

East Palaearctic species of the genus *Artheneis* (Heteroptera: Lygaeidae)

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9 species of the genus are found in the former USSR and adjacent countries: *A. balcanica* Korm. (from Crimea to Tajikistan), *A. kiritshenkoi* sp. n. (Tien Shan, SE Kazakhstan and SW Mongolia), *A. hyrcanica* Kol. (Transcaucasia), *A. turangae* sp. n. (Middle Asia, Iraq), *A. deserticola* sp. n. (Middle Asia, Iran, Iraq), *A. putshkovi* sp. n. (Tien Shan), *A. beieri* Wagn. (Turkmenistan, Uzbekistan, Iran), *A. intricata* V. Putshk. (from lower Dnieper to Mongolia), *A. wagneri* Ribes (Transcaucasia, Iran). A key to species is given.

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Introduction

The subfamily Artheneinae is very probably endemic to the Palaearctic Region (recent introduction of two species to North America is not taken into account). In recent decades, three monotypic genera, *Dilompus* (Australia), *Nothochromus* (New Zealand) and *Polychisme* (Central and South America), were included in Artheneinae as representatives of three separate tribes. Examination of *Polychisme ferrugineus* by S. Grozeva and myself shows that it is a typical representative of the subfamily Ischnorrhynchinae in all respects, except the aberrant position of one pair of spiracles. Such deviations occur, though rarely, in some other subfamilies of Lygaeidae (S. Grozeva, unpublished). *Dilompus* and *Nothochromus* were not examined by me, but their placement in Artheneinae seems problematic.

Though one species of Artheneinae (*Chilacis typhae*) reaches Scandinavia and one species (*Artheneis kiritshenkoi*) is found in the forest zone of Tien Shan mountains, most species are distributed in the arid southern part of the Palaearctic Region, from the Mediterranean to Mongolia and China. All species, for which host plants are known, live on plants with fluffy seeds (Tamaricaceae, Salicaceae and Typhaceae), feeding from seeds; sometimes they can be found in litter on fallen seeds.

Of the 4 genera, *Artheneis* is the most speciose. In the old literature, 3 species were recorded from the territory of the former USSR: *A. foveolata* Spin., *A. alutacea* Fieb. and *A. hyrcanica* Kol. The first two do not occur on this territory: records of *A. foveolata* mostly refer to *A. balcanica* Korm., and those of *A. alutacea* and *A. hyrcanica* mostly to *A. intricata* V. Putshk. *A. hyrcanica* is distributed in the former USSR in Transcaucasia only.

The identity of *A. alutacea* Fieb. was long a source of confusion. This species was described from Sicily, the types were apparently lost. Only relatively recently the species was collected from Sicily again by A. Carapezza. Examination of his specimens shows that the interpretation of *A. alutacea* given by Ribes (1972) is correct; it is a species distributed in N Africa, Sicily and Palestine. The earlier redescription by Wagner (1957) probably was based at least partly on *A. wagneri* Ribes, and that by Putshkov (1969) refers to *A. beieri* Wagn. Putshkov suspected that the specimen received by him from Wagner as *A. alutacea* originated from Sicily, but actually it was a specimen of *A. beieri* collected in Algeria. Wagner's (1957) interpretation of *A. hyrcanica* was based on specimens from Baghdad belonging to *A. turangae* sp. n.

Putshkov (1969) recorded from the USSR 3 species: *A. balcanica* Korm., *A. hyrcanica*

Kol. and a new species *A. intricata*. Examination of the collection of the Zoological Institute, St. Petersburg shows that actually 9 species, 4 of them new, are distributed in the former USSR. Holotypes and most or all paratypes of the new species are kept in the Zoological Institute, St. Petersburg.

Grozeva & Kuznetsova (1989) published a paper on karyotypes of *Artheneis* at the time when this revision was not finished, therefore some species were misidentified by me and for some no available name was provided. The corrected identifications are as follows: *Artheneis* sp. n. 1 and *A. wagneri* from Daghستان are actually *A. intricata*; *Artheneis* sp. n. 2 is *A. kiritshenkoi*, *Artheneis* sp. n. 3 is *A. deserticola*, *A. balcanica* from Kazakhstan (Alma-Ata Prov., 15 km SSW of Ush-Tobe) is probably *A. deserticola*.

Identification of some species is difficult because of high variability. Large series and examination of the male genitalia are desirable at least in areas where many species co-occur.

Key to East Palaearctic species of *Artheneis*

- 1(8). Bucculae (Fig. 1) smoothly lowered backwards; their lower margin straight or almost straight.
- 2(5). Callosities of scutellum or at least a raised surface connecting them occupy part of the hind half of scutellum (Figs 5-8). Ventral side of head and thorax with fine, sometimes imperceptible hairs.
- 3(4). Rostrum not surpassing or only slightly surpassing fore coxae. Antennal segment IV entirely or nearly entirely dark brown or black. Segments of connexivum (Fig. 3) pale with brown stripes on fore margin; brown stripe on segment VI much wider than on other segments, occupying nearly a half of segment *A. balcanica* Korm.
- 3(4). Rostrum reaching at least to middle of distance between fore and middle coxae. Antennal segment IV brown or black in apical half to third only. Segments of connexivum (Fig. 4) brownish with a pale triangle in hind external corner *A. kiritshenkoi* sp. n.
- 5(2). Callosities of scutellum in its basal half only (Figs 9, 10). Ventral side of head and thorax with distinct, white, scale-like hairs. Segments of connexivum pale, usually with brown stripes on fore margin, these stripes subequal in width.
- 6(7). Rostrum not reaching middle coxae. Antennal segment IV brown in apical half. Callosities of scutellum round (Fig. 9) *A. hyrcanica* Kol.
- 7(6). Rostrum reaching middle coxae or slightly extending beyond them. Antennal segment IV usually entirely pale. Callosities of scutellum elongate (Fig. 10) *A. turangae* sp. n.
- 8(1). Bucculae (Fig. 2) relatively high, convex approximately up to level of antennal tubercles, then significantly lowered or nearly obliterated;

lower margin of bucculae concave, less distinctly in some specimens of *A. deserticola*.

