

Linzer biol. Beitr.	49/2	1049-1074	11.12.2017
---------------------	------	-----------	------------

## On the *Leptusa* fauna of the Caucasus region (Coleoptera: Staphylinidae: Aleocharinae)

Volker ASSING

**A b s t r a c t :** Five species of *Leptusa* KRAATZ, 1858 from Georgia and North Iran are described and illustrated: *L. (Neopisalia) substricta* nov.sp. (Georgia: Shida Kartli); *L. (N.) svanetica* nov.sp. (Georgia: Svaneti); *L. (N.) migrituber* nov.sp. (Georgia: Svaneti); *L. (N.) triangulata* nov.sp. (Georgia: Adjara); *L. (N.) longalata* nov.sp. (Iran: Mazandaran). The genus is represented in the Caucasus region including Northeast Turkey (from Ordu to the border with Georgia), Georgia, Armenia, Azerbaijan, and the Russian part of the Greater Caucasus by 39 species in five subgenera; 28 species, two of them of doubtful identity, belong to the subgenus *Neopisalia* SCHEERPELTZ, 1966. Three zoogeographically implausible or revised previous records are rectified. *Leptusa kaszabi* PACE, 1981 is moved from the subgenus *Heteroleptusa* PACE, 1989 to *Neopisalia*. A zoogeographic study of the *Leptusa* fauna of the Caucasus region revealed that locally endemic species are confined to the moister western half of the region eastwards approximately to 43°30' eastern longitude. Moreover, little is known about the fauna of Abkhazia, which probably hosts an unknown number of unnamed species. A catalogue of the *Leptusa* species of the Caucasus region and maps illustrating the currently known distributions of 33 species are provided. Additional records of 19 described species are reported, among them several new country records.

**K e y w o r d s :** Coleoptera, Staphylinidae, Aleocharinae, *Leptusa*, Caucasus region, West Palaearctic, taxonomy, new species, new subgeneric assignment, catalogue, distribution maps, additional records.

### Introduction

According to SCHÜLKE & SMETANA (2015), the megadiverse aleocharine genus *Leptusa* KRAATZ, 1858 is represented in the Palaearctic region by a total of 409 species and 74 subspecies, with 402 species and all the subspecies assigned to 71 subgenera and nine species listed as incertae sedis. The vast majority of the *Leptusa* species is micropterous, more or less locally endemic, and confined to montane, subalpine, and alpine habitats.

Based on zoogeographic evidence, in particular the distributions of typically Caucasian staphylinid species, species groups, and subgenera, the Caucasus region includes not only the Greater and the Lesser Caucasus sensu strictu, but also the mountain ranges extending from the Lesser Caucasus south-, southwest-, and southeastwards. In North Turkey, the Caucasus region extends westwards approximately to Ordu, as can be inferred from the presence or absence of various species and species groups. Therefore, for the purpose of the present paper, the Caucasus region is defined as including Northeast Anatolia from Ordu to the border with Georgia, all of Georgia, Armenia, and

Azerbaijan, as well as the Russian parts of the Greater Caucasus. Iran, however, is not included.

Disregarding two zoogeographically and evidently erroneous records (see checklist provided in this paper), 36 species and one doubtful subspecies had been reported from the Caucasus region. These species, with one exception all Caucasian elements, were assigned to six subgenera: *Neopisalia* SCHEERPELTZ, 1966 (23 species and one subspecies), *Stictopisalia* SCHEERPELTZ, 1966 (six species), *Dysleptusa* PACE, 1982 (three species), *Roubaliusa* SCHEERPELTZ, 1966 (two species), *Leptusa* KRAATZ, 1856 (one widespread species), and *Heteroleptusa* PACE, 1989 (one species). For details and catalogues of the species and subgenera recorded from Turkey and Iran see ASSING (2009).

The present contribution is based primarily on material collected during several recent field trips to the Caucasus region (West Caucasus, Georgia, Armenia) conducted by Volker Brachat (Geretsried), Heinrich Meybohm (Großhansdorf), Andreas Pütz (Eisenhüttenstadt), Michael Schülke (Berlin), and the author. This material included 18 species from the Caucasus region *sensu lato*, five of them undescribed. In addition, records of six species from other regions are reported.

### Material and methods

The material treated in this study is deposited in the following collections:

MNB ..... Museum für Naturkunde Berlin, including coll. Schülke (J. Frisch, M. Schülke)  
 cAss..... author's private collection  
 cJal ..... private collection Paweł Jałoszyński, Wrocław  
 cPüt ..... private collection Andreas Pütz, Eisenhüttenstadt  
 cSme..... private collection Aleš Smetana, Ottawa

The morphological studies were conducted using a Stemi SV 11 microscope (Zeiss), a Discovery V12 microscope (Zeiss), and a Jenalab compound microscope (Carl Zeiss Jena). The images were created using a digital camera (Nikon Coolpix 995) and Axiocam ERc 5s. The maps were created using MapCreator 2.0 (primap) software. Only zoogeographically plausible literature records (from PACE 1989) with specified and unambiguous localities (not regions) were included in the distribution maps.

Head length was measured from the anterior margin of the clypeus to the posterior margin of the head, elytral length at the suture from the apex of the scutellum to the posterior margin of the elytra, and the length of the median lobe of the aedeagus from the apex of the ventral process to the base of the capsule.

The parameral side of the aedeagus (i.e., the side where the sperm duct enters) is referred to as the ventral, the opposite side as the dorsal aspect.

### The *Leptusa* species of the Caucasus region (exclusive of Iran)

In total, 39 species in five subgenera are currently known from the Caucasus region as defined above, 28 in the subgenus *Neopisalia*, six in *Stictopisalia*, two each in *Dysleptusa* and *Roubaliusa*, and one in *Leptusa*. Except for one species, all of them are Caucasian elements, most of which have more or less restricted distributions. Six of the species are winged and probably capable of flight. The remainder is at least likely to be

unwinged; three unexamined species were categorized as unwinged solely based on the habitus illustrations provided by PACE (1989). Two species are of doubtful identity, since their male sexual characters are unknown.

When examining the general distributions of the genus and the subgenera in the Caucasus region, some evident patterns are revealed. While the (few) widespread winged species of the subgenera *Leptusa* and *Dysleptusa* are present in all or most of the region (Map 8), the distributions of the remainder is much more restricted. Disregarding *L. armeniaca*, which is probably more closely affiliated to the North Iranian fauna, locally endemic (and mostly flightless) species of *Neopisalia*, *Stictopisalia*, and *Roubaliusa* are confined to the western half of the Caucasus region (Maps 1-3), eastwards approximately to Kura river and Racha in Georgia (approximately 43°30' eastern longitude), i.e., to those regions that are subject to higher levels of annual precipitation. They are completely absent from the drier eastern parts of the Caucasus. The distribution of *L. venusta*, a winged and common Caucasian species, is generally similar to that of the pooled distribution of locally endemic *Neoleptusa* species, but extends further to the east and southeast.

The distributions shown in Maps 1-8 reveal a remarkable gap in Abkhazia. This distribution gap, however, is most likely an artefact resulting from a bias in collecting activity. The region has been studied very poorly and probably still hosts an unknown number of undiscovered and unnamed species.

### Checklist

The below checklist compiles the species recorded from the Caucasus region as defined above. Zoogeographically implausible, evidently erroneous records (*L. cribripennis* KRAATZ, 1856 from Azerbaijan; *L. ionopolitana* PACE, 1982 from Georgia; see SCHÜLKE & SMETANA 2015) are omitted; the same applies to *L. persica* ASSING, 2009 from Krasnodarskiy Krai, Russia (ASSING 2011) and the doubtful subspecies *Leptusa rousi agrbaensis* PACE, 1983. Only valid names are listed; synonymies can be looked up in SCHÜLKE AND SMETANA (2015).

Abbreviations: Dis: distribution type; C: Caucasian; w: widespread. Hw: hind wings; p: present; r: reduced. ST: Russian parts of Greater Caucasus; GG: Georgia; AR: Armenia; AB: Azerbaijan; TR: Northeast Turkey from Ordu province to the border with Georgia.

Footnotes: 1) male unknown.

Taxon	Dis	Hw	ST	GG	AR	AB	TR
<b>Subgenus <i>Dysleptusa</i> PACE, 1982</b>							
<i>Leptusa fauveli</i> EPPELSHEIM, 1889	C	r?				•	
<i>Leptusa fuliginosa</i> (AUBÉ, 1850)	C	p	•	•	•		•
<b>Subgenus <i>Leptusa</i> KRAATZ, 1856</b>							
<i>Leptusa pulchella</i> (MANNERHEIM, 1830)	w	p		•	•		
<b>Subgenus <i>Neopisalia</i> SCHEERPELTZ, 1966</b>							
<i>Leptusa abchasica</i> BERNHAUER, 1936	C	r		•			
<i>Leptusa cimmaria</i> PACE, 1996	C	r					•
<i>Leptusa circassica</i> BERNHAUER, 1935 <sup>1)</sup>	C	r	•				

Taxon	Dis	Hw	ST	GG	AR	AB	TR
<i>Leptusa crinita</i> ASSING, 2007	C	r					•
<i>Leptusa diecki</i> PACE, 1983	C	r					•
<i>Leptusa gibbera</i> ASSING, 2011	C	r	•				
<i>Leptusa glabriceps</i> BERNHAUER, 1923	C	r	•				
<i>Leptusa janczyki</i> PACE, 1983	C	r					•
<i>Leptusa kaszabi</i> PACE, 1981	C	r?		•			
<i>Leptusa khnzoriani</i> PACE, 1982	C	r?		•			
<i>Leptusa korgei</i> SCHEERPELTZ, 1970	C	r					•
<i>Leptusa laeviuscula</i> (HOCHHUTH, 1849)	C	p			•	•	
<i>Leptusa lederi</i> EPPELSHEIM, 1883	C	r		•			
<i>Leptusa longilobata</i> ASSING, 2007	C	r					•
<i>Leptusa microphthalmalma</i> REITTER, 1887	C	r	•	•			
<i>Leptusa migrituber</i> nov.sp.	C	r		•			
<i>Leptusa rizensis</i> PACE, 1996	C	r					•
<i>Leptusa rousi</i> PACE, 1983	C	r	•				
<i>Leptusa sica</i> ASSING, 2003	C	r					•
<i>Leptusa soganlica</i> ASSING, 2007	C	r					•
<i>Leptusa spoliata</i> ASSING, 2002	C	r					•
<i>Leptusa subnivalis</i> ROUBAL, 1911	C	r	•				
<i>Leptusa substricta</i> nov.sp.	C	p		•			
<i>Leptusa svanetica</i> nov.sp.	C	r		•			
<i>Leptusa triangulata</i> nov.sp.	C	r		•			
<i>Leptusa venusta</i> (HOCHHUTH, 1849)	C	p	•	•	•		•
<i>Leptusa xanthopyga</i> EPPELSHEIM, 1881	C	p	•	•			
<i>Leptusa zerchei</i> PACE, 1989	C	r	•				
<b>Subgenus Roubaliosa SCHEERPELTZ, 1966</b>							
<i>Leptusa storkani</i> ROUBAL, 1917	C	r	•	•			
<i>Leptusa trapezuntis</i> PACE, 1989	C	r					•
<b>Subgenus Stictopisalia SCHEERPELTZ, 1966</b>							
<i>Leptusa armeniaca</i> PACE, 1989	C	r			•		
<i>Leptusa artviniensis</i> PACE, 1982	C	r		•			•
<i>Leptusa caucasica</i> EPPELSHEIM, 1878	C	r	•	•			
<i>Leptusa fibula</i> ASSING, 2003	C	r					•
<i>Leptusa pseudocaucasica</i> PACE, 1983	C	r	•	•			
<i>Leptusa subcaucasica</i> PACE, 1983 <sup>1)</sup>	C	r	•				

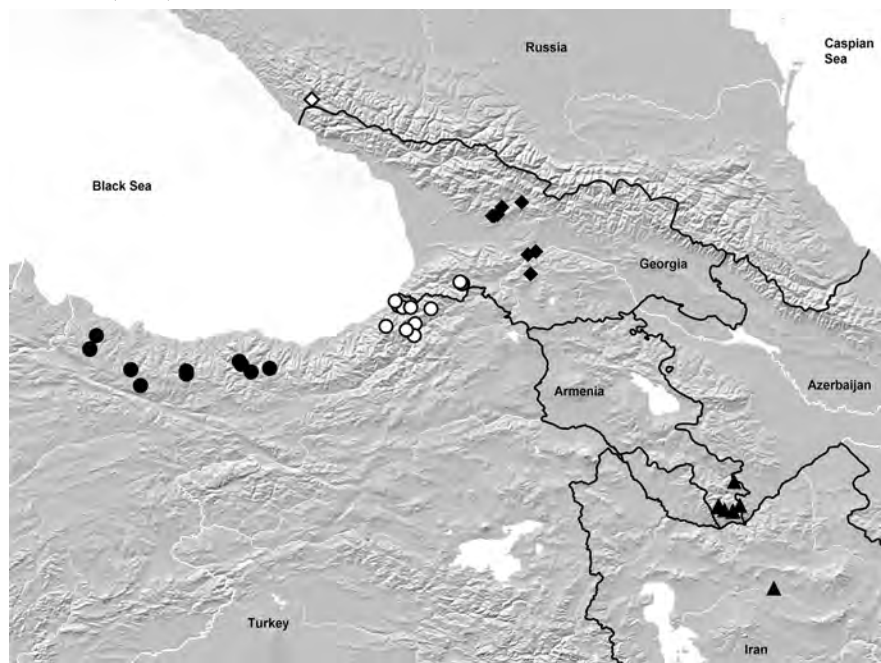
### New records and descriptions of species from the Caucasus region

