# ANNALES ZOOLOGICI 

## Marek 安abka

# Salticidae (Araneae) of Oriental, Australian and Pacific Regions, II. Genera Lycidas and Maratus 

[With 69 text-figures]


#### Abstract

The paper contains descriptions and taxonomic drawings of 22 Australian species of the genera Lycidas and Maratus. The definition of the genus Lycidas - hitherto monotypic - has been modified by including 18 species classified up till now to genera: Habrocestum, Saitis, Jotus, Cytaea, Eugasmia, Sigytes, Spilargis and Thorellia. Two other species of the genus are described as new ones. The genus Jotus is synonymized with Lycidas. Of the two species of the genus Maratus - one is described as new one. Some remarks are also presented on the affinities of both genera and the relationships of species within them.


Acknowledgements. The material for the present study was provided by: Dr. G. Rack - Zoologisches Institut und Zoologisches Museum, Universität Hamburg (ZMH), Dr. M. Moritz and Mrs. S. Ch. Fischer - Zoologisches Museum der Humboldt-Universitāt, Berlin (ZMB), Mr. F. R. Wanless - British Museum (Natural History), London (BMNH) and Dr. J. Heurtault - Muséum National d'Histoire Naturelle, Paris (MNHN). Prof. O. Krajs and his co-workers were very kind and helpful during my stay at the Hamburg University (financed by Deutscher Akademischer Austauschdienst). I consulted some problems concerning nomenclature with Doc. Dr. W. Stareqa (Institute of Zoology, Polish Academy of Sciences). Prof. J. Prószyíski (Teachers' Training College, Siedlce) has kindly offered critical remarks on the manuscript. I am grateful to them all. The study was conducted thanks to the financial help of Polish Academy of Sciences (Problem MR. II. 6).

Lycidas Karsch, 1878
1878 Lycidas Karsch, Mitt. münch. ent. Ver., 2: 25.
1881 Jotus L. Koch, Die Arachn. Austral.: 1243, syn. n.

The modified definition of the genus and a broader list of species are a result of revision of descriptive types from Australia, and - in the case of types of genera - also from other zoogeographical regions. These studies allow to include to the genus Lycidas 18 species classified hitherto within genera: Habrocestum, Saitis, Jotus, Cytaea, Eugasmia, Sigytes, Spilargis and Thorellia (KARSCH 1878, L. Koce and Keyserling 1871-1883, Simon 1909) (Table 1), which can be briefly justified:

Table 1. Revised list of species of the genus Lycidas and their position according to BonNet (1945-1961)

| at present | acc. Bonnet |
| :---: | :---: |
| 1. Lycidas anomaliformis nom. n . | Habrocestum nigriceps Keyserling, 1882 |
| 2. Lycidas anomalus Karscri | Iycidas anomalus Karsch, 1878 |
| 3. Lycidas auripes (L. K.) | Jotus auripes L. Koce, 1881 |
| 4. Lycidas bitaeniatus (Keys.) | Thorellia bitaeniata Keyserling, 1882 |
| 5. Lycidas braccatus (L. K.) | Jotus braccatus L. Koce, 1881 |
| 6. Lycidas chlorophtalmus (Sim.) | Eugasmia chlorophtalma Simon, 1909 |
| 7. Lycidas chrysomelas (Sim.) | Habrocestum chrysomelas Simon, 1909 |
| 8. Lycidas frosti (Peckr.) | Jotus frosti Peckieam et Peckham, 1901 |
| 9. Lycidas griseus (Kers.) | Cytaea grisea Keyserling, 1882 |
| 10. Lycidas heteropogon (Sim.) | Saitis heteropogon Simon, 1909 |
| 11. Lycidas karschi sp. n . |  |
| 12. Lycidas kochi sp. n . |  |
| 13. Lycidas michaelseni (Sim.) | Saitis michaelseni Simon, 1909 |
| 14. Lycidas minutus (L. K.) | Jotus minutus L. Koce, 1881 |
| 15. Lycidas nigriceps (Kers.) | Saitis nigriceps (Keyserling, 1882) |
| 16. Lycidas nigromaculatus (KEYS.) | Spilargis nigromaculata (Keyserling, 1883) |
| 17. Lycidas obscurior (Sim.) | Saitis michaelseni obscurior Simon, 1909 |
| 18. Lyeidas piliger (Kers.) | Cytaea piligera Keyserling, 1882 |
| 19. Lycidas pilosus (Keys.) | Habrocestum pilosum Kefserling, 1882 |
| 20. Lycidas scutulatus (L. K.) | Sigytes scutulata (L. Kocre, 1881) |
| 21. Lycidas speculifer (Sim.) | Habrocestum speculiferum Simon, 1909 |

1. The genus Habrocestum has a broad geographical range, and its character and affinities are at present an object of investigations (PrószyŃski in prep.). Four Australian species do not show affinities with H. pullatum Sim. - typespecies of the genus, and their transfer to the genus Lycidas seems fully justified.
2. Four species of the genus Saitis have been probably classified on the basis of male copulatory organs resembling the structure plan of $S$. barbipes Sm. (Figs. 1-3) - type-species of the genus. But only the comparison of the structure of epigyne in $\mathcal{S}$. barbipes (Fig. 4) and Australian species justified their inclusion to the genus Lycidas.
3. From the genus Jotus, having 14 nominal species (BONNET 1957), 4 species were included - together type-species of the genus $-J$. auripes
L. K. - and transferred to the genus Lycidas. Documentation of three of these species is presented here, whereas the description and reliable drawings of J. frosti Pecke. are given by Peckham and Peckham (1901). Japanese


Figs 14. đ, \& Saitis barbipes (Simon, 1868): palpal organ (1-3), internal structures of epigyne (4).
species (Bösenberg and Strand 1906) have been transferred to genus Phintella carlier (PrószyŃsKi 1983), also the drawings of African J. cinctus Th. (Prószyński 1984) prove the wrong its original diagnosis. Other species should be verified, but at present the genus Jotus should be suppressed and synonymized with Lycidas.
4. Two species of the genus Cytaea do not show affinities with the type of the genus - C. alburna Keys., whereas the structure of their epigynes is representative for the genus Lycidas.
5. The genus Eugasmia with type-species - E. sannio (Tr.) has been synonymized earlier with Carrholus (安ABKA 1985), nevertheless the Australian species - E. chlorophtalma Sm. is not related to $E$. sannio nor to the type of the genus Carrhotus - C. viduus C. L. K., but shows characters of the genus Lycidas.
6. The decision to transfer two species of the genera Sigytes and Spilargis has been taken although types of these genera were not available but this was sufficiently justified by affinity and the priority of the name Lycidas.
7. Thorellia bitaeniata Keys. (=Thorelliola b.) represents the type of epigyne structure proper for the genus Lycidas, but at the same time not showing any affinities with T. ensifera (Тн.) - type-species of the genus Thorellia ( $=$ Thorelliola).

