A review of the genus *Phlegra* Simon, 1876 in the fauna of Russia and adjacent countries

(*Araneae: Salticidae: Aelurillinae*)

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**Abstract.** The paper is a revision of the genus *Phlegra* in the fauna of the ex-USSR. Six species, including two new: *Phlegra andreevae* and *P. profuga* are described, distributional maps for each are provided. The lectotype for *Phlegra sogdiana* is designated. New morphological term for the male genitalia, i.e. the compound salticid embolus, is proposed and discussed.

Key words: Arachnology, taxonomy, zoogeography, review, *Phlegra, Salticidae*, Palearctic Region.

**Introduction**

Among the members of the subfamily *Aelurillinae*, *Phlegra* represents an easily recognized genus (s. below), which according to Prószynski (1990) comprises about 50 described species, half of them being known from single sexes only and in need of redescriptions. Up to now, the genus has not been completely revised which leads to problems in identification of most species.

The current paper presents a critical review of *Phlegra* in the fauna of the ex-USSR (in the limits of 1990 year). I consider the genus in the broad sense, when both the *bresnieri* and *fasciata* species groups are united and considered within *Phlegra* (s. lat.) (Simon 1903; Prószynski 1978; Żabka 1985; etc.). However, contrary to Prószynski’s (1990) opinion, the *festivus* species group has been recently defined (Logunov & Hecia 1995) as a separate genus *Asianellus* and hence is not included here into *Phlegra*. 
Thus, the goals of the present paper are (1) to redefine the genus *Phlegra* based on both the structure of sex organs and the somatic morphology; (2) to consider apparent affinities of the genus; and (3) to revise all species of the genus found from the territory studied. A total of 6 species are studied, 2 of which are described as new.

**MATERIAL AND METHODS**

The work is based on museum collections and newly collected materials from the former territory of the USSR. A total of 363 specimens of *Phlegra* have been studied.

Specimens for this study were borrowed from or housed in the following museums:

- BI - the Zoological Museum of the Institute for Systematics and Ecology of Animals (former Biological Institute), Novosibirsk, Russia;
- ZMMU - the Zoological Museum of the Moscow State University, Moscow, Russia;
- NMNH - the Museum of Natural History, Paris, France;
- IZW - the Institute of Zoology PAN, Warszawa, Poland;
- ZIP - the Zoological Institute of Russian Academy of Science, St.Petersburg, Russia;
- PSU - the Zoological Department of the Perm State University, Perm, Russia; of MNH - Museum of Natural History, Wrocław, Poland;
- RINS - the Royal Belgian Institute for Natural Science, Bruxelles, Belgium.

Since this paper is a regional review, not a complete revision of the genus *Phlegra*, relevant literature for each mentioned species includes only sources concerned with the spider fauna of the former USSR and published later than 1936. For complete sources see Charitonov (1932, 1936) and Prószyński (1990).

In most cases the names of collectors are abbreviated as follows: Mr. A. V. Abramov (A.A.), Dr. E. M. Andreeva (E.A.), Dr. V. V. Dubatolov (V.D.), Dr. P. M. Dunin (P.D.), Dr. K. Y. Eskov (K.E.), Mr. A. A. Fedorov (A.F.), Dr. A. P. Kononenko (A.K.), Dr. G. T. Kuznetsov (G.K.); Dr. D. V. Logunov (D.L.), Mr. O. V. Lyakhov (O.L.), Dr. Y. M. Marusik (Y.M.), Dr. K. G. Mikhailov (K.M.), Mr. A. B. Nenilin (A.N.); Dr. V. I. Ovtsharenko (V.O.), Mr. S. V. Ovtchinnikov (S.O.), Mrs. T. V. Pavlenko (T.P.); Dr. M. T. Sternbergs (M.S.), Dr. V. I. Sytchevskaya (V.S.); Dr. C. K. Tarabaev (C.T.); Prof. V. P. Tyshchenko (V.T.); Mr. E. M. Zhukovets (E.Z.), Mr. V. K. Zinchenko (V.Z.), Dr. S. L. Zonshtein (S.Z.), Dr. A. A. Zyzin (A.Z.).

Abbreviations used in figures and the text: M - male, F - female, AME - anterior median eyes, ALE - anterior lateral eyes, PLE - posterior lateral eyes, CP - cymbial pocket; BH - basal haematodocha; FS - foot sclerite of the CSE; CSE - compound salticid embolus; DH - distal haematodocha; DTA - dorsal tibial apophysis; EM -
embolic membrane; EP - epigynal pocket; ID - insemination duct; LCP - lateral cymbial process; LTA - lateral tibial apophysis; MS - median septum of epigyne; PS - principal sclerit of the CSE; SD - seminal duct; ST - subtegulum; T - tegulum; Fm. - femur; Pt. - patella; Tb. - tibia; Mt. - metatarsus.

The sequence of leg segments in measurement data is as follows:

1-5. Expanded male palps of *Phlegra* spp.: 1-2 - *P. fasciata*, lateral and median views, 3 - *P. fuscipes*, apical division of bulbous, 4-5 - *P. bresnieri*, median and lateral views. Abbreviations as explained in the text. Scale bars: 1-3 - 0.25 mm, 4-5 - 0.2 mm
femur+patella+tibia+metatarsus+tarsus. All measurements are given in mm. The lengths of spiders in the size classes adopted are those used by Davies & Žabka (1989): “small”, less than 4.0 mm; “medium”, 4.0-8.0 mm; “large”, more than 8.0 mm.

**TERMINOLOGY**

Most of the terms adopted for genitalic descriptions were proposed by Comstock (1910), Wanless (1988), Ono (1988), Davies & Žabka (1989), Sierwald (1990) and Coddington (1990), most of them shown in figs 1-5, 7, 8, 10, 15, 22. A new term is “compound salticid embolus” (CSE), which in Phlegra consists of “principal sclerite” and “foot sclerite” (figs 1-5).