#### *Leptusa (Stictopisalia) caucasica* EPPELSHEIM, 1878 (Map 1)

Material examined: Georgia: Racha: 1 ex., north slopes of Ratchinskyi Mts., SE Bokva, 42°32'N, 43°24'E, 1245 m, 5.VII.2015, leg. Pütz (cAss); 5 exs., Ratchinskyi Mts., 5 km NW Nakerala pass, Tkibuli env., 42°23'N, 42°59'E, 1440 m, 6.VII.2015, leg. Pütz (cPüt, cAss); 2♂♂, 3♀♀, 4 km N Nakerala, 42°24'N, 43°02'E, 1150 m, 18.V.2016, leg. Brachat & Meybohm (cAss, MNB); 1♀, 4 km NW Nikortsminda, 42°29'N, 43°06'E, 1395 m, 23.V.2016, leg. Brachat &

Meybohm (cAss). *I m e r e t i*: 14♂♂, 18♀♀, 6 km W Nakerala, 42°23'N, 42°57'E, 1450 m, 17.V.2016, leg. Brachat & Meybohm (cAss, MNB). *S h i d a K a r t l i*: 1♂, 1♀, Kvishkheti, 41°57'N, 43°29'E, 1300 m, 24.VII.2016, leg. Meybohm (cAss).

**C o m m e n t**: The distribution of *L. caucasica* includes both the Greater and the Lesser Caucasus (Map 1). For additional, mostly old records without specified locality see PACE (1989).



**Map 1**: Distributions of the species of the subgenus *Stictopisalia* in the Caucasus region: *L. fibula* (black circles), *L. artviniensis* (white circles), *L. caucasica* (black diamonds), *L. pseudocaucasica* (white diamonds), and *L. armeniaca* (triangles). The doubtful *L. subcaucasica* is omitted.

#### ***Leptusa (Stictopisalia) artviniensis* PACE, 1982 (Map 1)**

**M a t e r i a l e x a m i n e d**: Georgia: *A d j a r a*: 1♂, 1♀, Danisparauli, 41°38'N, 42°30'E, 1870 m, 21.VI.2017, leg. Brachat & Meybohm (cAss); 2♂♂, 4♀♀, Danisparauli, 41°38'N, 42°30'E, 1790 m, 21.VI.2017, leg. Brachat & Meybohm (cAss, MNB); 5♂♂, 10♀♀, Danisparauli, 41°39'N, 42°28'E, 1560 m, 21.VI.2017, leg. Brachat & Meybohm (cAss).

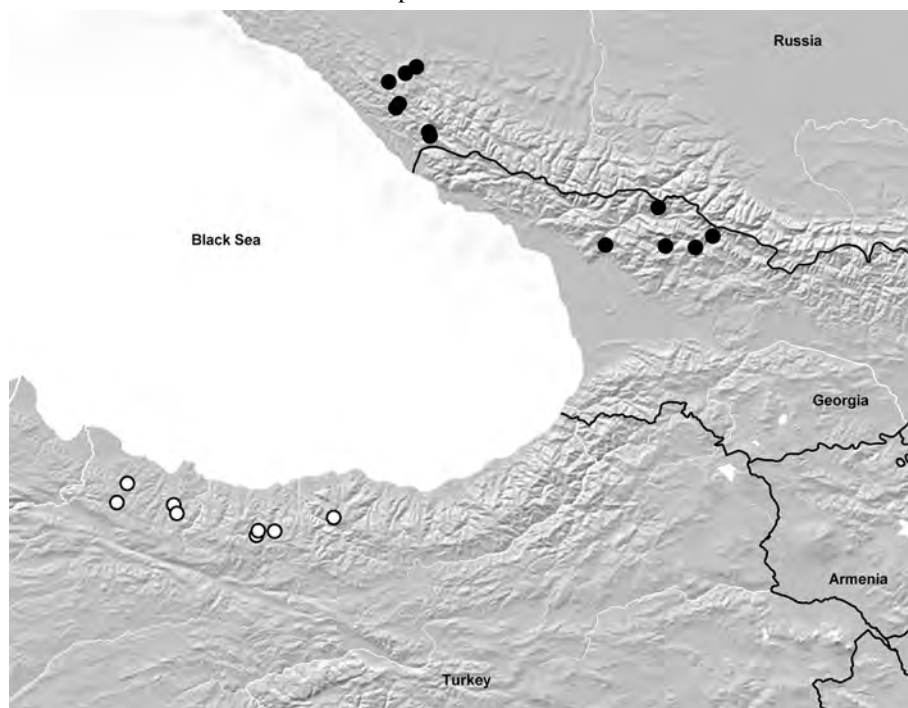
**C o m m e n t**: The distribution of *L. artviniensis* ranges from the Turkish province Trabzon across Rize and Artvin provinces to southwest Georgia (Map 1) (ASSING 2003a, 2007).

#### ***Leptusa (Stictopisalia) armeniaca* PACE, 1989 (Map 1)**

**M a t e r i a l e x a m i n e d**: Armenia: 9♂♂, 4♀♀, 28 exs., 20 km SSE Goris, Shrumukh, 39°22'N, 46°25'E, 1720 m, *Quercus* and *Carpinus* forest, litter and dead wood sifted, 5.VII.2016, leg. Assing & Schülke (cAss, MNB); 52♂♂, 25♀♀, 36 exs., 25 km S Kapan, N Gomarants Pass 39°02'N, 46°22'E, 2190 m, oak forest, litter and dead wood sifted, 7.VII.2016, leg. Assing & Schülke (cAss, MNB); 17♂♂, 12♀♀, 21 exs., 25 km S Kapan, N Gomarants Pass, 39°02'N,

46°22'E, 2050 m, oak forest with *Acer*, *Carpinus*, and fern undergrowth, litter and dead wood sifted, 7.VII.2016, leg. Assing & Schülke (cAss, MNB); 4♂♂, 4♀♀, 6 exs., WSW Kapan, S Meghri Pass, 39°05'N, 46°11'E, 2170 m, oak forest margin, litter (partly moist litter under bushes) sifted, 8.VII.2016, leg. Assing & Schülke (cAss, MNB); 13♂♂, 7♀♀, 4 exs., WSW Kapan, S Meghri Pass, 39°06'N, 46°10'E, 2090 m, stream valley, litter near stream sifted, 8.VII.2016, leg. Assing & Schülke (cAss, MNB); 1♂, 1♀, 9 exs., 15 km S Kapan, SE Chakaten, 39°05'N, 46°29'E, 1010 m, mixed deciduous forest, litter between stones sifted, 9.VII.2016, leg. Assing & Schülke (cAss, MNB); 2♂♂, 1 ex., 25 km SW Kapan, 39°03'N, 46°15'E, 1890 m, stream valley, litter of *Salix* and other trees sifted, 10.VII.2016, leg. Assing & Schülke (cAss, MNB).

**C o m m e n t :** This species was originally described based on four type specimens from "Kafan" [= Kapan] (PACE 1989) and subsequently reported also from Iran (ASSING 2008). The above records represent the first Armenian records since the original description and reveal that *L. armeniaca* is quite common in South Armenia. The currently known distribution is illustrated in Map 1.



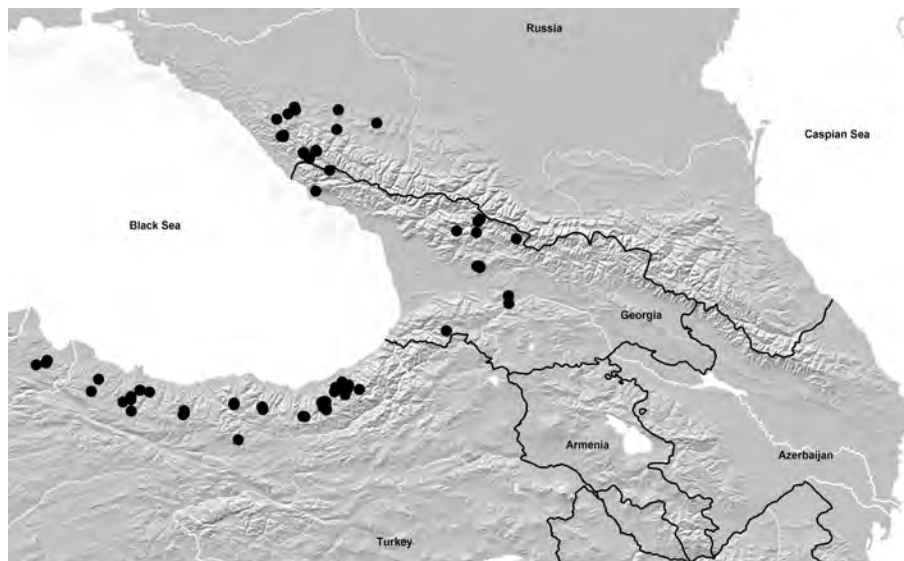
**Map 2:** Distributions of the species of the subgenus *Roubaliusa* in the Caucasus region: *L. storkani* (black circles) and *L. trapezuntis* (white circles).

***Leptusa (Roubaliusa) storkani* ROUBAL, 1917 (Map 2)**

**M a t e r i a l e x a m i n e d :** **Russia:** Krasnodarskiy Kray: 3 exs., W-Caucasus, Krasnodar, 35 km NNE Sochi, Babuk-Aul, 43°53'N, 39°49'E, 560 m, *Fagus orientalis* & *Castanea sativa* forest, litter and bark sifted, 11.VII.2011, leg. Assing (cAss); 19 exs., 40 km NNE Sochi, S Mt. Fisht, 43°55'N, 39°51'E, 1650 m, beech forest with scattered fir, litter and dead wood sifted, 12.VII.2011, leg. Assing (cAss); 2 exs., 4 km NNW Krasnaya Polyana, Atchishkho Mt., 43°42'N, 40°10'E, 1130 m, beech forest with rhododendron, leaf litter sifted, 19.VII.2011, leg. Assing (cAss); 9 exs., Lagonakskiy Mountains, Matazyk Mountain, 9 km S Guamka, 44°09'N,

39°55'E, 1080 m, 21.V.2014, leg. Pütz (cPüt, cAss); 4 exs., south slopes of Chernogorie Mountains, Otdalyennyi env., 44°05'N, 39°44'E, 780 m, 23.V.2014, leg. Pütz (cPüt, cAss). Georgia: S v a n e t i : 70 exs., Lechkhumi Mts., Sasashi env., Muashi, 42°47'N, 42°59'E, 1390 m, 1.VII.2015, leg. Pütz (cPüt, cAss); 4 exs., north slopes of Svaneti Mts., NW Tsanashi, 42°48'N, 42°40'E, 1360 m, 4.VII.2015, leg. Pütz (cPüt, cAss); 2 ♀♀, 20 km N Jvari, 42°49'N, 42°02'E, 600 m, 25.VI.2017, leg. Brachat & Meybohm (cAss); 3 ♂♂, 4 ♀♀, Mazeri, 43°06'N, 42°36'E, 1660 m, 26.VI.2017, leg. Brachat & Meybohm (cAss, MNB); 2 ♂♂, 1 ♀, Ushguli-Lentekhi, 42°52'N, 43°10'E, 1530 m, 1.VII.2017, leg. Brachat & Meybohm (cAss).

**C o m m e n t :** This species is widespread and evidently common in the West Caucasus region (Map 2). For previous recent records see ASSING (2011); for additional, mostly old records without specified localities see PACE (1989).



**Map 3:** Distributions of the locally endemic species of the subgenus *Neopisalia* in the Caucasus region (all records pooled).

