

Reassessment of the spider genus *Hilaira* Simon, 1884. I. Revalidation of the genus *Arctilaira* Chamberlin, 1921 (Aranei: Linyphiidae)

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ABSTRACT. The genus *Arctilaira* Chamberlin, 1921, previously treated as a junior synonym of *Hilaira* Simon, 1884, is here revalidated based on the structure of the copulatory organs and somatic characters. The composition of the genus corresponds in general to the *glacialis* species-group *sensu* Eskov (1981), and comprises six species transferred from *Hilaira*: *Arctilaira banini* (Marusik et Tanasevitch, 2003), *A. gertschi* (Holm, 1960), *A. glacialis* (Thorell, 1871), *A. jamalensis* (Eskov, 1981), *A. nivalis* (Holm, 1937), and *A. vexatrix* (O. Pickard-Cambridge, 1877), all comb.n. The genus shows a Holarctic distributional pattern: four species, *A. gertschi*, *A. glacialis*, *A. nivalis*, and *A. vexatrix*, are restricted to the tundra zone, while *A. jamalensis* inhabiting the Siberian boreal zone, and *A. banini* is known only from the highlands of Mongolia. The *A. banini* – *A. jamalensis* pair of species is probably a result of recent species differentiation during the Pleistocene glaciations. In this study, we provide a concise taxonomic history of genus *Hilaira*, an updated diagnosis for *Arctilaira* and detailed illustrations of male palp and epigyne for both the type species *H. excisa* (O. Pickard-Cambridge, 1871) and all *Arctilaira* species.

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KEY WORDS: Araneae, taxonomy, dwarf-spiders, Erigoninae, new combination, Holarctic.

Пересмотр состава рода пауков *Hilaira* Simon, 1884. I. Восстановление рода *Arctilaira* Chamberlin, 1921 (Aranei: Linyphiidae)

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РЕЗЮМЕ. Род *Arctilaira* Chamberlin, 1921, ранее считавшийся младшим синонимом *Hilaira* Simon, 1884, восстановлен на основе строения копулятивных органов и со-

матических признаков. Состав рода в целом соответствует группе видов *glacialis* в понимании Еськова (1981), и включает шесть видов, перенесённых из *Hilaira*: *Arctilaira banini* (Marusik et Tanasevitch, 2003), *A. gertschi* (Holm, 1960), *A. glacialis* (Thorell, 1871), *A. jamalensis* (Eskov, 1981), *A. nivalis* (Holm, 1937 и *A. vexatrix* (O. Pickard-Cambridge, 1877)), все comb.n. Род *Arctilaira* демонстрирует голарктический тип распространения, причём, четыре вида, *A. gertschi*, *A. glacialis*, *A. nivalis* и *A. vexatrix*, ограничены тундровой зоной, в то время как *A. jamalensis* обитает в бореальной зоне Сибири, а *A. banini* известен лишь из высокогорий Монголии. Пара видов *A. banini* – *A. jamalensis*, вероятно, является результатом недавней видовой дифференциации во время плейстоценовых оледенений. В данной работе мы приводим краткую таксономическую историю рода *Hilaira*, обновлённый диагноз для *Arctilaira*, а также даём подробные иллюстрации гениталий обоих полов как для типового вида *H. excisa* (O. Pickard-Cambridge, 1871), так и для всех видов *Arctilaira*.

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КЛЮЧЕВЫЕ СЛОВА: Araneae, таксономия, пауки-пигмеи, Erigoninae, новая комбинация, Голарктика.

Introduction

The Holarctic genus *Hilaira* Simon, 1884 is a moderately diverse genus of erigonine spiders, currently comprising 25 species (WSC, 2025). The genus was established by Simon (1884) as a monotypic genus for the European *Neriene excisa* O. Pickard-Cambridge, 1871, its composition gradually expanded with the discovery of new species from arctic and boreal regions of Europe (Thorell, 1871, 1875; Hull, 1908, 1911; Holm, 1937; Tanasevitch, 1982, etc.), Siberia (Koch, 1879; Kulczyński, 1908; Eskov, 1979, 1981, 1987; Marusik, Tanasevitch, 2003; Tanasevitch, 2013), and North America (Emerton, 1915; Holm, 1937, 1960; Chamberlin, 1949, etc.). Over time, the genus composition has fluctuated significantly: Roewer (1942) listed 16 species and subspecies, Bonnett (1957) recognized 19 and Platnick (2001) recorded 31. Saaristo, Marusik (2004) conducted first major reassessment of the genus *Hilaira* and species number had risen to 36 species.

At the beginning of the last century, three genera, i.e., *Utopiellum* Strand, 1901 for *Erigone mirabilis* L. Koch, 1879 (Strand, 1901), *Soudinus* Crosby et Bishop, 1936 for *Gongylidium canaliculatum* Emerton, 1915 (Crosby, Bishop, 1936), and *Arctilaira* Chamberlin, 1921 for *Arctilaira bellans* Chamberlin, 1921 (Chamberlin, 1921) were established. Later, all of these genera were

erroneously synonymized with *Hilaira*, as will be shown later.

Eskov (1981) made the first attempt to classify the genus, establishing the seven species-groups based on copulatory organs morphology: 1) *excisa*-group: *H. excisa* (O. Pickard-Cambridge, 1871); 2) *nubigena*-group: *H. nubigena* Hull, 1911, *H. incondita* (L. Koch, 1879); 3) *herniosa*-group: *H. herniosa* (Thorell, 1875); 4) *glacialis*-group: *H. glacialis* (Thorell, 1871), *H. vexatrix* (O. Pickard-Cambridge, 1877), *H. nivalis* Holm, 1937, *H. gertschi* Holm, 1960, *H. jamalensis* Eskov, 1981, *H. syrojeczkovskii* Eskov, 1981; 5) *pervicax*-group: *H. pervicax* Hull, 1908, *H. proletaria* (L. Koch, 1879); 6) *frigida*-group: *H. frigida frigida* (Thorell, 1872), *H. f. montigena* (L. Koch, 1872), *H. f. intercepta* (O. Pickard-Cambridge, 1873), *H. f. brunnea* (Emerton, 1882), *H. leviceps* (L. Koch, 1879), *H. tetrica tetrica* (Kulczyński, 1915), *H. t. garrina* (Chamberlin, 1949), *H. punctata* (Tullgren, 1955); 7) *minuta*-group: *H. minuta* Eskov, 1979, *H. holmi* Eskov, 1981.

Saaristo, Marusik (2004) revalidated *Oreoneta* Kulczyński, 1894, type species *Oreoneta frigida* (Thorell, 1872), a genus corresponding to the *frigida* species-group. This decision later challenged by Breitling (2021). Based on *COI* barcoding data, Breitling proposed treating *Oreoneta* as a junior synonym of *Hilaira*. However, *COI* alone is unreliable for generic level

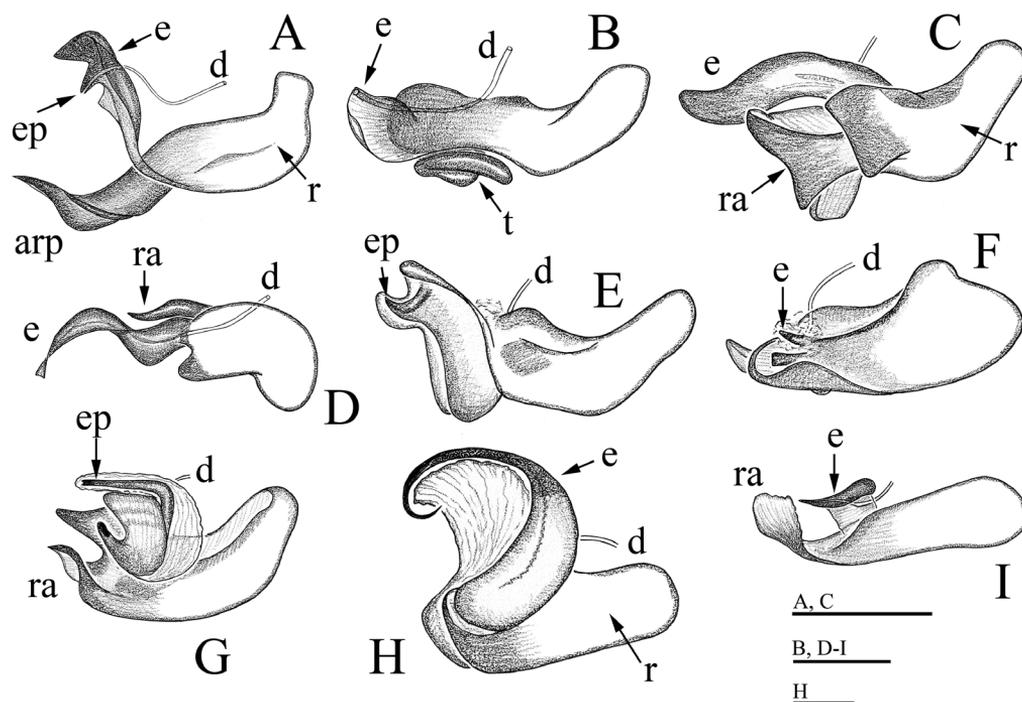


Fig. 1. Embolic divisions of *Hilaira* spp. and *Arctilaira* spp. A — *Hilaira excisa*, sample from Glossop; B — *Arctilaira vexatrix* from Lavrentiya; C — *H. asiatica* from Lake Ayan; D — *H. gibbosa* from Khatyrka; E — *H. incondita* from Sabetta; F — *H. canaliculata* from Dukcha River; G — *H. devitata* from Burunda; H — *H. proletaria* from Sabetta; I — *H. hyperborea* from Tiksi. Scale bars: 0.1 mm.

taxonomy (for details see WSC, 2025, paragraph 7 at <https://wsc.nmbe.ch/faq>). The distinction between *Oreoneta* and *Hilaira* remains well supported by clear morphological differences in the structure of the copulatory organs, particularly the male palp embolic division as demonstrated by Saaristo, Marusik (2004).

The genus *Hilaira* currently includes 25 species (WSC, 2025), but examination of copulatory organs morphology reveals significant inconsistencies among congeners with the type species *H. excisa* (Fig. 1).

This paper begins the reassessment of the genus *Hilaira* based on copulatory organs morphology and somatic characters, presently focusing first on devote of the *glacialis*-group *sensu* Eskov (1981).

Material and methods

This study is based on material deposited in the Zoological Museum of the Moscow State University,

Moscow, Russia (ZMMU), the Zoological Museum of Turku University, Turku, Finland (ZMTU). Specimens preserved in 70% ethanol were studied using an MBS-9 stereomicroscope. Drawings were made using a drawing tube attached to stereomicroscope. Photographs were taken using a Canon EOS 7D camera mounted on an Olympus SZX16 stereomicroscope, with specimen placed in dishes lined with a paraffin layer on the bottom. Stack images were produced using CombineZP software. Microphotographs were taken with a SEM JEOL JSM-5200 scanning electron microscope (SEM) at the Zoological Museum, University of Turku.

The chaetotaxy is given in a formula, e.g., 2.2.2.2, which refers to the number of dorsal spines on leg tibiae I–IV. All measurements are given in millimetres.

The chorological typification of spiders is given after Tanasevitch, Nekhaeva (2016), Tanasevitch, Khruleva (2017), and Khruleva *et al.* (2022), with a few additions and corrections.

Abbreviations used in the text and figures: WSC — World Spider Catalog; SEM — scanning electron micrographs; СЭМ — сканирующие электронные микрофотографии

Morphology: arp — anterior radical process of radix, — ventral apophysis of median plate *sensu* Saaristo, Marusik (2004); d — duct; dsa — distal suprategular apophysis *sensu* Hormiga (2000); e — embolus; ep — embolus proper; Fe — femur; lp — projection of lateral walls of epigynal cavity; ma — membranous area/tissue of column; mm — median membrane *sensu* Helsdingen (1965), = embolic membrane *sensu* van Helsdingen (1986), Hormiga (2000), Saaristo, Marusik (2004), etc.; Mt — metatarsus; p — paracymbium; r — radix (= tailpiece in Saaristo, Marusik, 2004, see below, N.B.); ra — radical apophysis; st — suprategulum; t — tumor (a new term), a swelling in distal part of radix; Ti — tibia; TmI — relative position of trichobothrium on metatarsus I; TmIV — presence/absence of the trichobothrium on metatarsus IV.

N.B. Saaristo, Marusik (2004) used for the radix the term “tailpiece”, but that term in this case is hardly applicable to the posterior part of the radix, since it was established by Crosby, Bishop (1925) for a long and slender, fusiform/worm-shaped proximal part of the radix for *Ceratinella* Simon, 1884, *Ceraticelus* Simon, 1884, etc.