The term “compound salticid embolus” (CSE) is here proposed for use, as the presumption of homology of the Aelurillinae embolus and that in some other salticids seems clearly wrong. The current analysis has shown that name “embolus” in Salticidae has been used for unequivocally different structures. For instance, the “embolus” in some Aelurillinae genera is composed at least of two fused elements (figs 1-3): a “principal sclerite” that appears to be homologous to the simple embolus of some other salticids, and a “foot sclerite” being the likely homolog of the tegular apophysis (sensu Griswold 1987). The composite structure of the aelurilline embolus is seen especially well in some Phlegra and Aelurillus (e.g. fig. 3). By this means the Aelurillinae embolus is treated as homologous to both a simple embolus and tegular apophysis of some another salticids, e.g. from the subfamily Dendryphantinae. Consequently, it is safe to say that the term “embolus” in taxonomic descriptions of Salticidae is usually used to reflect only its function, not a true sclerite formation. In this paper, as a compromise between homology and stability of names, I have followed Coddington (1990) and included a taxon reference in the name of the sclerite to emphasise the composite origin of “embolus” in some salticids, including Aelurillinae.

For the leg spination the system adopted is that used by Ono (1988). Leg spination for the genus reflects only the spine patterns which are present in all its congeners. Names for distributional patterns are those proposed by Gorodkov (1984).

**Phlegra Simon, 1876**

Type species: *Attus fasciata* Hahn, 1826.

**DEFINITION**

Medium to large jumping spiders ranging from about 4.6 to 8.7 mm in length. Sexes alike in general body shape and colour, but males differ in the presence of dorsal abdominal scutum and prolateral spines on tibiae I,II (with pattern 1-2 or 1-1) which are invariably absent in females. Colour pattern, usually consisting of two
white/yellow longitudinal stripes on carapace and pair of brown longitudinal bands on dorsum, present in both sexes, sometimes less distinct in males. CARAPACE: general shape oval and flat; fovea present. EYES: in three rows; posterior row as wide as anterior one or slightly wider; middle row about midway between ALE and PLE; quadrangle length between 29 and 43% of carapace length. CLYPEUS: rather high, sloping down or slightly backwards; height from about 50 to 97% of AME diameter. CHELICERA: medium; more or less subvertical; promargin with 1 medium tooth that consists of two closely fused teeth; retromargin with 1 small, often not well noticeable, tooth. STERNUM: oval. MAXILLAE: almost square, slightly convergent. LABIUM: subtriangular or oval. PEDICEL: short, usually not visible in dorsal view. ABDOMEN: elongate; 1.5-1.7 longer than wide; scutum

6-12. P. andreevae: 6-7 - male palp, ventral and lateral views, 8-10 - the CSE, apical view, 11-12 - ditto, ventral view. Abbreviations as explained in the text. Scale: 0.2 mm
covering about half of dorsum present in males; spinnerets subequal in length, but posteriors thicker than anteriors. LEGS: equally developed; all tarsi with pulvillus (claw tufts, fig. 2H); leg formula IV,III,I,II. LEG SPINATION: patellae III,IV pr., rt. 0-1-0, tibiae III,IV pr.1-2 (in males); tibiae III,IV d. 1-0, pr. and rt. 1-1-1, v. 1-2ap.; metatarsi I,II pr. and rt. 1-1ap., v. 2-2ap.; metatarsi III,IV with 6ap. FEMALE PALP: normal, without apical claws. MALE PALP: cymbium simple; cymbium pocket closed; tibia with LTA and DTA (figs 7, 22); CSE hook-shaped, being either massive, heavily sclerotized (figs 8-10), or filamentous (fig. 76); lateral cymbial process often present (figs 1, 7). FEMALE GENITALIA: epigyne usually heavily sclerotized with internal structure visible through integument; copulatory pores paired, large, usually situated within large depressions, separated by median septum (fig. 15); epigynal pocket absent; inlet ducts either wide, short and weakly sclerotized, with terminal parts of spermatheca consisting of numerous heavily sclerotized loops closely fused together (figs 14, 25), or tube-chambered (fig. 79).

Diagnosis and Affinities

Members of the genus *Phlegra* are recognized by the following combination of characters: lateral cymbial process present; the CSE hook-shaped, usually heavily sclerotized, with a well-noticeable foot sclerite (figs 1-3) (species of the *bresnieri* group have filamentous CSE); embolic membrane absent; epigyne usually with large paired fossae and median septum (fig. 15); spermathecae usually heavily sclerotized; and metatarsi I and II with lateral spines (1-1ap.).

The structure of the genitalia suggests a relationship of *Phlegra* with the genus *Aelurillus*, but it is also clear that diversity, in respect of both habitus and genitalic structure, is considerable. Including the members of the *festivus* species group in the genus *Phlegra* (e.g. HARM 1977; YIN & WANG 1979; PAIK 1985; PRÓSZYNSKI 1990; PENG et al. 1993 etc.) was shown to be ungrounded. For more details see LOGUNOV & HECIAK (in press).

It can be seen that *Phlegra* and *Aelurillus* have the same, most probably primitive, structure of the CSE (masive and hook-shaped) and appear to be closely related. However, no distinctive synapomorphy linking *Phlegra* to *Aelurillus* could be currently found, especially if taking into account the epigynal and spermathecal structures (cf. also WEISS 1979).

Distribution

The majority of species are recorded from the Ethiopian and Oriental Regions. In the Palaearctic Region it is distributed mainly in the Mediterranean, the Middle East and Middle Asia, with the centre of diversity in the Mediterranean Region. The only species found in the Nearctic Region is *Phlegra fasciata* (RICHMAN & CUTLER 1978).
REMARKS
The members of Phlegra usually have a great range of variation in genitalic structure, which may lead to incorrect determination of species. In some cases it is difficult to assign specimens to a single or two species. A similar situation for salticid spiders has been shown by Cutler (1979) and Galiano (1963) for Metaphidippus insignis (Banks) and Euophrys sutrix Holmberg, respectively. Two cases can be mentioned here:

13-15. P. andreevae: 13, 15 - epigyne, 14 - spermathecae. Abbreviations as explained in the text. Scale bar: 0.2 mm

(1) P. andreevae demonstrates a considerable variation in the number of teeth on the serrated tip of the CSE in males (figs 8-12) and in the shape and length of the median septum of the epigyne and the structure of the female spermatheca (figs 13, 15). As a result, most females of this species cannot be definitely separated from
those of *P. profuga* (fig. 49), which also show a great variation of female genitalia. Therefore, to discriminate between these species, males are required.