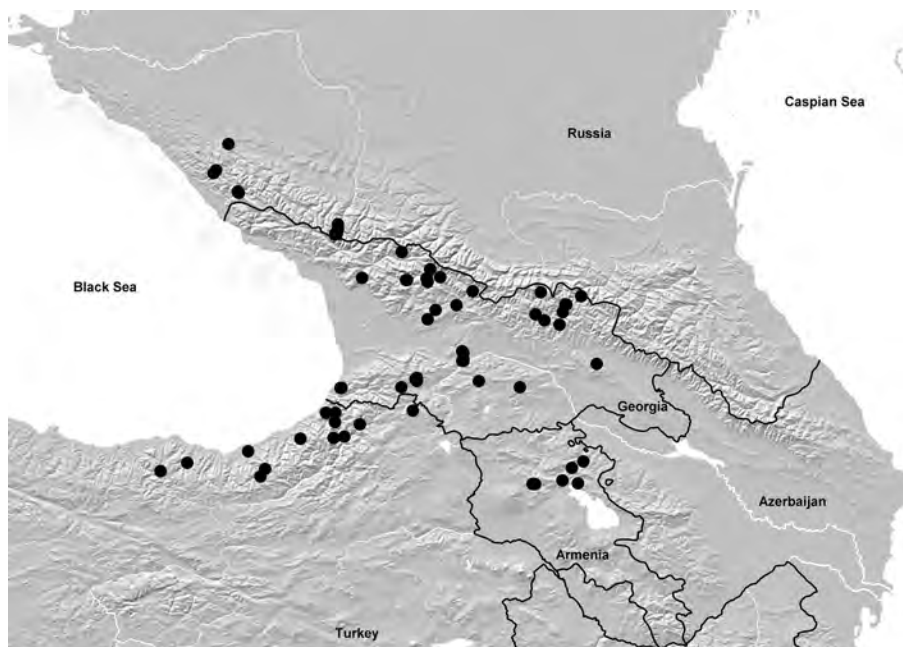
### *Leptusa (Neopisalia) venusta* (HOCHHUTH, 1849) (Map 4)

**M a t e r i a l e x a m i n e d :** Russia: K r a s n o d a r s k i y K r a y : 2 exs., 35 km NNE Sochi, Babuk-Aul, 43°53'N, 39°49'E, 560 m, *Fagus orientalis* & *Castanea sativa* forest, litter and bark sifted, 11.VII.2011, leg. Assing (cAss); 3 exs., 40 km NNE Sochi, S Mt. Fisht, 43°55'N, 39°51'E, 1650 m, beech forest with scattered fir, litter and dead wood sifted, 12.VII.2011, leg. Assing (cAss); 5 exs., 4 km NNW Krasnaya Polyana, Atchishkho Mt., 43°42'N, 40°11'E, 1000 m, chestnut forest with beech and maple, leaf litter and bark sifted, 18.VII.2011, leg. Assing (cAss). K a r a c h a y e v o - C h e r k e s s k a y a R e s p u b l i k a : 20 exs., 13 km SW Teberda, 43°20'N, 41°40'E, 1450 m, moist spruce forest with scattered beech, litter, moss, and dead wood sifted, 22.VII.2011, leg. Assing (cAss); 1 ex., 20 km SW Teberda, Dombai, 43°17'N, 41°39'E, 2160 m, subalpine birch forest, litter sifted, 23.VII.2011, leg. Assing (cAss); 3 exs., 20 km SW Teberda, above Dombai, 43°17'N, 41°38'E, 1950 m, mixed forest (fir, spruce, beech), leaf litter sifted, 25.VII.2011, leg. Assing (cAss); 44 exs., 9 km SW Teberda, Teberdinski range, Baduk river valley, 43°23'N, 41°40'E, 2000 m, spruce forest, bark of spruce and maple sifted, 27.VII.2011, leg. Assing (cAss). Georgia: K v e m o K a r t l i : 1 ♂, Algeti National Park, Manglisi-Tsalka, 41°40'N, 44°18'E, 1580 m, 12.VII.2015, leg. Brachat & Meybohm (cAss). M t s k h e t a - M t i a n e t i : 2 ♂♂, 4 ♀♀, Shatili-Mutso, 42°37'N, 45°12'E, 1510 m, 15.VII.2015, leg. Brachat & Meybohm (cAss, MNB); 1 ♂, Gudani, 42°32'N, 44°59'E, 1710 m,

18.VII.2015, leg. Brachat & Meybohm (cAss); 1♂, Gudani, 42°32'N, 44°58'E, 1620 m, 18.VII.2015, leg. Brachat & Meybohm (cAss); 1♂, 2♀, Gudani-Zhinvali, 42°27'N, 44°56'E, 1200 m, 19.VII.2015, leg. Brachat & Meybohm (cAss, MNB); 1♂, 1♀, Gudani-Zhinvali, 42°19'N, 44°53'E, 980 m, 19.VII.2015, leg. Brachat & Meybohm (cAss, MNB); 1♀, Stepanzminda, 42°40'N, 44°37'E, 2120 m, 20.VII.2015, leg. Brachat & Meybohm (MNB); 1♂, 1♀, Kvesheti, 42°26'N, 44°32'E, 1440 m, 22.VII.2015, leg. Brachat & Meybohm (cAss, MNB); 2♂♂, 2♀♀, SW Pasanauri, 42°22'N, 44°40'E, 1220 m, 23.VII.2015, leg. Brachat & Meybohm (cAss, MNB). *Svaneti*: 11 exs., Lechkhumi Mts., Sasashi env., Muashi, 42°47'N, 42°59'E, 1390 m, 1.VII.2015, leg. Pütz (cPüt, cAss); 3 exs., north slopes of Svaneti Mts., NW Tsanashi, 42°48'N, 42°40'E, 1360 m, 4.VII.2015, leg. Pütz (cPüt, cAss); 1♂, 8 km S Koruldashi, 42°50'N, 43°10'E, 1430 m, 1.VIII.2016, leg. Meybohm (cAss); 9♂♂, 8♀♀, 20 km N Jvari, 42°49'N, 42°02'E, 600 m, 25.VI.2017, leg. Brachat & Meybohm (cAss); 3♀♀, Mazeri, 43°06'N, 42°36'E, 1660 m, 26.VI.2017, leg. Brachat & Meybohm (MNB); 2♂♂, 1♀, Ushguli, North slope, 42°55'N, 43°01'E, 2190 m, 30.VI.2017, leg. Brachat & Meybohm (cAss, MNB); 2♂♂, Ushguli-Lentekhi, 42°49'N, 42°58'E, 1160 m, 1.VII.2017, leg. Brachat & Meybohm (cAss, MNB); 3♂♂, NW Lentekhi, 42°48'N, 42°41'E, 1240 m, 2.VII.2017, leg. Brachat & Meybohm (cAss, MNB). *Racha*: 4 exs., north slopes of Ratchinskyi Mts., SE Bokva, 42°32'N, 43°24'E, 1245 m, 5.VII.2015, leg. Pütz (cPüt, cAss); 4 exs., Ratschinskyi Mts., 5 km NW Nakerala pass, Tkibuli env., 42°23'N, 42°59'E, 1440 m, 6.VII.2015, leg. Pütz (cPüt, cAss); 2♂♂, 4♀♀, 4 km NW Nikortsminda, 42°29'N, 43°06'E, 1395 m, 23.V.2016, leg. Brachat & Meybohm (cAss, MNB). *Kakheti*: 6 exs., Tsvi-Gombori Mts., 5 km W Telavi, 41°54'N, 45°24'E, 1090 m, *Fagus orientalis* forest, 8.VII.2015, leg. Pütz (cPüt, cAss). *Shida Kartli*: 2♀♀, Kvishkheti, 41°58'N, 43°30'E, 810 m, 12.V.2016, leg. Brachat & Meybohm (MNB); 1♂, 2♀♀, SKvishkheti, 41°57'N, 43°30'E, 790 m, 12.V.2016, leg. Brachat & Meybohm (cAss, MNB); 2♂♂, 1♀, 8 km SW Surami, 42°02'N, 43°30'E, 960 m, 14.V.2016, leg. Brachat & Meybohm (cAss, MNB); 2♂♂, 2♀♀, Kvishkheti, 41°57'N, 43°29'E, 1300 m, 24.VII.2016, leg. Meybohm (cAss, MNB). *Satskhe-Javakheti*: 1♂, 3♀♀, Bakuriani, 41°44'N, 43°43'E, 1766 m, 13.V.2016, leg. Brachat & Meybohm (cAss, MNB); 2♀♀, N Abastumani, 41°46'N, 42°50'E, 1370 m, 15.V.2016, leg. Brachat & Meybohm (MNB); 1♂, 1♀, W Abastumani, 41°45'N, 42°49'E, 1345 m, 15.V.2016, leg. Brachat & Meybohm (cAss, MNB). *Imereti*: 2♂♂, 2♀♀, NW Rikoti pass, 42°03'N, 43°29'E, 950 m, 14.V.2016, leg. Brachat & Meybohm (cAss, MNB). *Adjara*: 1♂, Goderdzi pass, 41°40'N, 42°37'E, 1430 m, 21.VI.2017, leg. Brachat & Meybohm (cAss); 2♂♂, 5 km NE Batumi, 41°39'N, 41°45'E, 320 m, 23.VI.2017, leg. Brachat & Meybohm (cAss, MNB); 1♂, 7 km NE Batumi, 41°39'N, 41°46'E, 500-600 m, 24.VI.2017, leg. Brachat & Meybohm (cAss). Armenia: 2♀♀, N Yerevan, NW Hrazdan, 40°38'N, 44°30'E, 2010 m, mixed deciduous forest, litter and grass roots sifted, 27.VI.2016, leg. Assing (cAss, MNB); 4♀♀, N Yerevan, NW Hrazdan, 40°38'N, 44°28'E, 2110 m, stream valley, mixed deciduous forest, litter and grass roots sifted, 28.VI.2016, leg. Assing & Schülke (MNB); 1♂, SSE Dilijan, NW Semyonovka, 40°40'N, 44°53'E, 1900 m, stream valley, forest margin and bushes, sifted, 29.VI.2017, leg. Schülke (MNB); 2♀♀, ENE Dilijan, Hovk, 1290 m, 40°48'N, 45°01'E, forest (*Quercus*, *Fagus*, *Acer*, etc.) margin, litter and dead wood beneath old *Fagus* sifted, 3.VII.2017, leg. Assing (cAss, MNB); 1♀, WSW Dilijan, Kalavan, 40°38'N, 45°06'E, 1960 m, forest with *Quercus*, *Betula*, and *Carpinus*, bark of dead oak sifted, 5.VII.2017, leg. Assing (cAss); 1♂, 1♀, pass road E Ijevan, 40°52'N, 45°11'E, 1400 m, young beech forest, litter and dead wood sifted, 6.VII.2017, leg. Schülke (MNB).

*Comment*: *Leptusa venusta* is by far the most widespread and most common species of the genus in the Caucasus region. For additional recent records see ASSING (2011). Based on revised records, the distribution extends from the northwestern tip of the Greater Caucasus in the northwest and the Turkish province Trabzon eastwards to East Georgia and southeastwards to North Armenia (Map 4). The species was recorded also from Daghestan (without specified locality) by PACE (1989). It is not listed for Armenia in SCHÜLKE & SMETANA (2015), although it was reported from there (without specified locality) by SCHEERPELTZ (1966).





**Map 4:** Distribution of *Leptusa venusta* in the Caucasus region.

***Leptusa (Neopisalia) gibbera* ASSING, 2011 (Map 7)**

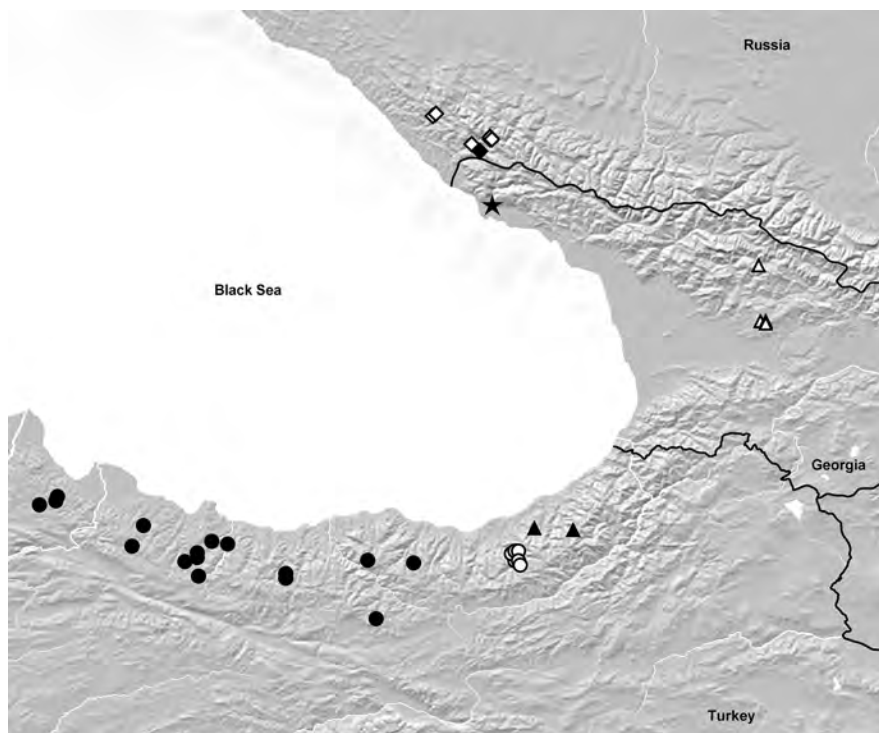
**Material examined:** Russia: Krasnodarskiy Kray: 2 exs., W-Caucasus, 35 km NNE Sochi, Babuk-Aul, 43°53'N, 39°49'E, 560 m, *Fagus orientalis* & *Castanea sativa* forest, litter and bark sifted, 11.VII.2011, leg. Assing (cAss); 1 ex., W-Caucasus, 40 km NNE Sochi, S Mt. Fisht, 43°55'N, 39°51'E, 1650 m, beech forest with scattered fir, litter and dead wood sifted, 12.VII.2011, leg. Assing (cAss); 4 exs., south slopes of Chernogorie Mountains, Otdalyenniy env., 44°05'N, 39°44'E, 780 m, 23.V.2014, leg. Pütz (cPüt, cAss); 2 ♀♀, 1 km NW Ilyich, 44°04'N, 41°22'E, 810 m, 28.V.2014, leg. Pütz (cPüt); 1 ♀, Lagonakskiy Mountains, Matazyk Mountain, 9 km S Guamka, 44°09'N, 39°55'E, 1080 m, 21.V.2014, leg. Pütz (cPüt).