Museum acronyms: IBPN — Institute for Biological Problems of the North, Magadan, Russia; MMUE — Manchester Museum, University of Manchester, UK; SMNH — Swedish Museum of Natural History, Stockholm, Sweden; ZISP — Zoological Institute, St-Petersburg, Russia; ZMMU — Zoological Museum of the Moscow State University, Moscow, Russia.

List of localities of illustrated *Hilaira* samples, not included in the Material sections.

Fig. 1. C — *H. asiatica* Eskov, 1987, ♂ paratype (ZMMU), RUSSIA, Krasnoyarskiy Krai, Putorana Plateau, Lake Ayan, 28.V.–22.VIII.1983, leg. K. Eskov; D — *H. gibbosa* Tanasevitch, 1982, ♂ (ZMMU), Chukotka Autonomous Okrug, env. of Khatyrka, 19.VII.2019, leg. L. Rybalov, A. Bastrakov; E — *H. incondita* (L. Koch, 1879), ♂ (ZMMU), E part of N Yamal, 25 km N of Sabetta, 17.–19.VII.2013, leg. L. Rybalov, A. Bastrakov; F — *H. canaliculata* (Emerton, 1915), ♂ (ZMMU), Magadan Area, 29 km N of Magadan, Dukcha River valley, 13.IV.1988, leg. A. Ryabukhin; G — *H. devitata* Eskov, 1987, ♂ (ZMMU), Amur Province, Norsky Reserve, 0.5–1 km NW of Burunda cordon, 12.IX.2004, leg. A. Ryvkin; H — *H. proletaria* (L. Koch, 1879), ♂ (ZMMU), east coast of northern Yamal, 25 km N of Sabetta, 11.VIII.2014, leg. L. Rybalov, A. Tanasevitch; I — *H. hyperborea* Kulczyński, 1908, ♂ (ZMMU), Sakha Republic, Tiksi, VII.1983, leg. V. Bulavintsev.

Fig. 3. C — *H. herniosa* (Thorell, 1875), ♂ (ZMMU), Nenets Autonomous Okrug, env. of Volonga, 29.VII.1983, leg. A. Tanasevitch; D — *H. sibirica* Eskov, 1987, ♂ (ZMMU), Krasnoyarskiy Krai, Putorana Plateau, Lake Ayan, 12.VI.–29.VII.1983, leg. K. Eskov.

Taxonomy

Class Arachnida Cuvier, 1812

Order Aranei Clerck, 1758

Family Linyphiidae Blackwall, 1859

Subfamily Erigoninae Emerton, 1882

Hilaira Simon, 1884

Hilaira Simon, 1884: 374.

TYPE SPECIES. *Neriene excisa* O. Pickard-Cambridge, 1871, by original designation.

REMARKS. The first who questioned the monophyly of *Hilaira* was Millidge (1977: 8): “Because of the differences in the ED’s there must be some question whether *H. nubigena*, *H. pervicax* and *H. montigena* are congeneric with *H. excisa*/*H. herniosa*, but for the present they can be left in *Hilaira* as a separate species group”. Later, Eskov (1981) established seven species-groups in *Hilaira* encompassing 22 species.

In present study, we have re-evaluated the composition of *Hilaira* based on both somatic characters and features of the copulatory organs. As a result, we distinguish five distinct species-groups within the genus *Hilaira*. As will be shown later, these groups most likely deserve a generic status:

1) *canaliculata* species-group: *H. canaliculata* (Emerton, 1915), *H. marusiki* Eskov, 1987, *H. nubigena* Hull, 1911, *H. pelikena* Eskov, 1987, *H. syrojeczkovskii* Eskov, 1981.

2) *excisa* species-group: *H. excisa* (O. Pickard-Cambridge, 1871).

3) *glacialis* species-group: *H. banini* Marusik et Tanasevitch, 2003, *H. gertschi* Holm, 1960, *H. glacialis* (Thorell, 1871), *H. jamalensis* Eskov, 1981, *H. nivalis* Holm, 1937, *H. vexatrix* (O. Pickard-Cambridge, 1877).

4) *herniosa* species-group: *H. herniosa* (Thorell, 1875), *H. sibirica* Eskov, 1987.

5) *minuta* species-group: *H. gibbosa* Tanasevitch, 1982; *H. meridionalis* Tanasevitch, 2013, *H. minuta* Eskov, 1979.

For eight additional species infrageneric/generic position remains unclear, these are: *H. asiatica* Eskov, 1987, *H. dapaensis* Wunderlich, 1983, *H. devitata* Eskov, 1987, *H. hyperborea* Kulczyński, 1908, *H. incondita* (L. Koch, 1879), *H. pervicax* Hull, 1908, *H. proletaria* (L. Koch, 1879), and *H. tuberculifera* Sha et Zhu, 1995 (Tanasevitch, Marusik, in preparation).

Hilaira excisa O. Pickard-Cambridge, 1871

Figs 1A; 2; 3A, B; 4.

Neriene excisa O. Pickard-Cambridge, 1871: 440, pl. 56, f. 29 (♂).

Hilaira excisa. — Merrett, 1963: 387, f. 47AB (♂).

H. excisa. — Hormiga, 2000: 41, f. 14A-I, pl. 33A-F, 34A-F (♂, ♀).

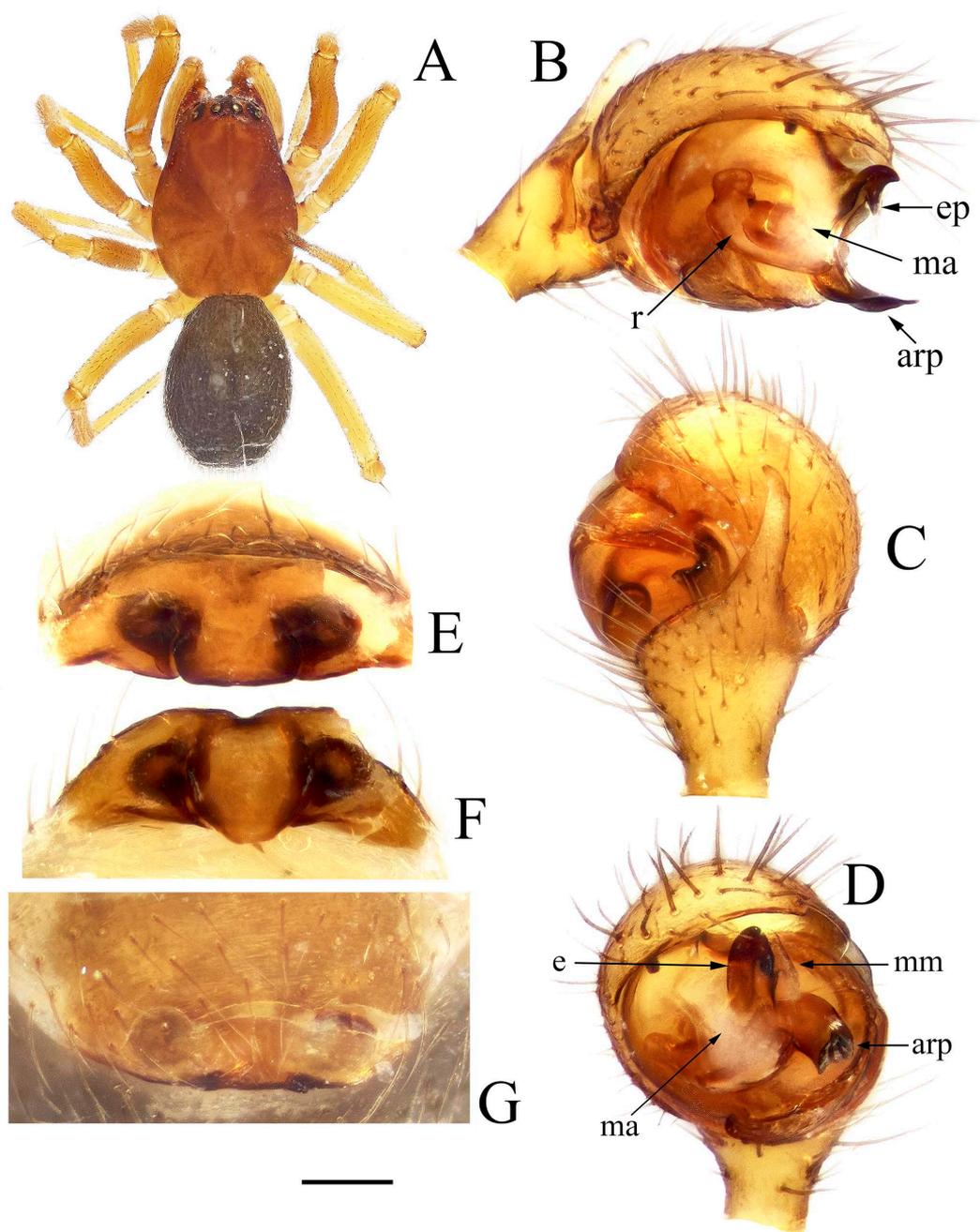


Fig. 2. Photographs of *Hilaira excisa*, samples from Glossop, ♂ (A–D), ♀ (E–G). A — habitus, dorsal view; B–D — left palp, prolateral, dorsal and ventral views, respectively; E–G — epigyne, postero-ventral, dorsal and ventral views, respectively. Scale bar: 0.5 mm (A), 0.1 mm (B–G).

H. excisa. — Saaristo, Marusik, 2004: 209, f. 2A–B, 5A–B, 6B, 7–12 (♂, ♀).

For the complete list of taxonomic references see WSC (2025).

MATERIAL: 9 ♂♂, 2 ♀♀ (MMUE, G7497.1615), UK, Glossop, Derbyshire, ca. 53.438336°N 1.948339°W, 16.7.1964, leg. D.W. Mackie; 2 ♂♂ (MMUE), Holden Clough, Lancashire, ca.

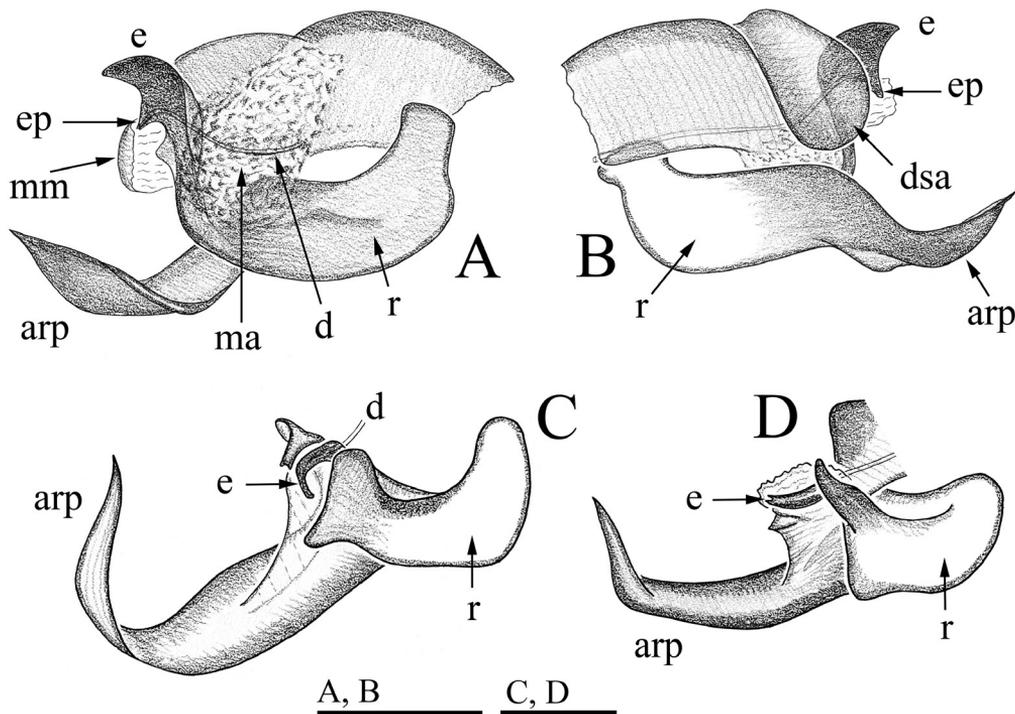


Fig. 3. Male left palp details of *Hilaira* spp. A, B — *Hilaira excisa*, sample from Glossop; C — *H. herniosa* from Volonga; D — *H. sibirica* from Lake Ayan. A, B — embolic division and distal suprategular apophysis, prolateral and retrolateral views, respectively; C, D — embolic division, retrolateral view. Scale bars: 0.1 mm.

53.939991°N 2.343334°W, 21.IX.1965, in wet flush, D.W. Mackie.