(2) There are two distinct forms, presumably, of *P. sogdiana* (designated here forms A and B) in the collections studied (cf. figs 57-66 and 67-72). Of them, form B (figs 67-72) is difficult assign to either *P. andreevae* or *P. sogdiana*, as it shares the genitalic and somatic characters of both species. Thus, males have the palpal femora and patellae covered with white hairs like in the former species, while the embolic structure is similar to that of the latter one (figs 8-12). Females have the pronounced median septum as in the first species, while the fossae are noticeable divided into two sections as in the second one, and so on. At present, it is not clear how to deal with the variability of *P. sogdiana* or *P. andreevae*. Taking into account that all known localities of these specimens are restricted by a zone of the partially overlapping ranges of both species (figs 16, 73), it seems to be safe to accept that these specimens are hybrids between the debated species. Consequently, the zone of the overlapping of ranges of both species may be treated as semisymyaptic (sensu Panov 1989).

Both mentioned examples are similar in that we apparently deal with semi-species (sensu Mayr 1940, cited after Panov 1989). However, as nothing is known about kind of hybridization (limited or introgressive) between them, it is not possible to determine this for certain. Laboratory experiments on natural hybridization between both pairs of species, including ethological studies, are necessary to accept or reject the above suggestion. But even if they turn out to be semi-species, they will retain their taxonomic status as Linnean species.

**Natural history**

*Phlegra* is a typically terrestrial salticid, and can be found in open sunny places under stones, and more seldom, on bare ground with low vegetation or without it. The usual habitats in Siberia, where the members of *Phlegra* occur, are sloping shrub-stony steppes (Logunov 1992).

**Survey of species**

**The fasciata species group**

Members of this group are characterized by the following characters: lateral cymbial process present (figs 7, 18, 29); the CSE usually heavily sclerotized, with a well-noticeable foot sclerite (figs 8-10, 51-55); epigyne with a median septum (figs 15, 40, 63) and spermathecae usually heavily sclerotized (chambered type), with wide and short inlet ducts (figs 14, 25, 64).
Phlegra andreevae sp.n.
(figs 6-16)


Material


16. Distribution of P. andreevae

**Diagnosis**

The species is closely related to *P. profuga*, but males can be recognized by the shorter serrated embolus (figs 11, 12) and lighter coloration. Females are practically indistinguishable due to the strong variation of genitalia in both species. The only discriminating character is a slightly shorter septum of the epigyne (cf. figs 15 and 49) and lighter coloration. There is also geographic clustering evident between these species. *P. andreevae* has been collected from Middle Asia (fig. 16), while *P. profuga* has been taken from Tuva, North Kazakhstan and the Osh Area of Kyrgyzstan (fig. 56).

**Distribution**

Currently, the species has a Middle Asian subboreal distributional pattern (fig. 15).

**Description**

**Male.** Measurements. Carapace 2.32-3.00 long, 1.55-1.93 wide, 0.85-1.18 high at PLE. Ocular area 0.98 long, 1.13-1.30 wide anteriorly and 1.13-1.31 wide posteriorly. Diameter AME 0.38-0.40. Abdomen 2.25-3.38 long, 1.50-2.05 wide. Clypeal height 0.15-0.25. Cheliceral length 0.65-0.83. Length of leg segments: leg I- 1.10-1.55+0.70-0.93+0.68-0.93+0.48-0.63+0.48-0.60; leg II- 1.10-1.45+0.60-0.85+0.63-0.78+0.45-0.55+0.48-0.60; leg III- 1.30-1.65+0.63-0.83+0.70-0.93+0.80-1.00+0.53-0.70; leg IV- 1.55-2.03+0.670.98+1.10-1.42+1.14-1.63+0.63-0.75. Leg spination. Leg I: Fm. d. 0-1-1-3; Tb. pr. 1-2, v. 1-1; Tpr. 0-1-0; Mt. v. 2-2. Leg II: Fm. 0-1-1-3; Tb. v. 1-2; Mt. v. 2-2. Leg III: Fm. d. 1-3-5; Pt. pr. and rt. 0-1-0; Tb. d. 1-0, pr. and rt. 1-1-1, v. 1-2; Mt. d. 1-1, pr. and rt. 1-2, v. 2-2. Leg IV: Fm. d. 1-1-5; Pt. pr. and rt. 0-1-0; Tb. d. 1-0, pr. and rt. 1-1-1, v. 1-2; Mt. d. 1-0, pr. and rt. 1-1-2, v. 1-2. Coloration. Carapace brown, with two dorsal bands of white hairs. Sides of carapace covered with black hairs. Eye field black, covered with orange-grey or grey-brown hairs. Clypeus brown, densely covered with white hairs. Sternum, maxillae and labium yellow-brown to brown. Chelicerae dark brown. Abdomen yellow-grey, with a pair of dorsal longitudinal dark brown stripes. Dorsum with small scutum. Spinnerets brown. All legs yellow-brown to dark brown; tibiae and patellae sometimes darker than other segments. Palp with dorsal bunch of white hairs on tibia and patella. Palpal structure as in figs 6-10.
FEMALE. Measurements. Carapace 3.28-3.90 long, 2.18-2.58 wide, 1.50 high at PLE. Ocular area 1.10-1.30 long, 1.45-1.68 wide anteriorly and 1.50-1.75 wide posteriorly. Diameter AME 0.45-0.48. Abdomen 4.00-4.50 long, 2.60-3.00 wide. Clypeal height 0.28-0.31. Cheliceral length 1.00-1.38. Length of leg segments: leg I-1.532.05+0.90-1.15+0.90-1.13+0.63-0.75+0.53-0.65; leg II-1.48-1.50+0.85-0.95+0.80-0.88+0.61-0.65+0.58-0.60; leg III-1.73-2.03+0.931.08+0.90-1.08+1.05-1.30+0.73-0.75; leg IV-2.20-2.55+1.10-1.30+1.58-1.90+1.83-2.13+0.78-0.90. Leg spination. Leg I: Fm. d. 0-1-1-3; Tb. v. 2-2-2ap.; Mt. v. 2-2ap. Leg II: Fm. d. 0-1-1-3; Tb. v. 1-1-2ap.; Mt. v. 2-2ap. Leg III: Fm. d. 0-1-1-4; Pt. pr. and rt. 0-1-0; Tb. d. 1-0; pr. and rt. 1-1-1, v. 1-2ap.; Mt. pr. and rt. 1-2ap., v. 2-2ap. Leg IV: Fm. d. 1-1-2; Pt. pr. and rt. 0-1-0; Tb. d. 1-0, pr. and rt. 1-1-1, v. 1-2ap.; Mt. pr. 1-1-2ap., rt. 1-1-2ap., v. 2-2ap. Coloration similar to that of males except as follows: all legs light brown-yellow with numerous brown rings and patches. Epigyne and spermatheca as in figs 13-15.