Species examined of the genus Lycidas (sensu novo) vary considerably in body size - between 3.10 mm (L. nigriceps) and 7.30 mm ( $L$. scutulatus). The cephalothorax, and especially the thorax more elongated than usually. Abdomen sometimes with scutum - more frequently in males.

Male copulatory organs similar to those of some other genera of Salticidae: Euophrys, Chalcoscirtus, Saitis. This concerns especially the shape of bulbus and meandering seminal reservoir, the shape and base of embolus and conductor. Tibial apophysis single. In case of males interspecific differences are well visible, but similar structure of their copulatory organs makes it difficult to place the species in a morphological sequence. Epigyne shows a much greater variety of anatomical and functional aspects. Similarity to other genera of Salticidae is not so distinct as in males and the following characters of internal structures are worth pointing out (Figs. 5-16):

- the copulatory canals slightly broader at the beginning (L. scutulatus) to become later a big reservoir (proximal receiver a), its size varies in particular species, interspecific differences concern also the structure of copulatory openings and the position of accesory glands ( $x$ ) accompanying the proximal receivers,
- spermathecae (b) of all species similar in size. In L. bitaeniatus and L. scutulatus the well visible accesory glands ( $x_{1}$ ) are connected with spermathecae, in other species they are not so distinct and may only presume that they exist,
- intermediate canals between the proximal receivers and spermathecae varies in length, in an extreme case (L. anomaliformis) they forms a double coil.


Figs. 5-16. Morphological series of internal structures of epigyne in the genus Lycidas: L. bitaeniatus (5), L. kochi (6), L. scutulatus (7), L. michaelseni (8), L. braccatus (9), L. ob. scurior (10), L. karschi (11), L. nigriceps (12), L. griseus (13), L. anomaliformis (14), L. he-

From this plan of epigyne structure two species distinctly differ. In $L$. heteropogon (Fig. 15) the proximal receiver and spermatheca are joined by a long canal into which runs a short membraneous canal from the copulatory opening. The location of the accessory gland is also different from the usual one. In L. pilosus the copulatory opening is connected with a membraneous receiver - possibly a nucleus of proximal receiver.

The presence of two structures collecting the sperm in the epigyne is puzzling. Perhaps it remains only for a short time in proximal receivers and enriched by the secretion of accessory glands ( $x$ ) moves into the spermathecae, where it mixes (?) with the secretion of glands $x_{1}$. However, the latter are very indistinct or absent. It is possible that glands $x$ take on their function and glands $x_{1}$ are being gradually reduced. Only histological and biochemical investigations can explain this problem. Double accessory glands occur rather rarely (e.g. in some species of Euophrys and Chalcoscirtus) - usually accompanied by spermathecae.

The suggested morphological sequence of species (Figs. 5-16) illustrates first of all the scale of variability of internal structures of epigyne without settling the question whether the evolution of the genus followed the phyletic model or some other course.

In the discussion on phylogenetic and zoogeographical relationships of the genus Lycidas striking is the similarity of the structure of copulatory organs of its representatives and the South American species of the genus Euophrys (Galiano 1962, 1964), Pensacola and Tariona (Galiano 1963).

In order to make a list of species of the genus Lycidas the following comparative material was used:

- the type-species of the genus Habrocestum: 1 ㅇ "Habrocestum pullatum Simon, Pyrenées", MNHN 11.121,
- the type-species of the genus Saitis: 1 ô, 1 ㅇ "Saitis barbipes Smon, Rheinprovinz, Bösenberg det., 1900 ", ZMH,
- the type-species of the genus Cytaea: 4 of "Cytaea alburna Keyserling, Syntypen, Australien, Peak Downs (Mus. Godeffroy Nr. 8644)", ZMH,
- the type-species of the genus Thorellia: 2 ỡ "Thorellia ensifera Thorell, Jaluit, Dr. Schnee", ZMB 19568.


## Lycidas nigromaculatus (Keyserling, 1883), comb. n.

1883 Ergane nigromaculata Keyserling, Die Arachn. Austral.: 1463.
1903 Thorellia nigromaculata: Simon, Hist. nat. des Araign., 2 (4): 765.
1903 Spilargis nigromaculata: Simon, Hist. nat. des Araign., $2(4): 790$.
Material: 1 o "Ergane nigromaculata Keyserling, Holotype. Rockhampton, DaeMEL (Mus. Godeffroy Nr. 8340)", ZMH.

Male. Damaged specimen - without abdomen and some legs, with only one palpal organ. Surroundings of lateral eyes I, eyes II and III black-brown,
remaining part of cephalothorax brown. Anteriorly grey-orange hairs. Length of cephalothorax 1.55. Clypeus orange. Chelicerae, maxillae, labium and sternum orange-brown. Palpal organ (Figs. 17, 18) with single, broad, falcate, bent embolus. Bulbus big, reaching below the base of tibia, with a meandering seminal reservoir. Tibial apophysis narrow, laterally bent. Legs orange-brown, distal segments paler. Hairs and spines grey-orange.

A species closely related to $L$. chrysomelas, from which it differs by a thicker form of palpal organ and a bigger bulbus.


Figs. 17-18. © Lyoidas nigromaculatus (Keyserling, 1883): palpal organ.

Lycidas chrysomelas (Simon, 1909), comb. n.
1909 Habrocestum chrysomelas Simon, Die Fauna S.-W. Austral., 2(12): 201.
Material: l ${ }^{\text {o }}$ "Habrocestum chrysomelas Simon, Holotypus, Lion Mill, Michaelsen u. Hartmeter", ZMB 18603.