- 9(12). Base of scutellum bare or (in *A. putshkovi*) with scarcely perceptible, fine, moderately flattened hairs. Parameres (Figs 27, 30) large, with obliquely truncate apices projecting from genital segment, with triangular tooth in middle part.
- 10(11). Callosities of scutellum usually more elongate and occupying part of its hind half (Fig. 11). Paramere shorter (Fig. 27) . . . *A. deserticola* sp. n.
- 11(10). Callosities of scutellum in its fore half only (Fig. 12). Paramere longer (Fig. 30) *A. putshkovi* sp. n.
- 12(9). Base of scutellum with white scale-like hairs (sometimes less distinct or rubbed). Parameres small, with apices not truncate and not projecting from genital segment, without tooth in middle part (Figs 32, 34).
- 13(14). Pronotum with distinct longitudinal furrow, without longitudinal elevations. Callosities of scutellum sometimes small and rounded but usually elongate, parallel to its sides and extending beyond its middle (Figs 13-15). Antennal segment IV black in apical half. Apex of corium not surpassing middle of connexival segment V. Opening of male genital segment (Fig. 31) with one tooth on each side *A. beieri* Wagn.
- 14(13). Pronotum with elevations on both sides from longitudinal furrow (in *A. intricata* sometimes indistinct). Callosities of scutellum not extending beyond its middle (Figs 16, 17). Antennal segment IV black in apical 2/3-3/4. Apex of corium surpassing middle of connexival segment V. Opening of male genital segment (Figs 33, 35, 36) with two teeth on each side.
- 15(16). Proximal corner of the opening of genital segment broadly rounded (Fig. 33) *A. intricata* V. Putshk.
- 16(15). Proximal corner of the opening of genital segment subtriangular (Figs 35, 36). In the former USSR in Armenia and Nakhichevan Prov. of Azerbaijan only *A. wagneri* Ribes

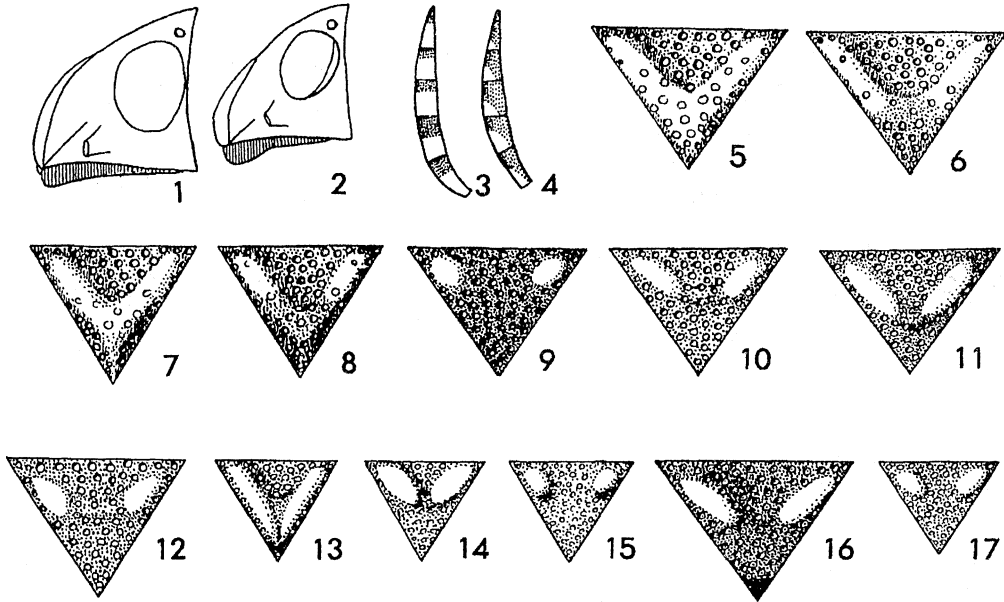
Artheneis balcanica (Kormilev, 1938)

(Figs 1, 3, 5, 6, 18, 19)

Description. Pale yellow. Ventral side of head with scarcely visible hairs; ventral side of thorax and base of scutellum bare.

Head with sides behind eyes and sometimes before antennal tubercles brown. Bucculae smoothly lowered backwards, their lower margin straight. Antennal segment I yellow or brownish, segments II and III pale yellow, segment IV dark brown to black, rarely with base narrowly yellow. Rostrum reaching or slightly surpassing fore coxae.