ETYMOLOGY

The species is gladly named after Dr. Ekaterina M. ANDREEVA (Poland), a well-known specialist on the spider fauna of Tajikistan.

Phlegra fasciata (HAHN, 1826)
(figs 1, 2, 17-26)


MATERIAL


17-25. P. fasciata: 17-18 - male palp, ventral and lateral views, 19 - the CSE, in ventral view, 20-21 - ditto, in apical view, 22 - lateral cymbial process and tibial apophysis in male palp, 23 - unusual process on male coxa I, 24 - epigyne, 25 - spermathecae. Abbreviations as explained in the text. Scale bars: 17-22, 24-25 - 0.2 mm; 23 - 0.5 mm

COMPARATIVE MATERIAL
BULGARIA: “g. Katun ad Petric”, 6.05.1966 (V. BESKOV & W. STAREGA, IZW), 4 M.

DIAGNOSIS
The species is similar to P. fuscipes, but the DTA and the embolic tip are not sharpened (cf. figs 18 and 28) and the epyginal pocket is wider (figs 24, 40).

DISTRIBUTION
This is apparently a Holarctic temperate (circumtemperate) species. Its occurrence in North America, to my mind, should be confirmed by pertinent materials, as according to RICHMAN (1982) the North American males of this species have turquoise-blue clypeal cover, while those from Siberia have an orange one. Analogous dissimilarities in some other salticids, e.g. Euophrys, are known to reflect species differences.

DESCRIPTION
MALE. Measurements. Carapace 2.65-3.10 long, 1.78-2.05 wide, 1.00-1.13 high at PLE. Ocular area 0.83-1.05 long, 1.20-1.43 wide anteriorly and 1.25-1.45 wide posteriorly. Diameter AME 0.35-0.39. Abdomen 2.75-3.00 long, 1.75-1.95 wide. Clypeal height 0.25-0.28. Cheliceral length 0.78-0.93. Length of leg segments: leg I- 1.30-1.48+0.78-0.95+0.83-0.88+0.58-0.63+0.53-0.58; leg II- 1.25-1.40+0.73-0.83+0.69-0.80+0.60+0.53; leg III- 1.551.58+0.73-0.88+0.80-0.90+1.05-1.08+0.63; leg IV- 1.93-2.05+0.850.90+1.25-1.28+1.48-1.58+0.75-0.78. Leg spination. Leg I: Fm. d. 0-1-1-4 or 0-1-1-3; Tb. pr. 1-1, v. 2-2-2ap.; Mt. v. 2-2ap. Leg II: Fm. d. 0-1-1-4; Tb. pr. 1-1, v. 1-1-2ap.; Mt. v. 2-2ap. Leg III: Fm. d. 0-1-3-5; Pt. pr. and rt. 0-1-0; Tb. d. 1-0, pr. and rt. 1-1-1, v. 1-2ap.; Mt. d. 0-1-0, pr. and rt. 1-2ap., v. 2-2ap. Leg IV: Fm. d. 1-2-5; Pt. pr. and rt. 0-1-0; Tb. d. 1-0, pr. 1-1-1, rt. 1-1-1, v. 1-2ap.; Mt. d. 0-1, pr. 1-1-1, rt. 2-1-2ap., v. 1-1-2ap. Coloration. Carapace orange with wide longitudinal brown band, covered with black hairs. Eye field usually black. Clypeus orange, covered with brown hairs resembling thin bristles. Sternum, labium, maxillae and chelicerae yellow. Abdomen: dorsum dark-grey with inconspicuous yellow lines on sides; venter yellowish. Dorsal scutum
about half length of abdomen. Book-lung covers yellow. Spinnerets grey. Legs: coxae yellow, femora orange, other segments orange-brown. Palp brown-yellowish, its structure as in figs 1, 2, 17-23.

FEMALE. Measurements. Carapace 2.98-3.13 long, 2.00-2.18 wide, 1.08-1.25 high at PLE. Ocular area 1.05-1.15 long, 1.43-1.50 wide anteriorly and 1.50-1.59 wide posteriorly. Diameter AME 0.40-0.43. Abdomen 3.75-5.00 long, 2.25-3.20 wide. Clypeal height 0.20-0.25. Cheliceral length 0.73-1.00. Length of leg segments: leg I-1.30-1.43+0.85-0.88+0.75-0.88+0.53-0.55+0.45-0.55; leg II-1.33-1.53+0.88+0.68-0.88+0.52-0.60+0.50-0.53; leg III-1.60-1.80+0.73-0.90+0.85-0.93+1.05-1.13+0.58-0.65; leg IV-1.98-2.30+0.88-1.00+1.40-1.53+1.65-1.70+0.73-0.75. Leg spination. Leg I: Fm. d. 0-1-1-3; Tb. v. 2-2-2ap.; Mt. v. 2-2ap. Leg II: Fm. d. 0-1-1-3; Tb. pr. 0-1, v. 2-2ap.; Mt. v. 2-2ap. Leg III: Fm. d. 0-1-2-4; Pt. pr. and rt. 0-1-0; Tb. d. 1-0, pr. and rt. 1-1-1, v. 1-2ap.; Mt. d. 1-1, pr. and rt. 1-2ap., v. 2-2ap. Leg IV: Fm. d. 0-1-1-2; Pt. pr. and rt. 0-1-0; tib. d. 1-0, pr. and rt. 1-1-1, v. 1-1-2ap.; Mt. d. 1-0, pr. and rt. 1-1-2ap., v. 1-2ap. Coloration. Carapace brown with a pair of longitudinal yellow stripes. Eye field usually black. Clypeus yellow. Sternum yellow. Maxillae and labium brownish with yellow tips. Chelicerae brown. Abdomen: colour as in male, without scutum. Book-lung covers yellow. Spinnerets grey. Legs: coxae yellow, femur half yellow, half brown, other segments brown with yellow spots. Epigyne and spermatheca as in figs 24, 25.

