

# Review of East Palaearctic species of the genus *Minicia* Thorell, 1875 with descriptions of two new genera (Aranei: Linyphiidae: Erigoninae)

## Обзор восточнопалеарктических видов рода *Minicia* Thorell, 1875 с описанием двух новых родов (Aranei: Linyphiidae: Erigoninae)

Yuri M. Marusik<sup>1</sup> & Michael I. Saaristo<sup>2</sup>  
Ю.М. Марусик<sup>1</sup>, М.И. Сааристо<sup>2</sup>

(1) Institute for Biological Problems of the North, Portovaya Str. 18, Magadan 685000 Russia.

Институт биологических проблем Севера, ул. Портовая 18, Магадан 685000 Россия.

(2) Zoological Museum, University of Turku, Turku SF-20014, Finland.

Зоологический музей, университет г. Турку, Турку SF-20014 Финляндия.

**KEY WORDS:** Aranei, Linyphiidae, Erigoninae, *Minicia*, taxonomy, East Palaearctic, new genera, new species, new combination.

**КЛЮЧЕВЫЕ СЛОВА:** пауки, Aranei, Linyphiidae, Erigoninae, *Minicia*, таксономия, Восточная Палеарктика, новый род, новый вид, новая комбинация.

**ABSTRACT.** Siberian *Minicia* species have been reassessed and two new genera and one new species described: *Eskovia* gen.n. and *Tanasevitchia* gen.n., *Eskovia mongolica* sp.n. (♂ & ♀). New distributional records for *E. exarmata* (Eskov, 1989), comb.n. ex *Minicia*, *T. uralensis* (Tanasevitch, 1983), comb.n. ex *Minicia*, and *M. marginella* (Wider, 1834) are given as well. *E. exarmata* has been reported from North America for the first time.

**РЕЗЮМЕ.** Пересмотрено таксономическое положение сибирских видов, относимых к роду *Minicia*, в результате чего описаны два новых рода и один новый вид: *Eskovia* gen.n. и *Tanasevitchia* gen.n., *Eskovia mongolica* sp.n. (самец и самка). Приводятся новые данные по распространению *E. exarmata* (Eskov, 1989), comb.n. ex *Minicia*, *T. uralensis* (Tanasevitch, 1983), comb.n. ex *Minicia*, и *M. marginella* (Wider, 1834). Вид *E. exarmata* впервые отмечается в Северной Америке.

### Introduction

Five *Minicia* species have been listed from Siberia [Eskov, 1994; Mikhailov, 1997], viz. *Minicia exarmata* Eskov, 1989, *M. marginella* (Wider, 1834), *M. pallida* Eskov, 1995, *M. uralensis* Tanasevitch, 1983, and *M. strandi* (Ermolaev, 1937). During an expedition of the first author to Mongolia in 1997, an additional species new to science was found in Khangai Mountains. After its comparison with the type species of *Minicia*, namely *M. marginella*, it became clear that this species as well as two other Siberian forms are not congeneric with *M. pallida*. A study of the copulatory organs and several somatic characters has led us to the conclusion that *M.*

*uralensis* represents a new monobasic genus and *M. exarmata* plus the new Mongolian species belong to another new genus. Therefore, the work is focused on a reassessment of the East Palaearctic *Minicia*.

Material treated herein has been deposited in the following museums and collections:

CNC — Canadian National Collections, Ottawa; IBPN — Institute for Biological Problems of the North, Magadan; JWC — Jörg Wunderlich coll., later probably in Senckenberg Museum; ZMMU — Zoological Museum of the Moscow University; ZMUT — Zoological Museum, University of Turku.

All original drawings are made by the first author.

All measurements are give in millimeters.

### *Eskovia* gen.n.

Type species: *Minicia exarmata* Eskov, 1989

**SPECIES INCLUDED:** *E. exarmata* (Eskov, 1989), comb.n., and *E. mongolica* sp.n.

**DERIVATION NOMINIS:** The generic name is a patronym in honor of Kirill Y. Eskov, Moscow who has made great contributions to the study of Siberian linyphiids.