**Comment:** This recently described species was previously known only from the environs of Mezmay in the northwestern Caucasus (ASSING 2011). The currently known distribution is illustrated in Map 7.

***Leptusa (Neopisalia) laeviuscula* (HOCHHUTH, 1849)**

**Material examined:** Iran: 1 ♂, Mazandaran, 10 km S Part Kola, 36.05°N, 53.29°E, 1750 m, *Carpinus* eclector, VII.2015, leg. Barimani (cAss).

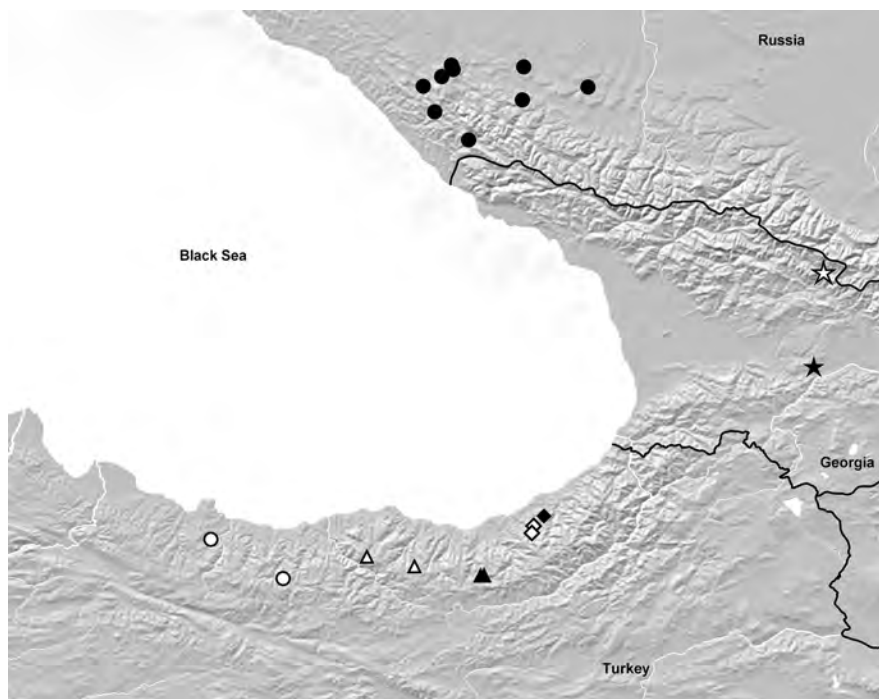
**Comment:** The known distribution of *L. laeviuscula* is confined to Azerbaijan, Armenia, and North Iran (SCHÜLKE & SMETANA 2015). The above specimen was collected with an eclector hanging close to a dead trunk of *Carpinus betulus*.



**Map 5:** Distributions of species of the subgenus *Neopisalia* in the Caucasus region: *L. diecki* (black circles), *L. cimmeria* (white circles), *L. crinita* (black triangles), *L. lederi* (white triangles), *L. abchasica* (black star), *L. rousi* (white diamonds), and *L. glabriceps* (black diamond).

***Leptusa (Neopisalia) kaszabi* PACE, 1981, new subgeneric assignment (Map 6)**

**Comment:** *Leptusa kaszabi* (type locality: Mihailovo Suram) was originally assigned to the subgenus *Leptusa* and subsequently moved to *Heteroleptusa* PACE, 1989 (PACE 1981, 1989). The type species of *Heteroleptusa* is *Leptusa frontalis* (CASEY, 1895) from California. Aside from *L. kaszabi*, the subgenus includes three species from California, four from China, two from Taiwan, and one from Japan. Thus, it can be inferred from zoogeographic data alone that the subgeneric assignment of *L. kaszabi* is most likely erroneous. Based on the morphology of the aedeagus, which represents the main criterion in Pace's subgeneric system, *L. kaszabi* is closely allied to *L. venusta*, *L. laeviuscula*, and *L. gibbera*, so that the species is transferred from *Heteroleptusa* to *Neopisalia*. The type locality is illustrated in Map 6.



**Map 6:** Distributions of species of the subgenus *Neopisalia* in the Caucasus region: *L. microphthalma* (black circles), *L. khnzoriani* (white star), *L. kaszabi* (black star), *L. korgei* (black diamond), *L. rizensis* (white diamonds), *L. soğanlica* (black triangles), *L. longilobata* (white triangles), and *L. spoliata* (white circles).

***Leptusa (Neopisalia) xanthopyga* EPPELSHEIM, 1880 (Map 8)**

**Material examined:** Georgia: 2♂♂, Algeti National Park, W Manglisi, 41°42'N, 44°21'E, 1120 m, 11.VII.2015, leg. Brachat & Meybohm (cAss).

**Comment:** Previously, this species was known from Svanetia, Martkopi, and Krasnaya Polyana in the West Caucasus region (PACE 1989). The known distribution is illustrated in Map 8.

***Leptusa (Neopisalia) lederi* EPPELSHEIM, 1883 (Map 5)**

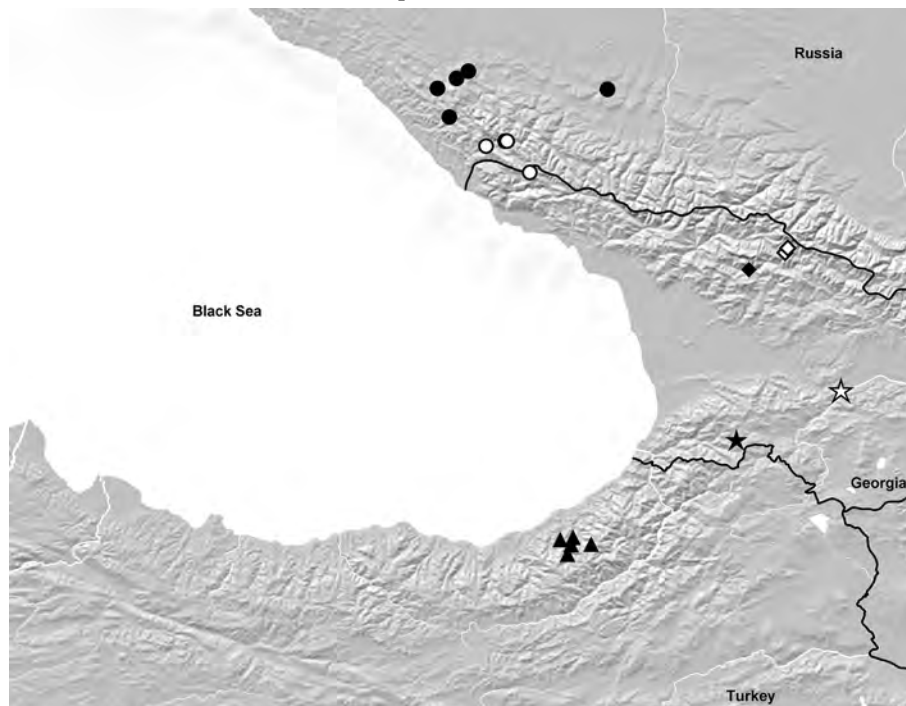
**Material examined:** Georgia: Svanetia: 11 exs., Lechkhumi Mts., Sasashi env., Muashi, 42°47'N, 42°59'E, 1390 m, 1.VII.2015, leg. Pütz (cPüt, cAss). Racha: 10 exs., Ratschinskyi Mts., 5 km NW Nakerala pass, Tkibuli env., 42°23'N, 42°59'E, 1440 m, 6.VII.2015, leg. Pütz (cPüt, cAss); 9♂♂, 14♀♀, Nakerala pass, 42°23'N, 43°02'E, 1260 m, 18.V.2016, leg. Brachat & Meybohm (cAss, MNB); 5♂♂, 8♀♀, Nakerala pass, 42°22'N, 43°02'E, 1320 m, 22.V.2016, leg. Brachat & Meybohm (cAss, MNB); 1♂, 3♀♀, Nakerala pass, 42°23'N, 43°02'E, 1220 m, 22.V.2016, leg. Brachat & Meybohm (cAss, MNB).

**Comment:** According to PACE (1989), *L. lederi* had been known only from "Makeralae [probably a misspelling of Nakerala] Gebirge" and "Svanetien". The currently known distribution is illustrated in Map 5.

***Leptusa (Neopisalia) subnivalis* ROUBAL, 1911 (Map 7)**

**Material examined:** Russia: Krasnodarskiy Kray: 25 exs., W-Caucasus, 15 km ENE Krasnaya Polyana, near Pseashkha pass, 43°43'N, 40°23'E, 2040 m, moist subalpine forest (*Betula*, *Acer*), 16.VII.2011, leg. Assing (cAss); 8 exs., 15 km ENE Krasnaya Polyana, S-slope of Pseashkha range, 43°43'N, 40°24'E, 2040 m, subalpine beech forest with rhododendron, sifted, 17.VII.2011, leg. Assing (cAss).

**Comment:** *Leptusa subnivalis* was previously known only from the type locality near Krasnaya Polyana and from one locality in Abkhazia (PACE 1989). The currently known distribution is illustrated in Map 7.

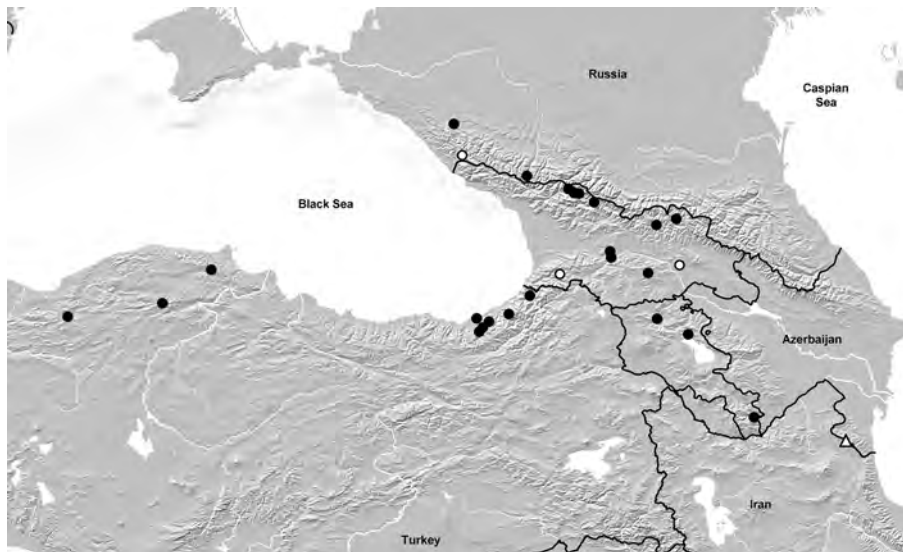


**Map 7:** Distributions of species of the subgenus *Neopisalia* in the Caucasus region: *L. gibbera* (black circles), *L. subnivalis* (white circles), *L. migratuber* (white diamonds), *L. svanetica* (black diamond), *L. stricta* (white star), *L. triangulata* (black star), and *L. sica* (black triangles).

