to assume that *Yllenus* originated from one or two of its present centers of diversity, most probably from the Turan or Turan and Gobian Provinces (Map 2). Further evidence in favour of this assumption is: (1) both Turan and Gobian centers of diversity cover ca 70% of a total species diversity of *Yllenus*, with representatives of all the three species groups occurring there; (2) not less than 28–30 species (*i.e*. ca 46% of the total diversity of the genus) from these centers have a restricted distribution and almost beyond doubt are endemics; and (3) both Turan and Gobian centers lie in the so-called Iran-Central Asian authochtonous center, where much of the ancestral arid biota of the Palaearctic Region originated [see Emeljanov, 1971].

Natural history

Available information about habitat preferences is given below under each species, but it



Maps 3–5. Distribution of the three species groups of *Yllenus* and their modern centers of diversity. Each figure shows the number of species occurring within the outlined area.

is clear that all *Yllenus* species prefer the (semi)desert and steppe ecosystems, as well as sand dune intrasonal habitats. For two species, *Y. dunini* sp.n. and *Y. guseinovi* sp.n., some data on their phenology and a prey spectrum are available (see below). One species, *Y. arenari-*

us, is now being studied regarding its autecology [Bartos, 2002a,b]. It is interesting to note that the latter species demonstrated a clear digging behavior for making unusual silken nests under sand [Bartos, 2002b]. If it is correct for other *Yllenus* species, this could explain the differences in the structure of the claw tufts between two first and two last pairs of legs in all studied species (Figs 34–39; see above); dense brushes of setae and stronger claws on legs I–II, as well as the stronger legs I–II themselves, seem to be the adaptations for digging activity.

Key to the species groups of *Yllenus*

1. Males **2**
—. Females **4**
2. Cymbium and tibial apophysis massive (Figs 46–47), the CTA massive and bent (nearly clamp-shaped) (Figs 55–56) .... **the *arenarius* group**
—. Cymbium and tibial apophysis otherwise (Figs 49–51), the CTA straight (Figs 48, 54) or crescent-shaped (Figs 42, 406, 416) **3**
3. Cymbium strongly extended (Fig. 51), the embolus very long and whip-shaped (Figs 42, 406), palpal tibia with a single apophysis (Fig. 52) ..... **the *hamifer* group**
—. Cymbium not extended (Fig. 49), the embolus relatively short, never whip-shaped (Figs 48, 54), palpal tibia often with two apophyses (Fig. 44) .... **the *albocinctus* group**
4. Epigyne and spermathecae massive and heavily sclerotized, receptacles not marked (Figs 79, 80) ..... **the *arenarius* group**
—. Epigyne and spermathecae poorly sclerotized, receptacles always well-marked (Figs 81–85) **5**
5. Insemination ducts comparatively long, transparent and strongly coiled (Figs 84–85) ..... **the *hamifer* group**
—. Insemination ducts comparatively short, straight or bent (if coiled, making no more than one resolution) (Figs 81–83) .... **the *albocinctus* group**

Survey of species

The *albocinctus* species group

Diagnosis. All species included in this group are distinguished by the relatively small (as compared to *Yllenus* species from two other groups) cymbium of common shape (Figs 49, 130, 146, *etc*.), two tibial apophyses on palps (Figs 44, 159, 185, *etc*.) and the embolus and the CTA relatively short and subequally developed (Figs 48, 54) in males, and the simple spermathecae, with the short straight or bent insemination ducts and the ovoid/rounded receptacles (Figs 81–83) in females.

Altogether, 29 species are included in the *albocinctus* group, of which 14 are described hereinafter as new.

Distribution. From W. Mediterranean (Macaronesian Islands and Pirenean Peninsula) through N. Africa, Arabian Peninsula to Central Asia (Map 3); main center of diversity lies in the Turan Province.

Yllenus albifrons (Lucas, 1846)

Figs 86–97, 172–173, Map 7

Salticus albifrons Lucas, 1846: 172, pl. 9, fig. 9 (D♀; the holotype was lost, the ♂ neotype designated here; deposited in the MNHN).

Attus albifrons: Simon, 1868: 618 (T from *Salticus*).

Attulus albifrons: Simon, 1901: 591 (T from *Attus*); Reimoser, 1919: 105.

Yllenus squamifer (*nec* Simon; misidentified): Prószyński & Lubin, 1993 (*pro parte*): 285–287, 290; Prószyński, 2003: 174–175.

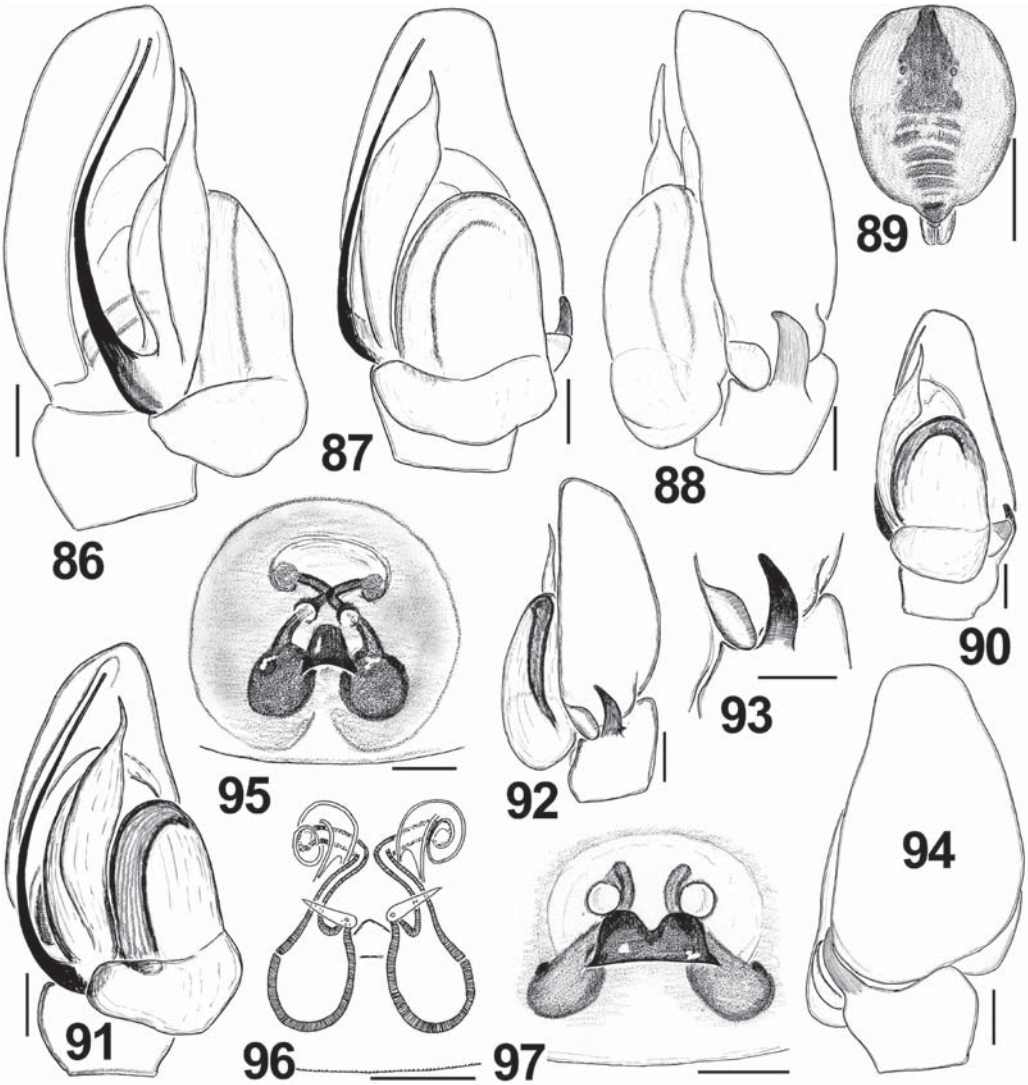
Type. The male neotype (designated here) from Zemmouri (ca 36°46'N, 3°35'E), Algeria; deposited in the MNHN.

Derivatio nominis. The species epithet is derived from the Latin, meaning "white-foreheaded" (or white-faced, with a white anterior stripe).

Diagnosis. *Y. albifrons* is most similar to *Y. squamifer*, from which males can be separated by the wider and slightly stronger RTA, the narrower cymbial process and the absence of contrasting palpal colouration (cf Figs 88, 93 and 244, 246); the females of *Y. albifrons* can be readily separated by the smaller and more closely situated receptacles, as well as the proportions and arrangement of the insemination ducts (cf Figs 96 and 252). This species might also be confused with *Y. salsicola*, but can be easily distinguished by the wider CTA, the narrower and less bent VTA (cf Figs 86 and 235) and especially by the less coiled insemination ducts (cf Figs 96 and 241). See also comments under "Diagnosis" of *Y. gavdos* sp.n., *Y. halugim* sp.n., *Y. tschoni* and *Y. pavlenkoae* sp.n.

Comments. The male designated herein as the neotype of *Yllenus albifrons* was collected from Algeria, ca 40 km E of Alger, while Lucas' specimen was derived from Lac Tonga which lies to the north-east of the Tunisian frontier. Although the above localities are relatively distant from each other, both lie in N. Algeria. Besides, the neotype was collected in sandy dunes (R. Bosmans, personal communication), the common landscape around Lake Tonga as well. There are no doubts the newly collected male belongs to the species described by Lucas [1846] and therefore to stabilise the taxonomic status of the Lucas' species we are designating this male as the neotype (deposited in the MNHN).

It is necessary to note that *Y. albifrons* was redescribed by Prószyński [1968] on the basis of a single female (Sic!, not the type!) from SE Libya (El Kufra Highland), reasoning from the earlier identification by Caporiacco. The female from Libya (Sic!, not the type) re-described by Punda [1975] (this specimen has been re-examined by us) was also based on the earlier identification by Caporiacco. Although the females from Libya identified by Caporiacco [1933] as *Y. albifrons* (see also Punda [1975] and Prószyński [1968]) are similar to the females of true *Y. albifrons*, they clearly differ in the length of the insemination ducts and proportions of the receptacles (cf Figs 96 and 234) and actually belong with *Y. saliens* (see below). Thus, both above redescriptions [Punda, 1975; Prószyński, 1968] cannot be treated as those of *Y. albifrons*. The original specimen of Lucas (1 ♀ from Lac Tonga, Algeria; see Lucas [1846: 172]) no longer exists and we are therefore designating the neotype for this species name (see above).



Figs 86–97. Copulatory organs and somatic characters of *Yllenus albifrons*: 86, 91 — ♂ bulb, median view; 87, 90 — ditto, ventral view; 88, 92–93 — ditto, lateral view; 89 — ♀ dorsum; 94 — ditto, rear view; 95, 97 — epigyne; 96 — spermathecae. Specimens: 86–88, 94 — the neotype; 89–93 — Tunisia, Nezafrana. Scale lines: 0.1 mm (86–88, 90–97), 1 mm (89).

Y. albifrons shows a strong variation in the structure of the female copulatory organs, especially of the epigynal pocket, which may be either bell-shaped (Fig. 95), or (much more often) looking like two separated pockets fused together (Fig. 97); the structure of the spermathecae remains more or less stable (Fig. 96).

DESCRIPTION

Male (from Nefza, Tunisia)

Measurements. Carapace 1.95 long, 1.73 wide, 1.08 high at PLE. Ocular area 1.03 long, 1.31 wide anteriorly and 1.60 wide posteriorly. Diameter of AME 0.38. Abdomen 1.95 long, 1.53 wide. Cheliceral length 0.60. Clypeal height 0.23.

Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.14	0.73	0.73	0.53	0.40	3.53
II	0.94	0.56	0.55	0.38	0.36	2.79
III	0.88	0.50	0.45	0.45	0.38	2.66
IV	1.76	0.88	0.88	0.60	0.40	4.52

Leg spination: Leg I: Fm d 0-1-1-2; Pt pr 0-1-0; Tb pr 0-1, v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-1-1-3; Pt pr 0-1-0; Tb pr 1-1, v 1-1; Mt v 2-2ap. Leg III: Fm d 0-0-1-1; Pt pr and rt 0-1-0; Tb d 0-1, pr and rt 1-1, b 1ap; Mt pr and rt 1-2ap. Leg IV: Fm d 1-0-1-3; Pt pr and rt 0-1-0; Tb d 1-0, pr and rt 1-1-1; Mt pr and rt 1-2ap.

Coloration. Carapace brown, covered with white and yellowish appressed scales; black around eyes. Clypeus yellowish brown, covered with white scales and hairs. Sternum yellow, with brown margins and covered with white scales/hairs. Maxillae and labium yellow. Chelicerae brown. Abdomen yellow, with a median brown band on dorsum and declined brown stripes on sides. Book-lung covers yellow, covered with white scales. Spinnerets yellow. All legs, with brownish patches and annulations, but femora, tibiae and tarsi I brown (patellae I dark brown). Palps yellow, with brownish bulbous. The RTA longer than wide, slightly bent ventrally; the cymbial process rounded or elongated, shorter than the RTA; the embolus whip-shaped, slightly longer than the cymbium; the CTA lamella-shaped, relatively wide and ended by a spur-shaped tip, it is almost as long as the embolus.

Palpal structure as in Figs 86–94, 172–173; the RTA longer than wide, slightly sharpened and directed anteriad; the cymbial process rounded; the embolus whip-shaped, slightly longer than the cymbium; the CTA lamella-shaped, relatively wide, with a spur-shaped tip, it is almost as long as the embolus.

Female (from Nefza, Tunisia)

Measurements. Carapace 1.98 long, 1.80 wide, 1.15 high at PLE. Ocular area 1.05 long, 1.30 wide anteriorly and 1.65 wide posteriorly. Diameter of AME 0.43. Abdomen 3.38 long, 2.60 wide. Cheliceral length 0.63. Clypeal height 0.23. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.08	0.68	0.60	0.36	0.33	3.05
II	0.88	0.50	0.50	0.33	0.33	2.54
III	0.88	0.43	0.43	0.43	0.36	2.53
IV	1.81	0.88	0.90	0.60	0.40	4.59

Leg spination: Leg I: Fm d 1ap; Tb v 2-2ap; Mt v 2-2ap. Leg II: Fm d 1ap; Tb v 1-1; Mt v 2-2ap. Leg III: Fm d 1ap; Pt pr 0-1-0; Tb pr 1-1; Mt pr and rt 1-2ap, v 1-1ap. Leg IV: Fm 4ap; Pt pr and rt 0-1-0; Tb d 1-0, pr and rt 1-1-1; Mt pr and rt1- 2ap, v 1-1ap.

Coloration. As described for male, but slightly lighter and all legs completely yellow.

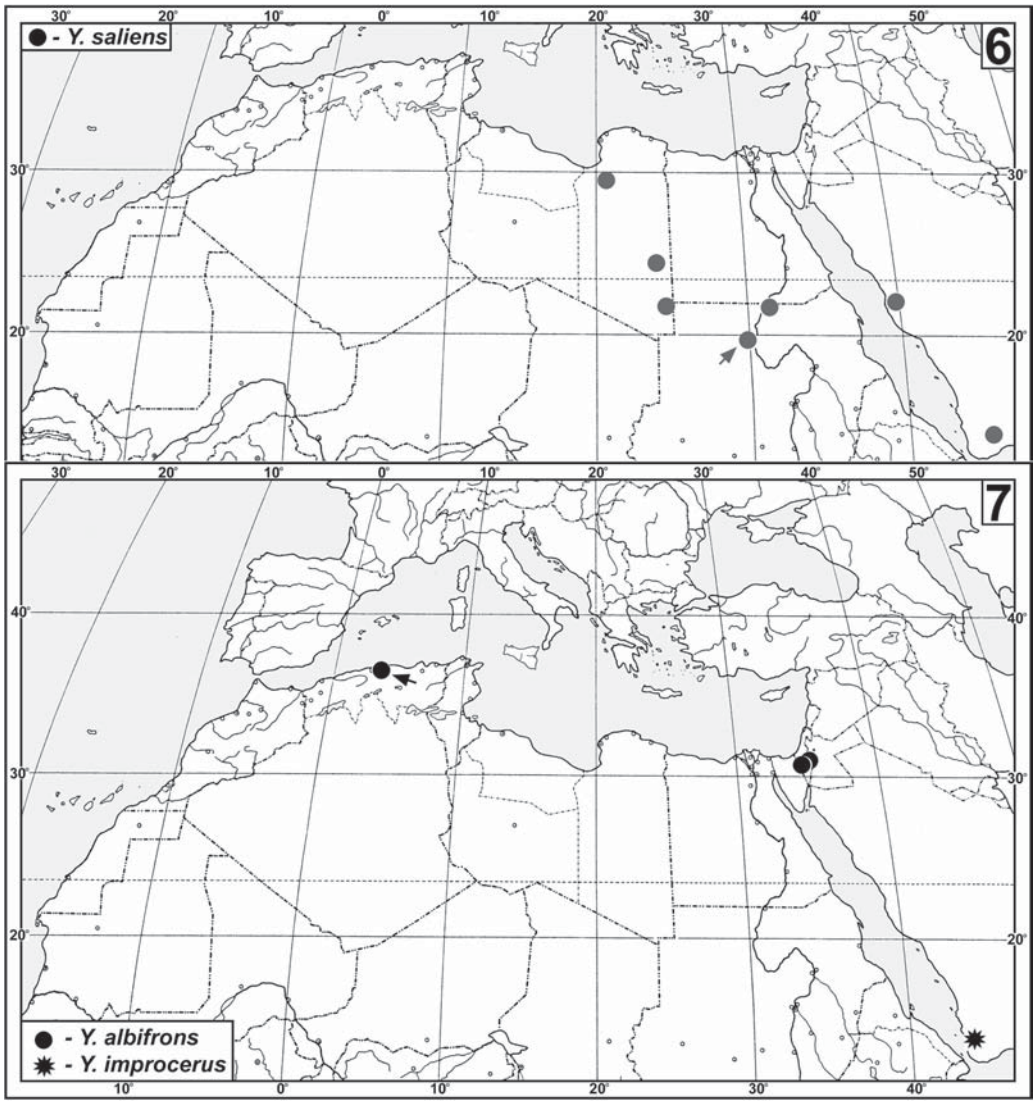
Epigyne and spermathecae as in Figs 95–97; a shape of the epigynal pocket and X-shaped insemination ducts are highly characteristic; the epigynal pocket bell-shaped, separated from epigastric furrow by more than twice its height; the copulatory openings rounded, separated from each other by less than their diameter; the insemination ducts form a X-shaped figure, weakly sclerotised, and make a single revolution; the receptacles ovoid, higher than wide, separated by about half their width.

Material examined. ALGERIA: 1 ♂ (MNHN; the neotype, designated here) (hitherto det. by J. Prószyński as *Y. squamifer*), ca 40 km E of Alger, Boumerdes, Zemmouri (ca 36°46'N, 3°35'E), 5.10. 1984, R. Bosmans. — ISRAEL: 1 ♂ (HUJI; hitherto det. by J. Prószyński as *Y. squamifer*), Kalia, Dead Sea, 1935 (?), A. Shulov; 4 ♀♀ (HUJI; 15246–15249; hitherto det. by J. Prószyński as *Y. squamifer*), Be'er Mash'abbim, 10.04–8.07.1992, Y. Lubin; 1 ♀ (HUJI; 15237), same locality, 4.10.1992, Y. Lubin. — TUNISIA: 1 ♂, 2 ♀♀ (MNHN, 22508a), "Nefzana (Vibert)" [Nefza on modern maps].

Habitat. In Israel, sand dunes (drifting sands) and wadis [Prószyński & Lubin, 1993: sub *Y. squamifer*].

Distribution. This species occurs in N. Africa and the Near East (Map 7).

The records of *Attulus albifrons* from Libya (Hattìa di Gur Atta near Gialo and El Kufra Highland) by Caporiacco [1933] (see also redescriptions by Punda [1975] and by Prószyński [1968] belong to *Y. saliens*. Caporiacco [1933, 1936] twice mentioned that *Attulus albifrons* occurs in Spain and Tunisia; the sources of these records are unknown to us and the records themselves are not taken into consideration here. Most of the records of *Y. squamifer* from Israel [Prószyński & Lubin, 1993; Prószyński, 2003] belong to *Y. albifrons* (Prószyński's specimens re-examined) though a few belong to *Y. halugim* sp.n. (see below).



Maps 6–7. Distribution of *Yllenus* species: 6 — *Y. saliens* in NE Africa and the Arabian Peninsula; 7 — *Y. albifrons* in N. Africa and *Y. improcerus* in the Arabian Peninsula. One dot may represent more than one close locality; if more than one record, type localities arrowed.

Yllenus albocinctus (Kroneberg, 1885)

Figs 19–24, 27, 29, 31, 34–35, 48–50, 58–59, 73–74, 98–109, Map 8

Attus albo-cinctus Kroneberg, 1875: 49, pl. 5, figs 36 (D♀; ♀ lectotype in the ZMUM, examined).
Attulus albocinctus Simon, 1901: 581 (T from *Attus*).
Yllenus albocinctus Kulczyński, 1895: 12–15, fig.5; Wierzbicki, 1902: 487; Reimoser, 1919: 193 (T from *Attulus*); Charitonov, 1932: 185; Roewer, 1954: 1252; Bonnet, 1959: 4904; Prószyński, 1968: 463, figs 25, 38, 52, 66, 136–143 (♂♀), 1982: 290–292, fig. 48, 1990: 362; Ponomarev, 1978: 96, fig. 2 (♂♀); Minoranskii & Ponomarev, 1984: 90; Nenilin, 1984a: 32, 1985: 131; Pavlenko, 1985 (*pro parte*): 149; Hu & Wu, 1989: 396, figs 308.1–2, 312 (♀); Mikhailov & Fet, 1994: 518; Zyuzin *et al*., 1994: 7; Mikhailov, 1996: 134, 1997: 224; Song *et al.*, 1999: 563, figs 322R, 323I, 324A–B (♂♀); Logunov & Marusik, 2000b: 248–249, map 40.

Type. The female lectotype from Samarkand (ca 39°40'N, 67°00'E), Uzbekistan; deposited in the ZMUM.

Derivatio nominis. The species epithet is derived from the Latin, meaning "with a white thin rim" (with a white girdled stripe).

Diagnosis. By the body colouration and the structure of the male bulbus, this species is similar to *Y. dalaensis* sp.n., but can be readily distinguished from it by the stronger and higher RTA and the different shape of the cymbial process (cf Figs 100 and 146), as well as the colouration of the first legs, with contrastingly coloured legs I (yellow patellae + dark brown colours) (both segments brownish yellowish in *Y. dalaensis* sp.n.). The females of *Y. albocinctus* have a unique structure of the copulatory organs and are separable from all other species known to us by the epigynal pocket which is bell-shaped and situated in immediate proximity to the epigastric furrow (Figs 102–103) and the sclerotized insemination ducts forming a X-shaped figure (Figs 101, 104).

DESCRIPTION

Male (from Kokand, Uzbekistan)

Measurements. Carapace 2.00 long, 1.60 wide, 1.18 high at PLE. Ocular area 0.95 long, 1.30 wide anteriorly and 1.48 wide posteriorly. Diameter of AME 0.43. Abdomen 1.88 long, 1.45 wide. Cheliceral length 0.50. Clypeal height 0.15. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.08	0.60	0.65	0.50	0.40	3.23
II	0.90	0.58	0.45	0.45	0.38	2.76
III	1.10	0.55	0.45	0.56	0.43	3.09
IV	1.43	0.70	0.64	0.65	0.45	3.87

Leg spination: Leg I: Fm d 1-1-1-1; Pt pr 0-1-0; Tb pr 0-1, v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-1-1-2; Pt pr and rt 0-1-0; Tb pr 1-1, v 1-1-2ap; Mt v 2-2ap. Leg III: Fm d 1-1-2; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 2ap; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 1-1-1; pt pr and rt 0-1-0; Tb pr 1-1, rt 1-1-1, v 2ap; Mt pr and rt 1-2ap, v 2ap.

Coloration. Carapace light brown, densely covered with black appressed scales, with two white patches of scales behind PLEs. Eye field anteriorly and on sides with white interrupted lines formed by scales (Fig. 108). Clypeus brownish yellow, with sparse blackish hairs. Sternum yellow-brown, covered with white hairs. Maxillae, labium and chelicerae yellowish brown. Abdomen dark: dorsum and sides brownish grey, with two transverse white bands and a couple of spots near spinnerets (Fig. 108); venter yellowish grey. Book-lung covers yellow, covered with dark hairs. Spinnerets yellow-brown. All legs yellow, with numerous brown patches and spots and covered with white-black protruding hairs and appressed white scales; tibia I dark brown (contrasting to other segments). Palps yellow, with brownish bulbus.

Palpal structure as in Figs 48–50, 58–59, 98–100; the size and shape of the RTA is very characteristic, it is very wide and ridge-shaped (with two angles); the cymbial process is triangular and curved anteriorly; the embolus rather thick and straight; the CTA straight, as thick as the embolus and is subparallel to it.

Female (from Kokand, Uzbekistan)

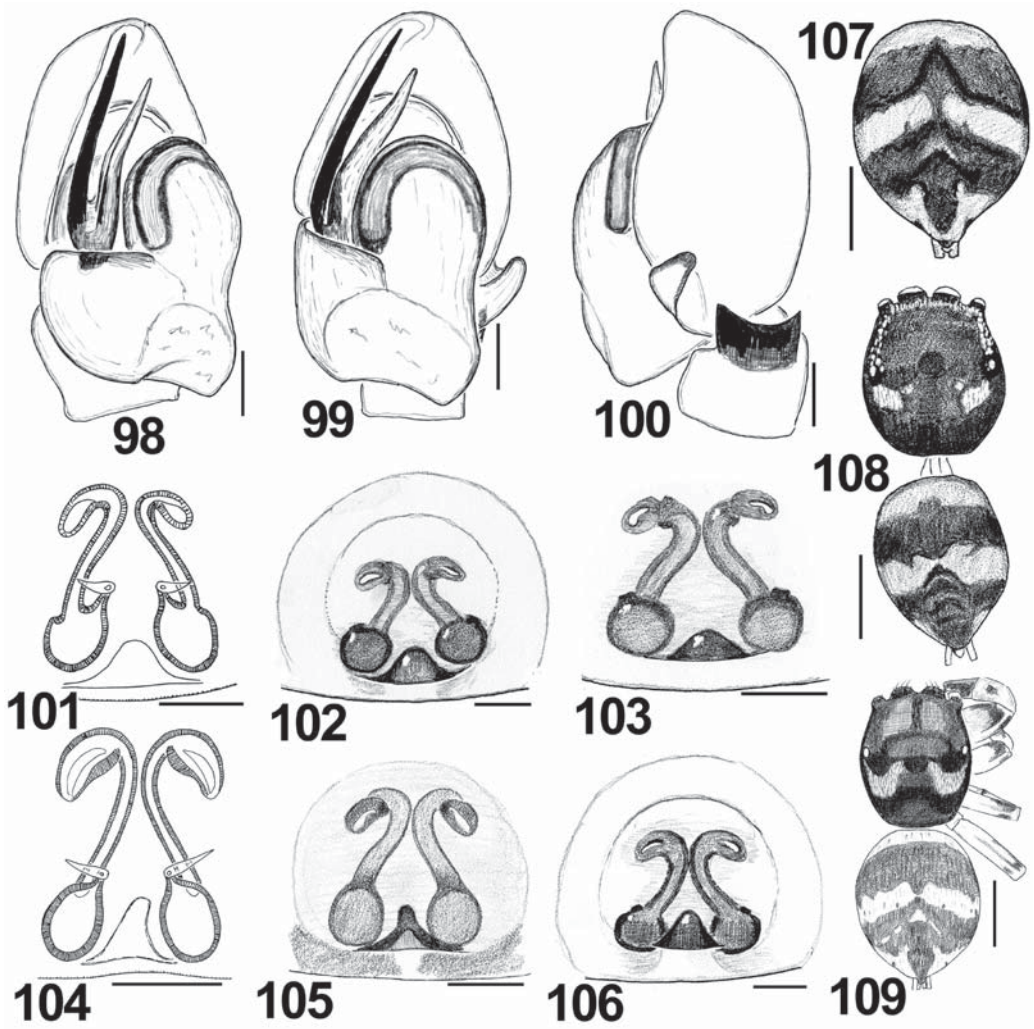
Measurements. Carapace 2.40 long, 1.88 wide, 1.18 high at PLE. Ocular area 1.11 long, 1.48 wide anteriorly and 1.71 wide posteriorly. Diameter of AME 0.48. Abdomen 2.88 long, 2.18 wide. Cheliceral length 0.58. Clypeal height 0.20. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.20	0.70	0.66	0.50	0.40	3.46
II	1.00	0.60	0.58	0.45	0.40	3.03
III	1.28	0.58	0.53	0.60	0.48	3.47
IV	1.73	0.75	0.83	0.75	0.55	4.61

Leg spination: Leg I: Fm d 0-1-1; Tb v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-1-1-1; Pt pr 0-1-0; Tb pr 1-1, v 1-1-2ap; Mt v 2-2ap. Leg III: Fm d 1-0-1; Pt pr 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1-1ap. Leg IV: Fm d 1-0-1; Pt pr and rt 0-1-0; Tb pr 1-1, rt 1-1-1, v 1ap; Mt pr and rt 1-2ap, v 1ap.

Coloration. As described for male, but lighter; the coloration differs as follows: eye field with no white interrupted lines but entirely motley (black + white + red appressed scales) (Fig. 107, 109); tibia I less contrasty than other segements; clypeus with a small triangular patch of white hairs; book-lungs yellow but covered with white hairs.

Epigyne and spermathecae as in Figs 73–74, 101–106; epigyne is rather variable, the epigynal pocket funnel-shaped to bell-shaped, much wider than high and lies close to the epi-



Figs 98–109. Copulatory organs and somatic characters of *Yllenus albocinctus*: 98 — ♂ bulb, median view; 99 — ditto, ventral view; 100 — ditto, lateral view; 102–103, 105–106 — epigyne; 101, 104 — spermathecae; 107, 109 — ♀ dorsum and general appearance; 108 — ♂ general appearance. Specimens: 98–100, 108 — Uzbekistan, Babatagh Mt. Range; 101 — Uzbekistan, Kokand; 102 — the ♀ lectotype; 103 — Uzbekistan, Sultanbent; 104–105 — Turkmenistan, Nargyz Isl.; 106–107 — Tajikistan, Garavuti; 109 — Kyrghyzstan, Toktogul Reservoir. Scale lines: 0.1 mm (98–106), 1 mm (107–109).

gastric furrow, it can be either larger or smaller than the receptacles; the copulatory openings slit-shaped, transverse, separated by my more than the diameter of a receptacle; the spermathecae rather sclertotized; the insemination ducts touching each other on the level of the copulatory openings and forming a kind of X-shaped figure; the receptacles rounded or droplet-shaped, separated by about a single diameter.

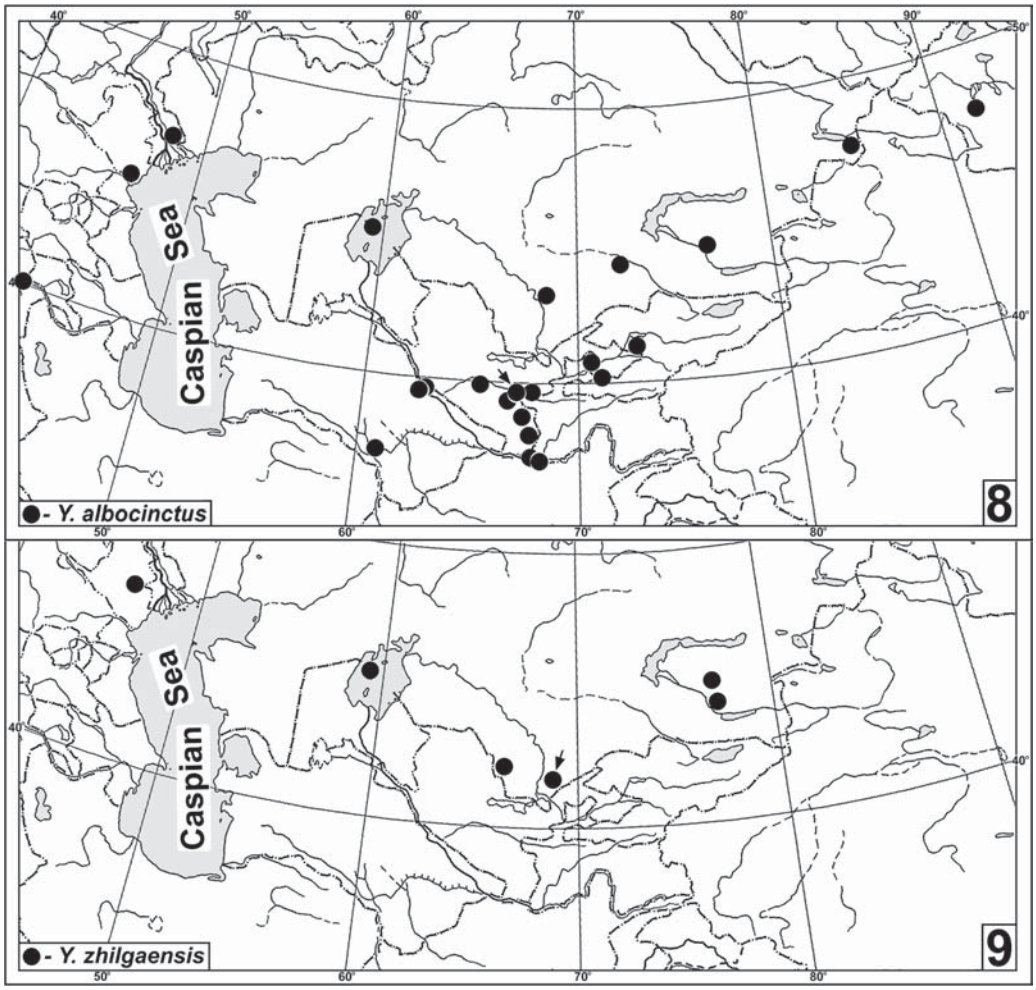
Material examined. ARMENIA: 1 ♀ (MCZH, 43656), "Armenia, Kulczyński" {no exact locality, but it may be Aralik (39°52'N, 44°30'E), now in Turkey, from where Kulczyński [1895] recorded *Y. albocinctus*, see below}. — RUSSIA: 1 ♂ (palpless), 2 ♀♀ (ZMUM), Kalmykiya, Chernozemel'sk Distr., ca 40 km SSW of Komsomol'skii, near Rybachii (44°59'N, 45°51'E), 23.06.1974, A. V. Ponomarev; 1♀ (MMUM), Astrakhan' Area, Krasnyi Yar Distr., ca 40 km NNW of Astrakhan', near Aksa-

raiskii (bifurcation of the railway) (46°47'N, 48°01'E), 26–28.05.1996, V. V. Dubatolov & I. I. Lyubechanskii. — KAZAKHSTAN: 1 ♀ (ZMUM), Almaty Area, Balkhash Distr., near Bakanas (ca 44°49'N, 76°16'E), 19.05.1982, V. Linskii; 1 ♂, 2 ♀♀ (MMUM), Kyzyl-Orda Area, Aral'sk Distr., Aral Sea, Barsakel'mes Isl. (ca 45°41'N, 59°55'E), 14.07.1984, T. V. Pavlenko; 1 ♀ (ZISP), same locality, summer 1984, D. O. Eliseev; 1 ♀ (MMUM), South-Kazakhstan [=Shymkent, Chimkent] Area, Arys' Distr., near Arys' (ca 42°25'N, 68°50'E), 7.09.1987, D. V. Logunov; 1 ♀ (MMUM), same locality, clay ravine (in crevices), 21.05.1989, D. V. Logunov; 1 ♀ (SZMN), Zhambyl [=Taraz, Dzhambul] Area, Moiynkum Distr., near Karabuget (ca 44°37'N, 72°05'E), 29.06.1989, A. A. Zyuzin; 1 ♀ (MMUM), East Kazakhstan Area, Zaisan Distr., ca 20 km NE of Karatal, Bozaigyrkum sands (ca 47°44'N, 85° 22'E), 12–13.06.1997, R. Yu. Dudko & V. K. Zinchenko. — UZBEKISTAN: 1 ♀ (the lectotype of *Attus albocinctus*, designated here), 2 ♀♀, 1 ♂ palpless (paralectotypes) (ZMMU, Ta-1043), Samarkand Area, Samarkand Distr., Samarkand (ca 39°40'N, 67°00'E), 1868, A. P. Fedchenko; 1 ♀ (ZMUM), same area, Urgut Distr., near Khodzhaduk [=Khodzhadok] (ca 39°23'N, 67°06'E), 21.05.1969, A. P. Fedchenko; 1 ♀ (ZMUM, Ta-1035; the paralectotype of *Attus albocinctus*), Fergana [=Fargona] Area, Fergana [=Fargona] Distr., near Shakhimardan (ca 39°59'N, 71°48'E), 07.1871, A. P. Fedchenko; 2 ♂♂, 3 ♀♀ (MMUM), same area, Yaz'yavan [=Ezevon] Distr., ca 48 km ENE of Kokand (40°37'N, 71°32'E), 17.05.1994, D. A. Milko; 1 ♀ (MMUM), Bukhara [=Bukhoro] Area, Bukhara [=Bukhoro] Distr., ca 33 km SE of Bukhara [=Bukhoro], ca 20 km SE of Kagan [=Kogon], near *Gazella subgutturosa* nursery (39°35'N, 64°43'E), 19.05.1994, A. A. Zyuzin; 2 ♂♂, 1 ♀ (ZMUM), same locality, 19.05.1999, S. V. Ovtchinnikov; 1 ♀ (SMNH), Surkhandarya Area, Baisun [=Boisun] Distr., ca 2 km W of Derbent, (38°13'N, 66°59'E), 15.05.1994, A. V. Gromov; 1 ♀ (ZMUM), Surkhandarya Area, Uzun Distr., ca 7 km SE of Denau [=Denov], Surkhandarya River (right riverside) (38°12'N, 67°58'E), 11.05.1994, A. V. Gromov; 1 ♂ (SMNH), same area and district, 40–47 km SE of Denau, E slope of Babatagh Mt. Range, ca 4 km W of Akmechet' [=Okmachit] (38°03'N, 68°17'E), 5–13.05.1994, A. A. Zyuzin. — TURKMENISTAN: 1 ♂ (ZMUM), Chardzhou [=Lebapskii] Area, Deinau Distr., near Deinau (ca 39°16'N, 63°11'E), 28.05.1929, V. I. Sychevskaya [=Pereleshina]; 1 ♂, 1 ♀ (ZMUM), Mary Area, Iolotan' Distr., near Sultanbent (ca 37°08'N, 62°27'E), 31.05.1929, V. I. Sychevskaya [=Pereleshina]; 1 ♀ (ZMUM), 1 ♀ (ZMUM), Lebap [=Chardzhou] Area, Farab Distr., Amudarya Reserve, Amudariya River, Nargyz Island, [ca 39°40'N, 62°51'E], 12.04.1983, S. K. Alexeev. — KYRGHYZSTAN: 1 ♀ (MMUM), Jalal-Abad Area, Toktogul Distr., near Toktogul Reservoir, ca 7 km SE of Torkent (ca 41°49'N, 73°11'E), 3.06.1993, S. V. Ovtchinnikov. — TAJIKISTAN: 1 ♀ (MMUM), Kurgan-Tyube Area, Dzhilikul' Distr., Vakhsh River valley, near Garavuti [=Garauty] (ca 37°33'N, 68°23'E), 22.05.1974, A. P. Kononenko; 1 ♀ (SZMN), same area, Kumsangirskii Distr., Dusti (ca 37°21'N, 68°41'E), 28.04.1991, S. V. Ovtchinnikov. — MONGOLIA: 1 ♀ (HNHM, No.614), Khovd Aimak, Somon Uench (ca 46°12'N, 92°08'E), 1450 m a.s.l., 2–3.07.1966, Exp. Z. Kaszab.

Habitat. In Kalmykiya, steppe with *Tamarix* sp. [present data]; in Kazakhstan, steppe and (semi)desert habitats, where the species occurs in *Tamarix* thickets [present data]; in Turkmenistan, on *Alhagi* sp. [present data].

Distribution. This is a rather widely distributed Central Asian species known from Armenia/Turkey to W. Mongolia (Map 8).

Kulczyński's [1895] record from Aralich, Armenia, was mentioned by Wierzbicki [1902] and Charitonov [1932], and later by Prószyński [1968] who re-examined Kulczyński's ♀ specimen. We also re-examined this female. These records should be referred to Aralik (39°52'N, 44°30'E), now in Turkey. The two records from Tajikistan, *viz*. Tigrovaya Balka (Lake Maloe Kabanie) and Sabzikharv Vil. (Obi-Khingou River on Peter-the-Great Mt. Range), by Andreeva [1975, 1976] were based on immature females and need confirmation; neither of these localities were mapped. This species was also reported from the Absheron Peninsula [Dunin, 1984], but this record needs confirmation by examination of the pertinent material, as no specimen of *Y. albocinctus* has been located among Dunin's Caucasian collection of the Salticidae kept in the ZMUM [see Logunov & Guseinov, 2002]. It is very likely that Dunin [1984] actually dealt with *Y. aralicus* sp.n. reported recently by Logunov & Guseinov [2002] as *Yllenus* sp.-2. Pavlenko's [1985] specimens from Barsakel'mes were re-examined; some of her records belong to *Y. guseinovi* sp.n.



Maps 8–9. Distribution of *Yllenus* species: 8 — *Y. albocinctus* in Central Asia and the Caucasus; 9 — *Y. zhilgaensis* in Central Asia. One dot may represent more than one close locality; if more than one record, type localities arrowed.

Yllenus algarvensis sp.n.

Figs 110–114, Map 10

Type. The male holotype from Monte Gordo (ca 37°10'N, 7°27'W), Portugal; deposited in the AMNH.

Derivatio nominis. The specific name refers to the type locality, Algarve in Portugal.

Diagnosis. This species is most closely related to *Y. caspicus*, but can be readily distinguished by the thinner, longer and less curved RTA (cf Figs 111–112 and 130), the wider CTA and the proximal part of the tegulum (cf Figs 110 and 128); also, *Y. algarvensis* sp.n. has contrastingly coloured legs (femora and tibiae dark brown, patellae yellow; Fig. 114) (yellow with brown patches in *Y. caspicus*).

DESCRIPTION

Male (the holotype)

Measurements. Carapace 1.93 long, 1.73 wide, 1.00 high at PLE. Ocular area 1.08 long, 1.29 wide anteriorly and 1.40 wide posteriorly. Diameter of AME 0.39. Abdomen 1.88 long, 1.55 wide. Cheliceral length 0.63. Clypeal height 0.15.

Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.16	0.70	0.70	0.53	0.40	3.49
II	1.09	0.64	0.58	0.48	0.38	3.17
III	1.21	0.58	0.58	0.60	0.50	3.47
IV	1.58	0.78	0.83	0.63	0.53	4.35

Leg spination: Leg I: Fm d 0-0-1; Tb v 0-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-0-1; Tb pr 0-1, v 0-1-0; Mt v 2-2ap. Leg III: Fm d 0-0-1; Tb pr and rt 1-1; Mt pr and rt 2ap. Leg IV: Fm d 0-0-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1; Mt pr and rt 2ap; Tr rt 0-1-0.

Coloration. Carapace dark brown, black around eyes; carapace covered with white and reddish appressed scales (but the specimen is rather shabby). Clypeus brown, covered with reddish scales and with a fringe of long white hairs on its low margin (Fig. 114). Sternum dark brown, covered with white scale and hairs. Labium and maxillae brownish yellow. Chelicerae brown. Abdomen: dorsum and sides dark grey, covered with white scales; venter brownish yellow, covered with white scales. Book-lung covers brownish yellow, covered with white scales. Spinnerets yellow. Legs: femora and tibiae brown, remaining segments yellow (but patellae I brown ventrally). Palps yellow (Fig. 114).

Palpal structure as in Figs 110–113; the palpal femur prolaterally with an elongate basal brown patch and dark brown stripe along its dorsal surface; the RTA relatively long, finger-shaped, the VTA cone-shaped; the cymbial process large and oval; the embolus almost straight, it is somewhat shorter than the cymbium; the CTA straight, slightly wider than the embolus, with its tip bent.

Female. Unknown.

Material examined. Holotype: 1 ♂ (AMNH), Portugal, Algarve, Faro Prov., Monte Gordo (ca 37°10'N, 7°27'W), 9–12.04.1982, J. Murphy.

Habitat. In Portugal, dunes [present data].

Distribution. The type locality only (Map 10).

Yllenus bactrianus Andreeva, 1976

Figs 115–120, Map 13

Yllenus bactrianus Andreeva, 1976: 91, figs 127–128 (D♀; ♀ holotype in the ZMPA; not examined).

Yllenus bactrianus: Nenilin, 1985: 131; Prószyński, 1990: 362.

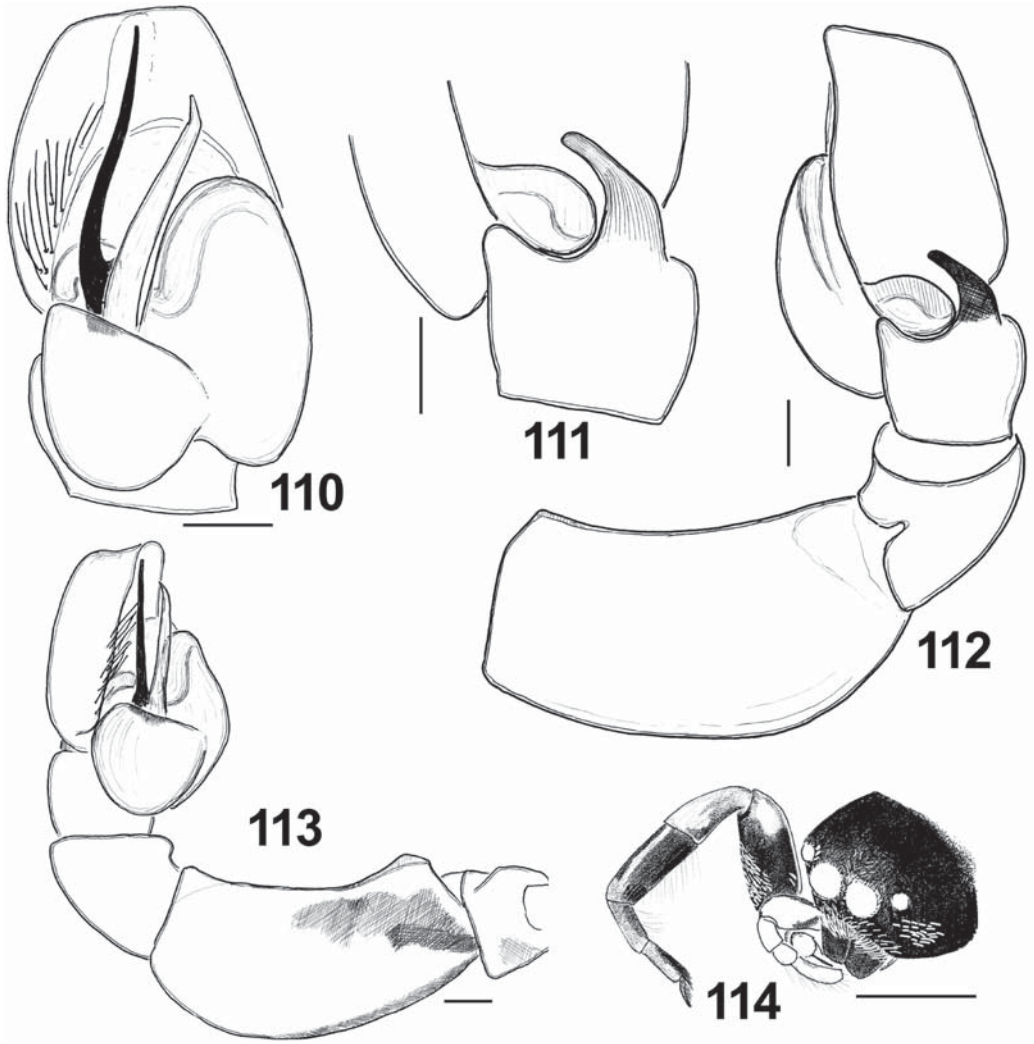
Type. The female holotype from Chili-Chor-Chashma spring (37°18'N, 68°02'E), Tajikistan; deposited in the ZMPA (not found on our request).

Derivatio nominis. The species epithet is derived from Bactria, the name of an ancient country, which used to be in the South part of Middle Asia on the territories of present day S. Uzbekistan and Tajikistan.

Diagnosis. The male of *Y. bactrianus* is most similar to *Y. bakanas* sp.n. and can be readily separated from it by the narrower and bent RTA and the wider embolus and CTA (cf Figs 117 and 123); the female copulatory organs are unique in the genus *Yllenus* (Figs 119–120) in lacking the epigynal pocket and in having epigynal flaps.

The male and female of *Y. bactrianus* have been matched provisionally on the following grounds: (1) both the male and the female described by E. M. Andreeva [1976] have swollen femora and tibiae I; (2) both are small compared to most other *Yllenus*; (3) both were collected in exactly the same locality; and (4) both differ from all other *Yllenus* species in somatic characters and those of the copulatory organs (see "Comments" below) making them doubtful congeners of this genus. Thus, although we have been unable to re-examine the ♀ holotype of *Y. bactrianus*, there are no doubts the male we studied belongs to the same unique species.

Comments. It is very likely that this species does not belong with *Yllenus*, as it differs from the rest of the studied *Yllenus* species in virtually lacking spination of legs and the markedly swollen femora and tibiae I (as in *Bianor* or *Pellenes*); its rough (textures surface), nearly square carapace also differs from other *Yllenus* species. We have been unable to locate and re-examine the ♀ holotype, but on the basis of the original description and illustrations by E. M. Andreeva [1976: figs 127–128; see also Figs 119–120], it is obvious that the female of *Y. bactrianus* lacks an epigynal pocket (always present in *Yllenus*) and has epigynal flaps (always absent in *Yllenus*). Also, this species has the first legs longest (although the rest of *Yllenus* species have the fourth legs longest) and patellae and tibiae of all legs spineless (spination of these segments is well developed in all other *Yllenus* species). At the same time, the



Figs 110–114. Copulatory organs and somatic characters of *Yllenus algarvensis* (the holotype): 110 — ♂ bulb, median view; 111 — tibial apophysis, lateral view; 112 — ♂ palp, lateral view; 113 — ditto, median view; 114 — ♂ carapace and first leg. Scale lines: 0.1 mm (110–113), 1 mm (114).

dentation of the chelicerae of *Y. bactrianus* corresponds to that in true *Yllenus*, *viz*. the retromargin is lacking teeth, while the promargin bears a typical keel-shaped tooth. This problem needs attention in the future, when more materials have become available.

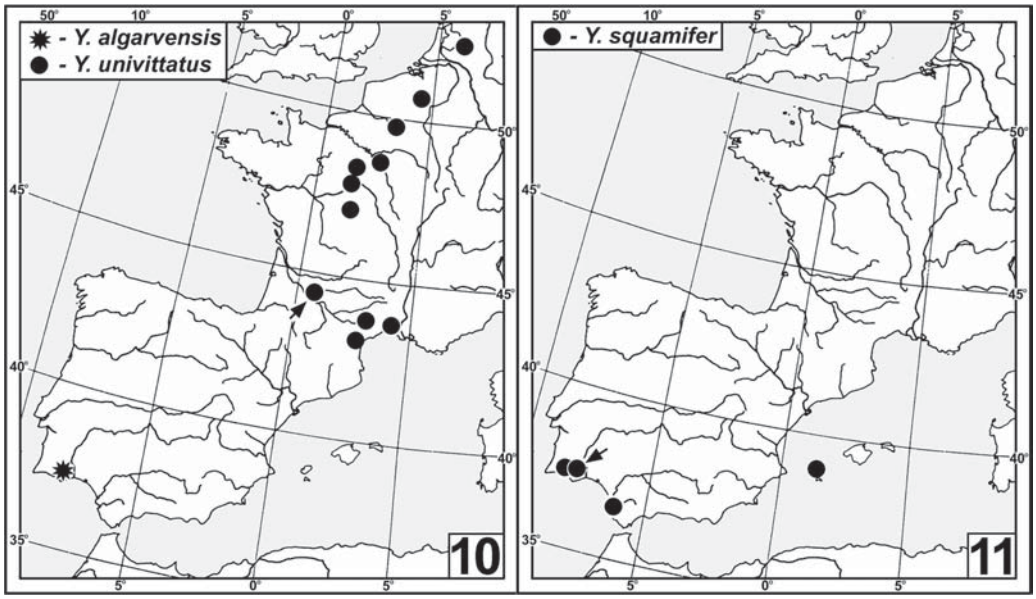
DESCRIPTION

Male (from the type locality)

Measurements. Carapace 1.54 long, 1.23 wide, 0.68 high at PLE. Ocular area 0.66 long, 0.90 wide anteriorly and 1.08 wide posteriorly. Diameter of AME 0.29. Abdomen 1.60 long, 1.20 wide. Cheliceral length 0.36. Clypeal height 0.08.

Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	0.85	0.60	0.50	0.35	0.33	2.63
II	0.60	0.38	0.33	0.26	0.28	1.85
III	0.73	0.38	0.30	0.34	0.30	2.05
IV	0.84	0.46	0.49	0.39	0.31	2.49



Maps 10–11. Distribution of *Yllenus* species: 10 — *Y. algarvensis* in Portugal and *Y. univittatus* in France; 11 — *Y. squamifer* in the W. Mediterranean. One dot may represent more than one close locality; if more than one record, type localities arrowed.

Leg spination: Leg I: Mt v 1-1ap. Leg II: Mt v 1ap. Leg III: Fm d 1ap; Mt v 12ap. Leg IV: Fm d 1ap; Mt v 1ap.

Coloration. Carapace dark brown and rough (textures surface), densely covered with white appressed scales. Clypeus brown, covered with long, yellowish hairs. Sternum, maxillae, labium and chelicerae brown yellowish. Abdomen: dorsum and sides brownish, densely covered with white appressed scales; venter yellowish, densely covered with white appressed scales. Book-lung covers brownish yellow, covered with white scales. Spinnerets brownish yellow. All legs brownish yellow, but legs I darker (dark brown); legs I have markedly swollen femora and tibiae, tibiae I bear ventrally rather dense and long yellowish hairs. Palps brownish yellow.

Palpal structure as in Figs 115–118; the RTA longer than wide, curved and directed ventrad; the cymbial process triangular; the embolus short and straight, rather thick at its base, gradually tapering to the tip; the CTA straight, stiletto-shaped, nearly as wide as the embolus.

Female. For description see Andreeva [1976], Figs 119–120.

Material examined. TAJIKISTAN: 1 ♂ (ZMUM), Kurgan-Tyube Area, Shaartuz Distr., Beshkentskaya Valley, near Chili-Chor-Chashma spring (37°18'N, 68°02'E), 9.05.1973, A. P. Kononenko.

Habitat. No data.

Distribution. The type locality only [Andreeva, 1976] (Map 13).

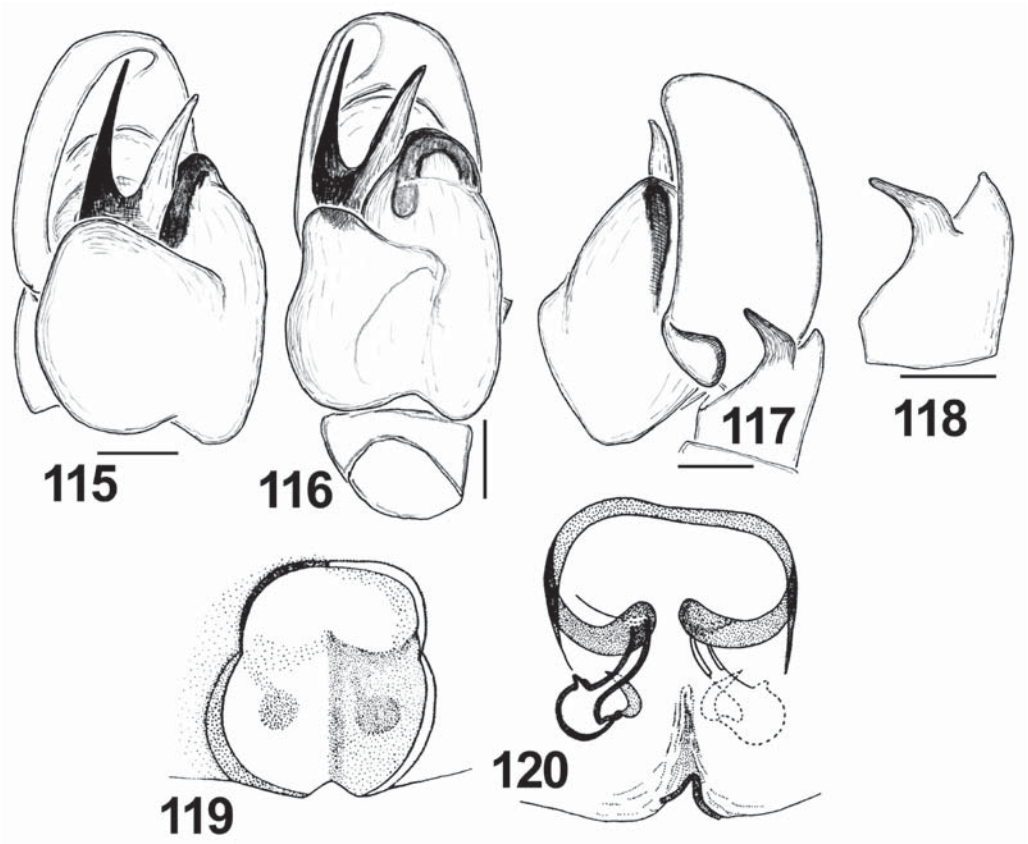
Yllenus bakanas sp.n.

Figs 121–127, Map 13

Type. The male holotype from Bakanas (ca 44°41'N, 76°32'E), Kazakhstan; deposited in the ZMUM.

Derivatio nominis. The specific name is a noun in apposition taken from the type locality, Bakanas.

Diagnosis. By the structure of the copulatory organs, this species is most similar to *Y. mirandus* and *Y. bactrianus*. The males of *Y. bakanas* sp.n. can be readily separated by the wider RTA and the well-marked ventral bulge of the tegulum (cf Figs 123 and 117); the females are easily separable from those of *Y. mirandus* by the wider and heavily sclerotized insemination ducts and their arrangement (cf Figs 126 and 195).



Figs 115–120. Copulatory organs of *Yllenus bactrianus*: 115 — ♂ bulb, median view; 116 — ditto, ventral view; 117 — ditto, lateral view; 118 — tibial apophysis, lateral view; 119 — epigyne; 120 — spermathecae. Specimens: 115–118 — ♂ from the type locality, Tajikistan, Chili-Chor-Chashma spring; 119–120 — the ♀ holotype [after Andreeva, 1976: figs 127–128]. Scale lines: 0.1 mm.

Males and females of *Y. bakanas* sp.n. have been matched provisionally on the basis of their distribution and body colour pattern.

DESCRIPTION

Male (the holotype)

Measurements. Carapace 2.13 long, 1.70 wide, 0.98 high at PLE. Ocular area 1.10 long, 1.35 wide anteriorly and 1.55 wide posteriorly. Diameter of AME 0.43. Abdomen 2.00 long, 1.50 wide. Cheliceral length 0.63. Clypeal height 0.15.

Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.28	0.70	0.80	0.50	0.43	3.71
II	0.98	0.61	0.55	0.40	0.43	2.97
III	1.23	0.54	0.56	0.56	0.45	3.34
IV	1.55	0.75	0.80	0.65	0.50	4.25

Leg spination: Leg I: Fm d 0-0-1-1; Pt pr 0-1-0; Tb pr 0-1, v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-1-1-1; Pt pr and rt 0-1-0; Tb pr 1-1, v 1-1-2ap; Mt v 2-2ap. Leg III: Fm d 0-1-2-2; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 2ap; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 1-1-3; Pt pr and rt 0-1-0; Tb pr and rt 1-1-1, v 2ap; Mt pr and rt 1-2ap, rt 1ap.

Coloration. Carapace red-brown, with black around eyes, covered with brownish appressed scales; eye field with a white procurved stripe; in addition, there are two longitudinal white stripes running from ALEs to PLEs and further to thoracic part. Clypeus yellow, densely covered with sand-coloured scales and with a marginal fringe of long white hairs hanging

over the chelicerae. Sternum brown, covered with white hairs. Maxillae and labium yellow-brown, with white apexes. Abdomen: dorsum brownish, with a symmetrical colour-pattern of white stripes and patches (Fig. 124); sides and venter yellow-grey. Book-lung covers yellow, covered with white scales. Spinnerets grey-yellow. All legs yellow, with numerous brownish patches and stripes, but all femora brown on their sides and Pt, Tb, Mt and Tr of the first legs ventrally dark brown (almost black).

Palpal structure as in Figs 121–123; the RTA rather wide, triangle-shaped; the cymbial process wide and elongated; the embolus relatively short and thick; the CTA straight, almost as long and wide as the embolus.

Female (the paratype from Zhambyl Area, Lake Bol'shie Kamkaly)

Measurements. Carapace 2.48 long, 2.05 wide, 0.98 high at PLE. Ocular area 1.18 long, 1.50 wide anteriorly and 1.79 wide posteriorly. Diameter of AME 0.46. Abdomen 2.85 long, 2.10 wide. Cheliceral length 0.78. Clypeal height 0.18. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.23	0.75	0.73	0.55	0.43	3.69
II	1.08	0.73	0.54	0.41	0.44	3.20
III	1.34	0.65	0.60	0.58	0.60	3.77
IV	1.75	0.80	0.90	0.75	0.55	4.75

Leg spination: Leg I: Fm d 0-0-1-1; Tb 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-0-1-1; Pt pr 0-1-0; Tb pr 0-1, v 1-1-2ap; Mt v 2-2ap. Leg III: Fm d 0-0-0-2; Pt pr 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 0-0-0-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1-1, v 1ap; Mt pr and rt 1-2ap, v 1ap.

Coloration. Carapace brown, with black eye field and yellow marginal bands; entire carapace is densely covered with white and red appressed scales. Clypeus yellow, covered with white hairs. Sternum yellow-brown, covered with white hairs. Maxillae and labium brown, with white apexes. Chelicerae dark brown, their front side covered with white hairs. Abdomen: dorsum grey-white, with poorly marked colour pattern consisting of a cardial spot, 3 pairs of Λ-shaped stripes and a dark triangle spot in front of spinnerets; sides grey-white; venter yellow. Book-lung covers yellow. Spinnerets grey-yellow. All legs yellow, with brownish patches on segment joints; all legs covered with white and dark protruding hairs and appressed scales. Palps yellow.

Epigyne and spermathecae as in Figs 125–127; the epigynal pocket triangular, smaller than the receptacles; forming a characteristic triangular figure together with the insemination ducts which are visible through the translucent integument; the copulatory openings oval, separated by a narrow triangular septum; the receptacles are situated on both sides of the epigynal pocket; the spermathecae very sclerotized, with closely situated and very wide insemination ducts (as wide as the receptacles); the receptacles elongated, about twice as long as wide.

Material examined. Holotype: 1 ♂ (ZMUM), Kazakhstan, Almaty Area, Balkhash Distr., ca 24 km SE of Bakanas (ca 44°41'N, 76°32'E), 28.05.1995, A. A. Zyuzin.

Paratypes: KAZAKHSTAN: 2 ♀♀ (MMUM), Zhambyl [=Taraz, Dzhambul] Area, Sarysu Distr., ca 20 km E of Lake Bol'shie Kamkaly (ca 44°51'N, 70°15'E), 28.06.1989, A. A. Zyuzin; 1 ♀ (MMUM), South Kazakhstan [=Shymkent, Chimkent] Area, Suzak Distr., ca 20 km E of Suzak (ca 44°08'N, 68°44'E), 26.06.1989, A. A. Zyuzin; 1 ♀ (ZMUM), Almaty Area, Panfilov [=Zharkent] Distr., 28–30 km S of Konyrolen, Aktau Mts. (43°59'N, 79°15'E), 7–9.05.1992, A. A. Zyuzin; 1 ♀ (ZMUM), Kzyl-Orda Area, Aral'sk Distr., ca 12 km SSE of Kzyl-Orda, near Tasboget (ca 46°41'N, 61°46'E), 22–23.06.1989, A. A. Zyuzin.

Habitat. In Kazakhstan (Kzyl-Orda Area), clayey barren lands [present data].

Distribution. So far, a few localities in SE Kazakhstan only (Map 13).

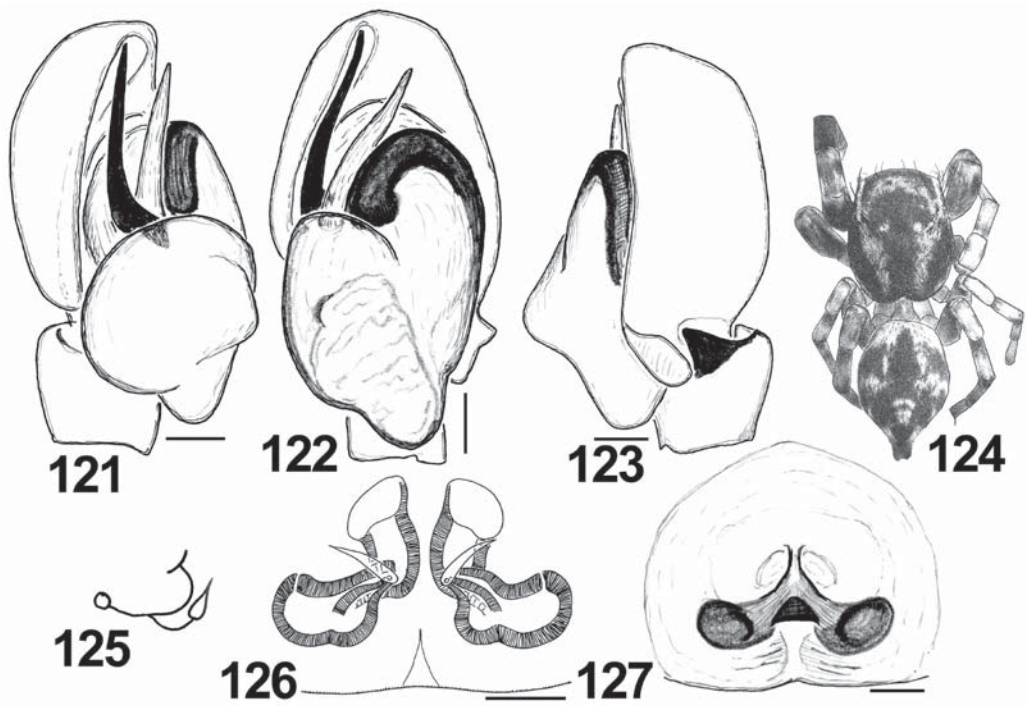
Yllenus bucharaensis sp.n.

Figs 317–319, Map 13

Type. The female holotype from Gazli (ca 40°09'N, 63°29'E), Uzbekistan; deposited in the ZMUM.

Derivatio nominis. The species epithet is derived from the *terra typica*, Bukhara Area of Uzbekistan.

Diagnosis. By its unique spermathecae resembling a "88"-shaped figure (Fig 318), this species can be readily separated from all the known *Yllenus* species. The taxonomic status of *Y. bucharaensis* sp.n. remains slightly uncertain, as



Figs 121–127. Copulatory organs and somatic characters of *Yllenus bakanas*: 121 — ♂ bulb, median view; 122 — ditto, ventral view; 123 — ditto, lateral view; 124 — ♂ general appearance; 125 — schematic course of the insemination ducts; 126 — spermathecae; 127 — epigyne. Specimens: 121–124 — the ♂ holotype; 125–127 — Kazakhstan, Lake Bol'shie Kamkaly. Scale lines: 0.1 mm.

it might not be a member of the genus *Yllenus*. Males are required to resolve the matter.

DESCRIPTION

Male unknown.

Female (the holotype)

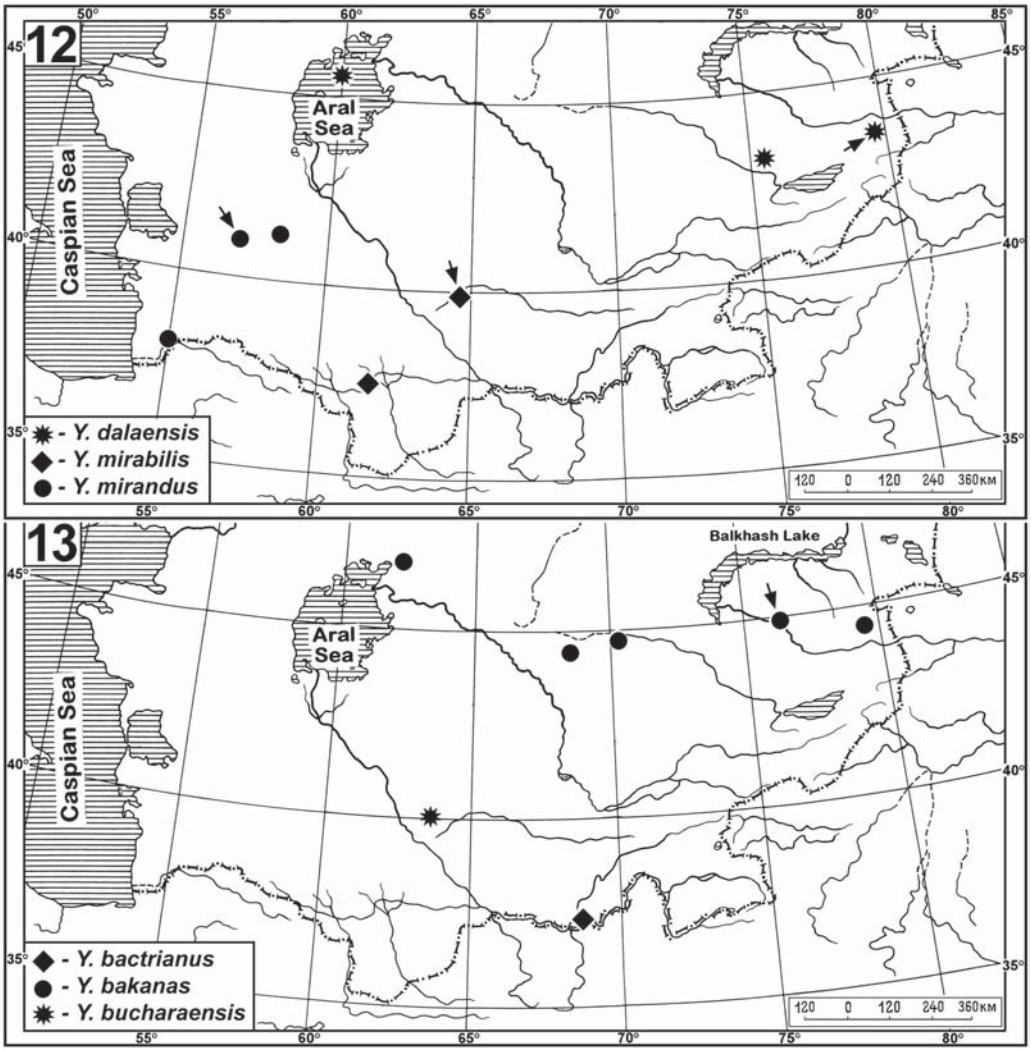
Measurements. Carapace 1.68 long, 1.28 wide, 0.85 high at PLE. Ocular area 0.70 long, 0.95 wide anteriorly and 1.11 wide posteriorly. Diameter of AME 0.30. Abdomen broken (its length cannot be measured), 1.25 wide. Chelicera length 0.58. Clypeal height 0.19. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	0.76	0.40	0.44	0.38	0.31	2.29
II	0.65	0.35	0.38	0.33	0.30	2.01
III	0.75	0.35	0.29	0.38	0.38	2.15
IV	1.50	0.65	0.85	0.58	0.40	3.98

Leg spination: Leg I: Fm d 1-1-1; Pt pr 0-1-0; Tb pr 0-2, v 1-1ap; Mt v 2-2ap. Leg II: Fm d 0-1-1-2; Pt pr and rt 0-1-0; Tb pr 0-1, v 1-1-2; Mt v 2-2ap. Leg III: Fm d 0-1-1-2; Pt pr and rt 0-1-0; Tb pr 1-1, rt 0-1, v 1ap; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 1-0-2-3; Pt pr and rt 0-1-0; Tb pr and rt 1-1-1; Mt pr and rt 2-2ap, v 1ap.

Coloration. Carapace bright yellow, with 3 wide longitudinal brown bands of appressed scales (Fig. 319). Clypeus yellow, with a wide transverse band of dense white hairs overhanging the basal parts of chelicerae. Sternum bright yellow, covered with white hairs. Maxillae, labium and chelicerae bright yellow. Abdomen bright yellow, but dorsum with 3 longitudinal white brown bands of appressed scales. Booklung covers yellow. Spinnerets yellow, but dorsal pair with pale brown annulations. All legs bright yellow, with small brownish patches and stripes. Palps bright yellow, but each of their tibiae with a dorsal basal brown patch.

Epigyne and spermathecae as in Figs 317–318; the epigynal pocket bell-shaped, situated



Maps 12–13. Distribution of *Yllenus* species: 12 — *Y. dalaensis*, *Y. mirabilis* and *Y. mirandus* in Central Asia; 13 — *Y. bactrianus*, *Y. bakanas* and *Y. bucharaensis* in Central Asia. One dot may represent more than one close locality; if more than one record, type localities arrowed.

in the center of epigynal plate (twice its height from the epigastric furrow); the copulatory openings are situated underneath the epigynal pocket, separated by less than a diameter and, unlike other *Yllenus* species, face each other; the spermathecae resemble two figures 8 fused by their upper halves.

Material examined. Holotype: 1 ♀ (ZMUM), Uzbekistan, Bukhara [=Bukhoro] Area, Zhondor Distr., Kyzylkum Desert, near Gazli (ca 40°09'N, 63°29'E), 21.05.1994, S. V. Ovtchinnikov.

Habitat. No data.

Distribution. The type locality only (Map 13).

Yllenus caspicus Ponomarev, 1978

Figs 128–136, Map 14

Yllenus caspicus Ponomarev, 1978: 67, figs 1,ж,з (D♀; ♀ holotype in the ZMUM; examined).

Yllenus caspicus: Minoranski & Ponomarev, 1984: 90; Nenilin, 1985: 131; Prószyński, 1990: 363; Logunov & Guseinov, 2002: 257; Ponomarev, 2002: 205.

Yllenus salsicola (*nec* Simon; misidentified): Ponomarev, 1978: 96, figs 1,г,д (♂ only).

Type. The female holotype from Kaspiiskii (ca 45°24'N, 47°22'E), Kalmykiya, Russia; deposited in the ZMUM.

Derivatio nominis. The specific epithet is a noun in apposition from the type locality, the Caspian Sea.

Diagnosis. This species is most similar to *Y. validus* and *Y. pseudovalidus* sp.n., but can be readily distinguished from both of them by the following characters: the absence of median brown band on dorsum (cf Figs 131 and 275), the visibly narrower embolus (needle-shaped) and CTA (cf Figs 128–129 and 183, 272–273), the shape of the epigynal pocket (cf Figs 132 and 186, 283) and the smaller, ovoid, rather than rounded, receptacles (cf Figs 133 and 187, 280). See also comments under "Diagnosis" under *Y. mirandus* and *Y. algarvensis* sp.n.

DESCRIPTION

Male (from Azerbaijan, Absheron Peninsula)

Measurements. Carapace 1.83 long, 1.65 wide, 0.95 high at PLE. Ocular area 0.94 long, 1.21 wide anteriorly and 1.44 wide posteriorly. Diameter of AME 0.38. Abdomen 1.98 long, 1.48 wide. Cheliceral length 0.55. Clypeal height 0.16. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.20	0.73	0.76	0.50	0.38	3.57
II	0.95	0.50	0.55	0.45	0.33	2.78
III	1.10	0.50	0.50	0.50	0.45	3.05
IV	1.58	0.74	0.75	0.65	0.48	4.20

Leg spination: Leg I: Fm d 0-0-1-1; Pt pr 0-1-0; Tb pr 0-1, v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-0-1-1; Tb pr 0-1-0; Tb pr 1-1, v 1-2-2ap; Mt v 2-2ap. Leg III: Fm d 1-0-1-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 1-0-1-1; Pt pr and rt 0-1-0; Tb pr 1-1, rt 1-1-1, v 1ap; Mt pr and rt 1-2ap, v 1ap.

Coloration. Carapace dark brown (almost black), densely covered with white and red appressed scales (no particular pattern is marked). Clypeus yellow-orange, covered with white hairs. Sternum dark brown, densely covered with white hairs. Maxillae and labium yellow. Chelicerae dark brown, with their basal two thirds densely covered white hairs. Abdomen with poorly marked (almost invisible) pattern: dorsum dark grey, densely covered with white and red appressed scales; sides and venter grey-yellow, covered with white hairs. Book-lung covers yellow-brown, covered with white hairs. Spinnerets yellow-brown. All legs: coxae and trochanters bright yellow, remaining segments motley (yellow and brown patches and/or lateral bands); all segments densely covered with white protruding hairs and appressed scales. Palpus yellow, but bulbus brownish.

Palpal structure as in Figs 128–130; femora, patellae and tibiae with contrasting dark brown patches; the RTA rather massive, wider than long, and directed ventrally; the cymbial process rounded; the embolus thin and straight; the CTA thin, strongly curved prolaterally near its tip.

Female (measurements from the holotype; leg spination and colouration from the Azerbaijanian ♀)

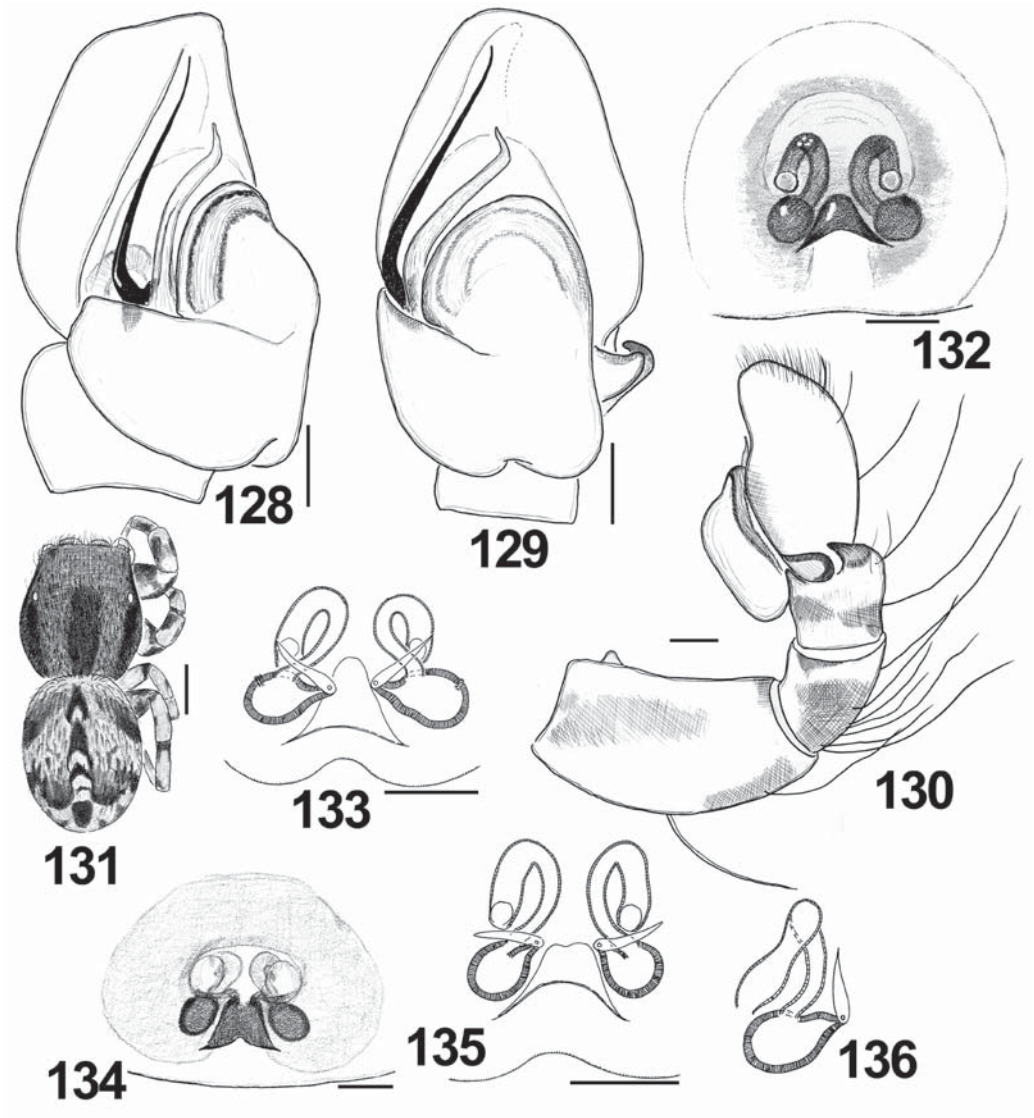
Measurements. Carapace 2.00 long, 1.63 wide, 1.00 high at PLE. Ocular area 1.43 long, 1.25 wide anteriorly and 0.98 wide posteriorly. Diameter of AME 0.40. Abdomen 2.30 long, 1.90 wide. Cheliceral length 0.55. Clypeal height 0.13. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.03	0.68	0.65	0.43	0.30	3.09
II	0.85	0.53	0.50	0.38	0.31	2.57
III	1.05	0.47	0.46	0.53	0.39	2.90
IV	1.54	0.78	0.73	no segments		—

Leg spination: Leg I: Fm d 0-1-1; Tb v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-0-1; pt pr 0-1-0; Tb pr 0-1, v 0-1-2ap; Mt v 2-2ap. Leg III: Fm d 1ap; Pt pr 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 1ap; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1ap.