**DIAGNOSIS:** Superficially, *Eskovia* gen.n. somewhat resembles the well-known Eurasian genus *Minicia* Thorell, 1875 (Table). It can be easily separated from that genus by the two cymbial apophyses (Figs 1–4), of which the prolateral one bears peculiar minute and appressed scale-like hairs on its dorsal surface. In *Minicia*, there is only one long and curved cymbial apophysis with a spine-like apical part like in *Minicia marginella* or it is bifurcate like in *M. candida* Denis, 1946 (see figs 12–13 in Thaler [1993]). The conformation of the embolic division of the two genera is also quite different (Figs 10, 12–14 and Fig. 18). In *Minicia*, the embolic division is tripartite (Fig. 18), consisting of a long, curved, posteriorly situated embolus flanked by two narrow, elongated apophyses. In *Eskovia* gen.n., the embolic division (Figs 10, 12–14)

Table. Distinguishing characters of the three genera compared. ED — embolic division; Fe — femora; CP — cymbial projection.

Таблица. Отличительные признаки трех сравниваемых родов. ED — эмболярный отдел, Fe — бедро, CP — проекция цимбиума.

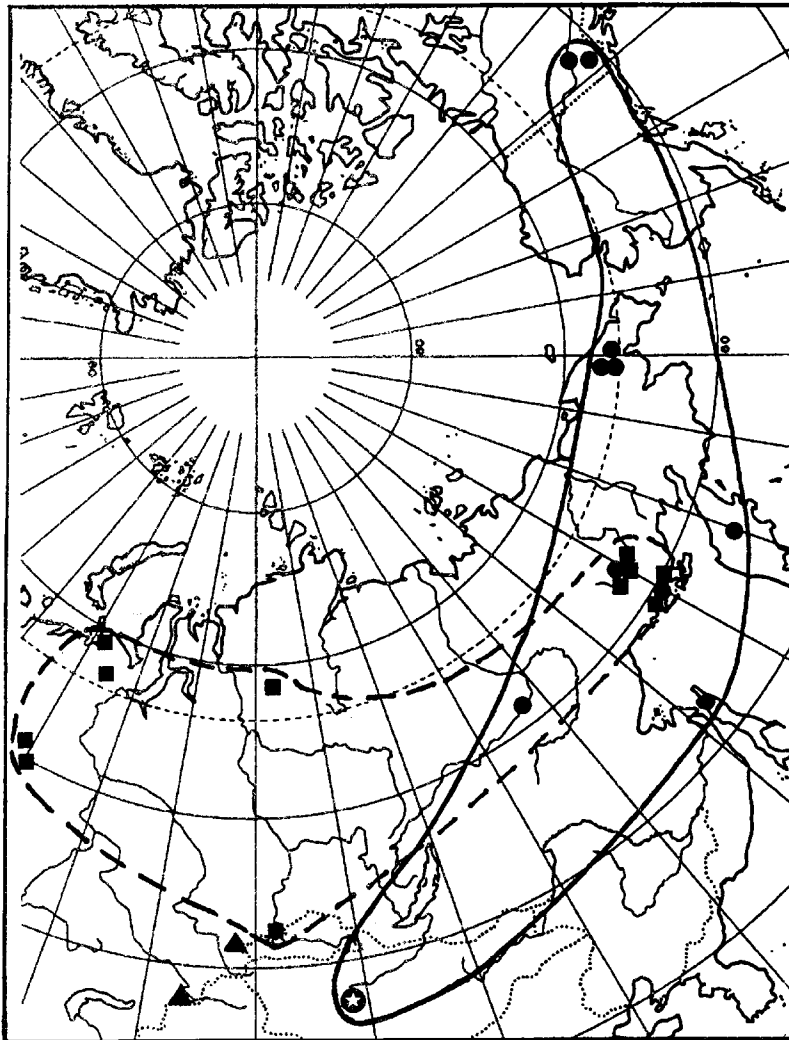
Character/ genus	<i>Minicia</i>	<i>Eskovia</i> gen.n.	<i>Tanasevitchia</i> gen.n.
Color white (dark)	+	+	-
abdominal pattern	+	-	-
ventral Fe I spines, f	+	+	-
ventral Fe I spines, m	+	-	-
embolic division bipartite (tripartite)	-	+	+
parts of ED parallel (convergent)	+	+	-
ED long (cf. base)	+	-	+
dorsobasal part of CP bipartite	-	+	+
outgrowth of CP with elevated hairs	-	+	-
cephalic area raised	+	-	-
thoracic area raised	-	-+	+
epigyne with distinct openings	-	+	+
abdominal hairs erect	+	-	+
supratégulum elongate (~round)	+	+	-

is more compact with a relatively short, distally situated embolus and an almost indistinct subembolic apophysis. The species of *Eskovia* gen. n. are also devoid of ventral spines on tibia I and II and the cephalic area of the males is not elevated (Figs 11, 15). Instead the thoracic part is somewhat raised above the level of the ocular area.