***Leptusa (Neopisalia) rousi rousi* PACE, 1983 (Map 5)**

**Material examined:** Russia: Krasnodarskiy Kray: 2 exs., 35 km NNE Sochi, Babuk-Aul, 43°53'N, 39°49'E, 560 m, *Fagus orientalis* & *Castanea sativa* forest, litter and bark sifted, 11.VII.2011, leg. Assing (cAss); 23 exs., 35 km NNE Sochi, Babuk-Aul, 43°54'N, 39°51'E, 1160 m, beech forest with rhododendron, rhododendron litter sifted, 14.VII.2011, leg. Assing (cAss); 1 ex., 15 km ENE Krasnaya Polyana, near Pseashkha pass, 43°43'N, 40°23'E, 2040 m, moist subalpine forest (*Betula*, *Acer*), 16.VII.2011, leg. Assing (cAss); 1 ex., 15 km ENE Krasnaya Polyana, near Pseashkha pass, 43°44'N, 40°23'E, 2015 m, below snowfield, under stones, 16.VII.2011, leg. Assing (cAss); 4 exs., 15 km ENE Krasnaya Polyana, S-slope of Pseashkha range, 43°43'N, 40°24'E, 2040 m, subalpine beech forest with rhododendron, sifted, 17.VII.2011, leg. Assing (cAss).

**C o m m e n t :** According to PACE (1989), *L. rousi* is represented by two subspecies, the nominal subspecies (previously known only from Krasnaya Polyana) and *L. rousi agrbaensis* PACE, 1983, which has been recorded only from the nearby Aibga mountain. The status of the latter requires clarification. The known distribution of *L. rousi* is illustrated in Map 5.

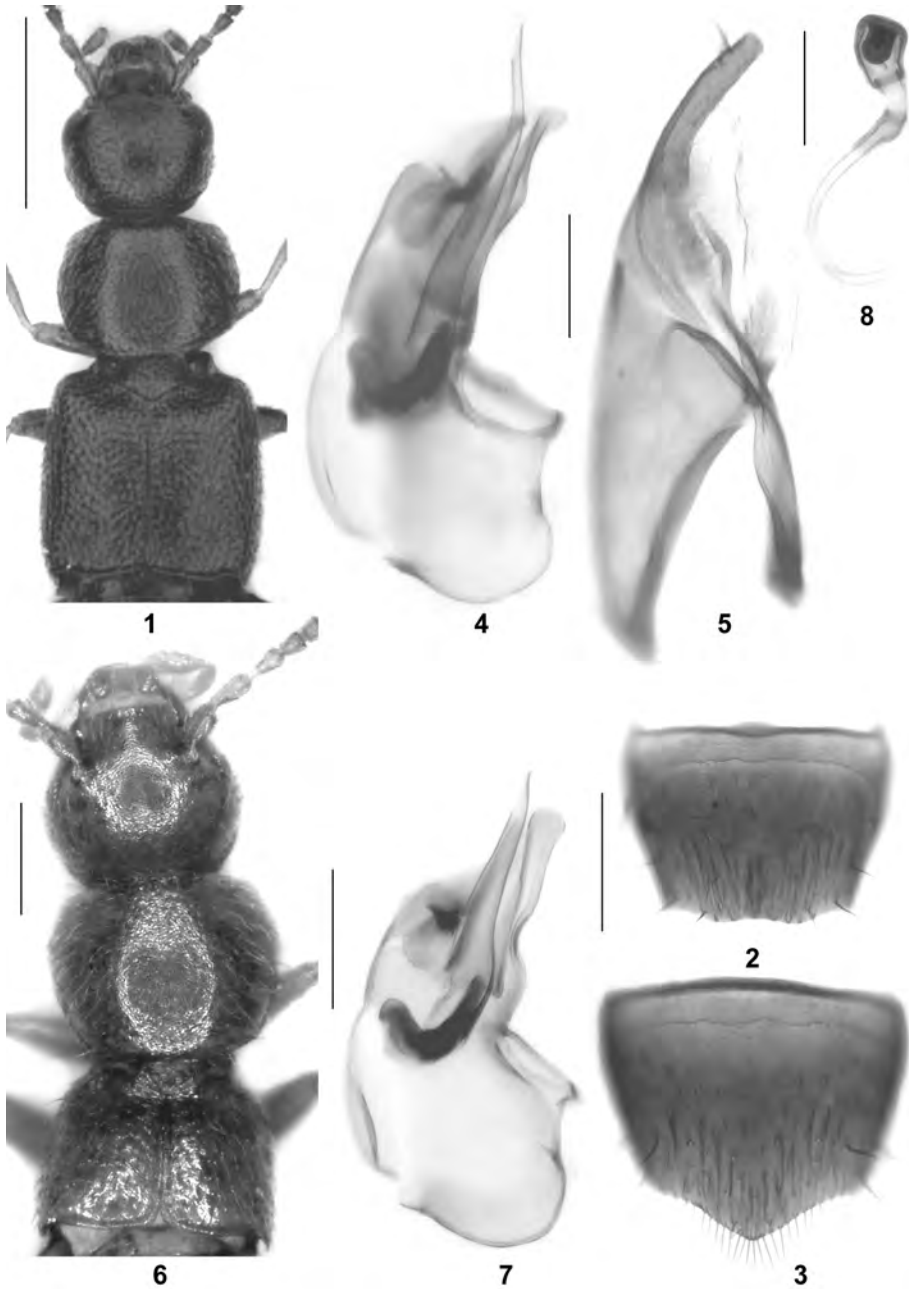


**Map 8:** Distributions of species of the subgenera *Neopisalia* and *Dysleptusa* in the Caucasus region: *L. (Dysleptusa) fuliginosa* (black circles), *L. (D.) fauveli* (white triangle), and *L. (Neopisalia) xanthopyga* (white circles).

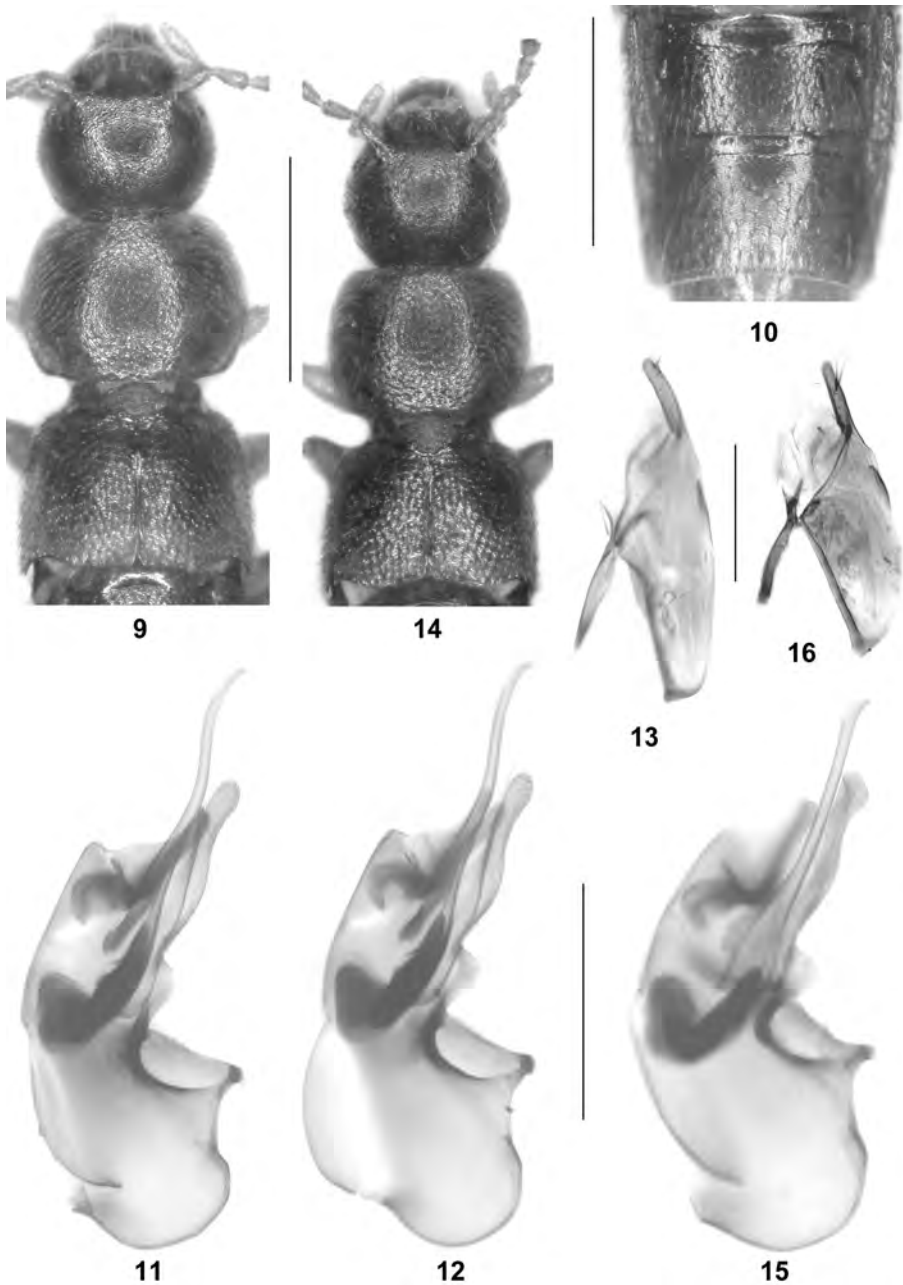
***Leptusa (Neopisalia) microphthalmalma* REITTER, 1887 (Map 6)**

**M a t e r i a l e x a m i n e d :** Russia: Krasnodarskiy Krai: 7 exs., 35 km NNE Sochi, Babuk-Aul, 43°54'N, 39°51'E, 1160 m, beech forest with rhododendron, rhododendron litter sifted, 14.VII.2011, leg. Assing (cAss); 1 ex., 4 km NNW Krasnaya Polyana, Atchishkho Mt., 43°42'N, 40°11'E, 1000 m, chestnut forest with beech and maple, leaf litter and bark sifted, 18.VII.2011, leg. Assing (cAss); 25 exs., Lagonakskiy Mountains, Matazyk Mountain, 9 km S Guamka, 44°09'N, 39°55'E, 1080 m, 21.V.2014, leg. Pütz (cPüt, cAss); 4 exs., right bank of Malaya Laba river, Chernorechie env., 43°59'N, 40°43'E, 770 m, 21.V.2014, leg. A. Pütz (cPüt, cAss); 3 exs., 1 km NW Ilyich, 44°04'N, 41°22'E, 810 m, 28.V.2014, leg. Pütz (cPüt, cAss); 1 ex., left bank of Shedok river, Shedok env., 44°13'N, 40°44'E, 670 m, 24.V.2014, leg. Pütz (cPüt); 1 ex., south slopes of Chernogorie Mountains, Otdalyenniy env., 44°05'N, 39°44'E, 780 m, 23.V.2014, leg. Pütz (cAss).

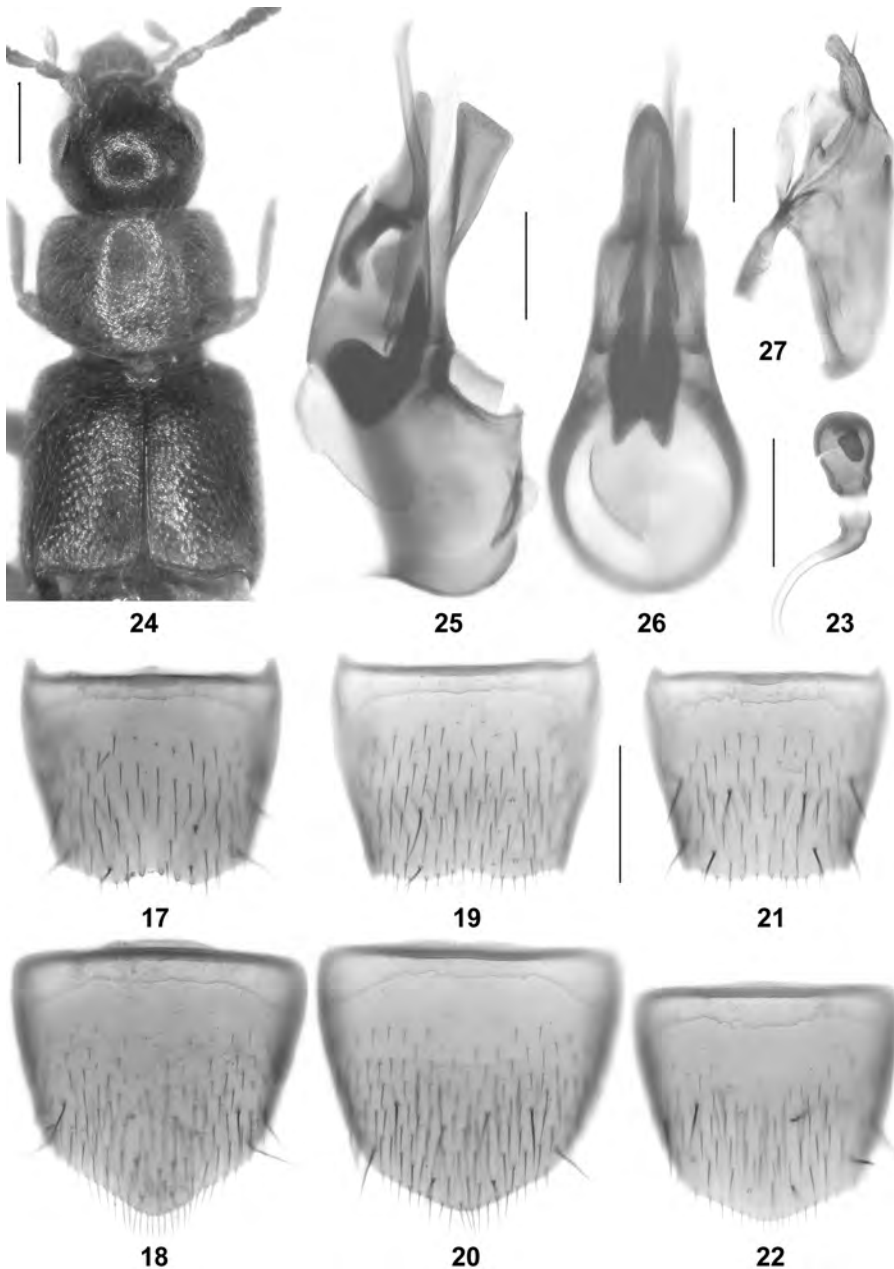
**C o m m e n t :** The distribution of *L. microphthalmalma* is confined to the West Caucasus, where the species is not uncommon (Map 6). For additional details, a redescription, and illustrations of external and sexual characters see ASSING (2011).