Male. Cephalothorax brown, surroundings of eyes darker. Hairs sparse - grey and brown - denser near eyes. Length of cephalothorax 1.80, length of eye field 0.60 , width of eyes I and III 1.20. Abdomen with a grey-brown scutum. Along the median part a light brown belt with metallic lustre, the fringe around scutum similar in colour. On the fringe brown protruding hairs. Length of abdomen 2.01. Clypeus orange-brown with sparse brown bristles. Chelicerae orange-brown, maxillae and labium grey-orange with paler tips, sternum grey-orange with a darker margin. Venter orange with minute grey spots.

Palpal organ (Figs. 19-22) similar as in L. nigromaculatus with less hairs, bulbus relatively smaller. Legs grey-orange-brown with plenty of grey and brown hairs and light brown spines.


Figs. 19-22. © Lycidas chrysomelas (Simon, 1909): palpal organ.

Lycidas bitaeniatus (Keyserling, 1882), comb. n.
1882 Thorellia bitaeniata Keyserling, Die Arachn. Austral.: 1363.
Material: 1 우 "Thorellia bitaeniata Keyserling, Holotype, Peak Downs (Mus. Godeffroy Nr. 8650)", ZMH.

Female. Lateral surfaces of cephalothorax and anterior part of eye field orange, the remaining part of cephalothorax and eye field white-yellow, sur-
roundings of lateral eyes I, II and III black. Laterally white setae, near eyes also brown bristles. Length of cephalothorax 1.50. Abdomen macerated, whitegrey with two grey-brown longitudinal streaks darkening posteriorly and joining near spinnerets. Setae not very numerous - light brown, on the an-


Fgs. 23-26. ㅇ Lycidas bitaeniatus (Keysering, 1882): epigyne (23) and its internal structures (24). ㅇ Lycidas kochi sp. n.: epigyne (25) and its internal structures (26).
terior margin also light brown bristles. Length of abdomen 1.70. Spinnerets white-grey. Clypeus yellow with several white-grey and three light brown bristles. Chelicerae, maxillae, labium and sternum yellow, pedipalps and venter white-yellow. Epigyne (Figs. 23, 24) with two membraneous oval depressions divided by a narrow median ridge. Internal translucent structures in the form of vast thin-walled copulatory canals running into oval spermathecae,
accessory glands ( $x_{1}$ ) where both structures join. Proximal receivers absent, thus allowing to place the species at the beginning of the morphological sequence and to treat it (or another species with a similar epigyne structure) as a hypothetical initial form in evolution of genus. Legs yellow with sparse, white and yellow-orange setae, hairs and spines.

## Lycidas kochi sp. n.

Material: 1 ㅇ holotypus, 1 iq paratypus "Habrocestum nigriceps Keyserling, Peak Downs (Mus. Godeffroy Nr. 7808)", ZMH.

Female (holotype). Eye field red-orange, surroundings of lateral eyes I, II and III black. Remaining part of cephalothorax orange. Hairs sparse, brown, near eyes denser - longer, on eye field also white setae. Length of cephalothorax 2.10. Abdomen with a white-grey median belt and rows of grey-brown spots on yellow background. Setae sparse, grey-brown, anteriorly also present bristles. Length of abdomen 2.80. Spinnerets yellow. Chelicerae, maxillae and labium orange, sternum yellow, venter light yellow. Epigyne (Figs. 25, 26) externally similar to other representatives of the genus. As in the previous species proximal receivers and connected with them accessory glands ( $x$ ) are also absent in internal structures. Copulatory canals longer than in L. bitaeniatus. These characters allow to consider L. kochi as an intermediate species between L. bitaeniatus and L. scutulatus. Legs orange with whiteyellow and brown hairs and orange spines.

Lycidas scutulatus (L. Косн, 1881), comb. n.

1881 Ergane scutulata L. Koch, Die Arachn. Austral.: 1268.
1903 Sigytes scutulata: Simon, Hist. nat. des Araign., 2(4): 727, 734.
Material: 1 ㅇ "Ergane scutulata Koce, Syntypus, Peak Downs (Mus. Godeffroy Nr. 8339)", ZMH.

Female. Eye field red-brown, surroundings of eyes black, remaining part of cephalothorax light orange. Setae sparse, orange-brown, near eyes also brown bristles. Length of cephalothorax 2.60. Abdomen considerably macerated with a yellow median belt, laterally dark-grey-brown, lateral surfaces yellow. Setae sparse, light brown, bristles more numerous, similar in coloration. Length of abdomen 3.90. Spinnerets grey brown. Clypeus yellow-orange with sparse white-yellow and dark orange hairs. Chelicerae, maxillae and labium
dark orange, sternum yellow, venter white-yellow with traces of small dark grey spots. Epigyne (Figs. 27, 28) in the form of two vast membraneous depressions divided by a delicate median ridge. Internal structures distinctly translucent. Proximal receivers in the form of small broadenings with distinct accessory glands $(x)$. The shape of proximal receivers is a distinctive cha-


Figs. 27-29. 아 Lycidas scutulatus (L. Koce, 1881): epigyne (27) and its internal structures (28). \& Lycidas michaelseni (Simon, 1909): internal structures of epigyne (29).
racter of the species. Intermediate canals short, spermathecae oval. Proximal segments of legs yellow, other gradually darker, tarsi dark orange.

## Lycidas michaelseni (Simon, 1909), comb. n.

## 1909 Saitis Michaelseni Simon, Die Fauna S.-W. Austral., 2 (12): 197.

Material: 1 ㅇ "Saitis michaelseni Simon, Holotypus, Boyanup, Michaelsen u. HartMEYER", ZMB 19378.

Female. Morphological description of species is not possible as the specimen has been divided into fragments and submerged in Canada balsam; coloration is not preserved, also body shape and dimensions are deformed. Epigyne (Fig. 29) with thick-walled, pear-shaped proximal receivers accompanied by accessory glands ( $x$ ). Intermediate canals rather short. Spermathecae thickwalled, oval. The general plan of epigyne resembling that of $L$. braccatus, but proximal receivers relatively smaller and accessory glands located more distally in relation to copulatory openings.

Lycidas auripes (L. Koch, 1881), comb. n.