Coloration. As described for male but lighter and more variegated, with colour patterns well marked on both carapace and dorsum (see Fig. 131); venter bright yellow, palps yellow.

Epigyne and spermathecae as in Figs 132–136; the epigynal pocket bell-shaped, equal to or larger than the receptacles; the latter are situated close to the sides of the epigynal pocket; the copulatory openings (if distinct) rounded, widely sep-

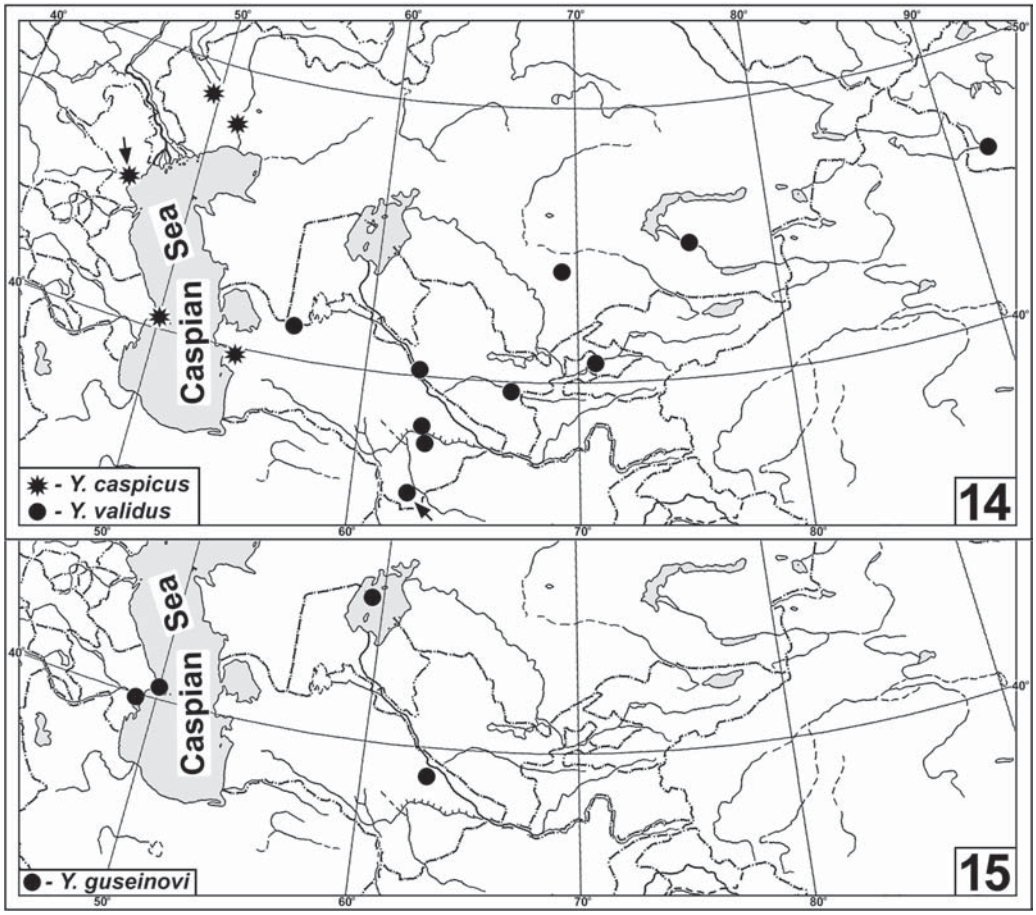


Figs 128–136. Copulatory organs and somatic characters of *Yllenus caspicus*: 128 — ♂ bulb, median view; 129 — ditto, ventral view; 130 — ♂ palp, lateral view; 124 — ♀ general appearance; 133, 135–136 — spermathecae; 132, 134 — epigyne. Specimens: 128–131, 133–134 — Azerbaijan, Absheron; 132, 135–136 — the ♀ paratype. Scale lines: 0.5 mm (131), 0.1 mm (128–130, 132–136).

arated and are situated close to the receptacles, touching their upper edges; the receptacles ovoid.

Material examined. RUSSIA: 2 ♀♀ (ZMUM; the holotype and paratype of *Yllenus caspicus*), Kalmykiya, Kaspiiskii Distr., near Kaspiiskii (ca 45°24'N, 47°22'E), 20.06.1975, A. V. Ponomarev. — AZERBAIJAN: 1 ♂, 1 ♀ (MMUM), Absheron [=Apsheron] Peninsula, Gyurgyan (40°24'N, 50° 20'E), 17.04.2001, Yu. M. Marusik. — TURKMENISTAN: 1 ♂, 3 ♀♀ (ZMUM), Balkan [=Krasnovodsk] Area, Krasnovodsk Distr., Kizyl-Su (39°47'N, 53°01'E), Caspian seashore, 9.07.1929, V. I. Sychevskaya [=Pereleshina].

Habitat. In Azerbaijan, the semidesert zone (on fixed sands along the coastline of sea, in sparse vegetation) [s. Logunov & Guseinov, 2002]; in Kalmykiya, meadows, overgrazed steppe meadow with *Tamarix* sp. [Minoranski



Maps 14–15. Distribution of *Yllenus* species: 14 — *Y. caspicus* in Central Asia and the Caucasus and *Y. validus* in Central Asia; 15 — *Y. guseinovi* in Central Asia and the Caucasus. One dot may represent more than one close locality; if more than one record, type localities arrowed.

& Ponomarev, 1984]; in Turkmenistan, seashore with *Artemisia* sp. [present data].

Distribution. This species is known from a few localities around Caspian Sea (Map 14); Ponomarev's [2002] data included.

On the basis of Ponomarev's figures [1978: 96, figs 1,г,д (♂ only)], we have concluded that his record of *Y. salsicola* should be referred to *Y. caspicus*.

Yllenus dalaensis sp.n.

Figs 137–146, Map 12

Yllenus vittatus (*nec* Thorell; misidentified): Nenilin, 1985: 132; Pavlenko, 1985: 150; Zyuzin *et al*., 1994: 7.

Type. The female holotype from Sartogay boundary (43°37'N, 79°21'E), Kazakhstan; deposited in the ZMUM.

Derivatio nominis. The specific epithet is derived from the Kazakh word "dala", meaning "steppe".

Diagnosis. By the structure of the epygine, this species is similar to *Y. nurataus* sp.n. and *Y. mirandus*, but can be readily separated from them by the position and course of the insemination ducts (cf Figs 140 and 195, 217); also, *Y. dalaensis* sp.n. has a clear white pattern on carapace (Fig. 137), which is absent from *Y. nurataus* sp.n. The males of *Y. dalaensis* sp.n. can be separated from those of *Y. mirandus* by the

stronger and wider RTA, the wider cymbial process (cf Figs 146 and 190a, 191a) and the longer and straight embolus (cf Figs 143 and 189, 191). By the body colouration and the male bulbus, this species is similar to *Y. albocinctus*, but can be distinguished from it by the lower and narrower RTA, the different shape of the cymbial process (cf Figs 146 and 100) and the colouration of the first legs, with no contrastingly coloured patellae I (yellow contrasting patellae + dark brown tibiae in *Y. albocinctus*).

DESCRIPTION

Male (the paratype from Charyn Canyon, Kazakhstan)

Measurements. Carapace 1.90 long, 1.53 wide, 0.98 high at PLE. Ocular area 0.95 long, 1.21 wide anteriorly and 1.43 wide posteriorly. Diameter of AME 0.35. Abdomen 1.50 long, 1.25 wide. Cheliceral length 0.53. Clypeal height 0.15.

Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.09	0.60	0.65	0.58	0.38	3.30
II	0.88	0.50	0.48	0.38	0.30	2.54
III	1.08	0.50	0.45	0.48	0.40	2.91
IV	1.40	0.64	0.63	0.58	0.59	3.84

Leg spination: Leg I: Fm d 0-1-1-1; Tb pr 0-1, v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-1-1-3; Pt pr and rt 0-1-0; Tb pr 1-1, v 1-2-2ap; Mt v 2-2ap. Leg III: Fm d 0-1-1-3; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 2ap; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 1-0-1-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1-1, v 2ap; Mt pr and rt 1-2ap, v 1ap.

Coloration. Carapace red-brown, with black around eyes, densely covered with brown and orange appressed scales; eye field with a procurved white stripe of scales and two longitudinal white stripes running from ALEs to PLEs and then to thoracic part; there is also a white line above eyes of the first row. Clypeus yellow, densely covered with orange scales and with a marginal fringe of long white hairs hanging over the chelicerae. Sternum brown, densely covered with white hairs. Maxillae and labium yellow, with white apexes. Chelicerae brown. Abdomen: dorsum and sides whitish, with paired reddish brown patches and stripes as in Fig. 138; venter light yellow. Book-lung covers yellow, covered with white scales. Spinnerets yellow, tinged with brown. All legs yellow, with brownish patches and annulations at ends of segments; sometimes, femora entirely brown and tarsi I ventrally dark brown. Palps yellow.

Palpal structure as in Figs 143–146; the RTA with two angles, twice as wide as high; the cymbial process transversely elongate and as long as the RTA' width; the embolus almost straight, with a rather wide base, its length equal to that of the cymbium; the CTA long, and narrow, slightly thinner than the embolic base and bent at its tip.

Female (the holotype)

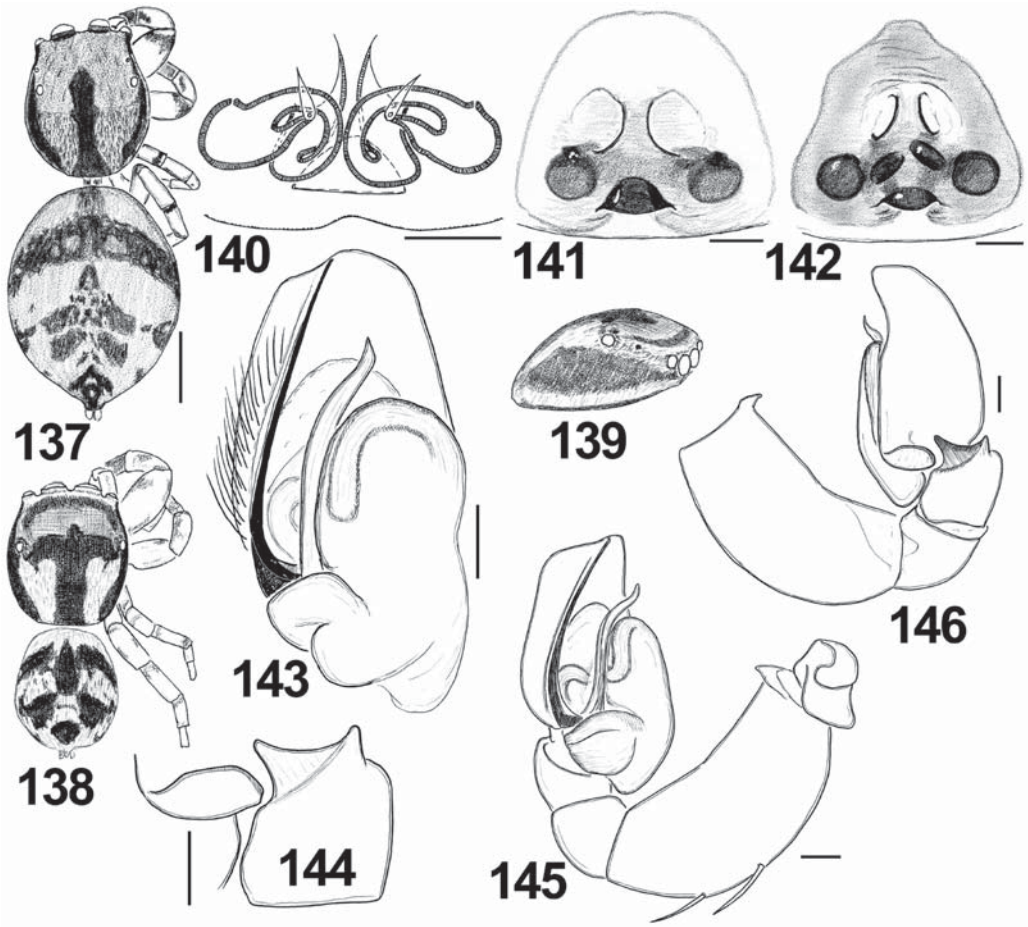
Measurements. Carapace 2.05 long, 1.73 wide, 0.98 high at PLE. Ocular area 1.03 long, 1.25 wide anteriorly and 1.45 wide posteriorly. Diameter of AME 0.43. Abdomen 3.00 long, 2.43 wide. Cheliceral length 0.60. Clypeal height 0.15. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.20	0.59	0.60	0.40	0.35	3.14
II	0.90	0.58	0.46	0.31	0.40	2.65
III	1.08	0.53	0.40	0.48	0.48	2.97
IV	1.50	0.68	0.73	0.60	0.50	4.01

Leg spination: Leg I: Fm d 0-1-1; Tb v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-0-1-1; Pt pr 0-1-0; Tb pr 0-1, v 1-1-2ap; Mt v 2-2ap. Leg III: Fm d 1ap; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 1-0-1ap; Pt pr and rt 0-1-0; Tb pr and rt 1-1-1, v 1ap; Mt pr 1-2ap, rt 2-2ap, v 1ap.

Coloration. Carapace brown, densely covered with white and brown appressed scales forming Π-shaped figure of wide white bands (Figs 137, 139). Clypeus brown, covered with white hairs and scales. Sternum brown, covered with white hairs. Maxillae and labium yellow. Chelicerae brown. Abdomen: dorsum and sides yellowish, with colour pattern consisting of wide brown stripes (Fig. 137); venter yellowish. Book-lung covers yellow, tinged with brown and covered with white scales. Spinnerets brownish yellow. All legs yellow, with brownish patches and semi-rings at ends of segments, but pro- and retrolateral sides of patellae and tibiae I are almost completely brown. Palps yellow.

Epigyne and spermathecae as in Figs 140–142; the structure of the epigyne variable, especially the size of the copulatory organs and the



Figs 137–146. Copulatory organs and somatic characters of *Yllenus dalaensis*: 124 — ♀ general appearance; 138–139 — ♂ general appearance and carapace; 140 — spermathecae; 141–142 — epigyne; 143 — ♂ bulb, median view; 144 — tibial apophysis, lateral view; 145 — ♂ palp, median view; 146 — ditto, lateral view. Specimens: 137, 140–141 — the ♀ holotype; 142 — Kazakhstan, Barsakel'mes Isl.; 138–139, 143–146 — Kazakhstan, Charyn Canyon. Scale lines: 1 mm (137–139), 0.1 mm (140–146).

median septum; the epigynal pocket relatively small, wider than high (apricot-stone-shaped), closely situated to the epigastric furrow; the copulatory openings ovoid, separated by a median septum; the receptacles widely spaced (by more than their diameter); the spermathecae are of a rather unusual shape (more than twice as wide as high), with the insemination ducts touching each other along the median line; the receptacles elongate and separated by more than two diameters.

Material examined. Holotype: 1♀ (ZMUM), Kazakhstan, Almaty Area, Uigur Distr., ca 11 km NW of Chundzha, Charyn Canyon, left bank, Sartogay boundary (43°37'N, 79°21'E), 12.06.1993, S. V. Ovtchinnikov.

Paratype: KAZAKHSTAN: 2 ♂♂ (ZMUM), together with the holotype, 12.06.1993, S. V. Ovtchinnikov; 1 ♂ (MMUM), Almaty Area, Zhambyl Distr., Almaty-Georgievka Hwy, ca 8 km W of Targap (ca 43°19'N, 75°43'E), 13.05.1991, A. A. Zyuzin; 1 ♀ (ZISP; hitherto determined as *Y. vittatus* by A. B.Nenilin), Kyzyl-Orda Area, Aral'sk Distr., Aral Sea, Barsakel'mes Isl. (ca 45°41'N, 59°55'E), Zhaman, late summer 1982, T. V. Pavlenko.

Habitat. No data.

Distribution. So far, the species has been collected from three localities in Kazakhstan (Map 12).

The records of *Y. vittatus* from Kazakhstan (Barsakel'mes) by Nenilin [1985] and Pavlenko [1985] belong to this species (Pavlenko's specimens re-examined).

Yllenus gavdos sp.n.

Figs 147–152, Map 16

Yllenus salsicola (*nec* Simon; misidentified): Wunderlich, 1992: 522, figs 855–859 (♂ only).

Type. The male holotype from Gavdos Isl. (ca 34°51'N, 24°05'E), Crete Area, Greece; deposited in the NHMC.

Derivatio nominis. The specific epithet is a noun in apposition derived from the type locality, Gavdos Island.

Diagnosis. This species is very similar to *Y. albifrons* and *Y. shakhsenem* sp.n. From the former species, it can be easily distinguished by the longer embolus, the wider and distinctly bent CTA (cf Figs 147 and 86) and especially by the structure of the ♀ copulatory organs, *viz.* the transverse-ovoid receptacles and the wider and longer insemination ducts (cf Figs 151 and 96). Some males of *Y. albifrons* have the tibiae and tarsi I contrastingly coloured (dark brown as compared to other segments), a character not observed in *Y. gavdos* sp.n. (its legs yellow, with brownish patches and annulations). From *Y. shakhsenem* sp.n., this species can be separated by the larger size of both its body and palpus (twice as large as the latter species), clypeus lacking a dense covering of brown hairs (present in *Y. shakhsenem* sp.n.), and the proportions of the CTA (cf Figs 147 and 153; arrowed).

Comments. The record of *Y. saliens* from the Canary Islands by Wunderlich [1992: ♂ only] has proven to belong to this species (Wunderlich's specimen re-examiend and is practically identical to the male holotype of *Y. gavdos* sp.n.). The assignment of Wunderlich's female [1 ♀ (JWPC), the Canary Islands, Alegranza, Montaña Clara, P. Oromi, 2.05.1993, coll. ?] remains uncertain; although, it is similar to the females of *Y. albifrons*. We have been unable to match this ♀ to any of Mediterranean species known to us, whereas we prefer not to describe a new species, as a number of new species known from males only has already been described herein, *e.g. Y. algarvensis* sp.n. (see above). Thus, the taxonomic status of this female needs a special attention in the future, when more materials, including males, have been collected.

DESCRIPTION

Male (the holotype)

Measurements. Carapace 2.00 long, 1.75 wide, 1.18 high at PLE. Ocular area 1.00 long, 1.35 wide anteriorly and 1.58 wide posteriorly. Diameter of AME 0.39. Abdomen 2.33 long, 1.78 wide. Cheliceral length 0.55. Clypeal height 0.25.

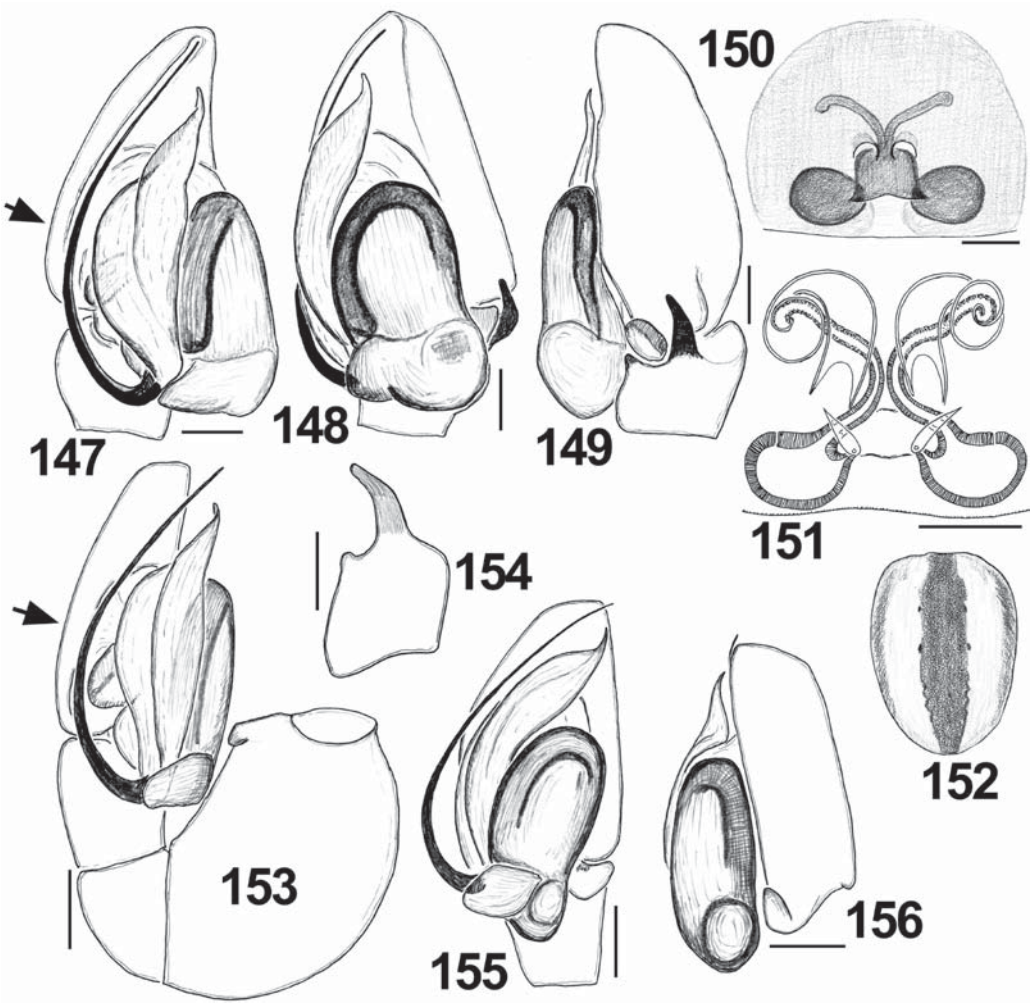
Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.15	0.66	0.71	0.53	0.40	3.45
II	1.03	0.58	0.53	0.40	0.40	2.94
III	0.95	0.40	0.53	0.50	0.33	2.71
IV	1.90	0.93	0.90	0.63	0.40	4.76

Leg spination: Leg I: Fm d 0-1-1-2; Pt pr 0-1-0; Tb pr 1-1, v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-1-1-3; Pt pr 0-1-0; Tb pr 1-1, v 1-2-2ap; Mt pr 1ap, v 2-2ap. Leg III: Fm d 0-1-1-3; Pt pr and rt 0-1-0; Tb pr and rt 1-1; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 1-0-3-3; Pt pr and rt 0-1-0; Tb d 1-0, pr 2-1-1, rt 1-1-1; Mt pr and rt 1-2ap.

Coloration. Carapace dark red-brown, with black around eyes; eye field lighter, yellowish; carapace densely covered with white appressed scales. Clypeus yellow-brown, sparsely covered with long white hairs forming a marginal fringe. Sternum yellow-brown, covered with white hairs. Maxillae and labium brownish yellow, with white apexes. Chelicerae dark brown. Abdomen: dorsum yellowish greyish, with a wide median brown band; sides yellowish grey; venter yellow. Book-lung covers yellow, covered with white scales. Spinnerets yellow, tinged with grey. All legs yellow, with numerous brownish patches and annulations. Palps brownish yellow.

Palpal structure as in Figs 147–149; the palpal tibia with two apophyses: the RTA finger-shaped, almost straight, the VTA small and



Figs 147–156. Copulatory organs and somatic characters of *Yllenus gavdos* (147–152) and *Y. shakhsenem* (153–156): 147 — ♂ bulb, median view; 148, 155 — ditto, ventral view; 149, 156 — ditto, lateral view; 150 — epigyne; 151 — spermathecae; 152 — ♀ dorsum; 153 — ♂ palp, median view; 154 — tibial apophysis, lateral view. Specimens: 147–149 — Algeria; 150–152 — the ♀ paratype from Crete, Gavdos; 153–156 — the ♂ holotype. Scale lines: 0.1 mm.

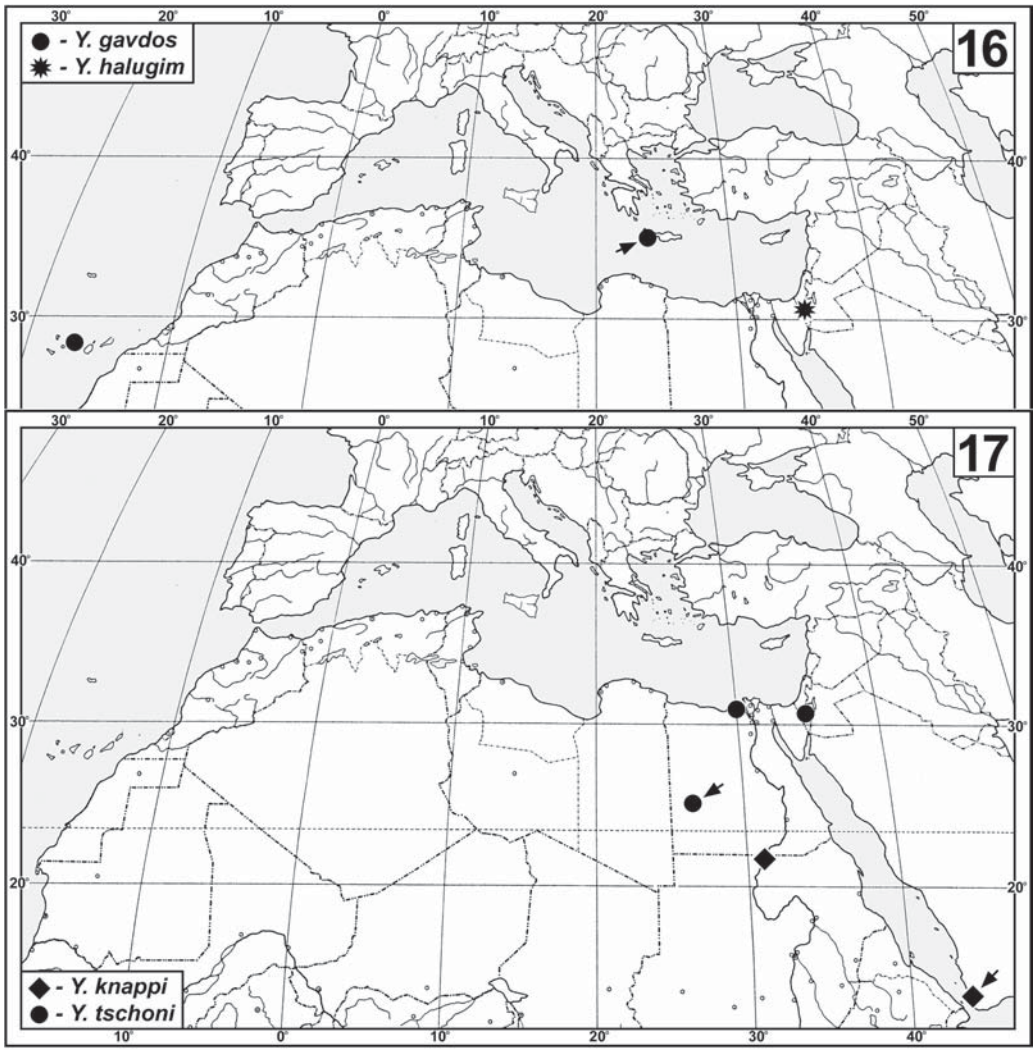
cone-shaped; the cymbial process oval; the embolus long, whip-shaped; the CTA longer than the tegulum and very broad, looking like a lamella with a median ridge, its tip is visibly curved.

Female (the paratype from Gavdos Isl., Crete)

Measurements. Carapace 2.13 long, 1.88 wide, 1.10 high at PLE. Ocular area 1.01 long, 1.48 wide anteriorly and 1.68 wide posteriorly. Diameter of AME 0.43. Abdomen 2.25 long, 1.75 wide. Cheliceral length 0.64. Clypeal height 0.28. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.13	0.68	0.66	0.44	0.35	3.26
II	1.03	0.55	0.63	0.40	0.38	2.99
III	1.00	0.41	0.51	0.50	0.45	2.87
IV	1.95	0.90	1.10	0.70	0.48	5.13

Leg spination: Leg I: Fm d 0-1-2; Tb v 2-2-0; Mt v 2-2ap. Leg II: Fm d 1ap; Tb v 1-1; Mt v 2-2ap. Leg III: Fm d 2ap; Pt pr 0-1-0; Tb pr 1-



Maps 16–17. Distribution of *Yllenus* species: 16 — *Y. gavdos* in the Mediterranean and *Y. halugim* in Levant; 17 — *Y. knappi* in NE Africa and the Arabian Peninsula and *Y. tschoni* in NE Africa. One dot may represent more than one close locality; if more than one record, type localities arrowed.

1, rt 1-0; Mt pr 1-2ap, rt 2ap, v 1ap. Leg IV: Fm d 4ap; Pt pr and rt 0-1-0; Tb d 1-0, pr and rt 1-1-1; Mt pr and rt 1-2ap.

Coloration. As described for male, but lighter (more yellow; Fig. 152) and clypeus rather densely covered with white hairs. Palps yellow, with a small dorso-proximal brown patch on tibiae.

Epigyne and spermathecae as in Figs 150–151; the epigynal pocket a square-shaped bell, separated from epigastric furrow by less than its height; the copulatory openings ovoid, situated just above the upper edge of the pocket, the receptacles egg-shaped and transverse, separated by a distance equal to the width of the epigynal pocket; the insemination ducts make 1.5–2 revolutions, much broader than the sclerotized ducts.

Material examined. Holotype: 1 ♂ (NHMC), Greece, Crete Area, Rethimni Distr., Gavdos Isl. (satellite island at SW coast of Crete), Lavkaras sandunes (ca 34°51'N, 24°05'E), 8.11–13.03.1997, K. Pavagamian.

Paratypes: GREECE: 1 ♀ (NHMC), togerther with the holotype. — ALGERIA: 1 ♂ (ZMPA), "Algeria, 1866-1867, Taczanowski". — SPAIN: 1 ♂ (JWPC), the Canary Islands, Tenerife, Las Cañadas, Feb. (a year is not given), M. Knösel.

Habitat. In Crete Area (Gavdos), *Juniper* forest on sand dunes [present data].

Distribution. So far, the species has been collected from Greece, Algeria and the Canaries (Map 16).

Yllenus guseinovi sp.n.

Figs 157–164, Map 15

Yllenus sp.-1: Logunov & Guseinov, 2002: 257.
Yllenus albocinctus (*nec* Kroneberg; misidentified; *pro parte*): Pavlenko, 1985: 149.
? *Yllenus univittaus* (*nec* Simon; misidentified): Wesołowska, 1996: 49, figs 44A–D (♂).

Type. The male holotype from Baku (ca 40°26'N, 50°15'E), Azerbaijan; deposited in the ZMUM.

Derivatio nominis. This species is named after our colleague and friend, Dr E. F. Guseinov (Baku, Azerbaijan), who collected the holotype and provided us with biological data about the species.

Diagnosis. This species is related to *Y. vittatus*, *Y. univittatus* and *Y. zhilgaensis* sp.n.; the males can be readily separated from those of the related species by the presence of white stripes and a Λ-shape figure on carapace (Fig. 161) and by the coloration of the legs I (Fig. 161); the females of *Y. guseinovi* sp.n. are closest to those of *Y. zhilgaensis* sp.n. and differ from them in having a deeper epigynal pocket (cf Figs 163 and 298), the position of the copulatory openings and the shape of the insemination ducts (cf Figs 164 and 297). The females of *Y. guseinovi* sp.n. are also close to those of *Y. tamdybulak* sp.n., but differ in having a deeper epigynal pocket (cf Figs 163 and 214) and in relative proportions of the insemination ducts and the receptacles (cf Figs 164 and 215).

DESCRIPTION

Male (the holotype)

Measurements. Carapace 2.13 long, 1.83 wide, 1.25 high at PLE. Ocular area 1.05 long, 1.30 wide anteriorly and 1.50 wide posteriorly. Diameter of AME 0.40. Abdomen 2.13 long, 1.731 wide. Cheliceral length 0.80. Clypeal height 0.20.

Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.43	0.96	0.90	0.65	0.54	4.48
II	1.21	0.65	0.65	0.50	0.50	3.51
III	1.28	0.78	0.95	0.75	0.59	4.35
IV	1.84	0.60	0.60	0.60	0.58	4.22

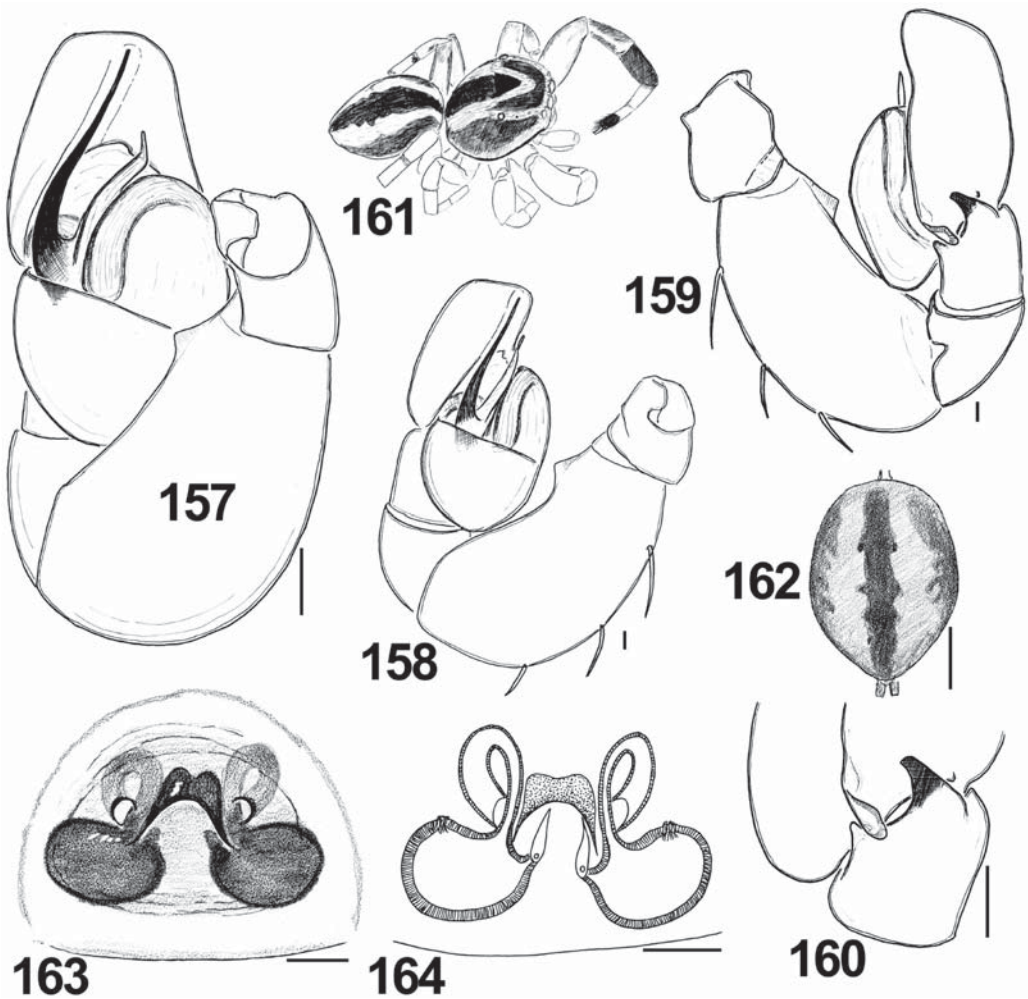
Leg spination: Leg I: Fm d 0-0-1-2; Pt pr 0-1-0; Tb pr 0-1, v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-1-1-2; Pt pr 0-1-0; Tb pr 1-1, v 0-1-2ap; Mt pr 0-1ap, v 2-2ap. Leg III: Fm d 0-1-1-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 2ap; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 1-1-2; Pt rt 0-1-0; Tb pr and rt 1-1-1; Mt pr 1-1-2ap, rt 1-0-2ap, v 1ap.

Coloration. Carapace red-brown, densely covered with white, brown and orange appressed scales; white scales form longitudinal white bands and Λ-shaped white figure on the eye field (Fig. 161). Clypeus yellowish, covered with reddish scales and hairs; the latter overhang the chelicerae. Sternum brownish yellow, with a dark brown edging. Maxilae and labium yellow. Chelicerae brownish. Abdomen: dorsum white, with 3 wide brown longitudinal stripes (Fig. 161); sides and venter yellowish white. Book-lung covers yellowish white, covered with white scales. Spinnerets yellowish white. Legs I with contrastingly coloured tibiae, metatarsi and tarsi (yellow + brown + dark brown) (Fig. 161). Legs II–IV yellow, with brown patches and semi-rings at ends of segments.

Palpal structure as in Figs 157–160; the palpal tibia with two apophyses: the RTA wider than long, hook-shaped, the VTA rather short, cone-shaped; the cymbial process rather small, ridge-shaped; the embolus almost straight, rather thick at its base; the CTA thinner than the embolus, its tip bent.

Female (the paratype from Dyubendy, Azerbaijan)

Measurements. Carapace 2.63 long, 2.20 wide, 1.30 high at PLE. Ocular area 1.13 long, 1.50 wide anteriorly and 1.73 wide posteriorly. Diameter of AME 0.48. Abdomen 2.70 long,



Figs 157–164. Copulatory organs and somatic characters of *Yllenus guseinovi*: 157–158 — ♂ palp, median view; 159 — ditto, lateral view; 160 — ♂ bulb, lateral view; 161 — ♂ general appearance; 162 — ♀ dorsum; 163 — epigyne; 164 — spermathecae. Specimens: 157–161 — Azerbaijan, Absheron; 162–164 — Turkmenistan, Repetek. Scale lines: 1 mm (162), 0.1 mm (157–160, 163–164).

2.13 wide. Cheliceral length 0.48. Clypeal height 0.25. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.45	0.83	0.85	0.59	0.43	4.15
II	1.20	0.65	0.70	0.50	0.40	3.45
III	1.33	0.59	0.65	0.58	0.53	3.68
IV	2.05	0.95	1.08	0.85	0.58	5.51

Leg spination: Leg I: Fm d 0-1-1; Tb 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 1/2ap; Pt pr 0-1-0; Tb pr 0-1, v 1-1-2ap; Mt v 2-2ap. Leg III: Fm d 2ap; Pt pr 0-1-0; Tb pr 1-1, rt 0-1, v 1-1ap; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 1ap; Pt pr and rt 0-1-0; Tb pr and rt 1-1-1; Mt pr 1-1-2ap, rt 1-2ap, v 1ap.

Coloration. As described for male (fig. 162), but differs as follows: carapace without colour pattern of white bands and Λ-shaped white figure on the eye field; clypeus densely covered with white hairs; all legs and palpi yellow (without brown patches).

Epigyne and spermathecae as in Figs 163–164; the epigynal pocket Π-shaped, situated

rather far from the epigastric furrow; the copulatory openings rounded; the receptacles egg-shaped, separated by half a diameter.

Material examined. Holotype: 1 ♂ (ZMUM), Azerbaijan, Baku Distr., Absheron [=Apsheron] Peninsula, Dyubendy (ca 40°26'N, 50°15'E), 3.06.1999, E. F. Guseinov.

Paratypes: AZERBAIJAN: 1 ♀ (ZMUM), together with the holotype; 3 ♂♂ (MMUM), Baku Distr., Absheron [=Apsheron] Peninsula, Dyubendy (ca 40°26'N, 50°15'E), 15.05–5.06.1998, E. F. Guseinov; 1 ♀ (MMUM), same district, Yeni-Surakhany, 7.06.1998, E. F. Guseinov; 1 ♂ (ZMUM), Salyan Distr., Shirvanskii Reserve (ca 39°34'N, 49°05'E), 29.05.2000, E. F. Guseinov. — KAZAKHSTAN: 1 ♂ (ZISP; hitherto determined and reported by T. V. Pavlenko [1985] as *Y. albocinctus*), Kyzyl-Orda Area, Aral'sk Distr., Aral Sea, Barsakel'mes Isl. (ca 45°41'N, 59°55'E), 1.06.1983, T. V. Pavlenko. — TURKMENISTAN: 1 ♀ (ZISP), Chardzhou [=Lebapskii] Area, Chardzhou Distr., Central Karakumy Desert, Repetek Reserve (ca 38°33'N, 63°11'E), 27.04. 1967, V. Kuznetsov.

Habitat. In Azerbaijan, the semidesert zone (fixed sands with sparse vegetation) [Logunov & Guseinov, 2002: sub *Yllenus* sp.-1]; in Kazakhstan (Barsakel'mes Island), sand desert with sparse *Haloxylon* sp. [Pavlenko, 1985: sub *Y. albocinctus*].

Biological information. According to E. Guseinov [pers. comm.], adults of *Y. guseinovi* sp.n. occur in May–June, while newly hatched specimens appear only in mid-July; among the prey of this species the following groups were recorded in nature: Lepidoptera (2 specimens, both adult moths), parasitic Hymenoptera (2 specimens), Hemiptera (1), Homoptera (Aphididae) (1), Araneae [*Thanatus fabricii* (Audouin, 1827)] (1).

Distribution. This seems to be a lowland Turanian species so far recorded from a few localities in Azerbaijan, NW Kazakhstan and Turkmenistan (Map 15).

The record of *Y. albocinctus* by Pavlenko [1985] from Kazakhstan (Barsakel'mes) should be referred to *Y. guseinovi* sp.n. (T. Pavlenko's specimen re-examined). The earlier record of *Y. univittatus* from Turkmenistan (Garry-Gala) by Wesołowska [1996] seems to also belong to this species.

Yllenus halugim sp.n.

Figs 174–176, Map 16

Yllenus squamifer (*nec* Simon; misidentified): Prószyński & Lubin, 1993 (*pro parte*): 285–287, 290; Prószyński, 2003 (*pro parte*): 174–175.

Type. The male holotype from Halugim Ridge, Israel; deposited in the HUJI.

Derivatio nominis. The specific name is a noun in apposition taken from the type locality, Halugim Ridge.

Diagnosis. This new species is very close to *Y. albifrons*, but can easily be distinguished by the smaller size and different proportions of the CTA (cf Figs 174 and 172; these figures are made in the same scale), as well as the narrower RTA and the cymbial process (cf Figs 176 and 173). The female of *Y. halugim* sp.n. is unknown.

DESCRIPTION

Male (the holotype)

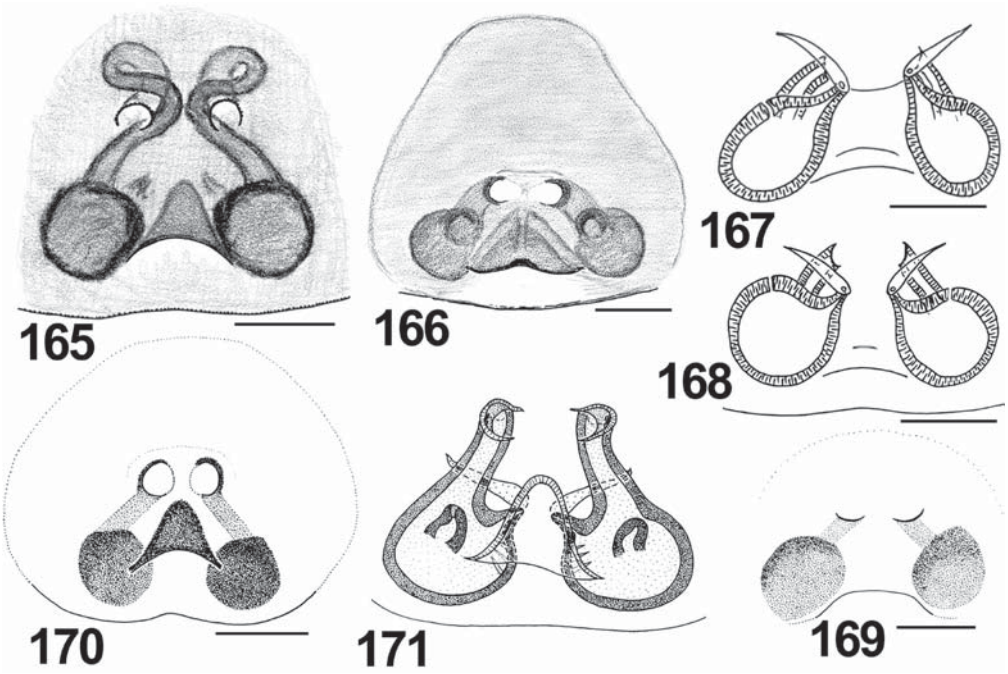
Measurements. Carapace 1.50 long, 1.35 wide, 0.96 high at PLE. Ocular area 0.76 long, 1.05 wide anteriorly and 1.23 wide posteriorly. Diameter of AME 0.31. Abdomen 1.48 long, 1.15 wide. Cheliceral length 0.45. Clypeal height 0.20.

Length of leg segments:

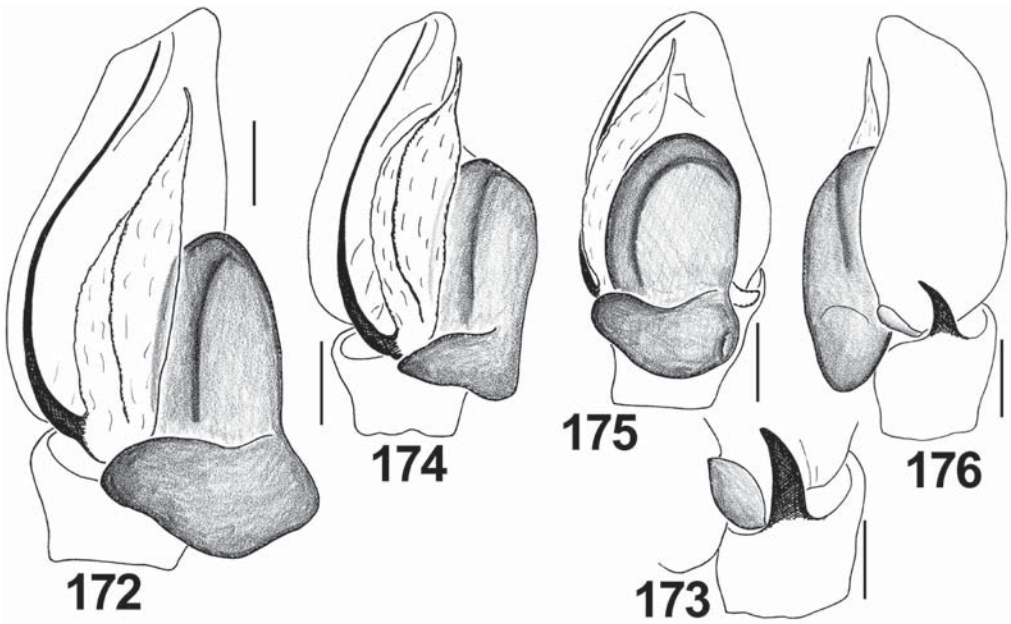
	Fm	Pt	Tb	Mt	Tr	Total
I	0.89	0.51	0.49	0.38	0.33	2.60
II	0.69	0.40	0.38	0.30	0.28	2.05
III	0.65	0.34	0.38	0.35	0.31	2.03
IV	1.38	0.63	0.68	0.40	0.38	3.47

Leg spination: Leg I: Fm d 0-1-1-2; Pt pr 0-1-0; Tb pr 1-1, v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-1-1-2; Pt pr 0-1-0; Tb pr 1-1, v 1-1-2; Mt v 2-2ap. Leg III: Fm d 0-1-1-2; Pt pr 0-1-0; Tb pr and rt 1-1; Mt pr 1-2ap, rt 1-1ap, v 1ap. Leg IV: Fm d 1-0-2-3; Pt pr and rt 0-1-0; Tb pr and rt 1-1-1; Mt pr and rt 1-2ap.

Coloration. Carapace dark brown, with black around eyes and densely covered with white and reddish appressed scales. Clypeus brownish yellowish, sparsely covered with long white and brownish hairs overhanging the chelicerae. Sternum brownish yellow, covered with white hairs. Maxillae, labium and chelicerae brown. Abdomen brownish yellowish, densely covered with white and yellowish appressed scales; a pattern of dorsum is not marked (but the paratype has a clear reticulate dark brown pattern on dorsum).



Figs 165–171. Copulatory organs of *Yllenus ranunculus* (165; the ♀ holotype), *Y. knappi* (166–168) and *Y. improcerus* (170–171; the ♀ holotype): 165–166, 169–170 — epigyne; 167–168, 171 — spermathecae. Specimens: 166–167 — Sudan; 168–169 — the ♀ holotype [169 after Wesołowska et van Harten, 1994: fig. 159]; 170–171 — [after Wesołowska et van Harten, 1994: figs 157–158]. Scale lines: 0.1 mm.



Figs 172–176. Copulatory organs of *Yllenus albifrons* (172–173; the ♂ neotype) and *Y. halugim* (174–176; the ♂ holotype): 172, 174 — ♂ bulb, median view; 175 — ditto, ventral view; 176 — ditto, lateral view; 173 — tibial apophysis, lateral view. Scale lines: 0.1 mm.

Book-lung covers brownish yellow, covered with white scales. Spinnerets brownish yellow. All legs brownish yellow, but femora and tibiae of all legs dark brown; all segments with numerous brown patches. Palps brownish yellow.

Palpal structure as in Figs 174–176; the RTA longer than wide, slightly sharpened and bent ventrally; the cymbial process small, ridge-shaped; the embolus whip shaped, slightly longer than the cymbium; the CTA lamella-shaped, relatively wide, with a spur-shaped tip, it is almost as long as the embolus.

Material examined. Holotype: 1 ♂ (HUJI; 15245; hitherto det. by J. Prószyński as *Y. squamifer*), Israel, Halugim Ridge (near Sede Boger), 30.11. 1990, Y. Lubin.

Paratype: ISRAEL: 1 ♂ (HUJI; 15236; hitherto det. by J. Prószyński as *Y. squamifer*), Hatira Ridge, Negev, 18.11.1991, Y. Lubin.

Habitat. In Israel, stony desert [Prószyński & Lubin, 1993: sub *Y. squamifer*].

Distribution. The type locality only (Map 16).

The records of *Y. squamifer* from Israel [Prószyński & Lubin, 1993; Prószyński, 2003] have proven to belong partly to *Y. halugim* sp.n. and partly to *Y. albifrons* (see above).

Yllenus improcerus Wesołowska et van Harten, 1994

Figs 170–171, Map 7

Yllenus improcerus Wesołowska et van Harten, 1994: 78–81, figs 157–158 (D♀; ♀ holotype in the MRAC; examined).

Yllenus improcerus: Prószyński, 2003: 175.

Type. The female holotype from Yemen; deposited in the MRAC.

Derivatio nominis. The species epithet is derived from the Latin word *improcerus*, meaning „unsightly".

Diagnosis. By the copulatory openings directed to each other and the relatively short insemination ducts, this species is most similar to *Y. knappi*, but can be easily distinguished from it by the longer insemination ducts (cf Figs 171 and 168–168).

DESCRIPTION

Male unknown.

Female (the holotype)

Measurements. Carapace 1.84 long, 1.65 wide, 1.18 high at PLE. Ocular area 1.03 long, 1.23 wide anteriorly and 1.18 wide posteriorly. Diameter of AME 0.40. Abdomen 2.05 long, 1.68 wide. Cheliceral length 0.58. Clypeal height 0.23. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.03	0.64	0.58	0.36	0.30	2.91
II	0.85	0.55	0.48	0.36	0.28	2.52
III	0.80	0.39	0.44	0.44	0.30	2.37
IV	1.78	0.80	0.93	0.60	0.35	4.46

Leg spination: Leg I: Fm d 1ap; Tb v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 1ap; Tb pr 0-1, v 1-1ap; Mt v 2-2ap. Leg III: Fm d 1ap; Tb pr and rt 1-1; Mt pr 1-2ap, rt 1-1ap, v 1-0. Leg IV: Fm d 4ap; Pt pr and rt 0-1-0; Tb d 1-0, pr and rt 1-1; Mt pr and rt 1-2ap, v 1-0.

Coloration. Carapace reddish brown, but yellowish dorsally on thoracic part and on eye field; black around eyes. Carapace densely covered with white appressed scales and long white hairs hanging over the chelicerae. Sternum yellow, with brown margins, covered with white hairs. Maxillae and labium yellow, with white apexes. Chelicerae dark brown. Abdomen: dorsum brownish grey, with a median longitudinal band (interrupted in its rear part); sides yellow-grey; venter yellow. Book-lung covers yellow, covered with white scales. Spinnerets yellow. All legs yellow, with small brownish patches on ends of segments.

Epigyne and spermathecae as in Figs 170–171; the bell-shaped epigynal pocket is situated between the receptacles; the copulatory openings face each other; the receptacles are separated by less than a diameter; glandular ducts are situated dorsally and look like a dorsal outgrowth of the receptacle.

Material examined. YEMEN: 1 ♀ (MRAC, 201.320; the holotype of *Yllenus improcerus*), between Yarim (ca 14°17'N, 44°23'E) and Hamam Damt (ca 14°06'N, 44°41'E), 19.03.1993, A. van Harten.

Habitat. No data.

Distribution. The type locality only (Map 7).

Yllenus knappi Wesołowska et van Harten, 1994

Figs 81, 166–169, Map 17

Yllenus knappi Wesołowska & van Harten, 1994: 81–82, figs 159–160 (D♀; ♀ holotype in the MRAC; examined).

Yllenus knappi: Prószyński, 2003: 175.

Type. The female holotype from Mocha (ca 13°18'N, 43°14'E), Yemen; deposited in the MRAC.

Derivatio nominis. The species was named after Mr M. Knapp, the collector of the holotype.

Diagnosis. This specis has the shortest insemination ducts of all the known *Yllenus* species (Figs 167–168); the males of *Y. knappi* remain unknown.

DESCRIPTION

Male unknown.

Female (the holotype)

Measurements. Carapace 2.01 long, 1.88 wide, 1.30 high at PLE. Ocular area 1.13 long, 1.43 wide anteriorly and 1.65 wide posteriorly. Diameter of AME 0.44. Abdomen 2.93 long, 2.28 wide. Cheliceral length 0.65. Clypeal height 0.30. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.15	0.73	0.66	0.45	0.35	3.34
II	0.98	0.58	0.55	0.38	0.29	2.78
III	0.93	0.45	0.51	0.51	0.35	2.75
IV	1.98	0.90	1.01	0.64	0.39	4.92

Leg spination: Leg I: Fm d 1ap; Tb v 2-2; Mt v 2-2ap. Leg II: Fm d 2ap; Tb pr 0-1, v 1-1; Mt v 2-2ap. Leg III: Fm d 1ap; Pt pr 0-1-0; Tb pr 1-1, v 0-1; Mt pr2-2ap, rt 1-2ap, v 1ap. Leg IV: Fm d 4ap; Pt pr and rt 0-1-0; Tb d 1-0, pr and rt 1-1-1; Mt pr 2-2ap, rt 1-2ap, v 1-0.

Coloration. Carapace yellowish brown, but yellow on eye field and thoracic part; black around eyes; carapace densely covered with white and reddish appressed scales. Clypeus yellow, densely covered with long white hairs. Sternum yellow, covered with white hairs. Maxillae and labium yellow-brown, with white apexes. Chelicerae dark brown. Abdomen: yellowish grey, with a median longitudinal brown band (no other pattern is marked, as the specimen looks rather rubbed); sides and venter yellow. Book-lung covers yellow, covered with white scales. Spinnerets yellow, tinged with grey. All legs yellow, with small brownish patches on ends of segments.

Epigyne and spermathecae as in Figs 81, 166–169; the epigynal pocket bell-shaped, rather wide; the copulatory openings rounded, situated close to and directed to each other; the insemination ducts very short (less than the diameter of the receptacle); the receptacles ovoid.

Material examined. YEMEN: 1 ♀ (MRAC, 201.305; the holotype of *Yllenus knappi*), Mocha (ca 13°18'N, 43°14'E), 15.03.1993, M. Knapp. — SUDAN: 1 ♀ (ZMHU), Sharta, W. Haefa Distr. [apparently Wadi Halfa (ca 21°48'N, 31°20'E)], 30.03.1964, M. Meinander.

Habitat. No data.

Distribution. Two localities in Yemen and Sudan (Map 17).

Yllenus mirabilis sp.n.

Figs 177–182, Map 12

Type. The male holotype from Bukhara (ca 39°47'N, 64°25'E), Uzbekistan; deposited in the ZMUM.

Derivatio nominis. The specific name is derived from the Latin word *mirabilis*, meaning "surprising"; the fact referring to the unique three-apophysated state of the embolar division.

Diagnosis. This species is known from a male only and differs from all *Yllenus* species described so far in having three apophyses in the embolar division (Figs 179–180).

DESCRIPTION

Male (the holotype)

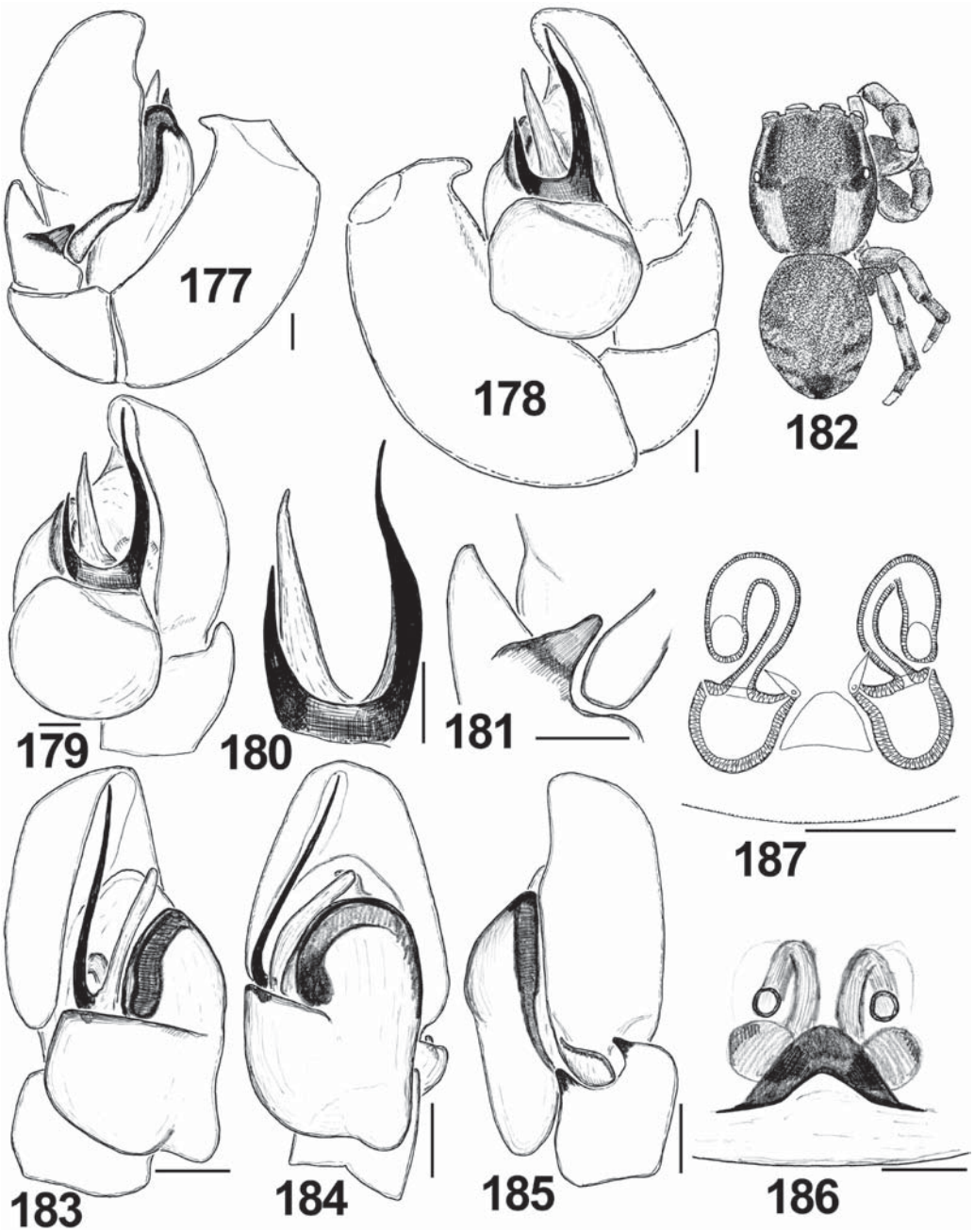
Measurements. Carapace 2.23 long, 1.85 wide, 1.15 high at PLE. Ocular area 1.11 long, 1.45 wide anteriorly and 1.68 wide posteriorly. Diameter of AME 0.48. Abdomen 2.13 long, 1.63 wide. Cheliceral length 0.63. Clypeal height 0.15.

Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.20	0.75	0.78	0.58	0.43	3.74
II	0.98	0.65	0.55	0.48	0.43	3.09
III	1.20	0.53	0.50	0.63	0.53	3.39
IV	1.66	0.68	0.73	0.55	0.53	4.15

Leg spination: Leg I: Fm d 0-1-1-1; Pt pr 0-1-0; Tb pr 0-1, v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-1-1-2; Pt pr and rt 0-1-0; Tb pr 1-1, v 1-1-2ap; Mt pr 1-0, v 2-2ap. Leg III: Fm d 0-1-1-3; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 2ap; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 0-1-1-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1-1, v 2ap; Mt pr and rt 1-2ap, v 1ap.

Coloration. Carapace light brown, with black around eyes, densely covered with brown-



Figs 177–187. Copulatory organs and somatic characters of *Yllenus mirabilis* (177–182; Turkmenistan, Sultanbent) and *Y. pseudovalidus* (183–187; Turkmenistan, Kizyl-Su): 177, 185 — ♂ palp, lateral view; 178–179, 183 — ditto, median view; 180 — embolic division, median view; 181 — tibial apophysis, lateral view; 182 — ♂ general appearance; 184 — ♂ palp, ventral view; 186 — epigyne; 187 — spermathecae. Scale lines: 0.1 mm.

ish and white appressed scales; with two longitudinal white stripes running from ALEs to PLEs and further to thoracic part (Fig. 182). Clypeus brownish yellow, sparsely covered with sand-coloured scales and with a marginal fringe of long white hairs hanging over the chelicerae. Sternum brown, covered with white hairs. Maxillae and labium yellow-brown, with white apexes. Chelicerae brown. Abdomen: dorsum brownish, with poorly marked white pattern (Fig. 182); sides and venter brown-yellow. Book-lung covers yellow, tinged with brown and covered with white scales. Spinnerets yellow-brown. All legs motley (brown and yellow patches and stripes), but all femora brown on their sides and Pt, Tb, Mt and Tr of the first legs ventrally black.

Palpal structure as in Figs 177–181; the RTA a triangular cone directed ventrally; the cymbial process with a narrow and elongated ridge, twice as long as the RTA; the embolus very broad at base and as if dichotomous (*viz*. bearing two stiletto-shaped apophyses), the embolus and the CTA shorter than the cymbium; the CTA straight, slightly longer and wider than the shorter apophysis of the embolic base.

Female unknown.

Material examined. Holotype: 1 ♂ (ZMUM), Uzbekistan, Bukhara [=Bukhoro] Area, near Bukhara [=Bukhoro] (ca 39°47'N, 64°25'E), 3.05.1976, A. P. Kononenko.

Paratypes: TURKMENISTAN: 1 ♂ (ZMUM), Mary Area, Iolotan' Distr., near Sultanbent (ca 37°08'N, 62°27'E), 31.05.1929, V. I. Sychevskaya [=Pereleshina].

Habitat. No data.

Distribution. Two localities in Uzbekistan and Turkmenistan (Map 12).

Yllenus mirandus Wesołowska, 1996

Figs 188–195, Map 12

Yllenus mirandus Wesołowska, 1996: 45–46, figs 40A–E (D♀; ♀ holotype in the ZMUM; examined).

Yllenus probatus Wesołowska, 1996: 46–48, figs 41A–E (D♂; ♂ holotype in the ZMUM; examined). **New Synonymy.**

Type. The female holotype from Kaplankyr Reserve, Turkmenistan; deposited in the ZMUM.

Derivatio nominis. The species epithet is derived from the Latin word *mirandus*, meaning "deserving wonder, startling".

Diagnosis. By the RTA directed ventrad, this species is rather similar to *Y. validus*, *Y. vittatus* and *Y. caspicus*, but can be readily separated from all of them by the absence of the VTA and the more widely separated embolus and CTA in males (cf Figs 188–190 and 128–130, 273–274, 288, 291), as well as the uniquely arranged spermathecae forming a distinct Π-shaped figure (cf Figs 195 and 133, 280, 287). See also comments under "Diagnosis" of *Y. bakanas* sp.n., *Y. pavlenkoae* sp.n. and *Y. dalaensis* sp.n.

Comments. Both species were originally described from single sexes only, *viz. Y. mirandus* (♀) and *Y. probatus* (♂) [s. Wesołowska, 1996]; one of the studied samples contains both males and females of these two species together. Thus, both species names are to be synonymized, of them *Y. mirandus* is a valid one for this species, as its description precedes that of *Y. probatus*.

DESCRIPTION

Male (from Turkmenistan, Garry-Gala)

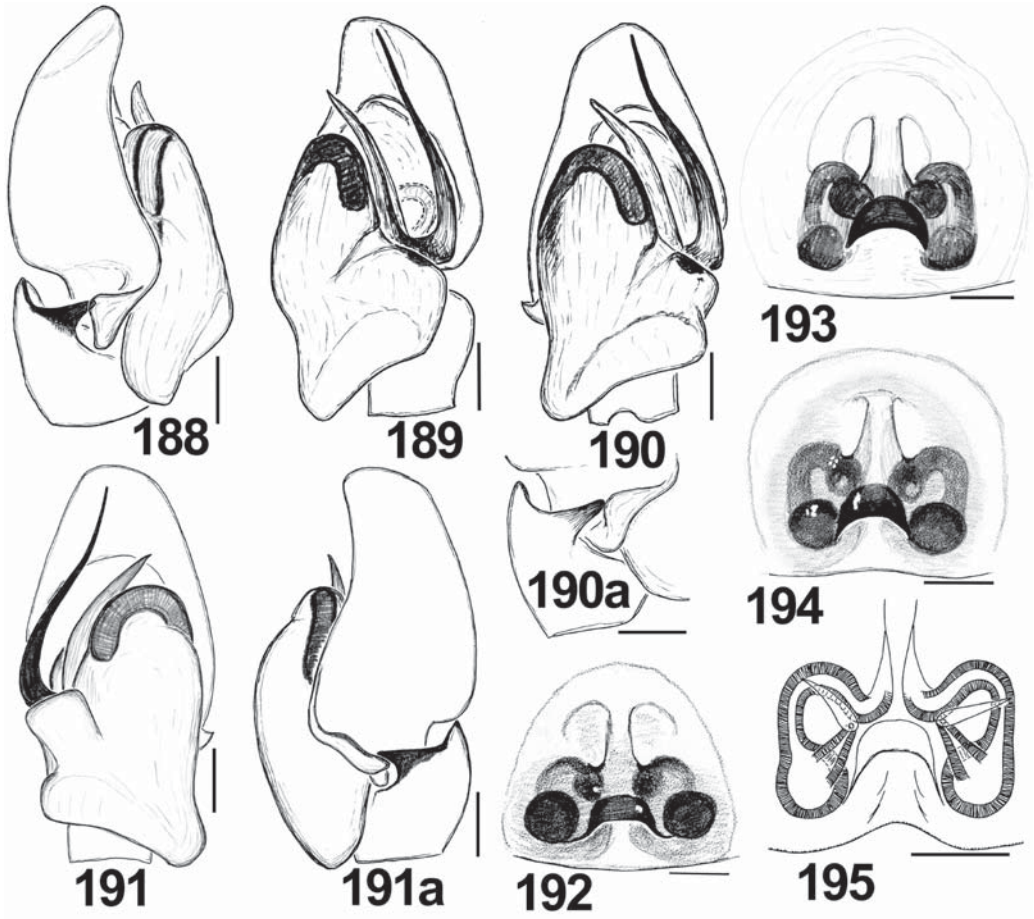
Measurements. Carapace 1.78 long, 1.33 wide, 0.80 high at PLE. Ocular area 1.35 long, 0.85 wide anteriorly and 1.20 wide posteriorly. Diameter of AME 0.35. Abdomen 1.58 long, 1.30 wide. Cheliceral length 0.43. Clypeal height 0.14.

Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	0.95	0.64	0.63	0.35	0.30	2.87
II	0.78	0.48	0.43	0.30	0.30	2.29
III	0.88	0.44	0.38	0.40	0.43	2.53
IV	1.23	0.58	0.53	0.50	0.45	3.29

Leg spination: Leg I: Fm d 0-1-1-1; Tb v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-1-1-1; Pt pr 0-1-0; Tb pr 1-1, v 1-1; Mt v 2-2ap. Leg III: Fm d 0-1-1-1; Pt pr 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 0-1-1-1; Pt pr and rt 0-1-0; Tb pr 1-1, rt 1-1-0-1; Mt pr and rt 1-2ap, v 1ap.

Coloration. Carapace red-brown, with black around eyes, densely covered with white, reddish and brown appressed scales; white scales also form two white stripes running from ALEs to PLEs and a central white spot on the eye field (this spot is often poorly marked). Clypeus brown, with sparse white scales and a marginal fringe of long sand-coloured hairs hanging over



Figs 188–195. Copulatory organs of *Yllenus mirandus*: 188, 191a — ♂ bulb, lateral view; 189 — ditto, median view; 190–191 — ditto, ventral view; 190a — tibial apophysis, lateral view; 192–194 — epigyne; 195 — spermathecae. Specimens: 188–190a — the ♂ holotype of *Y. probatus*; 191–191a — Turkmenistan, SW Kopetdagh Mts; 192–193, 195 — Turkmenistan, Kaplankyr Reserve; 194 — the ♀ holotype. Scale lines: 0.1 mm.

the chelicerae. Sternum yellow-brown, covered with white hairs. Maxillae and labium yellow-brown, with white apexes. Chelicerae brown. Abdomen: dark grey, with poorly marked reticulate pattern of white scales; sides grey; venter yellow. All legs yellow, with numerous brown patches and annulations. Book-lung covers yellow, covered with white scales. Spinnerets grey-yellow.

Palpal structure as in Figs 188–191a; the RTA hook-shaped, directed ventrally; the cymbial process rather large, triangular; the embolus rather thin, slightly bent apically; the CTA as wide as the embolus, with pointed tip.

Female (from Turkmenistan, Garry-Gala)

Measurements. Carapace 2.00 long, 1.70 wide, 1.08 high at PLE. Ocular area 1.55 long, 1.20 wide anteriorly and 1.35 wide posteriorly. Diameter of AME 0.43. Abdomen 2.60 long, 2.03 wide. Cheliceral length 0.65. Clypeal height 0.16. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.04	0.73	0.65	0.35	0.35	3.12
II	0.90	0.60	0.50	0.35	0.35	2.70
III	1.10	0.45	0.48	0.50	0.41	2.94
IV	1.53	0.70	0.73	0.68	0.48	4.12

Leg spination: Leg I: Fm d 1ap; Tb v 2-2; Mt v 2-2ap. Leg II: Pt pr 0-1-0; Tb pr 0-1, v 1-

1; Mt v 2-2ap. Leg III: Fm d 1ap; Pt pr 0-1-0; Tb pr and rt 1-1; Mt pr and rt 1-2ap, v 1-1ap. Leg IV: Fm d 1ap; Pt pr and rt 0-1-0; Tb pr and rt 1-1; Mt pr 1-2ap, rt 1-1ap, v 1ap.

Coloration. As described for male but lighter and differs as follows: clypeus densely covered with yellow hairs, including a marginal fringe; carapace with no marked colour pattern, evenly covered with motley (white + reddish + brown) appressed scales; dorsum with the well marked sand-coloured markings of 8-shaped central and V-shaped rear figures, plus sand-coloured patches and stripes; palps yellow.

Epigyne and spermathecae as in Figs 192–195; the epigynal pocket wider than high, half-moon-shaped, with its posterior edge concave; the copulatory openings elongated, separated by a median septum which is virtually equal to or slightly narrower than the width of the epigynal pocket; unlike other species of the group, the insemination ducts form Π-shaped figure; the receptacles rounded, separated by 1.5 their diameter.

Material examined. TURKMENISTAN: 1 ♀ (ZMUM; the holotype of *Yllenus mirandus*), Tashauz [=Dashkhovuz] Area, South Ustyurt Plateau, Kaplankyr Reserve, 5.06.1987, L. A. Mitroshina; 2 ♀♀ (ZMUM; the paratypes of *Yllenus mirandus*), same locality, 23.05–8.06.1985, L. A. Mitroshina; 1 ♀ (ZMUM; the paratype of *Yllenus mirandus*), same locality, 16.04.1986, L. A. Mitroshina; 1 ♀ (ZMUM), same locality, 28.05.1984, L. A. Mitroshina; 1 ♂, 2 ♀♀ (MMUM), Balkan [=Krasnovodsk] Area, Garry-Gala [=Kara-Kala] Distr., SW Kopetdagh Mts, near Garry-Gala [=Kara-Kala], S slope of Syunt Mt. (Kalalegyoz Canyon), 400 m a.s.l., 2.03–26.05.1990, T. V. Lukarevskaya; 1 ♂ (ZMUM; the holotype of *Yllenus probatus*), Tashauz [=Dashkhovuz] Area, Kalinin Distr., Ustyurt Plateau, Kankakyr [=Gangalykyr] Height (41°22'N, 58°02'E), 13.04.1985, O. S. Soyunov; 1 ♂ (ZMUM; palp only; the paratype of *Yllenus probatus*), Tashauz [=Dashkhovuz] Area, South Ustyurt Plateau, Kaplankyr Reserve (ca 41°12'N, 57°29'E), 13.05.1986, L. A. Mitroshina.

Habitat. In Turkmenistan, the species was collected in steppe-like associations from different shrubs (*Anabasis* sp. and *Salsola gemmascens*, in crown).

Distribution. So far, this species is known only from a few localities in Turkmenistan (Map 12), but its occurrence in Iran and Afghanistan is likely.

Yllenus nigritarsis sp.n.

Figs 196–200, Map 18

Type. The male holotype from Shakhsenem well (ca 41°35'N, 58°43'E), Turkmenistan; deposited in the ZMUM.

Derivatio nominis. The specific name refers to the contrastingly coloured tarsi I (dark brown/black as compared to yellow legs; Fig. 200).

Diagnosis. This species is known from males only and differs from most of other *Yllenus* species by its small size (this is one of the smallest *Yllenus* species) and in having the contrastingly coloured tarsi I (Fig. 200) and the markedly elongated coxae IV (at least two times as long as those of other legs). The male palpus of *Y. nigritarsis* sp.n. is distinguished by its long RTA being thick basally and thin, finger-shaped apically (Fig. 198) and the boomerang-shaped CTA (Figs 196–197).

Male (the paratype from near Shakhsenem well, Turkmenistan)

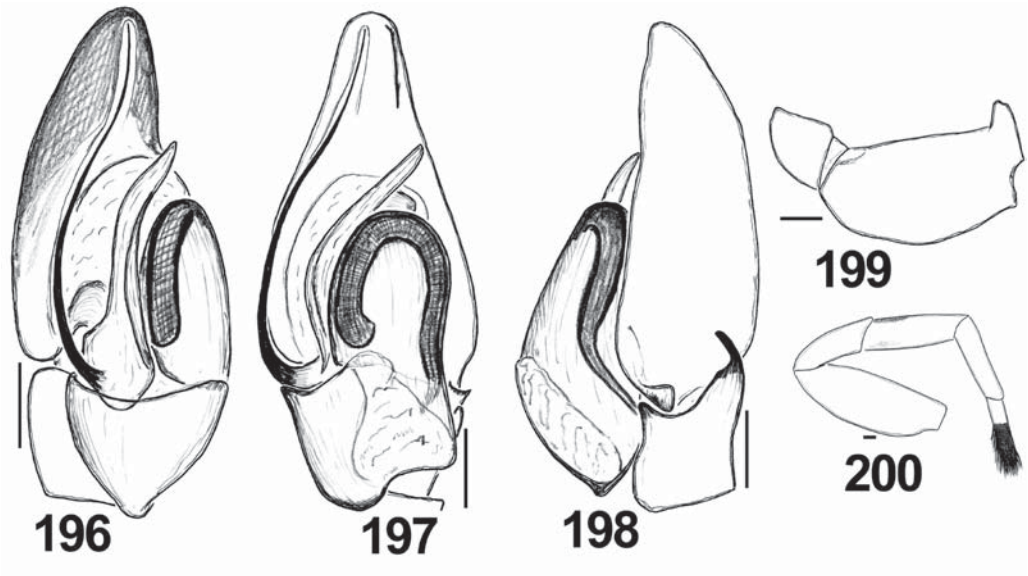
Measurements. Carapace 1.48 long, 1.30 wide, 0.85 high at PLE. Ocular area 0.65 long, 0.78 wide anteriorly and 0.91 wide posteriorly. Diameter of AME 0.25. Abdomen 1.53 long, 1.00 wide. Cheliceral length 0.35. Clypeal height 0.13.

Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	0.71	0.50	0.50	0.40	0.36	2.47
II	0.70	0.40	0.45	0.38	0.35	2.28
III	0.70	0.40	0.45	0.38	0.35	2.28
IV	1.35	0.68	0.78	0.53	0.33	3.67

Leg spination: Leg I: Fm d 0-1-1-1; Pt pr 0-1-0; Tb pr 0-1-1-1-0, v 0-1-0; Mt pr 0-1, v 2-2ap. Leg II: Fm d 0-1-1-1; Pt pr and rt 0-1-0; Tb pr 1-1, v 1-0; Mt v 2-2ap. Leg III: Fm d 1-1-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1-0; Mt pr 1-2ap, rt 1-1ap. Leg IV: Fm d 1-0-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1-1-0; Mt pr and 1-1-1ap.

Coloration. Carapace yellow, with brown eye field and black around eyes; carapace covered with yellow appressed scales. Clypeus yellow, densely covered with yellow hairs. Sternum yellow, covered with white hairs. Labium, maxillae and chelicerae yellow. Abdomen: dorsum grey, with yellowish stains, covered with shining scales; sides and venter light yellow.



Figs 196–200. Copulatory organs of *Yllenus nigritarsis* (Turkmenistan, Repetek): 196 — ♂ bulb, median view; 197 — ditto, ventral view; 198 — ditto, lateral view; 199 — palpal femur, lateral view. Scale lines: 0.1 mm.

Book-lung covers light yellow, covered with white scales. Spinnerets light yellow. All legs yellow, with small brown patches dorsally on tibiae and metatarsi; tarsi I contrastingly coloured (dark brown to black as compared to other yellow segments, Fig. 200); coxae and trochanters IV markedly elongated (two to three times as long as coxae and trochanters of other legs). Palps yellow; cymbium dorsally covered with white hairs and medio-apically with black hairs.

Palpal structure as in Figs 196–199; the palpal tibia with two apophyses; the RTA rather long, thick at its basal part and thin, finger-shaped apically; the VTA cone-shaped; the cymbial process rather small, triangular; the embolus whip-shaped, longer than the cymbium; the CTA 2–3 times wider than the embolus, looking like a crescent.