**DESCRIPTION:** Small, up to 1.7, pale colored erigonids. Ocular area of males covered with numerous, mostly short and erect hairs. Eyes relatively large. Clypeus high, backwards inclined (Figs 15–16). Abdomen covered with numerous, short, subdecumbent hairs. Sternum with dark margins. Spination 1-1-1. Tm I 0.85–0.91. Tm IV present. Cymbium of male palp complicated, bearing two large apophyses posteriorly (Figs 1–4) and a deep, hemispheric incision retrolaterally (Figs 1, 3).

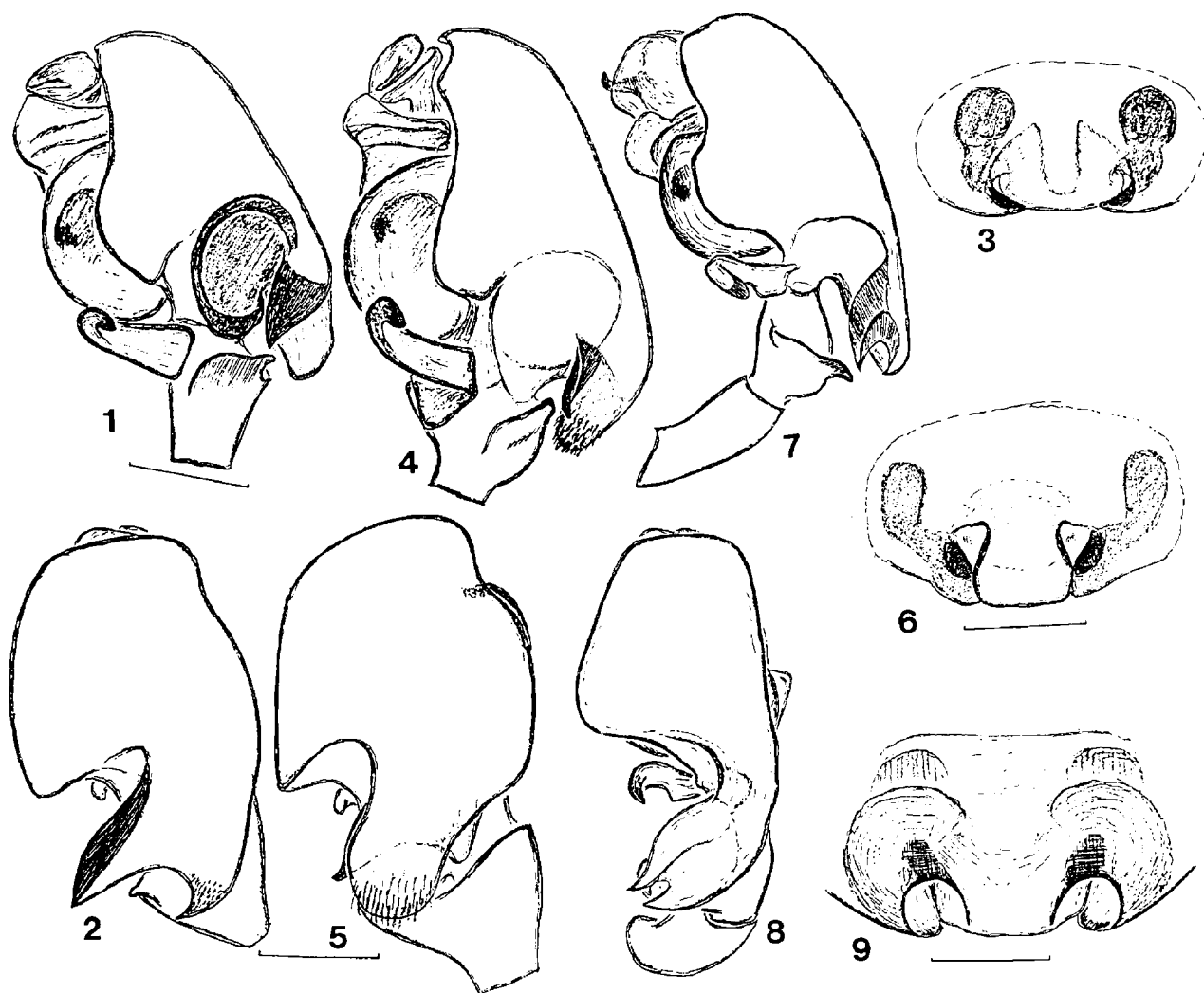
The less sclerotized, prolateral apophysis covered with appressed hairs; the retrolateral and heavily sclerotized apophysis sharply pointed. Tibial apophysis terminating near the tip of the retrolateral apophysis. Paracymbium relatively small. Embolic division hammer-like with a bill-shaped embolus and a transparent and weakly sclerotized subembolic apophysis (Figs 10, 12–14). Tegulum large. Epigyne relatively simple, with a more or less distinctly marked median plate and distinct openings at lateral margins. Spermathecae elongated, well discernible. See also Table.