1881 Jotus auripes L. Koch, Die Arachn. Austral.: 1243.
Material: 1 © "Jotus auripes Koch, Holotype, Sydney (Mus. Godeffroy Nr. 8636)", ZMH.

Male. Surroundings of eyes black, remaining part of cephalothorax redbrown. Around the bottom margin and laterally a broad fringe of white setae, near eyes also quite dense brown hairs. Length of cephalothorax 2.5̃. Abdomen with a broad grey-orange median belt. Laterally grey-brown spots forming diagonal rows on yellow background. Length of abdomen 2.30. Spinnerets yellow. Clypeus yellow-orange. Chelicerae orange-brown, maxillae and labium yellow-orange, sternum orange, venter grey-orange. Palpal organ (Figs. 30, 31) with characteristic numerous and long bristles, white, orange and brown. Some of them feathery flattened. In comparison with the closely related $L$. piliger and L. braccatus the palpal organ is more slender, tibia - longer, its apophysis dentate on internal edge, embolus terminated taperingly - without a visible membraneous keel, conductor more sclerotized. Four basal segments of legs orange, other slightly darker - in legs I brown, only tarsus yellow. Ventrally on legs I a brush of dense bristles - yellow on femur and brown on tibia and metatarsus. Legs II with similar bristles only on femora. Other legs with orange-brown hairs and spines.


Figs. 30-33. of Lycidas auripes (L. Kocr, 1881): palpal organ (30, 31). of Lycidas piliger (Keyserling, 1882): palpal organ (32, 33).

Lycidas piliger (KEXSERLING, 1882), comb. n. 1882 Cytaea piligera Keyserling, Die Arachn. Austral.: 1381.

Material: 1 ó "Cytaea piligera Keyserling, Holotype, Gayndah (Mus. Godeffroy Nr. 8643)", ZMH.

Male. Eye field dark brown, remaining part of cephalothorax brown. Posterior and lateral surfaces with sparse white-grey and denser brown setae. Around eyes hairs longer - brown. Length of cephalothorax 1.90, length of eye field 0.80 , width of eyes I 1.20, width of eyes III 1.15. Abdomen anter orly brown, posteriorly orange-brown. On lateral surfaces rows of minute orange spots. On the margin grey and single brown setae, the anterior edge also with white bristles. Length of abdomen 1.80. Spinnerets grey. Clypeus
amber-coloured, its bottom edge dark grey, hairs single, grey, bristles brown. Chelicerae, maxillae, labium and sternum amber-clooured, venter grey-orange. Palpal organ (Figs. 32, 33) resembling that of L. braccatus, but upper part of bulbus transformed into a membrancous cushion; on it with a broad base a bluntly terminated embolus with a membraneous keel and short, dagger-like conductor. Legs amber-coloured with orange and orange-brown hairs and spines.

## Lycidas braccatus (L. Kосн, 1881), comb. n.

## 1881 Jotus braccatus L. Kocr, Die Arachn. Austral.: 1254.

Material: 1 đ̌, 1 ㅇ "Jotus braccatus Kocy, Syntypen, Gayndah (Mus. Godeffroy Nr. 8633)", ZMH.

Male. Cephalothorax resembling that of L. auripes, its length 2.30. Abdomen yellow, only medially grey-brown spots and tufts of brown setae. Towards lateral sulfaces traces of grey-brown spots forming diagonal rows. On anterior margin grey-brown protruding bristles. Length of abdomen 1.90. Clypeus orange-brown. Chelicerae orange-brown, maxillae, labium and sternum somewhat paler. Venter with orange-grey median patch on yellow background. Palpal organ (Figs. 34, 35) similar as in L. piliger, but bulbus more slender, conductor membraneous, embolus relatively longer. Also the membraneous cushion smaller in the upper part of bulbus. Dense setation of palpal organ: in basal part of cymbium dark brown bristles, distally yellow hairs. On retrolateral surface of tibiae - the behind apophysis - a tuft of dark brown bristles. Legs I light brown, tarsi yellow, other legs paler. Hairs white and orange, spines dark orange.

Female. A specimen considerably macerated. Eye field light brown, near eyes III black spots, from the eye field border to posterior margin of thorax an orange-brown belt. The remaining part of cephalothorax orange. Setae white-yellow, bristles orange-brown. Abdomen with orange and posteriorly brown spots on yellow background. Setae dense - yellow, white-grey, orange-brown and brown - on light or dark areas, respectively. Also quite dense - especially in the anterior part - orange-brown bristles. Length of abdomen 2.10. Spinnerets yellow. Clypeus, chelicerae, pedipalps, maxillae, labium, sternum and venter yellow. Copulatory openings of epigyne (Figs. 36,37 ) slit-like, covered by a membraneous flange. Proximal receivers exceptionally big with accessory glands ( $x$ ). Accessory glands ( 1 ) - indicated by an arrow - accompany the spermathecae. Epigyne resembling that of $L$. michaelseni, but internal structures relatively bigger, copulatory openings narrower, and accessory glands located in their vicinity. Legs yellow with orange and orange-brown hairs and spines.


Figs. 34-37. ©. \& Lycidas braccatus (L. Kocn, 1881): palpal organ (34, 35), epigyne (36) and its internal structures (37).

Lycidas speculifer (Simon, 1909), comb. n.
1909 Habrocestum speculiferum Simon, Die Fauna S.-W. Austral., 2(12): 202.
Material: 1 of "Habrocestum speculiferum Simon, Holotypus, North Fremantle", ZMB 18569.

Male. Cephalothorax elongatcd, quite slender, light brown, surroundings of eyes darker. Setae quite numerous - especially on the margin - brown and white. Near eyes I also brown bristles. Length of cephalothorax 2.22, length
of eye field 0.78 , width of eyes I 1.44, width of eyes III 1.32. Abdomen with light brown scutum. The margin of scutum dark grey. Remaining part of abdomen brown with numerous brown hairs, on anterior margin also brown and white bristles. Length of abdomen 2.34. Spinnerets brown. Clypeus yelloworange with darker lower edge, covered with white and yellow hairs and brown bristles. Chelicerae orange-brown with paler spots at the base. Maxillae and labium grey-orange, sternum orange-brown with dense white hairs. Venter in its basal part yellow, posteriorly dark-orange-grey. Palpal organ (Figs. 38-41) similar as in the three former species, but bulbus and embolus bigger and differently set, tibial apophysis thicker and longer. Legs quite long, at the basal part yellow, distal segments darker - dark orange. Hairs quite numerous - white, orange and brown, spines orange-brown.