DIAGNOSIS. The type species *Hilaira excisa* belongs to the *excisa* species-group, which is characterized by a relatively large embolus with a small embolus proper, a particularly long and highly sclerotized anterior radical process, elongated palpal tibia in male. The female is characterized by the absence of an epigynal cavity, and the presence of a median plate. The male palp superficially resembles that in members of the *herniosa* species-group: *H. herniosa* and *H. sibirica* (Figs 3A, B cf. Figs 3C, D).

DESCRIPTION. See Lockett, Millidge (1953), Roberts (1987), etc. Structure of the embolic division, male palp and epigyne are shown in Figs 1A; 2; 3A, B; 4.

REMARKS. Illustrations of the *H. excisa* male palp can be found in many publications. In drawings of the embolic division (see Merrett, 1963: 387, fig. 47A; Millidge, 1977: 9, fig. 14; Hormiga, 2000: 41, fig. 14E, etc), the authors showed the radix with its massive anterior process attached to the embolus by membranized tissue. This creates the false impression that the embolus and radix are different, appearing as separate sclerites, although

the embolus is a continuation of the radix. This is what prompted Merrett (1963: 387, fig. 47A) to call the existent radix a “lamella”. In fact, in *H. excisa*, the embolus is a part of the radix, located terminally on its narrow stalk, see Fig. 1A; 3A.

DISTRIBUTION. The species is distributed in Western Europe from Ireland and France to Bulgaria and Ukraine (Nentwig *et al.*, 2025). The record of this species from Samara Region, Russia (KrasnobaeV, 2001) seems to be based on misidentification, and needs confirmation.

CHOROTYPE. European.

Arctilaira Chamberlin, 1921, **gen.rev.**

Arctilaira Chamberlin, 1921: 39.

TYPE SPECIES. *Arctilaira bellans* Chamberlin, 1921, by original designation; is considered a junior synonym of *A. vexatrix* (O. Pickard-Cambridge, 1877).

REMARKS. The monotypic genus *Arctilaira* Chamberlin, 1921 was originally established for *Arctilaira bellans* Chamberlin, 1921, described from St. Paul Island, Alaska (Chamberlin, 1921). Holm (1960) subsequently synonymized this species with *H. vexatrix* (O. Pickard-Cambridge, 1877), and

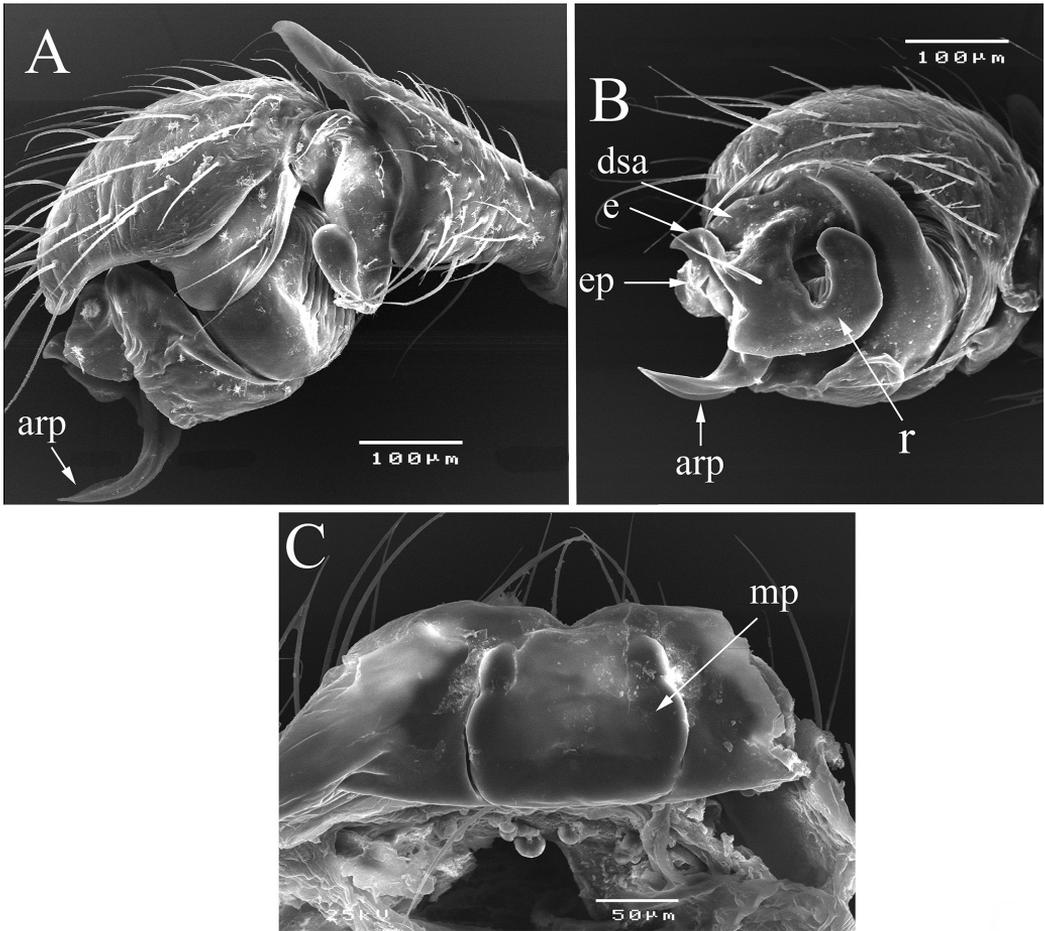


Fig. 4. SEM of *Hilaira excisa*, from Glossop. A, B — left palp ♂, retrolateral and prolateral views, respectively; C — epigyne, postero-ventral view.

since then it has been treated as a member of *Hilaira*. *Hilaira vexatrix* along with five other species form the *glacialis* species-group (see above). This morphologically homogenous group exhibits nearly identical copulatory organs across all six species (see Figs 5–15). The structure of both the male palp and epigyne in this group distinctly differs from that of the genotype of *Hilaira* (Fig. 1A; 3A, B cf. Fig. 5), and from all other species-groups of *Hilaira*. Based on the diagnostic characters provided below, we hereby transfer the entire *glacialis* species-group to the revalidated genus *Arctilaira* Chamberlin, 1921, gen.rev.

The monophyly of *Arctilaira* is supported by three putative synapomorphies, derived from the peculiar structure of the copulatory organs, i.e.: 1) a short, flat and wide embolus; 2) the presence of the specific complex-shaped outgrowth in the distal part

of the radix, hereafter termed the “tumor”, which in Latin means “swelling” (t in Fig. 5); as well as the presence of specific projections on the lateral walls of the epigyne.

DIFFERENTIAL DIAGNOSIS. *Arctilaira* differs from *Hilaira*, by the peculiar structure of the embolic division of the male palp, particularly by its short, spatulate-shaped embolus, and the presence of the tumor on the distal part of radix (Fig. 1A; 3A, B cf. Fig. 5). In female, the epigyne is highly sclerotized and diagnosed by the presence of specific projections of its lateral walls, which partly cover the epigynal cavity in the female (Figs 6D, E; 7I, J; 9I; 11H, I; 12I, J; 14H–J).

DIAGNOSIS. The genus contains medium- and large-sized, robust erigonines, total length of 2.20–3.50, which are characterized by the following combination of somatic (see Table 1) and genitalic characters:

Table 1. Some somatic characters of the *Arctilaira* species.

Genus <i>Arctilaira</i>	No. of dorsal tibial spines	No. of pro-lateral spines on T1I	TmI	TmIV	Male carapace modified	Setae on Mtl	Mtl curved	Tumor presence	Projections on lateral walls of epigyne
<i>A. banini</i>	2222	1	0.90	?	?	?	?	–	+
<i>A. gertschi</i>	2222	1	0.80–0.84	+	+	+	+	+	+
<i>A. glacialis</i>	2222	1	0.82–0.86	+	+	+	+	+	+
<i>A. jamalensis</i>	2222	1	0.41–0.68	+	+	+	–	–	+
<i>A. nivalis</i>	2222	1	0.80–0.84	+	+	+	+	+	+
<i>A. vexatrix</i>	2222	1	0.78–0.80	+	+	+	+	+	+

1) Male carapace modified: a rounded or conical elevation present behind ocular area, often bearing a line or a group of bristles/spines, cephalic pits (= sulci) absent (Figs 7A; 9B; 11B; 12B; 14B).

2) Chelicerae large and strong in both sexes, eyes of normal sizes.

3) Leg chaetotaxy formula: 2.2.2.2, an additional a prolateral spine present on tibiae I; all metatarsi with a trichobothrium; TmI 0.40–0.90. Metatarsi I slightly curved and armed with several stout setae.

4) Male palpal tibia modified: short, elongated, its dorsal part bent anteriorly.

5) Paracymbium relatively large, well-sclerotized, V-shaped, bearing several strong and long spines on distal part, and short spines on proximal part.

6) Distal suprategular apophysis relatively small, simple.

7) Median membrane small, poorly visible (e.g. Figs 5A, D).

8) Embolic division well-developed. Radix relatively large, elongated, slightly bent/curved, with a large, flat, complex-shaped outgrowth on a distal part of radix (tumor), substituted in *A. banini* and *A. jamalensis* with a wide and flat apophysis. Embolus short, spatulate (Figs 1B; 5).

9) Epigyne well-sclerotized, slightly protruding; cavity partly covered with projections of lateral walls (Figs 6D, E; 7I, J; 9I, J; 11H, I; 12I, J; 14H–J).

10) Abdomen grey to black, dorsal pattern absent.

All species of *Arctilaira* are very similar to each other, and this often causes difficulties in their identification. The species are distinguished by the shape of the embolus (see palp in retrolateral view), by the shape of the palpal tibia in prolateral view, as well as by the shape of the lateral walls of the epigyne.

COMPOSITION. The genus includes six species:

Arctilaira banini (Marusik et Tanasevitch, 2003), *A. gertschi* (Holm, 1960), *A. glacialis* (Thorell, 1871), *A. jamalensis* (Eskov, 1981), *A. nivalis* (Holm, 1937), and *A. vexatrix* (O. Pickard-Cambridge, 1877), all **comb.n. ex Hilaira**.

DISTRIBUTION. The genus shows almost circum-Holarctic (except for Scandinavia) distribution, and is known from eastern part of the European tundra, eastward throughout Siberia and North America. It has been recorded from most Arctic islands and archipelagoes. Four species, *A. gertschi*, *A. glacialis*, *A. nivalis*, and *A. vexatrix* are restricted to the tundra belt, *A. jamalensis* occurs in the boreal zone of Siberia, and *A. banini* is known only from the highlands of northern Mongolia (see Fig. 16).

CHOROTYPE. East Palearctic – Nearctic, arcto-boreo-montane.

Arctilaira banini (Marusik et Tanasevitch, 2003), **comb.n.**
Figs 5K, L; 6; 16.

Hilaira banini Marusik et Tanasevitch, 2003: 162, f. 16–17, 22–25 (♂, ♀).

TYPE MATERIAL RE-EXAMINED. Holotype ♂ (ZMMU), MONGOLIA, Bayan-Khongor Aimag, Gurvanbulag Somon, Lake Khokh-Nuur (= Lake Khukh), 47°32'N, 98°32'E, 2800–3000 m, 7.–10. VI.1997, leg. Yu. Marusik.

REMARKS. The species was originally described from both sexes collected in the highlands of the Mongolian mountains (Marusik, Tanasevitch, 2003), and since has not been recorded anywhere. Unfortunately, the holotype is badly damaged prosoma, missing legs and left palp.