**DISCUSSION:** In spite of some similarity between the two genera, they represent quite distant evolutionary lines in Erigoninae. *Eskovia* gen.n. apparently belongs to the *Tapinocyba* complex of Millidge [1977] by sharing the same type of an apically situated embolus and the subembolic apophysis (Fig. 19 and Millidge [1977: fig. 43]). The relationship of *Minicia* is not clear but most probably it represents an undelimited genus group. Anyway, its membership within the *Pelecopsis* complex [Millidge, 1977] is incorrect.



Map 1. Distribution of *Eskovia mongolica* sp.n. (star), *E. exarmata* (Eskov) (circles), *Tanasevitchia uralensis* (Tanasevitch) (square), *Minicia marginella* (Wider) (inverted triangle), *M. pallida* Eskov (triangle), *Eskovia* gen.n. (solid line) and *Tanasevitchia* gen.n. (broken line).

Карта 1. Распространение *Eskovia mongolica* sp.n. (звезда), *E. exarmata* (Eskov) (кружок), *Tanasevitchia uralensis* (Tanasevitch) (квадрат), *Minicia marginella* (перевернутый треугольник), *M. pallida* (Eskov) (треугольник), *Eskovia* gen.n. (сплошная линия) и *Tanasevitchia* gen.n. (пунктир).



Figs 1-9. Copulatory organs of *Eskovia mongolica* sp.n. (1-3), *E. exarmata* (Eskov) (4-6) and *Tanasevitchia uralensis* (Tanasevitch) (7-9): 1, 4, 7 — palp, lateral view; 2, 5, 8 — palp, dorsal view; 3, 6, 9 — epigyne, ventral view. Scale bar: 0.1 mm.

*E. exarmata* ♂ "topotype", ♀ from Chukotka; *T. uralensis* from Kolyma River.

Рис. 1-9. Копулятивные органы *Eskovia mongolica* sp.n. (1-3), *E. exarmata* (Eskov) (4-6) и *Tanasevitchia uralensis* (Tanasevitch) (7-9): 1, 4, 7 — палепа самца, вид сбоку; 2, 5, 8 — палепа самца, вид сверху; 3, 6, 9 — эпигина, вид снизу. Масштаб 0,1 мм. *E. exarmata* ♂ "топотип", ♀ из Чукотки; *T. uralensis* — из верховий Колымы.

**DISTRIBUTION** (Map. 1): From Mongolia in the SW through NE Siberia to Yukon Territory.

**COMMENTS:** Both species of *Eskovia* have been collected exclusively in litter under bushes. *E. exarmata* has been found in the Upper Kolyma region under *Alnus fruticosa* with *Carex* underneath and in a mixed stand of *A. fruticosa* and *Beetula middendorfi*. In Chukot Peninsula, it has been found under *A. fruticosa*, too. In Yukon Territory, specimens have been taken from different associations of willow and aspen. *E. mongolica* sp.n. has been collected in very similar circumstances in bush litter.

***Eskovia mongolica* sp.n.**

Figs 1-3, 10-11.

Holotype ♂ (ZMMU) and paratypes: 11 ♀♀ (5 ♀♀ ZMMU, 3 ♀♀ ZMUT, 3 ♀♀ JWC), Mongolia (11), Bayankhongor Aimak, Gurvanbulag Somon, Lake Khokh-Nuur, 47°32'N, 98°32'E, 2,700 m a.s.l., 7-10.06.1997, leg. Y.M. Marusik.

**DERIVATIO NOMINIS:** The specific name is a noun in apposition taken from the type locality.

**DIAGNOSIS:** The male of this species is easily recognized by having both of the cymbial apophyses pointed and by the less strongly developed prolateral one covered with almost indistinct hairs (Fig. 2), and the female by the indistinctly bordered, somewhat oval-shaped epigynal plate.