Figs. 38-41. © Lycidas speculifer (Simon, 1909): palpal organ.

## Lycidas obscurior (Smion, 1909), comb. n.

1909 Saitis Michaelseni obsourior Simon, Die Fauna S..W. Austral., 2 (12): 198.
Material: 1 \& "Saitis michaelseni obscurior Simon, Syntype, Suidwest-Australien, Stat. 109, Subiaco, nördlich 9. 12. 1905", ZMH.

Female. Surroundings of eyes brown, around lower margin of cephalothorax a yellow streak with white setae. Remaining part of cephalothorax orangebrown. Setae orange-brown, white and lightgrey, near eyes also sparse light brown bristles. Length of cephalothorax 2.05 , length of eye field 1.05 , width of eyes I 1.70, width of eyes III 1.65. Abdomen broad, beige with traces of darker


Figs. 42-43. ㅇ Lycidas obscurior (Simon, 1909): epigyne (42) and its internal structures (43).
median belt and with tufts of light brown setae. Anterior margin with yellowbrown bristles. Length of abdomen 3.80. Spinnerets yellowish. Clypeus yelloworange, hairs similar in colour. Chelicerae and labium amber-coloured, sternum, maxillae and venter yellow. Epigyne (Figs. 42, 43) externally different than in other representatives of the genus: copulatory openings well visible,
facing the epigastric furrow - with translucent proximal receivers located on vast depressions confined by membraneous flanges. Accessory glands ( $x$ ) well visible, intermediate canals short, spermathecae pear-shaped. The structure of epigyne is sufficiently characteristic and it seems quite unjustified to consider the species as a subspecies of $L$. michaelseni (Srmon, 1909). Bases of legs yellow, further segments amber-coloured.

## Lycidas karschi sp. n.

Material: 1 iq holotypus 1 of paratypus "Jotus scutulatus Kocн, Sydney (Mus. Godeffroy Nr. 8627)", ZMH.

Female (holotype). Eye field brown, surroundings of eyes black, remaining part of cephalothorax orange. Setae light grey, adpressed. Near eyes


Figs. 44-45. \& Lycidas karschi sp. n.: epigyne (44) and its internal structures (45).
also brown bristles. Length of cephalothorax 2.90, length of eye field 1.10, width of eyes I 1.80, width of eyes III 1.70. Along the median part of abdomen two grey-brown narrow streaks and a similar margin around lateral areas. Remaining part of abdomen yellow. Setae yellowish, bristles rather sparse brown. Length of abdomen 4.40. Spinnerets brown. Clypeus orange with long hairs similar in colour. Chelicerae, maxillae, labium and sternum orange, venter yellow. Epigyne (Figs. 44, 45) vast, internal structures very translucent. Copulatory openings broad, proximal receivers elongated with accessory glands $(x)$ in the distal part. Intermediate canals rather short. Spermathecae large, oval with well indicated fertilization canals and accessory glands ( $x_{1}$ ). The plan of epigyne structure resembling that of $L$. nigriceps and L. griseus. Legs I and II orange, III and IV paler. Setae short, light brown and orange not very dense. Spines orange-brown.


Figs. 46-47. of Lycidas nigriceps (Keyserling, 1882): epigyne (46) and its internal structures (47).

# Lycidas nigriceps (Keyserling, 1882), comb. n. 


#### Abstract

1882 Thorellia nigriceps Keyserling, Die Arachu. Austral.: 1359. 1911 Saitis nigriceps: Rainbow, Rec. Austral. Mus., 9: 286. Material: 1 \& "Thorellia nigriceps Keyserling, Holotype, Gayadah (Mus. Godeffroy Nr. 7647)", ZMH.


Female. A macerated specimen. Eye field orange-brown, surroundings of lateral eyes I, II and III black-brown, remaining part of cephalothorax orange. Setae sparse, orange-brown and white, near eyes longer. Length of cephalothorax 2.80. Abdomen oval, white-yellow - coloured spots are not preserved. Hairs grey-brown. Length of abdomen 3.60. Spinnerets white-yellow. Clypeus orange, chelicerae, pedipalps, maxillae, labium and sternum similar in colour, venter white-yellow. Epigyne (Figs. 46, 47) with distinctly translucent internal structures. Copulatory openings broad, running into cup-shaped proximal receivers with accessory glands ( $x$ ). Intermediate canals longer than in previons species, but shorter than in L. griseus. On the surface of oval spermathecae indistinct structures (indicated by an arrow) - perhaps accessory glands $\left(x_{1}\right)$. Legs orange, hairs and spines dark orange.

Lycidas griseus (Keyserling, 1882), comb. n.

1882 Cytaea grisea Kexserling, Die Arachn. Austral.: 1386.
Material: 1 o "Cytaea grisea Kerserling, Paratype, Gayndah (Mus. Godeffroy Nr. 8642)", ZMH.

Fomale. Eye field brown, surroundings of eyes darker, remaining part of cephalothorax yellow-orange. Posteriorly and laterally orange and yellow setae, near eyes white and single brown bristles. Length of cephalothorax 2.20. Along the median part of abdomen a broad white-yellow belt, laterally white-yellow areas with big brown-grey spots. Setae sparse, white-grey, anteriorly also orange bristles. Length of abdomen 2.80. Spinnerets yellowish-grey. Clypeus yellow with dense white hairs and single grey bristles. Chelicerae yel-low-orange, pedipalps white-yellow, maxillae, labium and sternum yellow, venter white-grey with minute darker spots. Epigyne (Figs. 48, 49) resembling that of $L$. karschi, but accessory glands ( $x$ ) not so far from copulatory openings, intermediate canals longer, spermathecae more oval and fertilization canals barely visible. Basal segments of legs yellow, distal ones yellow-orange. Hairs yellow and dark orange, spines dark orange.


Figs. 48-49. ㅇ Lycidas griseus (Keyserling, 1882): epigyne (48) and its internal structures (49).

## Lycidas anomalus KARSCH, 1878

1878 Iycidas anomalus Karsch, Mitt. münch. ent. Ver., 2: 25.
Material: 1 б' "Lycidas anomalus Karsch, Holotypus, NS Wales, Dafmel", ZMB 1771.