Pronotum 1.45-1.60 times as wide as long. Fore lobe with longitudinal furrow and elevations laterally from it indistinct or practically absent, paler than hind lobe and usually with less distinct punctures. Lateral lam-



Figs 1-17, *Artheneis*. 1, 2, head, lateral view: 1, *A. balcanica*; 2, *A. intricata*; 3, 4, connexivum, dorsal view: 3, *A. balcanica*; 4, *A. kiritshenkoi*; 5-17, scutellum: 5, 6, *A. balcanica*; 7, 8, *A. kiritshenkoi*; 9, *A. hyrcanica*; 10, *A. turangae*; 11, *A. deserticola*; 12, *A. putshkovi*; 13-15, *A. beieri*; 16, 17, *A. intricata* (16, lectotype; 17, small male from Turkmenistan).

ina not separated from fore lobe by a row of black punctures, not widened at the boundary of fore and hind lobes. Hind corners of pronotum slightly browned. Scutellum yellowish, sometimes reddish, brownish or black, with large punctures; callosities yellowish, forming in anterior two-thirds of scutellum an arc which is more densely punctured in central part. Ventral side of thorax pale. Corium pale, usually with narrow brownish stripe at hind margin and indistinct brownish spot at middle of lateral margin, apex of corium usually not reaching hind margin of connexival segment V. Legs pale.

Abdominal connexivum with pale brown stripes on fore margins of segments, these stripes are wider on segment VI, occupying nearly half of its length; sometimes stripes on anterior segments indistinct.

Male genital segment large, genital opening on each side with a tooth near middle and almost rectangular projection; inner margins of opposite projections diverging backwards. Paramere of usual form, curved at apex.

Length ♂ 3.1-3.5, ♀ 3.5-3.9 mm; width ♂ 1.2-1.4, ♀ 1.4-1.5 mm.

Distribution and host plant. Ukraine (southern Crimea), Krasnodar Prov. of Rus-

sia (Putshkov, 1969), Nakhichevan Prov. of Azerbaijan (Dzhul'fa, Ordubad, Bilav), Turkmenistan (Aidere in Kopetdag (Putshkov, 1969); Svintsovyi Rudnik in Kuhitang Mts), Tajikistan (Kondara gorge N of Dushanbe; Viskharv and Sarkoron in Khazratisho Range), Uzbekistan (Angren River (Putshkov, 1969)), North Iran ("Dzhardzhau", 7.V.1937, Jenjouriste leg.), Turkey and Balkan Peninsula. The species lives on *Tamarix*.

Comparison. The species can be distinguished by the very wide brownish stripe on segment VI of connexivum and antennal segment IV usually not pale at base.

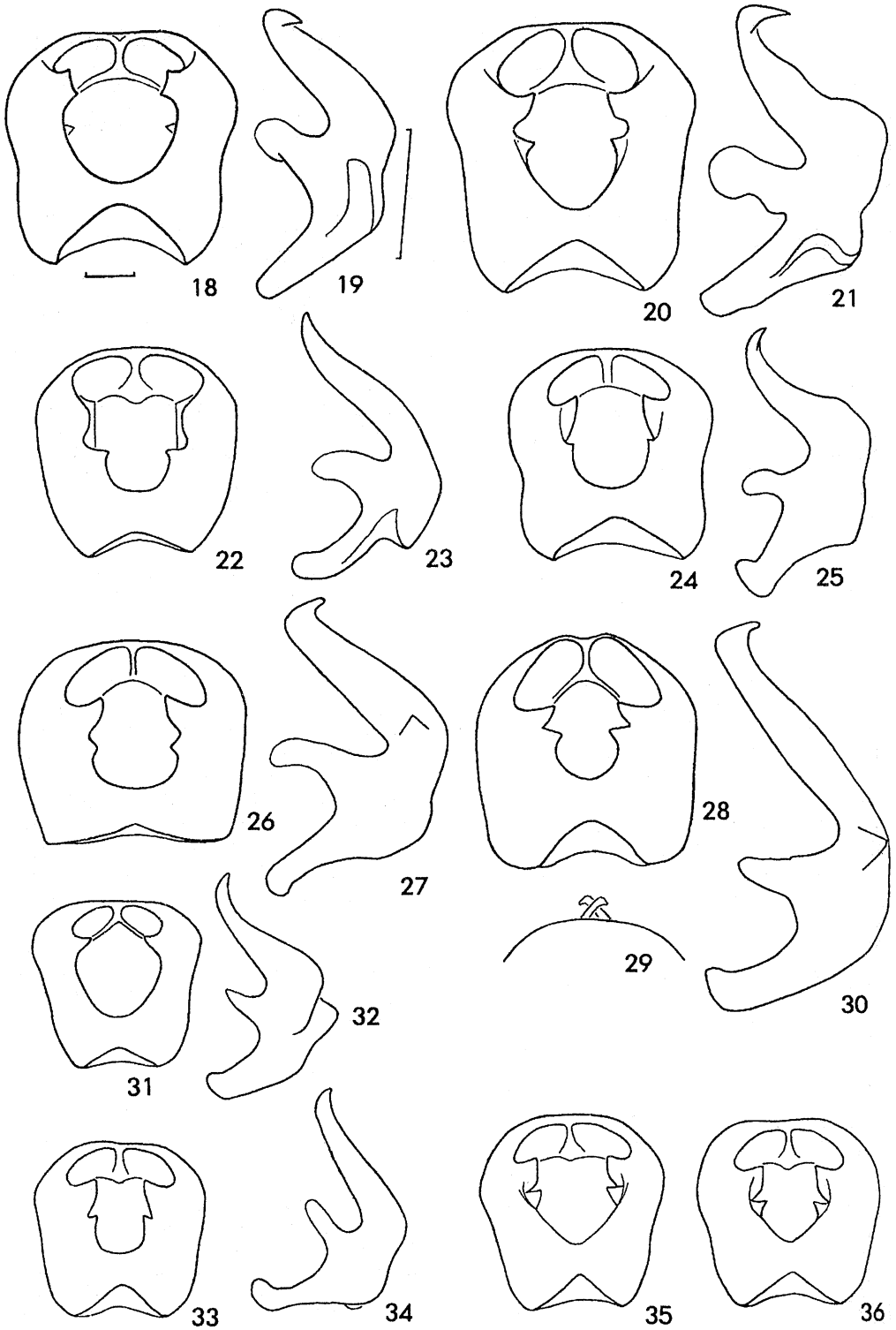
***Artheneis kiritshenkoi* sp. n.**

(Figs 4, 7, 8, 20, 21)

Thyrrhaneis trigonum (nomen nudum): Kiritshenko, 1964: 200.