26. Distribution of Phlegra spp.: 1 - P. fasciata in the USSR and Asian countries, 2 - P. bresnieri
Phlegra fuscipes KULCZYŃSKI in CHYZER et KULCZYŃSKI, 1891
(figs 3, 27-48)


MATERIAL


DIAGNOSIS

This species is closely related to P. fasciata, but can be separated by the sharpened DTA and embolic tip (figs 28, 30-33) in males and scarcely pronounced epyginal pocket (figs 40, 44, 46) in females.

DISTRIBUTION

The species seems to display a Euro-Baikal subboreal distributional pattern (fig. 48), but see also “Remarks”.
27-33. Male genitalia of *P. fuscipes* (form B): 27-28 - palp in ventral and lateral views, 29 - the LCP, 30-32 - the CSE, ventral and apical views, 33 - LTA and DTA. Abbreviations as explained in the text. Scale bar: 0.2 mm.
34-39. Male genitalia of *P. fuscipes* (from A, probably *P. cinereofasciata*): 34-35 - palp in ventral and lateral views, 36-38 - the CSE, ventral and apical views, 39 - LTA and DTA. Abbreviations as explained in the text.

Scale bar: 0.2 mm
Remarks

*P. fuscipes* demonstrates strong variation in the genitalic structure, with two morphs that can be clearly distinguished (indicated as forms A (figs 27-33, 40-43) and B (figs 34-39, 44-47) in the text). All the Caucasian and some Middle Asian males can be easily separated from Siberian specimens by the structure of the CSE (cf. figs 31, 32 and 36, 37), while females of both groups are practically indistinguishable because of strong variation of the epigyne and spermathecae (cf. figs 40-43 and 44-47). Most probably, in this case we deal with two separate species, the Caucasian specimens belonging to *P. cinereofasciata* (Simon, 1868) (see fig. 48, squares). Besides, several records of *P. fuscipes* from southern regions of the European part of Russia, e.g. SPASSKY (1914), SPASSKY & SHNITNIKOVA (1937), etc. appear to belong to *P. cinereofaciata* as well (fig. 48, question-marked circles). This question remains open until the type of the latter species is examined.

DESCRIPTION

MALE. Measurements. Carapace 2.45-2.93 long, 1.63-2.00 wide, 1.00-1.08 high at PLE. Ocular area 0.93-1.05 long, 1.13-1.28 wide anteriorly and 1.13-1.30 wide posteriorly. Diameter AME 0.35-0.36. Abdomen 2.58-3.38 long, 1.70-1.95 wide. Clypeal height 0.23-0.35. Cheliceral length 0.65-0.90. Length of leg segments: leg I- 1.25-1.50+0.83-0.90+0.78-0.88+0.53-0.63+0.50-0.55; leg II- 1.16-1.43+0.65-0.88+0.65-0.79+0.50-0.63+0.50-0.55; leg III- 1.40-1.73+0.73-0.85+0.73-0.90+0.95-1.10+0.50-0.60; leg IV- 1.75-2.10+0.85-1.00+1.20-1.43+1.40-1.55+0.65-0.75. Leg spination. Leg I: Fm. d. 0-1-1-3; Tb. v. 2-2-2ap.; Mt. v. 2-2ap. Leg III: Fm. d. 0-1-1-3; Tb. pr. 0-1, v. 1-1-2ap.; Mt. v. 2-2ap. Leg III: Fm. d. 0-1-2-4; Pt. d. 1-0, pr. and rt. 1-1-1, v. 1-2ap.; Mt. pr. and rt. 1-2ap.; v. 2-2ap. Leg IV: Fm. d. 1-1-4; Pt. pr. and rt. 0-1-0; Tb. d. 1-0, pr. and rt. 1-1-1, v. 2-2ap.; Mt. d. 1-1, pr. and rt. 1-2ap., v. 0-2-2ap. Coloration. Carapace dark brown with black eye field. Clypeus brown, densely covered with white hairs. Sternum and chelicerae dark brown. Maxillae and labium dark brown with yellow tips. Abdomen grey. Dorsum with a

44- 47. Female genitalia of _P. fuscipes_ (from A, probably _P. cinereofasciata_): 44, 46 - epigynes, 45, 47 - spermathecae. Specimens: 44-45 - Azerbaijan, 46-47 - Armenia. Scale bar: 0.2 mm