Female unknown.

Material examined. Holotype: 1 ♂ (ZMUM), Turkmenistan, Tashauz [=Dashkhovuz] Area, Il'yaly Distr., near Shakhsenem well (ca 41°35'N, 58°43'E), 1.05.1985, O. S. Soyunov.

Paratypes: TURKMENISTAN: 3 ♂♂ (ZMUM), 3 ♂♂ (MMUM), together with the holotype; 1 ♂ (MMUM), Lebap [=Chardzhou] Area, Chardzhou Distr., Central Karakumy Desert, ca 70 km NW of Repetek, Eradzhy sands, near Eradzhy Well, [ca 38°46'N, 62°28'E], 16.05.1978, V. G. Kaplin.

Habitat. In Turkmenistan, sandy desert, where it occurs in saltmarshes and can be collected by pitfall traps [present data].

Distribution. The species is known from Central Kyzylkumy desert only (Map 18).

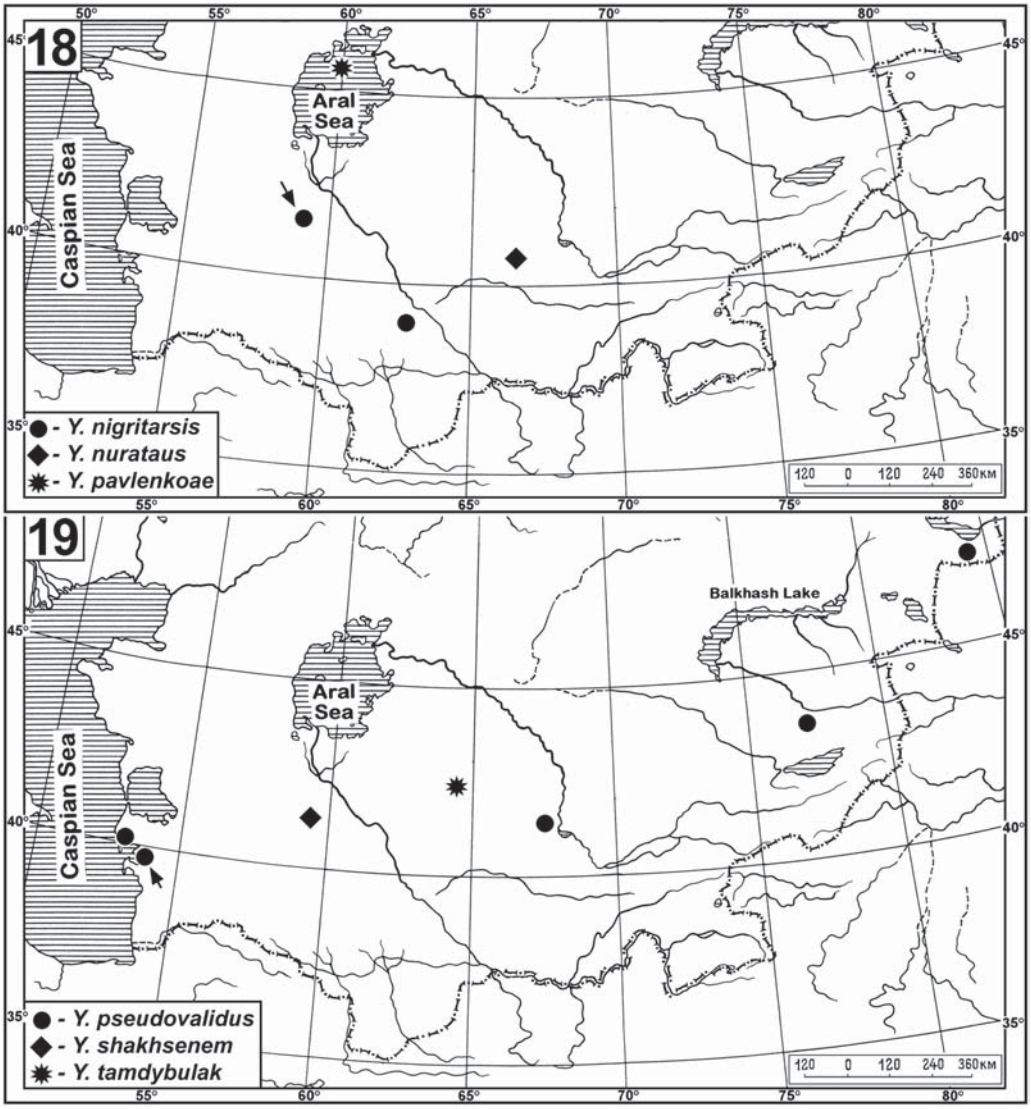
Yllenus nurataus sp.n.

Figs 216–217, Map 18

Type. The female holotype from Nuratau Mt. Range (ca 40°32'N, 66°54'E), Uzbekistan; deposited in the ZMUM.

Derivatio nominis. The specific name is a noun in apposition taken from the type locality, Nuratau Mt. Range.

Diagnosis. This species is known from a female only and by the structure of its epygine is similar to *Y. dalaensis* sp.n. (cf Figs 216 and 141–142); both species can be readily separated by the position and course of the insemination ducts (cf Figs 217 and 140). Also, *Y. nurataus* sp.n. is lacking a white pattern on carapace, which is present in *Y. dalaensis* sp.n. (Fig. 137).



Maps 18–19. Distribution of *Yllenus* species: 18 — *Y. nigritarsis*, *Y. nurataus* and *Y. pavlenkoae* in Central Asia; 19 — *Y. pseudovalidus*, *Y. shakhsenem* and *Y. tamdybulak* in Central Asia. One dot may represent more than one close locality; if more than one record, type localities arrowed.

DESCRIPTION

Male unknown.

Female (the holotype)

Measurements. Carapace 2.40 long, 1.90 wide, 1.03 high at PLE. Ocular area 1.08 long, 1.48 wide anteriorly and 1.73 wide posteriorly. Diameter of AME 0.48. Abdomen 2.83 long, 2.13 wide. Cheliceral length 0.75. Clypeal height 0.18. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.15	0.78	0.71	0.53	0.40	3.57
II	1.03	0.68	0.58	0.43	0.46	3.18
III	1.25	0.59	0.60	0.59	0.51	3.54
IV	1.78	0.80	0.83	0.75	0.53	4.69

Leg spination: Leg I: Fm d 0-0-1; Tb v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-0-1; Pt pr 0-1-0; Tb pr 1-1, v 1-2-2ap; Mt v 2-2ap. Leg III: Fm d 0-0-2; Pt pr 0-1-0; Tb pr and rt 1-1, v 1ap; Mt

pr and rt 1-2ap, v 1ap. Leg IV: Fm d 0-0-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1ap.

Coloration. Carapace brown, with black around eyes and thoracic part yellowish; carapace densely covered with white (brown + white on eye field) appressed scales. Clypeus yellow-brownish, with a marginal dense fringe of long white hairs. Sternum light brown, covered with white hairs. Maxillae, labium and chelicerae brown. Abdomen: dorsum and sides motley (pattern consists of whitish and brownish patches of appressed scales); venter yellow. Book-lung covers and spinnerets yellow, tinged with brown. All legs yellow, with numerous brown stripes and patches, also covered with white appressed scale and protruding hairs. Palps yellow, with brown patches on segments' ends.

Epigyne and spermathecae as in Figs 216–217; the epigyne with wide median septum and large oval copulatory openings; the spermathecae are rather sclerotized, with the insemination ducts funnel-shaped and subparallel, the receptacles large, curved and situated close to each other.

Material examined. Holotype: 1 ♀ (ZMUM), Uzbekistan, Nuratau Mt. Range (ca 40°32'N, 66°54'E), 14.05.1976, A. P. Kononenko.

Habitat. No data.

Distribution. The type locality only, N. Uzbekistan (Map 18).

Yllenus pavlenkoae sp.n.

Figs 201–212, Map 18

Yllenus salticola (*lapsus calami*; *nec* Simon; misidentified): Pavlenko, 1985: 149.

Yllenus ? *salsicola* (*nec* Simon; misidentified): Zyuzin *et al*., 1994: 7.

Yllenus univittatus (*nec* Simon; misidentified): Pavlenko, 1985: 149; Zyuzin *et al*., 1994: 7.

Type. The male holotype from Barsakel'mes Isl. (ca 45°41'N, 59°55'E), Kazakhstan; deposited in the ZISP.

Derivatio nominis. The species honours our late colleague and friend, Miss Tatyana V. Pavlenko (St. Petersburg, Russia), who untimely died in 2001 and who collected many interesting spiders from Kazakhstan (Barsakel'mes) and Kamtchatka, including the type series of this new species.

Diagnosis. By its motley colouration (Figs 206–207), this species can be readily separated from all known *Yllenus* species. By the conformation of the copulatory organs, the males of *Y. pavlenkoae* sp.n. are most similar to those of *Y. mirandus* and differ in having the RTA directed anteriad (ventrad in *Y. mirandus*) (cf Figs 203 and 191a); the females are similar to those of *Y. albifrons*, but differ by the smaller epigynal pocket and receptacles (cf Figs 210–212 and 194–195).

DESCRIPTION

Male (the holotype)

Measurements. Carapace 1.78 long, 1.35 wide, 0.85 high at PLE. Ocular area 0.81 long, 1.08 wide anteriorly and 1.28 wide posteriorly. Diameter of AME 0.29. Abdomen 1.60 long, 1.15 wide. Cheliceral length 0.53. Clypeal height 0.16.

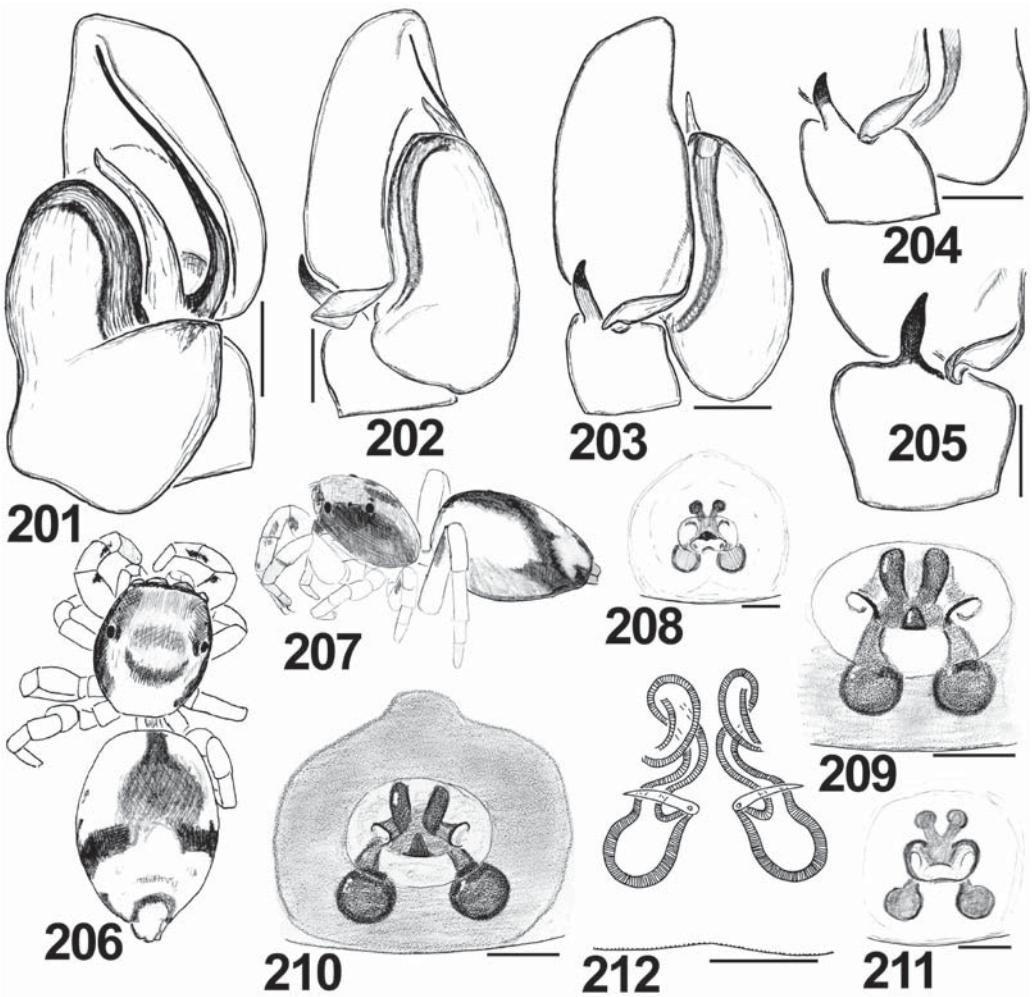
Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	0.95	0.58	0.58	0.40	0.33	2.84
II	0.85	0.45	0.48	0.34	0.33	2.45
III	0.88	0.43	0.49	0.53	0.40	2.73
IV	1.46	0.65	0.78	0.60	0.40	3.89

Leg spination: Leg I: Fm d 0-1-1-1; Pt pr 0-1-0; Tb v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-0-1-1; Pt pr 0-1-0; Tb pr 0-1, v 1-1-2ap; Mt v 2-2ap. Leg III: Fm d 0-0-2/1-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 0-1-1-1; Pt pr and rt 0-1-0; Tb pr 2-1, rt 1-1-1; Mt pr and rt 1-2ap, rt 1ap.

Coloration. Carapace light yellow-brown, with black around eyes, densely covered with white appressed scales. Clypeus yellow, densely covered with long yellow hairs. Sternum light yellow, covered with yellow hairs. Maxillae, labium and chelicerae light yellow. Entire abdomen light yellow, covered with yellow scales and with no marked colour markings (but the specimen looks faded). Book-lung covers and spinnerets light yellow. All legs light yellow, patellae and tibiae I with ventral brushes of brownish short hairs. Palps yellow.

Palpal structure as in Figs 201–205; the RTA finger-shaped; the cymbial process ridge-like, its width longer than the RTA; the embolus as long as the cymbium, slightly bent; the CTA



Figs 201–212. Copulatory organs and somatic characters of *Yllenus pavlenkoae*: 201 — ♂ palp, median view; 202–203 — ditto, lateral view; 204–205 — tibial apophysis, lateral view; 206–207 — ♀ general appearance; 184 — ♂ palp, ventral view; 208–211 — epigyne; 212 — spermathecae. Specimens: 201–205 — the ♂ holotype; 206–212 — Kazakhstan, Barsakel'mes Isl. Scale lines: 0.1 mm.

gradually tapering, slightly wider and shorter than the embolus.

Female (the paratype from Barsakel'mes Isl., Kazakhstan)

Measurements. Carapace 1.80 long, 1.48 wide, 0.93 high at PLE. Ocular area 0.85 long, 1.10 wide anteriorly and 1.38 wide posteriorly. Diameter of AME 0.33. Abdomen 2.48 long, 1.85 wide. Cheliceral length 0.53. Clypeal height 0.15. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	0.88	0.58	0.48	0.38	0.35	2.67
II	0.78	0.48	0.30	0.34	0.30	2.20
III	0.95	0.45	0.45	0.46	0.38	2.69
IV	1.46	0.65	0.78	0.60	0.40	3.89

Leg spination: Leg I: Fm d 0-0-1-1; Tb pr 0-1, v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-0-1-1; Pt pr 0-1-0; Tb pr 0-1, v 1-1-1ap; Mt v 2-2ap. Leg III: Fm d 1/2ap; Pt pr and rt 0-1-0; Tb pr and rt 0-1-0, v 1ap; Mt pr and rt 1-2ap, v 1ap.

Leg IV: Fm d 1ap; Pt pr and rt 0-1-0; Tb pr and rt 1-1-1; Mt pr and rt 1-2ap, rt 1ap.

Coloration. As described for male, but differs as follows: eye field and central area of thoracic part densely covered with white appressed scales, while sides of carapace densely covered with brown appressed scales; clypeus covered with orange and yellow hairs; dorsum with brownish Λ-shaped pattern (Figs 206–207); femora of all legs with distal-prolateral brownish patches (same patches on prolateral sides of tibiae and patellae I); legs I lacking ventral brushes of brownish hairs. Palps yellow.

Epigyne and spermathecae as in Figs 208–212; the epigynal pocket very small, triangular to bell-shaped; the copulatory openings ovoid and rather poorly visible; the receptacles rounded, separated by 0.5–1 diameter; the whole spermathecae look like 88 figure.

Material examined. Holotype: 1 ♂ (ZISP; hitherto determined by A. B. Nenilin as *Y. univittatus*), Kazakhstan, Kyzyl-Orda Area, Aral'sk Distr., Aral Sea, Barsakel'mes Isl. (ca 45°41'N, 59°55'E), 20.08.1982, V. V. Shishkin.

Paratypes: KAZAKHSTAN: 6 ♀♀ (ZMUM), Kyzyl-Orda Area, Aral'sk Distr., Aral Sea, Barsakel'mes Isl. (ca 45°41'N, 59°55'E), 30.04–11.07. 1984, T. V. Pavlenko & D. D. Piryulin; 8 ♀♀ (ZISP), 3 ♀♀ (MMUM), same locality, 27.04–12.07.1983, T. V. Pavlenko; 3 ♀ (ZISP; hitherto determined by T. V. Pavlenko as *Y. salsicola*), same locality, summer 1981, D. O. Eliseev; 1 ♂ (ZISP), Aral Sea, 30.08. 1928, A. S. Makhonin.

Habitat. In Kazakhstan (Barsakel'mes), fixed sands of seashores, from where the species can be collected during evening and night time by sweeping different bushes/grasses like *Haloxylon aphylum*, *Argyropylon* sp., *Tamarix* sp., *Zostera minor*, *Stipagrostis pennata* and others [Pavlenko, 1985, plus data from labels; Zyuzin *et al*., 1994; both sub *Y. salsicola* and *Y. univittatus*].

Distribution. Known only from one locality in Kazakhstan, *viz*. Barsakel'mes Island in Aral Sea (Map 18).

The earlier records of *Y. salsicola* and *Y. univitatus* from Barsakel'mes by Pavlenko [1985] actually belong to this species (Pavlenko's specimens re-examined).

Yllenus pseudovalidus sp.n.

Figs 183–187, Map 19

Yllenus validus (*nec* Simon; misidentified): Nenilin, 1985 (*pro parte*): 131.

Yllenus somonensis (*nec* Prószyński; misidentified): Wesołowska, 1996 (*pro parte*; the record from Kizyl-Su): 48, figs 42A–G (♂♀).

Type. The male holotype from the paratype from Kizyl-Su (39°47'N, 53°01'E), Turkmenistan; deposited in the ZMUM.

Derivatio nominis. The specific epithet refers to the close relationships of this species to *Y. validus*, under which name it has been recorded several times in Middle Asia.

Diagnosis. This species is especially close to *Y. validus*, from which it can be separated by the comparatively the narrower embolus and the obtuse rather than sharpened CTA (cf Figs 183–184 and 273, 277), relative size and position of the RTA and VTA (cf Figs 185 and 274, 278), the smaller (as compared to the epigynal pocket) receptacles (cf Figs 186 and 284) and the wider and longer insemination ducts (cf Figs 187 and 280). See also comments under "Diagnosis" of *Y. caspicus*.

DESCRIPTION

Male (the paratype from Kizyl-Su, Turkmenistan)

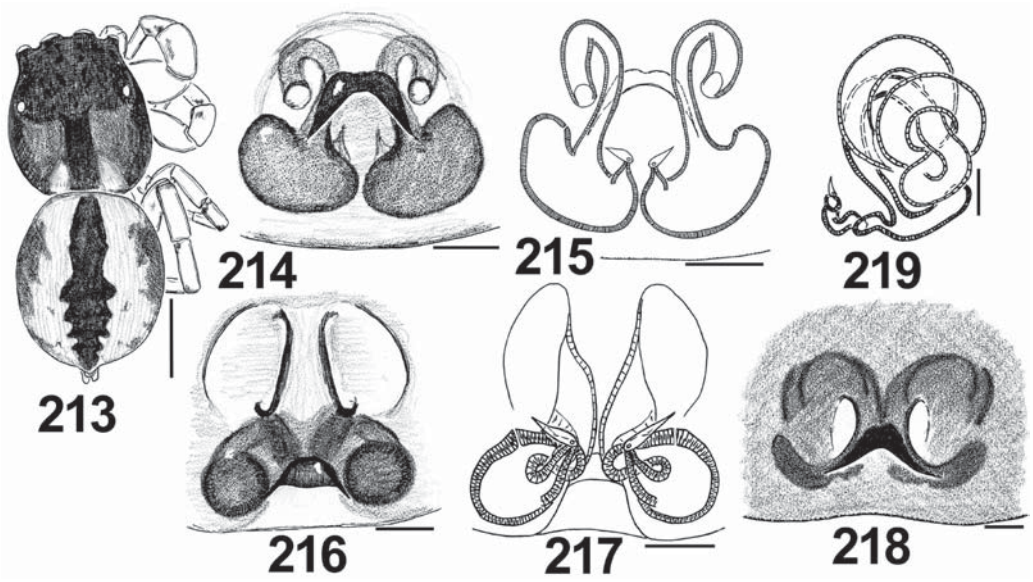
Measurements. Carapace 2.03 long, 1.58 wide, 0.95 high at PLE. Ocular area 0.98 long, 1.20 wide anteriorly and 1.44 wide posteriorly. Diameter of AME 0.34. Abdomen 2.20 long, 1.45 wide. Cheliceral length 0.60. Clypeal height 0.15.

Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.21	0.75	0.83	0.61	0.43	3.83
II	0.99	0.56	0.55	0.45	0.39	2.94
III	1.11	0.50	0.53	0.58	0.45	3.17
IV	1.55	0.73	0.78	0.73	0.41	4.20

Leg spination: Leg I: Fm d 0-1-1-1; Tb v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-1-1-1; Tb pr 1-1, v 0-1-2ap; Mt v 2-2ap. Leg III: Fm d 1-0-1-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 1-0-1-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1; Mt pr and rt 1-2ap, v 1ap.

Coloration. Carapace dark red-brown, densely covered with white appressed scales.



Figs 213–219. Copulatory organs of *Yllenus tamdybulak* (165; the ♀ holotype), *Y. nurataus* (216–217; the ♀ holotype) and *Y. bator* (218–219; China): 213 — ♀ general appearance; 214, 216, 218 — epigyne; 215, 217, 219 — spermathecae. Scale lines: 1 mm (213), 0.1 mm (214–219).

Clypeus yellow-brown, covered with white scales and long white hairs hanging over the cheliceare. Sternum yellow-brown, covered with white hairs. Labium and maxillae yellow. Chelicerae dark brown. Dorsum and sides dark grey to yellowish grey, covered with white appressed scales (with no marked pattern); venter brownish yellow. Book-lung covers yellow, covered with white scales. Spinnerets yellow, tinged with brown. All legs yellow, but sides of segments (especially of femora) brownish; all segments covered with appressed white scales and protruding hairs. Palps yellow, sparsely covered with white hairs.

Palpal structure as in Figs 183–185; the palpal tibia with two apophyses, the RTA hook-shaped and directed ventrally, the VTA cone-shaped; the cymbial process rather large, ridge-shaped; the embolus straight, shorter than the cymbium; the CTA finger-shaped, slightly curved, nearly 1.5 times shorter and 2 times wider than the embolus.

Female (the paratype from Kizyl-Su, Turkmenistan)

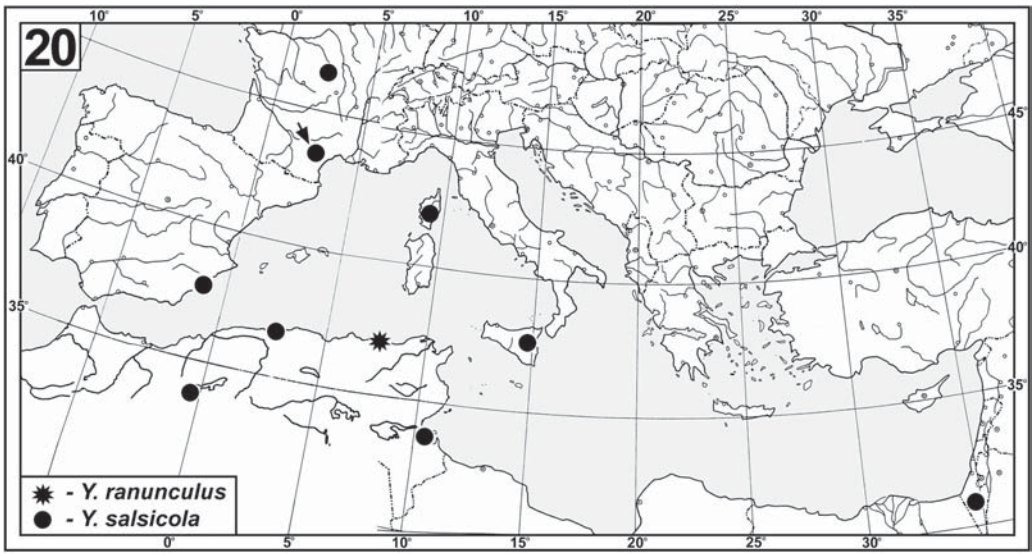
Measurements. Carapace 2.30 long, 1.85 wide, 1.00 high at PLE. Ocular area 1.05 long, 1.36 wide anteriorly and 1.59 wide posteriorly. Diameter of AME 0.43. Abdomen 2.75 long, 2.43 wide. Cheliceral length 0.68. Clypeal height 0.18. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.18	0.70	0.64	0.45	0.35	3.32
II	0.98	0.55	0.55	0.38	0.34	2.80
III	1.08	0.60	0.55	0.56	0.43	3.22
IV	1.64	0.80	0.88	0.75	0.43	4.50

Leg spination: Leg I: Fm d 1ap; Tb v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 1ap; Tb pr 0-1, v 0-1-1ap; Mt v 2-2ap. Leg III: Fm d 1ap; Pt pr 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 1ap; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1ap.

Coloration. As described for male, but lighter and differs as follows: carapace covered with both white and reddish appressed scales; clypeus covered with reddish hairs, with a marginal fringe of white hairs hanging over the chelicerae; dorsum often with well-marked median brown stripe (cardial spot) and poorly marked reticulate pattern of brownish patches and streaks.

Epigyne and spermathecae as in Figs 186–187; the epigynal pocket wide, Λ-shaped; the copulatory openings rounded, separated by ca



Map 20. Distribution of *Y. ranunculus* and *Y. salsicola* in the Mediterranean. One dot may represent more than one close locality; if more than one record, type localities arrowed.

4 diameters; the receptacles semicircular, separated by 1 diameter.

Material examined. Holotype: 1 ♂ (ZMUM), Turkmenistan, Balkan [=Krasnovodsk] Area, Krasnovodsk Distr., Kizyl-Su (39°47'N, 53°01'E), 7.07.1929, V. I. Sychevskaya [=Pereleshina].

Paratypes: TURKMENISTAN: 4 ♂♂, 17 ♀♀ (ZMUM; hitherto determined by A. Nenilin as *Y. validus*), together with the holotype; 3 ♂♂, 15 ♀♀ (ZMUM), 1 ♂, 5 ♀♀ (MMUM), Balkan [=Krasnovodsk] Area, Krasnovodsk Distr., Kizyl-Su (39°47'N, 53°01'E), 8.07.1929, V. I. Sychevskaya [=Pereleshina]; 1 ♀ (ZMUM), same area and distr., near Krasnovodsk, Kubadagh Mts. (ca 40°02'N, 52°58'E), 15.07.1929, V. I. Sychevskaya [=Pereleshina]. — KAZAKHSTAN: 1 ♂ (MMUM), Almaty Area, Talgar Distr., N shore of Kapchagai reservoir (ca 43°51'N, 77°50'E), 9.09.1977, P. I. Marikovskii; 1 ♀ (MMUM), Kyzylkum desert, ca 68 km of Nurata, the bank of Syrdarya river, 12.05.1976, A. P. Kononenko; 2 ♀♀ (SZMN), East Kazakhstan Area, Tarbagatai Distr., S shore of Lake Zaisan, ca 5 km SE of Priozernoe (ca 47°43'N, 84°16'E), 11.06.1997, R. Yu. Dudko & V. K. Zinchenko.

Habitat. In Turkmenistan, the species was collected in desert zone from *Tamarix* sp., houses' walls and wooden slabs and from stones [present data].

Distribution. This seems to be a lowland Turanian species known so far from a few localities in S. and E. Kazakhstan and Turkmenistan (Map 19).

Some of earlier records of *Y. validus* from Turkmenistan by Nenilin [1985] should be referred to this species (Nenilin's specimens re-examined). Some of Wesołowska's [1996: figs 42a-g] records of *Y. somonensis* from W. Turkmenistan (*e.g.* from Kizyl-Su) belong to this species as well (cf Figs 183–187).

Yllenus ranunculus Thorell, 1875

Fig. 165, Map 20

Yllenus ranunculus Thorell, 1875a: 200 (D♀; ♀ holotype in the ZMCD; examined).
Aelurops ranunculus: Simon, 1876a: 139 (T from *Yllenus*).
Aelurillus ranunculus: Reimoser, 1919: 112 (T from *Aelurops*).
Yllenus ranunculus: Punda, 1975a: 37, fig. 5 (♀; T from *Aelurillus*); Prószyński, 1990: 363.

Type. The female holotype from Bône, Algeria; deposited in the ZMCD.

Derivatio nominis. The species epithet is derived from the Latin, meaning "tadpole".

Comments. The taxonomic status of Y. *ranunculus* remains uncertain. This species was described from a single ♀, which is very similar (nearly identical) to that of *Y. albifrons*; the receptacles of *Y. ranunculus* are slightly more

widely separated and its epigynal pocket is closer to the epigastric furrow as compared to *Y. albifrons* (situated just in between the receptacles) (cf Figs 165 and 95). However, these differences may be only a matter of variation, as they are in many other speices (*e.g. Y. albocinctus*, *etc.*). This assumption cannot be verified now, as we have studied only a single female of *Y. albifrons* and one of *Y. ranunculus*. Although we are almost sure that both these names are synonymous, we postpone a formal synonymization until more numerous and fresh material have been collected.

Distribution. The type locality only, Algeria (Map 20).

Yllenus saliens
O. Pickard-Cambridge, 1876

Figs 44, 54, 220–234, Map 6

Yllenus saliens Pickard-Cambridge, 1876: 620–621, pl. 60, fig. 92 (D♂♀; ♂ holotype in the HECO; not examined).

Attus saliens: Simon, 1885a: 4 (T from *Yllenus*).

Attulus saliens: Simon, 1901: 581 (T from *Attus*); Reimoser, 1919: 105; Caporiacco, 1936: 96, 105 (♀); Denis, 1966: 116, fig. 21 (♀).

Yllenus saliens: Prószyński, 1968: 476, f. 8, 26, 42, 73, 161–167 (T from *Attulus*), 1990: 363; Punda, 1975: 36, figs 3–4 (♀).

Attulus albifrons (*nec* Lucas, misidentified): Caporiacco, 1933: 96, 333 (♀); Prószyński, 1968: 458, figs 50, 65, 74, 126–128 (♂♀, T from *Attulus*), 1990: 362; Punda, 1975: 35–36, figs 1–2 (♀).

Yllenus arabicus Prószyński, 1993: 48, figs 37–40 (D♂; apparently the ♂ holotype in the ZMPA; examined, but see "Comments" below). **New Synonymy.**

Yllenus arabicus: Prószyński, 2003: 175.

Type. The male holotype from Egypt (near "Jebel y Silsilis"); deposited in the HECO (not located there).

Derivatio nominis. The species epithet is derived from the Latin "*saltus*" (=jump) and means "jumping".

Diagnosis. This species has an easily recognisable sharply pointed and hook-shaped RTA (Figs 222, 231) and a very stout (stiletto-like) embolus closely situated to the CTA (Figs 220, 228); the females of *Y. saliens* are similar to those of *Y. albifrons*, but differ in the shape of the loop of the insemination ducts (cf Figs 234 and 96). See also comments under "Diagnosis" of *Y. tschoni*.

Comments. An identification of the specimens from "Suez" as *Y. saliens* (2 ♂♂, 4 ♀♀; see below) could cause some doubts, as we have been unable to compare them to the holotype of *Y. saliens*, which should have been deposited in the HECO, but was not found there (checked out personally by one of us, DL). Instead, in the HECO, we found three other males collected from "Upper Egypt" and identified apparantly by O. Pickard-Cambridge himself as "*Attus onerosus* Cambr." (this is a nonexistent name). Thus, we assumed that these males are derived from the same salticid collection, from which the holotype of *Y. saliens* originated. Taking into account that (1) these three males are identical to Simon's specimens from "Suez" and (2) J. Prószyński [1968] already compared Simon's specimens to the holotype of *Y. saliens*, we have concluded that we are dealing with true *Y. saliens*.

The holotype of *Y. arabicus* should have been deposited in the NHMB, but is not there [A. Hänggi, pers. comm.]. We have been able to re-examine a ♂ from the ZMPA studied originally by J. Prószyński and labelled as *Yllenus* sp.n.; the tube with this ♂ also contained a label with locality data identical to that given in Prószyński's [1993] original description of *Y. arabicus*. Therefore, we have concluded this male is either the unlabelled holotype of *Y. arabicus*, or an additional specimen recognised as this new species, but not included in the type series. A careful comparison of this ♂ to what we consider *Y. saliens* (see above) has revealed that the name *Y. arabicus* Prószyński, 1993 should be synonymized with *Y. saliens*.

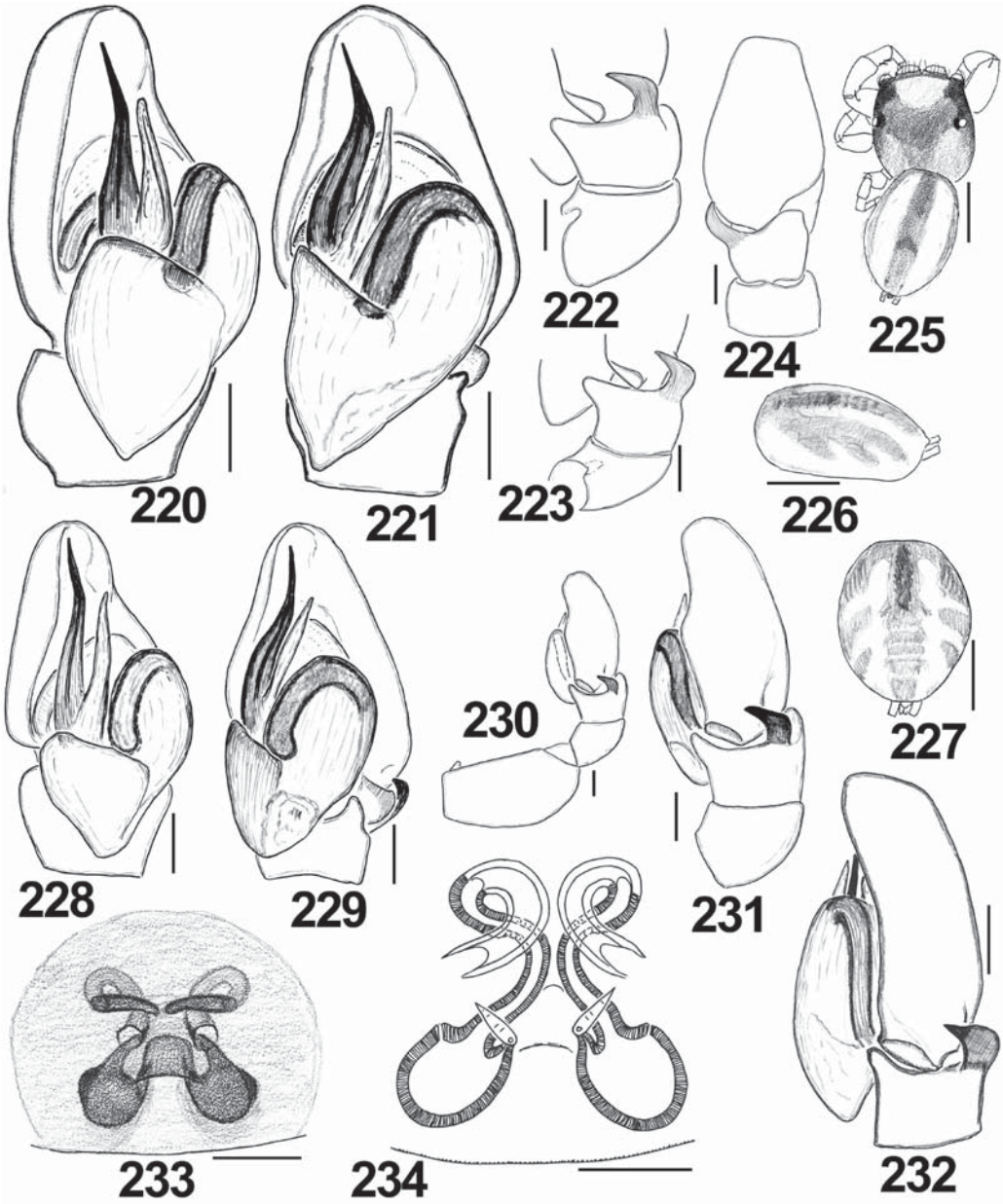
DESCRIPTION

Male (from Egypt)

Measurements. Carapace 1.85 long, 1.58 wide, 1.15 high at PLE. Ocular area 1.00 long, 1.23 wide anteriorly and 1.45 wide posteriorly. Diameter of AME 0.40. Abdomen 1.78 long, 1.38 wide. Cheliceral length 0.48. Clypeal height 0.21.

Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.05	0.58	0.65	0.51	0.38	3.17
II	0.90	0.51	0.53	0.40	0.35	2.69
III	0.88	0.40	0.48	0.48	0.38	2.62
IV	1.78	0.71	0.95	0.65	0.40	4.49



Figs 220–234. Copulatory organs and somatic characters of *Yllenus saliens*: 220, 228 — ♂ palp, median view; 221, 229 — ditto, ventral view; 222–223 — tibial apophysis, lateral view; 225 — ♂ general appearance; 226–227 — ♂ dorsum, lateral and dorsal views; 230–232 — ♂ palp, lateral view; 233 — epigyne; 234 — spermathecae. Specimens: 220–221, 225–227, 232 — the holotype of *Y. arabicus*; 222–224, 228–231, 233–234 — Egypt. Scale lines: 1 mm (225–227), 0.1 mm (220–223, 228–234).

Leg spination: Leg I: Fm d 0-1-1-2; Pt pr 0-1-0; Tb pr 1-1, v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-1-1-3; Pt pr and rt 0-1-0; Tb pr 1-1, v 1-1-2ap; Mt pr 1ap, v 2-2ap. Leg III: Fm d 1-1-2; Pt pr and rt 0-1-0; Tb pr and rt 1-1; Mt pr and rt 1-2ap, v 1-1ap. Leg IV: Fm d 1-0-2-3; Pt pr and rt 0-1-0; Tb d 1-0, pr and rt 1-1-1; Mt pr and rt 2-2ap.

Coloration. Carapace yellowish brown, with black around eyes, densely covered with white appressed scales (Fig. 225). Clypeus yellow, densely covered with long brown hairs hanging over the chelicerae. Sternum yellow, covered with white hairs. Maxillae and labium yellowish brown, with white apexes. Chelicerae brown. Abdomen entirely yellow, with a wide median band on dorsum (Figs 225–227). Book-lung covers and spinnerets yellow. All legs yellow.

Palpal structure as in Figs 44, 54, 220–224, 228–232; the palpal tibia with two apophyses: the RTA hook-shaped and directed ventrally, the CTA like an extended cone; the cymbial process with a rather broad and narrow ridge; the tegulum triangular, with an extended angle in its prolateral part; the embolus very wide at base (wider than the CTA) and tapering to its slightly curved tip; the CTA straight, as wide as the embolus and ca 1.5 times shorter than it, gradually tapering to its tip.

Female (from Egypt)

Measurements. Carapace 2.25 long, 1.98 wide, 1.16 high at PLE. Ocular area 1.08 long, 1.35 wide anteriorly and 1.63 wide posteriorly. Diameter of AME 0.43. Abdomen 2.50 long, 1.95 wide. Cheliceral length 0.70. Clypeal height 0.26. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.20	0.73	0.71	0.48	0.39	3.51
II	1.05	0.60	0.60	0.43	0.33	3.01
III	1.05	0.50	0.51	0.55	0.38	2.99
IV	2.14	0.95	1.08	0.78	0.43	5.38

Leg spination: Leg I: Fm d 2ap; Tb v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 2ap; Tb pr 0-1, v 1-1; Mt v 2-2ap. Leg III: Fm d 2ap; Pt pr and rt 0-1-0; Tb pr and rt 1-1; Mt pr and rt 1-2ap, v 1-1ap. Leg IV: Fm d 4ap; Pt pr and rt 0-1-0; Tb d 1-0, pr and rt 1-1-1; Mt pr and rt 2-2ap, v 1-0.

Coloration. As described for male, but clypeus densely covered with white hairs. Palps yellow.

Epigyne and spermathecae as in Figs 233–234; the insemination ducts form an 88 figure; the receptacles ovoid, separated by less than one diameter.

Material examined. EGYPT: 2 ♂♂, 4 ♀♀, 1 juv. (MNHN, 5.979), "Alex. Suez, la Caire"; 3 ♂♂, 3 juv. (HECO, b.1732; identified as "*Attus onerosus* Cambr."; a nonexistent name), "Upper Egypt". — SUDAN: 1 ♂ (ZMHU), Sharta, W. Haefa Distr. [apparently Wadi Halfa (ca 21°48'N, 31°20'E)], 30.03. 1964, M. Meinander. — SAUDI ARABIA: 1 ♂ (ZMPA; apparently the holotype of *Yllenus arabicus*), Hada Alsham [apparently Haddat ash Sham (ca 21°46'N, 39°39'E)], alfa-alfa field (pitfall No: 8), no date, A. A. Faragallai. — LIBYA: 1 ♀ (without epigyne) (MZSF; determined earlier by Caporiacco as *Y. albifrons*), Hattìa di Gur Atta near Gialo, 7.04. 1931, Patrizi (see above "Comments" under *Y. albifrons* about the latter specimen).

Habitat. According to Pickard-Cambridge [1876], in Egypt, the species was found among the stems and at the roots of scattered stunted plants on the desert near Jebel y Silsilis.

Distribution. This species seems to be restricted to NE Africa (Map 6), including the Arabian Penisula (the record from Yemen (Lahij) was kindly provided W. Wesołowska [pers. comm.]).

Our colleague, W. Wesołowska [pers. comm.] from Wrocław (Poland), also informed us that in the salticid collections of the California Academy of Sciences she found and studied a male of *Y. saliens* collected from Mauritania (31 km S of Nouakchott, November 1994, leg. F. Borgato); thus, the range of this species may be much wider, covering whole Sakhara region. We have been unable to re-examine this male and therefore have not mapped this record.

The record of *Attulus albifrons* (1 ♀) from Libya (Hattìa di Gur Atta) by Caporiacco [1933] belongs to *Y. saliens*. Although we have been unable to study the spermathecae of Caporiacco's female, the above conclusion can be readily made on the basis of the re-description and illustrations by Punda [1975: figs 1–2], who re-examined this specimen. The futher record of *Y. albifrons* from Libya (El Kufra Highland)

[see Prószyński, 1968: figs 126–128] should also be treated as that of *Y. saliens*.

Caporiacco [1936] recorded *Attulus saliens* from Libya, but most of his records were based on immature specimens (see table 3, p.159) and cannot be taken into consideration; the only correct Caporiacco record from Libya is that from Uadi el-Ghazàl (Auenàt). This specimen, an adult ♀, was also re-examined by Punda [1975: figs 3–4]. The record of *Y. saliens* from Yemen [Wesołowska & van Harten, 1994] was not based on actual collections (only the literature data by Caporiacco [1936], Prószyński [1968] and Punda [1975] are repeated) and is not mentioned here.

Yllenus salsicola (Simon, 1937)

Figs 235–241, Map 20

Attulus salsicola Simon, 1937: 1196, 1258, figs 1891–1893 (D♂♀; the syntypes in the MNHN; examined).
Attulus salsicola: Denis, 1954: 90.
Yllenus salsicola: Prószyński, 1968: 455, f. 15, 24, 49, 64, 121–125 (T from *Attulus*), 1990: 363, 2003: 174, figs 703–708; Cantarella, 1980: 64; Prószyński & Lubin, 1993: 285–287, 290; Logunov, 1996a: 60, fig. 24 (♂); Alicata & Cantarella, 2000: 487; Cardoso, 2000: 27.

Type. The syntypes from Gruissan (ca 43° 06'N, 3°04'E), France; deposited in the MNHN.

Derivatio nominis. The species epithet is derived from the Latin, meaning "living on salt marshes".

Diagnosis. This species is closest to *Y. albifrons* and *Y. squamifer*, but can be distinguished by the narrower CTA (cf Figs 235, 238 and 86, 91, 242), the wider and more bent RTA (cf Figs 237 and 93, 244) and especially by the coiled insemination ducts (cf Figs 241 and 96, 252) which are similar to those of some members of the *hamifer* species group, *e.g. Y. uzbekistanicus* sp.n. (Fig. 532). See also comments under "Diagnosis" of *Y. tschoni*.

DESCRIPTION

Male (measuremts from the syntype, colouration from the Israeli specimen)

Measurements. Carapace 1.76 long, 1.55 wide, 1.00 high at PLE. Ocular area 0.88 long, 1.15 wide anteriorly and 1.40 wide posteriorly. Diameter of AME 0.35. Abdomen 1.65 long, 1.15 wide. Cheliceral length 0.53. Clypeal height 0.20.

Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.00	0.58	0.68	0.40	0.34	3.00
II	0.86	0.50	0.45	0.35	0.28	2.44
III	0.83	0.35	0.45	0.38	0.34	2.35
IV	1.58	0.69	0.73	0.53	0.40	3.93

Leg spination: Leg I: Fm d 0-1-1-2; Pt pr 0-1-0; Tb pr 1-1, v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-1-1-3; Pt pr 0-1-0; Tb pr 1-1, v 1-1-2ap; Mt pr 1ap, v 2-2ap. Leg III: Fm d 0-1-1-3; Pt pr and rt 0-1-0; Tb pr and rt 1-1; Mt pr and rt 1-2ap, v 1-1ap. Leg IV: Fm d 1-0-1-4; Pt pr and rt 0-1-0; Tb pr and rt 1-1-1; Mt pr and rt 1-2ap, v 1-1ap.

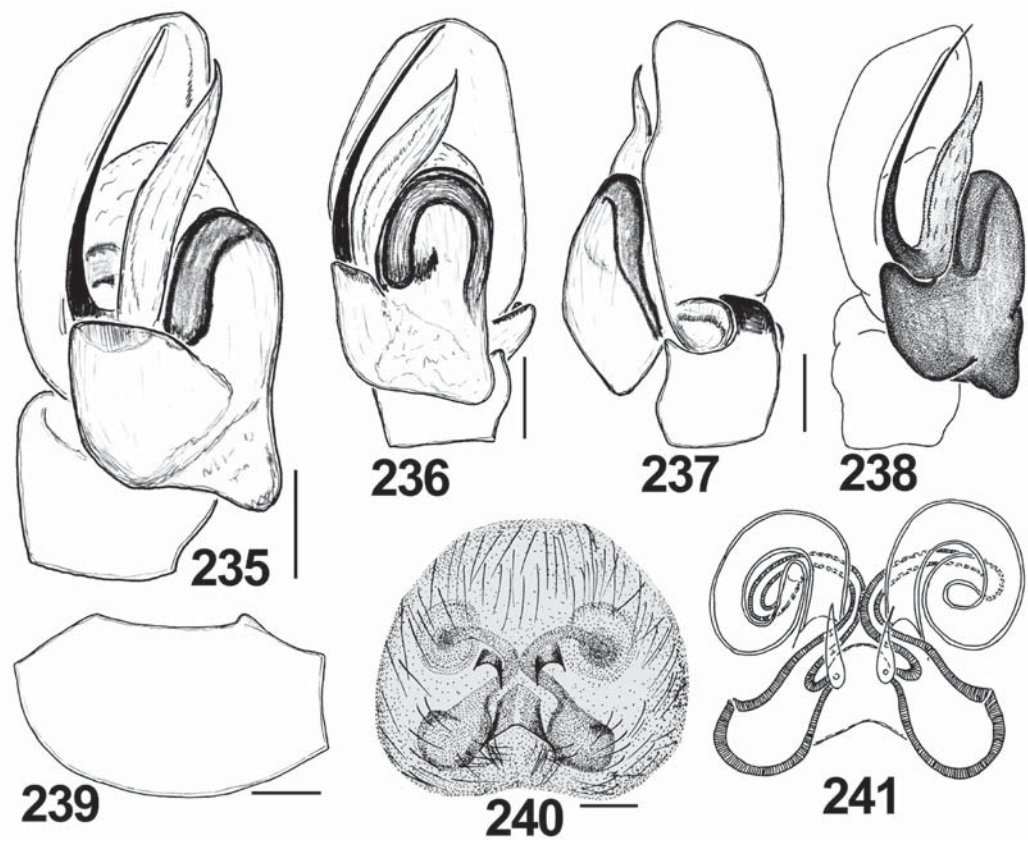
Coloration. Carapace red-brown, but eye field yellowish and black around eyes; carapace densely covered with white appressed scales. Clypeus yellow, sparsely covered with white scales and long white hairs. Sternum yellow, with thin brown edging and covered with white hairs. Maxillae and labium brownish yellow, with white apexes. Chelicerae brown. Abdomen: dorsum and sides yellowish grey, dorsum with a wide median brown band; venter yellow. Booklung covers yellow, covered with white scales. Spinnerets yellow. All legs yellow, but tibiae I ventrally densely covered with brown appressed scales. Palps yellow, with brownish bulbus.

Palpal structure as in Figs 235–239; the palpal femur with two apophyses: the RTA hook-shaped and directed ventrally, the VTA small, cone-shaped; the cymbial process round, wider than the RTA; the tegulum with an extended angle at its retrolateral basal end; the embolus and the CTA shorter than the cymbium; the CTA wide and lamella-shaped, 3 times as wide as the embolus.

Female (the syntype)

Measurements. Carapace 2.05 long, 1.78 wide, 1.15 high at PLE. Ocular area 1.03 long, 1.33 wide anteriorly and 1.56 wide posteriorly. Diameter of AME 0.40. Abdomen 2.80 long, 2.13 wide. Cheliceral length 0.58. Clypeal height 0.18. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.09	0.68	0.60	0.38	0.30	3.05
II	0.93	0.58	0.46	0.36	0.28	2.61
III	0.88	0.48	0.45	0.43	0.30	2.54
IV	1.78	0.88	0.93	0.65	0.38	4.62



Figs 235–241. Copulatory organs of *Yllenus salsicola*: 235, 238 — ♂ palp, median view; 236 — ditto, ventral view; 237 — ditto, lateral view; 239 — palpal femur, lateral view; 240 — epigyne; 241 — spermathecae. All specimens from France (240 — after Prószyński [1968: fig. 124]; 241 — redrawn from Prószyński [1968: fig. 125]). Scale lines: 0.1 mm.

Leg spination: Leg I: Fm d 1ap; Tb v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 1ap; Tb pr 0-1, v 1-1; Mt v 2-2ap. Leg III: Fm d 1ap; Pt pr 0-1-0; Tb pr and rt 1-1; Mt pr and rt 1-2ap. Leg IV: Fm d 3ap; Pt pr and rt 0-1-0; Tb d 1-0, pr and rt 1-1-1, v 1-0; Mt pr and rt 1-2ap.

Coloration. As described for male, but clypeus densely covered with white hairs and tibiae I entirely yellow, lacking brown appressed scales. Palps yellow.

Epigyne and spermathecae as in Figs 240–241; the epigynal pocket bell-shaped; the copulatory openings rounded, separated by 1.5 diameters; the insemination ducts make 1.5 revolution, they are 2 times wider than the sclerotized ducts; the receptacles ovoid, separated by less than one diameter.

Material examined. FRANCE: 2 ♂♂, 1 ♀ (MNHN; apparently the syntypes of *Attulus salsicola*), "Gruissan…" [Languedoc-Roussillon Prov., Aude DePt, Gruissan (ca 43°06'N, 3°04'E)]; 3 ♀♀ (YMPC), Corsica, Ostriconi beach, sand dunes, 15.08.2002, Y. Montardi. — ISRAEL: 1 ♂ (HUJI, 15234), Be'er Mash'abbim, 5.12.1990, Y. Lubin.

Other material examined. J. Prószyński [2003] also identified the ♂ specimen from Israel (Ma'agan Micha'el, 28.07.1964, S. Blondheim) as *Y. salsicola*. We re-examined this ♂ (kept in HUJI, 15233). As its left palp was missing and its right one undeveloped identification was impossible.

Habitat. In Israel, sand dunes (drifting sands) [Prószyński & Lubin, 1993].

Distribution. This species is distributed from France to Israel (Map 20). Although we have been unable to re-examine all the speci-

mens from the localities mentioned by Simon [1937] (*e.g*. from Algeria, Tunisia, Spain), we have accepted Simon's data as valid and have mapped them. *Y. salsicola* was also recorded from E. Sicilia [Cantarella, 1980; Alicata & Cantarella, 2000]; although we mapped this record, it raises some questions and may belong to another species (*e.g. Y. gavdos* sp.n.). We have been unable to re-examine the Sicilan specimens and the matter needs attention in the future.

The records of *Y. salsicola* from Kalmykiya (Kaspiiskii) by Ponomarev [1978] and Minoranski & Ponomarev [1984], which were also mentioned by Nenilin [1985], are erroneous. On the basis of original figures of Ponomarev [1978: figs 1,г,д] only, it is safe to assume that this author actually dealt with a single male of *Y. caspicus* (see above; cf Figs 128–129). The record of the two latter authors [Minoranski & Ponomarev, 1984], who reported on a single ♀, belongs elsewhere. No specimen of *Y. salsicola* has been located in Ponomarev's collection of the Salticidae (kept in the ZMUM), which was revised by one of us (DL). Records of *Y. salsicola* from Barsakel'mes by Pavlenko [1985] belong to *Y. pavlenkoae* sp.n. (Pavlenko's specimens re-examined). The record of *Y. saliens* from the Canary Islands by Wunderlich [1992: ♂ only] belongs to *Y. gavdos* sp.n. (Wunderlich's specimen re-examiend); the assignment of Wunderlich's female remains uncertain, as we have been unable to match it to any of W. Mediterranean species known to us (see above under "Comments" under *Y. gavdos* sp.n.).

Hu [2001] recorded *Y. salsicola* from Quinghai-Tibet (Dingjie, 4400 m a.s.l.), but the illustration he provided of this species appears to have been re-drawn from Prószyński [1968]. It is, therefore, unclear which species does occur in Tibet and we do not accept Hu's data.

Yllenus shakhsenem sp.n.

Figs 153–156, Map 19

Type. The male holotype from Shakhsenem well (ca 41°35'N, 58°43'E), Turkmenistan; deposited in the ZMUM.

Derivatio nominis. The specific epithet is a noun in apposition referring to the type locality.

Diagnosis. This species is especially close to *Y. gavdos* sp.n., but can be separated by the smaller size of both its body and palpus (half as big as the latter species), the clypeus densely covered with brown hairs (no such a cover in *Y. gavdos* sp.n.) and the proportions of the CTA (cf Figs 153 and 147; arrowed). Also, *Y. shakhsenem* sp.n. has contrastingly coloured first legs: femora yellow; patellae and tibiae dorsally yellow, but ventrally dark brown; metatarsi and tarsi dark brown (almost black). These legs in *Y. gavdos* sp.n. are yellow, with small brownish patches and annulations.

DESCRIPTION

Male (the holotype; this specimen is in a bad condition, with the abdomen separated from the carapace and legs partly missing)

Measurements. Carapace 1.28 long, 1.06 wide, 0.79 high at PLE. Ocular area 0.73 long, 0.73 wide anteriorly and 0.88 wide posteriorly. Diameter of AME 0.28. Abdomen 1.53 long, 1.06 wide. Cheliceral length 0.25. Clypeal height 0.13.

Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	0.60	0.38	0.43	0.28	0.33	2.02
II	0.51	0.29	0.35	0.28	0.28	1.71
III	0.55	0.29	0.30	0.29	0.28	1.71
IV	1.15	0.53	0.60	0.36	0.34	2.98

Leg spination: Leg I: Fm d 0-1-1; Tb pr 1-1, v 1-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-1-1-2; Pt pr and rt 0-1-0; Tb pr 1-1, v 1-1; Mt v 2-2ap. Leg III: Fm d 0-1-1-2; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 1-0-2-3; Pt pr and rt 0-1-0; Tb d 1-0, pr and rt 1-1-1; Mt pr 1-2ap, rt 1-1ap.

Coloration. Carapace yellowish brownish, eye field dark brown, black around eyes; carapace densely covered with white appressed scales. Clypeus brown, densely covered with brown hairs. Sternum dark brown, covered with white scales/hairs. Labium, maxillae and chelicerae brown. Abdomen entirely dark grey (venter slightly yellowish), covered with white scales. Book-lung covers yellow, covered with white scales. Spinnerets grey.

Palpal structure as in Figs 153–156; the palpal tibia with two apophyses: the RTA long, slightly bent in its apical half, the VTA very

small, cone-shaped; the embolus whip-like; the CTA like a very broad lamella, its tip pointed and turned upwards. Legs I: femora yellow; patellae and tibiae dorsally yellow, but ventrally dark brown; metatarsi and tarsi dark brown (almost black). Legs II: all segments yellow, but tarsi and metatarsi dark brown. Legs III–IV: all segments completely yellow. Palps brownish.

Female unknown.

Material examined. TURKMENISTAN: 1 ♂ (ZMUM), Tashauz [=Dashkhovuz] Area, Il'yaly Distr., near Shakhsenem well (ca 41°35'N, 58°43'E), 3.05.1985, O. S. Soyunov.

Habitat. No data, although it is known from the original label that the holotype was collected by pitfall trapping.

Distribution. The type locality only (Map 19).

Yllenus squamifer (Simon, 1881)

Figs 83, 242–252, Map 11

Eris squamifer Simon, 1881: 134 (D♂♀; the syntypes in the MNHN; examined).

Ericulus squamifer: Simon, 1885b: 88 (T from *Eris*).

Attulus squamifer: Simon, 1901: 581 (T from *Ericulus*); Reimoser, 1919: 105.

Yllenus squamifer: Prószyński, 1968: 460, figs 6, 14, 23, 37, 51, 63, 129–135 (D♂♀; T from *Attulus*), 1976: 148, figs 5, 10 (♂), 1990: 363; Logunov, 1996a: 60, fig. 25 (♂); Cardoso, 2000: 27; Melic, 2001: 49, 79.

Type. The syntypes from "Algaroc" (label illegible; apparently Algarve in southern Portugal); deposited in the MNHN.

Derivatio nominis. The species epithet is derived from the Latin, meaning "covered with scales".

Diagnosis. This species is most similar to *Y. albifrons*; males can be separated from those of the latter species by the narrower RTA, the wider cymbial process (cf Figs 244 and 88, 93) and the contrasting (yellow + brown) colouration of the palpi (Fig. 248); the females of *Y. squamifer* can be readily separated by the bigger and more widely separated receptacles, as well as the proportions of the insemination ducts (cf Figs 252 and 96). This species is also close to *Y. salsicola*, but can be readily distinguished by the wider CTA, the narrower and less bent RTA (cf Figs 242 and 235) and especially by the less coiled insemination ducts (cf Figs 252 and 241). See also comments under "Diagnosis" of *Y. tschoni*.

DESCRIPTION

Male (from Monte Gordo, Portugal).

Measurements. Carapace 1.75 long, 1.53 wide, 0.85 high at PLE. Ocular area 0.78 long, 1.06 wide anteriorly and 1.20 wide posteriorly. Diameter of AME 0.33. Abdomen 1.58 long, 1.28 wide. Cheliceral length 0.53. Clypeal height 0.16.

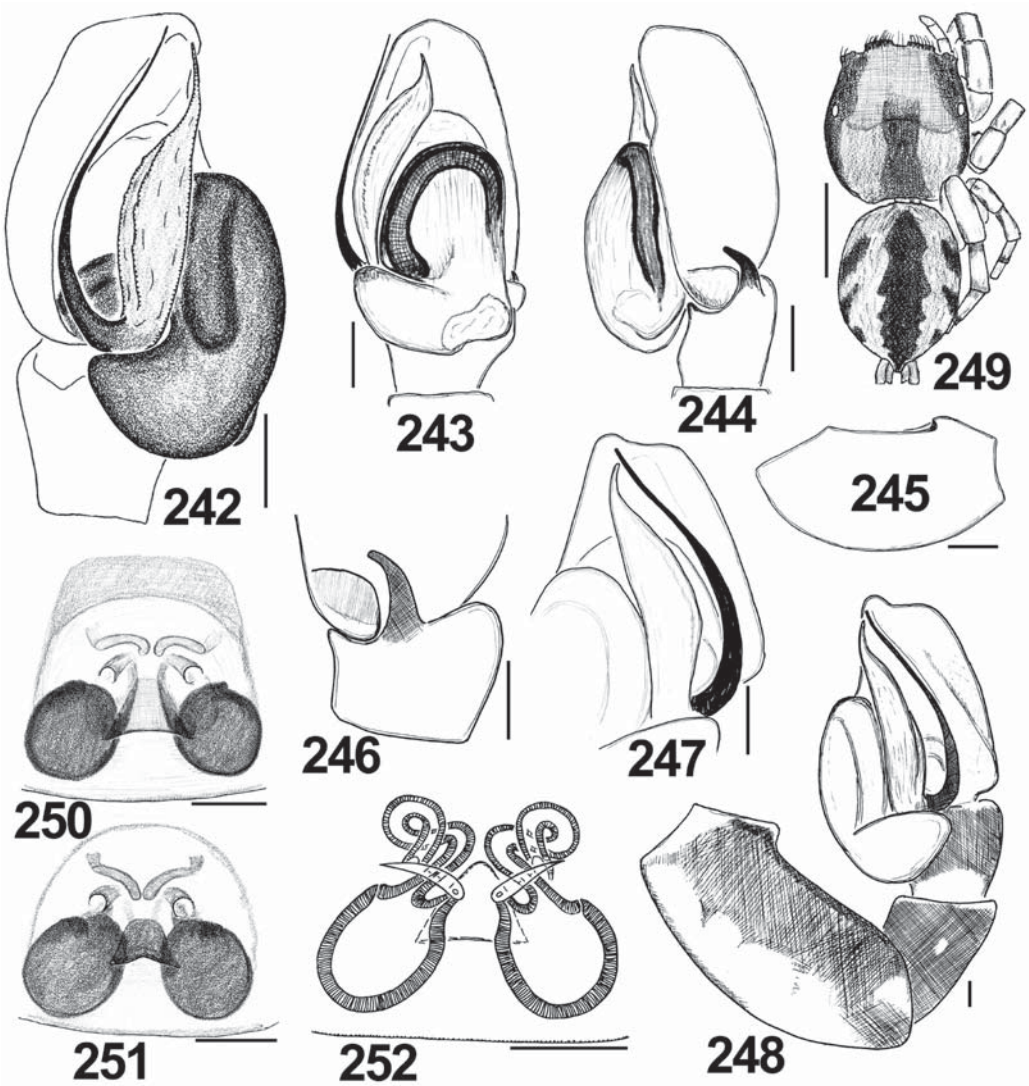
Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	0.93	0.53	0.58	0.43	0.38	2.85
II	0.85	0.43	0.50	0.38	0.33	2.49
III	0.79	0.44	0.43	0.40	0.33	2.39
IV	1.51	0.69	0.75	0.56	0.40	3.91

Leg spination: Leg I: Fm d 0-1-1-2; Pt pr 0-1-0; Tb pr 0-1, v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-1-1-3; Pt pr 0-1-0; Tb pr 0-1, v 1-1-1ap; Mt v 2-2ap. Leg III: Fm d 2ap; Pt pr and rt 0-1-0; Tb pr and rt 1-1; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 0-0-0-2-3; Pt pr and rt 0-1-0; Tb pr and rt 1-1-1, v 1-0; Mt pr and rt 1-2ap.

Coloration. Carapace light brown, with yellowish thoracic area; carapace densely covered with brown and white appressed scales (white scales forming 2 longitudinal bands running backwards from eyes to the porterior margin). Clypeus yellowish, sparsely covered with long white hairs hanging over the chelicerae. Sternum yellow, with brownish dots, and covered with white hairs. Maxillae and labium yellow-brown. Chelicerae brown. Abdomen: dorsum with a wide median brown band and two lateral brown stripes; sides grey-yellow; venter yellow. Book-lung covers light yellow. Spinerets yellow. All legs yellow, with pale brown annulations and patches at the ends of segments. Palps yellow, with brownish bulbus (Fig. 248).

Palpal structure as in Figs 242–248; the palpal femur with dark brown patch covering its ventro-prolateral half; the patella almost uniformly dark brown; the tibia dark brown, except for its basal quarter; the RTA long and curved, hook-shaped; the cymbial process rounded, twice as thick as the base of the RTA; the embolus whip-like, as long as cymbium; the CTA as long as the embolus, relatively wide (2–



Figs 242–252. Copulatory organs and somatic characters of *Yllenus squamifer*: 242, 247–248 — ♂ palp, median view; 243 — ditto, ventral view; 244 — ditto, lateral view; 246 — tibial apophysis, lateral view; 245 — ♂ palpal femur, lateral view; 249 — ♀ general appearance; 250–251 — epigyne; 252 — spermathecae. All specimens from Portugal (Algarve). Scale lines: 1 mm (249), 0.1 mm (242–248, 250–252).

2.5 times as wide as the embolus) and sharply pointed.

Female (from Monte Gordo, Portugal).

Measurements. Carapace 2.08 long, 1.78 wide, 1.05 high at PLE. Ocular area 0.94 long, 1.26 wide anteriorly and 1.54 wide posteriorly. Diameter of AME 0.38. Abdomen 1.63 long, 1.65 wide. Cheliceral length 0.46. Clypeal height 0.16. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.10	0.65	0.61	0.38	0.35	3.09
II	0.95	0.58	0.50	0.36	0.33	2.72
III	0.93	0.40	0.48	0.45	0.40	2.66
IV	1.80	0.88	0.95	0.66	0.44	4.73

Leg spination: Leg I: Fm d 1ap; Tb v 2-2; Mt v 2-2ap. Leg II: Tb v 1-1; Mt v 2-2ap. Leg III: Fm d 1ap; Tb pr 1-1; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 2ap; Tb rt 0-1-0, v 1-0; Mt pr and rt 1-2ap.

Coloration. As described for male, but differs as follows: clypeus densely covered with very long white hairs overhanging the chelicerae; white bands on carapace poorly marked or absent; dorsum reddish, with a single median brown stripe (Fig. 249); sternum yellow, with brown margins; all legs yellow, brown patches almost not marked; palps yellow.

Epigyne and spermathecae as in Figs 83, 250–252; the epigynal pocket bell-shaped, smaller than the receptacles; the copulatory openings small and rounded, separated by more than 4 diameters; the insemination ducts make a whole revolution, forming a kind of 8-shaped figure; the receptacles relatively large (as compared to the size of the epigynal pocket) and separated by less than a half a diameter.

Material examined. PORTUGAL: 1 ♂, 1 ♀ (MNHN, 3.243; aparently the syntypes of *Eris squamifer*), "Algaroc (sub Ericulm)" [label illegible; apparently Algarve in southern Portugal]; 1 ♂, 1 ♀ (MMUM), Ofir, 16.09.1982, J. Murphy; 1 ♂, 5 ♀♀ (JMPC; 4, 223, 246, 248), Algarve, Monte Gordo (ca 37°10'N, 7°27'W), 8–15.04.1971, J. Murphy; 1 ♂ (JMPC; 10193), same locality, 9–12.04.1982, J. Murphy. — SPAIN: 1 ♀ (JMPC; 3374), De los Atunes, Zahara, Cadiz, 18–19.04.1974. J. Murphy; 1 ♂ (JMPC; 5689), Playa d'en Bossa, Ibiza, Balearics, 17.09.1976, J. Murphy.

Habitat. In Portugal, the species was collected from the costal sand dunes [present data].

Distribution. This species appears to be endemic to the Iberian Peninsula (for semi-arid regions with a continental climate), recorded so far from a few localities in Portugal and Spain (Map 11). There is also a record from Faro (Portugal or Spain) [s. Melic, 2001: 79], but its source remains unknown to us.

The records of *Y. squamifer* from Israel [Prószyński & Lubin, 1993; Prószyński, 2003] should be referred to either *Y. albifrons* or *Y. halugim* sp.n. (see above; Prószyński's specimens re-examined).

Yllenus tamdybulak sp.n.

Figs 213–215, Map 19

Type. The female holotype from Tamdybulak (41°55'N, 64°37'E), Uzbekistan; deposited in the ZMUM.

Derivatio nominis. The specific name is a noun in apposition taken from the type locality, Tamdybulak.

Diagnosis. This species is known from a female only and is most closely related to *Y. guseinovi* sp.n.; it can be readily distinguished by the narrower epigynal pocket (cf Figs 214 and 163) and relative proportions of the insemination ducts and the receptacles (cf Figs 215 and 164).

DESCRIPTION

Male unknown.

Female (the holotype)

Measurements. Carapace 2.25 long, 1.88 wide, 1.15 high at PLE. Ocular area 1.10 long, 1.35 wide anteriorly and 1.58 wide posteriorly. Diameter of AME 0.41. Abdomen 2.40 long, 2.13 wide. Cheliceral length 0.75. Clypeal height 0.23. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.25	0.73	0.73	0.53	0.43	3.67
II	1.08	0.63	0.60	0.45	0.40	3.16
III	1.19	0.58	0.58	0.59	0.45	3.39
IV	1.88	0.78	0.93	0.79	0.53	4.91

Leg spination: Leg I: Fm d 0-0-1; Tb v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-0-1; Pt pr 0-1-0; Tb pr 0-1, v 0-1-2ap; Mt v 2-2ap. Leg III: Fm d 0-0-1; Pt pr 0-1-0; Tb pr 0-1; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 0-0-1; Pt pr and rt 0-1-0; Tb pr and rt 0-1-0; Mt pr and rt 1-2ap.

Coloration. Carapace brown, but its thoracic region yellow, while eye field almost black; carapace densely covered with brown, red and white appressed scales (white scales form two poorly marked longitudinal bands, running backwards from the eyes to the posterior row). Clypeus yellow, quite densely covered with long white hairs hanging over the chelicerae. Sternum yellow, with narrow marginal brown line. Maxillae and labium brownish, with white apexes. Chelicerae dark brown. Abdomen: dorsum sandy-coloured, with three longitudinal brown

bands (central and 2 lateral) (Fig. 213); sides and venter yellow. Book-lung covers yellow, covered with white scales. Spinnerets brown-yellow. All legs yellow, with pale brown patches at ends of segments. Palps yellow.

Epigyne and spermathecae as in Figs 214–215; the epigynal pocket narrow and nearly Π-shaped, separated from the epigastric furrow by more than its height; the copulatory openings small and rounded, separated by about 4 diameters; unlike other species of this species group, the receptacles are very large, bean-shaped and close together (almost touching each other).

Material examined. Holotype: 1 ♀ (ZMUM), Uzbekistan, Navoi Area, Tamdy Distr., Kyzylkum Desert, ca 17 km N of Tamdybulak (41°55'N, 64°37'E), 23.05.1994, S. V. Ovtchinnikov.

Habitat. In Uzbekistan, the holotype was collected in sands.

Distribution. The type locality only (Map 19).

Yllenus tschoni (Caporiacco, 1936)

Figs 253–263, Map 17

Attulus tschoni Caporiacco, 1936: 105–106, fig. 4 (D♀; ♀ lectotype in the MZSF; designated here).
Yllenus tschoni: Punda, 1975: 37, figs 6–7 (T from *Attulus*); Prószyński, 1990: 364.
Yllenus israelenesis Logunov, 1996a: 60, figs 20–23 (D♂; ♂ holotype in the SZMN, examined). **New Synonymy**.
Attulus saliens (*nec* Pickard-Cambridge; misidentified): Denis, 1966: 115, plate IV, fig. 21 (♀ from Algeria).
Yllenus saliens (*nec* Pickard-Cambridge; misidentified): Prószyński, 1968: 476 (♂ from Cairo).
Yllenus israelenesis: Prószyński, 2003: 173, figs 717–718.

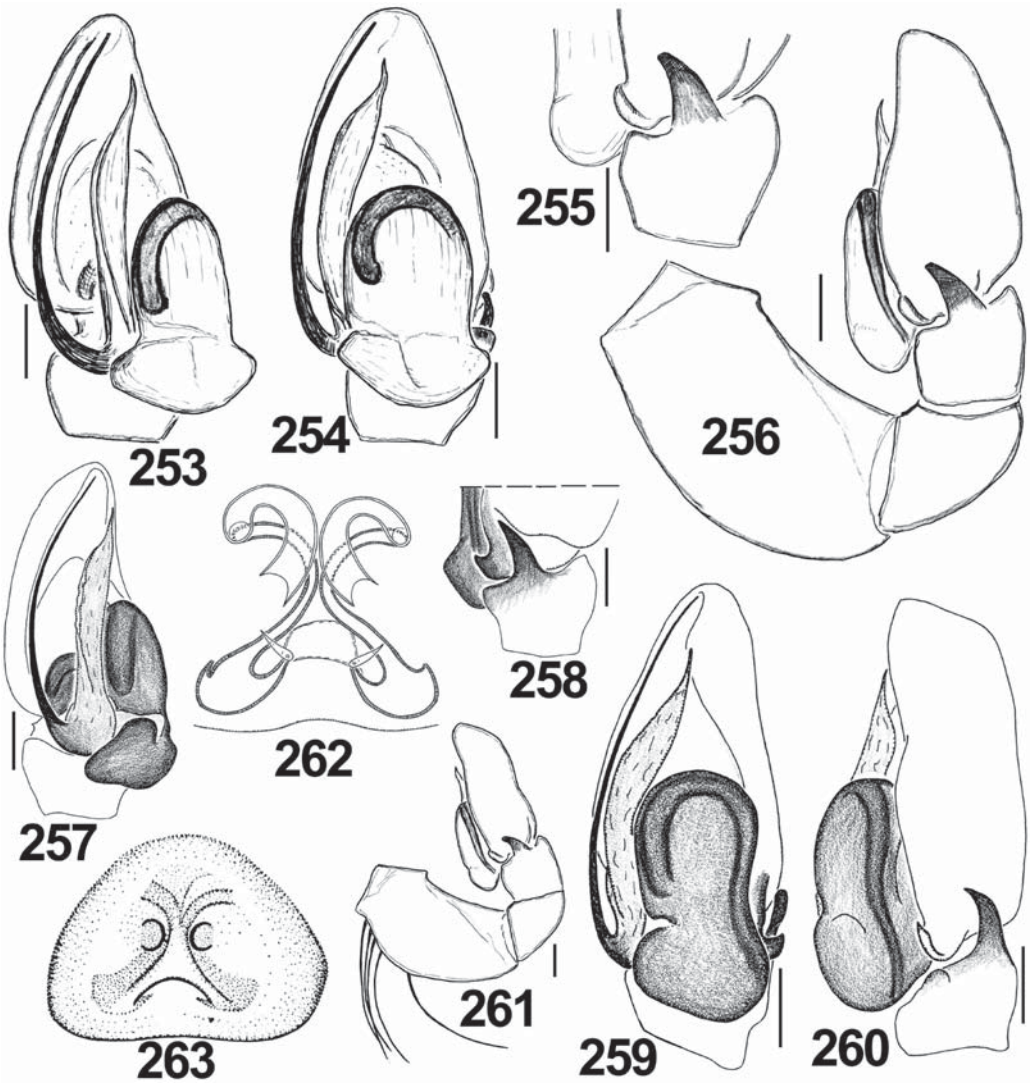
Type. The female lectotype (without epigyne; designated here) from el-Giululàd (ca 25° 40'N, 21°05'E), Libya; deposited in the MZSF.

Derivatio nominis. This species is dedicated to Dr J. Tschon [s. Caporiacco, 1936].

Diagnosis. This species is very similar to *Y. salsicola*, *Y. squamifer* and *Y. albifrons*, but can be easily separated from all of them by the longer RTA (while the ventral one is not marked), the spoon-shaped cymbial process (bulge-shaped in related species) (cf Figs 256, 258 and 93, 237, 243), the much longer and narrow CTA (cf Figs 253, 257 and 86, 235, 242) and by the clearly different structure of the spermathecae (cf Figs 262 and 96, 241, 252). The females of *Y. tschoni* are very close (almost identical) to those of *Y. saliens*, but differ in the absence of the densely white haired clypeus and in details of the spermathecae (*viz.* the smaller receptacles and the longer insemination ducts) (cf Figs 262 and 234); the males of *Y. tschoni* have brown chelicerae with hairs present only anteriorly (while those of *Y. saliens* have the whole clypeus and chelicerae densely covered with brown hairs), the much longer and straight RTA (hook-shaped in *Y. saliens*) (cf Figs 256, 260 and 222, 231) and the narrow, long and widely separated embolus and CTA (relatively short, wide and closely situated in *Y. saliens*) (cf Figs 253, 257 and 220, 228).

Comments. Caporiacco [1936: 106] described *Attulus tschoni* from four specimens (♀♀, as mentioned in the text) collected from el-Giululàd (Tazerbo). According to Punda [1975: 37], who first re-examined the original syntypes, one of these specimens was an adult female and the other three were juveniles. A tube from the MZSF that we examined contained only the adult female (no immatures were inside). Additionally, we re-examined 2 immature specimens identified by Caporiacco as *Attulus tschoni* (see table 3, p.159). It is interesting to note that in the original description, besides the locality el-Giululàd, Caporiacco [1936] mentioned another locality, el-Auenàt, from which the latter two studied juveniles were derived; therefore they are to be considered the original syntypes as well. To stabilize the taxonomic status of the specific name, we have designated the single available adult female as the lectotype (its epigyne should be available as a slide preparation in the MZSF).

The female and male of *Y. tschoni* were matched provisionally, as we have no samples where both sexes were collected together. However, there are no doubts about this, as both the ♂ (originally identified by Caporiacco as *A. saliens*) and ♀ lectotype from Caporiacco's collection kept in the MZSF are derived from exactly the same locality and have a similar general appearance (*viz*. a characteristic median stripe on dorsum). Thus, Caporiacco [1936] described a female as a new species *Attulus tschoni*, while a male was mistakenly identified by him as *Attu-*



Figs 253–263. Copulatory organs of *Yllenus tschoni*: 253, 257 — ♂ palp, median view; 254, 259 — ditto, ventral view; 256, 260–261 — ditto, lateral view; 255, 258 — tibial apophysis, lateral view; 225 — ♂ general appearance; 226–227 — ♂ dorsum, lateral and dorsal views; 262 — spermathecae [redrawn from Punda, 1975: fig. 7]; 263 — epigyne [after Punda, 1975: fig. 6]. Specimens: 253–256, 261–263 — Libya; 257–260 — Israel, the holotype of *Y. israelensis*. Scale lines: 0.1 mm.

lus saliens (see table 3, p.159). The finding of the male makes it possible to synonymize *Y. israelensis*, which was described and known from a single male, with *Y. tschoni*.

DESCRIPTION

Male (the holotype of *Y. israelensis*).

Measurements. Carapace 1.68 long, 1.53 wide, 1.13 high at PLE. Ocular area 0.83 long, 1.15 wide anteriorly and 1.30 wide posteriorly. Diameter of AME 0.35. Abdomen absent in the studied specimen. Cheliceral length 0.48. Clypeal height 0.20.

Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	0.93	0.63	0.53	0.43	0.38	2.90
II	0.80	0.45	0.48	0.38	0.31	2.42
III	0.83	0.35	0.43	0.38	0.38	2.37
IV	1.63	0.78	0.80	0.58	0.38	4.17

Leg spination: Leg I: Fm d 0-1-1, pr 2ap; Pt pr 0-1-0; Tb pr 1-1, v 2-2; Mt 2-2ap. Leg II: Fm. d. 0-1-1, pr 2ap; Pt pr 0-1-0; Tb pr 1-1, v. 1-1; Mt. v. 2-2ap. Leg III: Fm. d. 1-1-2ap; Pt pr and rt 0-1-0; Tb pr and rt 1-1; Mt pr 2-2ap, rt 1-2ap, v 2ap. Leg IV: Fm d 1-0-1-3ap; Pt pr and rt 0-1-0; Tb d 1-0, pr and rt 1-1-1; Mt pr and rt 1-2ap.