DESCRIPTION. See Marusik, Tanasevitch

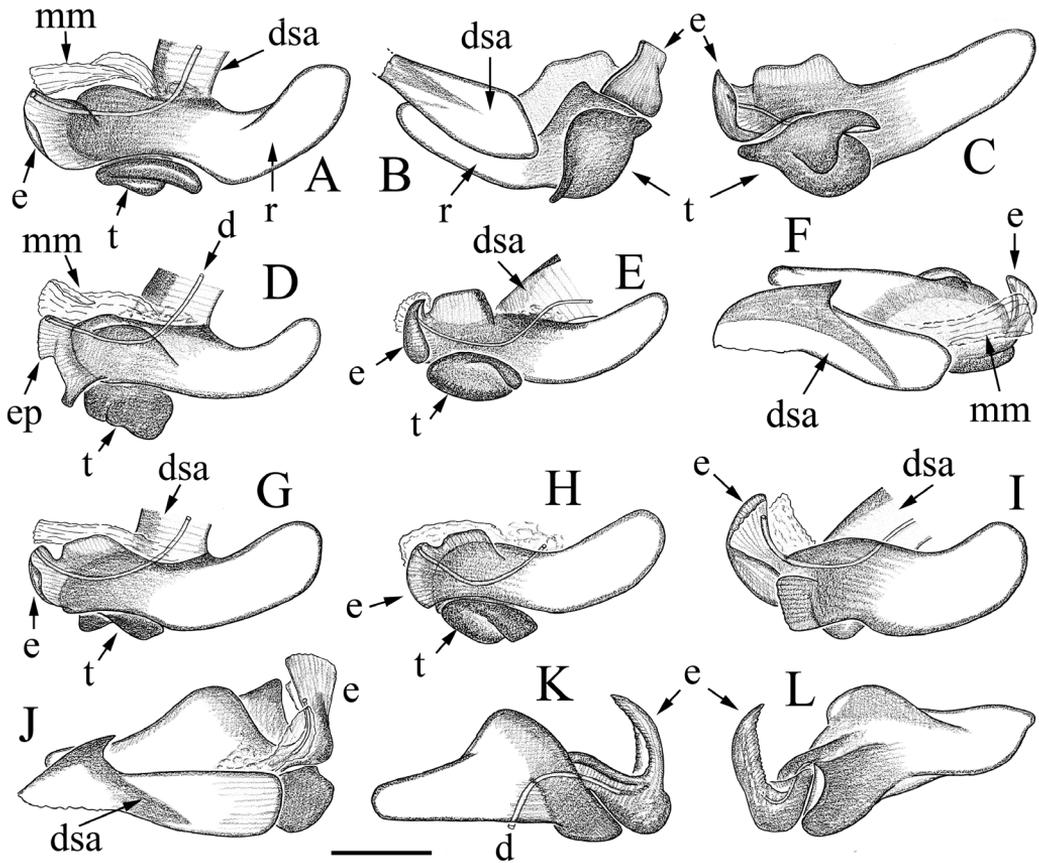


Fig. 5. Embolic divisions of *Arctilaira* spp. A–C — *A. vexatrix*, sample from Lavrentiya; D — *A. glacialis* from Wrangel Island; E, F — *A. nivalis* from Yavay Peninsula; G, H — *A. gertschi* from Wrangel Island; I–J — *A. jamalensis* from Kerbo; K, L — *A. banini* holotype. Scale bars: 0.1 mm.

(2003). Structure of the embolic division, male palp and epigyne as shown in Figs 5K, L; 6. Some somatic characters are listed in Table 1.

TAXONOMIC REMARKS. The species is very similar to *A. jamalensis* (see below). Both, *A. banini* and *A. jamalensis* can easily be distinguished from all other congeners by a large, bent embolus, and tumor substituted with an ordinary radical outgrowth. The female *A. banini* differs by the almost right-angled shapes of the lateral walls, vs. rounded in *A. glacialis* and *A. nivalis*, rectangular in *A. gertschi*, or pointed in *A. vexatrix*.

The pair *A. banini* – *A. jamalensis* is probably a result of recent species differentiation during the Pleistocene glaciations (see in Discussion).

DISTRIBUTION. This species is only known from two nearby localities in Bayan-Khongor and Arkhangai aimags in Mongolia, mountains, larch (*Larix sibirica*) forest, and mountain tundra, in moist screes, moss, at 2100–3000 m (see Fig. 16).

CHOROTYPE. West Mongolian, montane.

Arctilaira gertschi (Holm, 1960), **comb.n.**
Figs 5G, H; 7; 8; 16.

Hilairavexatrix gertschi Holm, 1960: 120, f.23–25 (♂, ♀).

H. gertschi. — Eskov, 1981: 1487 (elevated from subspecies).

For the complete list of taxonomic references see WSC (2025).

MATERIAL EXAMINED. RUSSIA: 2 ♂♂ (ZMMU, labeled as *H. nivalis* Holm, 1937), Krasnoyarsk Area, Taymyr Peninsula, Lake Taymyr, Cape Blizhniy, spotted tundra, 9.VIII.1993, leg. A. Babenko; 35 ♂♂, 18 ♀♀ (ZMMU), Taymyr Peninsula, Lake Pronchishchev, 17.–27.IV.1991, leg. V. Chesnokov; 1 ♂, 1 ♀ (ZMMU), Sakha Republic, Ust-Lensky Nature Reserve, Tyylaakh, tundras, VII. 2015, leg. A. Tanasevitch, A. Nekhaeva; over 60 ♂♂, ♀♀ (ZMMU), Chukotka Autonomous Okrug, Wrangel Island, tundras, 2014–2021, leg. O. Khruleva.

REMARKS. The species was originally described from Point Barrow, Alaska.

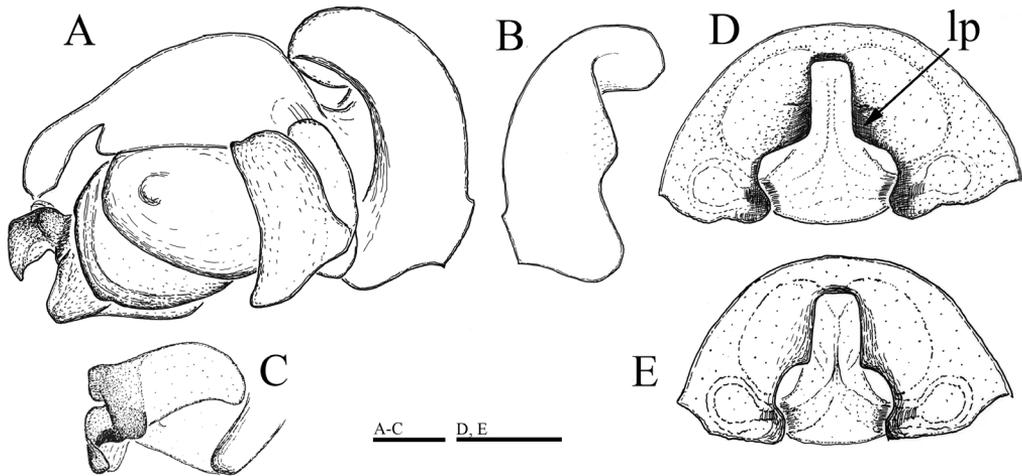


Fig. 6. *Arctilaira banini*, ♂ holotype (A–C) and ♀ paratype (D, E), after Marusik, Tanasevitch (2003). A — left palp, retrolateral view; B — palpal tibia, prolateral view; C — embolus division, lateral view; D, E — epigyne, ventral view, different specimens. Scale bars: 0.1 mm.

DESCRIPTION. See Holm (1960). Habitus, structure of embolic division, male palp and epigyne as in Figs 5G, H; 7; 8. Some somatic characters are listed in Table 1.

TAXONOMIC REMARKS. *Arctilaira gertschi* is very similar to both *A. nivalis* and *A. vexatrix*. The male can be distinguished by the shape of the embolus (Fig. 7G cf. Figs 12F; 14F), and the structure of the prolateral sides of the palpal tibia (Fig. 8B cf. Figs 13B; 15C). The female differs by the rectangular shape of the projections of the lateral walls of the epigyne (Figs 7I, J cf. Figs 12I, J; Figs 14H, J).

DISTRIBUTION. In the Palaearctic, *A. gertschi* is known from northern Taymyr Peninsula (Tanasevitch, 2017a), eastward throughout Arctic Siberia to the eastern Chukchi Peninsula (Marusik *et al.*, 1992), and Wrangel Island (Eskov, 1985). In the Nearctic, *A. gertschi* is known from Cape Barrow, Alaska (the type locality), and from Victoria Island, see Fig. 16.

CHOROTYPE. Siberian – Alaskan, arctic.

Arctilaira glacialis (Thorell, 1871), **comb.n.**

Figs 5D; 9; 10; 16.

Erigone glacialis Thorell, 1871: 694 (♀).

Hilaira glacialis. — Kulczyński, 1902: 345, pl. 7, f. 13–14 (♀).

For the complete list of taxonomic references see WSC (2025).

MATERIALEXAMINED. All specimens are from ZMMU, if not otherwise indicated. 1 ♂, RUSSIA, Nenets Autonomous Okrug, Bolshezemelskaya Tundra, Tobseda, tundra, 5.VII.1984, leg. A. Tanasevitch; 3 ♂♂, 3 ♀♀, Khalmer-Yu, tundra, 13.–16.VIII.1984, leg.

A. Tanasevitch; 4 ♂♂, 13 ♀♀, Arkhangelsk Oblast, Novaya Zemlya, Malye Karmakuly, tundra, 18.–31.VII.2015, leg. V. Spitsyn; 2 ♂♂, 3 ♀♀, Vaygach Island, Bolvansky Nos, 1985, leg. V. Bulavintsev; 21 ♂♂, 36 ♀♀, Nenets Autonomous Okrug, Yugorsky Peninsula, env. of Amderma, tundra, VII–VIII.2016, leg. A. Tanasevitch, O. Khruleva; 14 ♂♂, 19 ♀♀, Yamal-Nenets Autonomous Okrug, N of Yamal Peninsula, Cape Kharasavey, tundra, VIII.2014, leg. L. Rybalov; 2 ♂♂, Gydan Peninsula, N part of Yavay Peninsula, tundra, 28.VIII.–1.IX.2013, leg. M. Khrisanova, V. Slodkevich; 1 ♂, Krasnoyarskiy Krai, NW of Taymyr Peninsula, Ragozinka River, tundra, 30.VII.1990, leg. Y. Chernov, A. Babenko; 2 ♂♂, 4 ♀♀, Uboynaya River flow, tundra, VIII.1990, leg. Yu. Chernov, A. Babenko; 9 ♂♂, 11 ♀♀, northern Yakutia, Ust-Lensky Nature Reserve, Tyylaakh, tundra, VII. 2015, leg. A. Tanasevitch, A. Nekhaeva; 2 ♀♀, Yana River Delta, Shirokoston Peninsula, Lake Ledyanoye, tundra, 4–6.VIII.1994, leg. A. Babenko; over 70 ♂♂, ♀♀, Chukotka Autonomous Okrug, Wrangel Island, tundra, 2014–2021, leg. O. Khruleva; 2 ♂♂, 9 ♀♀ (ZISP), Shelagskiy Cape (ca. 70°N, 170°23'E), 20.08.–2.09.1911 (L. Starokadomski); 1 ♀ (IBPN), S of Chaun Bay, 15–20.06.1985, leg. A. Ryabukhin; 1 ♂, 2 ♀♀, Altai Republic, Altai Mts, between Chagan-Burgazy and Tarkhata rivers, 4 km NNW of Mt. Chyornaya, 2600–3000 m, mountain tundra, 30.V.–2.VII.1996, leg. A. & R. Dudko; 1 ♀, E part of Yuzhno-Chyuyskiy Mt. Ridge, 40 km SSW of Kosh-Agach, left affluent of Tarkhata River, 2400–3100 m, 3 & 4.VII.1996, leg. A. & R. Dudko; 7 ♀♀, Tuva Republic, 30–35 km SW of Mugur-Aksy, upper reaches of Mugur River, Mt. Mongun-Taiga,

