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PREDATORY ACTINIDE TICKS OF THE EASTERN PART OF THE GANIKH-AYRICHAY INTERMONTANE DEPRESSION AND THE AZERBAIJANI PART OF THE GREATER CAUCASUS (Acari: Acariformes: Actinedida)

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ХИЩНЫЕ КЛЕЩИ-АКТИНИДЫ ВОСТОЧНОЙ ЧАСТИ ГАНЫХ-АЙРИЧАЙСКОЙ МЕЖГОРНОЙ ВПАДИНЫ И АЗЕРБАЙДЖАНСКОЙ ЧАСТИ БОЛЬШОГО КАВКАЗА (Acari: Acariformes: Actinedida)

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Abstract. The data on the predatory actinedid ticks found in the beech forests of the Greater Caucasus are summarized in this article. Information on 27 species belonging to 11 families is provided. Oriental beech (Fagus orientalis) is one of the main forest-forming tree species in the Caucasus. In Azerbaijan, beech forests are found in the Greater and Lesser Caucasus mountains, the Talish Mountains, and the eastern part of the Ganikh-Ayrichay intermontane depression (from the village of Bunud in the Gabala region to the village of Khanagah in the Ismayilli region).

Аннотация. В статье обобщены данные о хищных актинидных клещах, обнаруженных в буковых лесах Большого Кавказа. Приведены сведения о 27 видах, относящихся к 11 семействам. Восточный бук (*Fagus orientalis*) является одним из основных лесообразующих древесных видов Кавказа. В Азербайджане буковые леса встречаются в горах Большого и Малого Кавказа, в Талышских горах, а также в восточной части межгорной депрессии Ганых-Айричай (от села Бунуд Габалинского района до села Ханагях Исмаиллинского района).

Keywords: Greater Caucasus, beech forests, predatory ticks, Actinedida.

Ключевые слова: Большой Кавказ, буковые леса, хищные клещи, актинии.

Oriental beech (*Fagus orientalis*) is one of the main forest-forming tree species in the Caucasus. In Azerbaijan, beech forests are found in the Greater and Lesser Caucasus mountains, in the Talish Mountains, as well as in the eastern part of the Ganikh-Ayrichay intermontane depression (from the village of Bunud in the Gabala region to the village of Khanagah in the Ismayilli region). The predatory actinedid ticks detected in the beech forests of the Greater Caucasus are described in the present article. Data are provided on 26 species of predatory actinedid ticks belonging to 11 families [1-5].

Materials and Methods

Study material was collected from various biotopes across Azerbaijan, including the Zagatala, Gakh, Gabala, Salyan, Astara, and Lankaran districts, as well as Baku, at altitudes of up to 2,786 m above sea level (mountain riparian beech-birch, yew-chestnut, and lowland ironwood forests; Caucasian juniper thickets; backyard gardens; and meadows). Samples were extracted from soil, moss, stone undersides, feijoa trees, and Caucasian juniper, either manually or using a Berlese funnel.

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Т. 12. №11 2026
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Laboratory analyses determined the species' trophic relationships (feeding on Tydeid and Eupodid mites, as well as springtails), color polymorphism (black and red individuals with dark blue spots), and female fecundity (~20 eggs in the body), alongside seasonal breeding dynamics across regions (May in Astara, July in Ilisu, and the second half of November in Salyan) [6-9].

Results and discussion

Family: *Tydeidae* Kramer, 1877.

Genus: *Lorryia* Oudemans, 1925.

1. *Lorryia volgini* (Kuznetzov, 1973).

In Azerbaijan, it was found in the soil under oak trees in the middle mountain eastern oak-beech forest (in 1500-1550 meters above the sea level) near the village of Jimi of the Guba region.

Distribution: Caucasus: Krasnodar country, Georgia and Azerbaijan.

It is the endemic of the Caucasus.

Family: *Bdellidae* (Duges, 1834).