Holotype. ♂, **Tajikistan**, Verenkul' Lake nr Iskanderkul' Lake, 6.VIII.1947 (Kiritshenko).

Paratypes. **Tajikistan:** 147 spec., Iskanderkul' Lake and its environs (Verenkul' Lake, Iskander-Dar'ya River, Khozor-Mech River), 9.VII-18.VIII.1947 (Kiritshenko); 1 ♀, sources of Sarytag River, northern slope of Gissar Range, 30.VII.1958 (Lopatintin); 1 ♂, Sech [Sedzh], Shakhdara River, 25.VII.



1897 (Kaznakov); 1 ♀, Shakh dara, 15.VII.1965 (Nartshuk). **Uzbekistan:** 1 ♀, "Tashk." [env. of Tashkent], Jakovlev's coll. **Kazakhstan:** 1 ♂, Aulie-Ata [Dzhambul], 27.VI.1930 (Bianchi); 3 ♀, 22 km ESE of Andreevka, Dzhungar Alatau Mts, 11.VII.1987 (Kerzhner); 2 ♂, 2 ♀, Buran, former Zaisan Distr., 9.VII.1927 (Dobrzhansky & Kerkis). **Mongolia, Khovd Aimak:** 13 spec., Ulyastain-Gol, 25 km N of Bulgan, 31.VII.1970 (Kerzhner, Nartshuk); 1 ♂, Uench River nr Uench, 1.VIII.1970 (Kerzhner).

Description. Pale greyish yellow, in average darker than other species of the genus. Ventral side of head and thorax with short and fine, slightly flattened, scarcely visible silvery hairs; base of scutellum bare.

Head relatively long, honey-yellow, dark brown to nearly black behind eyes and ventrally in its fore half. Bucculae smoothly lowered backwards, their lower margin straight. Antennal segment I brown to black, segments II and III pale yellow, sometimes narrowly darkened at apex, segment IV pale with apical third to half brown or black. Rostrum reaching fore margin of middle coxae or at least surpassing the middle of mesosternum.

Pronotum 1.55-1.65 times as wide as long. Fore lobe honey-yellow, finely punctured, with shallow longitudinal furrow margined from each side by pale callosity, lateral to which are less distinct callosities (one on each side) crossing the boundary between fore and hind lobes. Collar and hind lobe greyish, with large uniform round punctures equal in size to punctures on hemelytra. Lateral lamina triangularly widened at the boundary of fore and hind lobes, separated from fore lobe by distinct black line. Hind corners of pronotum not darkened, usually with longitudinal elevation. Scutellum brownish to dark brown, with fine dark punctures; callosities yellowish or ivory, punctured (more densely in apical part), directed along lateral margins, contacting or almost contacting at apex and forming V- or Y-form elevation. Ventral side of thorax with brown spots. Hemelytra with large uniform punctures; corium paler in fore corner, its apex reaching or slightly surpassing hind margin of abdominal segment V. Legs pale; femora usually brownish medially.

Segments of connexivum pale brown with yellow triangle in hind external corner. Ter-

gites and sternites of abdomen dirty yellow to dark brown, in last case with pale elongate stripes around spiracles. Genital segments in both sexes pale.

Male genital segment large, similar to that of *A. balcanica*, but inner margins of opposite projections converging backwards. Paramere similar to that of *A. balcanica*, but with more curved apex.

Length ♂ 3.2-3.5, ♀ 3.5-3.8 mm; width ♂ 1.2-1.4, ♀ 1.4-1.6 mm.

Distribution and host plant. Mountains of Central Asia, Kazakhstan and Mongolia, from the northern slope of Gissar Range to Mongolian Altai. The species is found in forests along rivers at heights up to 2300 m. It was collected by me from *Populus laurifolia* and *Salix* in Mongolia and in litter under *Populus laurifolia* in Dzhungar Alatau. Kiritshenko (1964) in environs of Iskanderkul' Lake collected it from *Betula tianschanica* and in litter under *Betula* and *Salix*.

Comparison. This large and relatively dark coloured species is easily distinguishable by the coloration of connexivum and distinct black line on inner margin of pronotal lamina.

Artheneis hyrcanica (Kolenati, 1845)

(Figs 9, 22, 23)

Description. Pale yellow. Ventral side of head and thorax with adpressed, slightly curved scale-like white hairs; base of scutellum bare.

Head with sides dark brown to nearly black behind eyes and rarely also ventrally in its fore half. Bucculae smoothly lowered backwards, their lower margin straight. Antennal segments yellow, segment IV brownish in apical half. Rostrum reaching middle of mesosternum.