**Figs 1-8:** *Leptusa substricta* nov.sp. (1-5) and *L. svanetica* nov.sp. (6-8): (1, 6) forebody; (2) male tergite VIII; (3) male sternite VIII; (4, 7) median lobe of aedeagus in lateral view; (5) paramere; (8) spermatheca. Scale bars: 1: 0.5 mm; 2-3, 6: 0.2 mm; 4-5, 7: 0.1 mm; 8: 0.05 mm.



**Figs 9-16:** *Leptusa migrituber* nov.sp. (9-13) and *L. triangulata* nov.sp. (14-16): (9, 14) forebody; (10) male tergites VI-VII; (11-12, 15) median lobe of aedeagus in lateral view; (13, 16) paramere. Scale bars: 9-10, 14: 0.5 mm; 11-13, 15-16: 0.2 mm.



**Figs 17-27:** *Leptusa migrituber* nov.sp. (17-20), *L. triangulata* nov.sp. (21-23), and *L. longalata* nov.sp. (24-27): (17) male tergite VIII; (18) male sternite VIII; (19, 21) female tergite VIII; (20, 22) female sternite VIII; (23) spermatheca; (24) forebody; (25-26) median lobe of aedeagus in lateral and in ventral view; (27) paramere. Scale bars: 17-22, 24: 0.2 mm; 23, 25-27: 0.1 mm.



***Leptusa (Neopisalia) substricta* nov.sp.** (Figs 1-5, Map 7)

**Type material:** Holotype ♂: "N41°57'28 E43°28'52, GG Shida Kartli (25), Kvishkheti 1300 m, Meybohm 24.7.2016 / Holotypus ♂ *Leptusa substricta* sp. n. det. V. Assing 2016" (cAss).

**E t y m o l o g y :** The specific epithet (Latin, adjective) alludes to the subapically constricted ventral process of the aedeagus.

**D e s c r i p t i o n :** Body length 3.1 mm; length of forebody 1.4 mm. Coloration: body black; legs pale-brown; antennae blackish-brown with antennomeres I-II and the base of III reddish.

Head (Fig. 1) as broad as long; punctuation moderately coarse and moderately dense; interstices with distinct microreticulation. Eyes rather large, longer than postocular region in lateral view. Antenna 0.65 mm long, distinctly incrassate apically; antennomeres IV weakly transverse, antennomeres V-X of increasing width and increasingly transverse, and X more than twice as broad as long.

Pronotum (Fig. 1) 1.3 times as broad as long and nearly 1.2 times as broad as head; maximal width approximately in the middle; posterior angles obtusely marked; punctures very dense and large, but shallow; interstices with pronounced microsculpture.

Elytra (Fig. 1) long, 1.15 times as long as pronotum; punctuation very dense and distinctly coarser than that of head and pronotum; interstices with shallow microreticulation, but with some shine. Hind wings not examined.

Abdomen slightly narrower than elytra; punctuation moderately fine, dense on tergite III, gradually decreasing in density towards posterior tergites; interstices with microreticulation; posterior margin of tergite VII with palisade fringe; tergites VII and VIII with sexual dimorphism.

♂: tergite VII with moderately pronounced median keel in posterior half; tergite VIII (Fig. 2) with median keel posteriorly, posterior margin weakly bisinuate; posterior margin of sternite VIII (Fig. 3) distinctly pointed in the middle; median lobe of aedeagus (Fig. 4) 0.42 mm long and of distinctive shape; paramere (Fig. 5) longer than median lobe, 0.52 mm long, apical lobe long and slender, nearly half as long as basal portion of paramere.

♀: unknown.

**C o m p a r a t i v e n o t e s :** *Leptusa substricta* is distinguished from all other *Neopisalia* species by the subapically long and slender ventral process of the aedeagus (lateral view), by the shape of the dorso-apical structure (lateral view), and also by the combination of black coloration, long elytra, and rather coarse punctuation of the forebody. Species with an aedeagus at least faintly resembling that of *L. substricta* are all confined to northern Anatolia. For illustrations of the genitalia of previously described *Neopisalia* species see PACE (1989, 1996) and ASSING (2002, 2003a, 2007, 2011).

**D i s t r i b u t i o n a n d n a t u r a l h i s t o r y :** The type locality is situated to the southwest of Khashuri in the northern foothills of the Lesser Caucasus (Map 7). The low altitude (1300 m), the fact that at present only a single specimen is known, as well as the long elytra and large eyes suggest that *L. substricta* may be relatively widespread and an inhabitant of a cryptic subterranean habitat. According to MEYBOHM (pers. comm.), the holotype was sifted from leaf litter in a beech forest.

***Leptusa (Neopisalia) svanetica* nov.sp.** (Figs 6-8, Map 7)

**Type material:** Holotype ♂: "GEORGIA, Caucasus [4] (Kvemo Svaneti), N slopes of Svaneti Mts.rng., nr., NW of Tsanashi vill., pitfall traps, sift, 1356 m, 42°48'26.2"N, 42°39'55.9"E, 04.VII.2015, leg. A. Pütz / Holotypus ♂ *Leptusa svanetica* sp. n. det. V. Assing 2016" (cAss).  
Paratypes: 2♀ 2♂: same data as holotype (Pütz).

**E t y m o l o g y :** The specific epithet is an adjective derived from the name of the region where the type locality is situated.

**D e s c r i p t i o n :** Body length 2.3-2.4 mm; length of forebody 0.95-1.05 mm. Coloration: forebody reddish to reddish-brown; abdomen reddish brown to brown, with segment VI and the anterior portion of segment VII blackish-brown to black, and the apex (posterior portion of segment VII and segments VIII-X) pale-reddish; legs yellowish-red; antennae reddish.

Head (Fig. 6) weakly transverse, of orbicular shape; punctuation fine and moderately dense; interstices with distinct microsculpture. Eyes small, composed of barely ten ommatidia with pigmentation, and approximately one-fourth as long as postocular region in dorsal view. Antenna relatively long, distinctly incrassate apically; antennomere IV approximately as long as broad; antennomeres V-X of increasing width and increasingly transverse; antennomere X approximately twice as broad as long.

Pronotum (Fig. 6) 1.20-1.25 times as broad as long and 1.15-1.20 times as broad as head; maximal width in anterior half; posterior angles weakly marked; punctuation rather dense and extremely fine, barely noticeable in the pronounced microsculpture.

Elytra (Fig. 6) short, approximately 0.7 times as long as pronotum; punctuation much less fine and sparser than that of head and pronotum; interstices without distinct microsculpture and glossy. Hind wings completely reduced.

Abdomen significantly broader than elytra; punctuation fine and moderately sparse; interstices with distinct microsculpture; posterior margin of tergite VII without, or with indistinct rudiment of a palisade fringe; posterior margin of tergite VIII shallowly concave in the middle; tergites VII and VIII without sexual dimorphism.

♂: sternite VIII with posterior margin convexly produced in the middle; median lobe of aedeagus (Fig. 7) small, 0.32 mm long and of distinctive shape; paramere approximately as long as median lobe, apical lobe moderately long, not distinctive.

♀: posterior margin of sternite VIII broadly convex; spermatheca (Fig. 8) not distinctive.

**C o m p a r a t i v e n o t e s :** Regarding the shape and the internal structures of the median lobe of the aedeagus, *L. svanetica* is most similar to *L. diecki* PACE, 1983 from North Turkey and to *L. xanthopyga* from the Caucasus. It is, however, readily distinguished from them by smaller body size, different habitus, much shorter and smaller elytra and larger eyes, a relatively broader abdomen, the absence of keels or tubercles on the male tergites VII and VIII, as well as by the shape of the ventral process of the the aedeagus and by the more slender sclerotized internal structures. For illustrations of *L. xanthopyga* and *L. diecki* see PACE (1989).

**D i s t r i b u t i o n a n d n a t u r a l h i s t o r y :** The type locality is situated in the Svaneti mountain range, Kvemo Svaneti, northwestern Georgia (Map 7). The specimens were sifted at an altitude of approximately 1360 m.

***Leptusa (Neopisalia) migrituber* nov.sp.** (Figs 9-13, 17-20, Map 7)

**Type material:** **Holotype** ♂: "N42°54'41 E43°00'34 (20), Georgien Svaneti, Ushguli Nordhang 2190 m, Brachat & Meybohm 30.6.2017 / Holotypus ♂ *Leptusa migrituber* sp. n. det. V. Assing 2017" (cAss). **Paratypes:** 15 ♂♂, 11 ♀♀: same data as holotype (cAss, MNB); 5 ♂♂, 2 ♀♀: "N42°56'22 E43°02'22 (21) Georgien Svaneti, Ushguli - Shkara 2200 m, Brachat & Meybohm 30.6.201 [recte 2017]" (cAss).

**E t y m o l o g y :** The specific epithet is a noun in apposition composed of the Latin adjective *migrus* (minute) and the Latin noun *tuber* (tubercle). It alludes to the minute tubercle on the male tergite VII.

**D e s c r i p t i o n :** Body length 2.2-2.9 mm; length of forebody 1.0-1.2 mm. Coloration: body reddish-brown, with the preapical abdominal segments more or less distinctly infuscate; legs yellowish-red; antennae reddish.

Head (Fig. 9) of orbicular shape; punctation very fine and moderately dense, barely noticeable in the pronounced microreticulation. Eyes small, composed of less than 20 ommatidia with pigmentation, and approximately one-fourth as long as postocular region in dorsal view. Antenna relatively long, distinctly incrassate apically; antennomere IV weakly transverse; antennomeres V-X of increasing width and increasingly transverse; antennomere X approximately twice as broad as long.

Pronotum (Fig. 9) distinctly transverse, 1.25-1.30 times as broad as long and usually 1.25-1.30 times as broad as head; maximal width approximately in the middle; posterior angles obtusely marked; punctation rather dense and fine, but more distinct than that of head; interstices with pronounced microsculpture.

Elytra (Fig. 9) moderately short, approximately 0.8 times as long as pronotum; punctation more distinct than that of head and pronotum; interstices with distinct microsculpture. Hind wings completely reduced.

Abdomen broader than elytra; punctation fine and moderately dense, sparser on posterior than on anterior tergites; interstices with distinct microsculpture composed of transverse meshes; posterior margin of tergite VII with narrow rudiment of a palisade fringe; posterior margin of tergite VIII concave in the middle; tergites VII and VIII with sexual dimorphism.

♂: tergite VII with or without minute median tubercle posteriorly (Fig. 10); posterior margin of tergite VIII (Fig. 17) with distinct median concavity, margin of this concavity with setiferous tubercles; posterior margin of sternite VII broadly concave; sternite VIII (Fig. 18) with posterior margin angularly produced in the middle; median lobe of aedeagus (Figs 11-12) 0.41-0.45 mm long and of distinctive shape; paramere (Fig. 13) longer than median lobe, apical lobe moderately long and slender.

♀: posterior margin of tergite VIII (Fig. 19) with median concavity less pronounced than in male, margin of this concavity without tubercles; posterior margin of sternite VIII (Fig. 20) weakly, obtusely produced in the middle; spermatheca not distinctive, similar to that of *L. svanetica*.