**DESCRIPTION:** Total length of male/female 1.43/1.60. Carapace: 0.64/0.64 long, 0.53/0.54 wide, pale yellow. Abdomen pale white-yellowish, covered with short hairs. Legs yellow. Spination 1-1-1-1, spines subequal to 1/2 of tibial diameter in males and about 0.9 in female. Tm 1 0.91. Palp as in Figs 1-2. Epigyne as in Fig. 3, less heavily sclerotized than in *E. exarmata*.

**HABITAT:** Litter under bushes and grass near bushes.

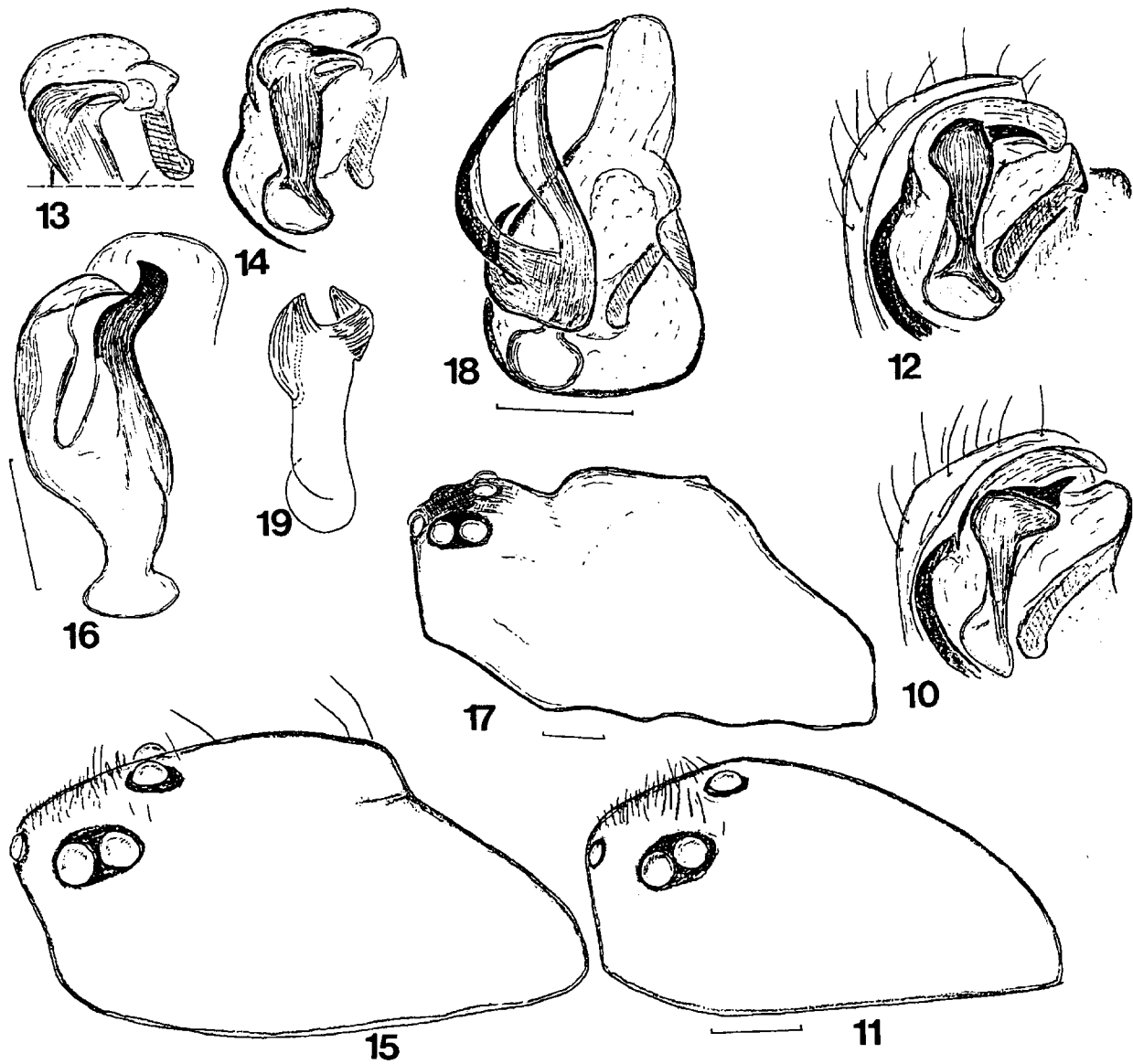
**DISTRIBUTION:** Type locality only (Map 1).