Genus: *Cyta* von Heyden, 1826.

2. Cyta latirostris (Hermann, 1804).

It is widely distributed in Azerbaijan. It is found in mountain and Tugay forests, juniper and juniper-oak (with Georgian oak) sparse forests, tomillaria, foothill clayey camphor-bitter deserts, backyard gardens, vineyards, tea plantations, artificial forest massifs, parks, and oil fields. It lives under stones, in the ground, on the floor, in moss, in lichens, under the bark of trees, in grasses, in semi-shrubs, in the canopy of trees and bushes, and in the nests of birds and rodents. It has been detected at altitudes up to 3774 meters above sea level (1 E.F. Cocuna). It is a eurybiont species. It feeds on oribatid mites and springtails. The species breeds from late November to late May on the Absheron Peninsula, and in mountain regions from late May to early June. It is found throughout the year. The color of living individuals is red, sometimes brown or purple (in oil fields). It is a cosmopolitan species.

3. C.Coerulipes (Duges, 1834).

It was found in the Balakan, Zagatala, Gakh, Aghdash, Guba, Lankaran, Astara, Aghdara, and Goygol regions of Azerbaijan. It lives in mountain forests, sparse juniper-oak forests (with Georgian oak), and tobacco plantations. It is found on the ground, on the floor, in moss, under stones, under the bark of trees, on wood shavings, and sometimes on the surface of trees and shrubs. It has been found at altitudes up to 2,950 meters above sea level [1]. The color of living ticks is purple, sometimes almost black.

Distribution: Europe; Caucasus: Georgia and Azerbaijan; Asia: Central Asia (Uzbekistan), Syria and Iran; North Africa: Morocco; Republic of South Africa; North America: USA; South America: Brazil.

Genus: *Spinibdella* Thor, 1930.

4. Spinibdella cronini (Baker et Balook, 1944).

It has been detected in the Aghdash, Gakh, Oghuz, Ismayilli, and Khizi regions of Azerbaijan, as well as on the Absheron Peninsula. It occurs in mountain beech forests, sparse juniper and oak (including Georgian oak) forests, thorny thickets, tamarisk jungles in sand dunes, hilly saline areas (where salty soil is prevalent), vineyards, artificial forest massifs, hazelnut orchards, and parks (4 Ogtay Aslanov). They are found in the soil, on the ground, in moss and lichens, on and under tree bark, in the canopy of trees and shrubs, in plant debris, and in the nests of rodents. It is a euryhaline species. They prey on ticks, specifically tetranychids and junaxids. They construct cocoons and molting shelters from webbing for their eggs [2, 10]. The live ticks are straw-colored.

Distribution: Central (Germany, Hungary and Slovakia), Southern (Italy), Southeastern

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Т. 12. №11 2026
https://doi.org/10.33619/2414-2948/132

(Bulgaria) Europe, Caucasus: Krasnodar Krai, Daghestan, Georgia and Azerbaijan; Asia: Kazakhstan, Central Asia (Uzbekistan), Iran, Syria, Korea, China, Japan, Taiwan Island; Northern Egypt; North America; USA and Mexico; South America: Brazil; Hawaiian Islands; Australia.

Genus: *Biscirus* Thor, 1927.

5. Biscirus silvaticus (Kramer, 1881).

It was detected in the Gabala and Lankaran regions of Azerbaijan, as well as on the Absheron Peninsula. It lives in the relict ironwood-boxwood forests of the Talysh foothills, in the low-mountainous Karachokhra-chestnut and oak-hornbeam forests (with Georgian oak) of the Greater Caucasus, at the foot of mud volcanoes, in artificial forest massifs and arboretums. It is found on the ground, on the forest floor, under stones, in mosses, lichens, and grasses, under the bark of trees, in the shavings of tree hollows, and in the nests of rodents and birds. It feeds on springtails. It builds molting nests from webs (Alberti, 1973). It breeds in late May to early June on the Absheron Peninsula, and in June in the Gabala region. A single large egg develops in the body of the female. It is found at altitudes up to 2411 m above sea level [3].