**C o m p a r a t i v e n o t e s :** Among micropterous *Neopisalia* species, *L. migrituber* is characterized particularly by the posterior concavity of tergite VIII, by the modifications of the male tergite VII and the male sternite VII, as well as by the morphology of the aedeagus. It is additionally distinguished from the geographically close *L. svanetica* by larger body size, longer elytra with distinct microsculpture, larger eyes with more

ommatidia, the shape of the pronotum (*L. svanetica*: pronotum less transverse, more convex in cross-section; maximal width close to anterior angles), and by distinctly denser punctuation of the abdomen. The new species differs from *L. xanthopyga*, which it somewhat resembles in the shape of the aedeagus, by much shorter elytra, its coloration (*L. xanthopyga*: body bicolored; pronotum reddish, strongly contrasting with the blackish head and elytra), by the shapes of tergite VIII and sternite VII (*L. xanthopyga*: posterior margins without distinct concavity), and by the shape of the median lobe of the aedeagus and its internal structures. According to the original description of *L. khnzoriani* PACE, 1982 (type locality: Glola in the east of Racha, Georgia, close to the border with Ossetia), this species has an aedeagus of similar shape as that of *L. migratuber*, but is distinguished by reddish-yellow coloration, elytra with an elevated suture and a large impression on either side of the suture, oblong median tubercles on the male tergites VII and VIII, and a much smaller aedeagus (according to the illustrations approximately 0.32-0.33 mm) (PACE 1982). Moreover, according to an illustration provided by PACE (1989), the distal cuticular invagination of the spermatheca is very small and shallow in *L. khnzoriani*.

**Distribution and natural history:** The specimens were collected in two localities in Ushguli mountain, Svaneti region, Georgia (Map 7). They were sifted from leaf litter in a forest composed of dominant birch, aspen, rowan, and rhododendron, and beneath birch trees near a stream in a meadow (MEYBOHM pers. comm.) at altitudes of 2190 and 2200 m, respectively.

***Leptusa (Neopisalia) triangulata nov.sp.* (Figs 14-16, 21-23, Map 7)**

**Type material:** Holotype ♂: "N41°37'52 E42°29'33 (3), Georgien Adjara, Danisparauli 1790 m, Brachat & Meybohm 21.6.2017 / Holotypus ♂ *Leptusa triangulata* sp. n. det. V. Assing 2017" (cAss). Paratypes: 1 ♀: same data as holotype (cAss).

**Etymology:** The specific epithet (adjective) alludes to the triangular projection at the base of the ventral process of the aedeagus (lateral view).

**Description:** Body length 2.5-2.7 mm; length of forebody 1.10-1.15 mm. Coloration: body reddish-brown to brown; legs dark-yellowish; antennae reddish.

Head (Fig. 14) of orbicular shape; punctuation very fine and moderately dense, barely noticeable in the pronounced microreticulation. Eyes small, composed of approximately 10 ommatidia with pigmentation, and approximately one-fourth as long as postocular region in dorsal view. Antenna relatively long, distinctly incrassate apically; antennomere IV weakly transverse; antennomeres V-X of increasing width and increasingly transverse; antennomere X approximately twice as broad as long.

Pronotum (Fig. 14) distinctly transverse, approximately 1.3 times as broad as long and 1.2 times as broad as head; maximal width in anterior half; posterior angles obtusely marked; punctuation dense and fine, more distinct than that of head; interstices with pronounced microsculpture.

Elytra (Fig. 14) moderately short, approximately 0.8 times as long as pronotum; punctuation more distinct than that of head and pronotum; interstices with distinct microsculpture. Hind wings completely reduced.

Abdomen broader than elytra; punctuation fine and moderately dense, sparser on posterior than on anterior tergites; interstices glossy, with very shallow microsculpture composed

of short transverse (tergites III-V) and isodiametric (tergites VI-VIII) meshes; posterior margin of tergite VII with narrow rudiment of a palisade fringe; posterior margin of tergite VIII (Fig. 21) very shallowly concave in the middle; tergite VII with sexual dimorphism.

♂: tergite VII with narrow and minute median tubercle posteriorly; sternite VIII angularly produced posteriorly; median lobe of aedeagus (Fig. 15) 0.41 mm long, at base of ventral process with pronounced triangular projection in lateral view; paramere (Fig. 16) approximately as long as median lobe, apical lobe moderately long and slender.

♀: posterior margin of sternite VIII (Fig. 22) obtusely produced in the middle, but less so than in male; spermatheca as in Fig. 23.

**Comparative notes:** Regarding the shape of the aedeagus, *L. triangulata* is similar to *L. migrituber*, *L. spoliata* ASSING, 2002 (Northeast Anatolia), and *L. longilobata* ASSING, 2007 (Northeast Anatolia). It is distinguished from all of them by a smaller pronotum (in relation to the head), smaller eyes, a more glossy abdomen with shallower microsculpture composed of isodiametric and short transverse meshes, and additionally as follows:

from *L. migrituber* by the shapes of tergite VIII and the male sternite VIII, by the position of the triangular projection at the base of the ventral process of the aedeagus, and by the differently shaped apex of the ventral process of the aedeagus;

from *L. spoliata* by darker coloration, a more slender habitus, a head of orbicular shape (*L. spoliata*: head somewhat wedge-shaped), a shallower posterior concavity of tergite VIII, the presence of a minute tubercle on the male tergite VII, and by a ventral process of the aedeagus with a less pronounced triangular projection and an apex of different shape;

from *L. longilobata* by darker coloration, a more slender habitus, a head of orbicular shape (*L. longilobata*: head somewhat wedge-shaped), the presence of a minute tubercle on the male tergite VII, a ventral process of the aedeagus with a less pronounced triangular projection and an apex of different shape, and by a shorter apical lobe of the paramere.

For illustrations of *L. spoliata* and *L. longilobata* see ASSING (2002, 2007).

According to the original description of *L. khnzoriani* (East Racha, Georgia), this species has an aedeagus of similar shape as that of *L. triangulata*, but is distinguished by reddish-yellow coloration, elytra with an elevated suture and a large impression on either side of the suture, oblong median tubercles on the male tergites VII and VIII, and a much smaller aedeagus (according to the illustrations approximately 0.32-0.33 mm) (PACE 1982). Moreover, according to an illustration provided by PACE (1989), the distal cuticular invagination of the spermatheca is very small and shallow in *L. khnzoriani*.

**Distribution and natural history:** The type locality is situated in the east of Adjara province, Southwest Georgia, not far from the border with the Turkish province Ardahan, in the transitional zone between the Lesser Caucasus and the Pontic Mountains (Map 7). The specimens were sifted from litter in a mixed forest with dominant fir and with rhododendron undergrowth (MEYBOHM pers. comm.) at an altitude of 1790 m.

***Leptusa (Dysleptusa) fuliginosa* (AUBÉ, 1850) (Map 8)**

**Material examined:** Russia: 3 exs., W-Caucasus, Karachayev-Cherkesskaya Respublika, 13 km SW Teberda, 43°20'N, 41°40'E, 1450 m, moist spruce forest with scattered beech, litter, moss, and dead wood sifted, 22.VII.2011, leg. Assing (cAss). Georgia: K v e m o K a r t l i: 1♂, Algeti National Park, Manglisi-Tsalka, 41°40'N, 44°18'E, 1580 m, 12.VII.2015, leg. Brachat & Meybohm (cAss). S h i d a K a r t l i: 3♀♀, Kvishkheti, 41°57'N, 43°30'E, 790 m, 12.V.2016, leg. Brachat & Meybohm (cAss). I m e r e t i: 2♂♂, NW Rikoti pass, 42°03'N, 43°29'E, 950 m, 14.V.2016, leg. Brachat & Meybohm (cAss). M t s k h e t a - M t i a n e t i: 1♂, Gudani, 42°32'N, 44°59'E, 1710 m, 18.VII.2015, leg. Brachat & Meybohm (cAss); 2♂♂, Kvesheti, 42°27'N, 44°32'E, 1500 m, 22.VII.2015, leg. Brachat & Meybohm (cAss). S v a n e t i: 1♂, 4 km N Mazeri, 43°06'N, 42°36'E, 1690 m, 28.VII.2016, leg. Meybohm (cAss); 1♂, 2 km N Ipari, 43°01'N, 42°50'E, 1670 m, 29.VII.2016, leg. Meybohm (cAss); 3♀♀, Mazeri, 43°06'N, 42°36'E, 1660 m, 26.VI.2017, leg. Brachat & Meybohm (cAss); 2♂♂, Mestia-Hatsvali, 43°02'N, 42°44'E, 1620 m, 27.VI.2017, leg. Brachat & Meybohm (cAss); 2♂♂, Ushguli-Lentekhi, 42°52'N, 43°10'E, 1530 m, 1.VII.2017, leg. Brachat & Meybohm (cAss). Armenia: 1♀, N Vanadzor, N Pushkin pass, 40°55'N, 44°27'E, 1900 m, mixed forest (oak, pine, etc.), litter sifted, 1.VII.2017, leg. Assing (cAss); 1♂, WSW Dilijan, Kalavan, 40°38'N, 45°06'E, 1960 m, forest with *Quercus*, *Betula*, and *Carpinus*, litter sifted, 5.VII.2017, leg. Assing (cAss); 1♀, same data, but bark of dead oak sifted, 5.VII.2017, leg. Assing (cAss); 1♂, WSW Dilijan, Kalavan, 40°38'N, 45°06'E, 2100 m, forest at timber line with oak and birch, litter and large fungus on oak sifted, 5.VII.2017, leg. Assing (c Ass).

**Comment:** The distribution of *L. fuliginosa* includes the Caucasus region from North Anatolia across Armenia and Georgia to the Greater Caucasus (Map 8). A revision of a previous record of *L. persica* ASSING, 2009 from Krasnodarskiy Krai (Russia) (ASSING 2011) revealed that it is based on a misidentification and refers to *L. fuliginosa*.

**Records and descriptions of species from other regions*****Leptusa (Chondropisalia) juliana* PACE, 1980**

**Material examined:** Slovenia: 2♂♂, Trnovski Gozd, Krnica, cave entrance, pitfall, 7.IV.-3.X.2011, leg. Ausmeier & Tolasch (cAss).

**Comment:** This species was previously unknown from Slovenia (PACE 1989, SCHÜLKE & SMETANA 2015).

***Leptusa (Oncopisalia) apfelbeckiana* LIKOVSKÝ, 1984**

**Material examined:** Macedonia: 1♂, 1♀, Bistra Mts., Mavrovo env., 1540 m, sifted, 15.VI.2011, leg. Hlaváč (cAss); 19 exs., Bistra Mts., road from Mavrovo to Mt. Galičnik, 41°39'N, 20°43'E, 1540 m, beech forest, 16.VI.2011, leg. Jałoszyński (cJal, cAss); 8 exs., Bistra Mts., Mavrovo env., picnic site, beech forest, along stream, 17.VI.2011, leg. Jałoszyński (cJal, cAss). Albania: 3 exs., Tiranë, 10 km ENE Tiranë, Mali Dajti, 41°22'N, 19°55'E, 1160 m, mixed beech forest, litter sifted, 21.V.2010, leg. Assing (cAss); 3 exs., same data, but bark of dead beech trunks sifted (cAss); 5 exs., exs., Librazhd, 25 km ESE Elbasan, Mali i Polisit, 41°04'N, 20°22'E, 1700 m, old beech forest with snow, litter sifted, 23.V.2010, leg. Assing (cAss).

**Comment:** This species was previously known only from Albania (PACE 1989, SCHÜLKE & SMETANA 2015). The above specimens from Macedonia represent new country records. Both in Albania and in Macedonia, *L. apfelbeckiana* was collected together with *L. sarensis*.

***Leptusa (Stictopisalia) knappeorum* SCHEERPELTZ, 1964**

**Material examined:** Macedonia: 11♂♂, 5♀♀, Bistra Mts., Mavrovo env., 1540 m,

sifted, 15.VI.2011, leg. Hlaváč (cAss); 13 exs., Bistra Mts., road from Mavrovo to Mt. Galičnik, 41°39'N, 20°43'E, 1540 m, beech forest, 16.VI.2011, leg. Jałoszyński (cJal, cAss); .

**C o m m e n t :** *Leptusa knappeorum* was originally described from the Galicica range "unmittelbar südlich des Ochrid-Sees in Nordwest-Macedonien" (SCHEERPELTZ 1964). The genitalia of this species are highly similar to those of *L. peristerica*, whose original description is based on four type specimens from "Perister, Perka, Macedonia" (PACE 1989) and which was subsequently reported also from several localities in northern Greece (ASSING 2006; ASSING & WUNDERLE 2001; ZERCHE 2002). It does not seem unlikely that these differences will eventually have to be attributed to intra- rather than interspecific variation.

The specimens listed above significantly expand the known range of *L. knappeorum* further to the north.