***Eskovia exarmata* (Eskov, 1989), comb.n.**

Figs 4-6, 12-15.

*Minicia exarmata* Eskov, 1989: 100, figs 18-23.

**MATERIAL EXAMINED:** Russia: 2 ♀♀, 2 juv. ("topotypes") (IBPN), Magadan Area, upper Kolyma River flow (-60°N),



Figs 10–19. Male palp and carapace of *Eskovia mongolica* sp.n. (10–11), *E. exarmata* (Eskov) (12–15), *Tanasevitchia uralensis* (Tanasevitch) (16–17), *Minicia marginella* (Wider) and *Tapinocyba insecta* (L. Koch) (19): 10, 12, 14 — apical portion of palp, prolateral view; 18 — bulbus, prolateral view; 13, 16 — embolic division and suprategular apophysis, prolateral view; 11, 15, 17 — carapace, lateral view; 19 — embolic division, prolateral view. *E. exarmata* "topotype", *T. uralensis* from Kolyma River, *M. marginella* from SW Finland and *T. insecta* after Wiehle [1960]. Scale bar: 0.1 mm.

Рис. 10–19. Пальпа самца и карапакс *Eskovia mongolica* sp.n. (10–11), *E. exarmata* (Eskov) (12–15), *Tanasevitchia uralensis* (Tanasevitch) (16–17), *Minicia marginella* (Wider) и *Tapinocyba insecta* (L. Koch) (19). 10, 12, 14 — апикальная часть пальпы, вид спереди; 18 — бульбус, вид спереди; 13, 16 — эмболюсный отдел и супратегулярный отросток, вид спереди; 11, 15, 17 — карапакс, вид сбоку; 19 — эмболюсный отдел, вид спереди. *E. exarmata* "топотип", *T. uralensis* — из верховий Колымы, *M. marginella* — из ЮЗ Финляндии и *T. insecta* — по Wiehle [1960]. Масштаб 0,1 мм.

environs of Sibat-Tyellakh, "Aborigin" Field Station, Olen' Creek middle flow, alder bushes with *Carex*, litter, 25.09.1986; 1 ♂, 3 ♀♀ (ZMUT), Chukotka, Amguema River, 66°55'N, 179°30'E, willow (0.7m high) bushes, litter, 17.08.1988. Canada, Yukon Territory: 1 ♀ (IBPN), (43) Lake Kluane, Cultus Bay, 138°20'W, 61°11'N, mountain tundra, h 5000f, willows on top of NWW slope, 12.07.1993; 1 ♂, 2 ♀♀, 1 juv. (IBPN), (70) environs of Carmacks, 136°22'W 62°11'N, aspen grove with moss and Gramineae, 17.07.1993; 1 ♂ 1(♂) (CNC), environs of Carmacks, 136°22'W, 62°11'N, 19.07.1993, all leg. Y.M. Marusik.

DESCRIPTION: See Eskov [1989].

DISTRIBUTION (Map 1): Earlier, this species was recorded in northeastern Siberia, namely from the upper flow of Kolyma River [Eskov, 1989], environs of Magadan, Amgue-

ma River in Chukotka [Marusik et al. 1992], central-eastern Yakutia [Marusik et al., 1993] and northern Kamchatka [Eskov, Marusik, 1994]. In the Nearctic, it is thus recorded for the first time.

#### *Tanasevitchia* gen.n.

Type species: *Minicia uralensis* Tanasevitch, 1983.

SPECIES INCLUDED: *T. uralensis* (Tanasevitch, 1983), comb.n.

DERIVATION NOMINIS: The generic name is a patronym in honor of well known Russian arachnologist Andrei V. Tanasevitch, Moscow who described the type species of this genus.

**DIAGNOSIS:** *Tanasevitchia* gen.n. resembles both *Minicia* Thorell, 1875 and *Eskovia* gen.n. (see Table), but it can easily be separated from *Minicia* by the dark and uniform color, the shape of the cymbial apophyses, the bipartite embolic division and the distinct epigynal openings (Fig. 9). From *Eskovia* gen.n., it can easily be distinguished by the dark color, lack of appressed hairs on the cymbium, the convergent parts of the embolic division, modification of the carapace, and the distinct epigynal openings with apical margins (lateral in *Eskovia* gen.n.). Abdominal hairs are more erect in *Tanasevitchia* gen.n. than in *Eskovia* gen.n. which has subdecumbent hairs.