Distribution: Europe; Caucasus: Georgia and Azerbaijan; Asia: Central Asia, Iran, Syria, Indonesia, Korea, China and Japan; North America: USA, Mexico; Haiti Island.

Genus: *Bdella* (Latreille), 1795.

6. Bdella muscorum (Ewing, 1909).

It is widespread in Azerbaijan and has been found in all landscape zones (up to 2300 meters above sea level). They live in all types of forests, on rocks, in juniper jungles formed in place of destroyed mountain-beech forests, in thorny bushes, blackthorn bushes, sparse forests, stone and subalpine thyme-rabbit steppes, subalpine sparse forests consisting of Radde birch and pine, coral subalpine forests found in sand pyramids, artificial forest massifs, emeralds, grain fields, plantations, and karst caves. They are found in moss, lichens, on the ground, on the forest floor, under tree bark, in rodent nests, in the canopy of trees and shrubs, and in thyme flowers (only in the subalpine zone). They feed on ticks of the genus Nanorchetes, web ticks, and springtails. They breed in April and July (Greater Caucasus). In the female's body, 1–20 or more eggs develop simultaneously. Females hibernate in stone crevices. The color of living ticks is red.

Distribution: Iceland, Europe, Caucasus: Krasnodar Krai, Azerbaijan and Georgia; Asia: Central Asia, Iran, Pakistan, Japan, China, Korea and Taiwan Iceland; North America; USA and Canada; South Africa [11-19].

7. B.ionica Berlese, 1923.

In Azerbaijan, it was found in the regions of Zagatala, Guba, Khachmaz, Khizi, Aghdash, Fuzuli, and Ordubad, etc. It is found in all types of forests, thorny bushes, juniper-oak (with Georgian oak), arid forests, karst caves, and sometimes in settlements. It lives on the ground, on the floor, in mosses, under stones, under the bark of trees, in dry leaf litter, in tree shavings, in grasses, in the canopy of trees and bushes, and in the nests of rodents. It was found at an altitude of 3774 m above sea level. It was found in the lowland altitudinal zone (Khachmaz region, Lajat village, plain oak-hornbeam forest at an altitude of 20 meters above sea level) for the first time by us. It feeds on springtails. In the female's body, 1–50 or more eggs develop simultaneously [1]. The color of live ticks is red.

Distribution: Iceland; Europe; Caucasus: Krasnodar Krai, Georgia and Azerbaijan; Asia: Central Asia and China; North Africa; New Zealand (most likely introduced there).

Genus: *Odontoscirus* Thor, 1913.

8. Odontoscirus longirostris (Hermann, 1804).

In Azerbaijan, it is found in the Zagatala, Gakh, Gabala, Salyan, Astara, and Lankaran regions, as well as in the city of Baku. It is encountered in mountain riverside tick populations within beech-

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Т. 12. №11 2026
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birch (magnificent birch), low-mountain yew-chestnut, and lowland ironwood forests, as well as in Caucasian juniper thickets formed in place of destroyed beech forests, in backyard gardens, and in meadows. It is found in mosses, on the soil, under stones, and on feijoa trees and Caucasian juniper. It is found at altitudes of up to 2786 meters above sea level [3]. It feeds on Tideid and Eupodid ticks or springtails. It breeds in May in the Astara region, in July in Ilisu, and in the second half of November in the Salyan region. Approximately 20 eggs develop on the body of the female. The color of live ticks is black or red. Dark blue spots are observed on the body of red ticks.

Distribution: Europe; Caucasus: Azerbaijan; Asia: Central Asia, Iran, China (with Taiwan Island), Japan; North and Central America; South America: Argentina; Hawaiian Islands.