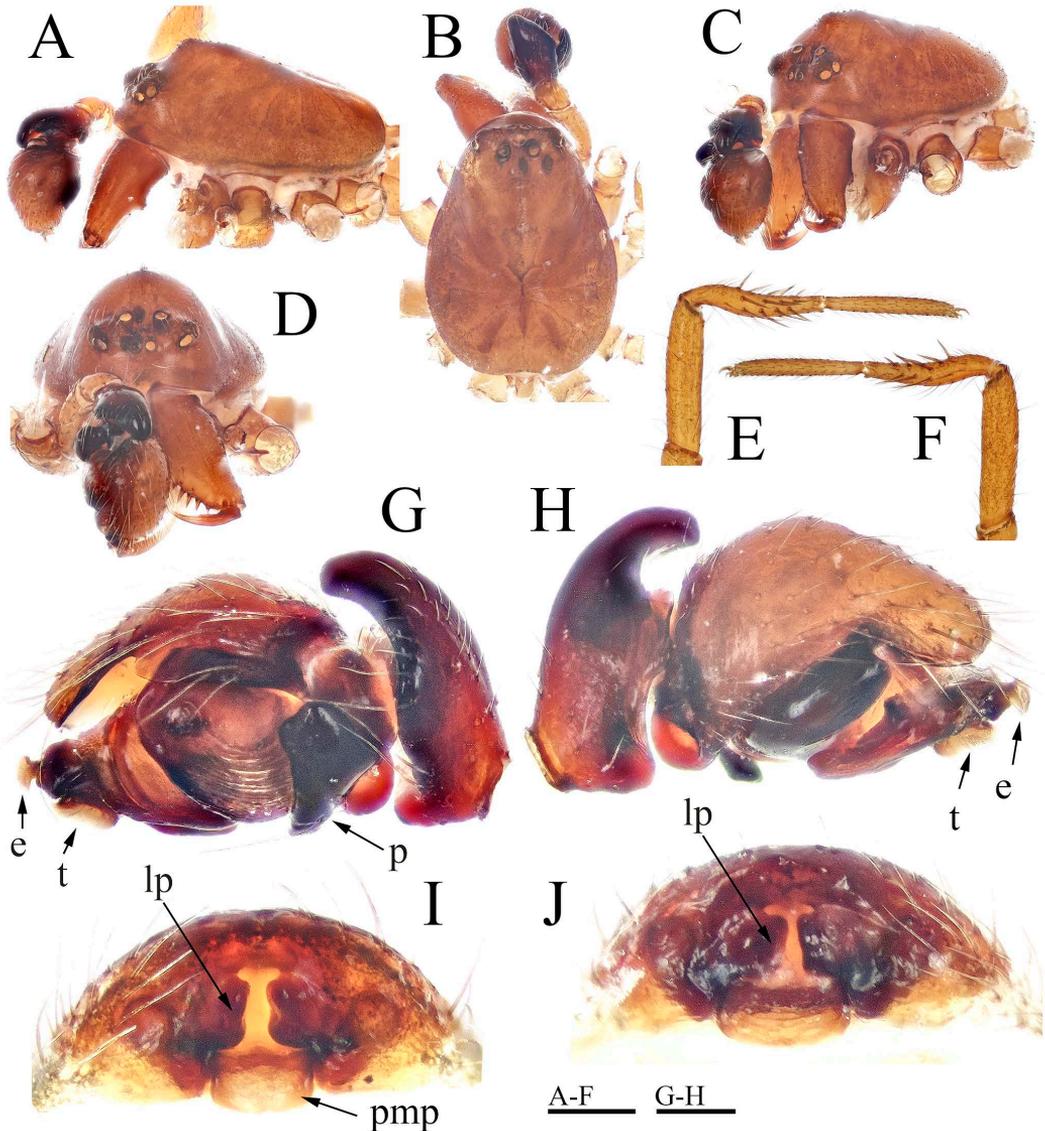


Fig. 7. Photographs of *Arctilaira gertschi*, samples from Wrangel Island. A–D — prosoma ♂, lateral, dorsal, antero-lateral and frontal views, respectively; E, F — leg I ♂, prolateral and retrolateral views, respectively; G, H — left palp ♂, retrolateral and prolateral views, respectively; I, J — epigyne, ventral view, different specimens. Scale bars: 0.4 mm (A–F); 0.1 mm (G–H).

50°22'N 90°05'E, 3100–3300 m, 23.VII.1993, leg. D. Logunov.

REMARKS. The species was described based on the female holotype, from Spitsbergen (Thorell, 1871). Later, the species was recorded from almost all arctic regions of Siberia, as well as from mountains of Middle, East, and South Siberia.

DESCRIPTION. See Holm (1939, 1956). Habitus, structure of the embolic division, male palp and

epigyne as in Figs 5D; 9; 10. Some somatic characters are listed in Table 1.

TAXONOMIC REMARKS. The male is clearly distinguished from other congeners by a large and poorly sclerotized embolus with S-shaped distal edge. The female is characterised by the presence of distinctly rounded projections of the lateral walls of the epigyne, being slightly shifted distad.

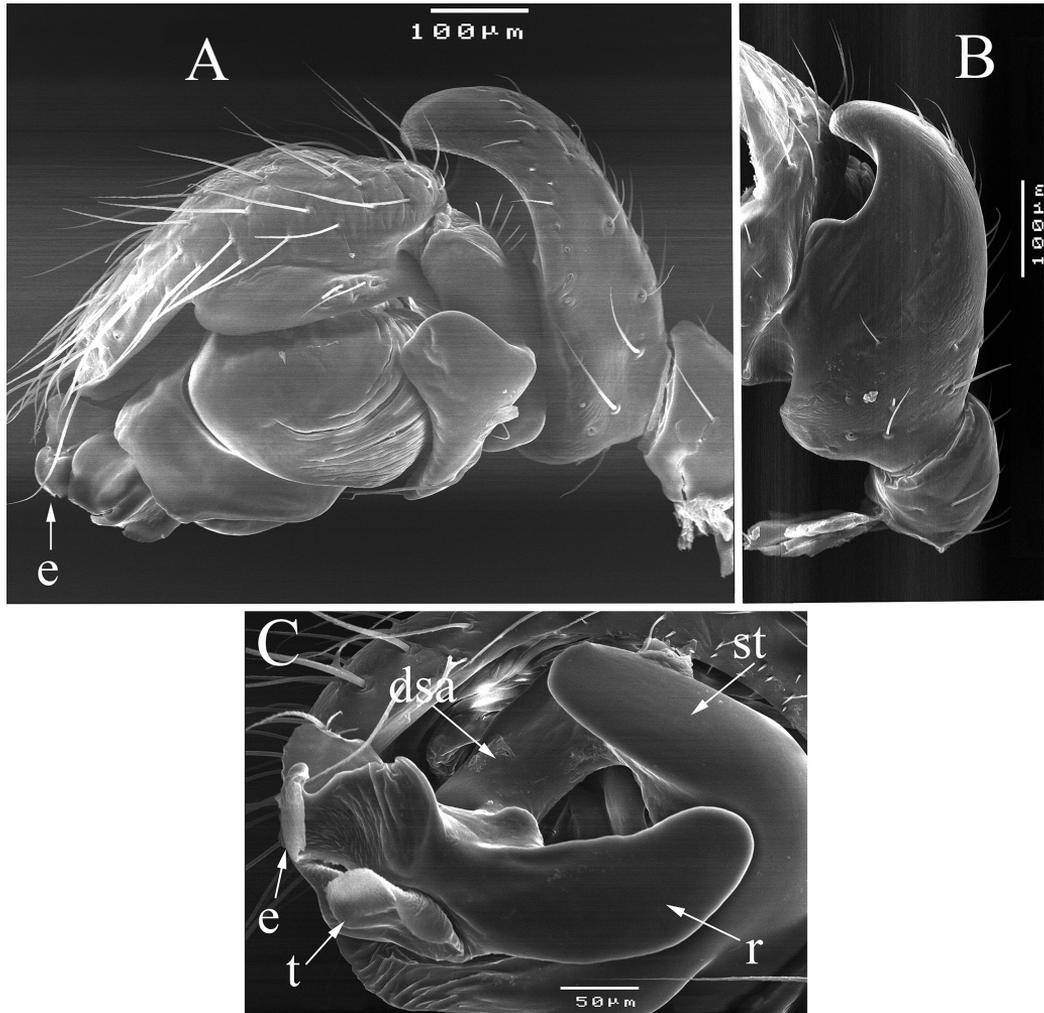


Fig. 8. SEM of *Arctilaira gertschi*, ♂ from Wrangel Island. A — left palp; B — palpal tibia, prolateral view; C — embolic division and suprategulum.

DISTRIBUTION. *Arctilaira glacialis* is known from Spitsbergen (Thorell, 1871), European tundra, except for Fennoscandia (Tanasevitch, Koponen, 2007), eastward throughout Arctic Siberia to Chukchi Peninsula and Wrangel Island (Mikhailov, 2024). South Siberia: Altai Mts (Tanasevitch, 2017), and Tuva (Marusik *et al.*, 2000). Records from Alaska and Victoria Island of Canadian Arctic Archipelago (GBIF) are most likely based on misidentifications and require confirmation, see Fig. 16.

Arctilaira glacialis shows an Arctic – mountains of southern Siberia distributional pattern, a special case of the arcto-alpine distribution.

CHOROTYPE. Palaearctic, arcto-alpine, disjunctive.

Arctilaira jamalensis (Eskov, 1981), **comb.n.**
Figs 5I, J; 11; 16.

Hilaira jamalensis Eskov, 1981: 1488, pl. 2, f. 1–4 (♂, ♀).
H. jamalensis. — Marusik, Tanasevitch, 2003: 164, f. 18–19, 26–29 (♂, ♀).

MATERIALEXAMINED. All specimens are from ZMMU, if not otherwise indicated. RUSSIA: 1 ♂, 7 ♀♀, Evenkia, Taymura River basin, Chambe River, Kerbo weather station, riverside with *Salix* stands, 16.VIII.1981, leg. K. Eskov; 1 ♂, 2 ♀♀, Republic of Buryatia, Vitim River near mouth of Baisa River, swamp, 20.VIII.1982, leg. V. Zherikhin; 5 ♀♀, Krasnoyarskiy Krai, Putorana Plateau, Lake Ayan, *Salix* bushes, 3.VII.1983, leg. K. Eskov; over 30 ♂♂, ♀♀,

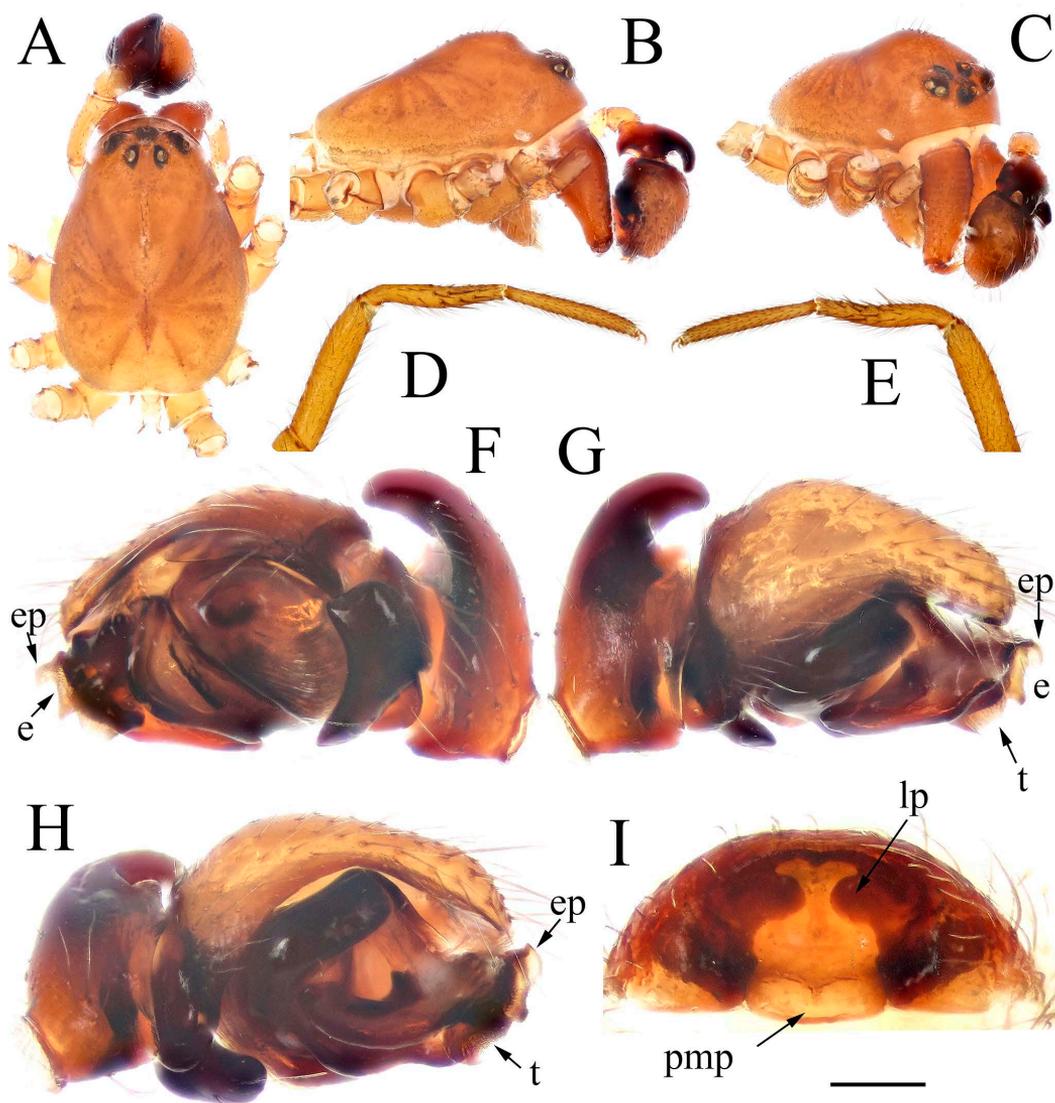


Fig. 9. Photographs of *Arctilaira glacialis*, samples from Wrangel Island. A–C — prosoma ♂, dorsal, lateral and antero-lateral views, respectively; D, E — leg I ♂, prolateral and retrolateral views, respectively; F–H — left palp ♂, retrolateral, prolateral and ventral views, respectively; I — epigyne, ventral view. Scale bars: 0.4 mm (A–E); 0.2 mm (F–H); 0.1 mm (I).