Coloration. Carapace dark brown, with a yellow transverse spot behind AMEs; black around eyes. Eye field densely covered with white appressed scales, forming also two longitudinal stripes running on the thoracic part behind PLEs. Sides and a median stripe of carapace composed of dark brown appressed scales. Clypeus brown-yellow, covered with long brown hairs hanging over the chelicerae. Eyes of the first row bordered by white "cilia". Sternum dark brown, covered with white hairs. Maxillae and labium brown, with yellow tips. Chelicerae dark brown, almost black. Abdomen absent in the studied specimen. All legs yellow, with sparse small brown patches.

Palpal structure as in Figs 253–260; the RTA relatively long, narrow and visibly curved apically; the cymbial process spoon-shaped; the embolus whip-shaped, slightly longer than the cymbium; the CTA like a lamella, bearing a longitudinal ridge and tapering to its apical quarter.

Female (the lectotype).

Measurements. Carapace 2.35 long, 2.10 wide, 1.35 high at PLE. Ocular area 1.18 long, 1.66 wide anteriorly and 1.94 wide posteriorly. Diameter of AME 0.51. Abdomen 2.93 long, 2.25 wide. Cheliceral length 0.73. Clypeal height 0.20. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.34	0.78	0.80	0.60	0.43	3.95
II	1.03	0.59	0.55	0.45	0.43	3.05
III	1.04	0.53	0.51	0.50	0.40	2.98
IV	2.06	0.91	1.00	0.73	0.43	5.13

Leg spination: Leg I: Fm d 0-0-1-1; Tb 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-0-0-1; Pt pr 0-1-0; Tb pr 0-1, v 1-1; Mt v 2-2ap. Leg III: Fm d 2ap; Pt pr 0-1-0; Tb pr 1-1, rt 0-1-0; Mt pr and rt 1-2ap, v 1-1ap. Leg IV: Fm d 0-0-0-1-3; Pt pr and rt 0-1-0; Tb pr 1-1-1, rt 2-1-1; Mt pr 2-2ap, rt 1-2ap.

Coloration. The specimen is rather damaged, rubbed and faded (abdomen is separated from carapace). Carapace red-brown, but eye field yellow-red; black around eyes. Carapace densely covered with light (grey reddish) appressed scales. Clypeus yellow, sparsely covered with long greyish hairs. Sternum yellow, covered with white hairs. Maxillae and labium yellow-brown, with white apexes. Chelicerae dark brown. Abdomen: dorsum yellow, with a wide longitudinal brownish band and a pair of anterior-lateral large brownish patches; sides and venter yellow. Book-lung covers yellow. Spinnerets yellow, with brownish tinge. All legs and palpi yellow.

Epigyne and spermathecae as in Figs 262–263; the epigynal pocket wider than long; the insemination ducts form X-shaped figure; the receptacles like semicircles, separated by 1.5 their diameters.

Material examined. LIBYA: 1 ♀ (MZSF; the lectotype of *Attulus tschoni*; designated here), Cyrenaica, Libyan Desert, el-Giululàd (Tazerbo) (ca 25°40'N, 21°05'E), 15.03.1933, Caporiacco; 1 ♂ (MZFS; hitherto determined by Caporiacco as *Attulus saliens*), same locality, 15–17.03.1933, Caporiacco. — EGYPT: 1 ♂ (MNHN, 5.979; hitherto identified as *Y. saliens*), "Alex. Suez, la Caire". — ISRAEL: 1 ♂ (SZMN; the holotype of *Yllenus israelenesis*), HaDarom Area, Central Negev, Makhtesh Ramon Desert, Mizpe Ramon (ca 30°38'N, 34°48'E), 21.03.1995, I. P. Gorlov.

Habitat. In Israel, steppe like biotops [Logunov, 1996a; Prószyński, 2003: both sub. *Y. israelensis*].

Distribution. This species has so far been recorded from N. Africa and the Near East, being known from a few localities in Libya, Egypt and Israel (Map 17).

Yllenus univittatus (Simon, 1871)

Figs 264–271, Map 10

Attus uni-vittatus Simon, 1871: 156 (D♀; ♀ holotype in the MNHN; not located and not examined).
Yllenus univittaus Simon, 1876: 139 (T from *Attus*).

Attulus univittaus Simon, 1901: 580 (T from *Yllenus*); Reimoser, 1919: 105.

Pseudomogrus univittatus: Simon, 1937: 1195, 1257, figs 1887–1890 (♂♀; T from *Attulus*); Denis, 1954: 90.

Yllenus univittaus: Prószyński, 1968: 467, figs 7, 16, 31, 40, 53, 68, 144–150 (♂♀; T from *Pseudomogrus*), 1976: 148, figs 4, 8 (♂), 1990: 364.

Type. The female holotype from Arcachon (44°04N, 1°10'W), France; deposited in the MNHN.

Derivatio nominis. The species epithet is derived from the Latin, meaning "with a single ribbon/stripe".

Diagnosis. This species is closely related to *Y. zhilgaensis* sp.n. and *Y. vittatus*; the males are especially similar to those of *Y. zhilgaensis* sp.n. and can be distinguished by the narrower and smaller RTA, the well-marked VTA (poorly marked in *Y. zhilgaensis* sp.n.) (cf Figs 266–267 and 293) and the smaller body size (1.5–2 times smaller than the males of *Y. zhilgaensis* sp.n.); the females of *Y. univittatus* are closest to those of *Y. vittatus* and can be distinguished from them by the narrower, bell-shaped epigynal pocket and the position of the insemination ducts (cf Figs 269–271 and 285–287).

DESCRIPTION

Male (from Cuénot, France)

Measurements. Carapace 2.15 long, 1.90 wide, 1.10 high at PLE. Ocular area 1.03 long, 1.33 wide anteriorly and 1.53 wide posteriorly. Diameter of AME 0.40. Abdomen 2.20 long, 1.75 wide. Cheliceral length 0.78. Clypeal height 0.23.

Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.30	0.83	0.78	0.53	0.41	3.85
II	1.13	0.65	0.60	0.44	0.41	3.23
III	1.25	0.63	0.60	0.58	0.50	3.56
IV	1.68	0.78	0.80	0.70	0.53	4.49

Leg spination: Leg I: Fm d 0-1-1; Tb v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-1-1; Tb pr 0-1, v 0-1/2-2ap, v 1-1; Mt v 2-2ap. Leg III: Fm d 0-0-1; Pt pr 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 2ap, v 1ap. Leg IV: Fm d 0-0-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1; Mt pr and rt 1-2ap, v 1ap.

Coloration. Carapace red-brown, with black around eyes, densely covered with white (brownish on eye field) appressed scales. Clypeus yellowish brown, covered with reddish hairs. Margins of carapace, except for clypeal one, with a wide edging of white hairs. Sternum yellow, covered with white hairs. Maxillae and labium yellowish brown, with white apexes. Chelicerae dark brown. Abdomen: dorsum greyish white, with a wide median stripe (Fig. 264); sides grey-yellow; venter yellow. Book-lung covers and spinnerets yellow. All legs yellow, but femora I (anteriorly), tibia and metatarsi I brownish. Palps yellow.

Palpal structure as in Figs 265–268; the palpal tibia with two apophyses, the RTA rather long and broad at its base, its length is virtually equal to that of tibia, the VTA much shorter than the dorsal one, cone-shaped; the cymbial process rather small; the embolus rather thick, looking like a slightly bent stiletto; the CTA as wide as the embolic base and about its length as well, slightly curved at its tip.

Female (from Cuénot, France)

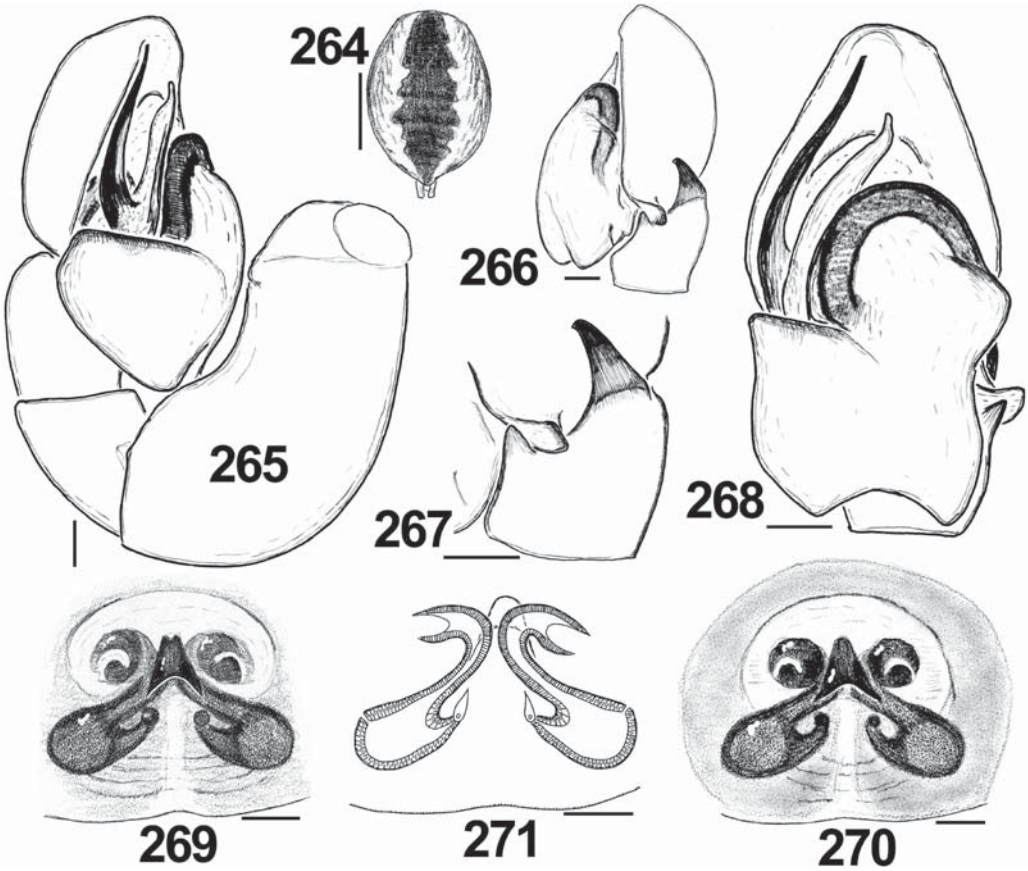
Measurements. Carapace 2.80 long, 2.23 wide, 1.40 high at PLE. Ocular area 1.18 long, 1.53 wide anteriorly and 1.84 wide posteriorly. Diameter of AME 0.45. Abdomen 2.88 long, 2.19 wide. Cheliceral length 0.93. Clypeal height 0.25. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.43	0.88	0.81	0.50	0.43	4.05
II	1.25	0.75	0.65	0.45	0.44	3.54
III	1.48	0.73	0.63	0.68	0.55	4.07
IV	2.08	1.00	1.03	0.93	0.58	5.62

Leg spination: Leg I: Fm d 0-1-2; Tb v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-0-1; Tb pr 0-1, v 1-2-2ap; Mt v 2-2ap. Leg III: Fm d 0-0-2; Pt pr 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr 1-2ap, rt 2ap, v 1ap. Leg IV: Fm d 0-0-1; Pt pr and rt 0-1-0; Tb pr 1-1, rt 1-1-1, v 1ap; Mt pr 2-2ap, rt 1-2ap, v 1ap.

Coloration. As described for male, but lighter and clypeus densely covered with white hairs.

Epigyne and spermathecae as in Figs 269–271; the epigynal pocket triangular, situated between the copulatory openings, its posterior margin concave; the copulatory openings are ◠-shaped slits, separated by 2–2.5 diameters; the insemination ducts simple, directed to each other and touching, forming a kind of X-shaped figure; the receptacles elongated, widely separated by 1–1.5 diameters.



Figs 264–271. Copulatory organs and somatic characters of *Yllenus univittatus*: 264 — ♂ dorsum; 265 — ♂ palp, median view; 266 — ditto, lateral view; 267 — tibial apophysis, lateral view; 268 — ♂ palp, ventral view; 269–270 — epigyne; 271 — spermathecae. All specimens from France. Scale lines: 1 mm (264), 0.1 mm (265–271).

Material examined. FRANCE: 2 ♀♀ (ZMPA), Provence-Alpes-Côte d'Azir Prov., Bouches-du-Rhône DePt, Camargué, Les Saintes Maries de la Mer (ca 43°27'N, 4°25'E), 20.06.1966, M. J. Prószyńscy; 1 ♂, 1 ♀ (MNHN), Bretagne Prov., Morbihan DePt, Ile Hoedic, Cuénot (ca 47°20'N, 2°52'W), aout 1933; entrée n°4, 25.9.62, collection Berland"; 5 ♂♂, 10 ♀♀ (MNHN, 788, in two tubes), "Gallia"; 1 ♂ (ZISP; determined hitherto as *Sitticus maritimus*, a nonexistent name), "La Sazuts. Nantin(?) (Beck.) [Becker?]" (label illegible, but the locality seems to lie in France).

Habitat. No data.

Distribution. France only [Simon, 1937] (Map 10).

The records of *Y. univittatus* from Turkmenistan (Sultanbent and Repetek) by Nenilin [1985] (subsequently listed by Mikhailov & Fet [1994]) are doubtful and need confirmation through reference to pertinent material; these records might belong either to *Y. validus*, or to *Y. mirabilis* sp.n., of which specimens were found in Nenilin's collection of the Salticidae re-examined by one of us (DL). A further record of *Y. univittatus* from Turkmenistan (Garry-Gala) [s. Wesołowska, 1996: fig. 44; 1 ♂] also needs confirmation; we have been unable to re-examine this ♂ and can only suspect that this record should be referred to *Y. guseinovi* sp.n.

The earlier records of *Y. univittatus* from Barsakel'mes by Pavlenko [1985] and Zyuzin *et al*. [1994] belong to *Y. pavlenkoae* sp.n. (Pavlenko's specimens re-examined). The records from România (Carei, Sanislău and Foeni) [Gherasim, 1970: sub *Pseudomogrus u.*] belong to *Y. vittatus* (some of Gherasim's specimens were re-examined). The records of *Y. univittatus* from Kalmykiya (Utta) by Ponomarev [1978] and Minoranski & Ponomarev [1984] are erroneous; on the basis of original figures of Ponomarev [1978: figs 1,e], it is safe to assume that these authors actually dealt with the single female of *Y. zhilgaensis* sp.n. (cf Figs 292–299). No specimen of *Y. univittatus* has been located in Ponomarev's collection of Salticidae (kept in the ZMUM), which was revised by one of us (DL).

Yllenus validus (Simon, 1889)

Figs 82, 272–284, Map 14

Attulus validus Simon, 1889: 375 (D♂♀; ♂ lectotype in the MNHN; designated here).

Yllenus validus: Simon, 1899: 479, 1937: 1257; Prószyński, 1968: 470, figs 28, 41, 151–154 (T from *Attulus*), 1990: 364; Nenilin, 1985 (pro parte): 131; Ponomarev, 2002: 205.

Yllenus somonensis Prószyński, 1982: 292–293, figs 50-52 (D♂♀; ♀ holotype in the HNHM, examined). **New Synonymy.**

Yllenus somonensis: Nenilin, 1985: 131; Prószyński, 1990: 363; Mikhailov & Fet, 1994: 518; Mikhailov, 1996: 134, 1997: 225; Wesołowska, 1996 (*pro parte*; the record from Kaplankyr): 48, figs 43A–C (♂♀); Logunov & Marusik, 2000b: 256, map 54; Ponomarev, 2002: 205.

Type. The male lectotype from Old Merw (ca 37°40'N, 62°10'E), Turkmenistan; deposited in the MNHN.

Derivatio nominis. The species epithet is derived from the Latin word, meaning "strong, robust".

Diagnosis. This species is especially close to *Y. pseudovalidus* sp.n., from which it can be separated by the comparatively wider embolus and the sharpened rather than obtuse CTA (cf Figs 273, 277 and 183–184), relative size and position of the retrodorsal and ventral tibial apophyses (cf Figs 274, 277 and 185), the bigger (as compared to the epigynal pocket) receptacles (cf Figs 283–284 and 186) and the narrower and shorter insemination ducts (cf Figs 279–280 and 187). See also comments under "Diagnosis" of *Y. caspicus* and *Y. mirandus*.

Comments. Simon [1889: 375] described *Attulus validus* on the basis of a ♂ (from Old Merw) and a ♀ (Kala-i-Mor, spelled out by Simon as "Mor-kala"), which are to be treated as the syntypes (the ♂ is not the holotype, as Prószyński [1968] assumed). We have been able to locate and re-examine the ♂ only and therefore have designated it as the lectotype to stabilize the taxonomic status of this species.

DESCRIPTION

Male (from Bakanas, Kazakhstan)

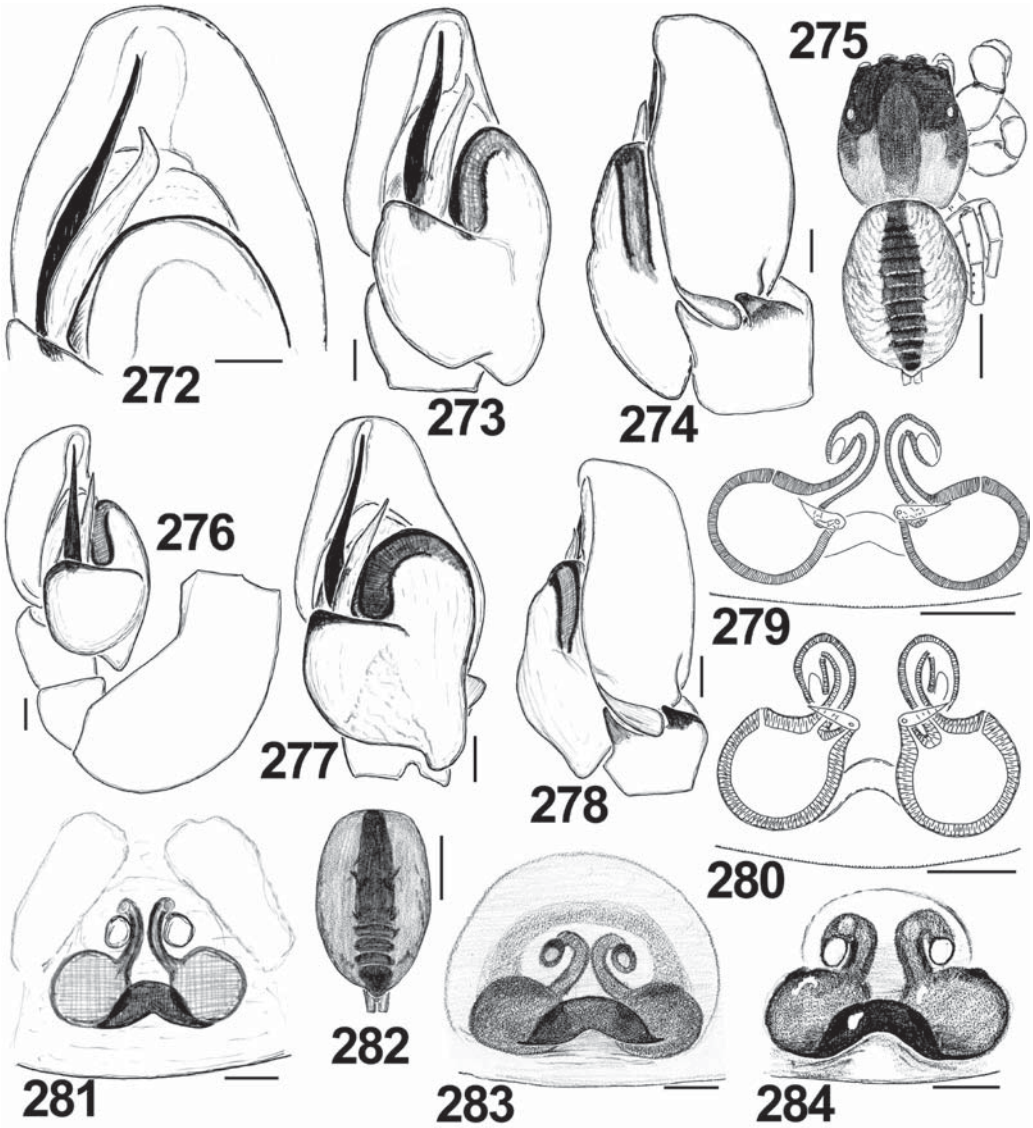
Measurements. Carapace 2.33 long, 1.98 wide, 1.20 high at PLE. Ocular area 1.18 long, 1.50 wide anteriorly and 1.70 wide posteriorly. Diameter of AME 0.44. Abdomen 2.25 long, 1.63 wide. Cheliceral length 0.83. Clypeal height 0.23.

Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.55	0.90	0.95	0.63	0.48	4.51
II	1.20	0.70	0.68	0.55	0.44	3.57
III	1.30	0.65	0.65	0.63	0.56	3.79
IV	1.89	0.81	0.98	0.78	0.58	5.04

Leg spination: Leg I: Fm d 0-1-1-2; Tb v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-1-1-2; Pt pr 0-1-0; Tb pr 1-1, v 1-1-2ap; Mt pr 1ap, v 2-2ap. Leg III: Fm d 0-1-2-3; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 2ap; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 1-0-1-3; Pt pr and rt 0-1-0; Tb pr and rt 1-1-1, v 1ap; Mt pr 2-2ap, rt 1-2ap.

Coloration. Carapace red-brown, but eye field almost black; carapace densely covered with brown and white appressed scales; white scales form two longitudinal stripes running from ALEs to PLEs and further on thoracic part Clypeus yellow, covered with orange scales and with a marginal fringe of long white hairs hanging over the chelicerae. Sternum yellow, tinged with brown and covered with white hairs. Maxillae and labium brownish yellow, with white apexes. Chelicerae dark brown. Abdomen: dorsum grey, with a wide median brown band and two lateral narrower interrupted brown stripes (sometimes poorly marked) (Fig. 282); sides greyish; venter yellow. Book-lung covers yellow, covered with white scales. Spinnerets yel-



Figs 272–284. Copulatory organs and somatic characters of *Yllenus validus*: 272 — ♂ bulb (apical division), ventral view; 273, 276 — ♂ palp, median view; 274, 278 — ditto, lateral view; 277 — ditto, ventral view; 275 — ♀ general appearance; 279–280 — spermathecae; 281, 283–284 — epigyne; 282 — ♂ dorsum. Specimens: 272–274, 282 — Turkmenistan, the lectotype of *Attulus validus*; 275, 280, 284 — Uzbekistan, Dargan-Ata; 276–278, 281 — Kazakhstan, Suzak; 279, 283 — Mongolia, the holotype of *Y. somonensis*. Scale lines: 1 mm (275, 282), 0.1 mm (272–274, 276–281, 283–284).

low, tinged with brown. All legs motley (brown + yellow), but coxae, proximal parts of femora and tarsi entirely yellow; sides of segments, especially on legs, I dark brown. Palps yellow, with brownish bulbus.

Palpal structure as in Figs 272–274, 276–278; the palpal tibia with two apophyses, both of nearly the same length; the RTA hook-shaped, directed ventrally, the VTA finger-shaped, directed anteriorly; the cymbial process trans-

verse, longer than the RTA; the tegulum with a distinct angle in its retro-basal side; the embolus rather thick (especially its basal half) and straight; the CTA is variable in shape, it may have a bent tip or be gradually tapering, its width equal to the that of the embolus.

Female (from Suzak, Kazakhstan)

Measurements. Carapace 2.56 long, 2.08 wide, 1.28 high at PLE. Ocular area 1.16 long, 1.54 wide anteriorly and 1.81 wide posteriorly. Diameter of AME 0.46. Abdomen 3.38 long, 2.50 wide. Cheliceral length 0.85. Clypeal height 0.23. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.34	0.85	0.79	0.48	0.45	3.91
II	1.13	0.73	0.68	0.49	0.43	3.46
III	1.15	0.68	0.60	0.61	0.53	3.57
IV	1.98	0.93	1.00	0.88	0.59	5.38

Leg spination: Leg I: Fm d 0-1-1; Tb v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-1-1; Pt pr 0-1-0; Tb pr 0-1, v 0-1-1ap; Mt v 2-2ap. Leg III: Fm d 2ap; Pt pr 0-1-0; Tb pr 1-1, rt 0-1; Mt pr and rt 1-2ap, v 1-1ap. Leg IV: Fm d 1ap; Pt pr and rt 0-1-0; Tb pr and rt 1-1-1; Mt pr 2-2ap, rt 1-2ap, v 1ap.

Coloration. As described for male (Fig. 275), but differs in clypeus covered with white hairs. Palps entirely yellow.

Epigyne and spermathecae as in Figs 82, 279–281, 283–284; the epigynal pocket wider than high, half-moon-shaped; the copulatory openings rounded, separated by 1.5–3 diameters; the receptacles almost rounded, separated by about one radius; the insemination ducts rather short (as long as the receptacles' diameter).

Material examined. MONGOLIA: 1 ♂, 1 ♀ (HNHM; the ♀ holotype and ♂ paratype of *Yllenus somonensis*), Khovd Aimak, ca 10 km SSW of Somon Bulgan [ca 46°25'N, 91°40'E], 1200 m a.s.l., 4–5.08.1966, exp. Z. Kaszab. — KAZAKHSTAN: 1 ♂ (ZMUM), Almaty Area, Balkhash Distr., Bakanas (ca 44°49'N, 76°16'E), 28.05.1982, V. Linskii; 1 ♂, 2 ♀♀ (MMUM), South Kazakhstan [=Shymkent, Chimkent] Area, Suzak Distr., ca 20 km E of Suzak (ca 44°08'N, 68°44'E), 26.06.1989, A. A. Zyuzin. — UZBEKISTAN: 1 ♀ (ZMUM), Kitab [=Kitob] Distr., Ayakchi-sai boundary (ca 39°17'N, 66°45'E), 05.1979, A. B. Murtazaev; 1 ♂ (MMUM), Fergana [=Fargona] Area, Yaz'yavan [=Ezevon] Distr., ca 48 km ENE of Kokand (40°37'N, 71°32'E), 17.05.1994, D. A. Milko; 1 ♀ (ZMUM), Bukhara [=Bukhoro] Area, Romitan [=Romiton] Distr., near the frontier with Turkmenistan, ca 10 km N of Dargan-Ata, Amudariya River valley (ca 40°34'N, 62°08'E), 4.04.1985, D. V. Logunov. — TURKMENISTAN: 1 ♂ palpless (ZMUM), Mary Area, Iolotan' Distr., near Sultanbent (ca 37°08'N, 62°27'E), 31.05.1929, V. I. Sychevskaya [=Pereleshina]; 1 ♂ (MNHN, 9890; the lectotype of *Attulus validus*; designated here), "Transkaspia, Old Merw, coll. J. Radde, 1887, III" [Mary Area, Bairam-Ali Distr., near Bairam-Ali, Old Merv ruines, (ca 37°40'N, 62°10'E)].

Habitat. In Kazakhstan, the species was found on *Haloxylon* sp.; in Turkmenistan, it was collected from tugai in the valley of Amudariya River, where occured on clayey ground [present data].

Distribution. Central Asian subboreal-subtropical species occurring from Turkmenistan via Uzbekistan and Kazakhstan [Simon, 1889, 1899; Nenilin, 1984a; Wesołowska, 1996] to W. Mongolia [Prószyński, 1982: sub *Y. somonensis*] (Map 14); Ponomarev [2002] provided no exact localities and his data are not mapped.

This species was once recorded from România [Fuhn & Gherasim, 1995], but this record should be referred to *Y. vittatus* (see below). The record by Nenilin [1985] from Kashkadariya Area of Uzbekistan has not been mapped, as no exact locality was provided. The records of *Y. validus* from Kyrghyzstan (Issyk-Kul', Dolinka) by Nenilin [1984b] and Zonstein [1996] need confirmation through reference to pertinent material. No specimen of *Y. validus* from Issyk-Kul' Area has been located in Nenilin's collection of Salticidae (kept in the ZISP) revised by one of us (DL), while all his specimens from Turkmenistan identified as *Y. validus* belong to *Y. pseudovalidus* sp.n.

Yllenus vittatus Thorell, 1875

Figs 60–61, 285–291, Map 21

Yllenus vittatus Thorell, 1875b: 121 (D♂♀; ♂ lectotype in the ZMHU, designated here).

Yllenus vittatus: Thorell, 1875a: 198–200 (D♂♀); Simon, 1878: 206; Reimoser, 1919: 105; Charitonov, 1932: 185; Roewer, 1954: 1252; Bonnet, 1959: 4906; Prószyński, 1968: 472, figs 27, 39, 54, 67, 75, 155–160 (♂♀), 1990: 363; Ponomarev, 1978: 97, fig. 2 (♂♀), 2002: 205; Minoranski & Ponomarev, 1984: 90; Ne-

nilin, 1985: 131; Polchaninova, 1988: 43; Ponomarev, 1988: 55; Fuhn & Gherasim, 1995: 72–74, figs 8C, 28A–F (♂♀); Esyunin & Efimik, 1996: 190; Efimik *et al*., 1997: 86, fig. 6 (♀); Mikhailov, 1996: 134, 1997: 225, 1998: 36; Gajdoš *et al*., 1999: 292, map 9270; Logunov & Marusik, 2000a: 290, 2000b: 257, map 55.

Attulus vittatus: Simon, 1901: 581 (T from *Yllenus*).

Yllenus validus (*nec* Simon; misidentified): Fuhn & Gherasim, 1995: 70, figs 27A–E (♂♀).

Pseudomogrus univittatus (*nec* Simon; misidentified): Gherasim, 1970: 41–50, figs 1–5 (♂♀).

Type. The male lectotype from Sarepta [now Krasnoarmeisk near Volgograd (ca 48°31'N, 44°34'E)]; deposited in the ZMHU.

Derivatio nominis. The species epithet is derived from the Latin word, meaning "decorated by ribbons/stripes".

Diagnosis. This species is closely related to *Y. zhilgaensis* sp.n., *Y. univittatus* and *Y. guseinovi* sp.n.; the males can be readily separated from those of the related species by the smallest RTA being subequal to the VTA (cf Figs 289 and 160, 267, 293); the females of *Y. vittatus* are closest to those of *Y. univittatus* and can be distinguished from them by the wider, cap-shaped epigynal pocket and the position of the insemination ducts (cf Figs 285–287 and 269–271). See also comments under "Diagnosis" under *Y. mirandus*.

DESCRIPTION

Male (from Uglovskoe Distr., Altai Territory)

Measurements. Carapace 2.25 long, 1.90 wide, 1.05 high at PLE. Ocular area 1.03 long, 1.28 wide anteriorly and 1.51 wide posteriorly. Diameter of AME 0.40. Abdomen 2.38 long, 1.63 wide. Cheliceral length 0.75. Clypeal height 0.20.

Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.46	0.93	0.98	0.55	0.53	4.45
II	1.26	0.68	0.70	0.49	0.50	3.63
III	1.39	0.73	0.68	0.65	0.55	4.00
IV	1.90	0.86	0.95	0.85	0.58	5.14

Leg spination: Leg I: Fm d 0-1-1-1; Tb pr 0-1, v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-1-1-1; Tb pr 0-1, v 0-1-2ap; Mt v 2-2ap. Leg III: Fm d 0-1-2; Pt pr 0-1-0; Tb pr 1-1, rt 0-1, v 1ap; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 1-1-1; Pt pr and rt 0-1-0; Tb pr 1-1, rt 1-1-1, v 1ap; Mt pr and rt 1-2ap, v 1ap.

Coloration. Carapace dark red-brown, with black eye field; entire carapace densely covered with brownish and white appressed scales. White scales form two longitudinal bands behind PLEs; carapace usually yellow under these white bands. Clypeus brownish yellow, sparsely covered with white hairs; its lower margin with a fringe of white overhanging hairs. Sternum yellow, with brown margins, covered with white hairs. Maxillae and labium brownish yellow, with white apexes. Chelicerae dark brown. Abdomen: dorsum brown, with a pair of white longitudinal bands; sides brownish yellow; venter yellow. Book-lung covers yellow. Spinnerets yellow, tinged with brown. Legs: coxae, patellae and tarsi yellow; remaining segments yellow with brown patches and stripes (tibiae I and II entirely brown). Palps yellow, but cymbium and bulbus brownish yellow.

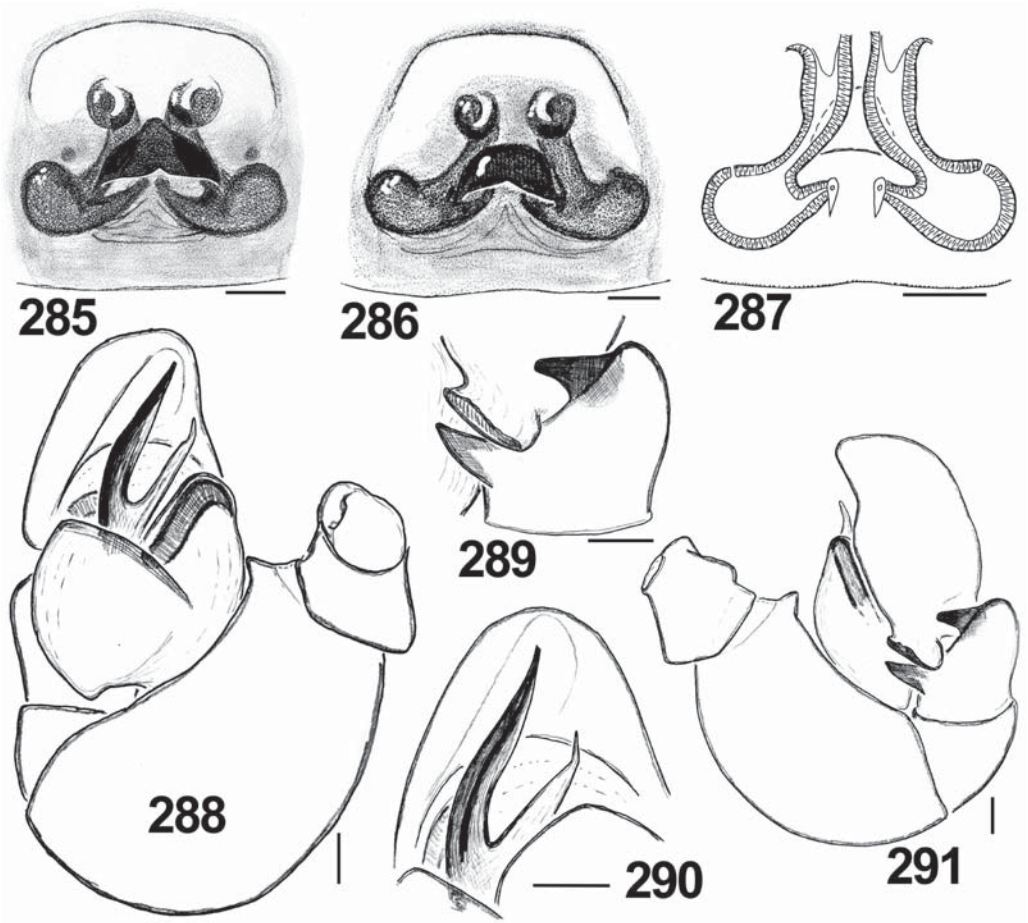
Palpal structure as in Figs 60–61, 288–291; the palpal tibia with two apophyses, both of about the same length and sub-parallel, both apophyses sharply pointed and directed ventrally; the cymbial process spoon-like; the embolus straight, rather thick and short, wider than the CTA; the latter straight, rather thin and sharply pointed.

Female (from Uglovskoe Distr., Altai Territory)

Measurements. Carapace 2.85 long, 2.23 wide, 1.31 high at PLE. Ocular area 1.25 long, 1.18 wide anteriorly and 1.90 wide posteriorly. Diameter of AME 0.45. Abdomen 3.50 long, 2.50 wide. Cheliceral length 0.88. Clypeal height 0.19. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.53	0.88	0.90	0.63	0.50	4.44
II	1.33	0.76	0.69	0.50	0.50	3.78
III	1.50	0.68	0.60	0.74	0.56	4.08
IV	2.15	1.00	1.05	0.98	0.60	5.78

Leg spination: Leg I: Fm d 0-0-1-1; Tb pr 0-1, v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-1-1; Pt pr 0-1-0; Tb pr 0-1, v 0-1-2ap; Mt v 2-2ap. Leg III: Fm d 0-0-1; Pt pr 0-1-0; Tb pr and rt 1-1, v 2ap; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 0-0-0-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1ap.

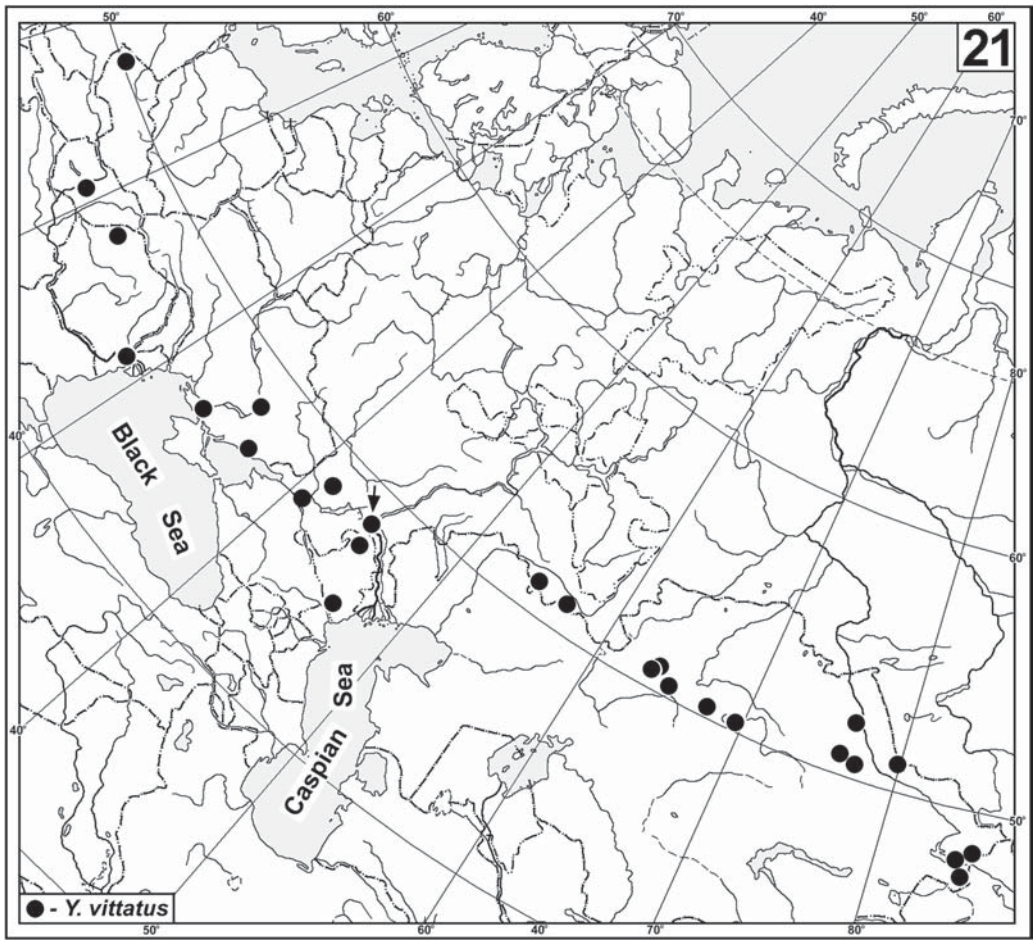


Figs 285–291. Copulatory organs of *Yllenus vittatus*: 285–286 — epigyne; 287 — spermathecae; 288, 290 — ♂ palp, median view; 289 — tibial apophysis, lateral view; 266 — ♂ palp, lateral view. All specimens from Russia (Volgograd), ♂ — the lectotype, ♀♀ — the paralectotypes. Scale lines: 0.1 mm.

Coloration. As described for male, but lighter and palpi entirely yellow.

Epigyne and spermathecae as in Figs 285–287; the epigynal pocket wider than high; the copulatory openings C-shaped and separated by a single diameter; the insemination ducts, unlike in other species of this group, rather short and sub-parallel; the receptacles ovoid, separated by a single diameter.

Material examined. ROMÂNIA: 1 ♂, 1 ♀ (MNHN; hitherto determined by V. Gherasim as *Pseudomogrus univittatus*), no exact locality [according to Fuhn & Gherasim (1995), in România, this species is known from Jurilovca (ca 44°45'N, 28°51'E) (Tulcea Prov.) only], 10–15.06.1966, V. M. Gherasim. — HUNGARY: 2 ♀♀, 1 juv. (HNHM), "*Yllenus vittatus* Thor. Chyzer, Coll. Chyzer 1187" Bács-Kiskun Prov., "Kecskemét" (ca 46°54'N, 19°41'E) "Kulczyński". — UKRAINE: 4 ♀♀ (ZISP), Zaporozh'e Area, Berdyansk Distr., near Berdyansk (ca 46°46'N, 36°47'E), 18–20.06.1937, V. F. Nikolaev. — RUSSIA: 1 ♂ (the lectotype of *Yllenus vittatus*, designated here), 3 ♀♀ (paralectotypes) (ZMHU), "Sarepta, 1861 A. Becker" [now Volgograd Area, Volgograd, Krasnoarmeisk (ca 48°31'N, 44°34'E)]; 1 ♂, 2 ♀ (BMNH, 1891.8.1.313 and 1919.9.18.3714–15), "Sarepta" [now Krasnoarmeisk near Volgograd]; 1 ♀ (SZMN), Kalmykiya, Sarpinskii Distr., near Lake Arshan-Zel'men' (ca 47°36'N, 44°35'E), 23–29.07.1980, V. S. Sokolov; 2 ♂♂, 3 ♀♀ (ZMUM), same area, Chernozemel'sk Distr., ca 40 km SSW of



Map 21. Distribution of *Y. vittatus* in the steppe zone of the Palaearctic Region. One dot may represent more than one close locality; if more than one record, type localities arrowed.

Komsomol'skii, near Rybachii (44°59'N, 45°51'E), 4–21.06. 1974, A. V. Ponomarev; 3 ♀♀ (PSUN), Orenburg Area, Sol'-Iletsk Distr., Iletsk Stand (ca 51°10'N, 55°01'E), 20.06.(year?), S. F. Kuznetsov; 1 ♂ (MMUM), Altai Territory, Uglovskoe Distr., the middle reaches of Kumir River, (ca 51°08'N, 80°00'E), 1250 m a.s.l., 27.08.1998, G. N. Azarkina & A. Yu. Chuikova; 1 ♂, 3 ♀♀ (MMUM), Altai Territory, Uglovskoi Distr., sandy forest, 7.07.1998, A. Yu. Chuikova. — KAZAKHSTAN: 1 ♀ (PSUN), East Kazakhstan Area, ca 15 km of Topolevka, "Zaisan expedition", 08.1936, Ovsyannikov; 2 ♀♀ (SMNH), Pavlodar Area, Bayanaul Distr., near Kyzyl-Tau [50°25'N, 76°10'E], 10–12.06.1991, O. V. Lyakhov; 2 ♀♀ (SZMN), same area, Pavlodar Distr., ca 25 km NNW of Pavlodar, Irtysh River valley (52°31'N, 76°50'E), 8.06.1992, O. V. Lyakhov; 1 ♀ (SZMN), same area, Lebyazhinskoe Distr., ca 2 km NW of Chernoe [51°44'N, 77°30'E], Irtysh River valley, 21.09.1990, O. V. Lyakhov; 1 ♀ (SZMN), East Kazakhstan Area, Kokpekti Distr., N shore of Lake Zaisan, northern part of Kuludzhun Sands (ca 48°50'N, 83°23'E), 8–10.05.1999, R. Yu. Dudko & I. I. Lyubechanskii; 1 ♀ (SZMN), same area, Zaisan Distr., ca 20 km NE of Karatal (ca 47°44'N, 85°22'E), 12–13.06.1997, R. Yu. Dudko & V. K. Zinchenko; 1 ♀ (SZMN), same area, Zaisan Distr., valley of Chernyi Irtysh River, ca 12 km SW of Buran (ca 47°57'N, 85°04'E), 14.06.1997, R. Yu. Dudko & V. K. Zinchenko; 3 ♀♀ (ZISP; determined by V. P. Tystshenko as *Sitticus dzieduszyckii*), Kustanai Area, Arkalyk Distr., slope of Mt. Kokshetau near Bosogaozek River, [ca 50°08'N, 67°35'E], 13.05.1957, V. P. Tystshenko; 1 ♀ (SMNH), same area, Naurzum Distr., near Dokuchaevka (ca 51°39'N,

64°13'E), 22.05.1997, T. M. Bragina; 1 ♀ (ZMUM), same area and distr., near Chushkaly, (51°25'N, 64° 17'E), 31.08.1995, T. M. Bragina; 1 ♀ (ZISP), Akmola Area, Kurgaldzhinskoe Distr., near Lake Kurgaldzhin (ca 50°30'N, 69°34'E), 18.05–10.06.1929, S. D. Lavrov; 1 ♀ (MMUM), Kustanai Area, Dzhangil'dinskii Distr., near Lake Sarykopa (ca 50° 14'N, 64°02'E), 9.07.1983, S. K. Stebaeva.

Habitat. In Kalmykiya, sands and meadows [Minoranski & Ponomarev, 1984]; in Altai Territory, sandy forest [present data]; in N. Kazakhstan, vermuth-saltwort steppes [present data].

Biological information. Some observations are given in Gherasim [1970: sub *Pseudomogrus univittatus*].

Distribution. This is a Euro-Siberian subboreal species known from Slovakia [Gaidoš *et al*., 1999] and România [Gherasim, 1970: sub *Pseudomogrus univittatus*; Fuhn & Gherasim, 1995: sub *Y. validus*] in the West to E. Kazakhstan in the East (Map 21).

The record of *Y. validus* from România [s. Fuhn & Gherasim, 1995] should be referred to *Y. vittatus*. The records of *Y. vittatus* from Kazakhstan (Barsakel'mes) by Nenilin [1985], Pavlenko [1985] and Zyuzin *et al*. [1994] are erroneous and belong to *Y. nurataus* sp.n. Mikhailov & Fet [1994] recorded *Y. vittatus* from Turkmenistan (Kaplankyr), but the source of this record remains unclear to us, while the record itself needs a confirmation. Most probably, the latter authors dealt either with *Y. mirandus*, or with *Y. validus*; both species are known from Kaplankyr.

Yllenus zhilgaensis sp.n.

Figs 292–299, Map 9

Yllenus univittaus (*nec* Simon; misidentified): Ponomarev, 1978: 97, fig. 1e (♀); Minoranskii & Ponomarev, 1984: 90.

Type. The male holotype from Zhilga (ca 45°56'N, 77°10'E), Kazakhstan; deposited in the MMUM.

Derivatio nominis. The specific epithet is derived from the type locality Zhilga, a small settlement in South Kazakhstan Area.

Diagnosis. This new species is closely related to *Y. vittatus*, *Y. univittatus* and *Y. guseinovi* sp.n.; the males can be readily separated from those of related species by the stronger RTA, the larger cymbial process (cf Figs 293 and 160, 267, 289) and the obtuse rather than sharp tip of the CTA; the females of *Y. zhilgaensis* sp.n. are closest to those of *Y. guseinovi* sp.n. and can be distinguished from them by the fold-shaped epigynal pocket, the position of the copulatory openings and the shape of the insemination ducts (cf Figs 297–299 and 163–164).

DESCRIPTION

Male (the holotype)

Measurements. Carapace 2.70 long, 2.18 wide, 1.40 high at PLE. Ocular area 1.15 long, 1.40 wide anteriorly and 1.68 wide posteriorly. Diameter of AME 0.39. Abdomen 2.50 long, 1.83 wide. Cheliceral length 0.91. Clypeal height 0.25.

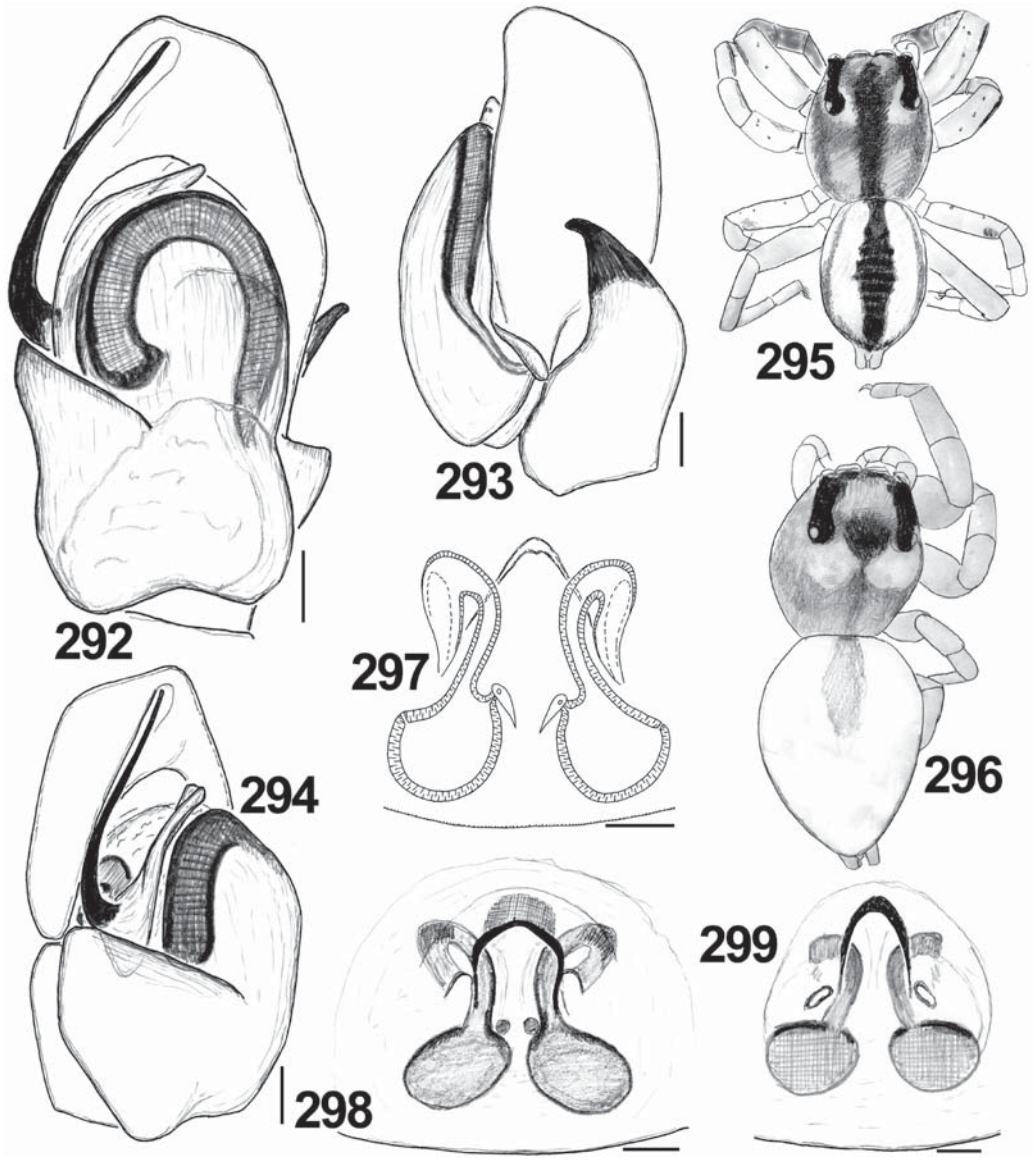
Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.73	1.18	1.13	0.80	0.63	5.47
II	1.48	0.88	0.83	0.66	0.53	4.38
III	1.56	0.70	0.75	0.80	0.58	4.39
IV	2.13	0.90	1.08	1.00	0.55	5.66

Leg spination: Leg I: Fm d 1-1-3; Pt pr 0-2-0; Tb pr 0-1, v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-1-1-3; Pt pr 0-1/2-0; Tb pr 1-1, v 0-1-2ap; Mt pr 1ap, v 2-2ap. Leg III: Fm d 1-0-1-4; Pt pr and rt 0-1-0; Tb pr and rt 1-1; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 1-1-1; Tb pr and rt 0-1, v 1-1; Mt pr and v 2ap, rt 1-2ap.

Coloration. Carapace yellow-brown, with a median wide brown band; eye field dark brow, with black around eyes. Clypeus yellow, densely covered with white hairs overhanging the chelicerae. Abdomen: dorsum yellow, with a wide median brown band and two poorly marked lateral brownish stripes (Fig. 295); sides and venter yellow. Book-lung covers yellow, covered with white scales. Spinnerets yellow. All legs yellow, with brownish (dark brown on legs I) patellae, tibiae and metatarsi. Palps yellow.

Palpal structure as in Figs 292–294; the RTA very long and massive (its length equal to the tibial width), with its tip slightly curved; the cymbial process like a narrow ridge; the embolus slightly curved, shorter than the cymbium; the CTA slightly wider than the embolus, its tip obtuse.



Figs 292–299. Copulatory organs and somatic characters of *Yllenus zhilgaensis*: 292 — ♂ palp, ventral view; 293 — ditto, lateral view; 294 — ditto, median view; 295 — ♂ general appearance; 296 — ♀ general appearance; 297 — spermathecae; 298–299 — epigyne. Specimens: 292–298 — Kazakhstan, Barsakel'mes Isl.; 299 — Kazakhstan, Karaikuduk Well. Scale lines: 0.1 mm.

Female (the paratype from South Kazakhstan Area, Zhilga)

Measurements. Carapace 2.65 long, 2.40 wide, 1.38 high at PLE. Ocular area 1.25 long, 1.50 wide anteriorly and 1.88 wide posteriorly. Diameter of AME 0.33. Abdomen 3.25 long, 2.75 wide. Cheliceral length 1.03. Clypeal height 0.33. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.68	1.00	1.00	0.69	0.60	4.97
II	1.45	0.90	0.81	0.60	0.55	4.31
III	1.63	0.78	0.80	0.81	0.65	4.67
IV	2.25	1.03	1.28	1.03	0.60	6.19

Leg spination: Leg I: Fm d 0-1-1; Tb pr 0-1, v 1-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-0-1-2; Pt pr 0-1-0; Tb pr 1-1, v 0-1-2ap; Mt v 2-2ap. Leg III: Fm d 0-0-3; Pt pr 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 2ap; Pt pr and rt 0-1-0; Tb pr and rt 1-1-1, v 1ap; Mt pr 1/2-2ap, rt 1-2ap, v 1ap.

Coloration. As described for male, but median brown bands on both carapace and dorsum weaker marked (Fig. 296) and all legs and palpi completely yellow.

Epigyne and spermathecae as in Figs 297–299; the epigynal pocket poorly marked, a very narrow Λ to Π-shaped fold; the copulatory openings ovoid; the receptacles egg-shaped, closely situated, separated by less that a half a diameter.

Material examined. Holotype: 1 ♂ (MMUM), Kazakhstan, South Kazakhstan Area, Saryagash Distr., ca 7 km E of Zhilga (ca 45°56'N, 77°10'E), old sandy quarry, 11–18.08.1985, D. V. Logunov.

Paratypes: KAZAKHSTAN: 1 ♀ (MMUM), together with the holotype; 1 ♂ (ZMUM), Almaty Area, Talgar Distr., ca 24 km NE of Kaptchagai (ca 43°58'N, 77°20'E), 1-2.07.1996, A. A. Zyuzin; 1 ♂ (ZISP), Kyzyl-Orda Area, Aral'sk Distr., Aral Sea, Barsakel'mes Isl. (ca 45°41'N, 59°55'E), 8.07.1984, T. V. Pavlenko; 2 ♀♀ (ZISP; hitherto determined by T. V. Pavlenko as *Pellenes* cf *geniculatus*), same locality, 14.07.1982, T. V. Pavlenko; 1 ♀ (ZMUM), Almaty Area, Karatal Distr., ca 47th km of highway Ushtobe-Akzhar (ca 45°56'N, 77°10'E), 26.07.1988, A. A. Zyuzin; 1 ♀ (ZISP; 179-07), "Turkestan, Karaikuduk well" [South Kazakhstan (=Shymkent, Chimkent) Area, Otrar Distr., Kyzylkum Desert, near Karaikuduk Well, (ca 43°11'N, 66°55'E)], 25.07. 1907, N. A. Zarudnyi.

Habitat. In Kazakhstan, sandy beaches of Aral Sea, sandy desert with *Haloxylon* sp. [present data]; in Kalmykiya, hilly sands [Minoranskii & Ponomarev, 1984: sub *Y. univittatus*].

Distribution. This seems to be a N. Turanian species known from Kalmykiya (Utta) in the North-West to SE areas of Kazakhstan in the East (Map 9).

On the basis of original figures of Ponomarev [1978: figs 1,e], it is obvious that the record of *Y. univittatus* from Kalmykia (Utta) by Ponomarev [1978] and Minoranskii & Ponomarev [1984] should be referred to this new species.

The *arenarius* species group

Diagnosis. All species included in this group are distinguished by the massive cymbium with the strong cymbial process (Figs 45–47, 360, 373), usually the single, massive tibial apophysis (Figs 46–47, 355) and the bent (nearly clamp-shaped) CTA (Figs 55–56) in males, and the heavily sclerotized insemination ducts, with poorly marked receptacles (Figs 79–80, 350) in females.

Altogether, 17 species are included in the *arenarius* group, of which 8 are described hereinafter as new.

Distribution. From Central Europe in the West to Central Asia (including both Turan and Gobian Provinces) in the East (Map 4); main centers of diversity lie in the Gobian and Turan Provinces.

Yllenus arenarius Menge in Simon, 1868

Figs 1–8, 25, 36–41, 46–47, 56, 66, 68, 72, 78, 300–305, Map 22

Yllenus arenarius Menge in Simon, 1868: 633, pl. 7, fig. 11 (D♂♀; syntypes in the ZMPA; not examined, considered lost).

Yllenus arenarius Simon, 1876: 129, pl. 9, fig. 5 (♂♀), 1878: 206, 1901: 582, figs 701–703, 1937: 1257; Chyzer & Kulczyński, 1891: 27, pl. 1, fig. 32 (♂♀); Reimoser, 1919: 105; Dahl, 1926: 26–27, figs 75–77 (♂♀); Charitonov, 1932: 185, 1936: 219; Roewer, 1954: 1252; Bonnet, 1959: 4904–4905; Prószyński, 1968: 488, figs 9, 29, 44, 56, 71, 178–185 (♂♀), 1990: 362, 1992: 115; Miller, 1971: 134; Prószyński & Staręga, 1971: 172; Nenilin, 1985: 131; Heimer & Nentwig, 1991: 522, fig. 1397 (♂♀); Fuhn & Gherasim, 1995: 64, figs 24A–F (♂♀); Hänggi *et al*., 1995; 447; Żabka, 1997: 107–108, figs 422–428 (♂♀); Bellmann, 2001: 230–231 (♂♀).

Marpesia arenicola Menge, 1877: 472, pl. 77, fig. 265 (D♂♀). Synonymised with *Y. arenarius* by Simon [1937]; see also Bonnet [1959: footnote of the page 4904].

Illenus arenicola: Bösenberg, 1903: 437, pl. 42, fig. 642 (♂♀).

Yllenus arenicola: Simon, 1937: 1257.

Type. The syntypes from Gdańsk (former Danzig; ca. 54°21'N, 18°39'E), Poland; were deposited in the ZMPA. They were apparently destroyed during the Second World War [s. Prószyński, 1968].

Derivatio nominis. The specific epithet is derived from the Latin "*arenarius*" meaning "sandy".

Diagnosis. Its inwardly bent RTA and the structure of the epigynal pocket show this species to be most closely related to *Y. dunini* sp.n., but can be easily distinguished by the following characters: the RTA is narrower and its inward "hook" sharper (cf Figs 302–303 and 321), the cymbiums of the two species are obviously of different shapes and proportions (cf Figs 303 and 322), the embolic tip straight (slightly spirally twisted in *Y. dunini* sp.n.) (cf Figs 301 and 320), and the receptacles comparatively narrower and longer (cf Figs 305 and 324). The species are geographically distant and their known ranges do not overlap (Maps 22, 24).

DESCRIPTION

Male (from Poland, "Puszcza Kampinoska" National Park)

Measurements. Carapace 2.98 long, 2.45 wide, 1.60 high at PLE. Ocular area 1.05 long, 1.53 wide anteriorly and 1.63 wide posteriorly. Diameter of AME 0.40. Abdomen 4.00 long, 2.53 wide. Cheliceral length 1.03. Clypeal height 0.33.

Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.78	1.13	1.10	0.73	0.58	5.32
II	1.70	0.98	1.00	0.75	0.63	5.06
III	1.93	0.88	0.98	1.00	0.75	5.54
IV	2.75	1.33	1.58	1.15	0.68	7.49

Leg spination: Leg I: Tb v 0-2-2ap; Mt v 2-2ap. Leg II: Pt pr 0-1-0; Tb pr 1-1, v 0-1-2ap; Mt pr 1-1ap, v 2-2ap. Leg III: Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 2ap; Mt pr and rt 1-2ap, v 2ap. Leg IV: Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 2ap.

Coloration. Carapace dark red-brown, with black eye field; carapace densely covered with motley appressed scales: black (forming background), red (forming red specks) and white (forming interrupted stripes and Λ-shaped figures). In some specimens white stripes on carapace are absent. Clypeus brown, densely covered with long red-ashy hairs. Sternum brown, covered with white hairs. Maxillae and labium yellow-brown, with white apexes. Chelicerae dark brown. Abdomen: dorsum brown, with a median interrupted grey-white band; sides and venter grey-yellow. Book-lung covers yellow, covered with white scales. Spinnerets brownish yellow, covered with brownish hairs. All legs yellow, with white and brown annulations and patches consisted of appressed scales. Palps yellow (but tegulum brownish), dorsally and on sides densely convered with yellowish hairs.

Palpal structure as in Figs 46–47, 56, 66, 68, 300–303; the cymbium modified, in some views wider than long and with a wide lateroapical process (see in ventral view, Fig. 47); the RTA long, with a beak-shaped apical tip which curves dorsally to follow a corresponding furrow of the cymbium; the cymbial process relatively long, protruded ventrally; the CTA relatively thin, thinner in its apical part, with a small apical tooth.

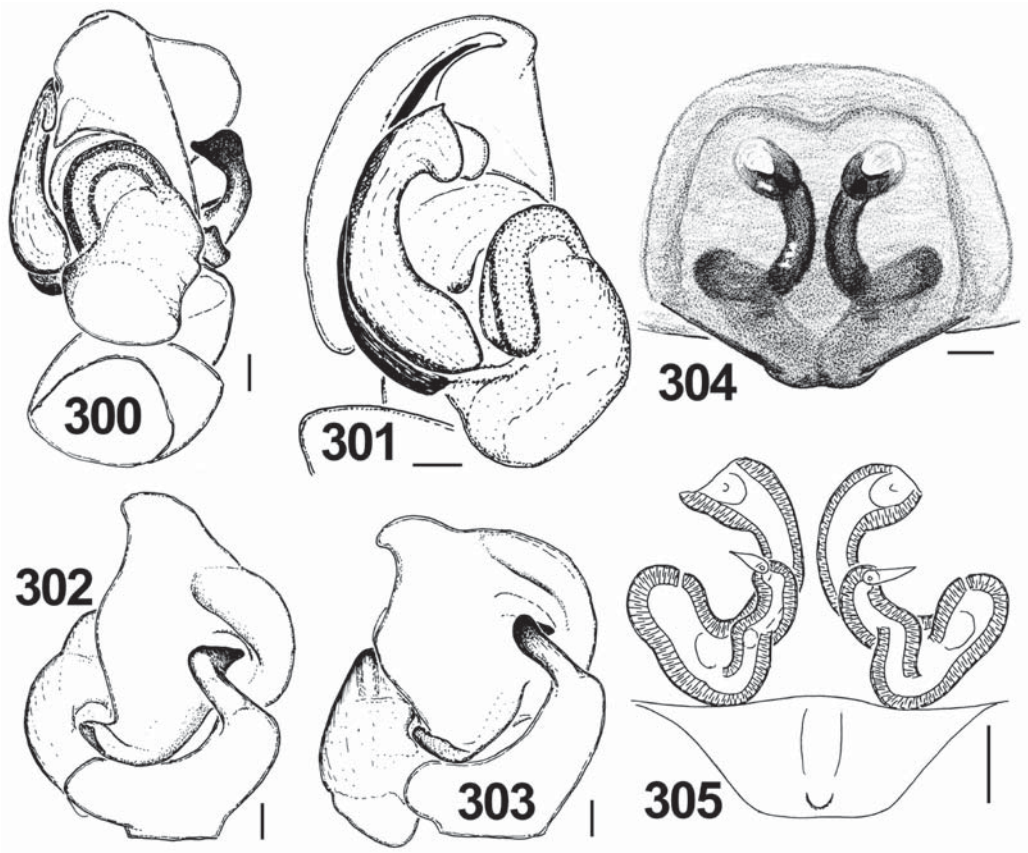
Female (from Poland, "Puszcza Kampinoska" National Park)

Measurements. Carapace 2.88 long, 2.28 wide, 1.55 high at PLE. Ocular area 1.18 long, 1.48 wide anteriorly and 1.63 wide posteriorly. Diameter of AME 0.43. Abdomen 3.13 long, 2.40 wide. Cheliceral length 0.88. Clypeal height 0.25. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.55	0.95	0.80	0.53	0.43	4.26
II	1.45	0.88	0.78	0.53	0.48	4.12
III	1.69	0.76	0.83	0.78	0.60	4.66
IV	2.63	1.25	1.45	1.08	0.60	7.01

Leg spination: Leg I: Tb v 0-2-2ap; Mt v 2-2ap. Leg II: Tb pr 0-1, pr 1-1, v 0-1-1ap; Mt v 2-2ap. Leg III: Pt pr and rt 0-1-0; Tb pr and rt 1-1/0, v 1ap; Mt pr and rt 1-2ap, v 1ap. Leg IV: Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1ap.

Coloration. Females are lighter than males, generally of sandy colour. Carapace brown, with black eye field; carapace covered with motley (white and red) appressed scales witn no particular pattern. Clypeus yellow, covered with white

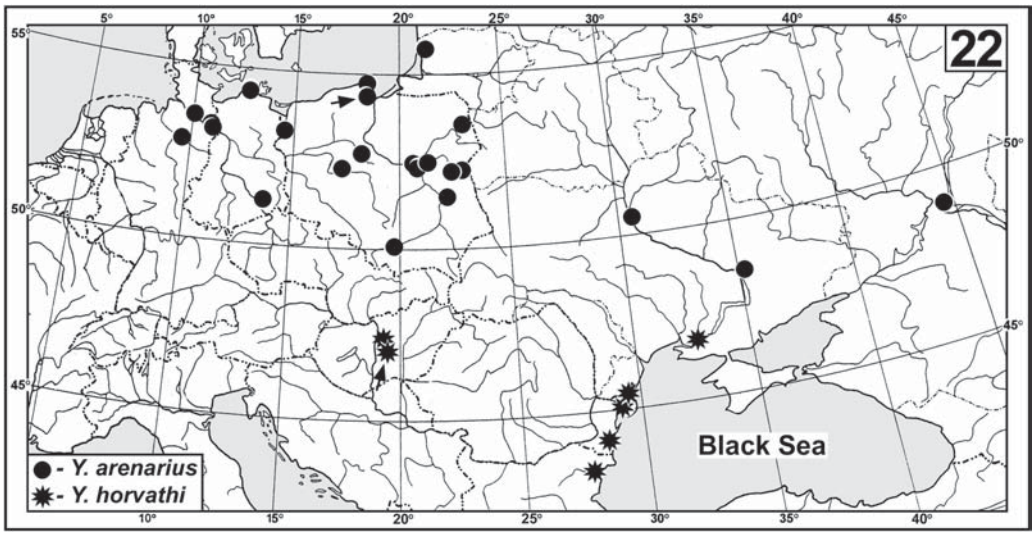


Figs 300–305. Copulatory organs of *Yllenus arenarius*: 288, 290 — ♂ palp, ventral view; 301 — ditto, median view; 302–303 — ditto, lateral view; 304 — epigyne; 305 — spermathecae. All specimens from Poland. Scale lines: 0.1 mm.

hairs forming two rows (beneath AMEs and on clypeal margin). Sternum yellow, covered with yellow hairs. Maxillae and labium yellow, with white apexes. Chelicerae dark brown. Abdomen: sandy-coloured, with white and brown patches forming a reticulate pattern; sides and venter yellow. Book-lung covers and spinnerets yellow. All legs yellow, with brownish patches on segment ends. Palps yellow.

Epigyne and spermathecae as in Figs 72, 304–305; the epigynal pocket wide (two times wider than distance between copulatory openings and as wide as the whole epigynal plate) and overhanging the epigastric furrow; the copulatory openings small, directed anteriorly and separated by more than 2.5 times their diameter; the insemination duct and the receptacles clearly separated and connected to each other at the right angle.

Material examined. POLAND: 1 ♂, 1 ♀ (ZMPA), Warsaw Region, "Puszcza Kampinoska" National Park, ca 25 km NW of Warsaw, sand dunes near Kazuń (ca 52°24'N, 20°39'E), 24.09.1967, J. Prószyński; 2 ♂♂, 1 ♀ (ZMPA), same national park, sandy pine forest, 2–31.05.1982, Dobrowolska; 16 ♂, 2 ♀♀ (MNHN, 789), "Polon. trunsitv. …" [label illegible]; 1 ♂ (BMNH, 1919.9.18.3717), "Galicia, Koch Coll."; 1 ♀ (BMNH, 1919.9.18.3716), "Danzig, Koch coll." [now Gdańsk (ca 54°21'N, 18° 39'E)]; 2 ♂♂, 1 ♀ (BMNH, 1891.8.1.309–12), "Danzig, 87" [now Gdańsk (ca 54°21'N, 18°39'E)]; 1 ♂ (SMNH, 1694), "Polonia (Simon)" (no exact locality). — RUSSIA: 1 ♀ (BMNH, 1919.9.18.3727), "Sarepta" [now Krasnoarmeisk near Volgograd]. — UNKNOWN LOCALITY: 1 ♀ (BMNH), "Hungary (?) from Kulczyński, 1896; det.Clarck, 1965".



Map 22. Distribution of *Y. arenarius* and *Y. horvathi* in Europe. One dot may represent more than one close locality; if more than one record, type localities arrowed.

Habitat. In Germany, sand meadows and inland dunes sparcely covered with *Corynephorus canescens* and *Carex arenaria* [Hesse, 1936; Bochmann, 1941; Hänggi *et al*., 1995; Bellmann, 2001; Finch & Kreuels, 2001; Merkens, 2000, 2002], as was stressed by S. Merkens [2002], this species is restricted to the initial stage of the *Spergulo-Corynephoretum* and lives on the open sand; in Poland, true psammophilous species [Bartos, 2000].

Biology information. The species is being studied in regards to its autecology and hunting behaviour [Bartos, 2002a,b].

Distribution. The species is known only from Central and Eastern Europe (Map 22); from NW and S Germany in the West [s. Bösenberg, 1897; Bochmann, 1941; Bellmann, 1992; Platen *et al*., 1999; Finch & Kreuels, 2001; Blick, pers. comm.] throughout Poland [Dahl, 1926; Prószyński, 1968; Prószyński & Staręga, 1971; Żabka, 1997; Bartos, 2000] and Ukraine [Thorell, 1875b; Charitonov, 1936] to Volga River (Russia) in the East [Thorell, 1875b]; the northermost record is Klaipeda in Lithuania [Dahl, 1926: as Memel].

Some of earlier European records of *Y. arenarius* are doubtful and need confirmation. This species was reported for România (as Transylvania in Simon [1868]), but no modern data and/or exact localities are mentioned in Fuhn & Gherasim [1995], while the illustrations for *Y. arenarius* provided by the latter authors were adopted from Prószyński [1968]. One could suspect that Simon's old records from Transylvania might actually be referred to *Y. horvathi*, but this is only an assumption. The problem will remain unsolved until Simon's specimens have been located and re-examined.

This species was later recorded from France: Pyrénées-Orientales: Vernet-les-Bains (M. Nou) [s. Simon, 1876: 130]; however, this record turned out to be erroneous as was later reported by Simon himself [Simon, 1937: 1257, footnote 4; see also Bonnet, 1959: 4904–4905, incl. footnotes]. Recently, Prószyński [1992] reported on several specimens (2 ♂♂, 2 ♀♀) of *Y. arenarius* kept in the MCZH, the locality labels of which were given as either "France", or "coasts of France". These data were also mentioned by Żabka [1997: 108]. However, there is some doubt as to the correctness of the French localities, and the occurrence of *Y. arenarius* in France needs verification through reference to new, reliably collected, material from this area. The earlier record of *Y. arenarius* from Azerbaijan (Absheron Peninsula) by Dunin [1979]

actually belongs to *Y. dunini* sp.n.; see also Logunov & Guseinov [2002].

Y. arenarius was also reported from Pa-lin-chiao, China by Saito [1936: 70–71, plate 31, figs 50AB; sub *Marpissa arenarius*]. According to X. Peng [pers. comm.] this locality is apparently the present day Bairin Qiao [43°11'N, 118°37'E], Inner Mongolia. We agree with Prószyński [1968: 492] that this record actually belongs to a species from the *arenarius* group (Sic!, the esternmost record for the congeners of this species group). Saito's original figures do not allow recognition of a particular species, although from distributional data alone one could assume that the Chinese record may belong either to *Y. flavociliatus*, or to *Y. erzinensis* sp.n. The problem will remain unsolved until new specimens from Pa-lin-chiao (=Bairin Qiao) have been collected. At present, it seems reasonable to remove the name *Marpissa arenarius* from the synonymy list of *Y. arenarius*, where it has been placed in most spider catalogues [*e.g.* Bonnet, 1959; Roewer, 1954; Platnick, 2002], as this record definitely does not belong to the latter species.

Yllenus charynensis sp.n.

Figs 306–308, Map 24

Type. The female holotype from Charyn River Canyon (ca 43°21'N, 79°04'E), Kazakhstan; deposited in the ZMUM.

Derivatio nominis. The specific epithet refers to the type locality, Charyn River Canyon in S. Kazakhstan.

Diagnosis. The species is most closely related to *Y. desertus*, but can be separated from it by the epigynal pocket which does not have a concave rear margin (cf Figs 306–307 and 312) and by the proportions and arrangement of the spermathecal ducts and receptacles (cf Figs 308 and 313). See also comments under "Diagnosis" of *Y. kononenkoi* sp.n.

DESCRIPTION

Male unknown.

Female (from the type locality)

Measurements. Carapace 2.55 long, 2.10 wide, 1.23 high at PLE. Ocular area 1.10 long, 1.55 wide anteriorly and 1.66 wide posteriorly. Diameter of AME 0.46. Abdomen 2.98 long, 2.40 wide. Cheliceral length 0.83. Clypeal height 0.18. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.43	0.93	0.80	0.50	0.39	4.05
II	1.35	0.78	0.73	0.54	0.43	3.83
III	1.48	0.65	0.70	0.70	0.53	4.06
IV	2.28	1.13	1.25	0.93	0.55	6.14

Leg spination: Leg I: Fm d 0-0-1; Tb v 1-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-0-1; Pt pr 0-1-0; Tb pr 0-1, v 1-1ap; Mt pr 1-1ap, v 2-2ap. Leg III: Fm d 0-0-1; Pt pr 0-1-0; Tb pr and rt 1-1; Mt pr and rt 1-2ao, v 1-1ap. Leg IV: Fm d 1ap; Pt pr and rt 0-1-0; Tb pr and rt 1-1; Mt pr and rt 1-2ap, v 1-1ap.

Coloration. Carapace red-brown, eye field almost black; carapace densely covered with reddish and grey appressed scales. Clypeus yellow, densely covered with white hairs, with a marginal fringe of long orange hairs; AMEs surrounded by orange scales. Sternum yellow, with brown margins, covered with white hairs. Maxillae and labium yellow-brown. Chelicerae dark brown. Abdomen: dorsum brownish grey (densely covered with brown and orange scales); sides and venter yellow. Book-lung covers yellow, covered with white scales. Spinnerets yellow. All legs yellow, with small brownish patches on dorsal and lateral sides of segments. Palps yellow.

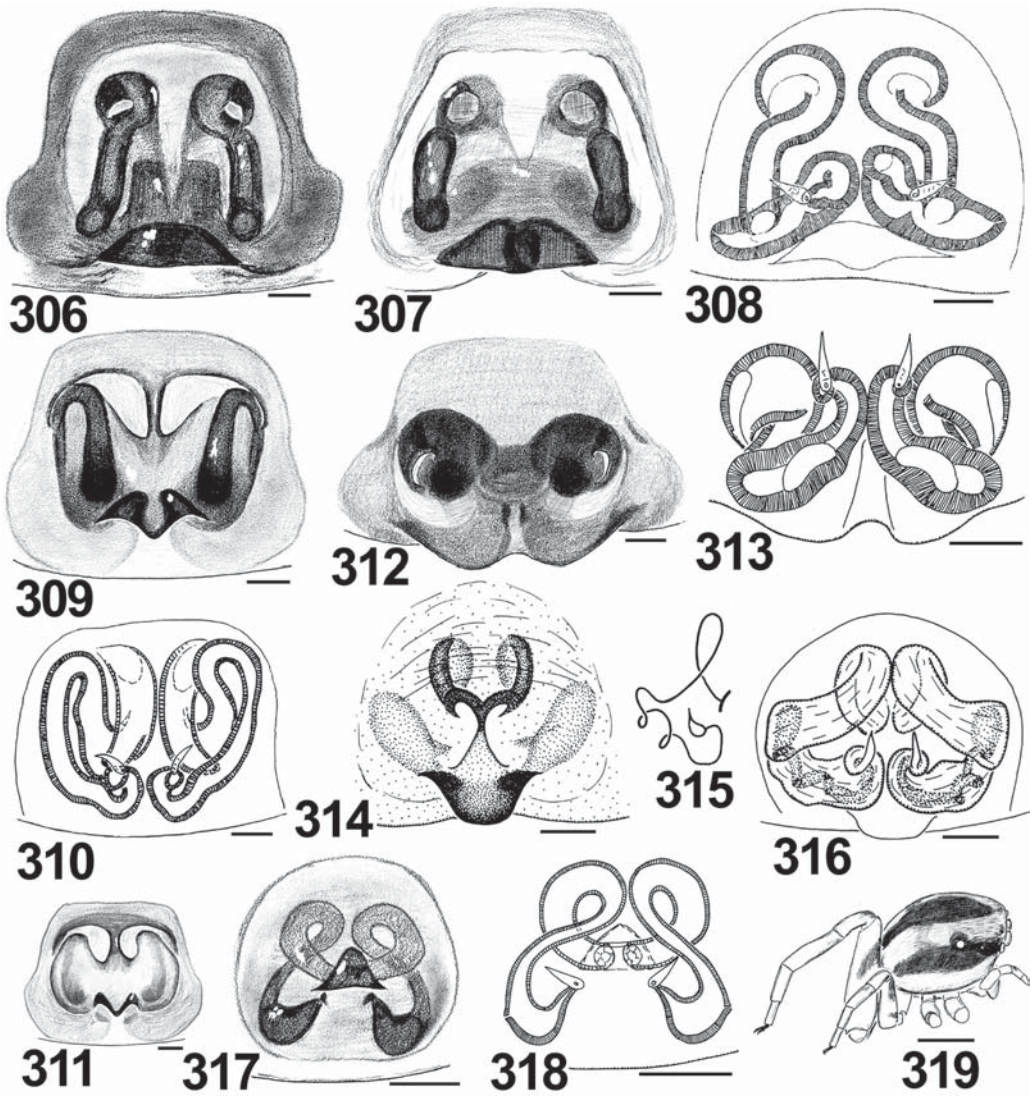
Epigyne and spermathecae as in Figs 306–308; the epigynal pocket does not overhang the epigastric furrow and is as wide as the distance between the copulatory openings; the latter are relatively small, ovoid or nearly round, widely separated (by 2.5–3 times their diameters); the receptacle is clearly separated from the insemination duct and is connected to it at a right angle.

Material examined. Holotype 1 ♀ (ZMUM), Almaty Area, Enbekshikazakhskii Distr., Charyn River Canyon (ca 43°21'N, 79°04'E), 1.10.1989, A. A. Zyuzin.

Paratype: KAZAKHSTAN: 1 ♀ (MMUM), Almaty Area, Enbekshikazakhskii Distr., Toraigyr Mts (ca 43°21'N, 79°00'E), 21.04.1990, A. A. Zyuzin.

Habitat. No data.