Pronotum 1.55-1.65 times as wide as long. Fore lobe with shallow longitudinal furrow margined from each side by pale callosity, lateral to which are less distinct callosities (one on each side) crossing the boundary between fore and hind lobes. Usually fore lobe paler and with less distinct punctation than hind lobe; in specimens from Armenia and Azerbaijan pronotum usually reddish, except collar and lateral margins. Lateral lam-

Figs 18-36, *Artheneis*, male genitalia. 18, 19, *A. balcanica*; 20, 21, *A. kiritshenkoi*; 22, 23, *A. hyrcanica*; 24, 25, *A. turangae*; 26, 27, *A. deserticola*; 28-30, *A. putshkovi*; 31, 32, *A. beieri*; 33, 34, *A. intricata*, Kazakhstan, from *Salix* (33, Lepsa River; 34, Dosang); 35, 36, *A. wagneri* (35, Bulgaria, Kresna; 36, Azerbaijan, Ordubad). 18, 20, 22, 24, 26, 28, 31, 33, 35, 36, genital segment, dorsal view; 19, 21, 23, 25, 27, 30, 32, 34, paramere; 29, hind margin of genital segment, caudal view. Scales: 0.1 mm.

ina widened at the boundary of fore and hind lobes, sometimes separated from fore lobe by a row of brown punctures. Scutellum yellow, red, brown or black; callosities yellowish, small, nearly round, situated in anterior corners of scutellum. Ventral side of thorax pale or with brown areas. Hemelytra with large uniform punctures; apical half or third of corium in specimens from Armenia and Azerbaijan reddish, in specimens from Turkey sometimes brown; apex of corium not reaching hind margin of abdominal segment V. Legs pale; femora sometimes pale brownish at middle.

Segments of connexivum with pale brown, sometimes indistinct, narrow stripes at anterior margin.

Male genital segment as in Fig. 22. Paramere of usual form, slightly curved at apex.

Length ♂ 2.6-3.0, ♀ 2.9-3.3 mm; width ♂ 1.0-1.1, ♀ 1.2-1.3 mm.

Distribution and host plant. The species was described from Azerbaijan (environs of Gandja). In addition to syntypes (Naturhistorisches Museum in Vienna and Zoological Institute in St. Petersburg), I examined specimens from Armenia (Hosrov Nature Reserve near Vedi; Megri to Legvaz; Lichk to Dzhindara) and Turkey (Marash, Tarsus). The late V.G. Putshkov informed me that the species lives on *Salix*. Records from European Russia are in error, the record from Georgia needs verification, records from *Tamarix* in Azerbaijan apparently refer to *A. intricata*.

Comparison. This species can be distinguished from all species occurring in Transcaucasia (*A. wagneri*, *A. intricata* and *A. balcanica*) by the antennal segment IV pale in proximal half and scutellar callosities almost round.

***Artheneis turangae* sp. n.**

(Figs 10, 24, 25)

Artheneis hircanica [sic] (non Kolenati): Wagner, 1957: 225.

Holotype. ♂, Turkmenistan, Kulatau forest, Amudarya River, 20 km N of Meshekli, 9-10.IV. 1966 (Kerzhner).

Paratypes. Iraq: 3 ♂, 3 ♀, Baghdad, Darwah, 15. IX.1979 (Linnavuori), in coll. of R. Linnavuori, Raisio (I have seen also a large series from Baghdad in National Museum, Prague). Turkmenistan: 1 ♀, "Turmenien" (E. König); 2 ♂, Tedzhen, 17.VIII. 1906 (Ahnger); 4 ♂, 2 ♀, Chardzhou, 3.VIII.1957 (Tyschenko); 5 ♀, Farab, 26.IV, 31.VII.1912 (Hohlbeck); 5 ♂, 1 ♀, 70 km NW of Chardzhou, 31.V.1965

(Kerzhner); 2 ♀, 90 km NW of Chardzhou, 2.VI. 1965 (Kerzhner); 1 ♂, 1 ♀, 105 km NW of Chardzhou, 2.VI.1965 (Kerzhner); 4 ♂, 8 ♀, as holotype.

Description. Pale yellow. Ventral side of head and thorax with adpressed, slightly curved scale-like white hairs; base of scutellum bare.

Head with sides darkened behind eyes. Bucculae smoothly lowered backwards, their lower margin straight or nearly straight. Antennal segments yellow, segment IV entirely pale or scarcely brownish in apical half. Rostrum reaching middle coxae or slightly surpassing them.

Pronotum 1.40-1.50 times as wide as long. Fore lobe with shallow longitudinal furrow margined from each side by distinct pale callosity, lateral to which are less distinct callosities (one on each side) crossing the boundary between fore and hind lobes. Hind lobe sometimes pale brownish. Lateral lamina widened at the boundary of fore and hind lobes. Scutellum yellow, rarely brown; callosities yellowish, elongate, sometimes nearly connecting, situated in anterior half of scutellum. Ventral side of thorax pale. Hemelytra with large uniform punctures; apical third of corium sometimes with a dark brown spot; apex of corium not reaching hind margin of abdominal segment V. Legs pale.

Segments of connexivum with pale brown, often indistinct, narrow stripes at anterior margin.

Male genital segment and paramere similar to those of *A. hyrcanica*, but distal projections of the genital segment opening acute and apex of paramere strongly curved.

Length ♂ 2.6-3.0, ♀ 2.9-3.4 mm; width ♂ 1.0-1.1, ♀ 1.2-1.4 mm.

Distribution. Iraq and Turkmenistan. I collected this species from *Populus* (*Turanica*) sp., probably *P. diversifolia*.

Comparison. The species is similar to *A. hyrcanica*; distinguishing characters are given in the key.

***Artheneis deserticola* sp. n.**

(Figs 11, 26, 27)

Holotype. ♂, Turkmenistan, Farab, 2.IV.1913 (Hohlbeck).