Lake Ayan, swamp, 28.VIII.1983, leg. K. Eskov; 3 ♂♂, 6 ♀♀ (IBPN), Magadan Area, Kolyma River upper flow, Sibit-Tyellakh River basin (left tributary of Kolyma), env. of Sibit-Tyellakh Village, 1983–1988, leg. Yu. Marusik.

REMARKS. The species was originally described from southern Yamal Peninsula, West Siberia (Eskov, 1981), and later it was recorded from Subarctic and Boreal natural zones of Siberia (Mikhailov, 2024).

DESCRIPTION. See Eskov (1981). Habitus, structure of the embolic division, male palp and

epigyne as in Figs 5I, J; 11. Some somatic characters are listed in Table 1.

TAXONOMIC REMARKS. The species is very closely related to *A. banini*, known from the highlands of Mongolia (see above), and differs by small differences in the shape of embolus in the male palp (Figs 5I, J cf. Figs 5K, L). The female differs by the rounded projections of the lateral walls (Figs 6D, E cf. Figs 11H, I). Both species are characterized by a modified tumor, which is an ordinary radical outgrowth. In addition, males of *A. jamalensis* differ from other

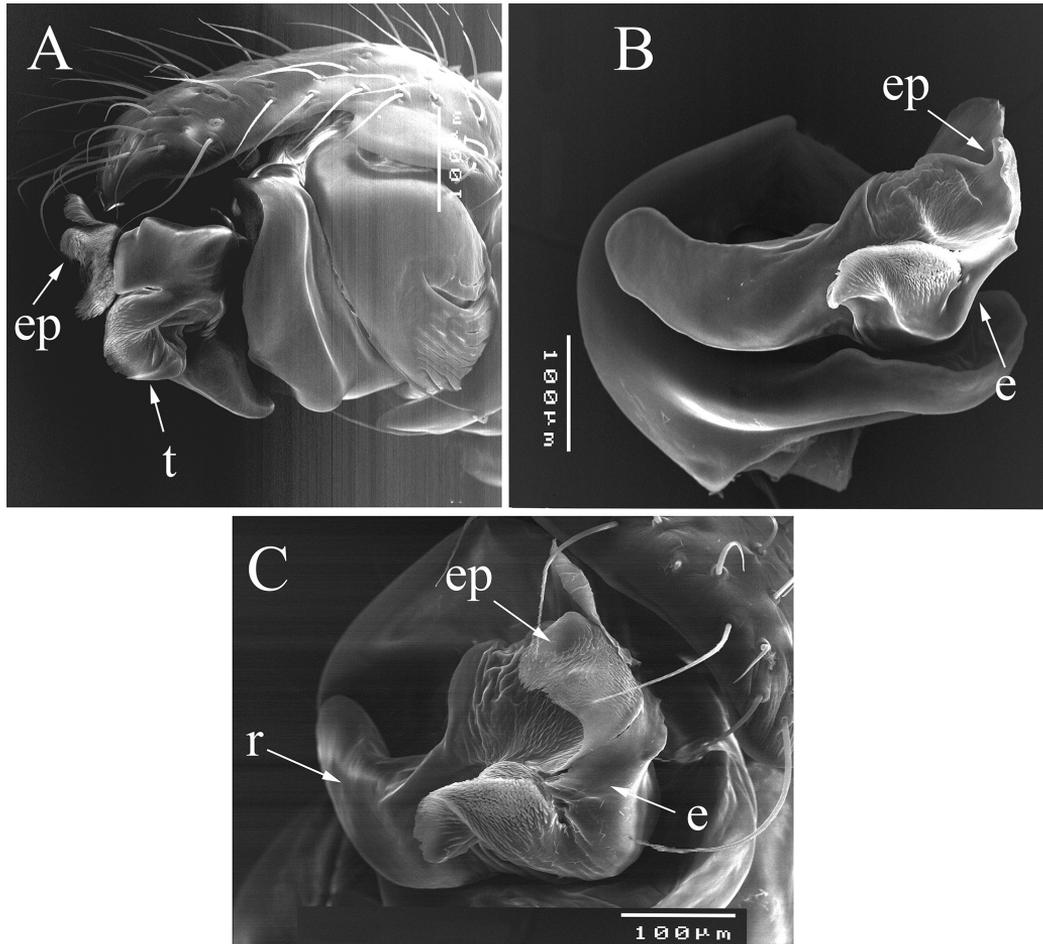


Fig. 10. SEM of *Arctilaira glacialis*, ♂ from Wrangel Island, left palp. A–C — retrolateral, ventral and frontal views, respectively.

congeners by not swollen, straight metatarsi of legs I (Figs 11D, E cf. Figs 7E, F).

The pair *Arctilaira jamalensis* and *A. banini* is probably the result of recent species differentiation during the Pleistocene glaciations (see Discussion).

DISTRIBUTION. *Arctilaira jamalensis* is known from Dolgiy Island, Barents Sea (Marusik *et al.*, 2016), northernmost locality; reported from south Yamal Peninsula (Eskov, 1981), eastward throughout Siberia to the upper reaches of Kolyma River, Magadan Area; known also from Buryatia Republic, South Siberia (Mikhailov, 2024), see Fig. 16.

CHOROTYPE. Siberian, arcto-boreo-montane.

Arctilaira nivalis (Holm, 1937), **comb.n.**
Figs 5E, F; 12; 13; 16.

Erigone vexatrix L. Koch, 1879: 45, pl. 2, f. 2–2e (♂, ♀; misidentified partly per Holm, 1937: 8).

Hilaira glacialis. — Kulczyński, 1908: 25, pl. 2, f. 45, 48–49 (♂, ♀; misidentified per Holm, 1937: 8).

H. glacialis. — Kulczyński, 1916: 13, pl. 1, f. 23 (♀; misidentified per Holm, 1937: 8).

H. nivalis Holm, 1937: 8, f. 3c, f, i (♂, ♀).

H. nivalis. — Holm, 1973: 85.

For the complete list of taxonomic references see WSC (2025).

TYPE MATERIAL EXAMINED. Male holotype and female allotype (SMNH), original label: *Erigone vexatrix* Cambr.; museum labels: *Hilaira nivalis* Holm (1937), Siberia, Krestowskoj, 20.8.1875.

MATERIAL EXAMINED. All specimens are from ZMMU, if not otherwise indicated. 7 ♂♂, 15 ♀♀, RUSSIA, Arkhangelsk Oblast, Novaya Zemlya, Malye Karmakuly, tundra, 18.–31.VII.2015, leg. V. Spitsyn; 3 ♂♂, 5 ♀♀ (ZMUT), Nenets Autonomous Okrug, Dolgiy Island, 69°N 59°E, 3.–28.VII.2004, leg. O. Makarova; 22 ♂♂, 14 ♀♀, Yugorsky Pen-

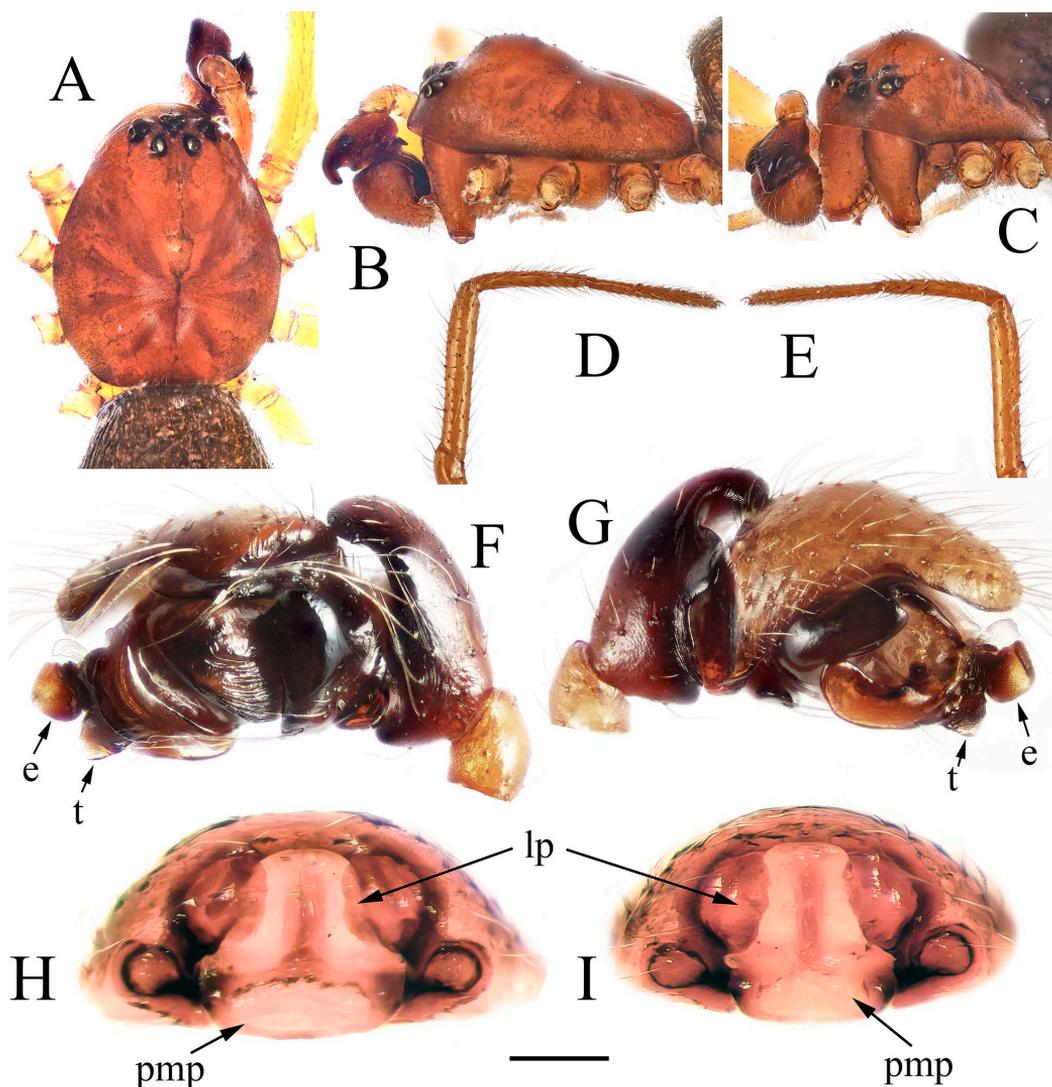


Fig. 11. Photographs of *Hilaira jamalensis*, samples from Kerbo. A–C — prosoma ♂, dorsal, lateral and antero-lateral views, respectively; D, E — leg I ♂, lateral and retrolateral views, respectively; F, G — left palp ♂, retrolateral and prolateral views, respectively; H, I — epigyne, ventral view. Scale bars: 0.4 mm (A–E); 0.2 mm (H, I); 0.15 mm (F, G).

insula, env. of Amderma, tundra, VII–VIII, 2016, leg. A. Tanasevitch, O. Khruleva; 31 ♂♂, 24 ♀♀, Yamalo-Nenets Autonomous Okrug, Kara Sea, Sibiryakova Island, VII–VIII, 1989, leg. I. Vorobeva; 1 ♂, Kara Sea, Belyi Island, seashore marsh, 26.VII.–1.VIII.2016, leg. D. Nizovtsev; 12 ♂♂, 11 ♀♀, northern Yamal Peninsula, Cape Kharasavey, VIII.2014, leg. L. Rybalov; 8 ♂♂, 14 ♀♀, env. of Kruzenshtern Bay, VIII–IX.2014, leg. L. Rybalov; 12 ♂♂, 5 ♀♀, Gydan Peninsula, northern part of Yavay Peninsula, 28.VIII.–1.IX.2013, leg. M. Khrisanova, V. Slod-

kevich; 21 ♂♂, 12 ♀♀, Gydan Peninsula, S coast of Mammoth Peninsula, 7.VIII.–1.IX.2013, leg. M. Khrisanova, V. Slodkevich; 12 ♂♂, 17 ♀♀, Sakha Republic, Ust-Lensky Nature Reserve, Tyylaakh, tundra, VII.2015, leg. A. Tanasevitch, A. Nekhaeva; 1 ♂, Yana River delta, Shirokoston Peninsula, Lake Ledyanoye, tundra, 4.–6.VIII.1994, leg. A. Babenko; 1 ♀, East Siberian Sea coast, Omulyakhskaya Bay, 1985, leg. V. Bulavintsev, N. Poryadina; 2 ♀♀, Indigirka River delta, Russko-Ustinskaya river branch, swamp, 14.–16.VII.1994, leg. A. Babenko.