9. O. lapidaria (Kramer, 1881)

It is a widespread species in Azerbaijan. It is found in mountain oak and beech forests, sparse juniper forests, foothill clayey camphor-bitter and wormwood–sagebrush deserts, gardens, tea plantations, black alfalfa fields, vineyards, artificial forest massifs, and meadows. It is found on the soil, on the forest floor, under stones, under tree bark, in firewood, and on the leaves of tea bushes and horsetail. It feeds on springtails. It breeds from November to April on the Absheron Peninsula, in April in the Shamakhi region, and in April in Upper Garabagh (Aghdara region). Up to 16 eggs develop simultaneously on the body of a female. The live ticks are yellowish or gray in color, sometimes greenish.

Distribution: Iceland; Europe: Caucasus: Daghestan and Azerbaijan; Asia: Central Asia, Iran and Syria; Madeira Island; North Africa; North America: Mexico. It was introduced from Europe to Australia, New Zealand, and Tasmania. It was introduced to South Africa.

Family: *Cunaxidae* Thor, 1902.

Genus: *Cunaxa* von Heyden, 1826.

10. *Cunaxa setirostris* (Hermann, 1804).

It is widespread in Azerbaijan. It is found in the relict ironwood-boxwood and oak (with chestnut-leaved oak) forests of the Talish foothills, in the mountain beech forests of the Lesser and Greater Caucasus, in the plain oak-hornbeam (with sessile-flowered oak) forests of the Samur-Davachi lowland, in juniper and juniper-oak (with Georgian oak) sparse forests, in citrus and tea plantations, gardens, vineyards, artificial forest massifs, parks, cowsheds and granaries. It is found on the soil, leaf litter, mosses, in grain, in the canopy of trees and shrubs, and under the bark of pine stumps. There is only one dorsal shield—propodosomal in females, while there are two—propodosomal and hysterosomal in males. It breeds in early July (in the Guba region). One live egg develops in the body of the female [4, 5]. It is cosmopolitan.

Genus: *Pactyloscirus* Berlese, 1916.

11. *Dactyloscirus bison* (Berlese, 1888).

In Azerbaijan, it has been found in the middle-mountain beech (eastern oak) forests of the Guba region (1500–1550 m above sea level) within the shavings of oak hollows, on the floor of sweet licorice plantations, and in the soil of vineyards in the Kurdamir region [5].

Distribution: Europe; Caucasus: Azerbaijan, South America: Brazil.

Genus: *Cunaxoides* Baker et Hoffmann, 194.

12. *Cunaxoides croceus* (Koch, 1838).

In Azerbaijan, it was detected in the Zagatala, Gakh, Guba, and Aghdara regions, as well as on the Absheron Peninsula (Baku city). It is found in mountain beech, hornbeam-beech, and hornbeam-oak-linden (with oriental oak) forests, as well as in artificial forest massifs. It lives on the ground, on the forest floor, in moss, and under the bark of pine stumps. It breeds during the last ten days of December (Absheron Peninsula). Only one large oblong-oval egg develops in the female's body [5].

Distribution: Europe; Caucasus: Azerbaijan; Central Asia: Uzbekistan; North Africa: Morocco

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Т. 12. №11 2026
https://doi.org/10.33619/2414-2948/132

13. *C.biscutum* Baker et Hoffmann, 1948.

In Azerbaijan, it was detected in the Zagatala, Shaki, Guba, Khizi, and Gadabay regions, and on the Absheron Peninsula (Baku city). It lives in low-mountain streambank beech-birch (with magnificent birch), mid-mountain oak-beech (eastern oak), and low-mountain oak-hornbeam (with Georgian oak) forests, as well as in foothill clayey camphor-bitter deserts and gardens. It is found under stones, in grasses, and in Caucasian juniper. It breeds in May (Zagatala region). A total of many large, oblong-shaped eggs develop on the female's body [5].