FEMALE. Measurements. Carapace 2.55-3.58 long, 1.88-2.08 wide, 1.30-1.38 high at PLE. Ocular area 0.95-1.05 long, 1.23-1.53 wide anteriorly and 1.28-1.54 wide posteriorly. Diameter AME 0.35-0.43. Abdomen 3.50-4.13 long, 2.18-2.75 wide. Clypeal height 0.28-0.29. Cheliceral length 0.78-1.18. Length of leg segments: leg I- 1.251.48+0.80-0.93+0.73-1.13+0.48-0.65+0.45-0.55; leg II- 1.23-1.40+0.73-0.88+0.65-0.80+0.48-0.63+0.40-0.56; leg III- 1.43-1.80+0.68-0.98+0.75-0.93+0.85-1.03+0.58-0.78; leg IV- 1.85-2.38+0.90-1.20+1.35-1.55+1.50-1.80+0.63-0.83. Leg spination. Leg I: Fm. d. 0-1-1-3; Tb. v. 2-2-2ap; Mt. v. 2-2ap. Leg II: Fm. d. 0-1-1-3; Tb. pr. 1-1, v. 1-2ap.; Mt. v. 2-2ap. Leg III: Fm. d. 0-1-1-4; Pt. pr. and rt. 0-1-0; Tb. d. 1-0, pr. and rt. 1-1-1, v. 1-2ap.; Mt. d. 1-1, pr. and rt. 1-2ap., v. 2-2ap. Leg IV: Fm. d. 0-1-1-3; Pt. pr. and rt. 0-1-0; Tb. d. 1-1, pr. and rt. 1-1-1, v. 1-2ap.; Mt. d. 1-1, pr. 1-1-2ap., rt. 1-2ap., v. 1-1-2ap. Coloration as in male. Epigyne and spermatheca as in figs 40-47.

48. Distribution of *P. fuscipes* in the USSR: 1 - from A (probably *P. cinereofasciata*), 2 - form B (true *P. fuscipes*)

*Phlegra profuga* sp.n.
(Figs 49-56)

MATERIAL EXAMINED


49-55. P. profuga: 49 - epigyne, 50 - spermathecae, 51-55 - the CSE, ventral (51-52) and apical (53-55) views.

Scale bar: 0.2 mm
highway Karabulak-Makanchi, Arkaly Mountains, 4.X.1990 (A.Z., BI, 540), 1 M. Pavlodar Area: Majskij Distr., the lower Tundyk River, 31.VII.1990 (O.L., BI, 536), 1 F.

**Diagnosis**

This species is most closely related to *P. andreevae* from Middle Asia, being vicariant with it (see above). *P. profuga* can be clearly distinguished from the latter species based on males only, as their CSE lack small teeth on dorsal chitinose ridge (figs 51-55). Females practically cannot be distinguished. The only difference is a longer epigynal septum (cf. figs 49 and 13, 14). Spermathecal structure strongly varies, and the differences seen between figs 50 and 14 cannot be seen in many cases. Additionally, specimens of *P. profuga* appear to be darker than those of *P. andreevae*, they being usually dark brown or dark grey, while the latter are more often yellow.

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**Distributed**

The species has a Kazakhstan-West Mongolian subboreal distributional pattern, being recorded from Tuva, North Kazakhstan and Kyrgyzstan (fig. 56).

**Description**

**Male.** Measurements. Carapace 2.45-3.05 long, 1.74-2.00 wide, 0.88-1.10 high at PLE. Ocular area 0.98-1.15 long, 1.23-1.40 wide anteriorly and 1.18-1.40
wide posteriorly. Diameter of AME 0.35-0.38. Abdomen 2.75-2.90 long, 1.65-1.70 wide. Cheliceral length 0.60-1.00. Clypeal height 0.13-0.18. Length of leg segments: leg I- 1.18-1.63+0.68-0.90+0.78-1.05+0.53-0.70+0.48-0.55; leg II- 1.13-1.50+0.68-0.88+0.70-0.88+0.50-0.63+0.45-0.60; leg III-1.40-1.68+0.70-0.88+0.80-0.95+0.95-1.13+0.58-0.65; leg IV- 1.75-2.15+0.80-0.95+1.20-1.50+1.43-1.80+0.68-0.80. Leg spination. Leg I: Fm. d. 0-1-1-3; Tb. pr. 0-1, v. 2-2-2-ap.; Mt. v. 2-2-ap. Leg II: Fm. d. 0-1-1-3; Tb. pr. 0-1, v. 1-1-2-ap.; Mt. v. 2-2-ap. Leg III: Fm. d. 0-0-2-5; Pt. pr. and rt. 0-1-0; Tb. pr. and rt. 1-1-1, v. 1-0-2-ap.; Mt. d. 1-1, pr. and rt. 1-0-2-ap., v. 2-2-ap. Leg IV: Fm. d. 1-1-5; Pt. pr. and rt. 0-1-0; Tb. d. 1-0, pr. and rt. 1-1-1, v. 1-0-2-ap.; Mt. d. 1-1, pr. and rt. 1-1-2-ap., v. 0-1-2-ap. Coloration. Carapace dark brown with a pair of white longitudinal bands. Clypeus covered with long white hairs forming triangle-shaped figure. Sternum, maxillae and labium yellowish-brown to brown. Chelicerae brown to dark brown. Abdomen yellowish-brown to grey, dorsum usually having a pair of longitudinal dark brown bands. Spinnerets yellowish-brownish. Spinnerets dark brown. Legs brown to yellow-brown. Palp brown. CSE structure as in figs 51-55.

FEMALE. Measurements. Carapace 3.13-3.85 long, 2.05-2.58 wide, 1.28-1.55 high at PLE. Ocular area 1.20-1.23 long, 1.43-1.68 wide anteriorly and 1.45-1.70 wide posteriorly. Diameter of AME 0.40-0.48. Abdomen 3.35-4.75 long, 2.13-3.20 wide. Cheliceral length 0.88-1.00. Clypeal height 1.00. Length of leg segments: leg I- 1.55-1.75+0.95-1.18+0.93-1.08+0.65-0.75+0.55-0.65; leg II- 1.55-1.75+0.95-1.18+0.80-1.00+0.65-0.75+0.60-0.63; leg III-1.75-2.13+0.90-1.10+1.00-1.10+1.15-1.25+0.68-0.78; leg IV- 2.20-2.63+1.05-1.30+1.60-1.85+1.80-2.13+0.83-0.93. Leg spination. Leg I: Fm. d. 0-1-1-3; Tb. v. 2-2-2-ap.; Mt. v. 2-2-ap. Leg II: Fm. d. 0-1-1-3; Tb. pr. 0-1, v. 1-1-2-ap.; Mt. v. 2-2-ap. Leg III: Fm. d. 0-1-1-5; Pt. pr. and rt. 0-1-0; Tb. d. 1-0, pr. and rt. 1-1-1, v. 1-2-ap.; Mt. pr. 1-0-2-ap., v. 2-2-ap. Leg IV: Fm. d. 0-1-1-3; Pt. pr. and rt. 0-1-0; Tb. d. 1-0, pr. and rt. 1-1-1, v. 1-0-2-ap.; Mt. pr., rt. and v. 1-1-2-ap. Coloration as in male except legs lighter, usually yellow with numerous brown bands. Epigyne and vulva as in figs 49, 50.