### ***Leptusa (Stictopisalia) sarensis* PACE, 1983**

**M a t e r i a l e x a m i n e d :** Macedonia: 18♂♂, 12♀♀, Bistra Mts., Mavrovo env., 1540 m, sifted, 15.VI.2011, leg. Hlaváč (cAss); 3♂♂, 1 ex., Bistra Mts., Mavrovo env., Nikoforovo vill., 41°40'N, 20°47'E, 1250 m, 16.IV.2011, leg. Hlaváč & Jałoszyński (cJal, cAss); 7 exs., Nichiforska Mts., valley of Radika river, 41°46'N, 20°40'E, 1030 m, 17.VI.2011, leg. Jałoszyński (cJal, cAss); 2♂♂, Bukovik Mts., Cerovo vill. env., 41°43'N, 20°50'E, 880 m, 19.VI.2011, leg. Hlaváč & Jałoszyński (cAss). Albania: 47 exs., Librazhd, 25 km ESE Elbasan, Mali i Polisit, 41°04'N, 20°22'E, 1700 m, old beech forest with snow, litter sifted, 23.V.2010, leg. Assing (cAss).

**C o m m e n t :** The illustrations of the primary sexual characters provided by PACE (1983, 1989) are highly misleading. For photographs and a redescription of the primary and secondary sexual characters see ASSING (2004).

*Leptusa sarensis* was previously known only from the Šar planina (S-Serbia, NW-Macedonia). The above first record from Albania shows that the species is evidently widespread in the southern Balkans. It was collected together with *L. apfelbeckiana* both in Albania and in Macedonia.

### ***Leptusa (Stictopisalia) jelineki* PACE, 1983**

**M a t e r i a l e x a m i n e d :** Albania: 5 exs., Korçë, 37 km W Korçë, Mali i Ostrovikës, 40°40'N, 20°21'E, 1340 m, beech forest margin, beech litter and fern roots sifted, 26.V.2010, leg. Assing & Schülke (cAss, MNB).

**C o m m e n t :** *Leptusa jelineki* was originally described from Macedonia and subsequently reported also from several localities in northern Greece (ASSING 2006, ASSING & WUNDERLE 2001, ZERCHE 2002). The above specimens represent the first record from Albania.

### ***Leptusa (Stictopisalia) punctithorax* BERNHAUER, 1935**

**M a t e r i a l e x a m i n e d :** Albania: 34 exs., Korçë, 10 km S Korçë, Mali i Gramozit, 40°32'N, 20°48'E, 1570 m, beech forest with poplar and juniper, sifted, 27.V.2010, leg. Assing & Schülke (cAss, MNB).

**C o m m e n t :** This species is currently known only from Albania (PACE 1989, SCHÜLKE & SMETANA 2015).

***Leptusa (Neopisalia) longalata* nov.sp.** (Figs 24-27)

**Type material:** Holotype ♂ [both elytra missing]: "Iran - Mazandaran, 10 km S Part Kola, 1540 m, 36.05°N, 53.29°E, *Carpinus* trap 3, VI.2015, leg. Barimani / Holotypus ♂ *Leptusa longalata* sp. n. det. V. Assing 2016" (cAss). Paratype ♀: same data, but "1620 m ... *Carpinus* trap 2 ... VII.2015" (cAss).

**E t y m o l o g y :** The specific epithet (adjective) alludes to the fully developed hind wings.

**D e s c r i p t i o n :** Body length 3.2-3.3 mm; length of forebody 1.35 mm. Coloration: head brown to dark-brown; pronotum reddish to reddish-brown, distinctly contrasting with the much darker head; elytra reddish-brown; abdomen reddish, with segment VI and the anterior half of segment VII infusate; legs yellowish-red; antennae brown to dark-brown, with the basal three and the apical 1-3 antennomeres paler, reddish to yellowish-red.

Head (Fig. 24) weakly transverse; punctuation fine and moderately dense; interstices with fine microreticulation. Eyes large, distinctly longer than postocular region in dorsal view. Antenna approximately 0.8 mm long; antennomeres IV approximately as long as broad, V weakly transverse, VI-X of gradually increasing width and increasingly (but weakly) transverse, X barely 1.5 times as broad as long.

Pronotum (Fig. 24) approximately 1.3 times as broad as long and 1.25 times as broad as head; maximal width in anterior half; posterior angles moderately marked; punctuation rather dense and fine; interstices with pronounced microsculpture.

Elytra (Fig. 24) 1.15 times as long as pronotum; punctuation more distinct than that of head and pronotum; interstices with pronounced microsculpture. Hind wings fully developed.

Abdomen narrower than elytra; punctuation not particularly fine, denser on anterior than on posterior tergites; interstices with shallow microsculpture; posterior margin of tergite VII with palisade fringe; tergites VII and VIII with sexual dimorphism.

♂: tergite VII with median carina in posterior half; tergite VIII with small median tubercle posteriorly, posterior margin weakly concave in the middle; sternite VIII obtusely pointed posteriorly; median lobe of aedeagus (Figs 25-26) 0.47 mm long and of distinctive shape, ventral process apically distinctly dilated and sharply obliquely truncate, ventrally not distinctly sinuate in lateral view; paramere (Fig. 27) approximately as long as median lobe, apical lobe of moderately length and subapically somewhat constricted.

♀: posterior margin very indistinctly concave in the middle; spermatheca not distinctive.

**C o m p a r a t i v e n o t e s :** This species is easily distinguished from all its consubgenera particularly by the conspicuous shape of the ventral process of the aedeagus. In other species of the subgenus the ventral process is apically less strongly dilated and at least slightly sinuate ventrally (lateral view). In external appearance (coloration, long elytra), *L. longalata* somewhat resembles *L. xanthopyga*, from which it additionally differs by sparser punctuation on the abdomen. For illustrations of the aedeagi of other *Neopisalia* species see PACE (1989, 1996) and ASSING (2002, 2003a, b, 2007, 2011).

**D i s t r i b u t i o n a n d n a t u r a l h i s t o r y :** The type locality is situated in Mazandaran province, North Iran. The specimens were collected with electors hanging above and near dead and alive trunks of *Carpinus betulus* at altitudes of 1540 and 1520 m.



## Acknowledgements

I am indebted to the colleagues indicated in the material section for the loan of material, in particular to Volker Brachat (Geretsried) and Heinrich Meybohm (Großhansdorf) for the gift of Staphylinidae from Georgia, to Jörg Müller (Grafenau) for the gift of Staphylinidae from North Iran, as well as to Andreas Pütz (Eisenhüttenstadt) for the generous gift of the holotype of *Leptusa svanetica*.

## Zusammenfassung

Fünf Arten der Gattung *Leptusa* KRAATZ, 1858 aus Georgien und dem Norden Irans werden beschrieben und abgebildet: *L. (Neopisalia) substricta* nov.sp. (Georgien: Shida Kartli); *L. (N.) svanetica* nov.sp. (Georgien: Svaneti); *L. (N.) migrituber* nov.sp. (Georgien: Svaneti); *L. (N.) triangulata* nov.sp. (Georgien: Adjara); *L. (N.) longalata* nov.sp. (Iran: Mazandaran). Die Gattung ist in der Kaukasusregion (Nordostanatolien von Ordu bis zur Grenze mit Georgien, Georgien, Armenien, Azerbaijan, russischer Teil des Großen Kaukasus) mit 39 beschriebenen Arten in fünf Untergattungen vertreten; allein 28 dieser Arten, davon zwei mit zweifelhaftem Status, gehören in die Untergattung *Neopisalia* SCHEERPELTZ, 1966. Drei zoogeographisch nicht plausible bzw. revidierte Nachweise werden korrigiert. *Leptusa kaszabi* PACE, 1981, zuvor in der Untergattung *Heteroleptusa* PACE, 1989, wird der Untergattung *Neopisalia* zugeordnet. Eine zoogeographische Analyse der *Leptusa*-Fauna der Kaukasusregion ergab, dass mehr oder weniger lokalendemische Arten ausschließlich auf die feuchtere westliche Hälfte der Region, ostwärts bis etwa 43°30' östlicher Breite beschränkt ist. Darüber hinaus dürften im bislang kaum untersuchten Abchasien einige bislang unentdeckte Arten leben. Ein Katalog der *Leptusa*-Arten der Kaukasusregion wird erstellt. Die derzeit bekannten Verbreitungsgebiete von 33 Arten werden anhand von Karten illustriert. Weitere Nachweise von 19 beschriebenen Arten werden gemeldet, darunter einige Erstnachweise.

## References

- ASSING V. (2002): New species and records of *Leptusa* KRAATZ from the Palaearctic region (Coleoptera: Staphylinidae, Aleocharinae). — Linzer Biologische Beiträge **34** (2): 971-1019.
- ASSING V. (2003a): The Turkish species of *Leptusa* KRAATZ in the F. Schubert collection (Naturhistorisches Museum, Wien) (Coleoptera: Staphylinidae, Aleocharinae). — Koleopterologische Rundschau **73**: 75-82.
- ASSING V. (2003b): New species and records of Staphylinidae from Turkey (Insecta: Coleoptera: Staphylinidae). — Entomologische Blätter **98** (3) (2002): 153-177.
- ASSING V. (2004): On some species of *Leptusa* KRAATZ, primarily from Spain (Coleoptera: Staphylinidae, Aleocharinae). — Linzer Biologische Beiträge **36** (1): 61-75.
- ASSING V. (2006): New species and records of Staphylinidae from Greece, with two new synonymies (Insecta: Coleoptera). — Linzer Biologische Beiträge **38** (1): 333-379.
- ASSING V. (2007): Three new species, three new synonyms, and additional records of *Leptusa* from Turkey (Insecta: Coleoptera: Staphylinidae: Aleocharinae). — Entomological Problems **37** (1-2): 7-19.
- ASSING V. (2008): Seven new species and additional records of Palaearctic *Leptusa*, primarily from Yunnan, China (Coleoptera: Staphylinidae, Aleocharinae). — Linzer Biologische Beiträge **40** (1): 251-273.
- ASSING V. (2009): New species, new synonymies, and additional records of *Leptusa* from Turkey and Iran (Coleoptera: Staphylinidae: Aleocharinae). — Linzer Biologische Beiträge **41** (2): 1285-1305.

- ASSING V. (2011): New species and additional records of *Leptusa* from the Caucasus region and the Himalaya (Coleoptera: Staphylinidae: Aleocharinae). — Linzer Biologische Beiträge **43** (1): 253-265.
- ASSING V. & P. WUNDERLE (2001): On the Staphylinidae of Greece. II. New species and new records from central and northern Greece (Insecta: Coleoptera). — Linzer Biologische Beiträge **33** (1): 103-136.
- PACE R. (1981): Due nuove specie di *Leptusa* KR. del Museo Ungherese di Storia Naturale (Coleoptera, Staphylinidae). — Annales Historico-Naturales Musei Nationalis Hungarici **73**: 119-122.
- PACE R. (1982): Le specie caucasiche ed armene del genere *Leptusa* KR. raccolte dal Dr Iablokoff-Khnzorian (Coleoptera Staphylinidae). — Nouvelle Revue d'Entomologie **12** (1): 67-72.
- PACE R. (1983): *Leptusa* KRAATZ nuove o poco note del Museo Nazionale di Praga (Coleoptera, Staphylinidae). — Acta Entomologica Musei Nationalis Pragae **41**: 277-296.
- PACE R. (1989): Monografia del genere *Leptusa* KRAATZ (Coleoptera Staphylinidae). — Memorie del Museo Civico di Storia Naturale di Verona (II° Serie), Sezione Scienze della Vita (A: Biologica) **8**: 1-307.
- PACE R. (1996): Nuove *Leptusa* KRAATZ di Spagna, Francia, Italia, Austria, Cipro, Turchia e Taiwan. Monografia del genere *Leptusa* KRAATZ: Supplemento IV (Coleoptera, Staphylinidae). — Nouvelle Revue d'Entomologie (N.S.) **13** (1): 21-33.
- SCHEERPELTZ O. (1964): Eine neue Art der Gattung *Leptusa* KRAATZ aus Nordwest-Macedonien. — Zeitschrift der Arbeitsgemeinschaft Österreichischer Entomologen **16** (1-3): 44-46.
- SCHEERPELTZ O. (1966): Die neue Systematik der Großgattung *Leptusa* KRAATZ (Col. Staphylinidae). — Verhandlungen der Zoologisch-Botanischen Gesellschaft in Wien **105/106**: 5-55.
- SCHÜLKE M. & A. SMETANA (2015): Staphylinidae, pp. 304-1134. – In: LÖBL I. & D. LÖBL (eds), Catalogue of Palaearctic Coleoptera. Volume 2. Hydrophiloidea – Staphyliinoidea. Revised and updated edition. — Leiden: Brill: xxvi + 1702 pp.
- ZERCHE L. (2002): *Leptusa*-Arten aus Bulgarien und Griechenland (Coleoptera, Staphylinidae, Aleocharinae). — Beiträge zur Entomologie, Keltern **52** (2): 309-328.

Author's address: Dr. Volker ASSING  
 Gabelsbergerstr. 2  
 D-30163 Hannover, Germany  
 E-mail: vassing.hann@t-online.de