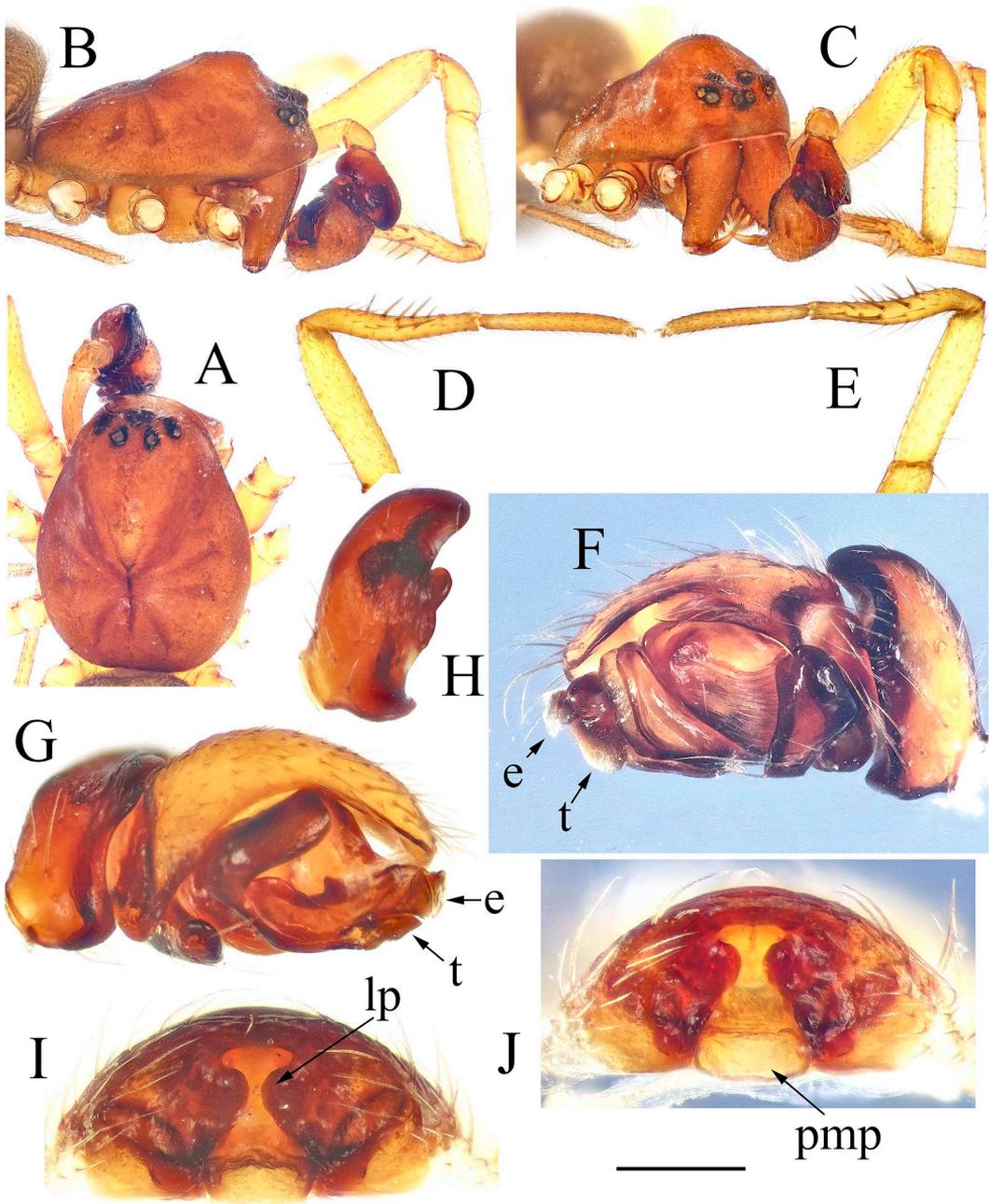


Fig. 12. Photographs of *Arctilaira nivalis*, samples from Dolgiy Island. A–C — prosoma ♂, dorsal, lateral and antero-lateral views, respectively; D, E — leg I ♂, prolateral and retrolateral views, respectively; F, G — left palp ♂, retrolateral and prolateral views, respectively; H — palpal tibia ♂, prolateral view; I, J — epigyne, ventral view, different specimens. Scale bars: 0.4 mm (A–E); 0.2 mm (F–H); 0.15 mm (I, J).

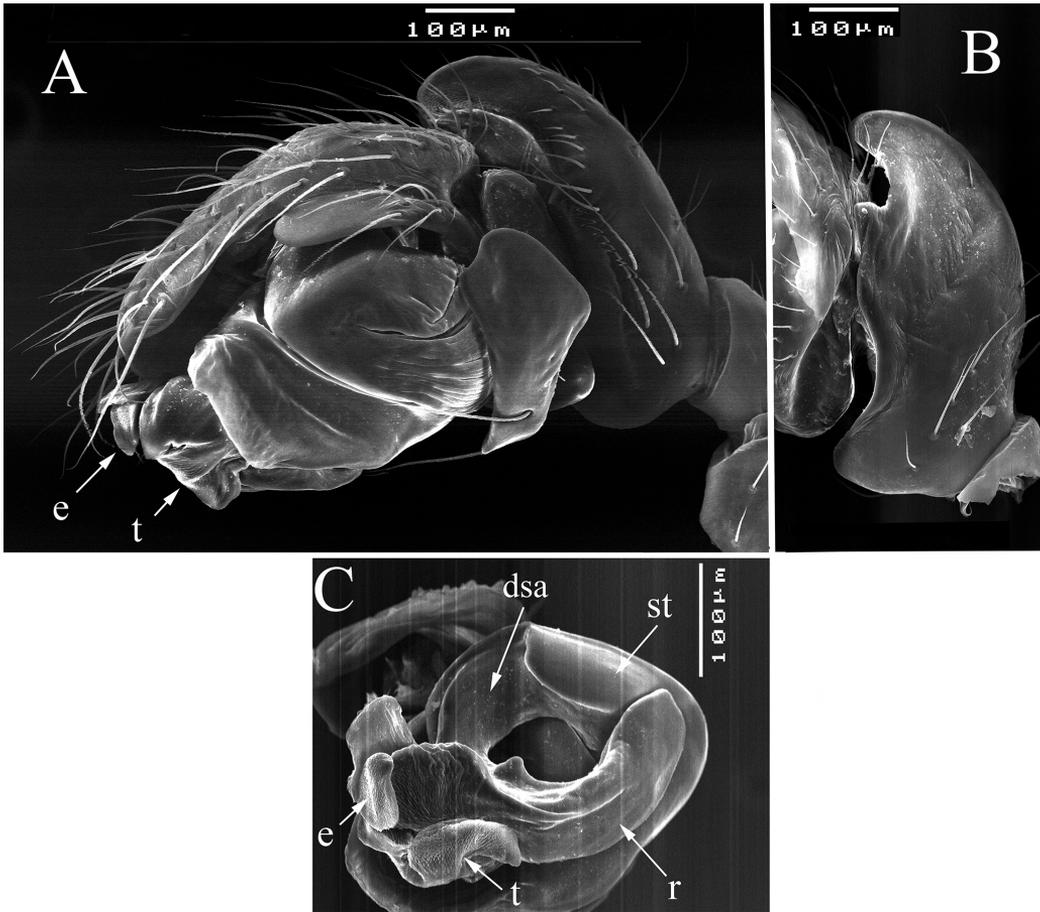


Fig. 13. SEM of *Arctilaira nivalis*, ♂ from Dolgiy Island. A — left palp, retrolateral view; B — palpal tibia, prolateral view; C — embolic division and suprategulum, prolateral view.

REMARKS. The species has been misidentified as *A. vexatrix* several times (see above). It was recognized as a separate species and described as *H. nivalis* by Holm (1937) from Krestovskiy Island, Yenisei Bay (Siberia, Russia). *Hilaira nivalis* is herewith being recorded from the Dolgiy Island for the first time.

DESCRIPTION. See Holm (1937). Habitus, structure of the embolic division, male palp, and epigyne as in Figs 5E, F; 12; 13. Some somatic characters are listed in Table 1.

TAXONOMIC REMARKS. The species is very similar to both *A. gertschi* and *A. vexatrix*. The male is distinguished by the shape of the embolus (Figs 12F; 13A cf. Figs 7G; 14F; 15A), and the structure of the prolateral side of the palpal tibia (Fig. 13B cf. Figs 8B; 15C). The female differs in the shape of the lateral walls of the epigyne (Figs 12I, J cf. Figs 7I, J; 14H, J).

DISTRIBUTION. *Arctilaira nivalis* is known from Novaya Zemlya (Tanasevitch, 2017b), eastward

throughout Arctic Siberia to Jana River, northern Yakutia, see Fig. 16.

CHOROTYPE. Siberian, arctic.

Arctilaira vexatrix (O. Pickard-Cambridge, 1877), **comb.n.**
Figs 1B; 5A–C; 14–16.

Erigone vexatrix O. Pickard-Cambridge, 1877: 280, pl. 8, f. 6 (♀).

Araeoncus ruderalis Sørensen, 1898: 210 (♀).

Notioscopus curvitaris Sørensen, 1898: 211 (♂, ♀).

Arctilaira bellans Chamberlin, 1921: 40 (♂, ♀).

Hilaira whymperi Jackson, 1933: 152, pl. 2, f. 2, 4 (♂, ♀).

H. vexatrix. — Holm, 1956: 464, f. 5g–m (♀, syn. of *Araeoncus ruderalis*, confirmed syn. of *H. curvitaris*).

For the complete list of taxonomic references see WSC (2025).

MATERIAL EXAMINED. RUSSIA: 32 ♂♂, 21 ♀♀ (ZMMU), Chukotka Autonomous Okrug, Chukchi

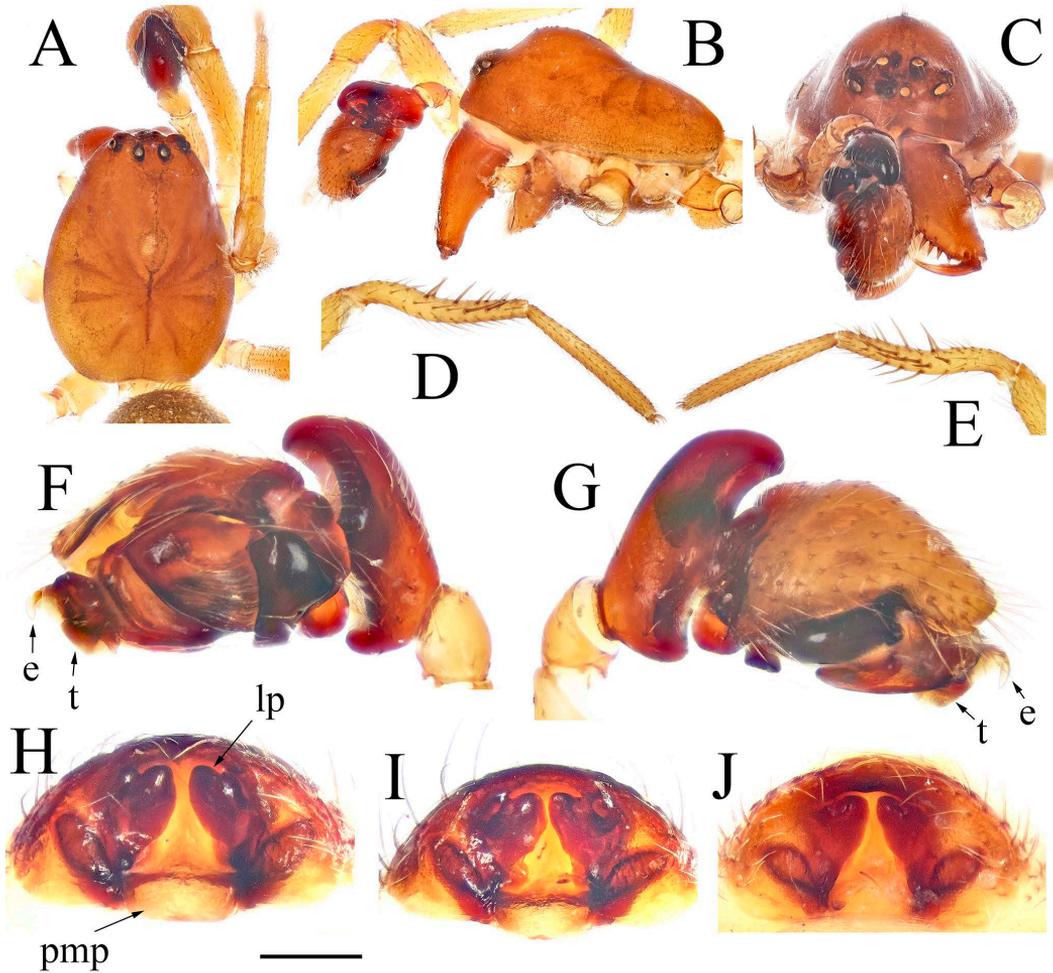


Fig. 14. Photographs of *Arctilaira vexatrix*, samples from Wrangel Island. A–C — prosoma ♂, dorsal, lateral and frontal views, respectively; D, E — leg I ♂, prolateral and retrolateral view, respectively; F, G — left palp ♂, retrolateral and prolateral views, respectively; H–J — epigyne, ventral view, different specimens. Scale bars: 0.1 mm (H–J); 0.2 mm (F, G); 0.4 mm (A–E).