Distribution: Europe; Caucasus: Krasnodar Territory and Azerbaijan; North America: USA.

Family: *Raphiqnathidae* Kramer, 1877.

Genus: *Raphignathus* Duges, 1834.

14. *Raphignathus collegiatus* Atyeo, Baker et Crossley, 1961.

In the Caucasus, the species is currently found only in Azerbaijan: the Zagatala and Lankaran regions and the Absheron Peninsula. It was detected on the streambanks of mountain beech-birch (with magnificent birch) and alder-walnut (with Alnus subcordata) forests, in the humid saline jungles of Siberian argusia, in gardens, parks, artificial forest massifs, and on city streets. It was found on the ground, on the forest floor, in the grass of weedy pastures, under stones, under the bark of trees, in the shavings of tree hollows, and on palm trees. Live ticks are orange in color [6].

Distribution: Central (Hungary) and Eastern (Crimean Peninsula) Europe; Caucasus: Azerbaijan; Central (Uzbekistan) and Minor (Turkey) Asia; Iran, China, Israel, Japan: North (Egypt) and South (Car) Africa; North America; New Zealand.

Family: *Cryptognathidae* Oudemans, 1902.

Genus: *Cryptognathus* Kramer, 1879.

15. *Cryptognathus lagena* Kramer, 1879.

It was detected in the Zagatala, Gakh, Shamakhi, Guba, Khizi, Aghdash, and Lankaran regions. It is found in the lowland humid hornbeam forests (with a mixture of bearded alder and walnut) of the Ganikh-Ayrichay intermontane depression, in the mountain (including riverbank) forests of the Greater Caucasus and Talish, in the additional jungles of Caucasian juniper, in sparse gum-oak (with sessile-flowered oak) and juniper-oak (with Georgian oak) forests, and in blackthorn shiblyak. It lives in the soil, on the forest floor, and in moss. It breeds in May (Zagatala region) [7].

Distribution: Europe; Caucasus: Krasnodar Territory and Azerbaijan; Asia: Turkey; North America: USA.

Family: *Caligonellidae* Grandjean, 1944.

Genus: *Neognathus* Willmann, 1952.

16. *Neognathus terrestris* (Summers et Schlinger, 1955).

In Azerbaijan, it was found on stones covered in moss in a low-mountain riverside beech-birch forest (with magnificent birch) in the Zagatala region, and in moss on oak in a low-mountain oak-hornbeam forest (with Georgian oak) in the Gakh region [8].

Distribution: Europe; Caucasus: Azerbaijan; Asia Minor (Turkey) and Central Asia; North America: USA.

Genus: *Caligonella* Berlese, 1910.

17. *Caligonella humilis* (Koch, 1838).

In Azerbaijan, it was found in the Zagatala, Guba, Khachmaz, and Aghdash regions. It lives in low-mountain riverside thickets in beech-birch (with magnificent birch) and mid-mountain (1600-1650 m above sea level) landslide aspen forests, in the plain oak-hornbeam (with sessile oak) forests of the Samur-Davachi lowland, and in sparse juniper-oak (with Georgian oak) forests. It is found in the soil, leaf litter, and moss [8].

Distribution: Europe; Caucasus: Azerbaijan; Asia Minor: Turkey; North America.

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Т. 12. №11 2026
https://doi.org/10.33619/2414-2948/132

Family: *Stigmaeidae* Oudemans, 1931.

Genus: *Eustigmaeus* Berlese, 1910.

18. *Eustigmaeus chilensis* (Chaudri, 1965).

In Azerbaijan, it was found in the Gadabay, Ismayilli, Shamakhi, Guba, Gusar, and Khizi districts, and on the Absheron Peninsula (Mardakan settlement). It is found in subalpine sparse forests consisting of Radde birch; in the middle mountains with beech, oak, and hornbeam-oak-linden (with Eastern oak); in low-mountain dry blackthorn oak forests; in grain fields; and in arboretums. It lives in the soil, on the floor, in mosses, and in dry leaf litter [8].