ETYMOLOGY
The specific name is derived from the Latin word “profugus”, meaning “running away, escaping”.

Phlegra sogdiana Charitonov, 1946
(figs 57-73)


MATERIAL


Scale bar: 0.2 mm

63-66. Female genitalia of P. sogdiana (form A): 63, 65 - epigynes, 64, 66 - spermathecae. Scale: 0.2 mm
67-72. Genitalia of *P. sogdiana* (from B): 67-68 - the CSE, apical and ventral views, 69, 71 - spermathecae, 70, 72 - epigynes. Abbreviations as explained in the text. Scale bar: 0.2 mm

73. Distribution of *P. sogdiana*: 1 - form A, 2 - form B

**Diagnosis**

This species is closely related to the parapatric *P. andreevae*, with which it can be mixed in the semisympatric zone (figs 16, 73), especially taking into account the existence of apparently hybrid specimens [Form B (figs 67-72), for discussion see above]. The true males of *P. sogdiana* can be separated from *P. andreevae* by the structure of the embolus, which is longer and not notched (cf. figs 60-62 and 8-12), and by the absence of protruded tufts of white hairs on the palpal patella and cymbium (only black sparse hairs present). Females have the epigyne neither with a
slightly pronounced septum, form A, (fossa visible divided into two parts) (figs 63, 65) and smaller spermathecae (figs 64, 66).

**Distribution**

Tajikistan and adjacent territories (fig. 73).

**Description**

**Male.** Measurements. Carapace 2.78-3.55 long, 1.88-2.38 wide, 1.03-1.28 high at PLE. Ocular area 1.15-1.25 long, 1.40-1.68 wide anteriorly and 1.35-1.63 wide posteriorly. Diameter AME 0.40-0.45. Abdomen 2.60-3.33 long, 1.70-2.10 wide. Clypeal height 0.24-0.33. Cheliceral length 0.93-1.25. Length of leg segments: leg I- 1.10-1.78+0.65-1.13+0.70-1.13+0.58-0.75+0.58-0.75; leg II- 1.08-1.75+0.60-1.08+0.68-1.00+0.60-0.78+0.53-0.65; leg III- 1.65-2.05+0.90-1.00+0.88-1.10+1.05-1.38+0.65-0.78; leg IV- 2.002+0.40+0.93-1.15+1.40-1.63+1.55-1.85+0.78-0.90. Leg spination. Leg I: Fm. d. 0-1-1-4; Tb. pr. 1-1, v. 2-2-2ap.; Mt. v. 2-2ap. Leg II: Fm. d. 0-1-1-4; Tb. pr. 1-1, v. 1-1-2ap., Mt. v. 2-2ap. Leg III: Fm. d. 0-1-2-5; Pt. pr. and rt. 0-1-0; Tb. d. 1-0, pr. and rt. 1-1-1, v. 1-2ap.; Mt. pr. and v. 1-2ap., rt. 1-1-2ap. Leg IV: Fm. d. 1-1-3; Pt. pr. and rt. 0-1-0; Tb. d. 1-0, pr. and rt. 1-1-1, v. 1-2ap.; Mt. d. 1-0, pr. 1-1-2ap., rt. 1-2ap., v. 1-1-2ap. Coloration. Carapace brownish-orange to brownish-red, with white hairs forming two longitudinal bands. Sides of carapace and area between bands covered with thick black hairs. Eye field black. Clypeus orange, with sparse bristle of dark hairs. Sternum and chelicerae brownish-orange to brownish-red. Maxillae and labium same colour, with white tips. Abdomen yellowish to dark grey, covered with thick grey hairs. Dorsum with two wide longitudinal bands of dark brown hairs. Sides of abdomen and area between bands with white stripes composed of white and goldish hairs. Small dorsal scutum covered with light hairs, occupying about 1/3 length of abdomen. Book-lung covers yellowish. Spinnerets brownish. All legs yellow-brown, while tibiae and patellae usually darker. Palp brownish, covered with black hairs, structure as in figs 57-62.

**Female.** Measurements. Carapace 2.88-3.45 long, 1.90-2.33 wide, 1.15-1.25 high at PLE. Ocular area 1.08-1.20 long, 1.48-1.65 wide anteriorly and 1.38-1.60 wide posteriorly. Diameter AME 0.40-0.45. Abdomen 3.18-5.25 long, 2.20-3.25 wide. Clypeal height 0.20-0.25. Cheliceral length 0.93-1.13. Length of leg segments: leg I- 1.35-1.65+0.86-1.00+0.80-0.95+0.55-0.63+0.53-0.65; leg II- 1.35-1.53+0.83-0.95+0.75-0.90+0.58-0.65+0.48-0.60; leg III- 1.55-1.80+0.80-1.00+0.85-0.95+0.73-1.11+0.60-0.70; leg IV- 2.03-1.85+0.951.00+1.40-1.43+1.60-1.63+0.70-0.78. Leg spination. Leg I: Fm. d. 0-1-1-3; Tb. v. 2-2-2ap.; Mt. v. 2-2ap. Leg II: Fm. d. 0-1-1-3; Tb. pr. 1-1, v. 1-1-2ap.; Mt. v. 2-2ap. Leg III: Fm. d. 0-1-1-3; Pt. pr. and rt. 0-1-0; Tb. d. 1-0, pr. and rt. 1-1-1, v. 1-2ap.; Mt. pr. and rt. 1-2ap., v. 2-2ap. Leg IV: Fm. d. 1-1-3; pat. pr. and rt. 0-1-0; Tb. d. 1-0, pr. and rt. 1-1-1, v. 1-2ap.; Mt. d. 1-1, pr. 1-1-2ap., rt. 1-2ap., v. 1-1-2ap. Coloration similar to that of male except as follows: some specimens lighter and paler; all legs mottled, with yellow and brown spots; palpi yellow except femora of which 2/3 length brown; brown dorsal spots on palp tibiae. Epigyne and spermathecae as in figs 63-66.
The *bresnieri* species group