Male. Cephalothorax brown, surroundings of eyes darker. In the vicinity of eyes III and on thorax small tufts of white fine setae and sparse brown hairs. On eye field setae denser, light grey, near posterior lateral eyes - red. Above eyes I also brown bristles. Length of cephalothorax 2.34, length of eye field 0.90 , width of eyes $I$ and III 1.62. Abdomen considerably macerated and deformed with grey-brown scutum and sparse brown hairs on the margin. Length
of abdomen 1.74. Clypeus orange, lower edge slightly darker. Chelicerae, maxillae, labium and sternum orange-brown, venter grey-orange. Palpal organ (Figs. 50, 51) with orange-brown cymbium, other segments yellow with dense white hairs. On the surface of bulbus a meandering seminal reservoir. Em-


Fige. 50-53. © Lycidas anomalus Karsce, 1878: palpal organ (50,51). ot Lycidas anomaliformis nom. n.: palpal organ (52, 53).
bolus narrow, forming a single coil, accompanied by a shorter strongly sclerotized conductor. Tibia with a step-like protrusion supporting the bulbus, apophysis narrow, laterally bent with a barely visible tooth on the internal margin. In comparison with $L$. anomaliformis tibia better developed, embolus relatively shorter and the membraneous keel in its vicinity invisible. Legs I absent, legs II in basal part yellow, distal segments orange-brown, legs IV similar in colour. Legs IIT darker, along their lateral surfaces a dark grey belt.

## Lycidas anomaliformis nom. n .

1882 Habrocestum nigriceps Keyserling, Die Arachn. Austral.: 1409.
Material: 1 d́, 1 ㅇ "Habrocestum nigriceps Keyserling, Types, Rockhampton, Keyserling coll.", BMNH 1891/350.

Male. Surroundings of eyes black, remaining part of cephalothorax dark brown. Anteriorly grey and grey-brown hairs. Length of cephalothorax 1.68, length of eye field 0.72 , width of eyes I 1.20 , width of eyes III 1.24. Abdomen with grey-dark-brown scutum. Across the posterior part a light grey streak.


Figs. 54-55. ㅇ Lycidas anomaliformis nom. n.: epigyne (54) and its internal structures (55).

Setae single, grey. Length of abdomen 1.32. Spinnerets grey. Clypeus greyorange, with single' grey setae, below median eyes I three light brown bristles. Chelicerae orange-grey, venter light grey with a grey-brown coat. Palpal organ (Figs. 52, 53) resembling that of L. anomalus, but bulbus broader, embolus relatively longer with a membraneous keel, tibia more slender. Legs orange, hairs and spines also.

Female. Eye field brown with dense grey and brown setae and longer brown hairs. Remaining part of cephalothorax grey-orange-brown with sparse grey and single brown hairs. Length of cephalothorax 2.52, length of eye field 1.01, width of eyes I 1.68, width of eyes III 1.72. Abdomen dark grey with a mosaic of yellow-grey spots - bigger in the middle part, forming an indistinct light streak. Around the abdomen a yellow margin. Setae rather dense, brown, on the margin also grey-yellow. On the anterior margin orange bristles. Length of abdomen 2.28. Spinnerets grey-yellow. Clypeus orange-grey with sparse grey setae and three light brown bristles as in male. Chelicerae grey-orange-brown, pedipalps yellow-orange, maxillae and labium orange-grey, sternum slightly paler. Venter light grey with minute dark grey spots. Along the median part of epigyne (Figs. 54, 55) a flat ridge dividing two membraneous depressions. Visible are translucent spermathecae. Proximal receivers small, elongated, joining big oval spermathecae by much elongated intermediate canals. Legs grey orange, darker around joints, femora with grey rings medially. Hairs grey and orange, spines orange. The female is distinguished by ong intermediate canals.

## Lycidas heteropogon (Simon, 1909), comb. n.

1909 Saitis heteropagon Simon, Die Fauna S.-W. Austral., 2(12): 198.
Material: 1 \& "Saitis heteropogon Simon, Holotypus, Busselton, Austral.", ZMB 19377.
Female. Cephalothorax brown, surroundings of eyes black. Along the middle part a lighter streak covered with white setae. On the remaining area setae very dense - white and grey, anteriorly also grey-brown longer hairs. Length of cephalothorax 1.72, length of eye field 0.76 , width of eyes I 1.32, width of eyes III 1.24. Abdomen oval with a yellow irregular median belt covered with white and orange-brown setae. On both sides of belt fine light brown setae giving colour. On the margin yellow belt. Anterior margin with white and light brown bristles. Length of abdomen 2.28. Clypeus brown with dense white hairs. Chelicerae, pedipalps, maxillae, labium and sternum orange, venter grey-yellow. Epigyne (Figs. 56, 57) in the form of two oval depressions divided by a narrow median ridge. Internal structures strongly translucent different from that of other representatives of the genus: copulatory openings instead of running into proximal receivers run into intermediate canals with accessory glands. Proximal receivers and spermathecae oval, the latter also with accessory glands ( $x_{1}$ ). Such epigyne structure makes it difficult to determine the species affinities. Because of dimensions of intermediate canals L. anomaliformis seems to be the most related. Perhaps such a model of epigyne has developed independently (Figs. 5-16) - similarly as in L. pilosus.


Figs. 56-57. ㅇ Lycidas heteropogon (Simon, 1909): epigyne (56) and its internal structures (57).

Lycidas pilosus (KEYSERLING, 1882), comb. n.
1882 Habrocestum pilosum Keyserling, Die Arachn. Austral.: 1401.
Material: 1 \& "Habrocestum pilosum Keyserling, Holotype, Australien, Bowen (Mus. Godeffroy Nr. 7736)", ZMH.

