



TERRESTRIAL MOLLUSK RIDGE KUGITANGTAU

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ABSTRACT

Malakofuna of Kohitang Mountain, determining the composition of the fauna of freshwater and terrestrial gastropod molluscs, revealing the bioecological features, studying the economic importance and developing appropriate measures.

Currently, biodiversity conservation, a lot of scientific research has been carried out in the field of their protection and development of rational use of bioresources of the animal world. special attention is being paid to determining the diversity of the malakofauna of the regions where endemic species are numerically ahead, their evolution using modern methods of scientific research, and studying the formation of centers of autochthonous species. As one of such areas, the mountains of southern Uzbekistan, in particular, the Kohitang mountain, which are sharply different from other regions of Uzbekistan due to their geographical location, unique climatic conditions, diversity of malacofauna, and the creation of opportunities for autochthonous species i determination of the fauna composition of aquatic and terrestrial gastropod molluscs, revealing bioecological features, studying their economic importance, and developing and implementing appropriate measures substantiation of scientific solutions in such directions is of great scientific and practical importance.

Research materials

Research materials were collected in 2022-2024 from 7 sections of the "Surkhan" state reserve located on the eastern slopes of Mount Kohitang and their surrounding villages:

In the Vandob section, there are small mountains such as Kurgontash, Makhaldasttog, Irgaylitog, Palakcha, Darayligol, Mumiloydara gorges, Vandobsoy tributaries, Uzbekistansoy, Shakhtasoy, Obsarsoy streams, Jiyidabuloksoy small stream, from Tomchibulok, Jiydabulok, Gurdarabulok, Kazanbulok springs and Vandob village;



In the Sherjon department, small mountains of Kurgan, Qizildong, streams such as Sariqmishsay, Poshshakhanasoy, Soladbuloksoy, Hawthornsoy and their valleys, from the springs of Soladbulok, Kolbelbulok, and Bargipiyoz;

In the Kampirtepa department there are small mountains of Kurgantog, Kampirtepatog, valleys of Machillisoy and Kampirtepasoy streams, Okdara and Jannatdara gorges, ridges and tributaries of Machillisoy and Kampirtepasoy streams, Kirkyong'ogbulok, Machilibulok, Zaharli springs, Kampirtepa and From the villages of Zarabog;

In Kyzylolma department, the main ridge of Kohitang mountain, Kyzylolma and Kichik Korchik mountains, Dolansoy and Beshbolasoy valleys, Kyzylolmasoy and its tributaries, Gurgurukbulok, Sevarbulok, Beshbolalbulok springs and Kizilolma village. from

Shalkantog, Keragatog mountains, Aqdara, Supratosh, Gulugundara, Olmalidara gorges, Shalkansoy and its tributaries, Shafobulok, Qandbulok, Hawthorn springs in Shalkan department;

In the Khojango department, Kattatog mountain, Shomuroddara, Iskandarara, Tordara gorges, Tolbuloq, Shamoli, Irgaily massifs, Kokkamar, Suvlikamar belts, Khojangosoy, Tolbuloqsoy, Lochinsoy creeks, Tolbuloq, Lochinbulok, Jiydabulok springs and from Khojanqo village;

Tangidevol, Kattatog and Etimtog mountains, Boglidara, Tangidevoldara, Koplondara, Cho'lbayir, Maidanak massifs, Tangidevolsoy, small streams of Boglidarasoy, Tollibuloq, Almabulok, Olchabulok, Ilonbulok in the Khatak department.

As research materials, the collection of gastropod molluscs collected from the surroundings of the streams in these areas, including among the grasses and bushes on the banks of streams, streams, springs, under and between stones, and from the plots and gardens of the inhabited areas is the main material. served.

Taxonomic composition of gastropod aquatic molluscs

The taxonomic description of gastropod aquatic molluscs is carried out in the following order:

1. A brief description of the family to which the species belongs;
2. The name of the species, the name and year of the author who first identified it
3. General description of the shell and genital structure of each species (based on available material). In the description, it is taken into account that if the characters of the studied species correspond to those in the literature, then it is indicated that it corresponds to the literature data and the differences are written;
4. Brief information on the ecology and distribution of the species is provided. According to the results of the study, gastropod molluscs of the Kohitang Mountains were studied separately as they belong to two ecological groups: aquatic and terrestrial molluscs. Below are the results of research on their taxonomic structure.