Distribution. The type locality only (Map 24).



Figs 306–319. Female copulatory organs and somatic characters of *Yllenus charynensis* (306: the holotype, 307–308: the paratype), *Y. gajdosi* (309: the holotype, 310–311: the paratype), *Y. desertus* (312–313: the paratype), *Y. marusiki* (314–316; the holotype) and *Y. bucharaensis* (317–319: the holotype): 306–307, 309, 311, 312, 314, 317 — epigyne; 308, 310, 313, 316, 318 — spermathecae; 315 — diagrammatic course of spermathecal ducts; 319 — ♀ carapace. Scale lines: 1 mm (319), 0.1 mm (306–318).

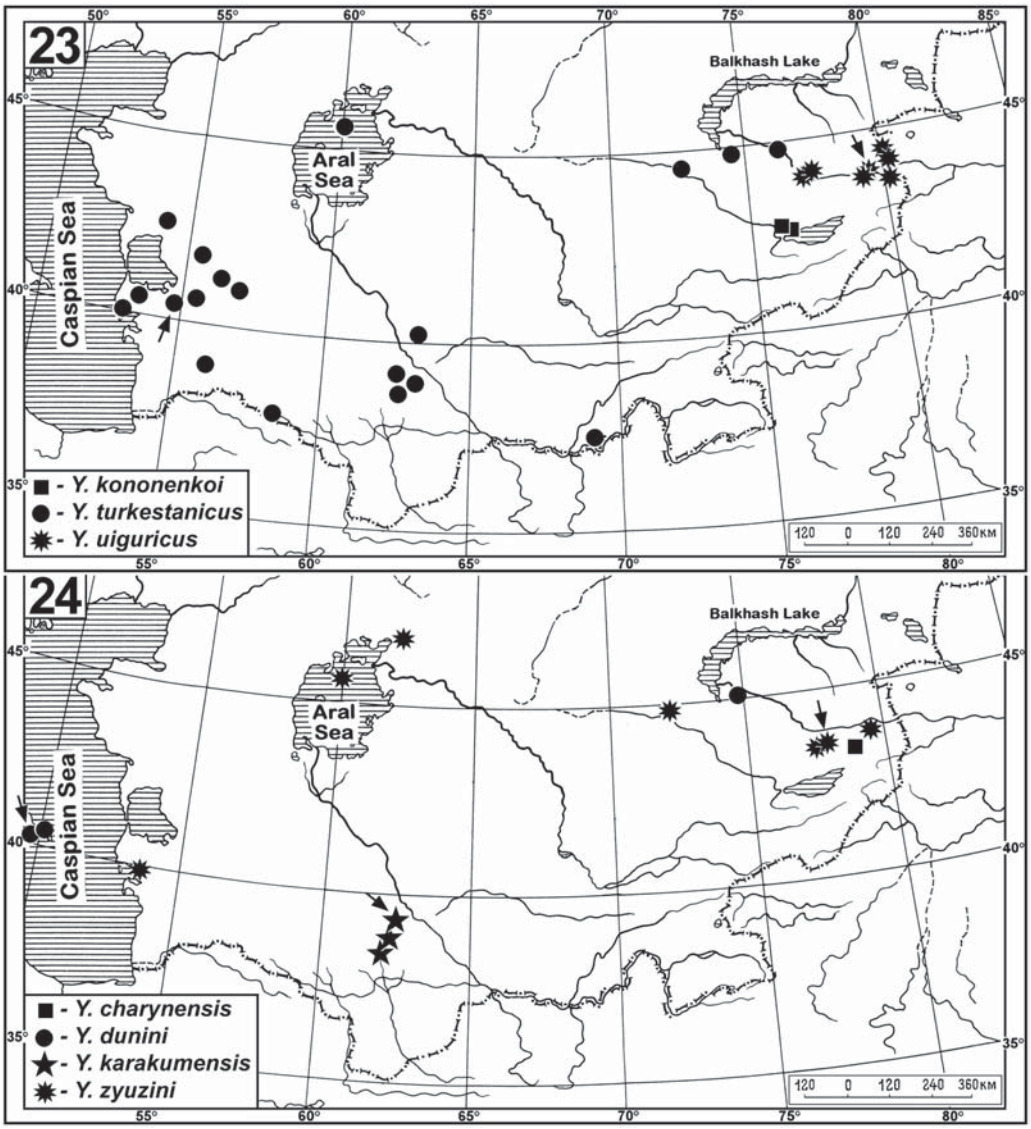
Yllenus desertus Wesołowska, 1991

Figs 312–313, Map 25

Yllenus desertus Wesołowska, 1991: 4, figs 10–12 (D♀; ♀ holotype in the SNMC; examined).
Yllenus desertus: Logunov & Marusik, 2000b: 251, map 53.

Type. The female paratype from Bulgan-gol, Chovd Aimak, Mongolia; deposited in the SNMC.

Derivatio nominis. The specific epithet refers to the semidesert habitat of the species [Wesołowska, 1991].



Maps 23–24. Distribution of *Yllenus* species: 23 — *Y. kononenkoi*, *Y. turkestanicus* and *Y. uiguricus* in Central Asia; 24 — *Y. charynensis*, *Y. dunini*, *Y. karakumensis* and *Y. zyuzini* in Central Asia and the Caucasus. One dot may represent more than one close locality; if more than one record, if more than one record, type localities arrowed.

Diagnosis. The species is most closely related to *Y. charynensis* sp.n. (Figs 306–308), but can be separated from it, as well as from all other known species, by the peculiar epigynal pocket with a concave rear margin (Fig. 312) and by the proportions and different arrangement of the spermathecal ducts and receptacles (Fig. 313).

DESCRIPTION

Male unknown.

Female (the holotype)

Measurements. Carapace 2.48 long, 2.05 wide, 1.18 high at PLE. Ocular area 1.23 long, 1.53 wide anteriorly and 1.61 wide posteriorly. Diameter of AME 0.44. Abdomen 2.78 long,

2.33 wide. Cheliceral length 0.98. Clypeal height 0.25. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.33	0.84	0.80	0.50	0.45	3.92
II	1.20	0.66	0.65	0.48	0.50	3.49
III	1.31	0.63	0.65	0.68	0.59	3.86
IV	2.13	1.06	1.13	0.85	0.54	5.71

Leg spination: Leg I: Fm d 0-1-1; Tb v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-0-1; Pt pr 0-1-0; Tb pr 0-1, v 1-1; Mt pr 1-1ap, v 2-2ap. Leg III: Fm d 0-0-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr, rt and v 1-2ap. Leg IV: Fm d 1ap; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr 1-2ap, rt 2-2ap, v 1ap.

Coloration. Carapace brown, densely covered with white and brownish appressed scales. Black around eyes. Clypeus brown, densely covered with long white hairs overhanging the basal parts of chelicerae. Sternum brown, covered with white hairs. Maxillae and labium brown, with white apexes. Chelicerae dark brown. Abdomen: dorsum light grey, with pale colour markings of brownish patches forming interrupted transverse bands; sides and venter grey-yellow. Book-lung covers yellow. Spinnerets brown-yellow. All legs yellow, with numerous brown patches and covered with brown and white hairs. Palps yellow.

Epigyne and spermathecae as in Figs 312–313; the epigynal pocket very narrow, tube-shaped and situated between two lobes of the epigyne overhanging the epigastric furrow; the copulatory openings narrow and sickle-shaped, separated by the distance equal 4 times their lengths; the receptacles clearly separated from the insemination ducts and connected to them at a right angle.

Material examined. MONGOLIA: 1 ♀ (SNMC, 328/90; the paratype of *Yllenus desertus*), "Jarantai" (military station), Chovd Aimak, Bulgan Somon (near the frontier with China on the river Bulgan-gol), 13.05.1975, M. Stubbe.

Habitat. In Mongolia, the semidesert [Wesołowska, 1991].

Distribution. This species is so far known only from the type locality (Map 25).

Yllenus dunini sp.n.

Figs 64–65, 67, 320–324, Map 24

Yllenus arenarius (*nec* Chyzer; misidentified): Dunin, 1979: 36.

Yllenus horvathi (*nec* Chyzer; misidentified): Guseinov, 1999: 9.

Yllenus sp.-3: Logunov & Guseinov, 2002: 257.

Type. The male holotype from Baku (ca 40°25'N, 49°52'E), Azerbaijan; deposited in the ZMUM.

Derivatio nominis. This species is dedicated to the memory of our colleague and friend, Dr Peter M. Dunin, who collected a lot of spider material from the Caucasus and who untimely passed away in 1998.

Diagnosis. The inwardly bent RTA and the structure of the epigynal pocket indicate that this species is most closely related to *Y. arenarius*, but it can be easily distinguished by the following characters: the RTA and its inward "hook" is thicker (cf Figs 321 and 302), the cymbium of both species is obviously of different shape and proportions (cf Figs 322 and 303), the embolic tip slightly spirally twisted (straight in *Y. arenarius*) (cf Figs 320 and 301), and the receptacles comparatively wider and shorter (cf Figs 324 and 305). Both species are geographically distant and their known ranges do not overlap (Maps 22, 24).

DESCRIPTION

Male (the holotype)

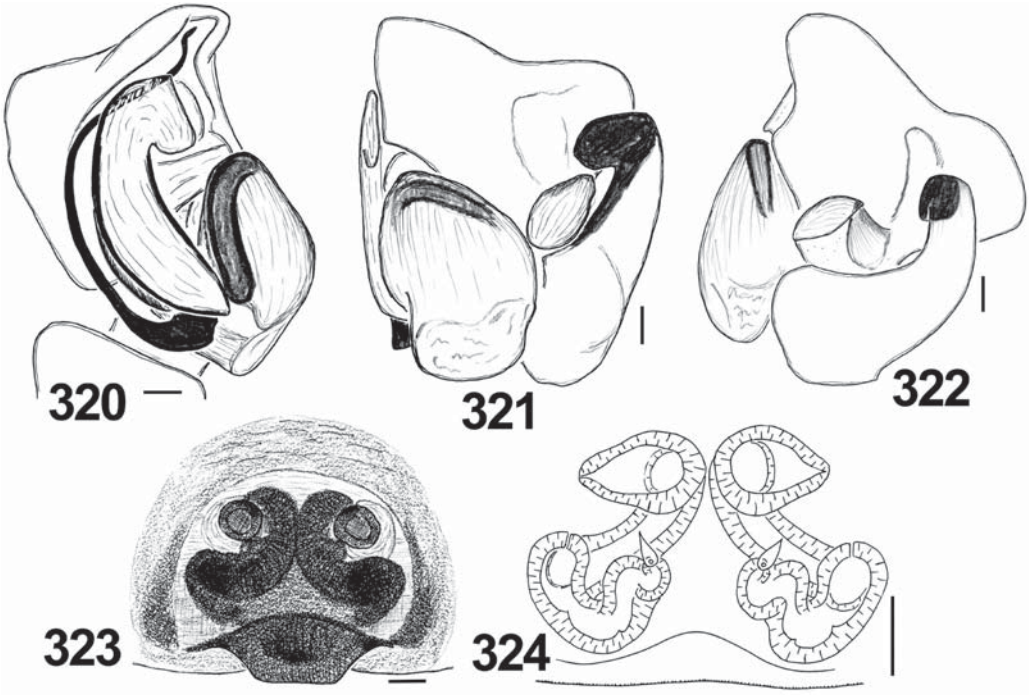
Measurements. Carapace 2.58 long, 2.20 wide, 1.41 high at PLE. Ocular area 1.35 long, 1.58 wide anteriorly and 1.64 wide posteriorly. Diameter of AME 0.40. Abdomen 3.13 long, 2.25 wide. Cheliceral length 0.90. Clypeal height 0.33.

Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.63	1.10	0.98	0.63	0.55	4.89
II	1.29	0.90	0.90	0.65	0.53	4.27
III	1.96	0.84	0.90	0.88	0.60	5.18
IV	2.40	1.25	1.40	1.03	0.63	6.71

Leg spination: Leg I: Fm d 0-1-1-1; Pt pr 0-1-0; Tb pr 0-1, v 1-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-1-1-1; Pt pr 0-1-0; Tb pr 0-1-0; v 0-1; Mt pr 1-1ap, v 2-2ap. Leg III: Fm d 0-1-1-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 1ap; Pt pr and rt 0-1-0; Tb pr and rt 1-1; Mt pr 1-2ap, rt 2-2ap, v 1ap.

Coloration. Carapace dark red-brown, densely covered with white, reddish and brownish appressed scales; eye field with a median white band of scales. Clypeus brown-yellow,



Figs 320–324. Copulatory organs of *Yllenus dunini*: 320 — ♂ palp, median view; 321 — ditto, ventro-median view; 322 — ditto, lateral view; 323 — epigyne; 324 — spermathecae. Specimens: 320–322 — Kazakhstan, Lake Alakol'; 323–324 — Azerbaijan, Absheron. Scale lines: 0.1 mm.

covered with long snady-coloured hairs. Sternum dark brown (almost black), covered with white hairs. Maxillae and labium brown-yellow, with white apexes. Chelicerae dark brown. Abdomen: dorsum dark grey, with a double row of brown patches; sides organge-brown; venter yellow-grey. Book-lung covers yellow, covered with white scales. Spinnerets dark brown. All legs yellow, with brown patches and streaks, but femora almost entirely brown; all legs covered with white appressed scales and white/black protruding hairs. Chelicerae yellowish brownish, dosally and laterally covered with white hairs.

Palpal structure as in Figs 64–65, 67, 320–322; the cymbium distinctly modified, with a prominent dorsal lobe bearing long furrow and with the rather massive cymbial process; the RTA very strong, its tip turns medially to the cymbial furrow; the CTA nearly obtuse on its upper edge; the embolus makes two prominent turns in its apical end.

Female (paratype from Baku, Azerbaijan)

Measurements. Carapace 2.53 long, 2.30 wide, 1.38 high at PLE. Ocular area 1.23 long, 1.58 wide anteriorly and 1.70 wide posteriorly. Diameter of AME 0.45. Abdomen 3.68 long, 3.08 wide. Cheliceral length 1.08. Clypeal height 0.30. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.45	0.93	0.85	0.48	0.48	4.19
II	1.41	0.80	0.81	0.50	0.45	3.97
III	1.65	0.75	0.83	0.73	0.60	4.56
IV	2.48	1.00	1.38	1.00	0.58	6.44

Leg spination: Leg I: Fm d 0-1-1; Pt pr 0-1-0; Tb pr 0-1, v 1-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-1-1; Pt pr 0-1-0; Tb pr 0-1; v 0-1-0; Mt pr 1-1ap, v 2-2ap. Leg III: Fm d 0-0-1-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 0-0-1-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr 1-2ap, rt 2-2ap, v 1ap.

Coloration. As described for the male, but lighter and differing as follows: eye field either

entirely white, or brownish with Λ-shaped white figure; clypeus yellow, with a transverse band of white scales, clypeal margin covered with long sandy-coloured hairs hanging over the chelicerae; dorsum grey, with a reticulate pattern of brown patches (sometimes poorly marked); all legs almost entirely yellow (with small brown patches at ends of segments); palps yellow.

Epigyne and spermathecae as in Figs 323–324; the epigynal pocket large and overhanging the epigastric furrow, wider than the distance between the copulatory openings; the copulatory openings round, separated by the distance equal 2.5 times their diameters, the receptacles clearly separated from the insemination ducts, connected to them at a right angle.

Material examined. Holotype: 1 ♂ (ZMUM), Azerbaijan, Baku Distr., Absheron [=Apsheron] Peninsula, Baku, Bailov Park (ca 40°25'N, 49°52'E), 26.04.1999, E. F. Guseinov.

Paratypes: AZERBAIJAN: 1 ♀ (ZMUM), 1 ♀ (MMUM), same district, Dyubendy (ca 40°26'N, 50°15'E), 26.03–6.05.1999, E. F. Guseinov; 2 ♂♂, 2 ♀♀ (MMUM), 1 ♀ (ZMUM), same locality, 8.03–29.05.1998, E. F. Guseinov; 2 ♂♂, 1 ♀ (ZMUM), 1 ♀ (MNHN), 1 ♂, 1 ♀ (ZISP), same locality, 7–21.05.2002, E. F. Guseinov; 2 ♂♂ (MNHN), Absheron, Gyurgyan (40°24'N, 50°16'E), 17.04.2001, E. F. Guseinov. — KAZAKHSTAN: 1 ♂ (MMUM), Almaty Area, Balkhash Distr., ca 10 km N of Lake Alakol', Taukum sands (ca 44°59'N, 74°12'E), 8.05.1988, Ch. K. Tarabaev & M. V. Zarko.

Habitat. In Azerbaijan, the semidesert zone (fixed sands with sparse vegetation) [Logunov & Guseinov, 2002: sub *Yllenus* sp.-3].

Biological information. According to E. Guseinov [pers. comm.], adults of *Y. dunini* sp.n. occur in April-May, adult males also appear in October; among the prey of this species the following groups were recorded in nature: Diptera (7 specimens), Hymenoptera (3 specimens; 1 parasitic wasp and 2 ant-workers), Lepidoptera (2 specimens, both caterpillar), Homoptera (Aphididae) (2), Neuroptera (1 larva of the antlion), Acari (1), and Araneae [*Pellenes geniculatus* (Simon, 1868)] (1).

Distribution. This species is so far known only from a few localities: from Absheron Peninsula (Azerbaijan) in the West to SE Kazakhstan in the East (Map 24).

This species appears to have been reported from Azerbaijan ("Lenkoran area") by Guseinov [1999] as *Y. horvathi* and also from the Absheron Peninsula as *Y. arenarius* by Dunin [1979]. For further details see Logunov & Guseinov [2002].

Yllenus erzinensis sp.n.

Figs 325–335, Map 25

Yllenus kulczynskii (*nec* Punda; misidentified): Logunov, 1992: 67–70, figs 8a–g, 9a–d (♂♀); Danilov & Logunov, 1994: 38; Mikhailov, 1996: 134, 1997: 225; Logunov *et al*., 1998: 142; Marusik & Logunov, 1999: 250; Danilov, 1999: 274; Marusik *et al*., 2000: 103, 216, map 176; Logunov & Marusik, 2000a: 290, 2000b (*pro parte*): 248–249, map 54.

Yllenus staregai (*nec* Punda; misidentified): Prószyński, 1982: 293, figs 49 (♀), 1990: 363.

Type. The male holotype from Lake Tere-Khol' (ca 50°02'N, 95°05'E), Tuva, Russia; deposited in the ZMUM.

Derivatio nominis. The specific name is derived from that of the type locality, Erzin District of Tuva.

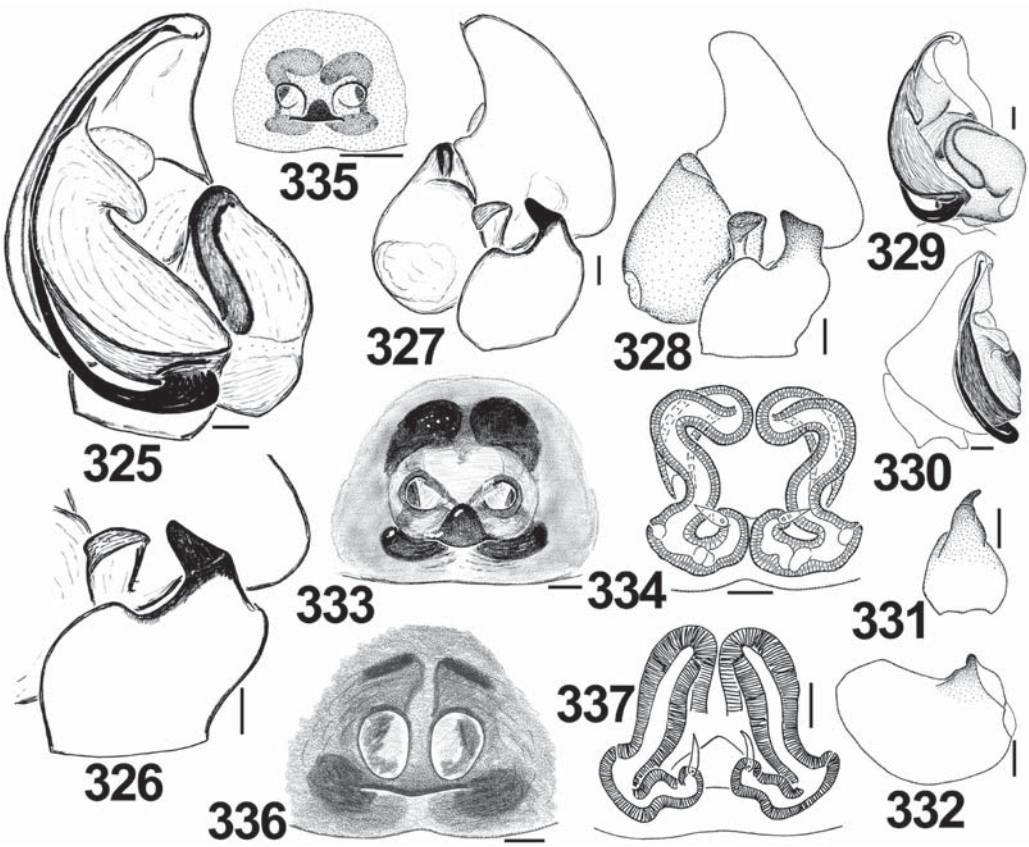
Diagnosis. This species is most similar to *Y. uiguricus* sp.n., but can be easily distinguished from it by the following characters: the spiny-shaped tip of the CTA (cf Figs 325 and 389), the absence of the dorso-apical tooth on the RTA (cf Figs 327–328 and 390), and the longer insemination ducts (cf Figs 334 and 392). The species are geographically distant and their known ranges do not overlap (Maps 23, 25).

This species was earlier confused with *Y. kulczynskii* [s. Logunov, 1992; and subsequent works], but after a repeated and more detailed examination of the Siberian material and on the basis of Punda's illustrations (Figs 366–371), it is clear that *Y. erzinensis* sp.n. can be separated from *Y. kulczynskii* by the much more heavily sclerotized spermathecae (cf Figs 334 and 370), the spiny-shaped tip of the CTA (cf Figs 325 and 366) and the shape of the RTA (cf Figs 367 and 327–328). The taxonomic status of *Y. kulczynskii* itself remains unclear (see below).

DESCRIPTION

Male (from Tuva, Lake Tere-Khol')

Measurements. Carapace 3.00-3.20 long, 2.30–2.50 wide, 1.40–1.55 high at PLE. Ocular



Figs 325–337. Copulatory organs of *Yllenus erzinensis* (325–335) and *Y. rotudiorificius* (336–337): 325, 329 — ♂ palp, ventro-median view; 326–328 — ditto, lateral view; 330 — ditto, median view; 331 — palpal femur, rear view; 332 — ditto, lateral view; 333, 335 — epigyne; 334 — spermathecae. Specimens: 325–335 — Russia, Tuva (Lake Tere-Khol'); 336–337 — Mongolia; the holotype. Scale lines: 0.1 mm.

area 1.20 long, 1.50–1.65 wide anteriorly and 1.65–1.75 wide posteriorly. Diameter of AME 0.35–0.45. Abdomen 2.70–3.40 long, 2.00–2.40 wide. Cheliceral length 0.65–0.90. Clypeal height 0.25.

Length of leg segments:

	Fm	Pt	Tb
I	1.80–1.85	1.15–1.25	1.00–1.15
II	1.65–1.80	0.90–1.05	1.00–1.05
III	0.90–2.05	0.85–1.00	0.90–1.10
IV	2.60–2.90	1.20–1.40	1.50–1.65
	Mt	Tr	Total
I	0.65–0.75	0.55–0.60	5.15–5.60
II	0.70–0.80	0.55–0.60	4.80–5.30
III	0.90–1.00	0.65–0.80	4.20–5.95
IV	1.10–1.15	0.65–0.70	7.05–7.80

Leg spination: Leg I: Fm d 0-1-1-1; Tb pr 0-1-0, v 1-1-2ap; Mt v 2-2ap. Leg II: Fm d 0-0-1-1; Tb pr 1-1, v 1-2ap; Mt v 2-2ap. Leg III: Fm d 0-1-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1; Mt pr, rt 1-2ap, v 1ap. Leg IV: Fm d 0-0-1-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1; Mt pr 1-0-1-1ap, rt 2-2ap, v 1ap.

Coloration. Carapace black, covered with white and yellow appressed scales. Eye field with a white triangle composed of white appressed scales. Clypeus reddish, densely covered with white hairs and scales. Sternum, labium and chelicerae black. Maxillae black, with yellow apexes. Abdomen: dorsum light, covered with turquoise scales and a couple of brown marginal stripes; sides covered with yel-

low and brownish scales; venter covered with white scales. Spinnerets dark brown. Coxae and femora of all legs yellow ventrally and brown dorsally. Remaining segments yellow, with brown patches and stripes, but tibia usually dark brown, while metatarsi and tarsi lighter than other segments. All legs covered with white appressed scales, especially densely on dorsal sides of metatarsi and tarsi. Palps: femur, cymbium and tibia yellow; brown around femoral process; tibia brownish; prolateral sides of palpal tibia and patella with bunches of long white hairs.

Palpal structure as in Figs 325–332; the cymbium with relatively extended apical part; the cymbial process relatively small, its apical portion longer than wide and its length equal to that of the RTA (sometimes cymbial process looks like a second tibial apophysis); the RTA longer than wide; the CTA rather broad and massive, its apical edge bearing a long spine.

Female (from Tuva, Lake Tere-Khol')

Measurements. Carapace 2.40–3.00 long, 1.95–2.45 wide, 1.15–145 high at PLE. Ocular area 1.05–1.75 long, 1.35–1.65 wide anteriorly and 1.50–1.75 wide posteriorly. Diameter of AME 0.35. Abdomen 2.80–3.60 long, 2.30–2.80 wide. Cheliceral length 0.25. Clypeal height 0.25.

Length of leg segments:

	Fm	Pt	Tb
I	1.25–1.70	0.80–1.00	0.65–0.80
II	1.10–1.10	0.70–0.90	0.60–0.75
III	1.40–1.70	0.70–0.85	0.70–0.85
IV	2.15–2.70	0.90–1.30	1.20–1.45

	Mt	Tr	Total
I	0.45–0.50	0.40–0.50	3.55–4.50
II	0.54–0.55	0.40–0.50	3.34–3.80
III	0.65–0.75	0.55–0.65	4.00–4.80
IV	0.85–1.05	0.55–0.65	5.65–7.15

Leg spination: Leg I: Fm d 1ap; Tb v 1-2-2ap; Mt v 2-2ap. Leg II: Fm d 1ap; Tb pr 1-1, v 0-1; Mt v 2-2ap. Leg III: Fm d 1ap; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr, rt 1-2ap, v 2ap. Leg IV: Fm d 1-1ap; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap.

Coloration. Carapace dark brown, with black eye field densely covered with turquoise-white and yellow appressed scales. Clypeus densely covered with white hairs. Sternum brown hind half yellow. Labium and maxillae brown, with yellow tips. Chelicerae dark brown. Abdomen light: dorsum motley, with numerous turquoise-yellow patches of scales; venter white. Spinnerets brownish. All legs yellow, with numerous brown patches and stripes. Palps yellow.

Epigyne and spermathecae as in Figs 333–335; the epigynal pocket relatively small, bell-shaped (but may vary in its shape to some extent), not overhanging the epigastric furrow and situated in proximity to the copulatory openings (almost between them); the copulatory organs rounded, facing backwards and looking like round depressions (sometimes with a narrow septum between them); the receptacles and the insemination ducts poorly separated.

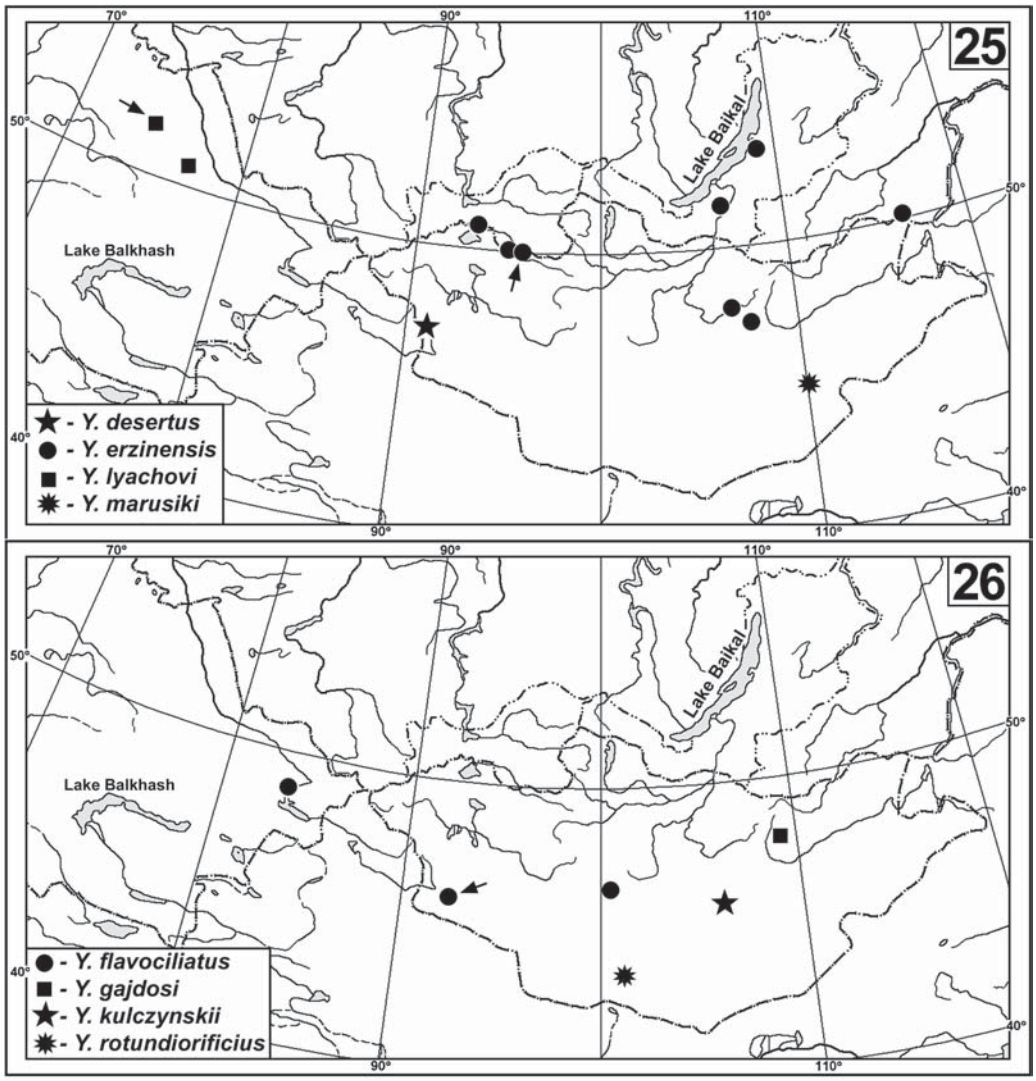
Material examined. Holotype: 1 ♂ (ZMUM), Russia, Tuva [=Tyva], Erzin Distr., Lake Tere-Khol' (S shore) (ca 50°02'N, 95°05'E), sandy steppe with *Caragana bungei*, 1150 m a.s.l., 26–28.05.1990, O. V. Lyakhov.

Paratypes: RUSSIA: 2 ♂♂, 6 ♀♀ (MMUM), together with the holotype; 5 ♂♂, 10 ♀♀ (SZMN), Tuva [=Tyva], Erzin Distr., Lake Tere-Khol' (S shore) (ca 50°02'N, 95°05'E), sandy steppe with *Caragana bungei*, 1150 m a.s.l., 26–28.05.1990, O. V. Lyakhov; 3 ♂♂, 8 ♀♀ (ZMUM), same locality and habitat, 11–12.06.1995, D. V. Logunov; 1 ♀ (SZMN), Tuva [=Tyva], NE shore of Lake Ubsu-Nur (50°40'N, 92°58'E), 760 m a.s.l., 14.06.1995, D. V. Logunov.

Other material examined (originally identified by D. Logunov as *Y. kulczynskii*). RUSSIA: 1 ♀ (SZMN), Chita Area, Nizhny Tsasuchei Distr., right bank of Onon River, near Nizhny Tsasuchei (50° 31'N, 115°07'E), 1–2.06.1995, V. V. Dubatolov. — MONGOLIA: 1 ♀ (HNHM; hitherto determined by J. Prószyński as *Yllenus staregai*), Central [=Tôv] Aimak, ca 12 km S of Somon Bajan-baraat [=Bayan-baraat] (ca 46°45'N, 106°12'E), 1380 m a.s.l., 8.06-14.07.1967, Exp. Z. Kaszab.

For other material examined see Logunov [1992: sub *Y. kulczynskii*] and Marusik & Logunov [1999: sub *Y. kulczynskii*].

Habitat. In Tuva, dry shrub-grass (*Caragana-Stipa-Artemisia*) steppe and desert sandy shrub-grass (*Caragana-Stipa-Artemisia*) steppe [Logunov, 1992; Logunov *et al*., 1998; both sub *Y. kulczynskii*]; in Mongolia, litter under bushes



Maps 25–26. Distribution of *Yllenus* species: 25 — *Y. desertus*, *Y. erzinensis*, *Y. lyachovi* and *Y. marusiki* in Mongolia and the mountains of S. Siberia; 26 — *Y. flavociliatus*, *Y. gajdosi*, *Y. kulczynskii* and *Y. rotundiorificius* in Mongolia. One dot may represent more than one close locality; if more than one record, type localities arrowed.

of *Amygdalius pedunculata* [Marusik & Logunov, 1999: sub *Y. kulczynskii*].

Distribution. This species displays a typical S. Siberio-Mongolian subboreal range; known from Tuva, east to Transbaikalia, south to Central Aimak of Mongolia (Map 25).

Both Prószyński's [1982] record of *Y. staregai* from Mongolia and Logunov's [1992] records of *Y. kulczynskii* from Tuva in reality belong to this new species (Prószyński's and Logunov's specimens were re-examiend).

Yllenus flavociliatus Simon, 1895

Figs 80, 338–344, Map 26

Yllenus flavociliatus Simon, 1895: 343 (D♀; ♀ lectotype in the ZISP; examined).

Yllenus flavociliatus: Roewer, 1954: 1252; Prószyński, 1968: 479–481, figs 168–169 (♀), 1990: 363; Punda,

1975: 38–39, fig. 8 (♀); Nenilin, 1985: 131; Mikhailov, 1996: 134, 1997: 224; Wesołowska, 1991: 4–6, fig. 13 (♀); Logunov & Marusik, 2000b: 251–252, map 46.

Yllenus hamifer flavociliatus: Simon, 1937: 1257; Bonnet, 1959: 4905.

Type. The female lectotype from Zizik-Nor Lake (45°10'N, 93°30'E), Mongolia; deposited in the ZISP.

Derivatio nominis. The specific epithet is derived from the Latin words "*flavus*" meaning "yellow", "*ciliatus*" meaning "bearing ciliae".

Diagnosis. This species is most closely related to *Y. lyachovi*, but its females can be separated from those of the latter species by the differing arrangement of the epigynal pocket and the receptacles; the latter are seen through the integument in the area between the pocket and the epigastric furrow in *Y. lyachovi* and are invisible in *Y. flavociliatus* (cf Figs 343 and 379–382); the position and shape of the glandular ducts is also characteristic and differs in both species (cf Figs 344 and 383). The male of *Y. flavociliatus* has been provisionally matched to the females but, should our assumption be correct, the males differ from those of *Y. lyachovi* in the shape of both the RTA and the cymbial process (cf Figs 341–342 and 373, 376). See also comments under "Diagnosis" of *Y. turkestanicus* sp.n.

Comments. Earlier, Nenilin [1985: 132] assumed that *Y. flavociliatus* might be a senior synonym of *Y. kulczynskii*. We do not accept this opinion and consider *Y. kulczynskii* a valid species for two reasons: (1) *Y. kulczynskii* was treated by one of us (DL; see Logunov [1992]) as a senior synonym of *Y. staregai* and so both sexes for *Y. kulczynskii* are known and described and can thus be compared to those of *Y. flavociliatus* (rather than assuming that the male of *Y. kulczynskii* might belong with the female of *Y. flavociliatus*); and (2) on the basis of Punda's illustrations [Punda, 1972: figs 9–14; see also Figs 366–371], it is clear that *Y. flavociliatus* can be separated from *Y. kulczynskii* by the much more heavily sclerotized spermathecae (cf Figs 344 and 370), the more widely spaced copulatory pores (cf Figs 343 and 369), the shape of the RTA and the cymbial process (cf Figs 342 and 367). We have been unable to locate and re-examine the holotypes of both *Y. kulczynskii* and *Y. staregai*, and our opinion about the taxonomic status of *Y. kulczynskii* remains provisional until the (topo)types have been located/collected and (re)examined. See also comments under "Diagnosis" of *Y. erzinensis* sp.n.

This species was redescribed by Prószyński [1968] on the basis of a single female, which was assumed to be the holotype of *Y. flavociliatus* [Op.Cit.: 479]. As is obvious from the original label of the specimen (re-examined by DL), this female was collected in September (a year is not given), while from the original description by Simon [1895: 343; "Steppe sabbloneuse a l'est du lac Zizik-Nor (18/IV 1877)"] it is obvious that he described the female collected in April. Moreover, the type series included two female syntypes, which were mistakenly treated as topotypes by Punda [1975: 38]; both have been located and are now deposited in the collections of the ZISP. One of the latter females is herein designated as the lectotype of *Y. flavociliatus*. The earlier reference to the "holotype" of this species [s. Prószyński, 1968] should be ignored as it was based on the additional female apparently examined by E. Simon.

It is very likely that a combination *Yllenus hamifer flavociliatus* was once introduced by Simon [1937: 1257] by mistake, as he never considered both species synonymous.

DESCRIPTION

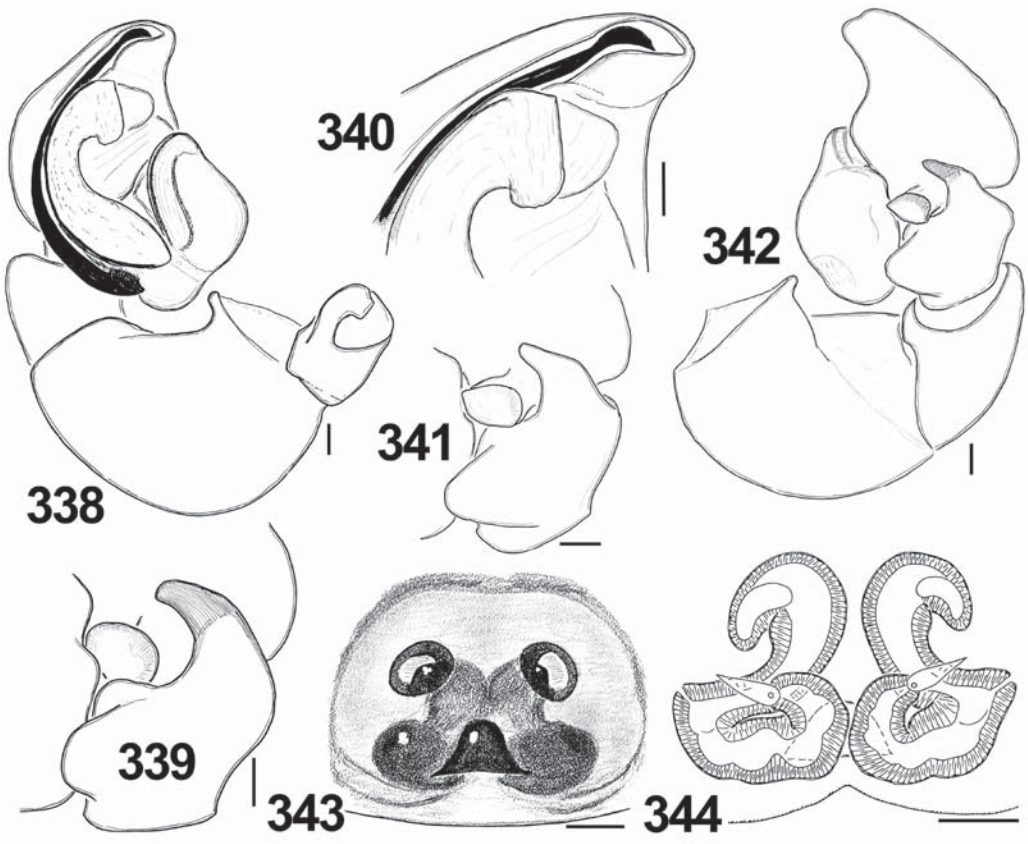
Male (from Kazakhstan: Kuludzhun Reserve; provisionally matched with the female)

Measurements. Carapace 2.35 long, 1.93 wide, 1.38 high at PLE. Ocular area 1.06 long, 1.34 wide anteriorly and 1.43 wide posteriorly. Diameter of AME 0.38. Abdomen 2.38 long, 1.63 wide. Cheliceral length 0.80. Clypeal height 0.25.

Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.40	0.86	0.88	0.51	0.43	4.08
II	1.30	0.75	0.80	0.55	0.48	3.88
III	1.48	0.73	0.79	0.79	0.53	4.32
IV	2.15	0.98	1.28	0.90	0.55	5.86

Leg spination: Leg I: Fm d 0-1-1-1; Pt pr 0-1-0; Tb pr 0-1, v 1-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-1-1-1; Pt pr 0-1-0; Tb pr 1-1, v 0-2-2ap; Mt pr 1-1ap, v 2-2ap. Leg III: Fm d 1-1-1; Pt pr



Figs 338–344. Copulatory organs of *Yllenus flavociliatus*: 338 — ♂ palp, median view; 339, 341 — tibial apophysis, lateral view; 340 — embolic division, median view; 342 — ♂ palp, lateral view; 343 — epigyne; 344 — spermathecae. Specimens: 338–342 — Kazakhstan, Kuludzhun Reserve; 343–344 — Mongolia. Scale lines: 0.1 mm.

and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 1-0-0-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr 1-2ap, rt 2-2ap.

Coloration. Carapace brown, with black around eyes, densely covered with reddish and brown appressed scales; eye field with a white Λ-shaped figure of scales. Clypeus brown, rather densely covered with orange scales and hairs. Sternum brown, with a yellow central spot, covered with white appressed scales in the centre and white protruding hairs on margins. Maxillae and labium yellow-brown, with white apexes. Chelicerae dark brown. Abdomen: dorsum yellow-grey reddish, with two lateral brown stripes and irregular brownish patches in between them; sides yellow-grey reddish; venter whitish. Book-lung covers yellow, covered with white scales. Spinnerets yellow. All legs yellow, stained with brown and with brownish patches formed by scales. Palps yellow, dorso-laterally densely covered with white hairs.

Palpal structure as in Figs 338–342; the cymbial process relatively small, with a semi-round tip; the RTA longer than wide; the CTA with a slightly pointed upper edge; the embolus relatively thick in its apical part.

Female (the lectotype)

Measurements. Carapace 2.40 long, 1.93 wide, 1.30 high at PLE. Ocular area 1.15 long, 1.39 wide anteriorly and 1.53 wide posteriorly. Diameter of AME 0.40. Abdomen 2.58 long,

2.03 wide. Cheliceral length 0.75. Clypeal height 0.25. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.28	0.83	0.70	0.45	0.41	3.67
II	1.19	0.73	0.60	0.48	0.40	3.40
III	1.35	0.61	0.65	0.65	0.55	3.81
IV	2.23	1.03	1.23	0.85	0.40	5.74

Leg spination: Leg I: Tb v 1-2-2ap; Mt v 2-2ap. Leg II: Tb pr 0-1, v 0-1-1ap; Mt pr 1-1ap, v 2-2ap. Leg III: Fm d 1ap, Pt pr 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1ap. Leg IV: Pt pr and rt 0-1-0; Tb pr and rt 1-1-1, v 1ap; Mt pr 1-2ap, rt 2-2ap, v 1ap.

Coloration. Carapace brown, with black around eyes, densely covered with white and sandy-coloured appressed scales. Clypeus yellow, densely covered with light yellow hairs and with a marginal fringe of long white hairs. Sternum yellow, tinged with brown, covered with white hairs. Maxillae and labium brownish yellow, with white apexes. Chelicerae brownish. Abdomen: dorsum yellow-grey, with a median longitudinal brown stripe (fir-tree shaped) and brown patches running alongside of it; sides and venter yellow. Book-lung covers and spinnerets yellow. All legs yellow, lacking brown patches. Palps yellow, with brownish tarsi.

Epigyne and spermathecae as in Figs 80, 343–344; the epigynal pocket bell-shaped, as long as wide, its width smaller than the distance between the copulatory organs; the copulatory organs bean-shaped, separated by almost 3 of their diameters; the insemination ducts and receptacles strong and poorly separated.

Material examined. MONGOLIA: 1 ♀ (the lectotype, designated here), 1 ♀ (paralectotype) (ZISP), Gobialtai Aimak, Zizik-Nor Lake (45°10'N, 93° 30'E), sandy steppe, 18.04.1877, G. N. Potanin; 1♀ (MNHN, 19947), "Mongolia, Sept. Potanin" (this ♀ was re-examined by J. Prószyński [1968] and treated by him as the holotype; see "Comments" above). — KAZAKHSTAN: 1 ♂ (MMUM), East Kazakhstan Area, Kokpekty Distr., Kuludzhun Reserve (ca 48°50'N, 83°23'E), sands, 15.09.1990, V. K. Zinchenko.

Habitat. In Mongolia, steppe [Simon, 1895]; in Kazakhstan, sands [present data].

Distribution. The species is so far known from the three localities in E. Kazakhstan and Mongolia [Simon, 1895; Wesołowska, 1991; present data] (Map 26).

The records of *Y. flavociliatus* from Turkmenistan (Repetek) and Kazakhstan (Barsakel'mes) [Nenilin, 1985; Mikhailov & Fet, 1994; Wesołowska, 1996; Zyuzin *et al*., 1994] are erroneous and actually belong to *Yllenus turkestanicus* sp.n. (Nenilin and Wesołowska's specimens re-examined). The records of *Y. flavociliatus* from Kalmykiya (Rybachii) by Minoranski & Ponomarev [1984] and Ponomarev [1988] and from NW. Kazakhstan (Guriev Area) [Ponomarev, 2002] are doubtful and need confirmation through reference to the pertinent material. No specimen of *Y. flavociliatus* has been located in Ponomarev's collection of Salticidae (kept in the ZMUM), which was revised by one of us (DL).

Yllenus gajdosi Logunov et Marusik, 2000

Figs 309–311, Map 26

Yllenus gajdosi Logunov et Marusik, 2000a: 274–275, figs 13–15 (D♀; ♀ holotype in the SNMC; examined).
Yllenus gajdosi: Logunov & Marusik, 2000b: 252, map 48.

Type. Female holotype from Urgonin gol, Khentei Aimak, Mongolia; deposited in the SNMC.

Derivatio nominis. The species honours our friend and colleague Dr. Peter Gajdoš, the Slovak arachnologist who collected the holotype.

Diagnosis. This species differs from all its congeners in the *arenarius* species group by its unusual, "beak"-shaped epigynal pocket and the unique structure of the spermathecae (Figs 309, 311); the species closest to it is *Y. marusiki* (see below).

DESCRIPTION

Male unknown.

Female (the holotype)

Measurements. Carapace 3.05 long, 2.38 wide, 1.55 high at PLE. Ocular area 1.18 long, 1.63 wide anteriorly and 1.83 wide posteriorly. Diameter of AME 0.48. Abdomen 3.63 long, 3.00 wide. Cheliceral length 1.05. Clypeal height 0.28.

Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.58	1.18	0.90	0.55	0.48	4.69
II	1.50	1.00	0.88	0.55	0.50	4.43
III	1.83	0.88	0.88	0.95	0.68	5.22
IV	2.63	1.18	1.38	1.25	0.63	7.07

Leg spination: Leg I: Fm d 1-1ap; Tb v 2-2-ap; Mt v 2-2ap. Leg II: Fm d 1-1ap; Tb pr 1-1, v1-2 ap; Mt pr 1-1ap, v 2-2ap. Leg III: Fm d 1ap; Pt rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-1ap, v 2ap. Leg IV: Fm d 1ap; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1-1ap; Mt pr 1-1-1ap, rt 1-1ap, v 1-2ap.

Coloration. Carapace brown with two yellow-brown patches behind PLEs. Black around eyes. All carapace densely covered with white appressed scales; white scales around eyes of the first row. Clypeus brown, densely covered with white hairs/scales. Sternum brown, covered with white hairs. Labium and maxillae yellow-brown. Chelicerae dark brown. Abdomen: dorsum and sides grey, with a dark brown cardial spot and small sparse brown spots; dorsum densely covered with brownish appressed scales; venter pale yellow, tinged with grey. Book-lung covers light yellow. Spinnerets yellow, densely covered with brown hairs. All legs and palps yellow.

Epigyne and spermathecae as in Figs 309–311; the epigynal pocket rather short and beak-shaped, not overhanging the epigastric furrow; the copulatory openings relatively large (looking like fossae), triangular and separated by a thin septum; insemination ducts and receptacles rather long and and poorly separated.

Material examined. MONGOLIA: 1 ♀ (SNMC; the holotype of *Yllenus gaidosi*), Khentei [=Hentiy] Aimak, Moncog Els, Urgonin gol, spring area, pitfall traps, 25.07.1979, P. Gajdoš; 1 ♀ (SNMC), together with holotype.

Habitat. No data.

Distribution. The type locality only (Map 26).

Yllenus horvathi Chyzer in Chyzer et Kulczyński, 1891

Figs 345–352, Map 22

Yllenus horvathii Chyzer in Chyzer et Kulczyński, 1891: 27, pl. 1, f. 31 (D♀; ♀ holotype in the HNHM; examined).

Yllenus horvathi: Reimoser, 1919: 105; Kolosváry, 1934: 18–20, figs 1–4 (♂♀); Roewer, 1954: 1252; Bonnet, 1959: 4906; Prószyński, 1968: 481, figs 10, 30, 43, 55, 69–70, 170–177 (♂♀), 1990: 363; Fuhn & Gherasim, 1995: 66–70, figs 25A–F (♂♀).

Type. The female holotype from Kecskemét (ca 46°54'N, 19°41'E), Hungary; deposited in the HNHM.

Derivatio nominis. The species honours the famous late Hungarian scientist, Dr. Geza Horvath (1847–1937), the expert in Hemiptera and the director of the Zoology Department of the Hungarian National History Museum in 1896–1922, whose biggest scientific accomplishment was elaborating a pest management method against the phylloxera.

Diagnosis. This species is most similar to *Y. kononenkoi* sp.n., but can be easily separated by the weaker cymbial process (cf Figs 346, 348 and 358, 360), the slightly smaller RTA (cf Figs 348 and 358), and the clearly different conformation of the female copulatory organs (cf Figs 351 and 364). These species are geographically distant and their known ranges do not overlap (Maps 22, 23). The females of *Y. horvathi* are also similar to those of *Y. uiguricus* sp.n., but the spermathecae of the latter species is more heavily sclerotized (cf Figs 351 and 392). See also comments under "Diagnosis" of *Y. turkestanicus* sp.n.

The female holotype of *Y. horvathi* is slightly different from the females collected from Bulgaria (cf Figs 349 and 350) (Prószyński [1968] also noted this); it seems to be possible that the Bulgarian specimens belong to a different species. More material is required from the type locality.

DESCRIPTION

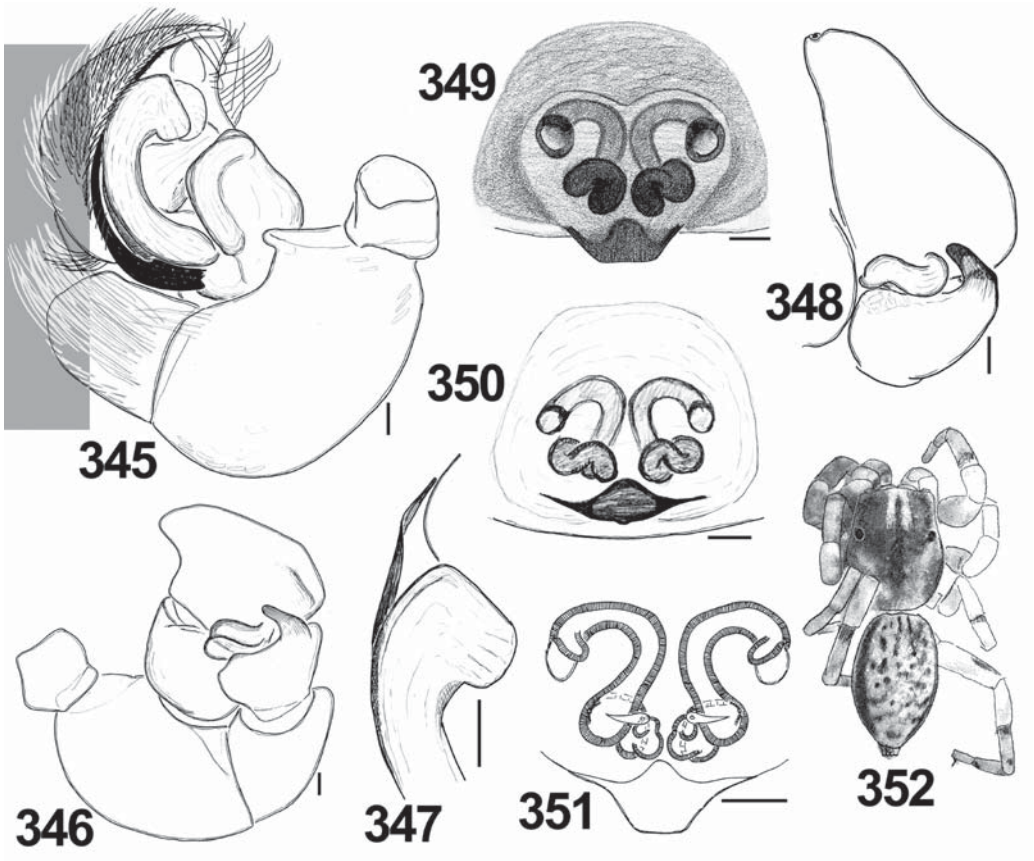
Male (from Bulgaria)

Measurements. Carapace 2.48 long, 2.08 wide, 1.23 high at PLE. Ocular area 1.18 long, 1.44 wide anteriorly and 1.56 wide posteriorly. Diameter of AME 0.40. Abdomen 2.73 long, 1.83 wide. Cheliceral length 0.85. Clypeal height 0.31.

Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.46	0.95	0.90	0.58	0.48	4.37
II	1.40	0.78	0.83	0.63	0.53	4.17
III	1.60	0.79	0.81	0.76	0.63	4.59
IV	2.28	1.16	1.28	0.93	0.58	6.23

Leg spination: Leg I: Fm d 0-0-1-1; Tb pr 0-1, v 1-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-0-1-1; Pt pr 0-1-0; Tb pr 0-1, v 0-1-2ap; Mt pr 1-



Figs 345–352. Copulatory organs and somatic characters of *Yllenus horvathi*: 345 — ♂ palp, median view; 346 — ditto, lateral view; 347 — embolic division, median view; 348 — ♂ palp, lateral view; 349–350 — epigyne; 351 — spermathecae; 352 — ♂ general appearance. Specimens: 345–349, 351–352 — Bulgaria, 350 — Ukraine, Kherson. Scale lines: 0.1 mm.

1ap, v 2-2ap. Leg III: Fm d 1ap; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1ap. Leg IV: Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr 1-2ap, rt 2-2ap, v 1ap.

Coloration. Carapace red-brown, with black around eyes; its thoracic part densely covered with white appressed scales; eye field densely covered with brownish appressed scale, with two subparallel longitudinal white scaly stripes (Fig. 352). Clypeus yellow, covered with long reddish hairs. Sternum brown, covered with white hairs. Maxillae and labium yellow, with white apexes. Abdomen: dorsum grey (but with metallic luster due to numerous irridescent scales), with brownish patches scattered along it in two rows and two wide lateral brown bands (Fig. 352); sides and venter yellow. Book-lung covers yellow, covered with white scales. Spinnerets yellow, tinged with brown. All legs yellow, with brownish scaly patches and annulations at ends of segments. Palps yellow, but bulbus brownish.

Palpal structure as in Figs 345–348; the RTA short, hook-shaped, smaller than the transversely arranged cymbial process; the CTA with an obtuse tip.

Female (the holotype)

Measurements. Carapace 2.63 long, 2.10 wide, 1.38 high at PLE. Ocular area 1.10 long, 1.45 wide anteriorly and 1.58 wide posteriorly. Diameter of AME 0.45. Abdomen 3.13 long, 2.35 wide. Cheliceral length 0.75. Clypeal height 0.28. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.33	0.83	0.75	0.50	0.40	3.81
II	1.24	0.68	0.70	0.50	0.43	3.55
III	1.51	0.60	0.70	0.74	0.55	4.10
IV	2.35	0.98	1.28	0.94	0.55	6.10

Leg spination: Leg I: Fm d 0-0-1-1; Tb 1-2-2ap; Mt v 2-2ap. Leg II: Fm d 1ap; Tb pr 0-1, v 1-1-1ap; Mt pr 1-1ap, v 2-2ap. Leg III: Fm d 1ap; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 1ap, Pt pr and rt 0-1-0; Tb pr and rt 1-1; Mt pr and rt 1-2ap.

Coloration. The holotype is slightly faded and its abdomen is wrinkled. Carapace red-brown, with black around eyes; carapace densely covered with white appressed scales. Clypeus yellow, densely covered with white scales and hairs. Sternum brownish yellow, covered with white hairs. Maxillae and labium yellow, with white apexes. Chelicerae brown. Abdomen: dorsum and sides yellowish brownish, with numerous yellow specks and covered with white scales; venter yellow. Book-lung covers yellow, covered with white scales. Spinnerets yellow. All legs yellow, with small brownish annulations at ends of segments. Palps yellow.

Epigyne and spermathecae as in Figs 349–351; the epigynal pocket EP trapezoidal, wider than long, may overhang the epigastric furrow, its width nearly equal to that between the copulatory openings; the copulatory openings round, separated by 3.5–5 their diameters; the spermathecae are rather simple, with relatively small receptacles and the insemination ducts poorly separated.

Material examined. HUNGARY: 1 ♀ (HNHM; the holotype of *Yllenus horvathi*), "*Yllenus Horvathii* Chyzer, Coll. Chyzer 1187", Bács-Kiskun Prov., "Kecskemét" (ca 46°54'N, 19°41'E), "Kulczyński"{from Chyzer & Kulczyński [1891]: Kecskemét (in arenosis) 20.IV.1888}. — BULGARIA: 5 ♂♂, 2 ♀♀ (ZMPA), Varna Prov., "Dikili-Taš" Reserve near Varna (ca 43°12'N, 27°54'E), 29.09.1960, J. & W. Staręga. — UKRAINE: 2 ♀♀ (ZISP), Kherson Area, near Kherson (ca 46°39'N, 32°36'E), 18.06.1939, N. Nikolaev.

Habitat. In Bulgaria, sandy ground with "pillars" and limestone rocks (on sand and under tufts of grass) [present data].

Distribution. The species is so far known only from a few localities in Hungary [Kolosváry, 1934], Bulgaria [present data], România [Fuhn & Gherasim, 1995] and Ukraine [present data] (Map 22).

The earlier record of *Y. horvathi* from Azerbaijan ("Lenkoran area") by Guseinov [1999] is actually to be referred to *Y. dunini* sp.n. (for further detailes see Logunov & Guseinov [2002]).

Yllenus karakumensis sp.n.

Figs 353–357, Map 24

Type. The male holotype from Central Karakumy desert (ca 39°01'N, 63°10'E), Turkmenistan; deposited in the ZMUM.

Derivatio nominis. The specific epithet refers to the type locality, the Central Karakumy desert in Turkmenistan.

Diagnosis. This species is easily separable from all its congeners in the *arenarius* species group in having a strong and robust RTA (Fig. 354) and narrow, slit-shaped copulatory pores (Fig. 356).

DESCRIPTION

Male (from Turkmenistan, Repetek Reserve)

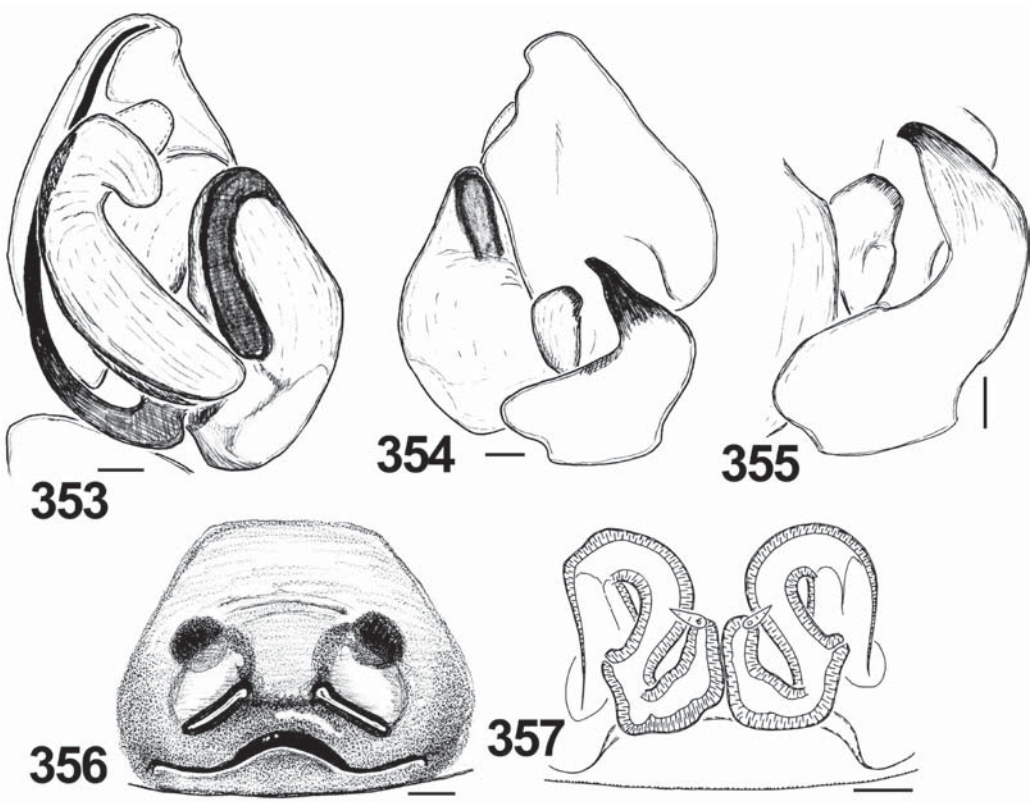
Measurements. Carapace 2.50 long, 2.03 wide, 1.10 high at PLE. Ocular area 1.25 long, 1.53 wide anteriorly and 1.58 wide posteriorly. Diameter of AME 0.40. Abdomen 2.90 long, 1.78 wide. Cheliceral length 0.75. Clypeal height 0.25.

Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.43	1.03	0.93	0.60	0.55	4.54
II	1.43	0.85	0.81	0.60	0.58	4.27
III	1.55	0.75	0.90	0.85	0.68	4.73
IV	2.25	1.10	1.40	0.65	0.65	6.05

Leg spination: Leg I: Fm d 0-0-1; Tb pr 0-1-0, v 0-2-1ap; Mt v 2-2ap. Leg II: Fm d 0-0-1; Pt pr 0-1-0; Tb pr 0-1, v 0-1-0; Mt pr 1-1ap, v 2-2ap. Leg III: Fm d 1ap; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 1ap; Pt pr and rt 0-1-0; Tb pr and rt 1-1; Mt pr 1-2ap, rt 1-2ap.

Coloration. Carapace red-brown, with black around eyes; carapace covered with white and brown appressed scales. Clypeus yellow, "cheeks" covered with white scales, but the area beneath AMEs densely covered with long brown



Figs 353–357. Copulatory organs of *Yllenus karakumensis*: 353 — ♂ palp, median view; 354 — ditto, lateral view; 355 — tibial apophysis, lateral view; 356 — epigyne; 357 — spermathecae. Specimens: 353–355 — Turkmenistan, Repetek, 356–357 — Turkmenistan, Peski. Scale lines: 0.1 mm.

reddish hairs. Sternum dark brown; its centre densely covered with appressed scale, but its margins covered with white hairs. Maxillae and labium brown-yellow, with white apexes. Chelicerae dark brown. Abdomen: dorsum light grey, with numerous brownish patches forming a reticulate pattern; sides light grey; venter yellow. Book-lung covers yellow, covered with white scales. Spinnerets yellow. All legs yellow, covered with white scales and protruded hairs and with brownish patches on ends of segments. Palps yellow, with brownish bulbus; dorsally covered with white hairs.

Palpal structure as in Figs 353–355; the cymbium of usual shape, with a strong cymbial process, which is longer than wide; the RTA long and strong, pointed apically; the CTA with obtuse tip; embolus has no distinct turn in its apical part.

Female (from Turkmenistan, Peski station)

Measurements. Carapace 2.80 long, 2.18 wide, 1.30 high at PLE. Ocular area 1.20 long, 1.73 wide anteriorly and 1.55 wide posteriorly. Diameter of AME 0.43. Abdomen 4.20 long, 2.88 wide. Cheliceral length 0.95. Clypeal height 0.23. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.38	0.93	0.81	0.50	0.55	4.17
II	1.39	0.80	0.83	0.55	0.59	4.16
III	1.65	0.85	0.85	0.88	0.70	4.93
IV	2.60	1.40	1.55	1.03	0.68	7.26

Leg spination: Leg I: Fm d 0-0-1; Tb pr 0-1-0, v 0-2-1ap; Mt v 2-2ap. Leg II: Fm d 0-0-1; Pt pr 0-1-0; Tb pr 0-1, v 0-1-0; Mt pr 1-1ap, v 2-2ap. Leg III: Fm d 1ap; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 1ap; Pt pr and rt 0-1-0; Tb pr and rt 1-1; Mt pr 1-2ap, rt 1-2ap.

Coloration. As described for male but lighter and differs as follows: clypeus yellow, densely covered with white hairs and with a marginal fringe of yellowish long hairs; venter (and entire ventral side of body, including coxae) yellow; palps yellow, with brownish annulations at ends of segments; brown reticulate pattern of scaly patches on dorsum and sides much better marked.

Epigyne and spermathecae as in Figs 356–357; the epigynal pocket very wide and shallow, looking like a transverse fold and not overhanging the epigastric furrow; the copulatory openings slit-shaped, separated by less than a single length of each; the insemination ducts and the receptacles poorly separated.

Material examined. Holotype: 1 ♂ (ZMUM), Turkmenistan, Chardzhou [=Lebapskii] Area, Chardzhou Distr., Central Karakumy desert, ca 50 km N of Repetek (ca 39°01'N, 63°10'E), 23–24.03.1989, O. V. Lyakhov.

Paratypes: TURKMENISTAN: 1 ♂ (ZMUM), together with the holotype; 1 ♂ (SMNH), Chardzhou [=Lebapskii] Area, Chardzhou Distr., Central Karakumy desert, ca 50 km N of Repetek (ca 39°01'N, 63°10'E), 23.03.1989, O. V. Lyakhov; 1 ♂ (ZISP), same area and distr., Central Karakumy desert, Repetek Reserve (38°33'N, 63°11'E), 8.03.1982, V. A. Krivokhatskii; 2 ♂♂ (ZMUM), same locality, 29.03.1967, V. Kuznetsov; 1 ♀ (ZMUM), same locality, 14.04.1961, V. Kuznetsov; 1 ♂ (MMUM), same locality, 22.04.1993, D. V. Logunov; 1 ♂, 2 ♀♀ (MMUM), same area, Chardzhou Distr., Peski station (38°19'N, 63°00'E), 27.03.1990, O. V. Lyakhov.

Habitat. In Turkmenistan, *Haloxylon aphyllum* sandy desert (on sand and sandy dunes with *Aristida* grass).

Distribution. This species is known only from the Central Karakumy desert (Map 24).

Yllenus kononenkoi sp.n.

Figs 358–365, Map 23

Type. The male holotype from Toru-Aigyr (ca 42°30'N, 76°25'E), Kyrghyzstan; deposited in the ZMUM.

Derivatio nominis. The species is named after Dr. A. P. Kononenko (Russia, Krasnodar Territory), who collected this new species.

Diagnosis. This species is most similar to *Y. horvathi*, but can be easily separated by the stronger cymbial process (cf Figs 358–360 and 346, 348), the slightly bigger RTA (cf Figs 358 and 348), and clearly different conformation of the female copulatory organs (cf Figs 364 and 351). These species are geographically distant and their ranges do not overlap (Maps 22, 23). The females of *Y. kononenkoi* sp.n. are also similar to those of *Y. uiguricus* sp.n. and *Y. charynensis* sp.n., but the spermathecae of the latter two species are more heavily sclerotized (cf Figs 364 and 308, 392). See also comments in "Diagnosis" of *Y. turkestanicus* sp.n.

DESCRIPTION

Male (paratype from Toru-Aigyr, Kyrghyzstan)

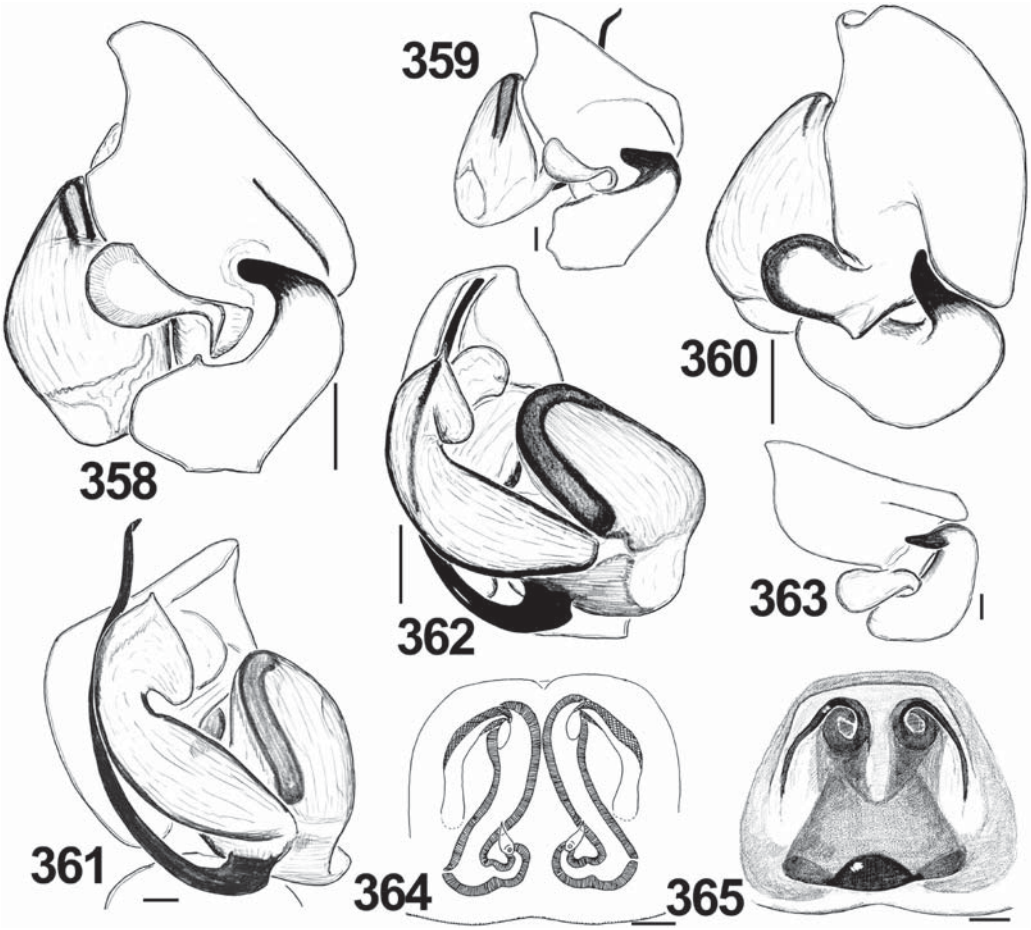
Measurements. Carapace 2.38 long, 2.05 wide, 1.29 high at PLE. Ocular area 1.23 long, 1.50 wide anteriorly and 1.53 wide posteriorly. Diameter of AME 0.40. Abdomen 2.75 long, 2.10 wide. Cheliceral length 0.75. Clypeal height 0.24.

Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.46	0.90	0.90	0.56	0.45	4.27
II	1.38	0.80	0.78	0.56	0.45	3.97
III	1.46	0.73	0.73	0.78	0.53	4.23
IV	2.08	1.03	1.14	0.90	0.55	5.70

Leg spination: Leg I: Fm d 0-1-1-1; Tb pr 0-1, v 1-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-1-1-1; Pt pr 0-1-0; Tb pr 1-1, v 1-1-2ap; Mt pr 1-1ap, v 2-2ap. Leg III: Fm d 0-1-1-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 0-1-1-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1ap.

Coloration. Carapace dark brown, almost black, densely covered with grey and brownish appressed scales. Clypeus brown, densely covered with long sandy-coloured hairs. Maxillae and labium yellow-brown, with white apexes. Chelicerae dark brown. Abdomen: dark grey, with a double row of dark brown patches (sometimes poorly marked), of them the two bigger brown patches in front of spinnerets are darker and better marked; sides grey; venter yellow-grey. Book-lung covers yellow, covered with white scales. Spinnerets brown-grey. All legs yellow, with brownish patches and streaks, but femora almost entirely brown; legs covered with



Figs 358–365. Copulatory organs of *Yllenus kononenkoi*: 358–360 — ♂ palp, lateral view; 361–362 — ditto, median view; 363 — tibial apophysis and cymbium, lateral view; 364 — spermathecae; 365 — epigyne. All specimens from Kyrghyzstan, Toru-Aigyr. Scale lines: 0.1 mm.

white appressed scales and white/black protruded hairs. Palps yellow, but all segments laterally brown; palps dorsally covered with white hairs.

Palpal structure as in Figs 358–363; the cymbium with a rather large dorso-lateral outgrowth and the very massive, spoon-shaped cymbial process; the RTA of a medium size, bent first ventrally and then slightly upward near its tip; the CTA clearly pointed on its upper tip; the embolus rather thick in its apical half.

Female (paratype from Toru-Aigyr, Kyrghyzstan)

Measurements. Carapace 2.33 long, 2.00 wide, 1.20 high at PLE. Ocular area 1.25 long, 1.45 wide anteriorly and 1.53 wide posteriorly. Diameter of AME 0.44. Abdomen 2.85 long, 2.38 wide. Cheliceral length 0.73. Clypeal height 0.25. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.25	0.78	0.70	0.40	0.35	3.48
II	1.13	0.68	0.60	0.45	0.35	3.21
III	1.28	0.63	0.65	0.63	0.54	3.73
IV	2.00	0.93	1.05	0.78	0.50	5.26

Leg spination: Leg I: Fm d 0-0-1-1; Tb pr 0-1, v 1-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-0-1-1; Pt pr 0-1-0; Tb pr 0-1, v 1-1-2ap; Mt pr 1-1ap, v 2-2ap. Leg III: Fm d 0-0-1-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt

1-2ap, v 1ap. Leg IV: Fm d 0-0-1-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr 1-2ap, rt 2-2ap.

Coloration. As described for male, but lighter and differs as follows: clypeus densely covered with white scales/hairs, with a marginal fringe of long sandy-coloured hairs; all legs almost entirely yellow; palps yellow.

Epigyne and spermathecae as in Figs 364–365; the epigynal pocket wide, with a lance-shaped median part, not overhanging the epigastric furrow; the copulatory openings ovoid, situated in shallow depressions bordered laterally by sclerotized rims; the spermathecae are of relatively simple structure, with the receptacles not separated from the insemination ducts.

Material examined. Holotype: 1 ♂ (ZMUM), Kyrghyzstan, Issyk-Kul' [=Ysyk-Kol] Area, Issyk-Kul' [=Ysyk-Kol] Distr., Kungei-Alatoo Mt. Range, ca 17 km ENE of Rybachie [=Balykchy], near Toru-Aigyr (ca 42°30'N, 76°25'E), 4.05.1970, A. P. Kononenko.

Paratypes: KYRGHYZSTAN: 1 ♀ (ZMUM), together with the holotype; 11 ♂♂, 2 ♀♀ (ZMUM), 2 ♂♂, 1 ♀ (MMUM), 2 ♂♂ (SMNH), 2 ♂♂ (MNHN), 3 ♂♂, 1 ♀ (SMNH), same locality, near Toru-Aigyr (ca 42°30'N, 76°25'E), 30.04–17.05. 1970, A. P. Kononenko; 2 ♂♂ (ZMUM), same locality, 8–15.09.1970, A. P. Kononenko; 2 ♂♂ (ZMUM), Issyk-Kul' [=Ysyk-Kol] Area, Issyk-Kul' [=Ysyk-Kol] Distr., Kungei-Alatoo Mt. Range, ca 25 km NE of Rybachie [=Balykchy], ca 20 km N of Toru-Aigyr (ca 42°40'N, 76°25'E), 3–15.09.1971, A. P. Kononenko.

Habitat. No data.

Distribution. The species is so far known from two nearby localties in the Kungei-Alatoo Mt. Range in Kyrghyzstan (Map 23).

Yllenus kulczynskii Punda, 1975

Figs 366–371, Map 26

Yllenus kulczynskii Punda, 1975: 39–41, figs 9–12 (D♂; ♂ holotype in the ZMPA; not examined).

Yllenus kulczynksi: Prószyński, 1990: 363; Logunov & Marusik, 2000b (*pro parte*): 253–254, map 54.

Yllenus staregai Punda, 1975: 41–42, figs 13–14 (D♀; ♀ holotype in the ZMPA; not examined). Synonymized with *Y. kulczynskii* by Logunov [1992].

Type. The male holotype from Mongolia, Dundgov Aimak, Erdenedalai-Tsagaan-Ovoo (45°40'N, 105°30'E); apparently deposited in the ZMPA, but not located.

Derivatio nominis. The species honours the famous Polish arachnologist, Wladislaw Kulczyński, who was one of the pioneers of arachnological research in Siberia.

Comments. The taxonomic status of this species remains uncertain, as we have been unable to locate and re-examine the holotypes of both *Y. kulczynskii* and *Y. staregai*. On the basis of the original illustrations only [s. Punda, 1972: figs 9–14], we are of the opinion that *Y. kulczynskii* could be a separate species from both *Y. flavociliatus* and *Y. erzinensis* sp.n., differing in the fine details of the copulatory organs (see comments under "Diagnosis" of *Y. flavociliatus* and *Y. erzinensis* sp.n.). The problem needs further attention.

Habitat. No data.

Distribution. This species is so far known only from the type locality (Map 26).

Yllenus lyachovi Logunov et Marusik, 2000

Figs 372–383, Map 25

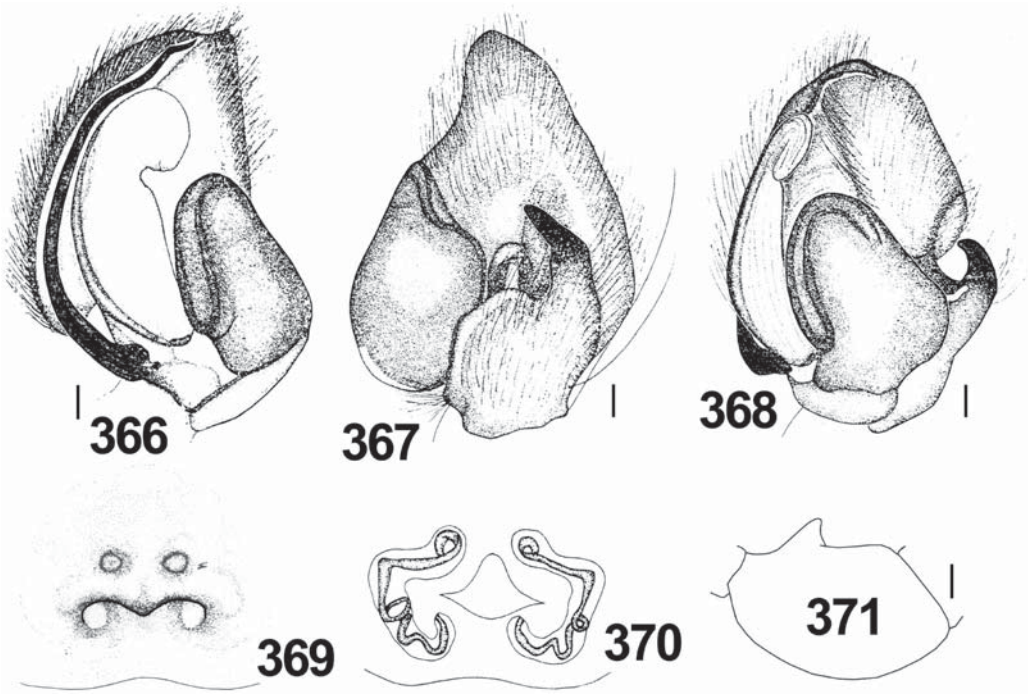
Yllenus lyachovi Logunov et Marusik, 2000a: 277, figs 50–54 (D♂♀; ♀ holotype in the SZMN; examined).