Female. Eye field brown, surroundings of eyes darker, remaining part of cephalothorax orange-brown. Setae dense, white. In the vicinity of eyes also orange and brown longer hairs. Length of cephalothorax 3.20, length of eye field 1.20, width of eyes I 2.01, width of eyes III 1.91. Abdomen grey-brown, covered with grey-yellow, brown and white hairs, the latter forming an irregular herring-bone pattern. In the middle part two irregular white spots. Length
of abdomen 2.80. Spinnerets orange-brown. Clypeus orange with white-grey and grey-orange long hairs. Chelicerae red-brown, maxillae and labium dark orange, sternum yellow-orange. Venter yellowish-light-grey with minute grey spots. Epigyne (Figs. 58, 59) in the form of two egg-shaped, delicately creased areas. Internal structures barely translucent. Copulatory openings (indicated by an arrow) run into membraneous receivers (proximal receivers?) with large accessory glands. Intermediate canals long, spermathecae oval. Copulatory


Figs. 58-59. ㅇ Lycidas pilosus (Keyserling, 1882): epigyne (58) and its internal structures (59).
openings accompanied by numerous creases and flanges acting probably as slideways for embolus. Striking is the lack of distinct proximal receivers in epigyne structure, and the membraneous receivers may be their nucleus or at least function analogously. Basal segments of legs yellow-orange, remaining part of legs I orange-brown, other legs slightly paler - dark orange. Hairs dense - white and longer, less dense - brown. Spines orange-brown.

Lycidas chlorophtalmus (SLMON, 1909), comb. n.
1909 Eugasmia chlorophtalma Simon, Die Fauna S.-W. Austral., 2(12): 203.
Material: 1 © "Eugasmia chlorophtalma Simon, Holotypus, Australien, York", ZMB 18137.

Male. Cephalothorax rather thickset. Surroundings of eyes I dark brown, of eyes III - black. Below eye field an orange streak with tufts of white ad-


Figs. 60-63. © Lycidas chlorophtalmus (Simon, 1909): palpal organ (60, 61). ot Lycidas minutus (L. Kocr, 1881): palpal organ (62, 63).
pressed setae. Remaining part of cephalothorax brick-red. Posteriorly white and light brown setae, in the vicinity of eyes also light brown bristles. Length of cephalotherax 2.97, length of eye field 1.10, width of eyes I and III 1.87. Abdomen oval with grey-light-brown median belt and a mosaic of similar streaks and spots on grey-yellow background. Setae sparse, whitish and light grey. Length of abdomen 2.69. Spinnerets greyish-yellow. Clypeus orange with white hairs. Chelicerae orange, quite long, maxillae and labium orange with paler apices, sternum slightly paler with orange hairs, venter grey-orange. Palpal organ (Figs. 60, 61) yellow with long, light brown and white hairs. Solidly built. Embolus with accompanying digital conductor on an oval base. Second conductor the size of embolus. Tibial apophysis laterally bent, slightly dentate on the internal edge. Structure and placing of embolus other than in species previously described. Similar characters also present in L. minutus raise some doubts as to the genus to which both species belong. There are no females, the presence of which could dispel these doubts. Legs thick, I - oran-ge-brown with a brush of black-brown hairs on ventral area of patella, tibia and metatarsus and also with short feathery hairs on dorsal areas of these segments. Legs II paler, hairs less dense. Legs III and IV without a brush of hairs. On all legs white and light brown setae. Spines long, orange-brown.

Lycidas minutus (L. Koci, 1881), comb. n.

1881 Jotus minutus L. Koch, Die Arachn. Austral.: 1257.
Material: 1 ô "Jotus minutus Koch, Holotype, Australien, Peak Downs (Mus. Godeffroy Nr. 8629), ZMH.

Male. Cephalothorax dark brown, only surroundings of posterior lateral eyes, II and III darker. On thorax sparse white setae, in the vicinity of eyes also longer light brown hairs. Length of cephalothorax 1.90. Abdomen with a broad light brown median belt. Anteriorly also two lateral streaks similar in colour. Remaining part of abdomen yellow, laterally turning grey. On darker areas remnants of light brown setae. Anteriorly also light brown and white--grey bristles, laterally and posteriorly light grey hairs. Length of abdomen 1.70. Spinnerets yellow. Clypeus, chelicerae, maxillae, labium and sternum yellow-orange, venter yellow. Palpal organ (Figs. 62, 63) rather thick. Embolus - similarly as in previous species - placed on an oval thick base. There is only one conductor, tibial apophysis less bent. Tarsi of legs I yellow, other segments orange. Ventrally with tufts of dark orange bristles. Other legs dark yellow with yellow hairs and yellow-orange spines.

A species related to L. chlorophtalmus, differing in the structure of embolus and conductor and much smaller in size.

## Maratus Karsch, 1878

1878 Maratus Karsce, Mitt. münch. ent. Ver., 2: 27.
The structure of male copulatory organs suggests the affinity of the genus with Lycidas. This is proved by the form of palpal organs, similar course of seminal reservoir, structure of embolus and conductor and single tibial apophysis. The character distinguishing genus Maratus is the entirely different body appearance: abdomen rectangular, covered with vast scutum reaching the ventral area. The body with an intense metallic lustre and the bright colours - mainly green and red - produce an interesting coloration.

BonNet (1957) has given only one species of the genus - M. amabilis -- known from Australia

## Maratus amabilis Karscr, 1878

1878 Maratus amabilis Karsch, Mitt. münch. ent. Ver., 2: 27.
Material: 1 of "Maratus amabilis Karsch, Holotypus, Austral., Sept., Daemel" ZMB 1553.

Male. Cephalothorax dark brown. Anterior and lateral areas of eye field with fine dense scaly orange setae. Remaining part of eye field and region of fovea media with white setae. Around lower margin protruding white hairs. Also present white-grey hairs on the whole surface and grey bristles near eyes. Length of cephalothorax 2.09, length of eye field 0.82 , width of eyes $I$ and III 1.48. Abdomen rectangular (Fig. 66) covered with scutum - reaching the ventral area - with an intense green metallic lustre. On its surface orange and red-orange streaks of scaly setae. Furthermore, the entire surface and especially the margin with orange hairs. Anterior margin with grey-brown bristles. Lateral area with a black oval spot surrounded by red setae. Length of abdomen 2.14. Clypeus dark brown with white-grey longer and white shorter hairs. Chelicerae, maxillae, labium and sternum brown, venter orange. Palpal organ $(64,65)$ grey-brown, club-shaped. Bulbus broad with meandering seminal reservoir. Upper part of bulbus in the form of two flaky outgrowths. Embolus strongly sclerotized, conductor broad, tibial apophysis narrow, laterally bent. Legs greyish-brown with dense white and grey protruding hairs. Spines grey-brown.