Distribution: Europe; (Latvia and Lithuania); Caucasus: Azerbaijan; Asia Minor: Turkey; South America (Chile).

19. *E.anauniensis* (Canestrini, 1889).

In Azerbaijan, it was found in the Aghdash, Ismayilli, Khizi, and Khachmaz regions. It lives in sparse juniper forests, low-mountain beech-hornbeam forests, dry blackthorn-oak groves, and plain oak-hornbeam (with sessile-flowered oak) forests of the Samur-Davachi lowland. It is found in dry leaf litter, in the soil, and in the canopy of trees and shrubs [8].

Distribution: Europe; Caucasus: Azerbaijan; Lesser: Turkey and Central Asia; North America

Family: *Labidostomatidae* Oudemans, 1904.

Genus: *Labidostomma* Kramer, 1879.

20. *Labidostomma caucasica* Reck, 1940.

In Azerbaijan, it was found in the Zagatala, Gakh, Gabala, Shamakhi, Ismayilli, and Khizi regions. It lives in mountain hornbeam, oak, and beech forests, in additional jungles of Caucasian juniper formed in place of broken beech forests, and in forest-steppes. It is found in the soil, in mosses, and sometimes in honeycombs. It breeds in May (Altiaghaj). 1-2 large elongated eggs develop in the body of the female [9].

Distribution: Krasnodar Territory; Georgia and Azerbaijan. It is endemic to the Caucasus.

Family: *Anystidae* Oudemans, 1902.

Genus: *Anystis* Von Heyden, 1826.

21. *Anystis baccarum* (Linnaeus, 1758), berry-bearing anistise.

It is widespread in Azerbaijan. It is a eurybiont species with high ecological plasticity. It is found from lowlands to high mountains. It has been found in subalpine harebell-thyme steppes, park-type oak forests (with Eastern oak), in the Middle-mountainous hornbeam-beech and riverside ash forests of the Lesser Caucasus (at an altitude of 1600–1650 m above sea level), in the low-mountainous oak forests (with Georgian oak) of the Greater Caucasus, in the foothill forest-steppes of the plain forests, in the low-mountainous meadow-steppes, in sparse forests consisting of willow-leaved pear, in the additional forests of Caucasian juniper formed on the site of broken beech forests, in tragacanth forests, in wormwood–ephemeral, wormwood–sagebrush, and sagebrush dwarf-shrub semi-deserts, in annual saline deserts, in ravines, in artificial forest massifs, in shiblyak, in gardens, vineyards, and melon fields, in black clover and potato fields, in tea plantations, in botanical gardens, as well as in tamarisks (in tamarisk thickets) and caves (rarely). They live in the canopy of trees and shrubs, in tragacanth-gum astragalus communities, in grasses, on the leaves of subshrubs, in the flowers of thyme and tall grasses (for example, trumpet grass) of the umbelliferous family (only in the subalpine zone), on the soil, on the forest floor, under stones, in bird nests, in the nests of field mice, and under the bark of apple tree trunks. Sometimes they enter houses. Occasionally, phoresis is observed in small mammals, for example, in the rodents Apodemus agrarius and Microtus arvalis [11, 12]. They produce three generations per year. The eggs laid under stones and paving overwinter. In summer, the eggs are also laid on the leaves of plants. Males are encountered rarely. They feed on small arthropods. Cannibalism is observed. The larvae of ticks of the *Leptus* genus parasitize the A.

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Т. 12. №11 2026
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baccarum tick [13]. The sperm lack flagella [14]. The color of a live tick is red or brownish-red. It is a cosmopolitan species.

Genus: *Bechsteinia* Oudemans, 1936.

22. *Bechsteinia schneideri* Oudemans, 1936.