Yllenus lyachovi: Logunov & Marusik, 2000b: 254, map 50.

Type. The female holotype from Lake Malyi Kalkaman (52°04'N, 76°33'E), Kazakhstan; deposited in the SZMN.

Derivatio nominis. The species honours Mr. Oleg V. Lyakhov (Pavlodar, Kazakhstan), who has collected much interesting salticid material from Central Asia and Siberia.

Diagnosis. This species is most closely related to *Y. flavociliatus*, but females can be separated from those of the latter species by the different arrangement of the epigynal pocket and the receptacles; the latter are invisible in *Y. flavociliatus* and are seen through the integument in the area between the pocket and the epigastric furrow in *Y. lyachovi* (cf Figs 379–382 and 343). The position and shape of the glandular ducts is also characteristic and differs in both species (cf Figs 383 and 344). The



Figs 366–371. Copulatory organs of *Yllenus kulczynskii*: 366 — ♂ palp, median view; 367 — ditto, lateral view; 368 — ditto, ventral view; 369 — epigyne; 370 — spermathecae; 371 — palpal femur, lateral view. Specimens: 366–368, 371 — Mongolia, the holotype [after Punda, 1975: figs 9–12]; 369–370 — Mongolia, the holotype of *Y. staregai* [after Punda, 1975: figs 13–14]. Scale lines: 0.1 mm.

males of *Y. lyachovi* differ from those of *Y. flavociliatus* in the shape of both the RTA and the cymbial process (cf Figs 373, 376 and 342–342).

DESCRIPTION

Male (paratype from Lake Kokuirym)

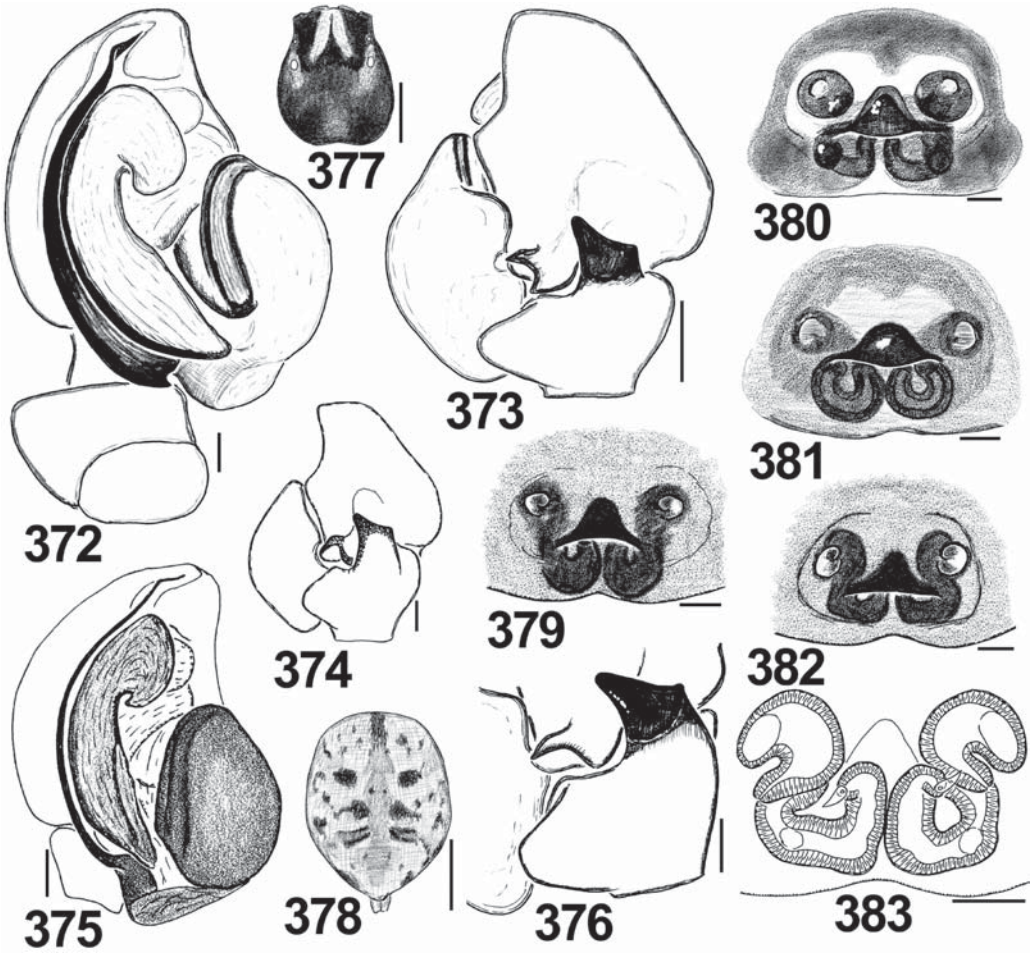
Measurements. Measurements. Carapace 2.30 long, 1.80 wide, 1.08 high at PLE. Ocular area 1.05 long, 1.33 wide anteriorly and 1.38 wide posteriorly. Diameter of AME 0.35. Abdomen 2.03 long, 1.70 wide. Cheliceral length 0.80. Clypeal height 0.25.

Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.28	0.95	0.78	0.43	0.38	3.82
II	1.18	0.85	0.68	0.40	0.43	3.54
III	1.25	0.63	0.68	0.70	0.45	3.71
IV	1.75	0.95	1.08	0.78	0.53	5.09

Leg spination: Leg I: Tb pr 0-1, v 1-2-2ap; Mt v 2-2ap. Leg II: Tb pr 1-1, v 1-1-1ap; Mt pr 1-1ap, v 2-2ap. Leg III: Pt pr and rt 0-1-0; Tb pr and rt 0-1, v.1ap; Mt pr and rt 1-2ap, v 1ap. Leg IV: Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1ap.

Coloration. Carapace brown, densely covered with white and orange appressed scales; white scales forming a longitudinal, median stripe (or two stripes) on eye field (Fig. 377). Clypeus brown, covered with long pale hairs. Chelicerae brown to dark brown. Sternum yellow-brown, often with black margins, covered with white hairs. Labium and maxillae yellow-brown with white apices. Abdomen: dorsum and sides grey, densely covered with pale appressed scales (seldom with orange patches of scales), sides sometimes with wide longitudinal brown bands; venter yellow to grey-yellow, densely covered with light appressed scales. Book-lung covers and spinnerets yellow. All legs yellow, tinged with grey, with dorsal black brown half-annulations at the end of segments. Palps yellow, tinged with grey.



Figs 372–383. Copulatory organs and somatic characters of *Yllenus lyachovi*: 372, 375 — ♂ palp, median view; 373–374 — ditto, lateral view; 376 — tibial apophysis; 377 — ♂ carapace; 378 — ♀ abdomen; 379-382 — epigyne; 351 — spermathecae. All specimens from the type locality, Kazakhstan (Lake Malyi Kalkaman). Scale lines: 1 mm (377–378), 0.1 mm (372–376, 379–383).

Palpal structure as in Figs 372–376; the RTA as wide as long, with a clearly marked dorsal angle; the cymbial process short, its apical part as if subdivided into two halves; the CTA wider in its apical part, which looks like an outgrowth directed downwards.

Female (paratype from Lake Kokuirym)

Measurements. Carapace 2.20 long, 1.63 wide, 1.10 high at PLE. Ocular area 1.13 long, 1.25 wide anteriorly and 1.30 wide posteriorly. Diameter of AME 0.35. Abdomen 2.18 long, 1.75 wide. Cheliceral length 0.75. Clypeal height 0.18.

Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.05	0.75	0.63	0.35	0.35	3.13
II	0.88	0.60	0.53	0.30	0.30	2.61
III	1.13	0.50	0.55	0.55	0.40	3.13
IV	1.88	0.88	1.00	0.75	0.45	4.96

Leg spination: Leg I: Tb v 1-2-2ap; Mt v 2-2ap. Leg II: Tb pr 0-1, v 1-1; Mt pr 1-1ap, v 2-2ap. Leg III: Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1ap. Leg IV: Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr 1-2ap, rt 2-2ap, v 1ap.

Coloration. As described for males, but paler (Fig. 378). Sometimes sides of carapace densely covered with orange appressed scales. Palps yellow.

Epigyne and spermathecae as in Figs 379–383; the epigynal pocket bell-shaped, not overhanging the epigastric furrow, its width slightly shorter or equal to the distance between the copulatory openings; the copulatory openings round or ovoid, separated by about 4 diameters; the insemination ducts and the receptacles not separated.

Material examined. KAZAKHSTAN: 1 ♀ (SZMN; the holotype of *Yllenus lyachovi*), Pavlodar Area, [=Ermak] Distr., ca 40 km W of Pavlodar, near Lake Malyi Kalkaman (between Sol'vetka and Pogranichnyi Railway Station) (52°04'N, 76°33'E), 2.05. 1990, O. V. Lyakhov; 1 ♀ (SZMN), together with holotype; 1 ♂, 2 ♀♀ (ZMUM), 1 ♂, 1 ♀ (SMNH), 2 ♂♂, 2 ♀♀ (MMUM), same locality, sandy plots, 11.04–2.05.1990, O. V. Lyakhov; 1 ♀ (MMUM), same locality, 10.04.1991, O. V. Lyakhov; 3 ♂♂, 2 ♀♀ (SZMN), same area, Maiskoe Distr., ca 40 km W of Elubai, near Lake Kokuirym (ca 51°16'N, 76° 43'E), 19.07.1990, O. V. Lyakhov.

Habitat. In Kazakhstan (Pavlodar Area), sandy places and dry stony steppes [Logunov & Marusik, 2000a].

Distribution. So far, only two localities in Pavlodar Area, Kazakhstan, are known [Logunov & Marusik, 2000a] (Map 25). The record of Y. lyachovi from W. Kazakhstan (Guriev Area; no exact locality) by Ponomarev [2002] needs confirmation and is not mapped.

Yllenus marusiki Logunov, 1993

Figs 314–316, Map 25

Yllenus marusiki Logunov, 1993b: 50, figs 3A–C (D♀; ♀ holotype in the ZMPA; examined).

Yllenus marusiki: Logunov & Marusik, 2000b: 254, map 50.

Type. The female holotype from Saishand (44°50'N, 110°08E), Mongolia; deposited in the ZMPA.

Derivatio nominis. The specific epithet is in honour of Dr. Yuri Marusik (Russia, Magadan), having now a leading role in arachnological studies of Siberia and the Russian Far East.

Diagnosis. *Y. marusiki* is known only from a female and is most closely related to *Y. gaidosi*, from which it differs in having an obtuse epigynal pocket (beak-shaped in *Y. gajdosi*) (cf Figs 314 and 309) and in the proportions and arrangement of the spermathecal ducts and receptacles (cf Figs 310 and 316).

DESCRIPTION

Male unknown.

Female (the holotype)

Measurements. Carapace 2.80 long, 2.10 wide, 1.28 high at PLE. Ocular area 1.31 long, 1.53 wide anteriorly and 1.65 wide posteriorly. Diameter of AME 0.43. Abdomen 2.88 long, 2.50 wide. Cheliceral length 0.68. Clypeal height 0.25. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.48	0.93	0.81	0.45	0.50	4.17
II	1.38	0.85	0.73	0.53	0.48	3.97
III	1.63	0.80	0.80	0.80	0.60	4.63
IV	2.58	1.25	1.38	0.95	0.58	6.74

Leg spination: Leg I: Fm d 0-1-1; Tb 0-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-1-2ap; Pt pr and rt 0-1-0; Tb pr 1-1, v 0-1-2ap; Mt pr 1-1ap, v 2-2ap. Leg III: Fm d 2ap; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1-1ap. Leg IV: Fm d 1ap; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr 1-2ap, rt 1-1-2ap, v 1ap.

Coloration. Carapace brown, with dark brown eye field; both densely covered with yellow appressed scales. Clypeus brown, densely covered with long white hairs. Sternum yellow, covered with white hairs. Maxilale and labium brown, with white apexes. Chelicerae dark brown. Abdomen: dorsum grey-yellow, densely covered with grey-yellow appressed scales; venter yellow. Book-lung covers and spinnerets yellow. All legs yellow, with brown annulations and patches; femora and tibiae covered with long white hairs.

Epigyne and spermathecae as in Figs 314–316; the epigynal pocket rather small, trapezoidal, slightly overhanging the epigastric furrow; the copulatory openings not separated, with a narrow septum in between them; the receptacles as wide as the insemination ducts, nearly contiguous.

Material examined. MONGOLIA: 1 ♀ (ZMPA, 64/66, the holotype of *Yllenus marusiki*), "Aimak Dornogov, 10 km NE od Sajanšand: w-riemi pod Kzaczkami" [East Goby Aimak, Saishand (44°50'N, 110°08E)], 19.09.1966, A. Dzaidosz & M. Mroczkowski.

Habitat. No data.

Distribution. The type locality only (Map 25).

Yllenus rotundiorificius Logunov et Marusik, 2000

Figs 336–337, Map 26

Yllenus rotundiorificius Logunov et Marusik, 2000a: 277, figs 48–49 (D♀; ♀ holotype in the SZMN; examined).
Yllenus rotundiorificius: Logunov & Marusik, 2000b: 256, map 54.
Yllenus sp. 2: Marusik et Logunov, 1999: 250 (mistakenly reported as a ♂).

Type. The female holotype from Zoolen uul (Mt. Range) (ca 43°21'N, 103°11'E), Mongolia; deposited in the SZMN.

Derivatio nominis. The species name is derived from the Latin words "*rotundus*", meaning "rounded", and "*orificium*", meaning "opening", both reflecting the very large, rounded copulatory openings in this species (see Fig. 336).

Diagnosis. This species can easily be separated from all known congeners in *Yllenus* by the very large, rounded copulatory openings resembling deep fossae in other salticids (*e.g. Phlegra*) (Fig. 336). The structure of the insemination ducts is also diagnostic for this species (Fig. 337).

DESCRIPTION

Male unknown.

Female (the holotype)

Measurements. Carapace 2.15 long, 1.75 wide, 1.25 high at PLE. Ocular area 1.17 long, 1.30 wide anteriorly and 1.40 wide posteriorly. Diameter of AME 0.38. Abdomen 3.55 long, 2.58 wide. Cheliceral length 1.65. Clypeal height 0.25. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.05	0.70	0.65	0.35	0.38	3.13
II	0.88	0.63	0.58	0.30	0.33	2.72
III	1.15	0.58	0.57	0.57	0.48	3.35
IV	1.88	0.88	1.03	0.70	0.48	4.97

Leg spination: Leg I: Tb 1-2-2ap; Mt v 2-2ap. Leg II: Pt pr 0-1-0; Tb pr 0-1, v 0-1-0; Mt pr 1-1ap, v 2-2ap. Leg III: Pt pr and rt 0-1-0; Tb pr 1-1, rt 1-0; Mt pr and rt 1-2ap, v 1ap. Leg IV: Pt pr and rt 0-1-0; Tb pr and rt 1-1; Mt pr and rt 1-2ap, v 1ap.

Coloration. Carapace red-brown, densely covered with white and grey appressed scales. Black around eyes. Clypeus yellow, densely covered with white hairs. Chelicerae red-brown. Labium and maxillae yellow-brown with white apices. Sternum brown, covered with white hairs. Abdomen: dorsum grey, with pale irregular colour markings of light patches, all dorsum densely covered with pale scales; sides grey-yellow; venter yellow, also covered with light appressed scales. Book-lung covers yellow. Spinnerets yellow, tinged with grey. All legs yellow, tinged with grey and with brownish patches. Palps yellow.

Epigyne and spermathecae as in Figs 336–337; the copulatory openings resemble large, deep fossae, a unique feature among the members of the *arenarius* group.

Material examined. MONGOLIA: 1 ♀ (SZMN; the holotype of *Yllenus rotundiorificius*), Omnogov [=South Gobi] Aimak, Bayandalai Somon, Zoolen uul (Mt. Range), (ca 43°21'N, 103°11'E), 1700 m a.s.l., 27–30.05.1997, Yu. M. Marusik.

Habitat. In Mongolia, dry (without new vegetation) and overgrazed mountain (semi)-desert, with lots of stones [s. Logunov & Marusik, 2000a].

Distribution. Known only from the type locality (Map 26).

Yllenus turkestanicus sp.n.

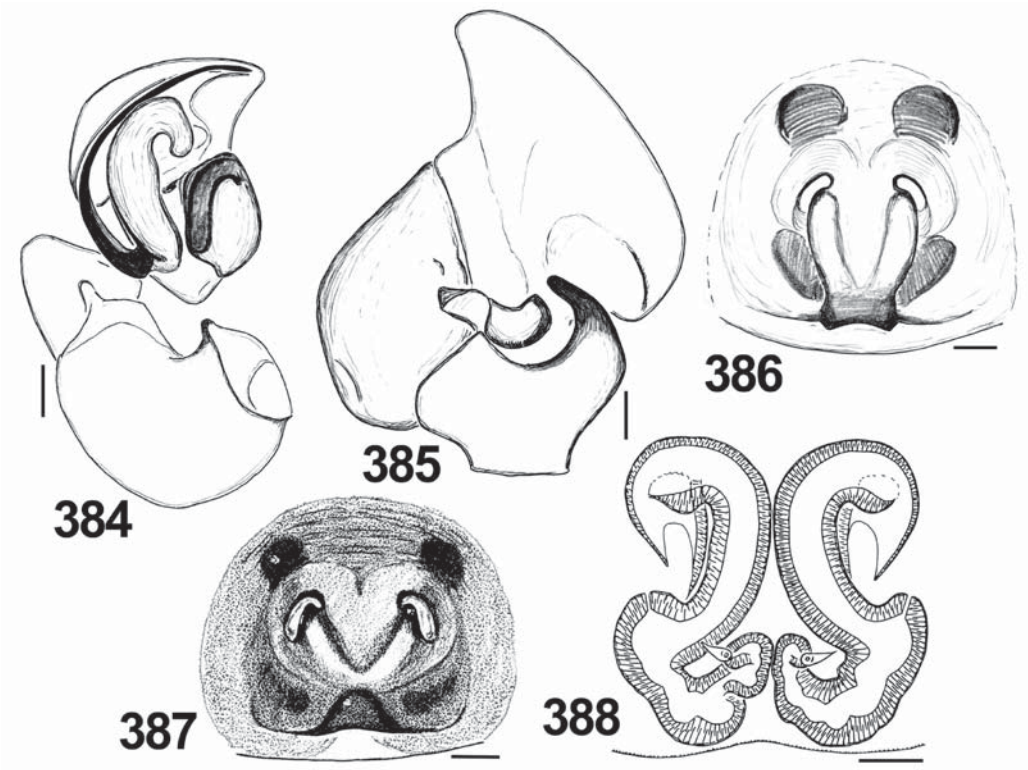
Figs 79, 384–388, Map 23

Yllenus flavociliatus (*nec* Simon; misidentified): Nenilin, 1985: 131; Mikhailov & Fet, 1994: 518; Zyuzin *et al*., 1994: 7; Wesołowska, 1996: 45, figs 37A–F, 38A–C, 39A–C (♂♀).

Type. The male holotype from Ubyk (40° 15'N, 54°42'E), Turkmenistan; deposited in the ZMUM.

Derivatio nominis. The specific epithet is derived from the old name of the area of species' occurrence, Turkestan, where a number of Central Asian countries are now situated (Uzbekistan, Kazakhstan, Turkmenistan and Tajikistan).

Diagnosis. This species seems to be most closely related to *Y. flavociliatus*, with which it has been confused, but can be easily separated by the following characters: the more massive cymbial process (cf Figs 385 and 341), the vis-



Figs 384–388. Copulatory organs of *Yllenus turkestanicus*: 384 — ♂ palp, median view; 385 — ditto, lateral view; 387 — epigyne; 388 — spermathecae. Specimens: 384–386, 388 — Turkmenistan, Charyshly well; 387 — Tajikistan, "Tigrovaya Balka" Reserve. Scale lines: 0.1 mm.

ible elevated median part of the epigyne (cf Figs 386 and 343), and the clearly different arrangement of the spermathecal ducts and receptacles (cf Figs 388 and 344). By the strong, transverse cymbial process, the males of *Y. turkestanicus* sp.n. are similar to *Y. horvathi* and *Y. kononenkoi* sp.n. (cf Figs 385 and 348, 358); the easiest way to separate these three species is to compare their females, of which those of *Y. turkestanicus* sp.n. possess the more heavily sclerotized spermathecae (cf Figs 388 and 351, 364). See also comments under "Diagnosis" of *Y. zyuzini* sp.n.

DESCRIPTION

Male (from the type locality)

Measurements. Carapace 2.88 long, 2.28 wide, 1.30 high at PLE. Ocular area 1.23 long, 1.53 wide anteriorly and 1.63 wide posteriorly. Diameter of AME 0.40. Abdomen 3.75 long, 2.05 wide. Cheliceral length 0.93. Clypeal height 0.28.

Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.65	1.15	0.93	0.65	0.55	4.93
II	1.60	0.91	0.95	0.65	0.55	4.66
III	1.75	0.90	0.98	0.98	0.70	5.31
IV	2.65	1.30	1.58	1.00	0.65	7.18

Leg spination: Leg I: Fm d 0-1-1; Pt pr 0-1-0; Tb pr 1-1-0 or 1-0, v 2-2-2ap; Mt pr 1-0, v 2-2ap. Leg II: Fm d 0-1-1-2; Pt pr and rt 0-1-0; Tb pr 1-1, v 0-1-2; Mt pr 1-1ap, v 2-2ap. Leg III: Fm d 1-0-2-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 1ap; Pt pr and rt 0-1-0; Tb pr and rt 1-1-0, v 1ap; Mt pr and rt 1-2ap.

Coloration. Two colour morphs of males are found. Motley morph. Carapace brown, densely covered with white and red appressed

scales; eye field covered with brown and red appressed scales (white scales form 2 longitudinal bands running over the eye field). Clypeus brown-yellow, rather densely covered with white and orange hairs. Sternum brown-yellow, covered with hairs. Maxillae brown-yellow, with white apexes. Chelicerae dark brown. Abdomen: dorsum yellow-grey, with numerous brown patches and white streaks; sides yellow-grey; venter yellow. Book-lung covers yellow, covered with white scales. Spinnerets yellow. All legs yellow, with small patches of white and brown appressed scales and protruded dark hairs. Palps yellow, dorsally covered with yelow/red hairs; bulbus brownish. Black morph differs from the motley one in the following characters: carapace dark brown (sides and eye field almost black) due to a coverage of black appressed scales; eye field with a single median white band of scales running downwards in between AMEs on clypeus; palps densely covered with black appressed scales (instead yellow/red hairs); all legs (but especially legs III and IV) dorsally covered with dark grey appressed scales (femora IV almost entirely covered with these scales).

Palpal structure as in Figs 384–385; the cymbial process wide and strong, nearly as long as the RTA; the RTA relatively long, roundly bent; the CTA lacking its apical tip and somewhat directed backwards; the embolus without a distinct apical turn.

Female (from the type locality)

Measurements. Carapace 2.73 long, 2.08 wide, 1.38 high at PLE. Ocular area 1.25 long, 1.56 wide anteriorly and 1.65 wide posteriorly. Diameter of AME 0.43. Abdomen 3.38 long, 2.10 wide. Cheliceral length 0.85. Clypeal height 0.28. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.38	0.90	0.83	0.53	0.45	4.09
II	1.38	0.80	0.78	0.53	0.48	3.97
III	1.63	0.75	0.85	0.80	0.63	4.66
IV	2.63	1.23	1.54	1.01	0.63	7.04

Leg spination: Leg I: Fm d 0-1-1; Tb v 2-1ap; Mt v 2-2ap. Leg II: Fm d 0-1-1; Tb pr 0-1, v 1ap; Mt pr 1-1ap, v 2-2ap. Leg III: Fm d 1ap; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 1ap; Pt pr and rt 0-1-0; Tb pr and rt 1-1-0, v 1ap; Mt pr 1-2ap, rt 2-2ap, v 1ap.

Coloration. As described for the motley morph of males, but differs as follows: longitudinal white bands on carapace not marked; clypeus under AMEs densely covered with white hairs (plus a yellow marginal fringe of long hairs hanging over the chelicerae); palps yellow.

Epigyne and spermathecae as in Figs 79, 386–388; the epigynal plate swollen (especially in its central part looking sometimes like a median ridge); the epigynal pocket bell-shaped, not overhanging the epigastric furrow and is as wide as the distance between the copulatory openings; the copulatory openings elongated, bean-shaped, spaced by slightly more (ca 1.2) than a length of each; the insemination ducts and the receptacles visibly separated and connected to each other at a right angle.

Material examined. Holotype: 1 ♂ (ZMUM), Turkmenistan, Balkan [=Krasnovodsk] Area, Krasnovodsk Distr., Chil'mamedkum sands, Ubyk (40° 15'N, 54°42'E), 9–28.10.1984, E. Khachikov.

Paratypes: TURKMENISTAN: 19 ♂♂, 4 ♀♀ (motley morph) 5 ♂♂ (black morph), (ZMUM), together with the holotype; 1 ♀ (ZMUM), Tashauz [=Dashkhovuz] Area, Kalinin Distr., Ustyurt Plateau, Kankakyr [=Gangalykyr] Height (41°22'N, 58° 02'E), 13.04.1985, O. Soyunov; 2 ♂♂ (ZMUM), same area, Kaplankyr Reserve (ca 41°12'N, 57° 29'E), 9.06.1984, L. A. Mitroshina; 1 ♂ (ZMUM), same locality, 09. 1984, O. S. Soyunov; 9 ♂♂, 3 ♀♀ (MMUM), 1 ♂, 3 ♀♀ (ZMUM), same area, Tel'mansk Distr., near Charyshly well (41°12'N, 57°29'E), pitfall traps, 7.10.1984–12.10.1985, O. S. Soyunov; 7 ♂♂, 4 ♀♀ (MNHN), same area, Il'yaly Distr., near Shakhsenem well (ca 41°35'N, 58°43'E), pitfall traps, 19.10.1985, O. S. Soyunov; 3 ♂♂, 4 ♀♀ (ZMUM), Chardzhou [=Lebapskii] Area, Chardzhou Distr., Central Karakumy desert, Repetek (ca 38°33'N, 63°11'E), 24.10.1979–14.03.1982, V. E. Krivokhatsky; 2 ♂♂ (ZMUM), same locality, 2.05–7.04.1967, V. Kuznetsov; 1 ♀ (ZMUM), Balkan [=Krasnovodsk] Area, Krasnovodsk Distr., Kizyl-Su (39°47'N, 53°01'E), 7.07.1929, V. I. Sychevskaya [=Pereleshina]; 1 ♂ (ZMUM), Ashkhabad Area [=Ashgabad], near Ashkhabad (ca 37°56'N, 58°23'E), 8.02.1932, Ya. P. Vlasov; 4 ♂♂, 2 ♀♀ (ZMUM), Ashkhabad Area, Ashkhabad Distr., near Ashkhabad, shore of reservoir Kurtli (ca 38°01'N, 58°23'E), 6.02. 1981, K. G. Mikhailov; 1 ♂ (MMUM), Lebap [=Chardzhou] Area,, Chardzhou

Distr., Central Karakumy desert, Repetek Reserve (38°33'N, 63°11'E), 22.04.1993, D. V. Logunov; 2 ♂♂, 2 ♀♀ (MNHN), 5 ♂♂, 2 ♀♀ (SZMN), 2 ♂♂, 2 ♀♀ (SMNH), 5 ♂♂, 3 ♀♀ (ZMPA), same locality, 14.04–1.11.1967, V. Kuznetsov; 1 ♀ (SMNH), same area, Chardzhou Distr., Central Karakumy Desert, ca 70 km NW of Repetek, Eradzhy sands, near Eradzhy Well, [ca. 38°46'N, 62°28'E], 16.05.1978, V. G. Kaplin; 1 ♀ (SMNH), same area, Chardzhou Distr., Central Karakumy desert, ca 50 km N of Repetek (ca 39°01'N, 63°10'E), sands, 23.03.1989, O. V. Lyakhov; 1 ♀ (MMUM), Balkan [=Krasnovodsk] Area, Kizil-Arvat [=Gyzylarbat] Distr., ca 35 km SW of Iskander, W. Kopetdagh Mts (ca 38°52'N, 55°39'E), loessial hills, 12–18.11.1985, A. V. Abramov; 1 ♂ (ZMUM), Tashauz [=Dashkhovuz] Area, Tel'mansk Distr., near Lake Sarykamysh (ca 41°38'N, 57°34'E), 22.04.1984, O. S. Soyunov; 2 ♂♂ (ZMUM), Tashauz [=Dashkhovuz] Area, Takhta Distr. (no exact locality), 19.10.1983, O. S. Soyunov. — KAZAKHSTAN: 1 ♀ (ZMUM), South Kazakhstan [=Shymkent, Chimkent] Area, Otrar Distr., Kyzylkum desert, ca 2 km NE of Orynbai (42°06'N, 66°15'E), 26.05.1994, S. V. Ovtchinnikov; 1 ♂ (ZMUM), Almaty Area, Balkhash Distr., ca 1 km NW of Bakanas, Ili botanical garden (44°49'N, 76°15'E), 15.09.1989, S. I. Ibraev & A. A. Zyuzin; 1 ♂ (MMUM), Almaty [=Alma-Ata] Area, Zhambyl Distr., ca 16 km SE of Aksuek, 270th km of Almaty-Karaganda Hwy (44°31'N, 74°39'E), 27.05.1988, M. V. Zarko; 4 ♂ (MMUM), Zhambyl [=Taraz, Dzhambul] Area, Moiynkum Distr., Betpak-Dala Desert, ca 50 km S of Ulanbel', 6.10.1991, A. A. Zyuzin; 1 ♀ (ZMUM), Mangistau Area, Karakiyanskii Distr., Mangyshlak Peninsula, ca 5 km E of Saksokuyu well (42°43'N, 54°10'E), 17.05.1989, A. A. Zyuzin; 1 ♂, 1 ♀ (ZISP), Kyzyl-Orda Area, Aral'sk Distr., Aral Sea, Barsakel'mes Isl. (ca 45°41'N, 59°55'E), 26.04–11.05.1982, T. V. Pavlenko. — UZBEKISTAN: 1 ♂ (MMUM), Bukhara [=Bukhoro] Area, Zhondor Distr., Kyzylkum desert, near Gazli (ca 40°09'N, 63°29'E), 21.05.1994, S. V. Ovtchinnikov. — TAJIKISTAN: 1 ♀ (SZMN), Kurgan-Tyube Area, Dzhilikul' Distr., left bank of river Vakhsh, "Tigrovaya Balka" Reserve (ca 37° 24'N, 68°29'E), 20.04.1973, A. P. Kononenko.

Habitat. In Turkmenistan, *Haloxylon aphyllum* sandy desert, where it occurs on sand and takyrs (=dry clay stands), and in saltmarshes [present data]; in Kazakhstan, sandy shores of lakes and reservoirs, botanical gardens [present data].

Distribution. This species displays a typical Turanian range and is restricted to Turkmenistan, Uzbekistan, S. Kazakhstan and SW Tajikistan (Map 23).

Yllenus uiguricus sp.n.

Figs 389–393, Map 23

Type. The male holotype from Karabaskum sands (ca 43°41'N, 79°52'E), Kazakhstan; deposited in the ZMUM.

Derivatio nominis. The specific epithet refers to the type locality, the Uigur District of the Almaty Area (Kazakhstan).

Diagnosis. This species is most similar to *Y. horvathi* and *Y. kononenkoi* sp.n., but can be easily separated from both of them by the shape of the cymbial process (cf Figs 390 and 348, 358), the presence of a dorso-anterial tooth on the RTA (absent in related species; cf Figs 390 and 346, 358), and the clearly different conformation of the female copulatory organs (cf Figs 392 and 351, 364). The dorso-anterial tooth of the RTA of *Y. uiguricus* sp.n. differs it from all the known congeners in the *arenarius* species group, for which males are known. See also comments under "Diagnosis" of *Y. erzinensis* sp.n.

DESCRIPTION

Male (paratype from Kumkala Sands, Almaty Area)

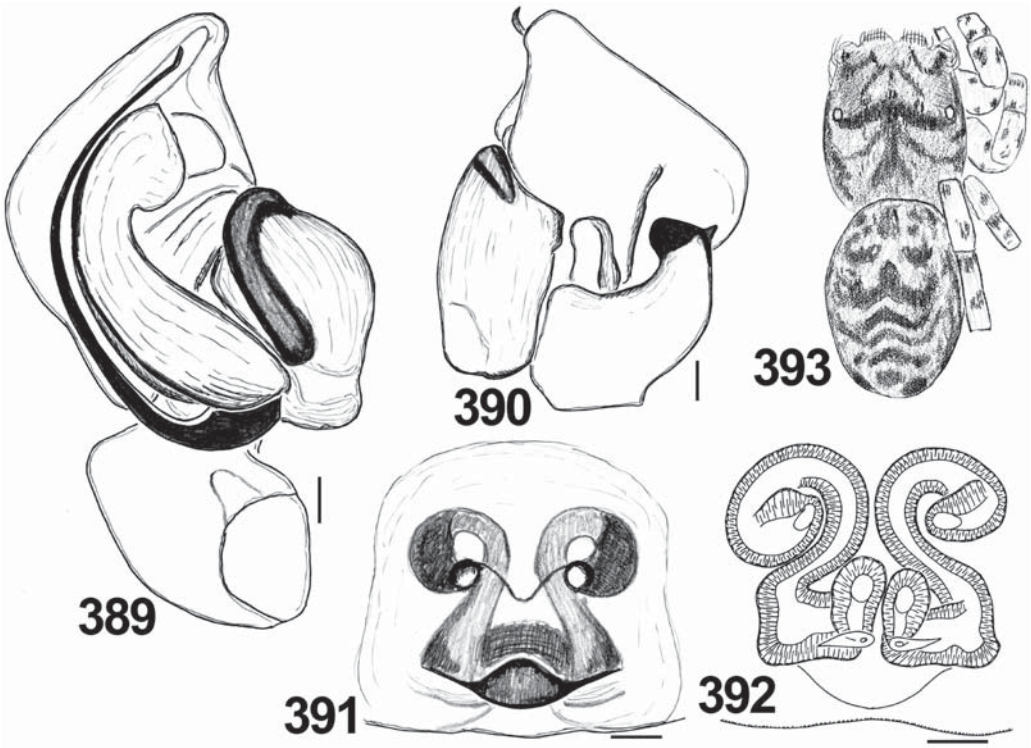
Measurements. Carapace 2.50 long, 2.13 wide, 1.35 high at PLE. Ocular area 1.25 long, 1.53 wide anteriorly and 1.63 wide posteriorly. Diameter of AME 0.43. Abdomen 2.75 long, 1.78 wide. Cheliceral length 0.75. Clypeal height 0.43.

Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.55	0.98	0.93	0.60	0.50	4.56
II	1.48	0.85	0.88	0.63	0.54	4.38
III	1.65	1.05	0.90	0.78	0.70	5.08
IV	2.50	1.23	1.40	0.90	0.63	6.66

Leg spination: Leg I: Fm d 0-1-1-1; Pt pr 0-1-0; Tb pr 0-1, v 1-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-1-1-1; Pt pr 0-1-0; Tb pr 1-1, v 0-1-2ap; Mt pr 1-1ap, v 2-2ap. Leg III: Fm d 1-0-1-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 1-0-1-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap.

Coloration. Carapace dark red-brown, with black around eyes, densely covered with reddish and white appressed scales; white scales form either two subparallel white bands, or a



Figs 389–393. Copulatory organs and somatic characters of *Yllenus uiguricus*: 389 — ♂ palp, median view; 390 — ditto, lateral view; 391 — epigyne; 392 — spermathecae; 393 — ♀ general appearance. All specimens from Kazakhstan (Kumkala Sands). Scale lines: 0.1 mm.

single Λ-shaped white stripe on the eye field. Clypeus yellow, rather densely covered with orange hairs. Sternum yellowish brownish, its central part covered with white appressed scales, while margins with white protruded hairs. Maxillae and labium brown-yellow, with white apexes. Chelicerae dark brown. Abdomen: dorsum reddish grey, with a reticulate pattern of dark brown patches (often patches form two longitudinal stripes on dorsum's sides); sides and venter grey-yellow. Book-lung covers yellow, covered with white scales. Spinnerets grey-yellow. All legs yellow, stained with brown and with brownish patches. Palps yellow, with brownish tegulum; all their segments dorsally covered with white hairs.

Palpal structure as in Figs 389–390; the RTA is situated in the dorso-lateral part of tibia, rather wide and short, bearing a dorso-anterial tooth; the cymbial process rather strong, with a large apical portion; the CTA wide, its apical portion slightly pointed on the top.

Female (paratype from Kumkala Sands, Almaty Area)

Measurements. Carapace 2.80 long, 2.30 wide, 1.50 high at PLE. Ocular area 1.34 long, 1.60 wide anteriorly and 1.75 wide posteriorly. Diameter of AME 0.46. Abdomen 3.00 long, 2.20 wide. Cheliceral length 0.95. Clypeal height 0.28. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.55	0.90	0.89	0.53	0.50	4.37
II	1.43	0.78	0.80	0.58	0.50	4.09
III	1.63	0.83	0.85	0.83	0.65	4.79
IV	2.75	1.25	1.55	1.05	0.65	7.25

Leg spination: Leg I: Fm d 0-1-1; Tb v 1-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-1-1; Tb pr 0-1, v 0-1-1ap; Mt pr 1-1ap, v 2-2ap. Leg III: Fm d 1ap; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 1ap; Pt

pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr 1-2ap, rt 2-2ap.

Coloration. As described for male, but lighter and differs as follows: eye field lacking white stripes (Fig. 393); clypeus yellow, with reddish transverse stripes laterally of lateral eyes, a wide transverse band beneath AMEs and a marginal fringe of long reddish hairs hanging over the chelicerae; a brown reticulate pattern of dorsum is better marked (Fig. 393); and palps entirely yellow.

Epigyne and spermathecae as in Figs 391–392; the epigynal pocket wide (slightly wider than the distance between the copulatory openings), not overhanging the epigastric furrow; the copulatory openings round, separated from each other by 3 diameters, and appearing as if connected by a V-shaped rim; the receptacles rather poorly separated from the insemination ducts.

Material examined. Holotype: 1 ♂ (ZMUM), Kazakhstan, Almaty [=Alma-Ata] Area, Uigur Distr., ca 15 km ENE of Uzyntam, Karabaskum sands (ca 43°41'N, 79°52'E), 5.10.1989, A. A. Zyuzin.

Paratypes: KAZAKHSTAN: 2 ♂♂, 1 ♀ (ZMUM), together with the holotype; 12 ♂♂ (ZMUM), Almaty [=Alma-Ata] Area, Panfilov [=Zharkent] Distr., ca 6.5 km SE of Nizhnii Pidzhim, Moiynkum sands (ca 44°09'N, 80°16'E), 6.10.1989, A. A. Zyuzin; 2 ♂♂ (SMNH), 1 ♂ (MNHN), same area and district, ca 29 km SE of Shalakai [=Chulakai], Karakum sands (ca 43°53'N, 80°11'E), 7.10.1989, A. A. Zyuzin; 1 ♂, 1 ♀ (SMNH), same area and district, ca 5 km SE of Aidarly, Kumkala Sands (ca 44°01'N, 79°35'E), 7.10.1989, A. A. Zyuzin; 7 ♂♂, 3 ♀♀ (MMUM), same locality, 8.10.1989, A. A. Zyuzin; 1 ♀ (SMNH), same area, Uigur Distr., bank of Ili river, near Dubun' [=Dubin] (ca 43°45'N, 80°14'E), saltmarsh, 4.10.1989, A. A. Zyuzin; 1 ♂ (ZMPA), same area, Talgar Distr., ca 15 km NE of Kapchagai (ca 43°56'N, 77°14'E), 31.10.1995, A. A. Zyuzin; 1 ♂ (ZMUM), same locality, 12.10.1996, A. N. Ponomarenko; 4 ♂♂, 1 ♀ (MMUM), same area and district, ca 12 km ENE of Kapchagai, Bokter Station (43°54'N, 77°13'E), 11.10.1996, A. A. Zyuzin; 1 ♀ (ZMPA), same area and district, near Kapchagai (ca 43°55'N, 77°06'E), 8.04.1990, O. V. Lyakhov; 1 ♀ (MNHN), same area, Talgar Distr., Ili River near the dam of Kapchagai Reservoir (43°56'N, 77°06'E), 8.05.1991, A. A. Zyuzin.

Habitat. In Kazakhstan, sandy deserts (where it occurs on either sand or clay fields), saltmarshes, sweeping grasses.

Distribution. This species is so far known only from SE regions of Kazakhstan (Map 23), but its occurrence in NW China is quite possible.

Yllenus zyuzini sp.n.

Figs 45, 53, 55, 69–70, 394–405, Map 24

Type. The male holotype from Charyn Canyon (ca 43°23'N, 79°02'E), Kazakhstan; deposited in the ZMUM.

Derivatio nominis. This species honours our colleague and friend, Dr. Alexei A. Zyuzin, the well-known Russian arachnologist, who collected much important salticid material from Central Asia, including the type series of this new species.

Diagnosis. This species is most similar to *Y. turkestanicus* sp.n., but can be separated by the following characters: the cymbial process comparatively smaller (cf Figs 396–397, 400 and 385), the RTA shorter and more robust (cf Figs 396 and 385), and the epigynal plate is narrower in antero-porterior direction and not rised (cf Figs 402–404 and 386–387).

DESCRIPTION

Male (paratype from Charyn [=Sherin], Kazakhstan)

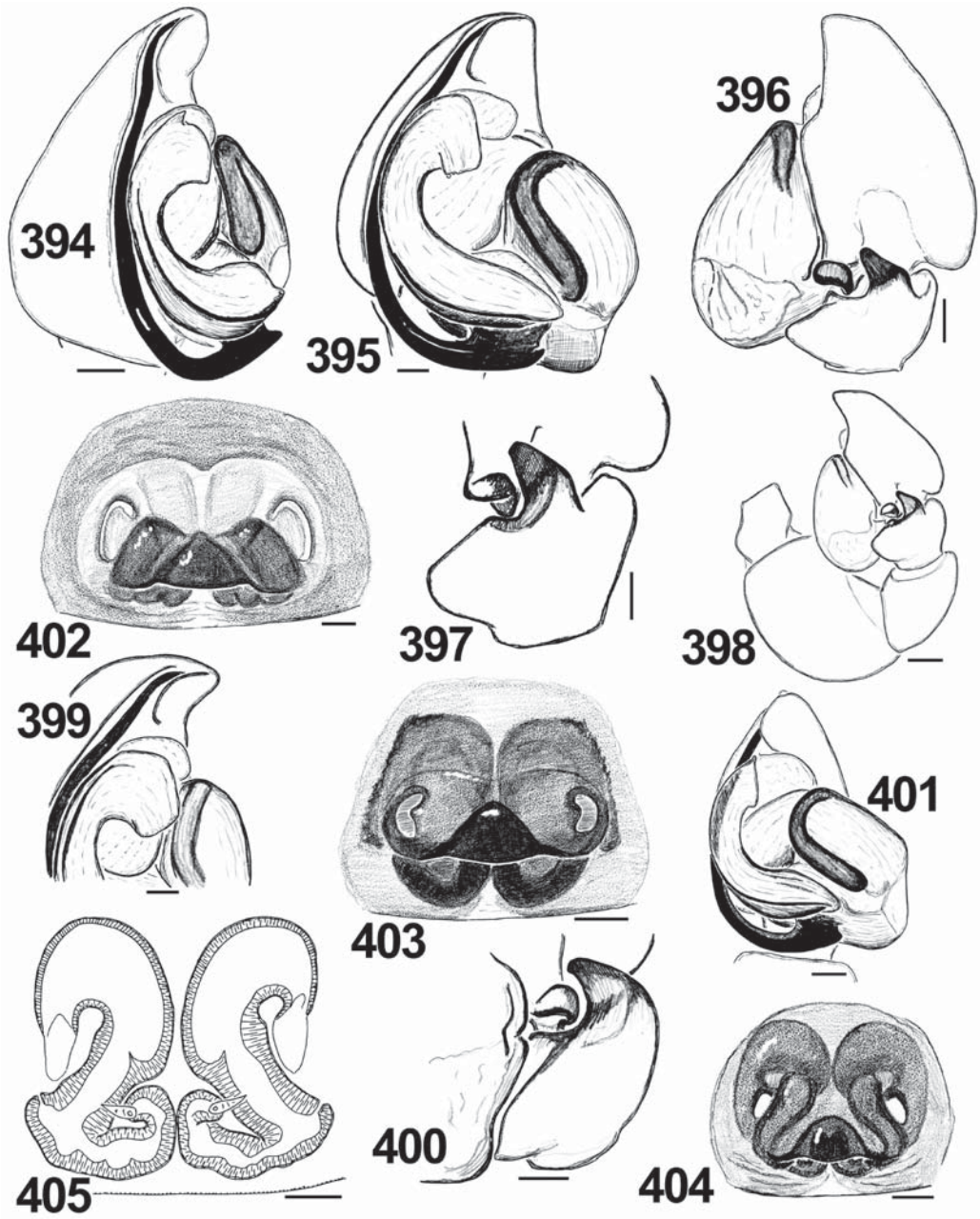
Measurements. Carapace 2.33 long, 1.85 wide, 1.25 high at PLE. Ocular area 1.13 long, 1.45 wide anteriorly and 1.50 wide posteriorly. Diameter of AME 0.38. Abdomen 2.38 long, 1.53 wide. Cheliceral length 0.68. Clypeal height 0.23.

Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.30	0.85	0.78	0.50	0.40	3.83
II	1.30	0.78	0.65	0.50	0.40	3.63
III	1.33	0.65	0.68	0.65	0.53	3.84
IV	2.00	0.98	1.08	0.71	0.49	5.26

Leg spination: Leg I: Fm d 0-1-1-1; Pt pr 0-1-0; Tb pr 0-1, v 1-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-0-1-1; Tb pr 1-1, v 0-1-0; Mt pr 1-1ap, v 2-2ap. Leg III: Fm d 1-0-2-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1; Mt pr, rt and v 1-2ap. Leg IV: Fm d 1-0-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1; Mt pr 1-2ap, rt 2-1ap.

Coloration. Carapace brown, with black around eyes; carapace densely covered with red+black or white+brown appressed scales.



Figs 394–405. Copulatory organs of *Yllenus zyuzini*: 394, 401 — ♂ palp, median view; 395 — ditto, median-ventral view; 396, 398 — ditto, lateral view; 397 — tibial apophysis, lateral view; 399 — embolic division, median view; 400 — tibial apophysis, latero-median view; 402–404 — epigyne; 405 — spermathecae. Specimens: 395, 397–400 — Kazakhstan, Kokpek; 394, 396, 401–402, 404–405 — Kazakhstan, Charyn; 403 — Kazakhstan, Ulanbel'. Scale lines: 0.1 mm.

Clypeus yellow, densely covered with long orange hairs. Sternum yellow-brown, covered with white hairs. Maxillae and labium brownish yellow, with white apexes. Chelicerae dark brown. Abdomen: dorsum grey or yellow-grey; sides yellowish grey or dark brown; venter light grey or brownish yellow. Book-lung covers yellow, covered with white scales. Spinnerets brownish yellow. All legs yellow-brown, with brown patches, but lateral sides of segments (especially of femora) entirely brownish; legs also covered with brown and white appressed scales and protruded dark and white hairs. Palps yellow, but bulbus brownish; all segments dorsally covered with light yellow hairs.

Palpal structure as in Figs 45, 53, 55, 394–401; the RTA short and wide, its length slightly exceeding its width; the cymbial process relatively small, its apical portion thinner than the RTA; the CTA with subequal basal and apical parts, with a small tooth on the apical edge (sometimes poorly visible).

Female (paratype from Charyn [=Sherin], Kazakhstan)

Measurements. Carapace 2.15 long, 1.85 wide, 1.15 high at PLE. Ocular area 1.13 long, 1.43 wide anteriorly and 1.48 wide posteriorly. Diameter of AME 0.43. Abdomen 2.33 long, 1.70 wide. Cheliceral length 0.88. Clypeal height 0.18. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.15	0.70	0.68	0.40	0.33	3.26
II	1.03	0.60	0.55	0.40	0.33	2.91
III	1.15	0.45	0.60	0.60	0.40	3.20
IV	2.05	0.98	1.03	0.75	0.35	5.16

Leg spination: Leg I: Fm d 0-1-1; Tb v 1-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-0-1; Pt pr 0-1-0; Tb pr 0-1, v 0-1-0; Mt pr 1-1ap, v 2-2ap. Leg III: Fm d 0-0-1; Pt pr 0-1-0; Tb pr 1-1, v 1-0; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 0-0-0-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1; Mt pr 1-2ap, rt 2-1ap.

Coloration. As described for male, but lighter and differs as follows: dorsum and carapace of more brownish tint, while venter, sternum, maxillae, labium and coxae yellow; clypeus yellow, densely covered with white hairs, plus a marginal fringe of yellowish hairs; palps yellow; all legs entirely yellow.

Epigyne and spermathecae as in Figs 69–70, 402–405; the epigyne is variable; the epigynal pocket varies from a triangle to wide bell-shaped but never overhangs the epigastric furrow; its width slightly smaller than the interdistance between the copulatory openings; the copulatory openings oval to bean-shaped, separated by 2–4 times their largest diameters; the insemination ducts and the receptacles poorly separated.

Material examined. Holotype: 1 ♂ (ZMUM), Kazakhstan, Almaty Area, Enbekshikazakhskii Distr., Sogety Valley, ca 5 km NW of Charyn Canyon (ca 43°23'N, 79°02'E), 2.10.1989, A. A. Zyuzin.

Paratypes: KAZAKHSTAN: 15 ♂♂, 1 ♀ (ZMUM), 1 ♂ (MNHN), together with the holotype; 1 ♀ (SMNH), same area and district, Sogety valley, near Kokpek (ca 43°27'N, 78°41'E), 29.05.1987, Ch. K. Tarabaev; 2 ♂♂, 3 ♀♀ (MMUM), 1 ♂ (SMNH), same area, Uigur Distr., near Charyn [=Sherin] (W vicinities) (ca 43°46'N, 79°22'E), 8.10.1989, A. A. Zyuzin; 1 ♀ (ZMUM), Kzyl-Orda Area, Aral'sk Distr., near Tasboget (ca 46°41'N, 61°46'E), sandy plots, 18–19.06.1989, A. A. Zyuzin; 1 ♀ (ZISP; hitherto determined as *Yllenus* sp.-1), Kyzyl-Orda Area, Aral'sk Distr., Aral Sea, Barsakel'mes Isl. (ca 45°41'N, 59°55'E), 18.06.1982, M. Kulbenko; 1 ♀ (ZMUM), Zhambyl [=Taraz, Dzhambul] Area, Moiynkum Distr., Betpak-Dala Desert, ca 79 km NE of Ulanbel', well Koktal (ca 45°29'N, 71°36'E), 18–19.05.1991, S. I. Ibraev & A. A. Zyuzin. — TURKMENISTAN: 1 ♀ (MNHN), Balkan [=Krasnovodsk] Area, Krasnovodsk Distr., Krasnovodsk Reserve, on the shore of Caspian Sea (ca 40°00'N, 53°00'E), 3–7.11.1977, N. Poplavko.

Habitat. In Kazakhstan, clayey deserts with rock debris, takyrs (=dry clay stands), and sandy shores of lakes under stones.

Distribution. This species has so far been found from a number of localities in S. Kazakhstan and NW Turkmenistan (Map 24).

The *hamifer* species group

Diagnosis. All species included in this group are distinguished by the extended (often strongly elongated) cymbium (Figs 51, 448), the whip-shaped embolus (Figs 42–43), the elongated, bulge-shaped cymbial process (Fig. 52) and the relatively small, tube-shaped tegulum (Figs 62–63) in males, and the subparallel, slit-

shaped copulatory openings (Fig. 71) and the long, strongly coiled and poorly sclerotized insemination ducts (Figs 415, 455, *etc.*) in females.

Altogether, 19 species are included in the *hamifer* group, of which 7 are described hereinafter as new.

Distribution. Central Asia, including both Turan and Gobian Provinces, and Tibet, with only one species, *Y. coreanus*, being known as far as N. Korea (Map 5); main centers of diversity lie in the Gobian and Tibetan Provinces.

Yllenus aralicus sp.n.

Figs 71, 406–415, Map 27

Yllenus bajan (*nec* Prószyński; misidentified): Nenilin, 1984: 33; Mikhailov & Fet, 1994: 518.

Yllenus hamifer (*nec* Simon; misidentified): Pavlenko, 1985: 149.

Yllenus sp.-2: Logunov & Guseinov, 2002: 257.

Type. The male holotype from Barsakel'mes Isl. (ca 45°41'N, 59°55'E), Kyzyl-Orda Area, Kazakhstan.

Derivatio nominis. The specific name refers to the type locality, the island Barsakel'mes in the Aral Sea, where the holotype was collected.

Diagnosis. This species is most closely related to *Y. baltistanus*, *Y. auspex* and *Y. uzbekistanicus* sp.n., with the male copulatory organs being poorly distinguishable in all these species; however, tiny differences are seen in the shape of the CTAs, especially their tips (cf Figs 406 and 416, 438, 523). All males can readily be separated by colour/morphological characters of their faces, legs I and dorsums (see table 1, p.121). Females of all four species are easily separable by the number of loops of the insemination ducts, the shape of the receptacles (cf Figs 413, 415 and 424, 444, 532) and the structure of their epigynes (cf Figs 412, 414 and 422, 443, 528–530).

DESCRIPTION

Male (paratype from Barsakel'mes Isl., Kazakhstan)

Measurements. Carapace 2.20 long, 1.63 wide, 1.00 high at PLE. Ocular area 1.00 long, 1.30 wide anteriorly and 1.45 wide posteriorly. Diameter of AME 0.40. Abdomen 2.10 long, 1.48 wide. Cheliceral length 0.60. Clypeal height 0.23.

Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.28	0.66	0.88	0.58	0.43	3.83
II	1.00	0.50	0.63	0.51	0.40	3.04
III	1.08	0.50	0.55	0.55	0.49	3.17
IV	1.78	1.05	0.84	0.64	0.50	4.81

Leg spination: Leg I: Fm d 0-1-1-1; Pt pr 0-1-0; Tb pr 1-0, v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-1-1-2; Pt pr 0-1-0; Tb pr 1-1, v 0-1-2ap; Mt pr 1-1ap, v 2-2ap. Leg III: Fm d 1-1-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1-1ap. Leg IV: Fm d 1-0-1-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1-1; Mt pr 2-2ap, rt 1-1ap.

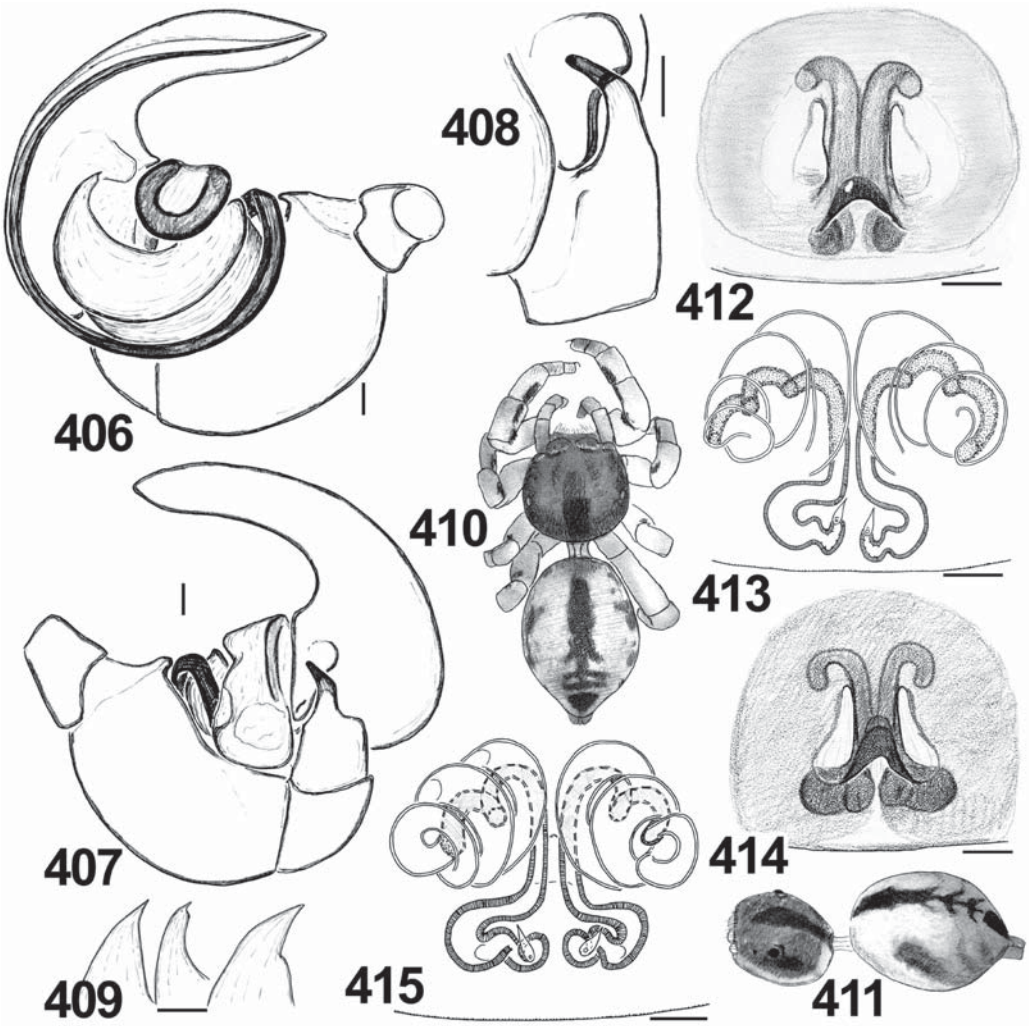
Coloration. Carapace dark red-brown, densely covered with white and orange appressed scales. Clypeus yellowish, densely covered with long black hairs hanging over the chelicerae. Eye field with a yellowish patch behind AMEs (sometimes with Λ-shaped white figure). Sternum yellow to dark brown, covered with white hairs. Maxillae and labium yellow-brown, with white apexes. Chelicerae dark brown, anteriorly covered with black hairs. Abdomen: dorsum greyish, with a pale reticulate pattern of brownish patches and a median longitudinal band (cardial spot); sides grey; venter yellow. Book-lung covers yellow, covered with white scales. Spinnerets yellow brownish. Legs yellow, but distal ends of femora and sides of patellae and tibiae brownish. Palps yellow.

Palpal structure as in Figs 406–409; the cymbium is extended, with its extension being shorter than the femur; the CTA relatively short, its tip varies in shape and extends only slightly beyond the distal margin of the tegulum.

Female (paratype from Kazakhstan, Barsakel'mes Isl.)

Measurements. Carapace 2.33 long, 1.88 wide, 1.30 high at PLE. Ocular area 1.71 long, 1.50 wide anteriorly and 1.25 wide posteriorly. Diameter of AME 0.46. Abdomen 2.90 long, 2.33 wide. Cheliceral length 0.75. Clypeal height 0.25. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.33	0.76	0.78	0.53	0.40	3.80
II	1.09	0.63	0.68	0.51	0.43	3.34
III	1.10	0.65	0.60	0.63	0.53	3.51
IV	1.98	0.90	1.05	0.75	0.63	5.31



Figs 406–415. Copulatory organs and somatic characters of *Yllenus aralicus*: 406 — ♂ palp, median view; 407 — ditto, lateral view; 408 — tibial apophysis, latero-median view; 409 — CTAs' tips, a variation; 410–411 — ♀ general appearance; 412, 414 — epigyne; 413, 415 — spermathecae. All specimens from Kazakhstan (Barsakel'mes Isl.). Scale lines: 0.1 mm.

Leg spination: Leg I: Fm d 1ap; Tb v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 1ap; Pt pr 0-1-0; Tb pr 1-1, v 1-1; Mt pr 1-1ap, v 2-2ap. Leg III: Fm d 1ap; Pt pr 0-1-0; Tb pr 1-1, v 1-0; Mt pr and rt 1-2ap, v 1-1ap. Leg IV: Fm d 1ap; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1-0; Mt pr 2-2ap, rt 1-1ap.

Coloration. As described for male, but lighter and differs as follows: sometimes, thoracic part of the carapace yellow; clypeus densely covered with long white hairs; brownish reticulate pattern on dorsum usually better marked (Figs 410–411).

Epigyne and spermathecae as in Figs 71, 412–415; the epigynal pocket Λ-shaped; the insemination ducts make 3 revolutions; the receptacle thin, poorly sclerotised and separated from the insemination ducts.

Table 1
Some distinguishing morphological characters for males of four *Yllenus* species

	***Y. aralicus* sp.n.**	***Y. baltistanus***	***Y. auspex***	***Y. uzbekistanicus* sp.n.**
♂ face and anterior surface of chelicerae	densely covered with long black hairs	sparsely covered with light (grey or yellowish) hairs	sparsely covered with light (grey or yellowish) hairs	densely covered with long white hairs
♂ leg I	whole leg sparsely covered with white hairs	patellae, tibiae, metatarsi and tarsi with dense ventral brushes of brown hairs	only metatarsi and tarsi with dense ventral brushes of brown hairs (Fig. 421)	femora, patellae and tibiae ventrally covered with long white hairs, while metatarsi and tarsi with dense ventral brushes of brown hairs
♂ dorsum	with a longitudinal brownish stripe (Figs 410–411)	with no colour markings	with no colour markings	with a longitudinal brownish stripe (Figs 533–534)

Material examined. Holotype: 1 ♂ (ZMUM), Kazakhstan, Kyzyl-Orda Area, Aral'sk Distr., Aral Sea, Barsakel'mes Isl. (ca 45°41'N, 59°55'E), 25.05. 1983, T. V. Pavlenko.

Paratypes: AZERBAIJAN: 1 ♂ (MMUM), Absheron Peninsula, Primorskaya station (ca 40°14'N, 49°36'E), 30.05.1976, P. M. Dunin. — KAZAKHSTAN: 1 ♂ (MMUM), South Kazakhstan [=Shymkent, Chimkent] Area, Arys' Distr., Kyzylkum desert, ca 35 km W of Bairkum, near Baimakhan well (42°04'N, 67°42'E), 21.05.1993, A. A. Zyuzin; 3 ♂♂, 9 ♀♀ (ZISP), 3 ♂♂ (ZMUM) 8 ♂♂, 5 ♀♀ (MMUM), Kyzyl-Orda Area, Aral'sk Distr., Aral Sea, Barsakel'mes Isl. (ca 45°41'N, 59°55'E), (on the flowers of *Orobanche* sp. and in bird nests), 9.05–8.06.1983, D. O. Alexeev and T. V. Pavlenko (earlier reported by Pavlenko [1985] as *Y. hamifer*); 5 ♀♀ (ZMUM), same locality, 6.07.1981, D. O. Alexeev; 8 ♀♀ (ZMUM), same locality, on *Haloxylon* sp., summer 1984, D. O. Alexeev and T. V. Pavlenko; 1 ♀ (ZISP), same locality, 31.05.1980, S. Konev; 1 ♂ (ZMUM), same locality, summer 1984, D. O. Eliseev. — TURKMENISTAN: 1 ♂ (ZMUM), Tashauz [=Dashkhovuz] Area, Kalinin Distr., Ustyurt Plateau, Kankakyr [=Gangalykyr] Height (41°22'N, 58° 02'E), 13.04.1985, O. S. Soyunov; 1 ♂, 1 ♀ (ZMUM; determined by A. B. Nenilin as *Y. bajan*), Chardzhou [=Lebapskii] Area, Chardzhou Distr., Karakumy Desert, Repetek (38° 33'N, 63°11'E), 05–06.1914, N. N. Plavil'shikov; 1 ♀ (MMUM), Tashauz [=Dashkhovuz] Area, ca 90 km ENE of Repetek, Karakumy desert, Eradzhi sands, saltmarsh, 16.05.1978, V. G. Kaplin; 1 ♂, 1 ♀ (ZMUM; determined by A. Nenilin as *Y. bajan*), Balkan [=Krasnovodsk] Area, Krasnovodsk Distr., Kizyl-Su (39°47'N, 53°01'E), sands, 8–10.07.1929, V. I. Sychevskaya [=Pereleshina].

Habitat. In Azerbaijan, in the semidesert zone (on fixed sands with sparse vegetation) [Logunov & Guseinov, 2002: sub *Yllenus* sp.-2]; in Kazakhstan (Barsakel'mes), stabilized sand with *Haloxylon* sp., tamarix, *Zostera minor*, *Stipagrostis pennata* and others [Pavlenko, 1985: sub *Y. hamifer* and *Y. auspex*].

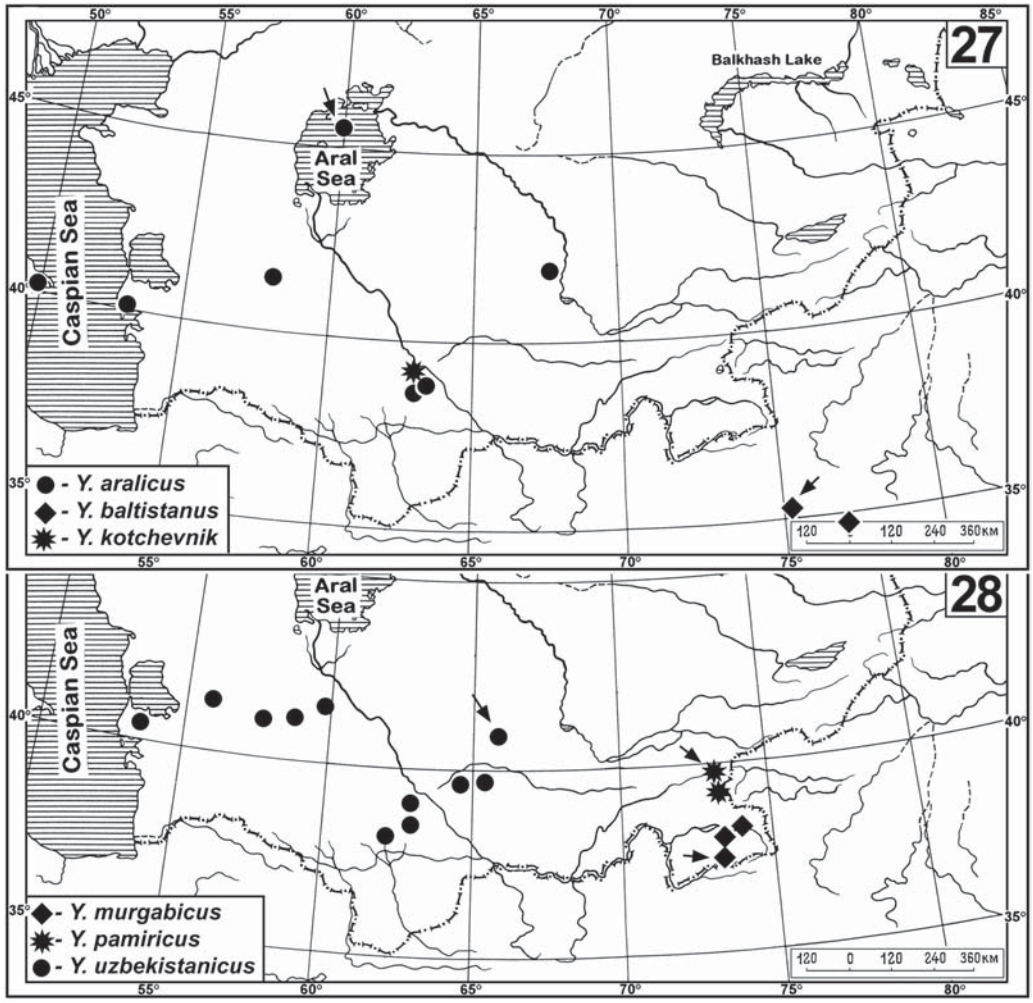
Distribution. This species displays a typical Turanian distribution, occurring only in lowlands from Azerbaijan in the West to NE Turkmenistan in the East (Map 27).

By mistake, this species was reported by Nenilin [1984a, 1985] from Turkmenistan (Repetek and Krasnovodsk) under the name of *Y. bajan* (listed also by Mikhailov & Fet [1994]) (Nenilin's specimens re-examined) and by Pavlenko [1985] from Kazakhstan (Barsakel'mes) as *Y. hamifer*.

Yllenus auspex
(O. Pickard-Cambridge, 1885)

Figs 416–425, Map 30

Attus auspex O. Pickard-Cambridge, 1885b: 104 (D♂♀; the ♂ lectotype in the HECO; not located and examined).
Attulus auspex: Reimoser, 1919: 193 (T from *Attus*).
Yllenus auspex: Prószyński & Żochowska, 1981: 29–32, figs 27–30 (♂♀; T from *Attulus*); Nenilin, 1985: 131; Pavlenko, 1985: 149; Zhou & Song, 1988: 11–12, figs15a–e (♂♀); Hu & Wu, 1989: 396–397, figs 309.1–5, 312 (♂♀); Prószyński, 1990: 362; Mikhailov, 1996: 134, 1997: 224; Song *et al*., 1999:



Maps 27–28. Distribution of *Yllenus* species: 27 — *Y. aralicus*, *Y. baltistanus* and *Y. kotchevnik* in Central Asia and the Caucasus; 28 — *Y. murgabicus*, *Y. pamiricus* and *Y. uzbekistanicus* in Central Asia. One dot may represent more than one close locality; if more than one record, type localities arrowed.

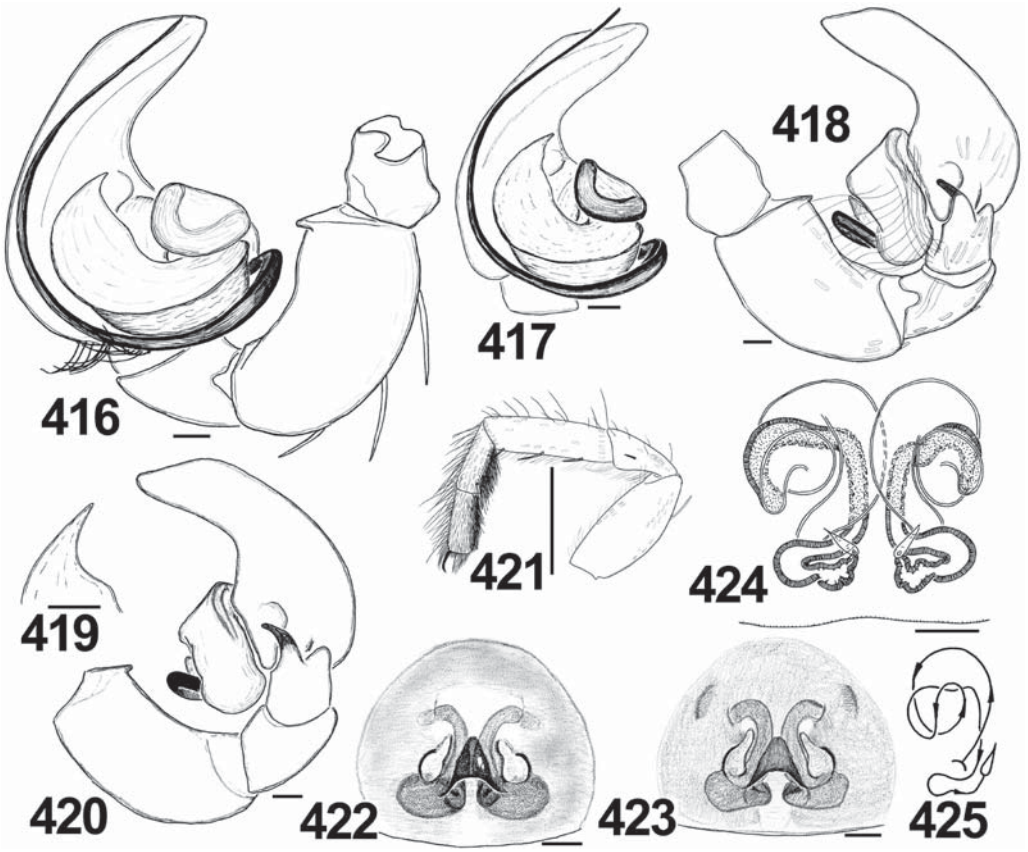
563–564, figs 323J–K, 324C–D (♂♀); Logunov & Marusik, 2000a: 273, 2000b: 249, map 42.

Yllenus baltistanus (*nec* Caporiacco; misidentified): Prószyński, 1968 (*pro parte*, the specimens from Mongolia): 445; Punda, 1975 (*pro parte*, the specimen from China): 42–43, fig. 17 (♀); Mikhailov, 1996: 134, 1997: 224.

Type. The male lectotype from Shache (=Yarkand) (ca 38°25'N, 77°15'E), China; deposited in the HECO.

Derivatio nominis. The species epithet is derived from the Latin, meaning "carrying a happy piece of news", "desired".

Diagnosis. This species is most closely related to *Y. aralicus* sp.n., *Y. baltistanus* and *Y. uzbekistanicus* sp.n.; males of these species have poorly distinguishable copulatory organs (cf Figs 416–417 and 406, 438, 523), but can readily be separated by colour/somatic characters of their faces, legs I and dorsums (see table 1). Females of all four species are easily separable by the number of loops of the insemination ducts, the shape of the receptacles (cf Figs 424 and 415, 444, 532) and the structure of their epigynes (cf Figs 422–423 and 414, 443, 528).



Figs 416–425. Copulatory organs of *Yllenus auspex*: 416–417 — ♂ palp, median view; 418, 420 — ditto, lateral view; 419 — CTA's tip; 421 — ♂ leg I, lateral view; 422–423 — epigyne; 424 — spermathecae; 425 — diagrammatic course of spermathecal ducts. All specimens from Mongolia (Saishand). Scale lines: 0.1 mm.

By the presence of ventral brushes on metatarsi and tarsi I, as well as by the structure of the copulatory organs in both sexes, *Y. auspex* is also very close to *Y. pamiricus* sp.n. Males can easily be distinguished by the absence of dense coverage of white hairs on clypeus and "cheeks" (present in *Y. pamiricus* sp.n.) and less sharpened tip of the CTA (cf Figs 416–417 and 505). The males of *Y. pamiricus* sp.n. often have a well-marked Λ-shaped white figure on the eye field, which is absent in *Y. auspex*. The females of both species are also very similar, both having faces with two declined brown stripes on a white background (see Fig. 508); however, *Y. auspex* has the wider and shorter copulatory pores (cf Figs 422–423 and 509) and a single loop of the insemination duct (two loops in *Y. pamiricus* sp.n.) (cf Figs 424 and 510). See also comments under "Diagnosis" of *Y. murgabicus* sp.n. and see table 2 (p.144).

Comments. We were unable to locate and re-examine the type material of *Y. auspex*, which should have been in the HECO, but was not located there by one of us (DL). Therefore, our notions about this species are only based on the re-description and figures provided by Prószyński & Żochowska, [1981: figs 27–30]; the latter authors re-examined the original specimens of Pickard-Cambridge. On this basis we were able to assign some *Yllenus* specimens from Mongolia to true *Y. auspex*. We were also unable to obtain and re-examine the specimens of *Y. aus-*

pex from Xinjiang (China) reported by Hu & Wu [1989] and Zhou & Song [1988]. However, reasoning from (1) their illustrations clearly correspond to what we consider *Y. auspex* here and (2) the type locality of *Y. auspex* lies in Xinjiang as well, there are no doubts the latter authors dealt with true *Y. auspex* (as we understand it here). The record of *Y. baltistanus* from Gansu (Lanzhou) by Punda [1975] remains slightly unclear (Punda's specimen not re-examined), but herein we have provisionally attributed it to true *Y. auspex* as well (see Map 30).

DESCRIPTION

Male (from Saishand, Mongolia)

Measurements. Carapace 2.15 long, 1.80 wide, 1.21 high at PLE. Ocular area 1.10 long, 1.35 wide anteriorly and 1.58 wide posteriorly. Diameter of AME 0.38. Abdomen 2.08 long, 1.50 wide. Cheliceral length 1.61. Clypeal height 0.20.

Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.53	0.90	1.23	0.83	0.65	5.14
II	1.13	0.69	0.68	0.51	0.48	3.49
III	1.13	0.57	0.57	0.60	0.50	3.37
IV	1.81	0.79	0.88	0.70	0.61	4.79

Leg spination: Leg I: Fm d 0-1-1-1; Pt pr 0-1-0; Tb pr 1-2, v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-1-2-2; Pt pr and rt 0-1-0; Tb pr 1-1, rt 1-0, v 2-2-ap; Mt pr 1-1ap, v 2-2ap. Leg III: Fm d 0-1-1-2; Pt pr and rt 0-1-0; Tb pr and rt 1-1; Mt pr, rt and v 1-2ap. Leg IV: Fm d 0-1-1-1; Pt pr and rt 0-1-0; Tb d 1-0, pr and rt 1-1, v 1ap; Mt pr 1-2ap, rt 1-1ap.

Coloration. Carapace red-brown, with black around eyes and densely covered with white appressed scales. Clypeus yellow, "cheeks" brownish; clypeal margin with a bunch of long white hairs overhanging the chelicerae. Labium and maxillae brownish yellow. Sternum brown, covered with white hairs. Chelicerae brownish. Abdomen: dorsum and sides greyish brown, dorsum with no marked colour pattern (or this specimen is lacking a pattern); venter yellow. Book-lung covers yellow, covered with white scales. Spinnerets yellow, tinged with brown. All legs yellow with brownish femora and brownish rings and patches on patellae, tibiae and metatarsi; metatarsi and tarsi I with dense ventral bunches of black hairs (Fig. 421). Palps brownish yellow.

Palpal structure as in Figs 416–420; the cymbium very slightly extended; the tip of the CTA relatively thick, triangle-shaped.

Female (from Saishand, Mongolia)

Measurements. Carapace 2.25 long, 1.98 wide, 0.88 high at PLE. Ocular area 1.23 long, 1.48 wide anteriorly and 1.66 wide posteriorly. Diameter of AME 0.43. Abdomen 3.35 long, 2.33 wide. Cheliceral length 0.78. Clypeal height 0.23. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.30	0.85	0.80	0.55	0.50	4.00
II	1.28	0.63	0.65	0.45	0.50	3.51
III	1.08	0.63	0.63	0.58	0.50	3.42
IV	1.95	0.98	0.98	0.75	0.55	5.21

Leg spination: Leg I: Fm d 0-0-1-1; Tb v 2-2-1ap; Mt v 2-2ap. Leg II: Fm d 0-0-1-1; Pt pr 0-1-0; Tb pr and rt 1-1; Mt pr 1-1ap, v 2-2ap. Leg III: Fm d 1ap; Pt pr 0-1-0; Tb pr 1-1, rt 1-0, v 1ap; Mt pr and rt 1-2ap, v 1-1ap. Leg IV: Fm d 1ap; Pt pr and rt 0-1-0; Tb pr and rt 1-1-1, v 1ap; Mt pr 1-2ap, rt 1-1ap.

Coloration. As described for male, but lighter and differs as follows: clypeus and anterior surface of chelicerae densely covered with white hairs; dense white scales between AMEs and ALEs; "cheeks" rather densely covered with brown scales; palps yellow; all legs almost totally yellow; tarsi and metatarsi I lacking ventral brushes of black hairs.

Epigyne and spermathecae as in Figs 422–425; the epigynal pocket, bell-shaped, as wide as high; the copulatory openings ovoid, separated by about 3 times their diameters; the insemination ducts broad, making 1.5 revolutions; the primary and secondary receptacles not separated.

Material examined. MONGOLIA: 1 ♂, 2 ♀♀ (ZMPA; previously determined by J. Prószyński as *Y. baltistanus*), "Sajn-Šand" [East Goby Aimak, Saishand (44°50'N, 110°08E)], 31.05.1962, R. Bielawski & B. Pisarski.

Habitat. No data.