**DESCRIPTION:** Small, up to 2.15, dark colored (from dark to light brownish) erigonids. Clypeus high and somewhat posteriorly inclined in males. Cephalic area well separated from thoracic part, which is elevated above the level of the ocular area and bears a small spine-like outgrowth in the beginning of the slope (Fig. 17). Abdomen covered with numerous, short, erect hairs. Spination 1-1-1-1. Tm I 0.85–0.91. Males without ventral spines on femora I, while females have them 2–5. Tm IV present. Cymbium of male palp complicated, bearing two large, sharply pointed apophyses (Figs 7–8) posteriorly and a rounded depression retrolaterally. Tibial apophysis terminating near the tip of the retrolateral apophysis. Paracymbium relatively small. Embolic division bipartite (Fig. 16), with a bill-shaped embolus surrounded by a transparent lamella and a heavily sclerotized subembolic apophysis directed opposite to embolus. Tegulum large. Epigyne relatively simple (Fig. 9), with a distinctly marked median plate and a pair of openings. Spermathecae rounded, well discernible (see fig. 3.8 in Tanasevitch [1983]). See also Table.

**DISCUSSION:** *Tanasevitchia* gen.n. is apparently close to *Eskovia* gen. n. and thus belongs to the *Tapinocyba* complex. Such similarities between *Minicia* and *Tanasevitchia* gen.n. as the presence of ventral femoral spines and the modified dorso-basal part of the cymbium are based on convergent characters.

Like *Eskovia* gen.n., *Tanasevitchia uralensis* also has a characteristic habitat preference. All specimens have been taken from screes. In open places, it occurs only in screes covered with fruticose lichens, while in shadowed habitats like a thin canyon or a light larch forest it occurs under flat stones.

**DISTRIBUTION.** This is a Trans-Siberian species (Map 1).

*Tanasevitchia uralensis* (Tanasevitch, 1983), **comb.n.**  
Figs 7–9, 16–17.

*Minicia uralensis* Tanasevitch, 1983: 220, figs 1.6–8 & 3.1–8.

**MATERIAL EXAMINED:** Russia: 8 ♂♂ ♀♀ (IBPN & ZMUT), Magadan Area, upper Kolyma River flow (ca 62°N), Sibit-Tyellakh River basin, summer 1985; 6 ♂♂, 5 ♀♀ (IBPN), Krasnoyarsk Prov., SW Sayan Mts, Buiba River, 52°47'N 93°18'E, 1,230 m a.s.l., 20–21.06.1995, all leg. Y.M. Marusik.

**DIAGNOSIS AND DISTRIBUTION** same as for the genus.

**DESCRIPTION:** See Tanasevitch [1983].

*Minicia* Thorell, 1875

Type species by monotypy: *Minicia spinosa* Thorell, 1875 = *Theridion marginellum* Wider, 1834.

*Minicia marginella* (Wider, 1834)

Fig. 15.

*M. marginella*: Wiehle 1960: 28, figs 27–35.

*M. marginella*: Millidge 1977: fig. 65.

*M. marginella*: Thaler 1993: fig. 15.

**MATERIAL EXAMINED:** Russia: 2 ♀♀ (IBPN), NE Siberia, Magadan Area, 49th km of Seimtchan — Ust'-Srednekansk Road, 3.09.1990; 6 ♂♂, 8 ♀♀ (IBPN), Magadan Area, upper Kolyma River flow (ca 62°N), Sibit-Tyellakh River basin, summer 1985; 3 ♀♀ (IBPN), Magadan Area, 30th km of Vetrennyi—Ust'-Omchug Road, Vakhanka River mouth, dry meadow on slope of S exposition, 16.06.1983; 1 ♀ (IBPN), 29 km N of Magadan, 15.06.1985, all leg. Y.M. Marusik. Finland: 1 ♂ ♀♀ (ZMUT), Tarvasjoki, Juvanrahka, 1.10.1969, leg. M.I. Saaristo; ♂♂ ♀♀ (ZMUT), Turku, Kärämäki, Pomponrahka, summer–autumn 1971, leg. I. Oksala; 1 ♀ (ZMUT), Tuupovaara, Kovero, 3.05.1968, leg. P. Lehtinen.

**DISTRIBUTION:** Trans-Palaearctic [Eskov, 1994], with the southernmost record in the North Tien-Shan [Eskov, 1994] and the northeasternmost in the Upper Kolyma region (Map 1) [Marusik et al., 1992].