Paratypes. Iraq: 1 ♂, 4 ♀, Salah ad Din, Tharthar Lake, 25.VIII.1979, 2.VI.1980 (Linnavuori), in coll. of R. Linnavuori, Raisio. Iran: 9 spec., Khebis, Deshte-i-Lut, on flowering *Tamarix*, April 1859 (Keyserling); 1 ♀, Teheran - Robat-e-Tork, 23.V. 1976 (P. Brignoli & P. Bianco), in coll. of A. Carapezza, Palermo. Turkmenistan: 3 ♀, Kunya-Urgench

Distr., on *Tamarix*, 22.IV.1952 (Davletshina); 1 ♂, Molla-Kara nr Dzhebel, 6.VI.1934 (V. Popov); 65 spec., Kara-Bogaz, 40 km N of Kyzyl-Arvat, 4, 16.IV.1952 (Romadina, Steinberg); 1 ♀, 20 km N of Kyzyl-Arvat, 6.IV.1952 (Il'ichev); 1 ♀, Kara-Kala, 20.V.1952 (Kryzhanovskij); 1 ♂, Kara-Kala, 9.IV.1952 (collector unknown); 2 ♀, "Akhali-Teke" (Jakovlev's coll.); 5 ♂, 2 ♀, Imam-Baba on Murgab River, 1-24.III.1912 (Kozhanchikov); 3 ♂, Repetek, 7.IV.1947 (L. Arnoldi); 1 ♂ (genitalia only), Repetek, on *Tamarix*, 1985 (Kaplin), part of the series examined by Grozeva & Kuznetsova (1990); 8 spec., Farab, 19.IV.1912 (A-i Kiritshenko); 80 spec., Farab, 2-28.IV.1913 (Hohlbeck); 1 ♂, Farab, 25.VI.1911 (Yurganova). **Uzbekistan:** 2 ♀, railway station Khodzha Davlet (between Bukhara and Chardzhou), 20.IV.1912 (A-i Kiritshenko); 1 ♂, Bagaabzal, 45 km N of Bukhara, 15.V.1929 (Kuznetsova); 1 ♂, 4 ♀, Ayakguzhumdy, Kyzylkum, 29.IV. 20.V.1965 (Kerzhner); 1 ♀, Ayakagytm, Kyzylkum, 20.IV. 1965 (Kerzhner); 1 ♂, 1 ♀, Aznek, 70 km N of Tamdy, 27.IV.1966 (G. Medvedev); 1 ♂, 2 ♀, Minbulak, Kyzylkum, 4.IV.1966 (G. Medvedev); 1 ♂, Fergana Valley, Alty-aryksai, 23.V.1940 (Chirkun); 1 ♀, Yaz'yavan, on flowering *Tamarix*, 8.V.1940 (Chirkun). **Kazakhstan, Zhezkazgan Prov.:** 3 ♀, Sarysu River, 90 km upstream of estuary, 4.VII.1948 (Formozov); 1 ♂, 2 ♀, 40 km S of railway station Zhana-Arka [= Atasu], on *Tamarix gracilis*, 20.VI, 4.VII.1960 (Kerzhner).

Description. Pale yellow or greyish yellow. Ventral side of head and thorax with adpressed, curved, flattened white hairs; base of scutellum bare.

Head with sides darkened behind eyes. Bucculae more lowered behind the level of antennal tubercles, but not so strongly as in *A. intricata* and some other species; their lower margin slightly concave. Antennae yellow; segment I sometimes brownish; segment IV black in apical 2/3-3/4. Rostrum surpassing fore coxae, sometimes reaching middle of mesosternum.

Pronotum 1.50-1.55 times as wide as long; fore lobe sometimes entirely or partly reddish. Median longitudinal furrow distinct, reaching hind third of hind lobe; along this furrow on the fore lobe distinct, sometimes partly callose (less densely punctate) elevations; lateral of them less distinct elevations crossing the boundary between the lobes. Lateral lamina not widened or hardly widened at the boundary of fore and hind lobes. Scutellum yellow, sometimes entirely (including callosities) red, rarely greyish with yellow callosities. Callosities elongate, partly entering posterior half of scutellum, sometimes with a low connection in middle. Corium usually with brown apical margin or spot, sometimes with indistinct brownish spot just behind middle on lateral margin;

apex of corium surpassing middle of connexival segment V but not its hind margin. Legs pale; femora sometimes darkened medially.

Segments of connexivum with pale brown, sometimes indistinct narrow stripes at anterior margin.

Male genital segment opening with two teeth on each side. Parameres large; their apices truncate, with a small lateral tooth, projecting from genital segment and usually seen when the specimen is observed from behind; middle part of paramere with triangular tooth.

Length ♂ 2.6-2.9, ♀ 3.0-3.4 mm; width ♂ 1.0-1.1, ♀ 1.2-1.3 mm.

Distribution and host plant. Deserts and semideserts from Iraq and Iran to Central Kazakhstan. On *Tamarix* spp.

Comparison. This species may be confused with *A. balcanica* with which it shares the large callosities on scutellum. *A. deserticola* can be distinguished by the head and thorax distinctly haired ventrally, bucculae more or less distinctly concave below, and especially by the dark band on connexival segment VI less wide and antennal segment IV widely pale at base (in *A. balcanica* mostly entirely black).

Artheneis putshkovi sp. n. (Figs 12, 28-30)

Holotype. ♂, **Tajikistan**, Pendzhikent, Zeravshan River, 11.XII.1943 (Kiritshenko).