Distribution. The species displays a Central Asian subboreal range and is known from China (Xinjiang and Gansu) [Punda, 1975; Hu & Wu, 1989; Zhou & Song, 1988] and eastern Mongolia [Prószyński, 1968: sub *Y. baltistanus*] (Map 30).

Earlier records of *Y. auspex* from Turkmenistan (Kaplankyr, Repetek, Tashauz and Chil'-mamedkum sands) by Mikhailov & Fet [1994] and Wesołowska [1996] should be referred to *Y. uzbekistanicus* (Wesołowska's specimens re-examined). The record from India (Ladakh: Shey) [see Żabka, 1981: figs 11–12] is to be referred to *Y. baltistanus* (Żabka's specimens not examined, but this conslusion is obvious on the basis of his figures; cf Figs 443–444). The earlier record of *Y. auspex* from Azerbaijan (no exact locality) by Nenilin [1985 needs confirmation through reference to the pertinent material, as no specimen of true *Y. auspex* from the Caucasus has been located in A. Nenilin's collection of the Salticidae (kept in the ZISP), which was revised by one of us (DL) [s. also Logunov & Guseinov, 2002]. The records from NW Kazakhstan (Guriev Area) by Ponomarev [2002] also need confirmation and are not included here.

Yllenus bajan Prószyński, 1968

Figs 426–434, Map 29

Yllenus bajan Prószyński, 1968: 440–444, figs 3, 11, 20, 35, 60, 92–97 (D♂♀; ♀ holotype in the ZMPA; examined).

Yllenus bajan: Prószyński, 1982: 292, 1990: 362; Mikhailov, 1996: 134, 1997: 224; Hu & Wu, 1989: 397, figs 310, 1–7 (♂♀); Tang & Song, 1990: 52, figs 3A–C (♀); Song *et al*., 1999: 564, figs 323L–M, 324E–F (♂♀); Logunov & Marusik, 2000a: 290, 2000b: 249–250, map 41.

Type. The female holotype from Zuunbayan (44°20'N, 109°35'E), Mongolia; deposited in the ZMPA.

Derivatio nominis. The specific epithet was dedicated to Mr Jerzy Bajan, an uncle of the author of the species' description, who was a Colonel pilot, a hero of Polish aviation in 1934, and who participated in the air defense (within Polish Fighter Aviation) of England in the years 1942–1945. The word "bajan" or "bayan" also means "rich" in Mongolian.

Diagnosis. By the colour pattern of the dorsum (Fig. 434), *Y. bajan* differs from all other species of the *hamifer* group and is only similar to *Y. pseudobajan* sp.n., from which males can be separated by the following characters: the Λ-shaped white figure on the eye field present (absent in *Y. pseudobajan* sp.n.); legs with brownish patches (completely yellow in *Y. pseudobajan* sp.n.); palpal femora, patellae and tibiae brownish contrasting with the yellow cymbium (palps completely yellow in *Y. pseudobajan* sp.n.); sternum completely brown (brown with a central yellow spot in *Y. pseudobajan* sp.n.); palpus about 1.5 times bigger (*e.g.* the cymbial length is 1.4 mm or longer in *Y. bajan* and ca 1 mm in *Y. pseudobajan* sp.n.).

DESCRIPTION

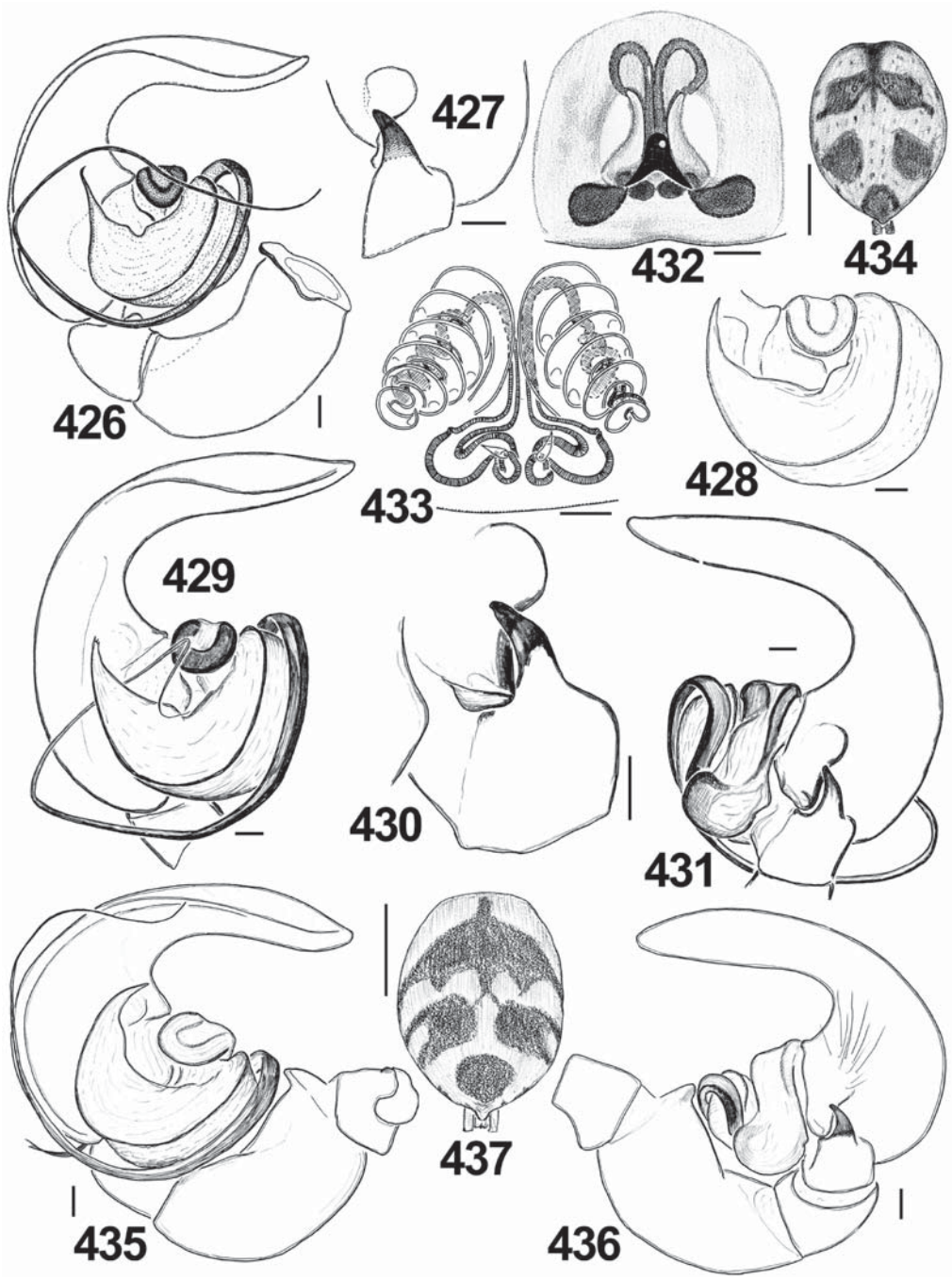
Male (from Zoolon uul, Mongolia)

Measurements. Carapace 1.93 long, 1.63 wide, 1.20 high at PLE. Ocular area 1.03 long, 1.25 wide anteriorly and 1.45 wide posteriorly. Diameter of AME 0.38. Abdomen 2.08 long, 1.48 wide. Cheliceral length 0.55. Clypeal height 0.23. Length of leg segments:

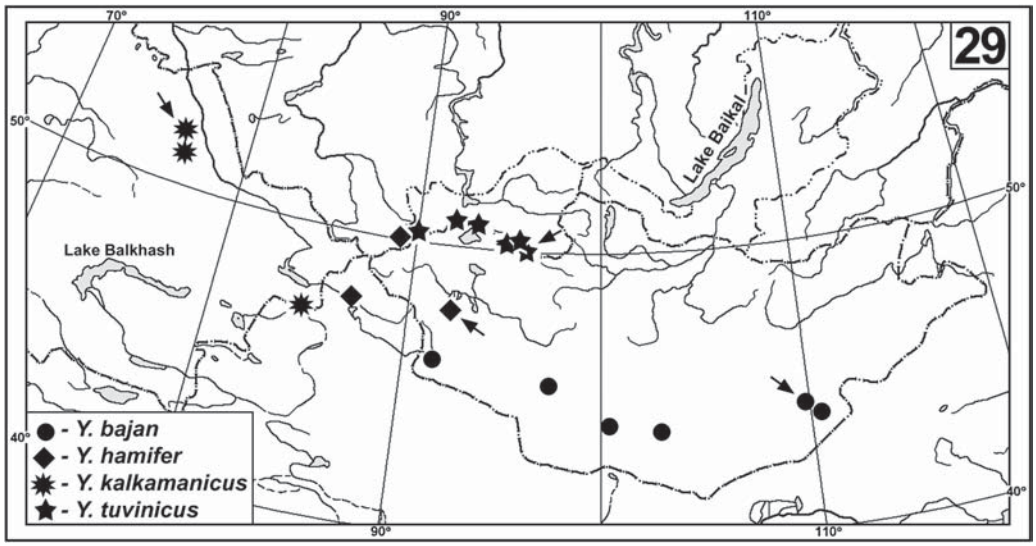
	Fm	Pt	Tb	Mt	Tr	Total
I	1.30	0.75	0.85	0.60	0.48	3.98
II	1.08	0.58	0.55	0.48	0.33	3.02
III	1.10	0.54	0.50	0.54	0.43	3.11
IV	1.78	0.83	0.80	0.65	0.41	4.47

Leg spination: Leg I: Fm d 0-1-1-2; Pt pr and rt 0-1-0; Tb pr 1-1, v 1-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-1-2; Pt pr and rt 0-1-0; Tb pr 1-1, rt 1-0, v 1-2-2ap; Mt pr 1-1ap, v 2-2ap. Leg III: Fm d 1-1-1; Pt pr and rt 0-1-0; Tb pr 1-1-1, rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 1-1-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1-1, v 1ap; Mt v 1-2ap.

Coloration. Carapace light brown (eye field yellowish, with black around eyes), densely covered with white appressed scales (thoracic region covered with scale less densely); bands of white scale on carapace sides. Clypeus brownish yellow, with sparse black hairs. Sternum yellow-brown, covered with white hairs. Maxillae and labium brown-yellow. Chelicerae brown. Abdomen: dorsum and sides brown, with 3 transverse white bands of scales (Fig. 434); venter brownish yellow. Book-lung covers yellow, covered with white hairs. Spinnerets brownish yellow. Legs: coxae and trochanters brightly yellow; remaining segments yellow, with brown patches and stripes (sides of segments usually brown). All legs covered with white protruding hairs and white/brown appressed scales. Palps yellow, but bulbus brownish and cymbium greyish.



Figs 426–437. Copulatory organs and somatic characters of *Yllenus bajan* (426–434) and *Y. pseudobajan* (435–437): 426, 429, 435 — ♂ palp, median view; 427 — tibial apophysis, lateral view; 428 — CTA' tip; 431, 436 — ♂ palp, lateral view; 430 — tibial apophysis, latero-median view; 434, 437 — ♂ dorsum; 432 — epigyne; 433 — spermathecae. Specimens: 426–427, 432–434 — Mongolia (Zoolon uul); 428–431 — Mongolia (Bor-Tolgoi); 435–437 — Tibet, the holotype. Scale lines: 0.1 mm.



Map 29. Distribution of *Y. bajan*, *Y. hamifer*, *Y. kalkamanicus* and *Y. tuvinicus* in Mongolia and the mountains of S. Siberia. One dot may represent more than one close locality; if more than one record, type localities arrowed.

Palpal structure as in Figs 426–429; the cymbium extended, its extension as long as the palpal femur and is separated from the tegulum by a distance of 1.5 times of its width; the cymbial process with a distinct dorso-apical edge; the RTA relatively long and broad, only slightly turned downwards; the CTA is slightly curved and with a distinct ventral notch; the tip of the CTA spine-like and slightly curved (sometimes it is broken).

Female (from Zoolon uul, Mongolia)

Measurements. Carapace 2.15 long, 1.90 wide, 1.20 high at PLE. Ocular area 1.10 long, 1.40 wide anteriorly and 1.68 wide posteriorly. Diameter of AME 0.43. Abdomen 2.88 long, 2.18 wide. Cheliceral length 0.80. Clypeal height 0.21. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.25	0.71	0.70	0.43	0.38	3.47
II	1.05	0.68	0.55	0.43	0.38	3.09
III	1.10	0.55	0.55	0.58	0.48	3.26
IV	1.95	0.88	1.00	0.75	0.55	5.13

Leg spination: Leg I: Fm d 0-1-1; Tb v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-0-1-2; Pt pr 0-1-0; Tb pr 1-1, v 1-2-2ap; Mt pr 1-1ap, v 2-2ap. Leg III: Fm d 0-0-1; Pt pr 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 1ap; Pt pr and rt 0-1-0; Tb pr and rt 1-1-1, v 1ap; Mt pr 1-2ap, rt 2-2ap, v 1ap.

Coloration. As described for male, but lighter: clypeus densely covered with white hairs; colour pattern of brown patches and white bands on dorsum is well marked; palps yellow; and all legs entirely yellow, with tiny brown patches on segment joints.

Epigyne and spermathecae as in Figs 432–433; the epigynal pocket bell-shaped; the copulatory openings slit-shaped; the insemination ducts make 6 revolutions; the primary and secondary receptacles not separated.

Material examined. MONGOLIA: 1 ♀ (ZMPA, the holotype of *Yllenus bajan*), 1 ♂ (ZMPA, the paratype of *Y. bajan*), "Zuun-Bajan, 75 km S od Sajn-Šand" [East Gobi Aimak, Zuunbayan (44°20'N, 109°35'E)], 2.06.1962, R. Bielawski & B. Pisarski; 2 ♂♂ (SZMN), Bayanhongor Aimak, Bayanlig Somon, Bor-Tolgoi (44°06'N, 100°56'E), 2000–2100 m a.s.l., 4.06.1997, Yu. M. Marusik; 1 ♂, 3 ♀♀ (HNHM, No.806), South Gobi Aimak, Zoolon uul (ca 43°30'N, 102°50'E), 1500 m a.s.l., 16.06.1967, Exp. Z. Kaszab; 3 ♂♂ (HNHM, No.567), Gobialtai Aimak, Biger-nuur (45°40'N, 97°15'E), 1130 m a.s.l., 23.06.1966, Exp. Z. Kaszab.

Habitat. In Mongolia, plain sand-stony desert, with few bushes [s. Logunov & Marusik, 2000a].

Distribution. This species displays a typical Mongolian subboreal range and is known only from S. Mongolia (Map 29).

The records of *Y. bajan* from Turkmenistan (Repetek and Krasnovodsk) by Nenilin [1984a, 1985] are erroneous and actually belong to *Y. aralicus* sp.n. (Nenilin's specimens re-examined). The record from Mongolia (Ikh-Bogd Mt. Range) by Marusik & Logunov [1999] should be referred to *Y. coreanus* [see Logunov & Marusik, 2000a,b].

Yllenus baltistanus Caporiacco, 1935

Figs 438–445, Map 27

Yllenus baltistanus Caporiacco, 1935: 207, pl. 5, fig. 5 (D♂♀; the ♀ lectotype in the MZSF; examined).

Yllenus baltistanus: Roewer, 1954: 1252; Bonnet, 1959: 4905; Prószyński, 1968: 445–450, figs 4, 12, 21, 47, 61, 101–110 (♂♀), 1990: 362 (as a synonym of *Y. auspex*); Punda, 1975 (*pro parte*): 42–43, figs 15–16 (♀). Synonymized with *Y. auspex* by Prószyński & Żochowska (1981), but revalidated herein.

Yllenus auspex (*nec* Pickard-Cambridge; misidentified): Żabka, 1981: 412, figs 11–12 (♀).

Type. The female lectotype (without epigyne; but see Punda [1975: figs 15–16]) from "Paji, oasi" [Jammu and Kashmir State]; deposited in the MZSF.

Derivatio nominis. The specific epithet is derived from the type locality, the Baltistan mountains in Jammu and Kashmir State of India.

Diagnosis. This species is most closely related to *Y. aralicus* sp.n., *Y. auspex* and *Y. uzbekistanicus* sp.n. Males of these species have virtually indistinguishable copulatory organs (cf Figs 438 and 406, 416, 523; tips of the CTAs are slightly different), but can readily be separated by colour/somatic characters of their faces, legs I and dorsums (see table 1, p.121). Females of all four species are easily separable by the number of loops of the insemination ducts, the shape of the receptacles (cf Figs 444 and 415, 424, 532) and the structure of their epigynes (cf Figs 443 and 414, 422, 528).

Comments. Although we have been unable to locate and re-examine the type material of *Y. auspex*, the specimens we assigned to this species (see above under "Comments" of *Y. auspex*) are clearly different from true *Y. baltistanus*, of which we re-examined the ♀ lectotype and the ♂ paralectotype (see "Diagnosis" above and table 1, p.121). Therefore, the taxonomic status of *Y. baltistanus* is re-validated here. *Yllenus baltistanus shaksgamica* Caporiacco, 1935 was considered to be a synonym of *Y. baltistanus* by Prószyński [1968]. We have not included it in the synonymy list of *Y. baltistanus*, as we have been able to borrow and re-examine only the immature male from the complete type series of *Y. b. shaksgamica* (4 ♂♂ and 7 ♀♀ altogether; see Caporiacco [1935]) apparently kept in the MZSF (see table 3, p.159). No taxonomic conclusion can be made now (for further discussion see below).

DESCRIPTION

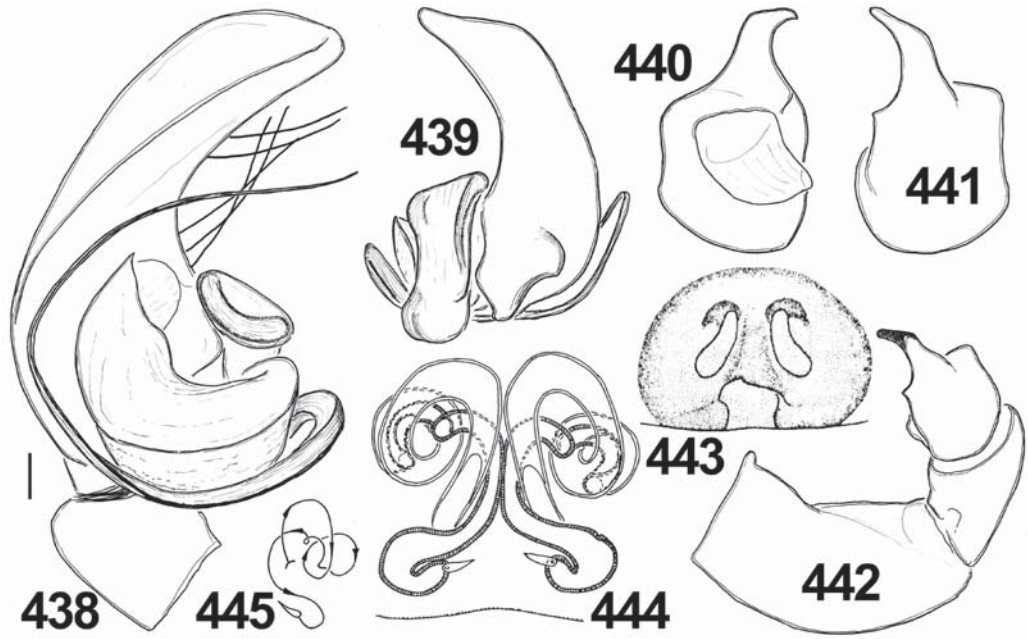
Male (the paralectotype from India, Baltistan Mts.)

Measurements. Carapace 2.83 long, 2.23 wide, 1.38 high at PLE. Ocular area 1.30 long, 1.68 wide anteriorly and 1.83 wide posteriorly. Diameter of AME 0.38. Abdomen 2.50 long, 1.95 wide. Cheliceral length 0.84. Clypeal height 0.20. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	2.20	1.28	1.60	1.13	0.95	7.16
II	1.68	1.03	0.98	0.80	0.65	5.14
III	1.73	0.85	0.88	0.95	0.70	5.11
IV	2.60	1.13	no further segments			

Leg spination: Leg I: Fm d 0-1-1-1; Pt pr and rt 0-1-0; Tb pr 0-1, v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-1-1-1; Pt pr and rt 0-1-0; Tb pr 1-1, v 1-2-2ap; Mt pr 1-1ap, v 2-2ap. Leg III: Fm d 0-1-1-1; Pt pr and rt 0-1-0, Tb pr and rt 1-1, v2ap; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 0-0-1-1; Pt pr and rt 0-1-0, no further segments.

Coloration. This specimen is strongly damaged and lost its scale coverage. Carapace dark brown, densely covered with light appressed scales. Clypeus light brown, damaged (the colour of its hair/scale coverage is unclear, but hairs seem to be dark brown). Sternum yellowish brown, covered with white hairs. Maxillae and labium yellowish brown, with white apexes. Chelicerae dark brown, anteriorly covered with brown hairs. Abdomen: dorsum dark grey, with no colour markings; sides and venter yellow, covered with white appressed scales. Book-lung covers yellow. Spinnerets brownish yellow. All legs yel-



Figs 438–445. Copulatory organs of *Yllenus baltistanus*: 438 — ♂ palp, median view; 439, 442 — ditto, lateral view; 440–441 — tibial apophysis, median and lateral views; 443 — epigyne; 444 — spermathecae; 445 — diagrammatic course of spermathecal ducts. All specimens from India (Jammu and Kashmir State): 438–442 — the ♂ paralectotype; 443 — the ♀ lectotype [after Punda, 1975: fig. 15]; 444 — ditto [redrawn from Punda, 1975: fig. 16]. Scale lines: 0.1 mm.

low, with numerous brown patches and stripes, but tibiae, metatarsi and tarsi I entirely dark brown and ventrally covered with dense brushes of brown hairs. Palps yellow-brown.

Palpal structure as in Figs 438–442; the cymbium slightly extended, with distal and proximal halves nearly subequal; the cymbial process (like a swollen outgrowth) well-marked; the CTA thick, its tip triangle-shaped.

Female (the lectotype)

Measurements. Carapace 2.08 long, 1.75 wide, 1.41 high at PLE. Ocular area 1.18 long, 1.38 wide anteriorly and 1.50 wide posteriorly. Diameter of AME 0.43. Abdomen 3.63 long, 2.75 wide. Cheliceral length 0.83. Clypeal height 0.20. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.25	0.78	0.80	0.50	0.46	3.79
II	1.13	0.65	0.64	0.50	0.48	3.40
III	1.18	0.59	0.59	0.63	0.58	3.57
IV	1.88	0.83	1.00	0.75	0.55	5.01

Leg spination: Leg I: Tb v 2-2-2ap; Mt v 2-2ap. Leg II: Tb pr 0-1, v 1-1; Mt pr 1-1ap, v 2-2ap. Leg III: Tb pr 1-1; Mt pr and rt 1-2ap, v 1ap. Leg IV: Pt pr and rt 0-1-0; Tb pr and rt 1-1; Mt pr and rt 1-1ap.

Coloration. As described for male, except as follows: clypeus densely covered with white hairs overhanging the basal parts of chelicerae; all legs yellow, with small brown annulations and patches on segment joints; palps yellow.

Epigyne see Punda [1975: fig. 15; Fig. 443] and *spermathecae* as in Fig. 444; the epigyne is poorly illustrated in Punda [1975], with a bell-shaped epigynal pocket and ovoid subparallel copulatory openings; the insemination ducts make 1.5 revolutions; the primary and secondary receptacles not separated.

Material examined. INDIA: 1 ♂ (MZSF; the paralectotype of *Yllenus baltistanus*), Jammu and Kashmir State, Baltistan Mts, Indus River valley, Skardu (ca 35°18'N, 75°38'E), 2200 m a.s.l., 05.

1929; 1 ♀ (without epigyne) (MZSF; the lectotype of *Yllenus baltistanus*), Jammu and Kashmir State, Baltistan Mts, Paji, oasi, 3500 m a.s.l., 16.05.1929.

Habitat. No data.

Distribution. The species is known from the Baltistan Mts (Jammu and Kashmir) [Caporiacco, 1935] and Shey (Ladakh) [Żabka, 1981: sub *Y. auspex*], both localities in N. India (Map 27).

This species was once recorded from Tajikistan (Pamir) by Prószyński [1976: 43, map 38] referring to Andreeva's work [1976]. The latter work does not actually contain such data. In his literature review of the spider fauna of the semideserts of the European part of the USSR, Ponomarev [1988] reported *Y. baltistanus*, but the source of this record was not mentioned and remains unknown, while the record itself needs confirmation. The record of *Y. baltistanus* from Gansu (Lanzhou) by Punda [1975] is doubtful (Punda's specimen not re-examined), and we have provisionally attributed it to *Y. auspex* (see Map 30).

Yllenus bator Prószyński, 1968

Figs 218–219, Map 32

Yllenus bator Prószyński, 1968: 444–445, figs 46, 59, 98–100 (D♀; ♀ holotype from ZMPA; examined).

Yllenus bator: Hu & Li, 1987: 334–335, figs 51.1–5 (♀); Prószyński, 1990: 362; Song *et al*., 1999: 564, figs 324G–H (♀); Logunov & Marusik, 2000a: 278, figs 59–60 (♀), 2000b: 250, map 44; Hu, 2001: 421, figs 270.1–3 (♀).

Type. The female holotype from Saishand (44°50'N, 110°08E), Mongolia; deposited in the ZMPA.

Derivatio nominis. The species epithet is derived from the Mongolian word "bator" or "batoor" meaning "hero".

Diagnosis. This species is known from females only, but the conformation of the female copulatory organs is unique among the congeners in the *hamifer* group in that the receptacles are elongated and bent (Fig. 219); none of the other *Yllenus* species have spermathecae of this form. See also comments under "Diagnosis" of *Y. coreanus*.

DESCRIPTION

Male unknown.

Female (the holotype)

Measurements. Carapace 2.53 long, 2.03 wide, 1.18 high at PLE. Ocular area 1.15 long, 1.50 wide anteriorly and 1.60 wide posteriorly. Diameter of AME 0.43. Abdomen 3.33 long, 2.88 wide. Cheliceral length 0.80. Clypeal height 0.13. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.29	0.75	0.73	0.50	0.40	3.67
II	1.19	0.68	0.63	0.45	0.43	3.38
III	1.43	0.64	0.69	0.68	0.53	3.97
IV	1.83	0.95	1.00	0.84	0.58	5.20

Leg spination: Leg I: Tb pr 0-1, v 0-2-2ap; Mt v 2-2ap. Leg II: Tb pr 0-1, v 0-1-2ap; Mt v 2-2ap. Leg III: Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1ap. Leg IV: Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr 2-2ap, rt 1-2ap, v 1-2ap.

Coloration. Carapace red-brown, with black eye field; carapace densely covered with white appressed scales. Clypeus yellow-brown, densely covered with white (in the center) and brownish (on "cheeks") long hairs, hanging over the chelicerae. Sternum yellow-brown, covered with white hairs. Maxillae and labium yellow-brown, with white apexes. Chelicerae dark brown. Abdomen greyish-yellow, rather faded, dorsum with brownish patches of scales. Booklung yellow, covered with white scales. Spinnerets yellow-grey. All legs yellow, with dark brown annulations and patches at segment ends. Chelicerae yellow.

Epigyne and spermathecae as in Figs 218–219; the epigynal pocket very wide, Λ-shaped; the copulatory openings ovoid separated by a septum almost twice their diameter; the insemination ducts make 3 revolutions; the secondary receptacles thin and long, the primary receptacles like coiled tubes.

Material examined. MONGOLIA: 1 ♀ (ZMPA, the holotype of *Yllenus bator*), "Sajn-šand" [East Gobi Aimak, Saishand (44°50'N, 110°08E)], 31.05. 1962, R. Bielawski & B. Pisarski. — CHINA (?): 1 ♀ (ZISP; No. 589-914), "Mongolian-Sichuan expedition of P. K. Kozlov, 1901–1909" (no exact locality is given, but *sensu* Song *et al*. [1999] this is a locality in Tibet).

Habitat. No data.

Distribution. The species is known from E. Mongolia and SW China (Quinghai-Tibet: Naqiu) [Hu & Li, 1987; Hu, 2001] (Map 32).

Yllenus coreanus Prószyński, 1968

Figs 12–16, 26, 30, 32, 51–52, 446–455, Map 30

Yllenus coreanus Prószyński, 1968: 438-440, figs 19, 34, 72, 76–77, 90–91 (D♂; ♂ holotype in the ZMPA; examined).

Yllenus coreanus: Paik & Kim, 1985; 75; Prószyński, 1990: 363; Kim, 1994: 148; Marusik *et al*., 2000: 103, 216, map 180; Logunov & Marusik, 2000a: 273–274, figs 40–43 (*pro parte*; except for the record from E. Kazakhstan), 2000b: 250–251, map 53; Namkung *et al*., 2000: 338; Kim, 2002: 199, fig. 225 (♂).

Yllenus hamifer (*nec* Simon; misidentified): Prószyński, 1982: 292; Danilov, 1997: 115–116, figs 2A,B, 1999: 274.

Yllenus sp.-2 (cf *hamifer*): Logunov *et al*., 1998: 142.

Yllenus bajan (*nec* Prószyński; misidentified): Marusik & Logunov, 1999: 250.

Type. The male holotype from Pyongyang (ca 39°02'N, 125°44'E), North Korea; deposited in the ZMPA.

Derivatio nominis. The species epithet refers to the *terra typica*, Korea.

Diagnosis. Females of this species can be readily distinguished from congeners in the *hamifer* group only by the shape of the receptacles. Based on this character, *Y. coreanus* is most closely related to *Y. tuvinicus* and *Y. bator*, but differs in having the widest, coiled terminal tubes of the receptacles (cf arrowed parts in Figs 455 and 520), as well as by the number of loops of the insemination ducts: 7 instead 5 and 2, respectively, in the related species (cf Figs 455 and 219, 420). The male of *Y. coreanus* can be separated from that of *Y. tuvinicus* by the shape of the CTA (cf Figs 446, 451 and 521), while the male of *Y. bator* is yet unknown.

Comments. Two males from S. Kazakhstan (Dubun') have been provisionally assigned to this species, although both differ from Siberian males in less pronounced bunches of dark brown hairs on the clypeus and the slightly narrower CTA in palps (cf Figs 446 and 451). Females are required to clarify the taxonomic status of these males, as the described differences are not enough to separate them from true *Y. coreanus*.

DESCRIPTION

Male (from Dubun', Kazakhstan)

Measurements. Carapace 2.85 long, 2.10 wide, 1.35 high at PLE. Ocular area 1.38 long, 1.65 wide anteriorly and 1.75 wide posteriorly. Diameter of AME 0.48. Abdomen 3.00 long, 2.20 wide. Cheliceral length 1.05. Clypeal height 0.20. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.78	1.13	1.15	0.85	0.66	5.57
II	1.75	1.03	1.00	0.78	0.68	5.24
III	2.03	0.93	0.98	1.00	0.75	5.69
IV	2.63	1.14	1.40	1.10	0.78	7.05

Leg spination: Leg I: Fm d 0-1-1-1; Pt pr 0-1-0; Tb pr 0-1-0, v 2-2-2ap; Mt pr 1-1ap, v 2-2ap. Leg II: Fm d 0-1-1-3; Pt pr and rt 0-1-0; Tb pr 1-1, v 1-2-2ap; Mt pr 1-1ap, v 2-2ap. Leg III: Fm d 0-1-1-2; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 2ap; Mt pr and rt 1-2ap, v 2-1ap. Leg IV: Fm d 0-1-1-1; Pt pr and rt 0-1-0; Tb pr 1-1, rt 1-1-1, v 2ap; Mt pr 2-2ap, rt 1-2ap, v 1ap.

Coloration. Carapace dark red-brown, densely covered with black and sand-coloured appressed scales. Clypeus yellow, covered with long sand-coloured hairs. Abdomen: dorsum and sides grey-brown, with no marked colour-pattern; venter yellow. Sternum brown, covered with white hairs. Maxillae and labium brown-yellow, with white apexes. Chelicerae brown. Book-lung covers yellow, stained with brown and with brownish patches, but all femora almost entirely brown. Palps yellow, with brownish femora.

Palpal structure as in Figs 51–52, 446–453; the cymbium strongly extended, its apical part 1.3–1.5 times longer than the palpal femur; the RTA relatively long, its width is subequal to that of the cymbial process; the CTA sharply pointed.

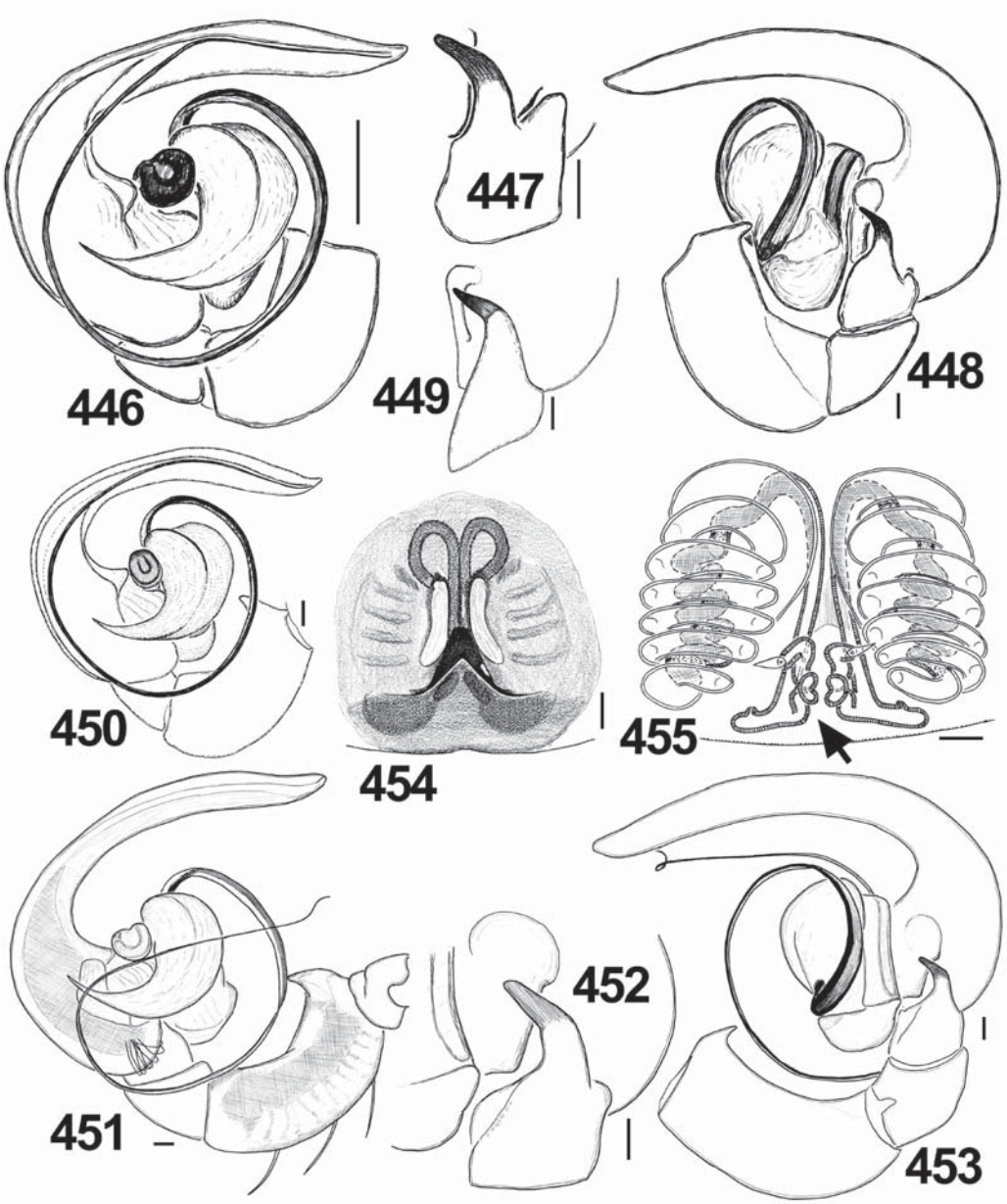
Female (from Kyzyl, Tuva)

Measurements. Carapace 2.95 long, 2.25 wide, 1.10 high at PLE. Ocular area 1.00 long, 1.65 wide anteriorly and 1.70 wide posteriorly. Diameter of AME 0.50. Abdomen 3.50 long, 2.88 wide. Cheliceral length 1.13. Clypeal height 0.23.

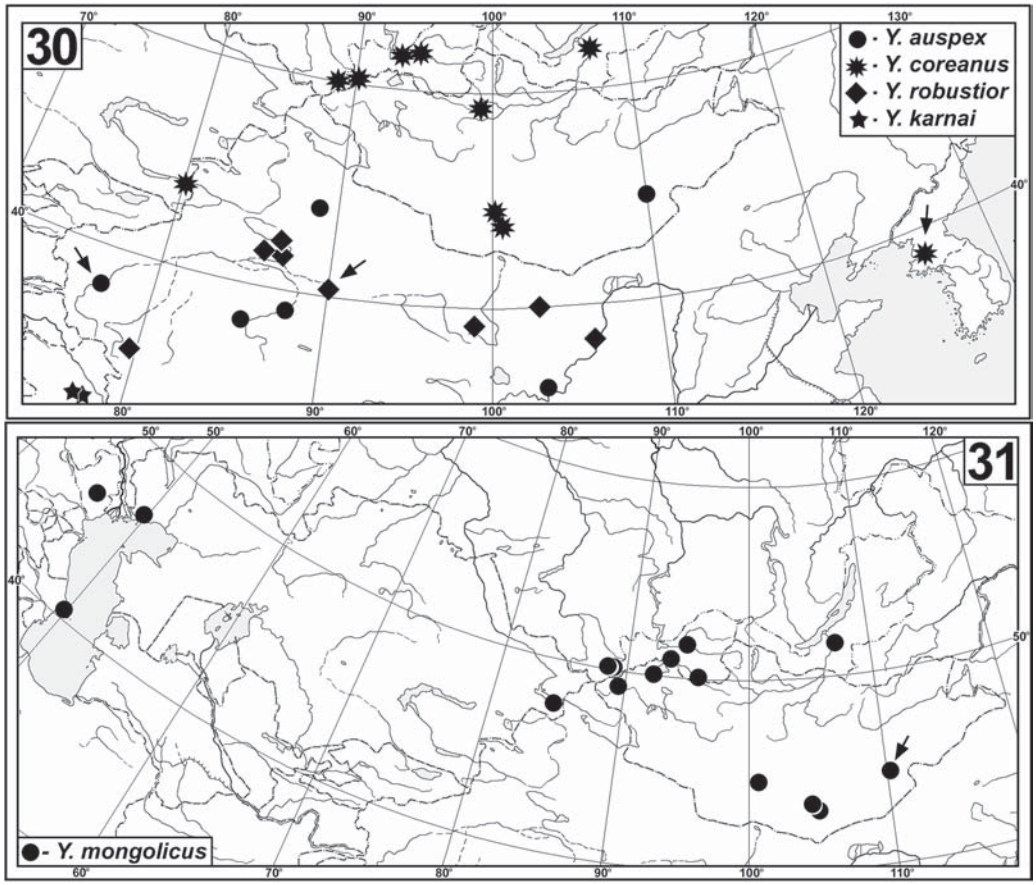
Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.50	1.13	0.88	0.50	0.53	4.54
II	1.45	0.88	0.78	0.48	0.50	4.09
III	1.63	0.88	0.78	0.73	0.53	4.55
IV	2.25	1.13	1.33	1.00	0.63	6.34

Leg spination: Leg I: Tb pr 0-1, v 1-2-2ap; Mt v 2-2ap. Leg II: Tb pr 0-1, v 0-1-2ap; Mt pr



Figs 446–455. Copulatory organs of *Yllenus coreanus*: 446, 450, 451 — ♂ palp, median view; 447, 449, 452 — tibial apophysis, lateral view; 448, 453 — ♂ palp, lateral view; 454 — epigyne; 455 — spermathecae. Specimens: 446–448 — North Korea, the ♂ holotype; 449–450, 454–455 — Russia (Tuva, Kyzyl); 451–453 — Kazakhstan (Dubun'). Scale lines: 0.1 mm.



Maps 30–31. Distribution of *Yllenus* species: 30 — *Y. auspex*, *Y. coreanus*, *Y. robustior* and *Y. karnai* in the eastern Palaearctics; 31 — *Y. mongolicus* in Central Asia and the Caucasus. One dot may represent more than one close locality; if more than one record, type localities arrowed.

1-1ap, v 2-2ap. Leg III: Pt pr 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr, rt and v 1-2ap. Leg IV: Fm d 0-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr 2-2ap, rt 1-2ap, v 1ap.

Coloration. Carapace brown, with black veins, densely covered with white appressed scales. Clypeus brown, densely covered with white hairs. Chelicerae brown, covered with white hairs. Sternum yellow-brown, densely covered with white hairs. Labium and maxillae yellow-brown with white apices. Abdomen: dorsum grey to grey-brown, with a dark brown cardial spot, densely covered with white appressed scales; venter ligh yellow to grey-yellow, also densely covered with white appressed scales. Legs: coxae and femora yellow; remaining segments motley (yellow with numerous brown stripes and patches); all segments densely covered with erect hairs and appressed scales. Palps yellow.

Epigyne and spermathecae as in Figs 454–455; the epigynal pocket Λ-shaped; the copulatory openings slit-shaped; the insemination ducts make 7 revolutions; the secondary receptacles elongated, 4 times as long as wide; the primary receptacles coiled sclerotized tubes.

Material examined. NORTH KOREA: 1 ♂ (ZMPA, the holotype of *Yllenus coreanus*), 3 ♂♂ (ZMPA, paratypes), "Pr Phenian, na dziedrińcu Ambasady Polskiej" [Pyongyang (ca 39°02'N, 125°44'E)], 14.09.1959, B. Pisarski. — RUSSIA: 1 ♀ (SZMN), Altai Republic, Kosh-Agach Distr., near Kosh-Agach (ca 50°00'N, 88°40'E), 11.07.1971, A.

P. Kononenko; 3 ♀♀ (SZMN), same locality, 06.1972, A. P. Kononenko; 2 ♀ (MMUM), same locality, 6.04–1.06.1970, A. P. Kononenko; 2 ♀♀ (SZMN Tuva [=Tyva], 3–5 km N of Kyzyl (51°46'N, 94°23'E), 28. 05–2.06.1993, D. V. Logunov & A. V. Gromov; 3 ♀♀ (SMNH), 7 ♂♂, 8 ♀♀ (SZMN), same locality, 20.05–21.09.1989, D. V. Logunov; 2 ♂♂, 3 ♀♀ (SZMN), 3 ♂♂, 2 ♀♀ (ZMUM), 2 ♂♂, 5 ♀♀ (SMNH), same locality, 1–13.05.1990, D. V. Logunov; 1 ♀ (MNHN), same locality, 17.05.1990, O. V. Lyakhov; 5 ♂♂, 13 ♀♀ (SZMN), 1 ♂, 8 ♀♀ (ZMUM), Tuva [=Tyva], Mongun-Taiga Distr., 5–8 km SE of Mugur-Aksy, Kargy River Canyon (50°21'N, 90°32'E), 1700–1800 m a.s.l., 16.05–14.06.1990, D. V. Logunov & O. V. Lyakhov; 1 ♂, 3 ♀♀ (MMUM), same distr., 3–4 km E of Mugur-Aksy, Kuge-Davaa spring (50°22'N, 90° 30'E), 1800–1850 m a.s.l., 16.05.1990, D. V. Logunov; 2 ♂♂, 3 ♀♀ (SZMN), same distr., upper reaches of Kuge-Davaa Spring (50°25'N, 90°31'E), 2000–2200 m a.s.l., 19.05.1990, D. V. Logunov; 1 ♀ (SZMN), same distr., ca 15 km SE of Mugur Aksy (50°18'N, 90°37'E), 1800 m a.s.l., 10–25.05.1989, E. Khlebosolov; 3 ♀♀ (SZMN), Kyzyl Distr., 55–60 km WWS of Kyzyl, Ottuk-Dash stand (51°35'N, 93°39'E), 10.05.1990, D. V. Logunov; 1 ♂ (ZMHU), "West-Sibirien, Osnatschennaja, 15.08.1885, R. Hammerström". — KAZAKHSTAN: 2 ♂♂ (ZMUM), Almaty Area, Uigur Distr., bank of Ili river, near Dubun' [=Dubin] (ca 43°45'N, 80°14'E), saltmarsh, 4.10.1989, A. A. Zyuzin. — MONGOLIA: 1 ♀ (HNHM, No.993), Chövsgöl [=Hovsgol] Aimak, ca 3 km SW of Somon Burenchaan (= Bürenhaan) (ca 49°28'N, 99°08'E), 1950 m a.s.l., 21.06–16.07.1968, Exp. Z. Kaszab.

Habitat. In Tuva, pebble-clad banks of rivers, desert nanophanerophyte steppe (=tar steppe) with *Nanophyton erinaceus*, cryo-xerophilous, high-mountain (=cryophyte) steppe and cobble-gramineous stands [Logunov *et al*., 1998: sub *Yllenus* sp.-2; Logunov & Marusik, 2000a].

Distribution. Siberio-Manchurian subboreal species, which has so far been recorded in SE Kazakhstan [present data], SE Altai, Tuva [Logunov *et al*., 1998: sub *Yllenus* sp.-2; Logunov & Marusik, 2000a], Buryatia [Danilov, 1997: sub *Y. hamifer*] and Mongolia [Prószyński, 1982: sub *Y. hamifer*] (Map 30).

Previous records of *Y. bajan* in Mongolia by Marusik & Logunov [1999] appear to belong to *Y. coreanus* as well. The record from E. Kazakhstan (Saur Mt. Range) [Logunov & Marusik, 2000a] was proven to belong to *Y. kalkamanicus*.

Yllenus hamifer Simon, 1895

Figs 456–461, Map 29

Yllenus hamifer Simon, 1895: 342–343 (D♂♀; ♀ lectotype in the ZISP; designated here).

Yllenus hamifer: Simon, 1901: 578, fig. 704 (♂); Ermolajew, 1937: 606; Prószyński, 1968: 430–435, figs 2, 17, 32, 45, 57, 78–84 (♂♀), 1982: 292, 1990: 363; Prószyński & Żochowska, 1981: 32, figs 31–32 (♀); Nenilin, 1985: 131; Mikhailov, 1996: 134, 1997: 224, 1998: 36; Logunov & Marusik, 2000a: 290, 2000b: 252–253, map 49.

Type. The female lectotype from Dzerge River (ca 47°40'N, 92°10'E), Mongolia; deposited in the ZISP.

Derivatio nominis. The species epithet is derived from the Latin, meaning "bearing a hook/claw".

Diagnosis. This species is most closely related to *Y. kalkamanicus*. Females of *Y. hamifer* can easily be recognized by the structure of the coiled terminal sections of the receptacles, as well as by the number of loops of the insemination ducts: 4 instead of 7 in *Y. kalkamanicus* (cf Figs 461 and 465). Males can be separated by the wider and shorter tip of the CTA (cf Figs 456 and 462) and the clypeus covered with long white/sandy-coloured hairs (black hairs in *Y. kalkamanicus*).

DESCRIPTION

Male (the paralectotype)

Measurements. Carapace 2.55 long, 2.00 wide, 1.35 high at PLE. Ocular area 1.20 long, 1.48 wide anteriorly and 1.58 wide posteriorly. Diameter of AME 0.40. Abdomen 2.60 long, 1.95 wide. Cheliceral length 0.63. Clypeal height 0.20.

Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.48	0.98	0.95	0.65	0.50	4.56
II	1.48	0.80	0.80	0.63	0.45	4.16
III	1.68	1.08	0.75	0.80	0.60	4.91
IV	2.15	1.03	1.20	0.95	0.60	5.93

Leg spination: Leg I: Fm d 0-0-1-0; Tb pr 0-1, v 1-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-0-1-0; Tb p

0-1, v 0-1-2ap; Mt pr 1-1ap, v 2-2ap. Leg III: Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1-1ap. Leg IV: Pt pr and rt 0-1-0; Tb pr and rt 1-1-1, v 1ap; Mt pr and rt 1-1-2ap, v 1ap.

Coloration. Carapace red-brown, with brown eye field and black around eyes; carapace densely covered with white and brownish appressed scales. Clypeus brown, densely covered with long white and sandy-coloured hairs. Sternum brown, with yellow central area, covered with white hairs. Maxillae and labium yellow-brown, with white apexes. Chelicerae brown. Abdomen: dorsum greyish, covered with white and shining appressed scales, with no marked pattern (but a poorly visible median brown band presents); sides and venter brownish yellow. Book-lung covers yellow, tinged with brown and covered with white scales. Spinnerets brownish yellow. All legs yellow, with irregular brownish patches, but femora almost entirely brown; all legs covered with white appressed scales and white/brown protruded hairs. Palps yellow, dorsally covered with white hairs.

Palpal structure as in Figs 456–459; the cymbium strongly extended, with the distal part slightly longer and 3 times thinner than the palpal femur; the apical part of the cymbial extension forms a furrow hidding the embolic tip; the CTA sharepend, but without a spine-like tip.

Female (the paralectotype)

Measurements. Carapace 2.63 long, 2.05 wide, 1.28 high at PLE. Ocular area 1.25 long, 1.55 wide anteriorly and 1.65 wide posteriorly. Diameter of AME 0.41. Abdomen 3.25 long, 2.85 wide. Cheliceral length 0.88. Clypeal height 0.28. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.40	0.80	0.78	0.53	0.50	4.01
II	1.33	0.78	0.68	0.50	0.45	3.74
III	1.60	0.78	0.63	0.74	0.53	4.28
IV	2.18	1.00	1.06	0.93	0.63	5.80

Leg spination: Leg I: Tb pr 0-1, v 2-2-2ap; Mt v 2-2ap. Leg II: Tb p 0-1, v 1-2-2ap; Mt pr 1-1ap, v 2-2ap. Leg III: Pt pr 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1-1ap. Leg IV: Pt pr and rt 0-1-0; Tb pr and rt 1-1-1, v 1ap; Mt pr 2-2ap, rt 1-1-2ap, v 1ap.

Coloration. As described for male but lighter and differs as follows: clypeus densely covered with white scales/hairs and with a marginal fringe of long sandy-coloured hairs (hanging over the chelicerae); dorsum with the well-marked brown cardial spot; all legs yellow, almost lacking brownish patches; palps yellow.

Epigyne and spermathecae as in Figs 460–461; the epigynal pocket Λ-shaped; the insemination ducts make 5 broad revolutions; the secondary receptacles bean-shaped, the primary ones like a curved sclerotized tubes.

Material examined. MONGOLIA: 1 ♀ (the lectotype of *Yllenus hamifer*; designated here), 2 ♂♂, 4 ♀♀ (paralectotypes) (ZISP), 1 ♂, 1 ♀ (MNHN, 14737; paralectotypes), Khovd Aimak, Dzerge River (ca 47°40'N, 92°10'E), 11.04.1877, G. N. Potanin; 2 ♀♀ (SZMN), Bayanhongor Aimak, Bogd Somon, Ish-Bogd Mt. Range, Pass Ikh-Bogd (44° 43'N, 100°52'E), 2000–2100 m a.s.l., 4.06.1997, Yu. M. Marusik.

Habitat. Mongolia: mountain semi-desert (under and among stones, and on salt marshes) [s. Logunov & Marusik, 2000a; present data].

Distribution. This is a S. Siberio-Mongolian species reliably recorded to date only from the S. Altai, W. and C. Mongolia (Map 29).

According to Nenilin [1984a], this species was erroneously reported from S. Kazakhstan by Marikovskii [1978] under the name "ленук хамифер"; this record almost beyod doubts should be referred to *Y. uigguricus* sp.n. (see above). The earlier record from Kazakhstan (Barsakel'mes) by Pavlenko [1985] turned out to belong to *Y. aralicus* (Pavlenko's specimens re-examined). Mikhailov & Fet [1994] reported on *Y. hamifer* for the spider fauna of Turkmenistan, but no exact locality was given and the source of their record is unknown to us and needs confirmation. The records of *Y. hamifer* from Xinjiang by Zhou & Song [1988] and Hu & Wu [1989] are to be referred to *Y. robustior* (the females illustrated by the latter authors demonstrate 6 loops of the insemination ducts of the spermathecae, as in *Y. robustior*, rather than 4, as in *Y. hamifer*).

Yllenus kalkamanicus Logunov et Marusik, 2000

Figs 42–43, 62–63, 77, 462–465, Map 29

Yllenus kalkamanicus Logunov et Marusik, 2000a: 275–277, figs 44–47 (D♂♀; ♀ holotype in the SNMC; examined).

Yllenus kalkamanicus: Logunov & Marusik, 2000b: 253, map 43.

Yllenus hamifer (*nec* Simon; misidentified): Eskov & Marusik, 1995: 73, 78.

Yllenus coreanus (*nec* Prószyński; misidentified): Logunov & Marusik, 2000a: 273 (*pro parte*; only the record from E. Kazakhstan).

Type. The female holotype from Lake Malyi Kalkaman (52°04'N, 76°33'E), Pavlodar Area, Kazakhstan; deposited in the SZMN.

Derivatio nominis. This specific epithet refers to the type locality, Lake Malyi Kalkaman in N. Kazakhstan.

Diagnosis. This species is most closely related to *Y. hamifer*. The females of *Y. kalkamanicus* can easily be recognized by the structure of the coiled terminal sections of the receptacles, as well as by the number of loops of the insemination ducts: 7 instead of 4 in *Y. hamifer* (cf Figs 465 and 461); males can be separated by the narrower and longer tip of the CTA (cf Figs 462 and 456) and the clypeus covered with black hairs (long white/sandy-coloured hairs in *Y. hamifer*).

Y. kalkamanicus may also be confused with *Y. robustior*, but males differ in the shape and position of the CTAs (relative to the cymbium) (cf Figs 462 and 513), while females clearly differ in the structure of the terminal sections of the receptacles (cf Figs 465 and 518) and the number of the loops on the insemination ducts: 7 instead of 6 in *Y. robustior*.

DESCRIPTION

Male (paratype from Kazakhstan, Lake Malyi Kalkaman)

Measurements. Carapace 2.93 long, 2.25 wide, 1.38 high at PLE. Ocular area 1.00 long, 1.55 wide anteriorly and 1.60 wide posteriorly. Diameter of AME 0.43. Abdomen 2.88 long, 2.13 wide. Cheliceral length 0.85. Clypeal height 0.20.

Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.63	1.13	1.00	0.63	0.40	4.79
II	1.43	0.90	0.78	0.53	0.50	4.14
III	1.80	0.85	0.75	0.70	0.58	4.68
IV	2.25	1.00	1.13	0.75	0.65	5.78

Leg spination: Leg I: Tb pr 0-1, v 0-2-2ap; Mt v 2-2ap. Leg II: Tb pr 0-1, v 0-1-2ap; Mt pr 1-1ap, v 2-2ap. Leg III: Tb pr and rt 1-1, v 1ap; Mt pr 1-1ap, v 2-2ap. Leg IV: Pt pr and rt 0-1-0; Tb pr and rt 1-1; Mt pr and rt 1-2ap, v 2-2ap.

Coloration. Carapace brown, almost black, densely covered with white and orange appressed scales. Clypeus brown with long black hairs. Dense white hairs around eyes of the first row. Sternum black, densely covered with white hairs. Maxillae and labium brown, tinged with blackish and with white apexes. Abdomen: dorsum grey, densely covered with grey, brown and orange appressed scales (motley colour markings); venter grey, covered with light appressed scales. Book-lung covers yellow, tinged with brown. Spinnerets yellow, covered with short brown hairs. All legs yellow but all femora almost entirely dark brown. Remaining segments with numerous brown patches and annulations. All legs densely covered with hairs. Palps yellow, with a grey cymbium.

Palpal structure as in Figs 42–43, 62–63, 462–463; the cymbium strongly extended, its extension as long as the palpal femur; the CTA elongated, its tip needle-shaped.

Female (paratype from Kazakhstan, Lake Malyi Kalkaman)

Measurements. Carapace 2.88 long, 2.25 wide, 1.35 high at PLE. Ocular area 1.20 long, 1.68 wide anteriorly and 1.65 wide posteriorly. Diameter of AME 0.48. Abdomen 3.50 long, 2.60 wide. Cheliceral length 1.05. Clypeal height 1.05.

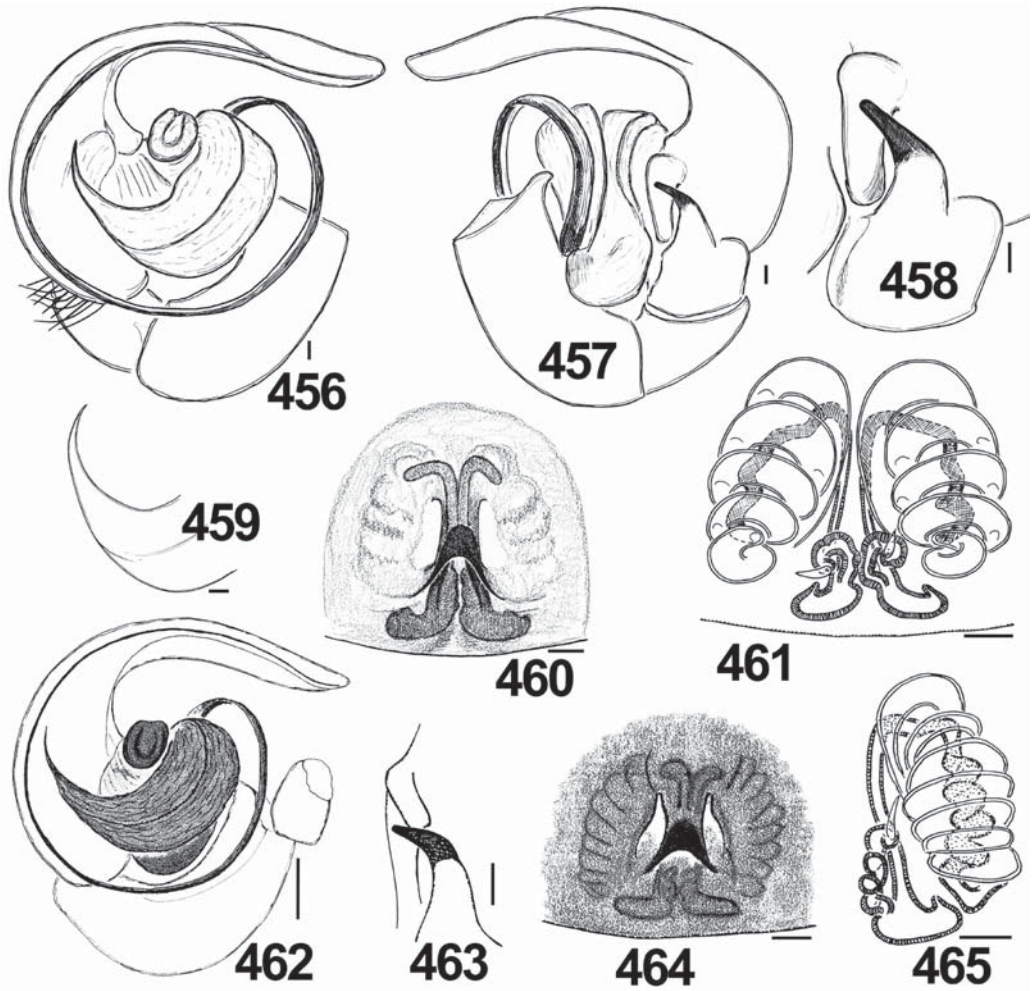
Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.50	1.03	0.85	0.55	0.48	4.41
II	1.35	0.88	0.75	0.45	0.33	3.76
III	1.50	0.75	0.80	0.63	0.63	4.31
IV	1.88	1.00	1.13	0.88	0.60	5.49

Leg spination: Leg I: Tb pr 0-1, v 1-2-2ap; Mt v 2-2ap. Leg II: Tb v 0-1-2ap; Mt pr 1-1ap, v 2-2ap. Leg III: Pt pr 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1-1ap. Leg IV: Pt pr and rt 0-1-0; Tb pr 1-1, rt 1-1-1; Mt pr, rt and v 1-2ap.

Coloration as in males, but lighter and differs as follows: venter yellow, all femora yellow, palps and clypeus yellow.

Epigyne and spermathecae as in Figs 464–465; the epigynal pocket bell-shaped; the insemination ducts make 7 revolutions; the secondary receptacles bean-shaped, the primary ones like spiral sclerotized tubes.



Figs 456–465. Copulatory organs of *Yllenus hamifer* (456–461) and *Y. kalkamanicus* (462–465): 456, 462 — ♂ palp, median view; 457 — ditto, lateral view; 458, 463 — tibial apophysis, lateral view; 459 — CTA's tip; 460, 464 — epigyne; 461, 465 — spermathecae. Specimens: 456–461 — Mongolia (Dzerge River), the paralectotypes; 462–465 — Kazakhstan (Lake Malyi Kalkaman), the paratypes. Scale lines: 0.1 mm.

Material examined. KAZAKHSTAN: 1 ♀ (SZMN; the holotype of *Yllenus kalkamanicus*), Pavlodar Area, Aksu [=Ermak] Distr., ca 40 km W of Pavlodar, near Lake Malyi Kalkaman (between Sol'vetka and Pogranichnyi Railway Station) (52° 04'N, 76°33'E), 2.05.1990, O. V. Lyakhov; 1 ♂ (SZMN), together with holotype; 1 ♂ (ZMUM), same locality, 10.06.1991, O. V. Lyakhov; 1 ♀ (ZMUM), same area, Maisky Distr., near Lake Alkamergen (51°05'N, 76°39'E), 7.05.1990, O. V. Lyakhov; 1 ♂, 1 ♀ (SZMN), 2 ♂♂, 5 ♀♀ (MMUM, hitherto determined by K. Eskov as *Yllenus hamifer* and by D. Logunov as *Y. coreanus*), East Kazakhstan Area, Zaisan Distr., Saur Mt. Range, River Karaungur (Kenderlyk River basin) (47°16'N, 85°24'E), 7–20.06.1990, K. Yu. Eskov.

Habitat. In E. Kazakhstan, dry stony steppe [Eskov & Marusik, 1995: sub *Y. hamifer*].

Distribution. Kazakhstan: Pavlodar [Logunov & Marusik, 2000a] and E. Kazakhstan Areas [Eskov & Marusik, 1995: sub *Y. hamifer*; Logunov & Marusik, 2000a: sub *Y. coreanus*, *pro parte*] (Eskov's specimens re-examined) (Map 29).

Yllenus karnai sp.n.

Figs 466–471, Map 30

Type. The male holotype from Tsarap River (33°1.4'N, 77°35.5'E), Ladakh, India; deposited in the ZMUM.

Derivatio nominis. The species is dedicated to Karna, a great hero of the "Mahabharata", who is famous for his generosity and loyalty.

Diagnosis. This species is most closely related to *Y. namulinensis* and *Y. maoniuensis*. Both of the latter were recently described from Xizang Region of China [Liu *et al.*, 1991; Hu, 2001] and both are of an uncertain taxonomic status, as we have been unable to re-examine their holotypes (see below). Nevertheless, *Y. karnai* sp.n. clearly differs from these Chinese species in the number of loops of the insemination duct in females (1 instead of 2–3 in the related species), the shape of the receptacles (cf Fig. 470 and Figs 6 and 3 in Liu *et al.* [1991] and Hu [2001] respectively; see also Figs 495, 497) and seems to have different proportions of the bulbus, *viz.* the tegulum is visibly wider (at least, as compared to the figures of Liu *et al.* [1991: figs 3–4]; see also Figs 493–494); the male of *Y. namulinensis* is yet unknown.

DESCRIPTION

Male (the holotype)

Measurements. Carapace 2.35 long, 0.78 wide, 1.13 high at PLE. Ocular area 1.05 long, 1.41 wide anteriorly and 1.48 wide posteriorly. Diameter of AME 0.38. Abdomen 2.18 long, 1.75 wide. Cheliceral length 0.75. Clypeal height 0.23. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.36	0.83	0.84	0.60	0.65	4.28
II	1.35	0.78	0.79	0.60	0.54	4.06
III	1.58	0.80	0.85	0.75	0.73	4.71
IV	1.78	0.83	1.03	0.90	0.73	5.27

Leg spination: Leg I: Fm d 0-1-1-1; Pt pr 0-1-0; Tb pr 0-1, v 0-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-1-1-2; Pt pr 0-1-0; Tb pr 0-1, v 0-1-2; Mt v 2-2ap. Leg III: Fm d 1-0-1-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1-1ap. Leg IV: Fm d 1-0-1-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1-1ap.

Coloration. Carapace dark brown (almost black), densely covered with dark grey and white appressed scales; clypeus dark brown, with bunches of rather long white hairs overhanging the chelicerae and forming a white triangle-shaped white figure in the center of clypeus. Sternum dark brown, covered with white hairs. Maxillae and labium brown, with white apexes. Chelicerae dark brown (almost black). Abdomen: dorsum dark grey, without colour markings and densely coveredcwith dark grey (and rarer white) appressed scales; sides and venter yellow-grey, densely covered with white appressed scales. Book-lung covers brownish yellow, covered with white scales/hairs. Spinnerets yellowish grey. All legs yellow, with numerous brown patches and lines; coxae, trochanters and femora are densely covered with white protruding hairs. Palps yellow, but tegulum brownish.

Palpal structure as in Figs 466–468; the cymbium with a slightly extended distal part (somewhat longer than the tegulum's height); the RTA directed almost upward; the CTA with the spine-shaped apical tip.

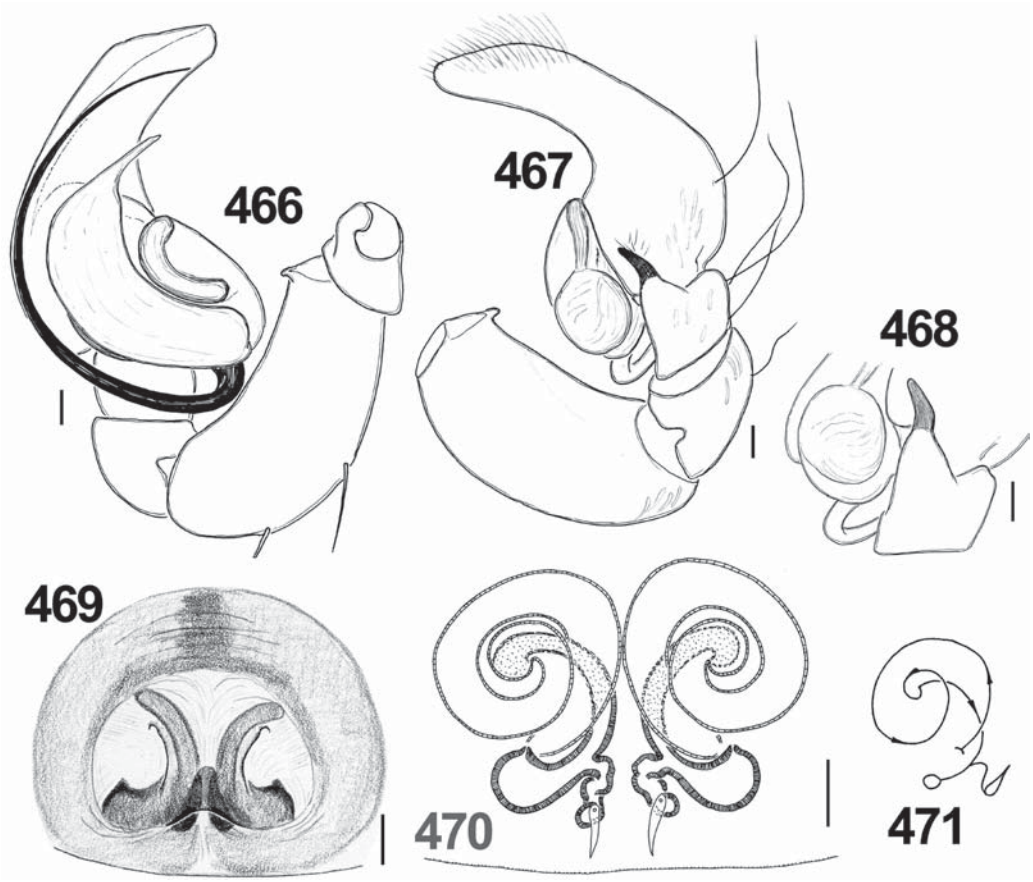
Female (the paratype; rather shabby specimen with most its body scales and hairs missing)

Measurements. Carapace 2.48 long, 2.03 wide, 1.20 high at PLE. Ocular area 1.20 long, 1.48 wide anteriorly and 1.53 wide posteriorly. Diameter of AME 0.40. Abdomen 3.25 long, 2.63 wide. Cheliceral length 0.70. Clypeal height 0.21. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.30	0.80	0.76	0.53	0.48	3.87
II	1.30	0.78	0.68	0.48	0.50	3.74
III	1.65	0.75	0.80	0.73	0.63	4.56
IV	1.94	0.83	1.13	0.90	0.75	5.55

Leg spination: Leg I: Tb v 0-2-2ap; Mt v 2-2ap. Leg II: Tb v 0-1-2; Mt v 2-2ap. Leg III: Fm d 0-0-1; Pt pr and rt 0-1-0; Tb pr 1-1, rt 0-1, v 1ap; Mt pr and rt 1-2ap, v 1-1ap. Leg IV: Pt pr and rt 0-1-0; Tb pr 1-1, rt 1-1-1, v 1ap; Mt pr and rt 1-2ap, v 1-1ap.

Coloration. As described for male (although this ♀ specimen is rather shabby, lacking most of its body scales and hairs), but all legs lighter (bright yellow, with small brown patches) and palps bright yellow.



Figs 466–471. Copulatory organs of *Yllenus karnai* (the ♂ holotype and the ♀ paratype): 466 — ♂ palp, median view; 467 — ditto, lateral view; 468 — tibial apophysis, lateral view; 469 — epigyne; 470 — spermathecae; 471 — diagrammatic course of spermathecal channels. Scale lines: 0.1 mm.

Epigyne and spermathecae as in Figs 469–471; the epigynal pocket narrower than the distance between the copulatroy openings; the receptacles wider than long (about the width of EP); the insemination ducts make more than 1.5 revolutions.

Material examined. Holotype: 1 ♂ (ZMUM), India, Jammu and Kashmir State, Ladakh, Rachogba camping place at Tsarap River (33°1.4'N, 77°35.5'E), 4230 m a.s.l., 8.08.2000, L. Klimeš.

Paratype: INDIA: 1 ♀ (ZMUM), Jammu and Kashmir State, Ladakh, Lema (N of Tso Moriri Lake) (33°1.9'N, 78°16.7'E), 4720 m a.s.l., 9.07.2000, L. Klimeš.

Habitat. No data.

Distribution. Known only from two nearby localities in Ladakh (Jammu and Kashmir State, N. India) (Map 30).

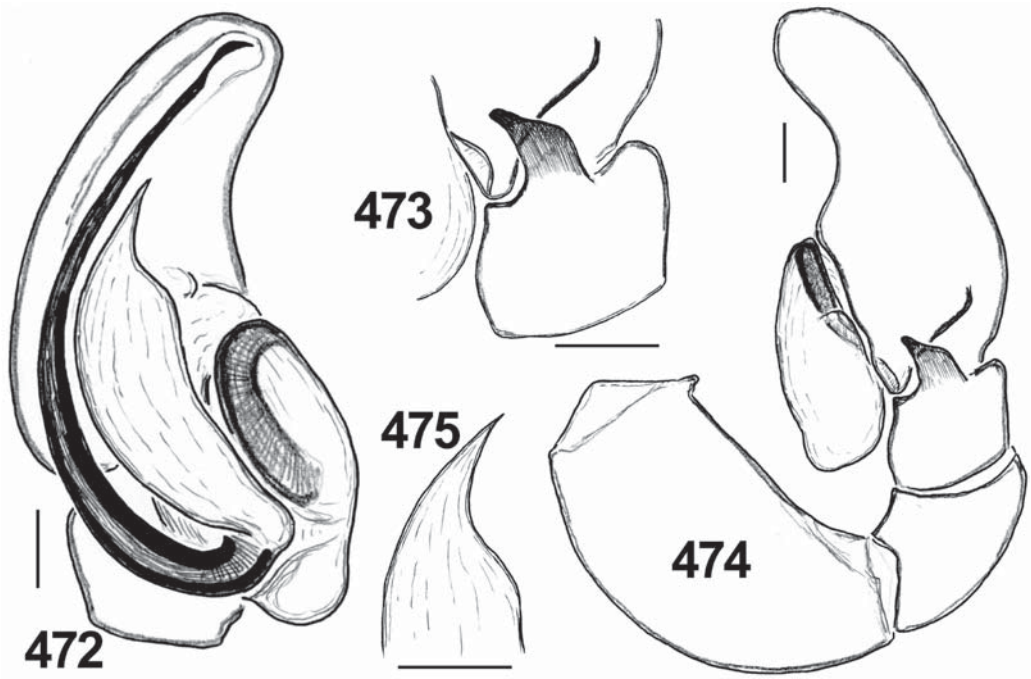
Yllenus kotchevnik sp.n.

Figs 472–475, Map 27

Type. The male holotype from Repetek Reserve (ca 38°33'N, 63°11'E), Turkmenistan; deposited in the ZMUM.

Derivatio nominis. The species epithet is derived from the Russian word "кочевник" meaning "nomad".

Diagnosis. This species is most similar to *Y. uzbekistanicus* sp.n., but can be easily sepa-



Figs 472–475. Copulatory organs of *Yllenus kotchevnik* (the ♂ holotype): 472 — ♂ palp, median view; 473 — tibial apophysis, lateral view; 474 — ♂ palp, lateral view; 475 — CTA's tip. Scale lines: 0.1 mm.

rated by the narrower and less bent CTA and the comparatively thicker (relative to the CTA) embolus (cf Figs 472 and 523, 525), and by the absence of colour markings on the dorsum (a longitudinal brown stripe is present in *Y. uzbekistanicus* sp.n.; Figs 533–534).

DESCRIPTION

Male (the holotype; the specimen is damaged and wrinkled)

Measurements. Carapace 2.00 long, 1.48 wide, 1.10 high at PLE. Ocular area 0.94 long, 1.20 wide anteriorly and 1.40 wide posteriorly. Diameter of AME 0.35. Abdomen 1.75 long, 0.95 wide (width is not correct, as the holotype is wrinkled). Cheliceral length 0.55. Clypeal height 0.20.

Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.34	0.85	0.85	0.64	0.55	4.23
II	1.08	0.63	0.68	0.53	0.48	3.40
III	1.08	0.56	0.56	0.58	0.50	3.28
IV	1.68	0.80	0.90	0.70	0.40	4.48

Leg spination: Leg I: Fm d 0-1-1-1; Tb pr 1-1, v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-1-1; Pt pr 0-1-0; Tb pr 1-1, v 0-1-0; Mt v 2-2ap. Leg III: Fm d 1ap; Pt pr and rt 0-1-0; Tb pr and rt 1-1; Mt pr and rt 1-2ap, v 1-1ap. Leg IV: Fm d 1ap; Pt pr and rt 0-1-0; Tb pr 1-1, rt 1-1-1; Mt pr 1-2ap, rt 1-1ap.

Coloration (the specimen seems to be faded). Carapace dark red-brown, with black around eyes and densely covered with white and yellowish appressed scales. Clypeus brownish yellow, not too densely covered with white scales. Sternum, maxillae and labium brownish yellow. Chelicerae brown, their anterior surface is covered with white scales. Abdomen is wrinkled, dark grey, with no visible pattern. Book-lung covers and spinnerets yellowish. All legs yellow, but femora brownish on their pro- and retro-lateral sides; besides that there are brown patches on segment articulations; metatarsi and tarsi I darker than other segments (brown) and bear dense ventral

brushes of reddish brownish hairs. Palps yellowish.

Palpal structure as in Figs 472–475; the cymbium with a slightly extended distal part being equal in its length to tegulum's height; a small and downward directed cymbial process present; the RTA relatively wide and straight; the CTA with a spine-shaped tip; the embolus relatively thick, even in its distal part.

Female unknown.

Material examined. Holotype: 1 ♂ (ZMUM), Turkmenistan, Chardzhou [=Lebapskii] Area, Chardzhou Distr., Central Karakumy Desert, Repetek Reserve (ca 38°33'N, 63°11'E), 1.05.1967, V. Kuznetsov.

Habitat. No data.

Distribution. The type locality only (Map 27).

Yllenus maoniuensis (Liu, Wang et Peng, 1991) comb.n.

Figs 493–496, Map 32

Philaeus maoniuensis Liu, Wang et Peng, 1991: 363–364, figs 3–6 (D♂♀; ♀ holotype in the Xizang University collection; not examined). Synonymized with *Yllenus auspex* by Logunov & Marusik [2000a], re-validated here.

Philaeus maoniuensis: Song *et al*., 1999: 537, figs 306N–O, 307F–G (♂♀).

Type. The female holotype from Maoniupo (29º07'N, 91º01'E), Xizang Region, China; deposited in the Department of Biology, Xizang University, China.

Derivatio nominis. The species epithet refers to the *terra typica*, Maoniupo, Xizang Region of China.

Comments. We have had no chance to re-examine the holotype of *Philaeus maoniuensis*. Based on the original figures of Liu *et al.* [1991: figs 3–6; Figs 493–496] alone, we have concluded that this species is close to *Y. karnai* sp.n. and differs from it in the number of loops of the insemination ducts and the shape of the receptacles (cf Fig. 470 and Figs 5–6 in Liu et al. [1991]). The relationships of *Y. maoniuensis* with *Y. namulinensis*, the other species recently described from Xizang, remain uncertain, as original illustrations available for these species (Figs 493–498) do not allow a rigorous diagnosis; it is very likely that both species either differ in the shape of the receptacles only, or belong to the same species. The taxonomic status of both remains uncertain until their holotypes have been re-examined.

Y. maoniuensis was earlier synonymized by Logunov & Marusik [2000a] with *Y. auspex*. However, this idea is not followed here, because (1) the latter species turned out to be less-known than was thought earlier, with its type material being not currently available (see above "Comments" under *Y. auspex*) and (2) a number of closely related species similar to *Y. auspex* have been found and described from Central Asia. Therefore, it seems more reasonable now to consider both species separately.

Distribution. The type locality only (Map 32).

Yllenus mongolicus Prószyński, 1968

Figs 9–11, 28, 33, 476–484, Map 31

Yllenus mongolicus Prószyński, 1968: 450–454, figs 5, 13, 22, 36, 48, 62, 111–118 (D♂♀; ♂ holotype in the ZMPA; not located and re-examined).

Yllenus mongolicus: Ponomarev, 1978: 96, fig. 1 (♂♀); Prószyński, 1982: 292, 1990: 363; Dunin, 1984: 59; Minoranski & Ponomarev, 1984: 90; Nenilin, 1985: 131; Ponomarev, 1988: 53; Logunov, 1992: 70; Danilov & Logunov, 1994: 38; Mikhailov, 1996: 134, 1997: 225; Logunov *et al*., 1998: 142; Marusik & Logunov, 1999: 250; Danilov, 1999: 274; Marusik *et al*., 2000: 103, 216, map 179; Logunov & Marusik, 2000a: 290, 2000b: 254–255, fig. 9:2, map 55; Logunov & Guseinov, 2002: 257.

Type. The male holotype from Saishand (44°50'N, 110°08E), Mongolia; deposited in the ZMPA (not located and re-examined).