*Minicia pallida* Eskov in Eskov & Marusik, 1995

*M. pallida*: Eskov & Marusik, 1995: 58, fig. 14 (♀)

**MATERIAL EXAMINED.** Holotype ♀, Kazakhstan, East-Kazakhstan Area, Zaisan Distr., Saur Mt. Range, Karaungur River valley, subalpine meadow, 1,800 m a.s.l., 19.06.1990, leg. K.Y. Eskov, deposited in ZMMU. Russia, Altai Mts: 2 ♀♀ (ZMUT), SW Altai, 10 km W of Katanda, Katun Camp, moss and litter, 18.07.1983, leg. H. Hippa.

**DESCRIPTION, ILLUSTRATION AND DIAGNOSIS** as in Eskov & Marusik [1995].

**DISCUSSION.** This species is known from the holotype and 2 females from the Altai and Saur mts [Marusik et al., 1996] only. The conformation of the epigyne, the long ventral femoral spines, and the coloration are about the same as in *M. marginella*, the type species of the genus.

*Minicia strandi* (Ermolaev, 1937)

*Aræoncus strandi* Ermolaev, 1937: 601, fig. 4a–f.

**NOTE.** Type or topotype of this species is unavailable, and correspondently taxonomic status of it is unclear. Judging from original illustrations it may belong to *Tanasevitchia* gen.n.

**Acknowledgements:** We wish to cordially thank Seppo Koponen (Turku) for support of YM's stays at Turku, as well as Veikko Rinne (Turku) for the help in preparing the map. Our thanks also go to S.I. Golovatch (Moscow) for his kind linguistic help.

References

- Ermolaev V.N. 1937. Beitrag zur Kenntnis der altaischen Spinnen // Festschr. Strand. Riga. Bd.3. S.596–606.
- Eskov K.Y. 1989. New Siberian species of erigonine spiders (Arachnida, Aranei, Linyphiidae) // Spixiana. Bd.11. H.2. S.97–109.
- Eskov K.Y. 1994. Catalogue of the linyphiid spiders on northern Asia (Arachnida, Araneae, Linyphiidae). Sofia-Moscow: Pensoft Publ. 144 pp.
- Eskov K.Y., Marusik Y.M. 1994. New data on the taxonomy and faunistics of North Asian linyphiid spiders (Aranei Linyphiidae) // Arthropoda Selecta. Vol.2 (for 1993). No.4. P.41–79.
- Eskov K.Y., Marusik Y.M. 1995. On the spiders (Arachnida: Araneae) from the Saur Mt. Range, Eastern Kazakhstan // Beitr. Araneol. Bd.4 (for 1994). S.43–54.
- Marusik Y.M., Eskov K.Y., Kim J.P. 1992. A check-list of spiders (Aranei) of Northeast Asia // Korean Arachnol. Vol.8. Nos 1/2. P.129–158.
- Marusik Y.M., Eskov K.Y., Koponen S., Vinokurov N.N. 1993. A check-list of the spiders (Aranei) of Yakutia, Siberia // Arthropoda Selecta. Vol.2. No.2. P.63–79.

- Marusik Y.M., Hippa H., Koponen S. 1996. Spiders from the Altai area, South Siberia // *Acta Zool. Fenn.* Vol.201. P.11–45.
- Mikhailov K.G. 1997. Catalogue of the spiders of the territories of the former Soviet Union (Arachnida, Aranei) // *Sbornik trudov Zoologicheskogo Muzeya MGU.* Vol.37. 416 p.
- Millidge A.F. 1977. The conformation of the male palpal organs in linyphiid spiders, and its application to the taxonomic and phylogenetic analysis of the family (Araneae: Linyphiidae) / *Bull. Brit. arachnol. Soc.* Vol.4. P.1–60.
- Tanasevitch A.V. 1983. New genera and species of spiders of the family Linyphiidae from the Polar Urals // *Zool. Zhurn.* T.62. No.2. P.215–221 [in Russian].
- Thaler K. 1993. Über wenig bekannte Zwergspinnen aus den Alpen — IX (Arachnida: Aranei, Linyphiidae: Erigoninae) / *Revue suisse Zool.* T.100. Fasc.3. P.641–654.
- Wiehle H., 1960. Spinnentiere oder Arachnoidea (Araneae). XI. Micryphantidae-Zwergspinnen // *Tierwelt Deutschl.* Lfg.47. Jena: Gustav Fischer Verlag. xi+620 S.