In Azerbaijan, it has been detected in the Zaqatala, Gakh, Oghuz, Guba, Khizi, Aghdash, Shamkir, Goygol, Aghdara regions, and the Absheron Peninsula. It is found in the mid-mountain beech forests of the Lesser Caucasus; in the low-mountain streambank beech-birch (with magnificent birch) and oak-poplar-apple (with sessile oak and hybrid poplar) forests with various shrubby lianas (including goat honeysuckle and wild grape) of the Greater Caucasus; in tugai forests, post-forest meadows, gravelly streambeds of mountain rivers, on slopes, on rocks, in juniper-oak (with Georgian oak) and shrubby sparse forests, in mountain shrubby meadow-steppes, in tragacanth-tomilla dry steppes, in wormwood-ephemerid deserts, in vineyards, gardens, parks, and in artificial forest massifs. It has been found under stones, on the ground, on the forest floor, on the decaying wood of pine stumps, under tree bark, in grass, in moss, in the tree canopy, and in bird nests. It is an edophore-herpeto-dendrobiont. It is active year-round on the Absheron Peninsula and can enter houses [14]. The color of live ticks is gray-red.

Distribution: Southern (Italy) and Eastern (Ukraine: Crimean Peninsula) Europe; Caucasus (North Ossetia and Azerbaijan); Central Asia (Uzbekistan).

Family: *Calyptostomatidae* Oudemans, 1923.

Genus: *Calyptostoma* Pickard Cambridge, 1875.

23. *Calyptostoma velutinus* (Müller, 1776).

It is found in the Shakhbur, Ismayilli, and Shamakhi regions of Azerbaijan [15]. Adults, deutonymphs, and predatory larvae are ectoparasitic (parasitic on arthropods).

Distribution: Europe; Caucasus: Azerbaijan

Family: *Erythraeidae* Robineau-Desvoidy 1828.

Genus: *Curteria* Southcott, 1961.

24. *Curteria episcopalis* (C.L, Koch, 1837).

It is found in the Khizi, Gakh, and Lerik regions and the Absheron Peninsula. It is found in sand dunes, mountain broad-leaved forests, and orchards. It lives in sand, under stones, and on plants [16].

Distribution: Central (Netherlands, Germany and Poland) and Northern (Sweden and Finland) Europe; Caucasus: Azerbaijan; Asia: Iran.

Genus: *Leptus Latreille*, 1796.

25. *Leptus slivovi* Beron, 1975.

In Azerbaijan, it is found in the Guba and Shabran regions. It is met in the forests of the middle montane oak-beech (with Eastern oak), oak (with Eastern oak) and alder (with gray alder), as well as in the foothill forest-steppe. The larvae of the species *Leptus slivovi* have been found on moths, butterflies, *Cicindela altaica* (the family Carabidae), as well as on wood shavings and various plants.

Distribution: Northern (Norway), Central (Poland and Liechtenstein) and Southern (Bulgaria) Europe; Caucasus: Azerbaijan; Asia: Kazakhstan.

26. *L. molochinus* (C.L.Koch, 1837).

In Azerbaijan, it has been found at the feet of the mower in an orchard in the Khachmaz region, on moss in a beech forest, and on plants in an alder forest (with gray alder) in the Guba region [17, 18]. The larvae of the species *Leptus molochinus* parasitize spiders, mowers, aphids, butterflies, gnats, and bedbugs. In Poland, larvae of this species have also been found on plants [19].

Distribution: Europe; Caucasus: Azerbaijan; North America: USA; Greenland Island.

Genus: *Abrolophus* Berlese, 1891.

27. *Abrolophus miniatus* (Hermann, 1804)

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It is found in the Khizi, Gakh, Gabala, and Guba regions. It is met in hornbeam-pistachio and pistachio forests, mountain forest-steppes, and tamarisks of the Central Highlands. It is found on various plants and mosses [20].

Distribution: Europe; Caucasus: Azerbaijan; Northwest Africa: Algeria; Greenland Island

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