Paratypes. **Tajikistan:** 258 spec., Pendzhikent, Zeravshan River, 19.XI-11.XII.1943 (Kiritshenko); 1 ♂, 5 ♀, Khurmi, 3, 11, 18.XII.1943 (Kiritshenko); 1 ♂, 3 ♀, Stalinabad [Dushanbe], 27.VI.1945 (Gussakovskij); 2 ♂, 1 ♀, islets of Dushanbe River, 28.VII. 11.VIII.1935 (Gussakovskij); 34 spec., Lyuchob River nr Dushanbe, 5.XI.1943, 15.I, 4.II, 4, 7.VII.1944 (Kiritshenko); 33 spec., Kondara gorge, Varzob River, various dates (Gussakovskij, Kiritschenko, Lopatin, Luppova); 2 ♂, 3 ♀, Kafirnigan River nr Sevzar, 26.VIII.1943 (Kiritschenko); 1 ♂, Vakhsh Range, locality Safid-doron, 22.IV.1955 (Lopatin); 1 ♀, Pyandzh River, Parkhar, 28.VI.1934 (Luppova); 1 ♂, 2 ♀, Badakhshan, 10 km E of Ishkashim, 13.VII.1964 (G. Medvedev); 1 ♂, 4 ♀, Vanch River nr estuary, 2000 m, 5.VII.1965 (Nartshuk). **Uzbekistan:** 3 ♂, 7 ♀, railway station Kaufmanskaya (Yangiyul' city), 30.V.1931 (E. Kuznetsova); 2 ♂, 1 ♀, Karzhantau Mts, Ugam River, 24.VI.1940 (Obukhova). **Kirgizia:** 3 ♂, 2 ♀, Fergana Range, Kyzylkyur River, 24.VIII.1937 (Kiritschenko); 1 ♂, 3 ♀, Karaunkur River between Arslanbob and Sovetskoe, 31.V.1961 (Gur'eva).

Description. Pale yellow. Ventral side of head and thorax with adpressed, curved,

flattened white hairs; base of scutellum bare or with fine moderately flattened hairs.

Head with sides darkened behind eyes. Bucculae strongly lowered behind the level of antennal tubercles, their lower margin distinctly concave. Antennae yellow; segment IV black in apical 2/3-3/4. Rostrum slightly surpassing fore coxae, but not surpassing middle of mesosternum.

Pronotum 1.4-1.5 times as wide as long. Median longitudinal furrow more or less distinct, reaching hind third of hind lobe; along this furrow on the fore lobe are non-callose elevations, lateral to which are usually less distinct elevations crossing the boundary between the lobes. Lateral lamina not widened at the boundary of fore and hind lobes. Scutellum yellow, sometimes embrowned at apex. Callosities in anterior half of scutellum, usually large and often triangularly widened backwards, sometimes with a low connection in middle. Corium usually with brown apical margin or spot; its apex surpassing middle of connexival segment V but not its hind margin. Legs pale.

Segments of connexivum with pale brown, sometimes indistinct, narrow stripes at anterior margin.

Male genital segment opening with two neared teeth on each side. Parameres similar to those of *A. deserticola*, but apical part much longer and mesial tooth directed differently.

Length ♂ 2.5-2.8, ♀ 2.8-3.1 mm, width ♂ 1.0-1.1, ♀ 1.1-1.2 mm.

Distribution and host plant. Mountains of Middle Asia from the Fergana Range to the Western Pamirs. Despite extensive material, host plant unknown.

Comparison. This species is related in the structure of the male genitalia to *A. deserticola* from which it differs in the smaller scutellar callosities and shorter parameres with narrower apical part. *A. putshkovi* differs from *A. intricata*, in addition to the structure of the male genitalia, in the more curved and less flattened hairs on ventral side of head and thorax, less distinct hairs at base of scutellum, lateral lamina of pronotum not widened, also scutellar callosities are usually higher and larger.

***Artheneis beieri* Wagner, 1963**

(Figs 13-15, 31, 32)

Artheneis alutacea (non Fieber): Putshkov, 1969: 148.

Description. Pale yellow. Ventral side of head and thorax and base of scutellum with

adpressed, slightly curved, scale-like white hairs.

Head with sides darkened behind eyes. Bucculae strongly lowered behind the level of antennal tubercles, their lower margin distinctly concave. Antennae relatively short (usually not longer than 0.9 mm), yellow; apices of segments II and III narrowly brownish, segment IV black in apical half. Rostrum usually not surpassing or slightly surpassing fore coxae, rarely reaching middle of mesosternum.

Pronotum 1.25-1.35, rarely 1.4 times as wide as long. Median longitudinal furrow distinct, reaching hind third of hind lobe; no distinct longitudinal elevations on pronotum. Lateral lamina not widened at the boundary of fore and hind lobes. Scutellum yellow, usually with elongate callosities parallel to its lateral margins and nearly reaching its apex, but in some specimens the callosities are smaller; not surpassing the middle of scutellum. Corium sometimes with brown apical margin; its apex usually not surpassing middle of connexival segment V. Legs pale.

Segments of connexivum with pale brown narrow stripes at anterior margin.

Male genital segment small, its opening with one tooth on each side. Paramere as in Fig. 32.

Length ♂ 2.3-2.5, ♀ 2.5-2.7 mm, width ♂ 0.85-0.90, ♀ 1.00-1.05 mm.

Distribution and host plant. The species was described from N Sudan and later recorded from Algeria, Libya and Yemen. Putshkov (1969) recorded it from SE Iran as *A. alutacea*. I examined specimens from Algeria, Libya, Egypt, Sudan, Israel, SE Iran, Turkmenistan (Farab; Ispas NW of Chardzhou) and Uzbekistan (Termez; Kairakum). The species lives on *Tamarix*; it seems to be very rare in Uzbekistan and Turkmenistan.