Peninsula, env. of Lavrentiya, tundra, VII.2013, leg. A. Tanasevitch; 12 ♂♂, 7 ♀♀ (IBPN), Chaun Bay, 1985, A.S. Ryabukhin; over 70 ♂♂, ♀♀ (ZMMU), Wrangel Island, tundra, 2014–2021, leg. O. Khruleva; 3 ♂♂, 6 ♀♀ (ZISP), Onman (= Onmyin) Cape, ca. 67.657°N, 175.291°W, 5.–18.IX.1911, leg. L. Starokadomski; 1 ♀ (ZISP), Kolyuchinskaya Gulf, 67°04'N, 174°25'W, 18.IX.–1.X.1911, leg. L. Starokadomski; 1 ♀ (ZISP), Sakha Republic, Kolyma River delta, env. of Pokhodsk, ca 69°04'N 160°58'E, 19.VIII.1905, leg. S. Buturlin; 1 ♂, 1 ♀ (ZISP), Kolyma River delta, 'Chayachya Zaimka', 9.VII.1905, leg. S. Buturlin; 1 ♀ (IBPN), Nizhne-Kolymsk District, Malaya Kon'kovaya River, ca. 69°30'N 157°50'E, 2.VII.1986, leg. G. Chernova.

REMARKS. The species was described from Discovery Bay, Alaska (Pickard-Cambridge, 1877).

TAXONOMIC REMARKS. The species is very similar to *A. gertschi* and *A. nivalis* (see above).

DISTRIBUTION. In the Palearctic, *Arctilaira vexatrix* is known from Lena River delta, East Siberia; Chukotka and Wrangel Island (Mikhailov, 2024). In the Nearctic it is known from Alaska, Yukon, Northwest Territories and Nunavut of Canada, as well as from Greenland (Dondale *et al.*, 1997; Marusik *et al.*, 2006), see Fig. 16.

CHOROTYPE. East Siberian – Nearctic, arctic.

Discussion

As it shown above, the genus *Hilaira* represents a composite taxon. Various authors placed

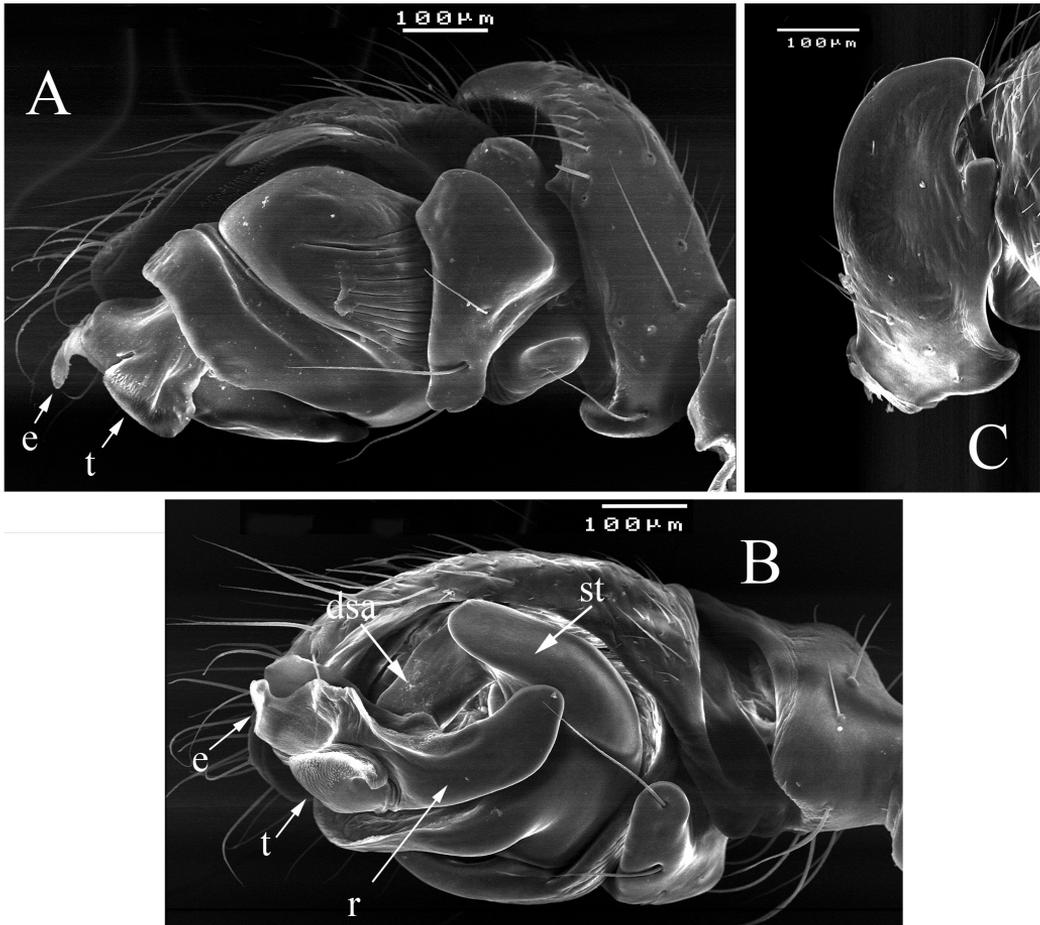


Fig. 15. SEM of *Arcitilaira vexatrix*, ♂ from Wrangel Island. A, B — left palp, retrolateral and ventral views, respectively; C — palpal tibia, prolateral view.

species in *Hilaira* primarily based on similar somatic characters: large, robust, intensive-colored spiders with powerful legs, without taking into account the structure of the male palp, especially embolic division. Based on somatic morphology and structure of the copulatory organs, most species-groups of *Hilaira* are clearly distinguished from the generotype. In this study, we revalidate *Arcitilaira*, previously treated as the *glacialis* species-group of *Hilaira*. In addition to *Arcitilaira*, the remaining four groups, *canaliculata*-, *excisa*-, *herniosa*-, *minuta*-, and, also exhibits distinct morphological characteristics that justify their evaluation to the generic status (Tanasevitch, Marusik, in preparation). However, the taxonomic placement of following eight species, *H. asiatica*,

H. dapaensis, *H. devitata*, *H. hyperborea*, *H. incondita*, *H. pervicax*, *H. proletaria*, and *H. tuberculifera* Sha et Zhu, 1995 remain unclear as infrageneric/generic position, and most likely represent separate monotypic genera.

Arcitilaira is in general a purely arctic group. With exception of *A. banini*, all species of the genus are typical inhabitants of the Arctic and Subarctic natural zones. The populations of *A. gertschi*, *A. glacialis*, *A. nivalis*, and *A. vexatrix* constitute an important component of the soil macrofauna, and play a significant role in terrestrial invertebrate communities. In tundra landscapes, these spiders inhabit a wide range of habitats including zonal, intrazonal, azonal and anthropogenically modified vegetation types (see Tanasevitch, Rybalov, 2010, 2015; Tanasevitch,

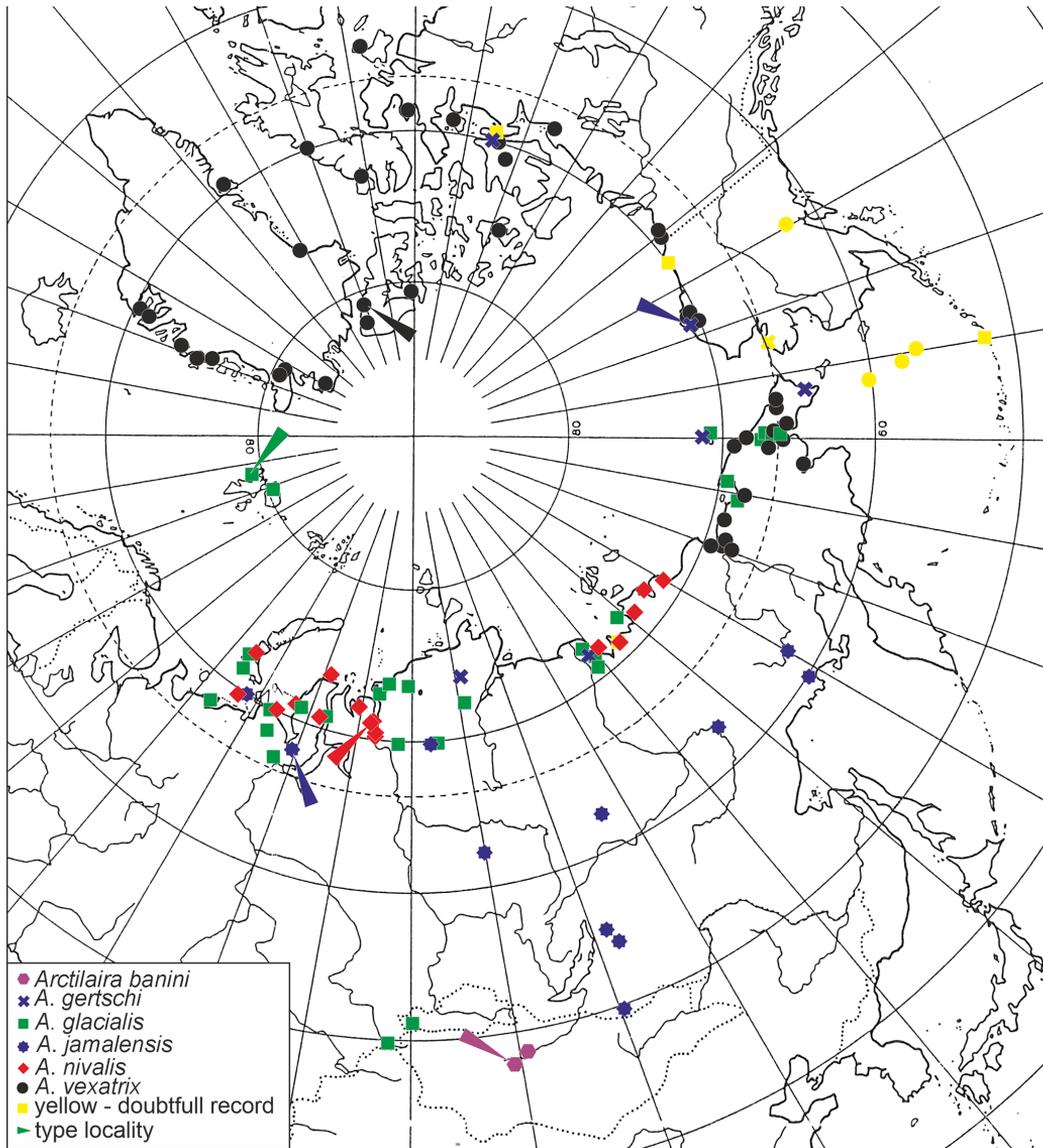


Fig. 16. Map of distribution of the genus *Arctilaira*. Arrows indicate type localities of each species. Yellow marks refer to records, which must be verified.

Nekhaeva, 2016; Tanasevitch, Khruleva, 2017; Khruleva *et al.*, 2022, etc.). In addition to its presence in Arctic zone, *A. jamalensis* is also widely distributed across the boreal landscapes of Siberia (see Fig. 16).

The genus *Arctilaira* occurs in the highlands of the mountains of South Siberia and Mongolia, where terrestrial communities resembles those of the Arctic. Three species are known from these regions: *A. glacialis* occurs in Altai Mountains,

at altitudes of 2400–3100 m (Tanasevitch, 2013), and in Tuva, at 3100–3300 m (Marusik *et al.*, 2000); *A. jamalensis* recorded from mountains of Transbaikalia (Marusik *et al.*, 2001), and *A. banini* described from Mongolia, at 2800–3000 m (Marusik, Tanasevitch, 2003).

Arctilaira banini and *A. jamalensis* appear to represent a pair of extremely closely related species, likely the result of recent speciation event associated with Pleistocene glaciations. This

pattern of south Palaearctic mountain – Arctic disjunction among related species is not unique. Similar biogeographic patterns are observed in other linyphiid genera, such as the closely related pair of *Dactylopiastes khatipara* Tanasevitch, 2017 and *D. video* (Chamberlin et Ivie, 1947), as well as *Proislandiana beroni* Dimitrov, 2020 and *P. pallida* (Kulczyński, 1908), for more details see Tanasevitch (2017c) and Dimitrov (2020).

Compliance with ethical standards

CONFLICT OF INTERESTS. The authors have declared that no competing interests exist.

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