Members of this group can be recognized by the distinctive genitalia. Males have the palp with a more or less subparallel tibial apophysis (fig. 75) and a slender embolus (fig. 76). Females have the epigyne with large round fossae, but without a median septum (fig. 78); spermathecae tube-chambered, with tube-like inlet ducts (fig. 79). Besides *P. bresnieri*, this group also includes: *P. bresnieri meridionalis* Strand, 1906; *P. pisarskii* Žabka, 1985; *P. samchiensis* Prószynski, 1978; *P. tibetana* Simon, 1901; *P. particeps* (O. P.-Cambridge, 1872) and *P. pusilla* Wesołowska, 1994. For drawings and descriptions of these species see Žabka (1985: figs 455-457), Prószynski (1978: figs 14-18) and Wesołowska (1994: figs 140-143).

*Phlegra bresnieri* (Lucas, 1846)
(figs 4, 5, 26, 74-79)


**Material**


**Comparative material**

Italy: “Liguryiskie sea-coast” [Liguria], Cagoletto, 400 m a.s.l., 29.V.1966 (M. i J. Prószynsky, IZW), 1 M. - Hercegovina: (Domanovic, IZW, coll. W. Kulczyński, sub.”766”), 2 F.

**Diagnosis**

The species can be easily separated from another *Aelurillinae* species in the ex-USSR fauna by the slender embolus of males (fig. 76) and by the structure of the vulva in females (fig. 79).

**Distribution**

European subboreal range, the easternmost locality is the Apsheron Peninsula (fig. 26).

**Description**

Male. Measurements. Carapace 1.70-2.65 long, 1.13-1.75 wide, 0.73-1.15 high at PLE. Ocular area 0.73-1.05 long, 0.95-1.28 wide anteriorly and 0.93-1.28 wide posteriorly. Diameter AME 0.26-0.38. Abdomen 1.70-2.55 long, 1.08-1.65
wide. Clypeal height 0.15-0.30. Cheliceral length 0.53-0.90. Length of leg segments: leg I- 0.85-1.35+0.45-0.83+0.50-0.88+0.41-0.65+0.35-0.53; leg II- 0.85-1.35+0.45-0.80+0.45-0.83+0.40-0.65+0.33-0.53; leg III- 0.95-1.48+0.45-0.75+0.50-0.85+0.63-1.03+0.38-0.58; leg IV- 1.15-1.80+0.48-0.85+0.78-1.20+0.85-1.38+0.48-0.70. Leg spination. Leg I: Fm. d. 1-1-3ap.; Tb. pr. 1-1, v. 2-2-2ap.; Mt. v. 2-2ap. Leg II: Fm. d. 1-1-3; Tb. pr. 1-1, v. 1-1-2ap.; Mt. v. 2-2ap. Leg III: Fm. d. 1-1-5; Pt. pr. and rt. 0-1-0; Tb. d. 1-0, pr. and rt. 1-1-1, v. 1-0-2ap.; Mt. d. 1-1-0, pr. and rt. 1-0-2ap., v. 2-2ap. Leg IV: Fm. d. 1-1-5; Pt. pr. and rt. 0-1-0; Tb. d. 1-0, pr. and rt. 1-1-1, v. 1-2ap.; Mt. d. 1-1, pr. 1-0-2ap., rt. 1-1-2ap., v. 1-1-2ap. Coloration. Carapace

74-80. Genitalia of P. bresnieri: 74-75 - male palp in ventral and dorsal views, 76 - the CSE, apical view, 77 - LTA and DTA in reared view, 78 - epigyne, 79 - spermathecae, 80 - schematic course of the insemination ducts. Abbreviations as explained in the text. Scale bar: 0.2 mm

FEMALE. Measurements. Carapace 2.25-2.30 long, 1.50-1.58 wide, 0.85-1.00 high at PLE. Ocular area 0.83-0.98 long. 1.15 wide anteriorly and 1.15-1.20 wide posteriorly. Diameter AME 0.33-0.35. Abdomen 2.88-3.65 long, 1.88-2.13 wide. Clypeal height 0.15-0.25. Cheliceral length 0.65-0.93. Length of leg segments: leg I-1.05-1.10+0.58-0.70+0.63-0.65+0.45-0.48+0.38-0.40; leg II-0.95-1.05+0.63+0.53-0.55+0.45-0.50+0.38-0.43; leg III-1.20-1.30+0.630.67+0.65+0.75-0.78+0.45; leg IV-1.43-1.63+0.68-0.78+1.05-1.08+1.13-1.20+0.53-0.55. Leg spination. Leg I: Fm. d. 1-1-3; Tb. v. 2-2-2ap.; Mt. v. 2-2ap. Leg II: Fm. d. 1-1-3; Tb. pr. 0-1, v. 1-1-2ap.; Mt. v. 2-2ap. Leg III: Fm. d. 1-1-4; Pt. pr. and rt. 0-1-0; Tb. d. 1-0, pr. and rt. 1-1-1, v. 1-0-2ap.; Mt. d. 1-1, pr. and rt. 1-0-2ap., v. 2-0-2ap. Leg IV: Fm. d. 1-1-3; Pt. pr. and rt. 0-1-0; Tb. d. 1-0, pr. and rt. 1-1-1, v. 1-0-2ap.; Mt. pr. 1-1-1-2ap., rt. and v. 1-1-2ap. Coloration light. Carapace yellow-brown with two dorsal, two lateral longitudinal yellow stripes. Eye field brown. Clypeus yellow, covered with white hairs. Sternum, maxillae, labium, chelicerae yellow. Abdomen: dorsum yellow-brown with three longitudinal yellow lines, venter grey-yellow. Spinnerets as in male. Epigyne and spermathecae as in figs 78-80.

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