Comparison. In most regions this species is easily distinguished by the small size, elongate pronotum without longitudinal elevations, and short antennae. But in Turkmenistan and Uzbekistan it occurs together with *A. intricata*, and is similar to small specimens of the latter. However in *A. intricata* usually at least indistinct elevations on both sides of pronotal furrow are present, antennae are longer (1.0 mm), with apices of segments II and III not embrowned and segment IV black in 2/3-3/4 of its length, and apex of corium surpassing the middle of connexival segment V. The males of the two

species can be readily distinguished by the form of the opening of the genital segment (one tooth on each side in *A. beieri*, two teeth in *A. intricata*) and the structure of the paramere.

***Artheneis intricata* Putshkov, 1969**
(Figs 16, 17, 33, 34)

Lectotype (designated here): ♂, Tokarevka, Kher-son Prov., on *Salix*. 11.VII.1954 (Putshkov), Zoological Institute, St.Petersburg.

Description. Pale yellow. Ventral side of head and thorax and base of scutellum with adpressed, slightly curved, scale-like white hairs

Head with sides darkened behind eyes. Bucculae strongly lowered or obliterated behind the level of antennal tubercles, their lower margin distinctly concave. Antennae yellow; segment IV black in apical 2/3-3/4. Rostrum normally reaching middle of mesosternum, sometimes only slightly surpassing fore coxae or nearly reaching middle coxae.

Pronotum 1.40-1.55 times as wide as long. Median longitudinal furrow more or less distinct, reaching hind third of hind lobe; along this furrow on the fore lobe more or less distinct, non-callose elevations, lateral to which are even less distinct, mostly imperceptible elevations crossing the boundary between the lobes. Lateral lamina slightly widened at the boundary of fore and hind lobes. Scutellum yellow, sometimes brown at apex, rarely also at base, callosities in its anterior half. Corium sometimes with brown apical margin or spot; its apex surpassing middle of connexival segment V but not its hind margin. Legs pale.

Segments of connexivum with pale brown, sometimes indistinct narrow stripes at anterior margin.

Male genital segment small, opening widely rounded in proximal corner, with 2 teeth on each side. Paramere of usual form, apex slightly curved, sometimes not curved.

Length ♂ 2.2-2.7, ♀ 2.7-3.05 mm, width ♂ 0.8-1.0, ♀ 0.95-1.2 mm.

Distribution and host plants. It is the most common and most widely distributed species in the former USSR and adjacent countries. It is found in the Ukraine (Kherson and Lugansk provinces), European part of Russia (N Caucasus; Lower Volga from Kamyshin to Astrakhan; Orenburg), Armenia (1 ♂ from Megri examined), Azerbaijan (except Nakhichevan Prov.), Turkmenistan, Tajikis-

tan, Uzbekistan, Kirgizia, Kazakhstan, Mongolia (Khovd, Bayan-Khongor and East-Gobi aimaks), China (Xinjian, N Gansu, Inner Mongolia). The species lives on *Tamarix*, *Myricaria* and *Salix alba*. In the Ukraine it inhabits *Salix alba* along large rivers, in Mongolia (except Khovd Aimak) it is collected from *Tamarix* only, but in most areas it lives on both, *Salix* and *Tamarix*. Specimens from *Salix* (especially those from the Ukraine) are in average with better developed dark pattern on scutellum and corium, but I have not found stable characters distinguishing populations from *Salix* and *Tamarix*.

***Artheneis wagneri* Ribes, 1972**
(Figs 35, 36)

Description. Pale yellow. Ventral side of head and thorax and base of scutellum with adpressed, slightly curved, scale-like white hairs.

Head with sides darkened behind eyes. Bucculae strongly lowered behind the level of antennal tubercles, their lower margin distinctly concave. Antennal segments yellow, segment I and antennal tubercles in specimens from Bulgaria dark brown, in specimens from Transcaucasia and Iran pale; segment IV black in apical 3/4-4/5. Rostrum reaching middle of mesosternum.

Pronotum 1.43-1.55 times as wide as long. Fore lobe with shallow longitudinal furrow margined from each side by more or less distinct, non-callose elevation, lateral to which are even less distinct, mostly imperceptible elevations crossing the boundary between the lobes. Lateral lamina not widened or hardly widened at the boundary of fore and hind lobes. Scutellum yellow, in specimens from Spain with black apex, in those from Bulgaria with widely black apex and brown base, in specimens from Transcaucasia and Iran entirely pale or indistinctly brownish at apex and/or base; callosities yellowish, elongate, situated in anterior half of scutellum. Corium often with brown apical margin; its apex not reaching hind margin of abdominal segment V. Legs pale, in specimens from Bulgaria femora more or less browned at middle.

Segments of connexivum with pale brown, in Transcaucasian specimens sometimes indistinct, narrow stripes at anterior margin.

Male genital segment opening with two teeth on each side, its anterior corner nar-

rowly rounded, subtriangular. Paramere as in *A. intricata*.

Length ♂ 2.4-2.8, ♀ 2.8-3.2 mm, width ♂ 0.9-1.0, ♀ 1.1-1.3 mm.

Distribution and host plant. The species was described from Spain. I examined specimens from Bulgaria (Kresna), Armenia (Erevan, Megri, Artashat, Airum, Khosrov forest, Keshishkend), Azerbaijan (Nakhichevan Prov.: Ordubad, Disar, Bilav, Chananab, Dzhulfa) and N Iran (Dzhardzhau). The species lives on *Tamarix*.

Comparison. The species is closely related to *A. intricata* differing from it mainly in the form of the proximal corner of the opening of the genital segment. The situation in Transcaucasia, where both species occur and do not differ in the coloration, should be more carefully examined.

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