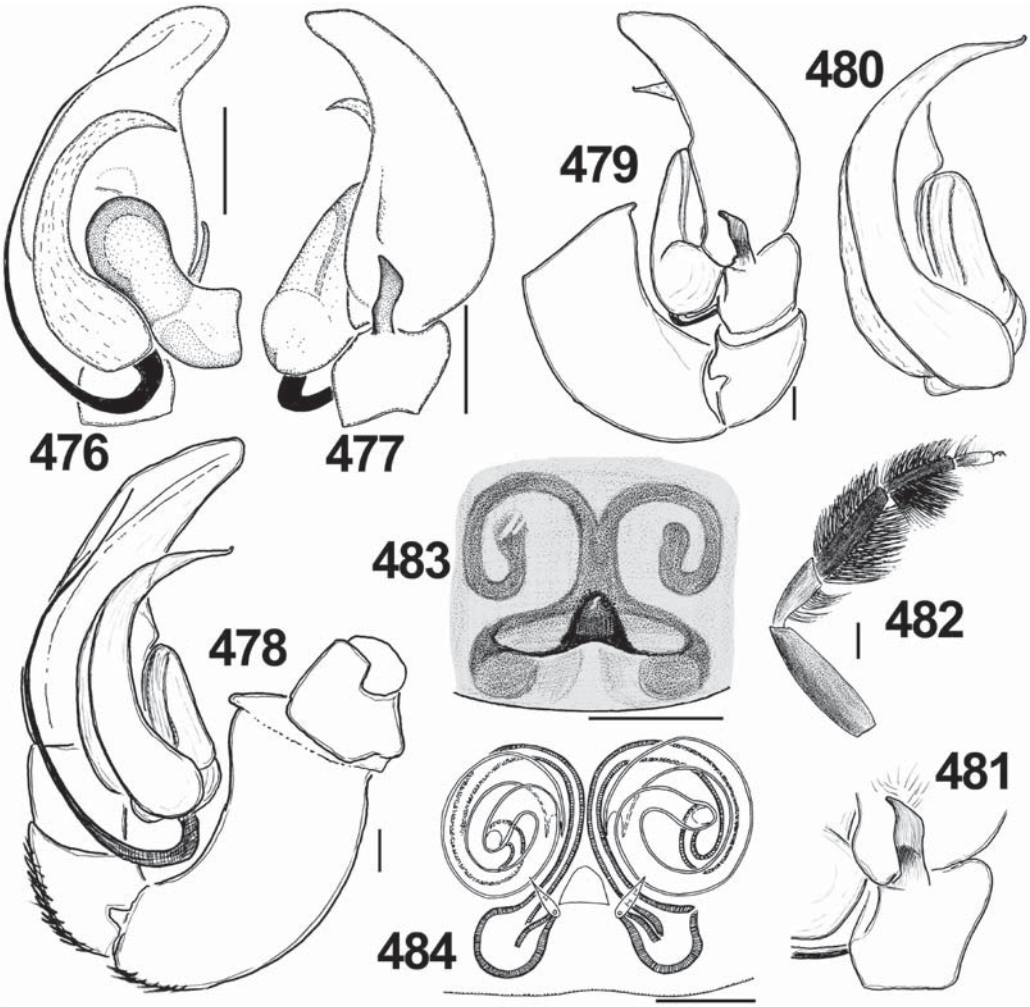
Derivatio nominis. The specific epithet refers to the *terra typica*, Mongolia.

Diagnosis. This species is easily distinguishable from all other congeners in the *hamifer* group by the tibiae and metatarsi I in males being densely covered with long, black hairs (Fig. 482) and by the unique conformation of the spermathecae, which are visible through the integument as a Φ-shaped figure (Fig. 483).

DESCRIPTION

Male (from Kyzyl, Tuva)

Measurements. Carapace 1.58 long, 1.28 wide, 0.95 high at PLE. Ocular area 0.88 long, 0.98 wide anteriorly and 1.16 wide posteriorly. Diameter of AME 0.29. Abdomen 1.58 long,



Figs 476–484. Copulatory organs of *Yllenus mongolicus*: 476, 478 — ♂ palp, median view; 477, 479 — ditto, lateral view; 480 — ♂ bulb, median view; 481 — tibial apophysis, lateral view; 482 — ♂ leg I, lateral view; 483 — epigyne; 484 — spermathecae. Specimens: 476–477, 482–483 — Russia (Tuva, Kyzyl); 478–480 — Russia (the Altai, Kosh-Agach); 484 — Mongolia (Bayan-Ölgiy Aimak). Scale lines: 0.1 mm.

1.15 wide. Cheliceral length 0.53. Clypeal height 0.19.

Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.19	0.65	0.88	0.64	0.38	3.74
II	0.83	0.45	0.50	0.40	0.33	2.51
III	0.85	0.40	0.41	0.46	0.35	2.47
IV	1.48	0.64	0.75	0.60	0.35	3.82

Leg spination: Leg I: Fm d 0-1-1-1; Pt pr 0-1-0; Tb pr 0-1-0; v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-1-1-2; Pt pr and rt 0-1-0; Tb pr 1-1, v 0-1-0; Mt v 2-2ap. Leg III: Fm d 0-0-1-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 0-1-1-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1-1, v 0-1-0; Mt pr and rt 1-2ap.

Coloration. Carapace dark brown (eye field almost black), densely covered with reddish appressed scales; eye field with three longitudinal white stripes of scale running downward to the clypeus. Clypeus brownish yellow, densely covered with long sandy-coloured hairs; "face" area with three vertical white stripes of scales and

hairs. Sternum brown, covered with white hairs. Maxillae and labium brown-yellow, with white apexes. Chelicerae yellow-brown. Abdomen evenly dark grey, dorsum with no colour pattern. Book-lung covers and spinnerets yellow-brown. All legs yellow, with numerous irregular brown patches and stripes; femora and tibia often entirely brown. Legs I bear strong fringes of black bristles/hairs on their tibiae, metatarsi and tarsi (Fig. 482). Palps light yellow, dorsally covered with white hairs.

Palpal structure as in Figs 476–481; the cymbium not extended, of usual shape, its length is equal to that of the palpal femur; the distal part of the cymbium somewhat shorter than the tegulum height; the RTA long and relatively broad; the CTA sickle-shaped, with a spine-shaped tip.

Female (from Lake Zaisan, E. Kazakhstan Area)

Measurements. Carapace 1.48 long, 1.28 wide, 0.98 high at PLE. Ocular area 0.78 long, 0.93 wide anteriorly and 1.15 wide posteriorly. Diameter of AME 0.28. Abdomen 1.58 long, 1.35 wide. Cheliceral length 0.43. Clypeal height 0.15. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	0.78	0.40	0.43	0.30	0.26	2.17
II	0.63	0.36	0.35	0.26	0.25	1.85
III	0.58	0.31	0.31	0.35	0.28	1.83
IV	1.28	0.55	0.64	0.53	0.31	3.31

Leg spination: Leg I: Fm d 0-0-1-1; Tb v 1-2; Mt v 2-2ap. Leg II: Fm d 0-0-1; Pt pr 0-1-0; Tb pr 0-1, v 0-1-0; Mt v 2-2ap. Leg III: Fm d 1ap; Pt pr 0-1-0; Tb pr and rt 0-1; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 1ap; Pt pr and rt 0-1-0; Tb pr and rt 1-1-1; Mt pr and rt 1-2ap.

Coloration. Carapace brown, with black around eyes, densely covered with white and red appressed scales. Clypeus yellow, covered with sandy-coloured hairs, but with a central triangle-shaped bunch of long white hairs hanging over the chelicerae. Sternum yellowish brown, covered with white hairs. Maxilale and labium yellow, with white apexes. Chelicerae yellowish brown. Abdomen: dorsum yellowish white, with three transverse brown bands of scales; sides and venter greyish yellow. Book-lung covers yellow, tinged with grey and covered with white scales. Spinnerets greyish yellow. All legs yellow, with brownish annulations and patches at ends of segments. Palps yellow.

Epigyne and spermathecae as in Figs 483–484; the epigynal pocket bell-shaped, the insemination ducts are visible through the integument and form a Φ-shaped figure; these ducts make about 1.3 revolutions; the primary and secondary receptacles poorly separated.

Material examined. RUSSIA: 1 ♀ (SZMN), Altai Republic, Kosh-Agach Distr., ca 27 km W of Kosh-Agach, ~19th road-km between Ortolyk and Bel'tir (ca 50°00'N, 88°16'E), 1900–2000 m a.s.l., 25–30.06.1999, D. V. Logunov; 5 ♂♂ (SZMN), 2 ♂♂ (SMNH), 2 ♂♂ (ZMUM), 2 ♂♂ (MNHN), Altai Republic, Kosh-Agach Distr., SE Altai Mts., near Kosh-Agach (ca 50°00'N, 88°40'E), 31.05–21.06.1970, A. P. Kononenko; 1 ♀ (SZMN), [=Tyva], Ovyurskii Distr., NE shore of Lake Ubsu-Nur (50°40'N, 92°58'E), 14.06.1995, Yu. M. Marusik; 2 ♂♂ (MMUM), Tuva [=Tyva], Kyzyl Distr., near Kyzyl (ca 51°42'N, 94°25'E), 20.05.1989, D. V. Logunov. — KAZAKHSTAN: 1 ♂, 1 ♀ (ZMUM), Atyrau [=Gur'ev] Area, Isatai Distr., ca 27 km ENE of Ganyushkino (near Isatai station) (46°48'N, 50°04'E), salt marsh, 26–29.05.1977, A. V. Ponomarev; 1 ♂, 1 ♀ (SZMN), E. Kazakhstan Area, Tarbagatai Distr., S shore of Lake Zaisan, ca 10 km NW of Priozernoe (ca 47°48'N, 84°06'E), 10.06. 1997, R. Yu. Dudko & V. K. Zinchenko; 1 ♀ (MMUM), same area, Tarbagatai Distr., S shore of Lake Zaisan, ca 5 km SE of Priozernoe (ca 47°43'N, 84°16'E), 11.06. 1997, R. Yu. Dudko & V. K. Zinchenko. — MONGOLIA: 1 ♂, 4 ♀♀ (HNHM, No.1053), Bayan-Ölgiy Aimak, ca 20 km NW of Ölgiy (ca 49°20'N, 89° 22'E), 2100 m a.s.l., 2.07.1968, Exp. Z. Kaszab.

For other material studied see Logunov [1992], Danilov & Logunov [1994] and Marusik & Logunov [1999].

Habitat. In Azerbaijan, the semidesert zone (in stabilized sands along the coastline of Caspian Sea, with *Tamarix meyeri*, *Elymus giganteus*, *Artemisia giganthica*, *etc*.) [s. Dunin, 1984]; in Kalmykiya, sand and saltmarshes [Minoranski & Ponomarev, 1984]; in Tuva, nanophanerophite stony dry steppe.

Distribution. The species occurs from the E. Caucasus (Absheron Peninsula) [Dunin, 1984; Logunov & Guseinov, 2002] and Kalmykiya (Utta) [Minoranski & Ponomarev, 1984]

Table 2
Some distinguishing morphological characters for three *Yllenus* species

	Y. auspex	*Y. murgabicus* sp.n.	*Y. pamiricus* sp.n.
♂ face	sparsely covered with light (grey or yellowish) hairs	sparsely covered with black/brownish hairs	densely covered with white hairs
♂ leg I	metatarsi and tarsi ventrally with dense brushes of brown hairs (Fig. 421)	metatarsi and tarsi without ventral brushes of brown hairs	metatarsi and tarsi ventrally with dense brushes of brown hairs
♀ face	two declined brown stripes on a white background	a transverse white stripe on a brown background	two declined brown stripes on a white background (Fig. 508)
insemination ducts of ♀♀	one loop (Fig. 424)	four loops (Fig. 491)	two loops (Fig. 510)

in the West to E. Mongolia in the East (Map 31).

The record of *Y. mongolicus* from Turkmenistan (Repetek) by Nenilin [1985] (listed by Mikhailov & Fet [1994]) is doubtful and needs confirmation through reference to the pertinent material; this record might actually belong to *Yllenus uzbekistanicus* sp.n.

Yllenus murgabicus sp.n.

Figs 485–492, Map 28

Type. The male holotype from Alichur (ca 37°45'N, 73°15'E), Gorno-Badakhshan Region, Tajikistan; deposited in the SZMN.

Derivatio nominis. The species is named after the *terra typica*, the Murgab District of Tajikistan.

Diagnosis. This new species might be confused with *Y. pamiricus* sp.n., another new species found in Pamir, but the males of *Y. murgabicus* sp.n. differ in having the clypeus covered with black/brownish hairs (densely white haired in *Y. pamiricus* sp.n.) and in lacking the ventral brushes of the metatarsi and tarsi I (well developed in *Y. pamiricus* sp.n.), while the females can be separated by a number of loops of the insemination ducts (4 loops in *Y. murgabicus* sp.n. and 2 loops in *Y. pamiricus* sp.n.; cf Figs 491 and 510), as well as by the colouration of the clypeus, *viz.* brownish clypeus with a transverse white stripe in *Y. murgabicus* sp.n. and two declined brown stripes on a white background in *Y. pamiricus* sp.n. (Fig. 508). See table 2.

This new species differs from *Y. auspex* in the absence of the ventral brushes of the metatarsi and tarsi I of males and two declined brown stripes on the clypeus of females, as well as in the number of loops of the insemination ducts (4 loops in *Y. murgabicus* sp.n. and 1 loop in *Y. auspex*) (cf Figs 491 and 424).

DESCRIPTION

Male (paratype from Alichur, Tajikistan)

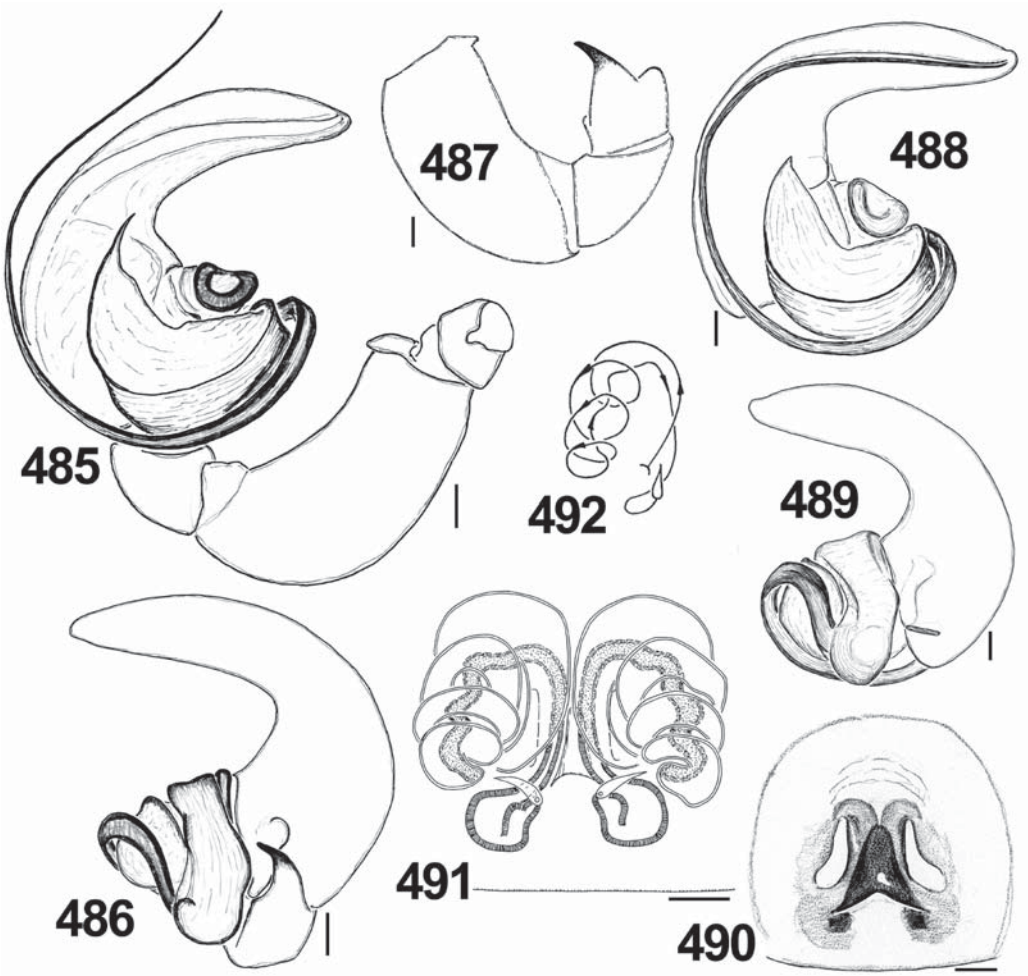
Measurements. Carapace 2.05 long, 1.58 wide, 1.18 high at PLE. Ocular area 1.13 long, 1.33 wide anteriorly and 1.38 wide posteriorly. Diameter of AME 0.40. Abdomen 2.08 long, 1.65 wide. Cheliceral length 0.53. Clypeal height 0.18.

Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.30	0.80	0.80	0.60	0.55	4.05
II	1.23	0.68	0.68	0.58	0.45	3.62
III	1.25	0.68	0.66	0.65	0.55	3.79
IV	1.65	0.75	0.84	0.75	0.68	4.67

Leg spination: Leg I: Fm d 1ap; Pt pr 0-1-0; Tb pr 1-1, v 2-2-2ap; Mt pr 1-1ap, v 2-2ap. Leg II: Fm d 2ap; Pt pr 0-1-0; Tb pr 1-1, v 1-2-2ap; Mt pr 1-1ap, v 2-2ap. Leg III: Fm d 1ap; Pt pr and rt 0-1-0; Tb pr and rt 1-1-1, v 2ap; Mt pr, rt and v 1-2ap. Leg IV: Fm d 2ap; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap Mt pr 1-2ap, rt 1-1ap, v 1ap.

Coloration. Carapace dark brown, with black eye field and covered with yellowish and



Figs 485–492. Copulatory organs of *Yllenus murgabicus*: 485, 488 — ♂ palp, median view (in 488, CTA's tip is broken); 486–487, 489 — ditto, lateral view; 490 — epigyne; 491 — spermathecae; 492 — diagrammatic course of spermathecal channels. Specimens: 485–86, 490–491 — Tajikistan (Alichur), the ♂ holotype and ♀ paratype; 487–489 — Tajikistan (Chechekty), the ♂ paratype. Scale lines: 0.1 mm.

brownish appressed scales (especially dense on the eye field). Clypeus dark brown, sparsely covered with brown and white hairs; eyes of the first row bordered by white scales. Sternum dark brown, covered with white hairs. Maxillae, labium and chelicerae dark brown. Abdomen: dorsum dark grey, with no colour marking and covered with golden shining scales; sides grey-yellow; venter yellow, covered with white appressed scales. Book-lung covers brownish yellow, covered with white scales. Spinnerets brownish yellow. All legs yellow-brown, but metatarsi and tarsi I completely brown. Palps brownish yellow, with completely yellow cymbiums.

Palpal structure as in Figs 485–489; the cymbium extended, but its extension shorter than the palpal femur; the with a spine-like tip (the tip sometimes is broken, Fig. 488).

Female (paratype from Alichur, Tajikistan)

Measurements. Carapace 2.28 long, 1.78 wide, 1.10 high at PLE. Ocular area 1.20 long, 1.38 wide anteriorly and 1.48 wide posteriorly. Diameter of AME 0.43. Abdomen 2.33 long, 2.03 wide. Cheliceral length 0.60. Clypeal height 0.25. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.30	0.70	0.80	0.53	0.43	3.76
II	1.18	0.69	0.65	0.45	0.43	3.40
III	1.33	0.65	0.68	0.65	0.55	3.86
IV	1.73	0.90	1.03	0.83	0.60	5.09

Leg spination: Leg I: Tb v 2-2-2ap; Mt v 2-2ap. Leg II: Pt pr 0-1-0; Tb pr 0-1, v 1-1-2ap; Mt v 2-2ap. Leg III: Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1ap. Leg IV: Pt pr and rt 0-1-0; Tb pr 0-1, rt 1-1, v 1ap; Mt pr 1-2ap, rt 1-1ap, v 1ap.

Coloration. As described for male, but lighter and differs as follows: eyes of the first row bordered by reddish scales; carapace more densely covered with yellowish scales; clypeus with a wide transverse white band consisting of overhanging white hairs; legs almost completely yellow, with brownish patches; palps yellow; dorsum yellowish brown, with a reticulate pattern of brown patches and stripes.

Epigyne and spermathecae as in Figs 490–492; the epigynal pocket bell-shaped, higher than wide; the copulatory openings slit shaped; the insemination ducts make 4 revolutions; the receptacles bean-shaped, separated from each other by one diameter.

Material examined. Holotype: 1 ♂ (SZMN), Tajikistan, Gorno-Badakhshan Autonomous Region, Murgab Distr., Pamir Plateau, near Alichur (ca 37° 45'N, 73°15'E), 5.09.1975, A. P. Kononenko.

Paratypes: TAJIKISTAN: 2 ♂♂, 1 ♀ (MMUM), together with the holotype, 5.09.1975, A. P. Kononenko; 1 ♂ (SZMN), same region, Murgab Distr., Pamir Plateau, near Chechekty (ca 38°20'N, 74° 02'E), 27.07. 1976, A. P. Kononenko; 1 ♀ (ZMUM), 1 ♀ (MMUM), same region, Murgab Distr., Pamir Plateau, shore of Lake Yashchil'kul' (ca 37°44'N, 72°55'E), flat interfluve (on ground), 12–13.07.1976, A. P. Kononenko.

Habitat. Associations with *Kraschenninnikovia* sp. and *Artemisia* sp.

Distribution. So far, this species is known from a few localities in the Gorno-Badakhshan Autonomous Region of Tajikistan (Map 28).

Yllenus namulinensis Hu, 2001

Figs 497–498, Map 33

Yllenus namulinensis Hu, 2001: 421–422, 636, figs 8-271:1–3 (D♀; ♀ holotype in the School of Life, Shandong University, China; not examined).

Type. The female holotype from Nanmulin County (29º65'N, 89º10'E), Xizang Region, China; deposited in the School of Life, Shandong University, China.

Derivatio nominis. The species epithet refers to the *terra typica*, Nanmulin County, Xizang Region of China.

Comments. We have been unable to re-examine the holotype of this species. Based on the original figures of Hu [2001: figs 8-271: 1–3; Figs 497–498] only, we have concluded that this species is close to *Y. karnai* sp.n. and differs from it in the number of loops of the insemination ducts and the shape of the receptacles (cf Fig. 470 and Fig. 8-271: 3 in Hu [2001]); the male of *Y. namulinensis* is yet unknown. The relationships of *Y. namulinensis* with *Y. maoniuensis*, the other species known from Xizang, remains uncertain, as original illustrations available for these species do not allow a rigorous diagnosis; it is very likely that both species either differ only in the shape of the receptacles, or belong to the same species. The taxonomic status of both remains uncertain until their holotypes have been re-examined.

Distribution. The type locality only (Map 33).

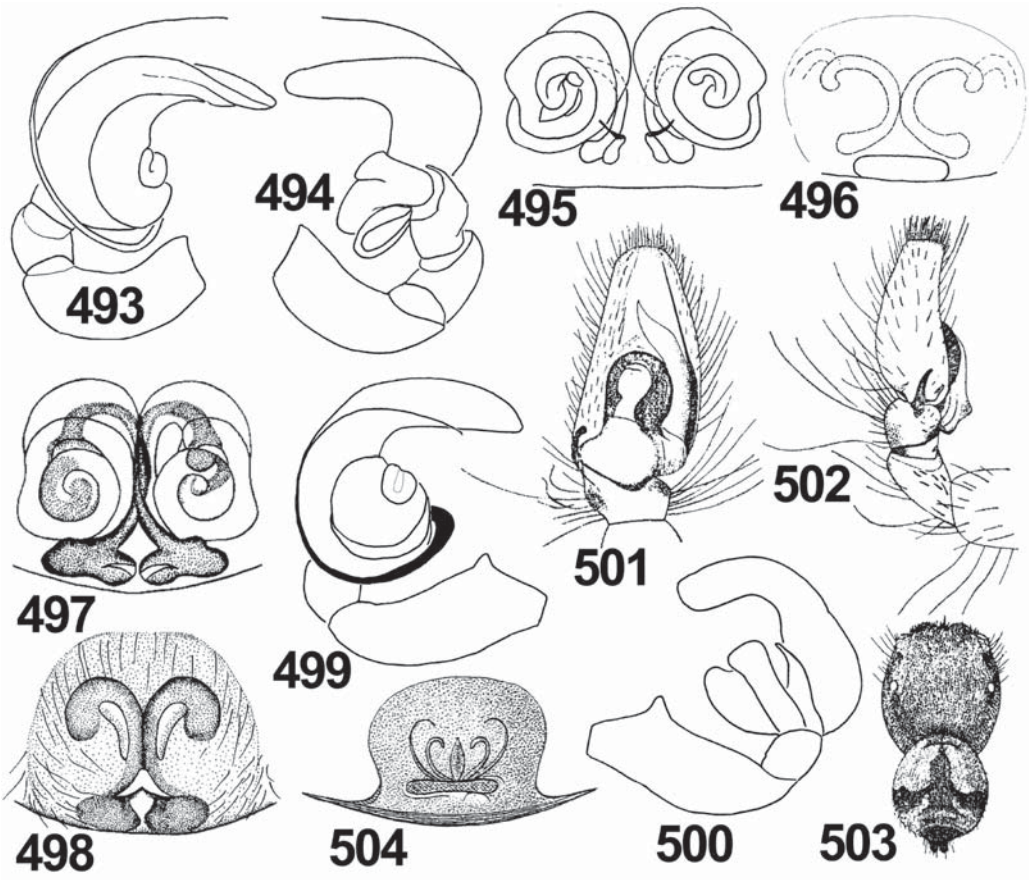
Yllenus pamiricus sp.n.

Figs 505–511, Map 28

Type. The male holotype from Lake Kara-Kul' (ca 39°02'N, 73°33'E), Gorno-Badakhshan Autonomous Region, Tajikistan; deposited in the SZMN.

Derivatio nominis. The specific epithet is derived from the *terra typica*, Pamir Plateau in Tajikistan.

Diagnosis. By the presence of ventral brushes on metatarsi and tarsi I, as well as by the structure of the copulatory organs in both sexes, *Y. pamiricus* sp.n. is very close to *Y. auspex*. Males can easily be distinguished by the densely white haired clypeus and "cheeks" (sparse light hairs



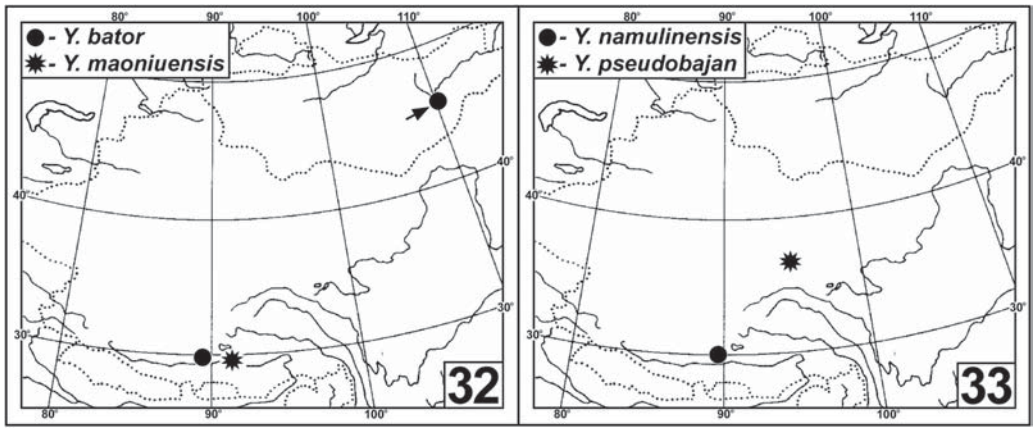
Figs 493–504. Copulatory organs and somatic characters of *Yllenus maoniuensis* (493–496), *Y. namulinensis* (497–498), *Y. kronebergi* (499–500), *Y. auriceps* (501–503) and *Y. brueggeri* (504): 493, 499 — ♂ palp, median view; 494, 500, 502 — ditto, lateral view; 501 — ditto, ventral view; 496, 498, 504 — epigyne; 495, 497 — spermathecae; 503 — ♂ general apperance. Specimens: 493–496 — China (Xizang Region), the ♀ holotype and ♂ paratype of *Philaeus maoniuensis* [redrawn from Liu *et al*., 1991: figs 3–6]; 497–498 — China (Xizang Region), the ♀ holotype [after Hu, 2001: figs 8-271: 1, 3]; 499–500 — Uzbekistan, the ♂ holotype of *Attus elegans* [redrawn from Kroneberg, 1875: fig. 37]; 501–503 — Algeria (Sebha), the ♂ holotype of *Attus auriceps* [after Denis, 1966: figs 18–20]; 504 — Switzerland (Bündten), the ♀ holotype [after Lebert, 1887: fig. 48]. Scale lines: 0.1 mm.

in *Y. auspex*) and more sharply pointed tip of the CTA (cf Figs 505 and 416). The males of *Y. pamiricus* sp.n. may have a well-marked Λ-shaped white figure on the eye field, which is absent in *Y. auspex*. Female faces of *Y. pamiricus* sp.n. and *Y. auspex* are nearly identical, as both have two declined brown stripes on a white background (see Fig. 508). However, *Y. pamiricus* sp.n. has narrower and longer copulatory pores (cf Figs 509 and 422–423) and two loops of the insemination duct (a single one in *Y. auspex*) (cf Figs 510 and 424). See also comments under "Diagnosis" of *Y. murgabicus* sp.n., the second new species described here from Pamir and see table 2, p.144.

DESCRIPTION

Male (paratype from Tajikistan, Lake Kara-Kul')

Measurements. Carapace 2.23 long, 1.83 wide, 1.23 high at PLE. Ocular area 1.20 long,



Maps 32–33. Distribution of *Yllenus* species: 32 — *Y. bator* and *Y. maoniuensis* in China and Mongolia; 33 — *Y. namulinensis* and *Y. pseudobajan* in China. One dot may represent more than one close locality; if more than one record, type localities arrowed.

1.48 wide anteriorly and 1.58 wide posteriorly. Diameter of AME 0.41. Abdomen 2.25 long, 1.63 wide. Cheliceral length 0.78. Clypeal height 0.23.

Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.60	0.96	1.13	0.78	0.64	5.11
II	1.38	0.75	0.78	0.65	0.55	4.11
III	1.40	0.68	0.58	0.75	0.63	4.04
IV	2.03	0.88	1.08	0.81	0.63	5.43

Leg spination: Leg I: Fm d 0-1-1-1; Pt pr 0-1-0; Tb pr 1-1, rt 1-0, v 2-2-2ap; Mt pr 1-1ap, v 2-2ap. Leg II: Fm d 0-1-1-2; Pt pr 0-1-0; Tb pr 1-1, rt 1-0, v 1-1-2ap; Mt pr and rt 1-1ap, v 2-2ap. Leg III: Fm d 0-1-1-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 1-0-1-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1-1, v 1ap; Mt pr 1-2ap, rt 1-1ap, v 1ap.

Coloration. Carapace dark red-brown, densely covered with white and sand-coloured appressed scales; sand-coloured scales form 3 longitudinal bands on the eye field. Clypeus brown, densely covered with white hairs hanging over the chelicerae. Sternum brown, covered with white hairs. Maxillae and labium yellow-brown, with white apexes. Chelicerae brown, anteriorly covered with white scales. Abdomen: dorsum and sides grey, densely covered with white and yellowish appressed scales (with no colour markings); venter yellow-grey. Book-lung covers yellow, covered with white scales. Spinnerets yellow. All legs yellow, with brownish patches and annulations at ends of segments; metatarsi and tarsi I ventrally covered with rather dense brushes of short brown hairs. Palps yellow, densely covered with white hairs.

Palpal structure as in Figs 505–507; the cymbium has its distal and proximal halves being subequal; the cymbial process (like a swollen outgrowth) well-marked; the CTA rather thick, with spine-shaped tip, visibly extends the distal margin of the tegulum.

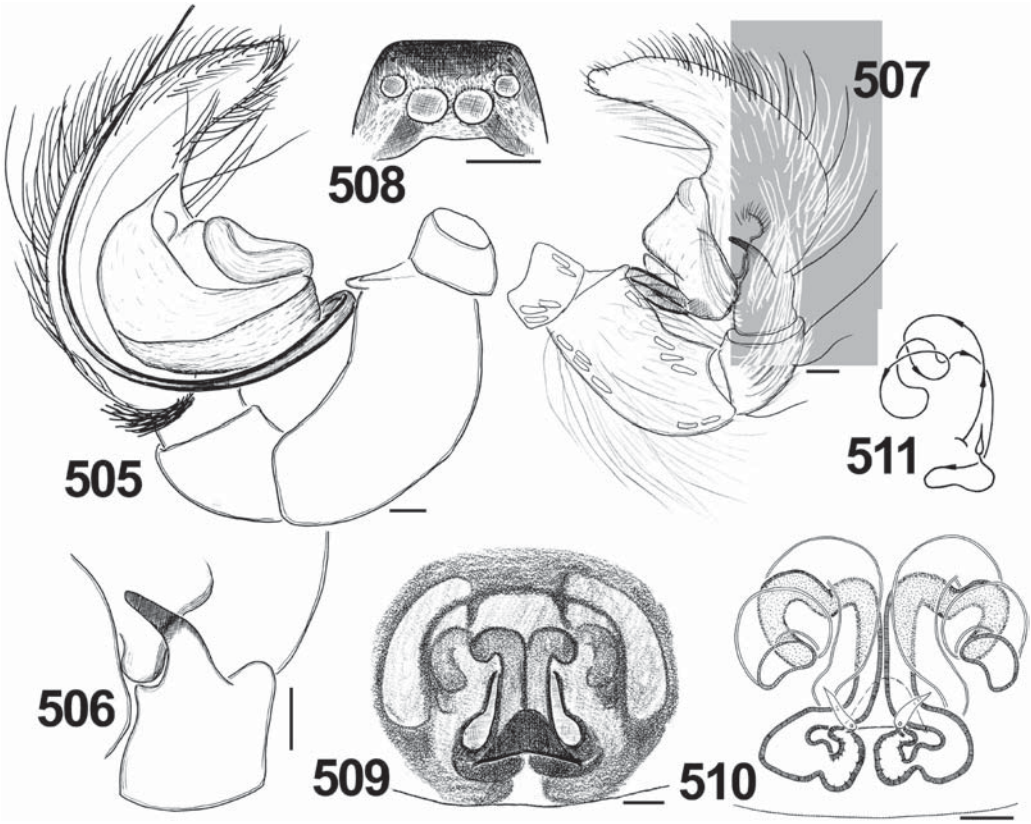
Female (paratype from Tajikistan, Pamir)

Measurements. Carapace 2.68 long, 2.18 wide, 1.30 high at PLE. Ocular area 1.43 long, 1.70 wide anteriorly and 1.80 wide posteriorly. Diameter of AME 0.49. Abdomen 4.10 long, 2.83 wide. Cheliceral length 0.95. Clypeal height 0.30. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.75	1.04	1.00	0.70	0.55	5.04
II	1.50	0.94	0.83	0.41	0.55	4.23
III	1.55	0.71	0.79	0.80	0.63	4.48
IV	2.38	1.09	1.24	1.00	0.73	6.44

Leg spination: Leg I: Fm d 1ap; Tb 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 2ap; Pt pr 0-1-0; Tb pr 1-1, v 1-2-2ap; Mt pr 1-1ap, v 2-2ap. Leg III: Fm d 1ap; Pt pr 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1ap. Leg IV: Pt pr and rt 0-1-0; Tb pr and rt 1-1-1, v 1ap; Mt pr 1-2ap, rt 1-1ap.

Coloration. As described for male, but differs as follows: eye field without longitudinal



Figs 505–511. Copulatory organs and somatic characters of *Yllenus pamiricus*: 505 — ♂ palp, median view; 506 — tibial apophysis, lateral view; 507 — ♂ palp, lateral view; 508 — ♀ face; 509 — epigyne; 510 — spermathecae; 511 — diagrammatic course of spermathecal channels. Specimens: 505–507 — Tajikistan (Lake Kara-Kul'), the ♂ paratype; 508–510 — Tajikistan (Lake Kara-Kol'). Scale lines: 1 mm (508), 0.1 mm (505–507, 509–510).

sand-coloured stripes; clypeus densely white haired, with two brownish stripes running from each AME inclinedly to the clypeal margin (Fig. 508); all legs darker (yellow-brown); metatarsi and tarsi I lacking ventral brushes of short brownish hairs; book-lung covers grey-yellow. Palps yellow.

Epigyne and spermathecae as in Figs 509–511; the epigynal pocket triangular; the copulatory openings slit-shaped; the insemination ducts make two revolutions; the receptacles like sclerotized tubes, poorly separated from the insemination ducts.

Material examined. Holotype: 1 ♂ (SZMN), Tajikistan, Gorno-Badakhshan Autonomous Region, Murgab Distr., Pamir Plateau, shore of Lake Kara-Kul' (ca 39°02'N, 73°33'E), on takyr, 19.07.1977, A. P. Kononenko.

Paratypes: TAJIKISTAN: 2 ♂♂ (MMUM), together with the holotype, 23–28.07.1977, A. P. Kononenko; 1 ♂ (ZMUM), same locality, 19.07.1977, A. P. Kononenko; 2 ♀♀ (SZMN), Pamir, "ostrov", 15.07. 1976, A. P. Kononenko; 1 ♀ (SZMN; hitherto determined by J. Prószyński as *Y. auspex*), same region, Murgab Distr., Pamir Plateau, Sarykol'skii Mt. Range, near Lake Kara-Kol' (ca 39°00'N, 73°35'E), ca 4500 m a.s.l., 17.07.1976, A. P. Kononenko.

Habitat. No detailed data, but some of the studied specimens were collected from takyrs (=open dry clay stands) and from under plants.

Distribution. A few localities in the Gorno-Badakhshan Autonomous Region of Tajikistan (Map 28).

Yllenus pseudobajan sp.n.

Figs 435–437, Map 33

Type. The male holotype from Tibet Plateau, China; deposited in the ZMUM.

Derivatio nominis. The specific epithet refers to a close relationship and similarity of this new species to *Y. bajan* from S. Mongolia.

Diagnosis. *Y. pseudobajan* sp.n. differs from all other species in the *hamifer* group by its dorsal colour pattern (Fig. 437). It is closely related only to *Y. bajan* (cf Fig. 434), from which it can be separated by the following characters: the Λ-shaped white figure on the eye field absent (present in the males of *Y. bajan*); legs completely yellow (with brownish patches in *Y. bajan*); male palps completely yellow (in *Y. bajan*, palpal femora, patellae and tibiae brownish contrasting to the yellow cymbium); sternum brown with a central yellow spot (completely brown in *Y. bajan*); palpus about 1.5 times smaller (*viz.* 1 mm in *Y. pseudobajan* sp.n. and 1.4 mm or longer in *Y. bajan*).

DESCRIPTION

Male (the holotype)

Measurements. Carapace 2.13 long, 1.80 wide, 1.15 high at PLE. Ocular area 1.04 long, 1.38 wide anteriorly and 1.55 wide posteriorly. Diameter of AME 0.40. Abdomen 2.40 long, 1.75 wide. Cheliceral length 0.68. Clypeal height 0.20.

Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I			absent			
II	1.15	0.70	0.65	0.53	0.43	3.46
III	1.20	0.55	0.63	0.63	0.55	3.56
IV	1.95	0.90	0.93	0.75	0.50	5.03

Leg spination: Leg I absent. Leg II: Fm d 0-0-2-2; Pt pr and rt 0-1-0; Tb pr 1-1-1, rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1ap. Leg III: Fm d 0-0-0-1-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1-1; Mt pr 1-2ap, rt 1-1ap, v 1ap. Leg IV: Fm d 1-1-1; Tb pr and rt 0-1, v 1-1; Mt pr and v 2ap, rt 1-2ap.

Coloration. Carapace yellow-red-brown, with black around eyes and covered with white and iridescent appressed scales. Clypeus yellow, covered with white and brownish hairs (not too densely). Sternum brown, with a central yellow spot and covered with white hairs. Labium and maxillae yellow-brown. Chelicerae dark brown. Abdomen: dorsum yellow-white, with brown colour-markings as shown in Fig. 437; venter light yellow, covered with white appressed scales. Book-lung covers white. Spinnerets light yellow. All legs and palps yellow.

Palpal structure as in Figs 435–436; the cymbium clearly extended, its extension as long as the palpal femur; the CTA sharpened, but without a spine-like tip.

Female unknown.

Material examined. CHINA: 1 ♂ (ZMUM), Tibet, "East Tsandam (?), Darun-Maska (?)" [apparently Qinghai Region, Tibet Plateau, Tsaydam [=Qaidam Pendi] Depression], 1900, coll.?.

Habitat. No data.

Distribution. The type locality only (Map 33).

Yllenus robustior Prószyński, 1968

Figs 84, 512–518, Map 30

Yllenus robustior Prószyński, 1968: 435–438, figs 18, 33, 58, 85–89 (D♂♀; ♂ holotype in the ZMPA; examined).

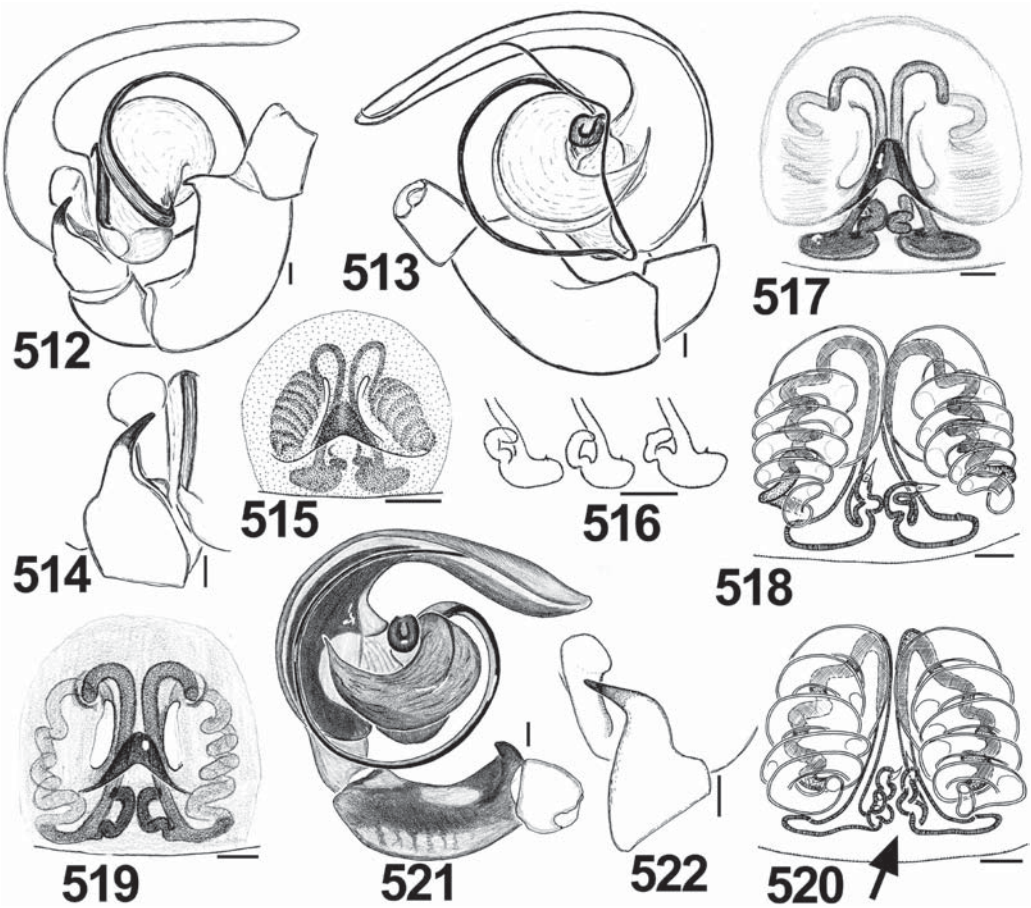
Yllenus robustior: Prószyński & Żochowska, 1981: 32–35, figs 33–34 (♀); Prószyński, 1990: 363; Logunov, 1993a: 50, figs 2A–F (♀); Peng *et al*., 1993: 247, figs 882–885 (♀); Song *et al*., 1999: 564, figs 323N–O, 324I–J (♂♀); Schmidt & Barensteiner, 2000: 48; Logunov & Marusik, 2000b: 255–256, map 51.

Yllenus hamifer (*nec* Simon; misidentified): Schenkel, 1936: 309, fig. 109 (♀); Zhou & Song, 1988: 13, figs 16a–f (♂♀); Hu & Wu, 1989: 398, figs 311.1–4 (♂♀).

Type. The male holotype from Hotan River (ca 37°07'N, 79°55'E), Xinjiang, China; deposited in the ZMPA.

Derivatio nominis. The species epithet is derived from the Latin word "*robust*" meaning "strong, massive"; "*robustior*" = "stronger, more massive".

Diagnosis. *Y. robustior* is most similar to *Y. kalkamanicus*, but males differ in the shape and position of the CTA (relative to the cymbium) (cf Figs 513 and 462), while females clearly differ in the structure of the terminal sections of the receptacles (cf Figs 516, 518 and 465) and the number of the loops on the insemination ducts: 6 instead of 7 in *Y. robustior*. Males of *Y.*



Figs 512–522. Copulatory organs of *Yllenus robustior* (512–518) and *Y. tuvinicus* (519–522): 512 — ♂ palp, lateral view; 513, 521 — ditto, median view; 514, 522 — tibial apophysis, lateral view; 515, 519 — epigyne; 516 — receptacles; 518, 520 — spermathecae. Specimens: 512–514, 517–518 — China (Xinjiang), the ♂ holotype and ♀ paratype; 515–516 — China (Inner Mongolia); 519–522 — Russia (Tuva, Kyzyl), the paratypes. Scale lines: 0.1 mm.

robustior can be confused with those of *Y. tuvinicus*, although the palpi of the latter species are relatively smaller. To readily separate these two species females are required (cf Figs 518 and 520).

DESCRIPTION

Male (the holotype)

Measurements. Carapace 3.33 long, 2.59 wide, 1.50 high at PLE. Ocular area 1.43 long, 1.85 wide anteriorly and 1.90 wide posteriorly. Diameter of AME 0.50. Abdomen 3.00 long, 2.40 wide. Cheliceral length 1.03. Clypeal height 0.31.

Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.88	1.25	1.20	0.90	0.78	6.01
II	1.83	1.05	0.98	0.90	0.73	5.49
III	2.15	0.90	1.03	1.03	0.85	5.96
IV	2.70	1.25	1.45	0.95	0.80	7.15

Leg spination: Leg I: Fm d 0-1-1-1; Pt pr 0-1-0; Tb pr 0-1, v 2-2-2ap; Mt pr 1-0, v 2-2ap. Leg II: Fm d 0-1-1-2; Pt pr 0-1-0; Tb pr 1-1, v 1-2-2ap; Mt pr 1-1ap, v 2-2ap. Leg III: Fm d 0-1-2-2; Pt pr and rt 0-1-0; Tb pr 1-1, rt 1-1-1, v 2ap; Mt pr and rt 1-2ap, v 1-1ap. Leg IV: Fm d 0-1-1-1; Pt pr and rt 0-1-0; Tb pr 1-1, rt 1-1-1, v 2ap; Mt pr 2-2ap, rt 1-2ap, v 1ap.

Coloration. Carapace red-brown, with dark brown eye field; carapace densely covered with white and brown appressed scales. Clypeus brownish yellow, covered with short white and long sandy-coloured hairs. Sternum brown, covered with white hairs. Maxillae and labium yellow, with white apexes. Abdomen: dorsum and sides grey-brown, with no marked colour-markings; venter yellow. Book-lung covers yellow, covered with white scales. Spinnerets yellow. All legs yellow, with brown patches and annulations at ends of segments. Palps yellow, but their femora with brown stains.

Palpal structure as in Figs 512–514; the cymbium strongly extended, its distal part 1.25 longer than the palpal femur; the palpal extention has a distal median furrow, where the embolic tip is hidden; the CTA sharply pointed.

Female (the paratype)

Measurements. Carapace 3.05 long, 2.66 wide, 1.75 high at PLE. Ocular area 1.59 long, 1.88 wide anteriorly and 1.93 wide posteriorly. Diameter of AME 0.53. Abdomen 4.13 long, 3.43 wide. Cheliceral length 1.08. Clypeal height 0.29. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.95	1.16	1.10	0.75	0.60	5.56
II	1.80	0.95	0.95	0.75	0.60	5.05
III	2.00	0.95	1.00	1.00	0.78	5.73
IV	2.80	1.35	1.55	1.25	0.83	7.78

Leg spination: Leg I: Fm d 0-0-0-1; Tb pr 0-1, v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-0-0-1; Pt pr 0-1-0; Tb pr 0-1, v 1-2-2; Mt pr 1-1ap, v 2-2ap. Leg III: Fm d 0-0-0-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr and rt 1-2ap, v 1-1ap. Leg IV: Fm d 0-0-0-1; Pt pr and rt 0-1-0; Tb pr 1-1, rt 1-1-1, v 1ap; Mt pr 2-2ap, rt 1-2ap, v 1ap.

Coloration. Carapace red-brown, densely covered with sandy-coloured appressed scales. Clypeus brown, covered with long white and yellowish hairs. Sternum brownish yellow, covered with white hairs. Maxillae and labium yellowish brown, with white apexes. Chelicerae dark brown. Abdomen: dorsum and sides yellow-grey, with no marked colour pattern; venter yellow. Book-lung covers yellow, covered with white scales. Spinnerets yellow. All legs sandy-coloured, with irregular brownish patches at ends of segments. Palps yellow.

Epigyne and spermathecae as in Figs 84, 515–518; the epigynal pocket Λ-shaped; the copulatory openings slit-shaped; the insemination ducts form 6 revolutions; the secondary receptacles ovoid, about two times as wide as long, the primary ones like curved sclerotized tubes.

Material examined. CHINA: 1 ♂ (ZMPA, 46/51.U, the holotype of *Yllenus robustior*), "Sinkiang, rz. Chotan daria (=Khotan River)"[Xinjiang, Hotan River (ca 37°07'N, 79°55'E)], Przewalski; 2 ♀♀ (ZMPA, 46.51.U, the paratypes of *Yllenus robustior*), "prov. Sinkiang: jez. Kob-nor. (=Lop-Nor) oraz pomiedzy jez. Kob-Nor a vash Shahri, nad rz. Czerczen-daria (Charchan River)" [Xinjiang, Lake Lop-Nor (40°00'N, 90°20'E], Przewalski.

Habitat. No data.

Distribution. This species has so far been recorded only from Xinjiang and Inner Mongolia (China) [Zhou & Song, 1988; Hu & Wu, 1989; both sub *Y. hamifer*; present data] (Map 30).

Yllenus tuvinicus Logunov et Marusik, 2000

Figs 85, 519–522, Map 29

Yllenus tuvinicus Logunov et Marusik, 2000a: 277–279, figs 55–58 (D♂♀; ♀ holotype in the SZMN; examined).

Yllenus tuvinicus: Marusik *et al*., 2000: 103, 216; Logunov & Marusik, 2000b: 256–257, map 40.

Yllenus sp.-1 (cf *coreanus*): Logunov *et al*., 1998: 142.

Type. The female holotype from Lake Tere-Khol' (ca 50°04'N, 95°09'E), Tuva; deposited in the SZMN.

Derivatio nominis. The species epithet refers to the *terra typica*, Tuva (a small administrative unit of Russia in S. Siberia neighboring the Altai and Mongolia)

Diagnosis. This species seems most closely related to *Y. coreanus* and *Y. bator*. The females of *Y. tuvinicus* can easily be separated by the structure of the receptacles (cf Figs 520 and 219, 455), as well as by the number of loops of the insemination ducts: 5 instead 7 and 2, respectively, in the related species. Males are distinguishable by the shape of the CTA (cf Figs 521 and 446, 451). See also comments under "Diagnosis" of *Y. robustior*.

DESCRIPTION

Male (paratype from the NE shore of Lake Ubsu-Nur, Tuva)

Measurements. Carapace 2.75 long, 2.10 wide, 1.03 high at PLE. Ocular area 1.05 long, 1.50 wide anteriorly and 1.60 wide posteriorly. Diameter of AME 0.40. Abdomen 2.63 long, 1.95 wide. Cheliceral length 0.75. Clypeal height 0.28.

Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.53	1.10	1.00	0.70	0.50	4.83
II	1.50	0.88	0.83	0.60	0.55	4.36
III	1.68	0.70	0.83	0.75	0.73	4.69
IV	2.13	1.08	1.20	0.95	0.68	6.04

Leg spination: Leg I: Fm d 0-1-0; Tb pr 0-1, v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-1-0; Pt pr 0-1-0; Tb pr1-1, v 0-2-2ap; Mt pr 1-1ap, v 2-2ap. Leg III: Fm d 1-1-1ap; Pt pr and rt 0-1-0; Tb pr 1-1, rt 1-1-1, v 2ap; Mt pr 1-1-2ap, pr and v 1-2ap. Leg IV: Fm d 1-1-1ap; Pt pr and rt 0-1-0; Tb pr 1-1-1, rt 1-1, v ap; Mt pr 1-1-2ap, rt and v 1-2ap.

Coloration. Carapace dark brown with black radial veins. Eye field black. Carapace densely covered with white appressed scales. Clypeus brown, covered with black hairs; "cheeks" yellow-brown. Chelicerae dark brown, almost black. Sternum dark brown, densely covered with white hairs. Labium and maxillae yellow-brown with white apices. Abdomen: dorsum grey, with a dark brown cardial spot and a pair of undulating yellowish stripes at margins (sometimes poorly expressed); sides and venter yellow to grey-yellow, with venter densely covered with light appressed scales. Book-lung covers yellow, tinged with grey. Spinnerets yellow-brown. All legs motley (yellow with numerous brown stripes and patches), densely covered with erect hairs and appressed scales.

Palpal structure as in Figs 521–522; the cymbium strongly extended, its distal part 1.3 longer than the palpal femur; the palpal extention has a distal median furrow, where the embolic tip is hidden; the cymbial process well developed and looks like a swollen outgrowth; the tip of CTA sharpened, but without an apical spine.

Female (paratype from the NE shore of Lake Ubsu-Nur, Tuva)

Measurements. Carapace 3.00 long, 2.25 wide, 1.38 high at PLE. Ocular area 1.25 long, 1.70 wide anteriorly and 1.80 wide posteriorly. Diameter of AME 0.45. Abdomen 3.30 long, 2.63 wide. Cheliceral length 1.05. Clypeal height 0.25. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.50	1.08	0.80	0.60	0.45	4.43
II	1.43	0.78	0.70	0.55	0.43	3.89
III	1.58	0.78	0.78	0.75	0.68	4.57
IV	2.18	1.23	1.25	0.98	0.63	6.27

Leg spination: Leg I: Tb pr 0-1, v 2-2-2ap; Mt v 2-2ap. Leg II: Tb pr 1-1, v 1-1-2ap; Mt pr 1-1ap, v 2-2ap. Leg III: Pt pr 0-1-0; Tb pr and rt 1-1, v 1ap; Mt pr, rt and v 2ap. Leg IV: Pt pr and rt 0-1-0; Tb pr and rt 1-1-1, v 1ap; Mt pr 2-2ap, rt 1-1ap, v 2ap.

Coloration. Carapace dark brown to black, densely covered with white appressed scales, latter can form a pair of poorly marked, wide, white bands in cephalic part. Clypeus yellowish, densely covered with white (around eyes) or yellow (at clypeal margin) hairs. Chelicerae black, covered with black hairs. Sternum yellow-brown, covered with white hairs. Labium and maxillae yellow-brown with white apices. Abdomen: dorsum yellowish, with a dark brown cardial spot and numerous small brown patches forming two interrupted marginal bands; sides and venter yellow. Book-lung covers yellow, tinged with grey. Spinnerets yellow-brown. Palps yellow.

Epigyne and spermathecae as in Figs 85, 519, 520; the epigynal pocket wide, Λ-shaped; the insemination ducts make 5 revolutions; the secondary receptacles elongated (tubular), more than 5 times as long as wide, the primary receptacles as spiraled sclerotized tubes.

Material examined. RUSSIA: 1 ♀ (SZMN; the holotype of *Yllenus tuvinicus*), Tuva [=Tyva], Erzin Distr., Lake Tere-Khol', Eder-Elezin Sands (ca 50°04'N, 95°09'E), 1150–1200 m a.s.l., 26-28.05.1990, O. V. Lyakhov; 4 ♂♂, 8 ♀♀ (SZMN), 2 ♂♂, 2 ♀♀ (SMNH), together with holotype; 3 ♂♂, 2 ♀♀ (ZMUM), same locality, 29.05–3.06.1989, D. V. Logunov & V. K. Zinchenko; 1 ♀ (MNHN), 1 ♀ (SMNH), same locality, 11–12.06.1995, Yu. M. Marusik; 10 ♀♀ (SZMN), 1 ♀ (ZMUM), same distr., 2–3 km SW of Erzin, Tes-Khem River valley (ca 50°14'N, 95°07'E), 1000–1100 m a.s.l., 24.05.1990, D. V. Logunov; 1 ♀ (MNHN), same distr., ca 20 km NNW of Erzin, Tes-Khem River valley (ca 50°25'N, 95°02'E), 800 m a.s.l., 31.05.1989, D. V. Logunov;

1 ♂, 3 ♀♀ (ZMUM), same distr., 20–25 km W of Erzin, Onchalaan Rocks (ca 50°15'N, 94°47'E), 1100–1300 m a.s.l., 25.05.1990, O. V. Lyakhov; 3 ♀♀ (SZMN), Tuva [=Tyva], Ovyursky Distr., ca 13 km E of Khandagaity, Ulatai River valley (ca 50°44'N, 92°16'E), 1000–1100 m a.s.l., 12.06.1989, D. V. Logunov; 10 ♂♂, 10 ♀♀ (SZMN), same distr., NE shore of Lake Ubsu-Nur, 760 m a.s.l., 12.06. 1989, D. V. Logunov; 1 ♂, 2 ♀♀ (SZMN), Tuva [=Tyva], Tes-Khem Distr., 8–10 km W of Ak-Erik, Tes-Khem River valley (ca 50°32'N, 94°29'E), 29.05.1990, O. V. Lyakhov; 5 ♀♀ (SZMN), Mongun-Taiga Distr., 3–5 km N of Kyzyl-Khaya, right side of Mogen-Buren River (ca 50°04'N, 89°49'E), 2000–2200 m a.s.l., 15.06.1989, D. V. Logunov.

Habitat. Pebbly river banks, *Achnatherum splendens* stands (=saz steppe), inundated steppe-upland meadows (mostly with *Caragana spinosa*), desert nanophanerophyte steppe (=tar steppe) with *Nanophyton erinaceus*, dry shrub-grass (*Caragana-Stipa-Artemisia*) steppe, and desert sandy shrub-grass (*Caragana-Stipa-Artemisia*) steppe [s. Logunov *et al.*, 1998: sub *Yllenus* sp.-1; Logunov & Marusik, 2000a].

Distribution. So far, this species has been recorded only from S. Tuva (Map 29).

Yllenus uzbekistanicus sp.n.

Figs 523–534, Map 28

Yllenus auspex (*nec* Pickard-Cambridge; misidentified): Mikhailov & Fet, 1994: 518; Wesołowska, 1996: 44, figs 36A–D (♂♀).

Type. The male holotype from Atamurat Well (ca 40°48'N, 65°42'E), Navoi Area, Uzbekistan; deposited in the SZMN.

Derivatio nominis. The specific epithet refers to the type locality, Uzbekistan, where the holotype was collected.

Diagnosis. This species is most closely related to *Y. baltistanus*, *Y. auspex* and *Y. aralicus* sp.n.; although the male copulatory organs are poorly distinguishable in all these species (cf Figs 523 and 406, 416, 438; there are tiny differences in the tips of the CTAs), males can readily be separated by colour/morphological characters of their faces, legs I and dorsums (see table 1, p.121). Females of all four species are easily separable by the number of loops of the insemination ducts, the shape of the receptacles (cf Figs 532 and 415, 424, 444) and the structure of their epigynes (cf Figs 528–531 and 414, 422, 443). See also comments under "Diagnosis" of *Y. kotchevnik* sp.n.

DESCRIPTION

Male (paratype from Turkmenistan, Lake Sarykamysh)

Measurements. Carapace 1.65 long, 1.48 wide, 1.13 high at PLE. Ocular area 0.90 long, 1.11 wide anteriorly and 1.25 wide posteriorly. Diameter of AME 0.45. Abdomen 1.88 long, 1.38 wide. Cheliceral length 0.60. Clypeal height 0.20.

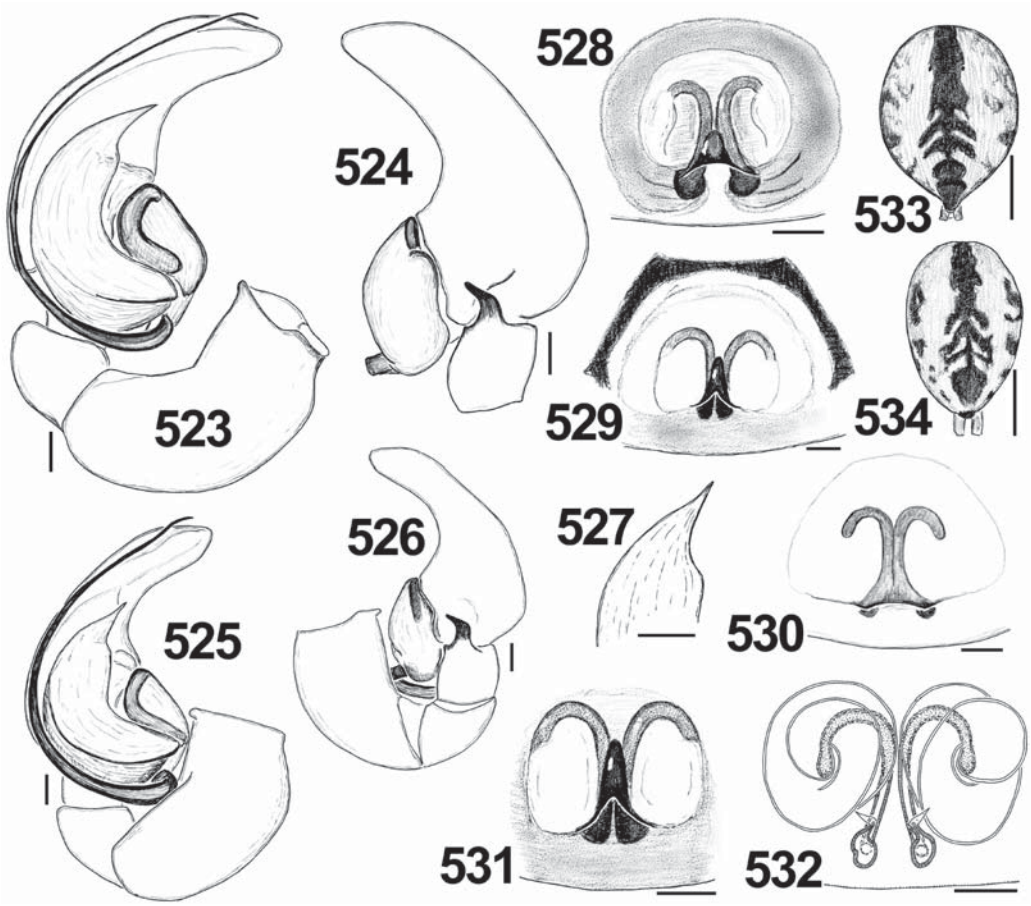
Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.23	0.76	0.84	0.60	0.45	3.88
II	1.00	0.53	0.63	0.46	0.44	3.06
III	1.00	0.40	0.48	0.51	0.46	2.85
IV	1.53	0.68	0.78	0.60	0.46	4.05

Leg spination: Leg I: Fm d 0-1-1-1; Tb pr 1-1, v 2-2-2ap; Mt v 2-2ap. Leg II: Fm d 0-1-1-1; Pt pr 0-1-0; Tb v 1-1, v 0-1-0; Mt v 2-2ap. Leg III: Fm d 0-0-2-1; Pt pr 0-1-0; Tb pr and rt 1-1; Mt pr and rt 1-2ap, v 1ap. Leg IV: Fm d 1-0-1-1; Pt pr and rt 0-1-0; Tb pr and rt 1-1; Mt pr 1-2ap, rt 1-1ap.

Coloration. Carapace red-brown, with black around eyes and densely covered with white appressed scales. Clypeus yellow, densely covered with white long hairs overhanging the chelicerae and almost completely covering them. Sternum dark brown, covered with white hairs. Labium brownish. Maxillae yellow. Chelicerae dark brown, anteriorly hidden beneath white hairs hanging over from the clypeus. Abdomen: dorsum greyish yellow or grey brownish, with a longitudinal interrupted brown band; sides grey brownish; venter yellow. Book-lung covers yellow, covered with white scales. Spinnerets yellow. All legs yellow, with pro- and retrolateral sides of femora, patellae and tibiae dark brown; metatarsi and tarsi I brown, ventrally with dense brushes of brown hairs. Palps yellow.

Palpal structure as in Figs 523–527; the cymbium with a slightly extended distal part (somewhat longer than tegulum's height); the CTA conductor with a triangle-shaped tip; the embolus about 1.3 times as long as the CTA.



Figs 523–534. Copulatory organs and somatic characters of *Yllenus uzbekistanicus*: 523, 525 — ♂ palp, median view; 524, 526 — ditto, lateral view; 527 — CTA's tip; 528–531 — epigyne; 532 — spermathecae; 533–534 — ♀ dorsum. Specimens: 523–527, 529–532, 534 — Turkmenistan (Repetek), the paratypes; 528, 533 — Turkmenistan (Shakhsenem well), the ♀ paratype. Scale lines: 1 mm (533–534), 0.1 mm (523–532).

Female (paratype from Turkmenistan, Lake Sarykamysh)

Measurements. Carapace 1.93 long, 1.55 wide, 1.06 high at PLE. Ocular area 0.94 long, 1.25 wide anteriorly and 1.45 wide posteriorly. Diameter of AME 0.39. Abdomen 2.60 long, 1.68 wide. Cheliceral length 0.63. Clypeal height 0.20. Length of leg segments:

	Fm	Pt	Tb	Mt	Tr	Total
I	1.08	0.63	0.40	0.40	0.38	2.89
II	0.88	0.54	0.50	0.43	0.35	2.70
III	0.98	0.53	0.53	0.40	0.33	2.77
IV	1.50	0.75	0.90	0.35	0.34	3.84

Leg spination: Leg I: Fm d 1ap; Tb 0-2ap; Mt v 2-2ap. Leg II: Fm d 1ap; Pt pr 0-1-0; Tb pr 0-1, v 0-1-0; Mt v 2-2ap. Leg III: Fm d 1ap; Pt pr 0-1-0; Tb pr 2-2; Mt pr and rt 1-2ap, v 1-1ap. Leg IV: Fm d 1ap; Pt pr and rt 0-1-0; Tb pr and rt 2-2; Mt pr 2-2ap, v 1-1ap.

Coloration. As described for male, but lighter (Figs 533–534); legs almost completely yellow, with sparse small brown patches.

Epigyne and spermathecae as in Figs 528–532; the epigynal pocket bell-shaped or furrow-shaped, longer than wide; the weakly sclerotized and very wide insemination ducts make 1.5 revolutions; the receptacles small, drop-shaped.

Material examined. Holotype: 1 ♂ (SZMN), Uzbekistan, Navoi Area, Konimekh [=Kanimekh] Distr., ca 25 km N of Nurota [=Nurata], near Atamurat Well (40°48'N, 65°42'E), sands with *Haloxylon* sp. and *Artemisia* sp., 11.05.1976, A. P. Kononenko.

Paratypes: UZBEKISTAN: 1 ♀ (ZMUM), Bukhara [=Bukhoro] Area, Bukhara Distr., ca 33 km SE of Bukhara, ca 20 km SE of Kagan [=Kogon], near *Gazella subgutturosa* Nursery (39°35'N, 64° 43'E), 19.05.1997, S. V. Ovtchinnikov. — TURKMENISTAN: 3 ♀♀ (SZMN), Chardzhou [=Lebapskii] Area, Chardzhou Distr., Central Karakumy Desert, Repetek Reserve (ca 38°33'N, 63° 11'E), 22.04.1993, D. V. Logunov; 1 ♀ (ZMUM), same locality, 13.05. 1982, V. E. Krivokhatskii; 1 ♀ (ZISP; hitherto determined by A. Nenilin as *Y. auspex*), same locality, 1.04. 1980, Fal'kovitch; 2 ♀♀ (ZMUM), same locality, 14–27.04.1967, V. Kuznetsov; 4 ♀♀ (ZMUM), same area and district, Central Karakumy desert, ca 50 km N of Repetek (ca 39° 01'N, 63°10'E), 23–24.03.1989, O. V. Lyakhov; 1 ♀ (MNHN), same locality, 22.04.1993, A. A. Zyuzin; 1 ♂, 1 ♀ (MMUM), 1 ♂ (MNHN), Tashauz [=Dashkhovuz] Area, Il'yaly Distr., near Shakhsenem well (ca 41°35'N, 58°43'E), 1.05–19.10.1985, O. S. Soyunov; 1 ♂ (ZMUM), same area, Tel'mansk Distr., near Lake Sarykamysh (ca 41°38'N, 57°34'E), 7.10.1985, O. S. Soyunov; 1 ♂ (MMUM), same locality, 9.05. 1984, O. S. Soyunov; 1 ♂ (ZMUM), Lebap [=Chardzhou] Area, Farab Distr., Amudarya Reserve, Amudariya River, Nargyz Island, (ca. 39°40'N, 62°51'E), 9.04.1983, S. K. Alexeev; 2 ♀♀ (SZMN), 6 ♀♀ (MMUM) Mary Area, Bairam-Ali Distr., ca 10 km W of Uch-Adzhi (ca 38°05'N, 62°41'E), 30.03.1990, O. V. Lyakhov; 5 ♂♂, 8 ♀♀ (ZMUM), Balkan [=Krasnovodsk] Area or Tashauz [=Dashkhovuz] Area, Uzboi, 5.04.1993, L. A. Mitroshina.

Habitat. In Turkmenistan, in *Haloxylon aphyllum* or *H. persicum* sandy deserts, where it occurs on different grasses and bushes, *viz*. on bushes of *Ephedra* sp. or *Tamarix* sp., on *Ferula* sp., on *Aristida* grass, on the saltwort, *etc*. [present data].

Distribution. This is a low-land Turanian species reported only from Uzbekistan and Turkmenistan (Map 28).

Earlier records of *Y. auspex* from Turkmenistan (Kaplankyr, Repetek, Tashauz and Chil'mamedkum sands) by Mikhailov & Fet [1994] and Wesołowska [1996] should be referred to *Y. uzbekistanicus* sp.n. (Wesołowska's specimens re-examined).

Doubtful or invalid species names

Yllenus auriceps (Denis, 1966) comb.n.

Figs 501–503

Attulus auriceps Denis, 1966: 115, plate IV, figs 18–20 (♂; apparently in the University of Algiers; not examined).

Type. The male holotype from de Sebha, Algeria; it was apparently deposited in the University of Algiers, but considered lost [see Denis, 1966: 103].

Derivatio nominis. The specific epithet is derived from the Latin, meaning "gold-legged".

Comments. This species was described by Denis [1966] from a single ♂. We have been unable to locate and re-examine the holotype, which might have been lost together with many other types [s. Denis, 1966: 103]. However, on the basis of the original figures by Denis [1966: plate IV, figs 18–20; see also Figs 501–503], it is safe to conclude that this author seemed to actually deal with *Y. tschoni*. Moreover, the female of *Attulus saliens* reported by Denis in the same work from Oumm ez Zouêr in Algeria [Denis, 1966: plate IV, fig. 21] seems to belong to *Y. tschoni* as well (cf Figs 253–263). Thus, the taxonomic status of *Y. auriceps* will remain obscure until topotypes are collected.

Distribution. The type locality only [Denis, 1966].

Yllenus baltistanus shaksgamica Caporiacco, 1935

Yllenus baltistanus var. *shaksgamica* Caporiacco, 1935: 209 (♂♀; the syntypes in the MZSF; partly examined).

Type. The syntypes from Baltistan Mts, India; deposited in the MZSF.

Derivato nominis. The specific epithet is a noun in apposition derived from the type locality, Shaksgam River [s. Caporiacco, 1935].

Comments. We have been able to borrow only the immature male from the complete type series of *Y. b. shaksgamica* (4 ♂♂ and 7 ♀♀

altogether). No taxonomic conclusion can be made from examining of this subadult specimen. Therefore, the problem of a taxonomic status of this species remains unclear until a whole type series has been located and re-studied or topotypes have been collected and examined.

Distribution. The type locality, *viz*. Jammu and Kashmir, Indian Himalaya [Caporiacco, 1935].

"Yllenus" brueggeri Lebert, 1887

Fig 504

Yllenus brueggeri Lebert, 1887: 100, 313–314, figs 48, 49 (D♀; a depositarium is unknown; not examined).
"Yllenus" brueggeri: Prószyński, 1968: 493.

Type. The female holotype from Bündten, Switzerland; the location of the holotype is unknown.

Comments. We have been unable to locate and re-examine the holotype of this species. On the basis of the original description and figures (Fig. 504) it is impossible to guess what salticid taxon it could be. It is definitely not an *Yllenus* species. The status of the species will remain unclear until topotypes have been collected or the holotype has been found and studied.

Distribution. The type locality only [Lebert, 1887].

Yllenus kronebergi Roewer, 1951

Figs 499–500

Attus elegans Kroneberg, 1875 (preoccupied by Hentz, 1846): 50, pl. 5, fig. 37 (D♂; ♂ holotype in the ZMUM lost, not examined).
Yllenus elegans: Simon, 1901: 581, 1937: 1257; Charitonov, 1932: 185; Bonnet, 1959: 4905; Prószyński, 1968: 455, figs 119–120 (♂), 1990: 363; Nenilin, 1984a: 33, 1985: 133.
Yllenus kronebergi Roewer, 1951: 453 (*nomen novum* for *A. elegans*).
Yllenus kronebergi: Roewer, 1954: 1252.

Type. The male holotype from Uzbekistan (no exact locality); was deposited in the ZMUM, but has been reported to be lost [see Nenilin, 1984a].

Derivatio nominis. The species is named after the famous Russian scientist, Alexander I. Kroneberg (died in 1909), who studied the spider collection of A. P. Fedchenko from Central Asia and who described many new species, the types of which represent the oldest spider collection of the ZMUM.

Comments. Nenilin [1984a, 1985] treated *Y. elegans* as a *nomen nudum* and didn't accept the *nomen novum* proposed by Roewer [1951]. Later, Prószyński [1990: 363] seemed to be of the same opinion, as in spite of listing the name *elegans* (giving no ordinal number); he didn't accept Roewer's replacement name. According to the rules of the ICZN, Roewer [1951] correctly proposed the replacement name for the junior homonym, which *elegans* happened to be. However, the taxonomic status of this species name remains uncertain, as the holotype was lost [see Nenilin, 1984a; Mikhailov, pers. comm.], the exact type locality of this species is unknown (no data in Kroneberg [1875]) and the original figures (see Figs 499–500) do not allow a correct identification (we have been unable to match any of the studied *Yllenus* species to Kroneberg's description and figures). Therefore, the taxonomic status of *Y. kronebergi* remains obscure and the specific name might best be treated as a *nomen dubium*.

Distribution. The type locality is somewhere in Uzbekistan [Kroneberg, 1875; Nenilin, 1984a].

Attus pusio Simon, 1871

Attus pulex Simon, 1868 (preoccupied by Hentz, 1846): 613 (D♀; the ♀ holotype in the MNHN, examined).
Attus pusio Simon, 1871: 161 (*nomen novum* for *A. pulex*); Reimoser, 1919: 105.
Attulus pusio: Simon, 1901: 581 (transferred from *Attus*); Roewer, 1954: 1241.

Type. The holotype (immature specimen) from Portugal or Spain; deposited in the MNHN.

Derivatio nominis. The specific epithet is derived from the Latin, meaning "chubby lad".

Comments. The holotype of *Attus pulex* deposited in the MNHN has been found to be an immature specimen, which seems to belong to *Yllenus*; this specific name is to be considered a *nomen dubium*.

Distribution. The type locality only [Simon, 1868].

Euophrys skalanicus (Dobroruka, 2003) comb.n.

Yllenus skalanicus Dobroruka, 2003: figs 26–30 (D♀; the ♀ holotype in the MNHN, examined).

Type. The female holotype from Skalani, Greece; deposited in the MNHN.

Comments. This species was originally described from a single ♀ and tentatively placed in the genus *Yllenus* [see Dobroruka, 2003]. We re-examined the ♀ holotype and found it to be a subadult ♀ belonging to *Euophrys* sp. (most probably, either to *E. rufibarbis* or *E. sulphurea*; see Metzner [1999]) rather than to *Yllenus*; for instance, the studied ♀ holotype is characterized by the eye field being wider anteriorly (always narrower anteriorly in *Yllenus*), the total absence of scale coverage of body and the well-developed, scopula-shaped claw-tufts on legs I–II (always present in *Yllenus*). The spermathecae of *Y. skalanicus* illustrated by Dobroruka [2003: fig. 30] is an artefact, as we failed to record it in the studied ♀ holotype (the spermathecae is simply undeveloped). Therefore, this specific name is to be considered a *nomen dubium*.

This specimen appears to have been originally collected in 96% alcohol, as its body (especially abdomen, which is separated from carapace) is strongly wrinkled; this usually happens when a spider specimen is directly put into 96% alcohol. Finally, the interesting observations about hunting behaviour of *Y. skalanicus* should therefore be referred to a member of *Euophrys* rather than to that of *Yllenus*.

Distribution. The type locality only [Dobroruka, 2003].

Besides the above species, we partly re-examined Caporiacco's collection deposited in the MZSF [s. Caporiacco, 1933, 1936]; the results are given in the table 3, p.159.

Table 3
The results of a study of L. Caporiacco's collection deposited in the MZSF

Correct name	**Caporiacco's identification**	**Locality**
1. *Heliophanus decoratus* (2 ♀♀)	*Attulus saliens*	LIBYA: Haret Affun, 9.06.1933, Caporiacco
2. *Heliophanus decoratus* (1 ♀, 2 juv.)	*Attulus saliens*	LIBYA: Bir el-Achuan, 4.03.1933, Caporiacco
3. *Yllenus tschoni* (1 ♂) [1]	*Attulus saliens*	LIBYA: el-Giululad, 15–17.03.1933, Caporiacco
4. *Yllenus tschoni* (the ♀ lectotype) [1]	*Attulus tschoni* (the syntype)	LIBYA: el-Giululad (Tazerbo), 15.03.1933, Caporiacco
5. *Yllenus* sp. (2 juv.)	*Attulus saliens*	LIBYA: el-Hauuari, 19.06.1933, Caporiacco
6. Salticidae: gen.sp. (2 juv.)	*Attulus saliens*	LIBYA: Auenat, 12.05.1933, Caporiacco
7. *Yllenus* sp. (1 juv.)	*Attulus saliens*	LIBYA: Auenat, 1933, Caporiacco
8. *Yllenus* sp. (2 juv.)	*Attulus saliens*	LIBYA: Aim-Zona, 20.04.1933, Caporiacco
9. *Yllenus* sp. (2 juv.)	*Attulus tschoni* (syntypes!) [2]	LIBYA: el-Auenat, 1933, Caporiacco
10. *Yllenus* sp. (1 juv.)	*Attulus albifrons*	LIBYA: Gialo, 07.1931, Patrizi
11. *Yllenus saliens* (1 ♀) [1]	*Attulus albifrons*	LIBYA: Hattia di Gur Atta near Gialo, 7.04.1931, Patrizi
12. *Yllenus* sp. (1 subadult ♂)	*Yllenus baltistanus* var. *shaksgamica* (the syntype) [4]	INDIA: Karakoram Mts.: "Gh. Gasherbrum, m 4400, 5.07.1929"
13. *Yllenus* sp. (1 subadult ♀)	*Yllenus baltistanus*	INDIA: Karakoram Mts.: "Paji, m 3500, 28.07.1929" [3]
14. *Yllenus baltistanus* (the ♀ lectotype) [1]	*Yllenus baltistanus* (the syntype) [4]	INDIA: Karakoram Mts.: "Paji, oasi, m 3500, 16.05.1929" [3]
15. *Yllenus baltistanus* (the ♂ paralectotype) [1]	*Yllenus baltistanus* (the syntype) [4]	INDIA: Karakoram Mts.: "Skardu (ca 35°18'N, 75°38'E), m 2200, 05.1929" [3]

[1] - This specimen is included in "Material examined" above.

[2] - Sic!; these ♀♀ were mentioned by Caporiacco [1936: 106] in the description of *Attulus tschoni* and hence they were the syntypes.

[3] - All these records are in present day Jammu and Kashmir State (Baltistan Mts) of India.

[4] - According to Caporiacco [1935: 208–209], the type series (syntypes) of *Yllenus baltistanus* and *Y. baltistanus* var. *shaksgamica* included many males and females. We have been able to borrow from the MZSF and re-examine only the ♀ lectotype and the ♂ paralectotype of the former species and a single subadult specimen of the latter one. Where the rest of Caporiacco's material (11 ♂♂ and 22 ♀♀ altogether) is deposited is not known.

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Invalid species names are given in square brackets ([]).

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