## Maratus amoenus sp. n.

Material: 1 s "Maratus amoenus Karsch, Holotypus, Austral., Sept., Daemel", ZMB 1554.

Male (holotype). Cephalothorax dark brown. Along the eye field 3 streaks of_white setae divided by red ones. On thorax tufts of white scaly setae, around


Fige. 64-69. 才 Maratus amabilis Karsce, 1878: palpal organ (64,65) and schematic diagram of coloration of abdomen (66). © Maratus amoenus sp. n.: palpal organ (67, 68) and schematic diagram of coloration of abdomen (69). Abbreviations: ro - red-orange, mg - metallic grey, r - red, mgg - metallic grey-green.
lower margin protruding white hairs. Also present sparse grey bristles. Length of cephalothorax 2.20 , length of eye field 0.92 , width of eyes I and III 1.54 . Abdomen (Fig. 69) relatively longer than in the previous species - also rectangular and covered with scutum. In the anterior part 3 longitudinal streaks of red scaly setae on a green background having a metallic lustre. Posteriorly on a grey-green background a transverse green streak and 3 pairs of spots of red setae, laterally becoming 3 pairs of streaks on a green metallic background. Lack of black dot present in M. amabilis. On the margin grey-orange setae, on the whole surface and especially on anterior margin long grey bristles. Length of abdomen 2.20 . Clypeus light brown with long white hairs. Chelicerae, maxillae, labium and sternum grey-brown, venter grey-orange. Palpal organ (Figs. 67,68) similar as in the previous species, but bulbus narrower, in its upper part only one flaky outgrowth. Conductor narrower and shorter, partly hidden under embolus. Tibial apophysis more adjacent. Legs I and L orange with black-grey spots - especially in the region of joints. Legs III and IV dark-grey-brown, only their tarsi orange. Hairs dense - white adpressed, grey and brown - protruding. Spines brown.

Both species of the genus differ in body coloration, shape of abdomen and details of structure of palpal organs.

The name M. amoenus has been given by Karsch, but it is not clear why it is not published in the paper on genus Maratus. Especially as in the collection of Zoological Museum in Berlin - elaborated by Karsci - both species are collected and catalogued one after another.

## REFERENCES

Bonnet P. 1957. Bibliographia Araneorum. Toulouse, 2, 3: 1927-3026.
Bosenberg W., Strand E. 1906. Japanische Spinnen. Abh. senck. naturf. Ges., Frankfurt a. M., 30: 93-422, tt. 3-16.
Galiano M. E. 1962. Nota sobre el genero Euophrys Koch, 1834 (Araneae, Salticidae). Physis, Buenos Aires, 23: 169-183, 27 ff.
Galiano M. E. 1963. Las especies americans de arañas de la familia Salticidae descriptas por Eugene Simon. Redescripciones basadas en los ejemplares tipicos. Physis, Buenos Aires, 23 : 273-470, 42 tt.
Galiano M. E. 1968. Nuevas especies chilenas del genero Euophrys Koch, C. L., 1834 (Araneae - Salticidae). Physis, Buenos Aires, 27; 233-243, 21 ff.
Karsch F. 1878. Diagnoses Attoidarum aliquot novarum Novae Hollandiae collectionis Musei zoologici Berolinensis. Mitt. münch. ent. Ver., München, 2: 22-32.
Koch L., Kefserling E. 1871-1883. Die Arachniden Australiens, nach der Natur beschrieben und abgebildet. Nürnberg, 1489 pp., 123 tt.
Peckham G. W., Peckham E. G. 1901. Spiders of the Phidippus Group of the Family Attidae. Trans. Wisc. Acad. Sci. Arts Let., Madison, 13 : 282-358, tt. 23-28.
Prószyński J. 1983. Position of genus Phintella (Araneae: Salticidae). Actı Arachnologica Osaka, 31: 43-48, 11 ff.

Prószý́ski J. 1984. Diagnostic diawings of less known Salticidae (Araneae) - an atlas. Zesz. nauk. WSR-P, Siedlce, 2, IX + 177 ff.
Simon E. 1909. Araneae. In: Die Fauna Südwest-Australiens. Jena, 2, 12: 155-22, 14 ff.安ABKA M. 1985. Systematic and zoogeographic study on the family Salticidae (Araneae) from Viet-Nam. Ann. zool., Warszawa, 39: 197-485, 645 ff., 46 maps.

Zakład Zoologii WSR-P ul. Prusa 12, 08-110 Siedlce
[Tytuł: Salticidae (Araneae) Regionów Orientalnego, Australijskiego i Pacyficznego, II. Rodzaje Lycidas i Maratus]

Praca zawiera opisy i rysunki taksonomiczne 22 australijskich gatunków z rodzajów Lycidas i Maratus. Definicję rodzaju Lycidas - dotychczas monotypowego - zmodyfikowano na skutek włączenia 18 gatunków klasyfikowanych dotad w rodzajach: Habrocestum, Saitis, Jotus, Cytaea, Eugasmia, Sigytes, Spilargis i Thorellia. Dwa dalsze gatunki rodzaju opisano jako nowe. Rodzaj Jotus uznano za identyczny z rodzajem Lycidas. Sposród dwóch gatunków rodzaju Maratus - jeden opisano jako nowy. Sformułowano także uwagi na temat pokrewieństw obu rodzajów oraz wzajemnych relacji gatunków w ich obrębie.

## PE3ЮME

[Заглавие: Salticidae (Araneae) Ориентальной, Австралийской и Тихоокеанской провинций, II. Роды Lycidas и Maratus]

Работа содержит описаиия и таксономические рисунки 22 австралийских вндов из родов Lycidas и Maratus. Дефиниция рода Lycidas, который был до настоящего времени монотипным, модифицирована вследствие включения в него 18 видов, отвосимых до сих пор к родам Habrocestum, Saitis, Jotus, Cytaea, Eugasmia, Sigytes, Spilargis и Thorellia. Следующие два вида из рода Lycidas описаны как новые. Род Jotus синонимизирован с родом Lycidas. Дз двух видов, относящихся к роду Maratus одии описан как новый. Сформулированы также замечания относительно родства обоих родов и принадлежащих к ним видов.