Aquatic gastropod molluscs of the Kohitang Mountains have not been fully studied until now. The analysis of the sources showed that more than 100 articles and theses on Central Asian aquatic molluscs have been published in the last 25-30 years, but to date there is no complete list of aquatic gastropod molluscs distributed in the Kohitang Mountains. . Therefore, studying the taxonomic composition of these aquatic gastropod molluscs and forming their list is of great scientific and practical importance.

MOLLUSCA type

CONCHIFERA junior type

GASTROPODA Cuvier, 1795 class

PECTINIBRANCHIA Blainville, Junior Class of 1814

LITTORINIFORMES Pchelintsev, 1863 series

BELGRANDIELLIDAE The family of Radoman, 1983

Martensamnicolinae Izzat., Sitn. et Star, 1985 junior family

Martensamnicola Izzat., Sitn. et Star, 1985 generation

1. Martensamnicola brevicula Martens, 1874. (Fig. 3.1)

Material. 60 copies. It was collected from the villages of Zarabog and Kampirtepa, the surroundings of the Mechilisoy basin, springs and springs in the Uzbekistansoy basin.

The shell is tall conical to cuboidal, sometimes ovoid, smooth, yellowish brown, opaque. The number of whorls is 3.5-4, forming an average convexity, separated by a deep seam. The last roll is rounded. The upper three whorls of the shell form a low dome-like appearance, flattened in the embryonic part, the height of which is 1/3 of the height of the shell. The mouth of the shell is slightly inclined, rounded oval. The navel of the shell is in the form of a narrow slit.

Shell dimensions: height 1.7-2 mm, diameter 1.5-1.8 mm. The height of the shell mouth is 0.9-1.1 mm, the width is 0.7-0.9 mm.



Figure 1. Martensamnicola brevicula (springs in the Uzbekistansoy basin)

Ecology. It lives by clinging to algae and stones in various springs and springs in hill and mountain regions.

Spread. It is distributed in all the Republics of Central Asia and in the territory of northeastern Afghanistan [30].

2. Martensamnicola hissarica (Shadin, 1950).

Material. 25 copies. It was collected from the right and left banks of Shalkansoy and springs and springs in the Mechilisoy basin.

Conchological signs fully correspond to the literature [16, 81]. The material studied by us differs only in shell dimensions.

Shell dimensions: height 2-2.1 mm, large diameter 1.4-1.5 mm. Shell mouth height 1-1.1 mm, width 0.7-0.8 mm

Ecology. Adir, in some cases, the sheep lives in the mountain region, in the springs, on the stems of algae.

Spread. In the Republics of Central Asia, it is mainly distributed in the foothills [36].

Bucharamnicolinae Izzat., Sitn. et Star, 1985 junior family

Representatives of 2 genera of this subfamily are found in Central Asia, and *B. bucharica*, the only species of *Bucharamnicola* genus, is distributed in Uzbekistan.

Bucharanicola Izzat., Sitn. et Star, 1985 generation.

3. *Bucharamnicola bucharica* Shadin, 1952. (Fig. 3.2).

Material. 35 copies. It was gathered from the right and left banks of Dug'abasay and from Zarabulok.

Shell dimensions: height 1.8-2.1 mm, large diameter 1.5-1.6 mm. Shell mouth height 0.9 mm, width 0.7 mm.

Ecology. It lives on stones and algae stems at the outlet of spring waters at an altitude of 900-1700 m above sea level.

Spread. According to AT Karimkulov [41]. For the first time, this species was found to be distributed in hill and mountain regions on the southern and northern slopes of Mount Kohitang.



Figure 2. *Bucharamnicola bucharica* (spring waters of Dugabasay Basin)

Lymnaeidae Rafinesque, 1815 family

The only genus *Lymnaea* belongs to the *Lymnaeidae* family, which consists of 8 subgenera and currently has 34 known species that are widespread throughout Central Asia.

Lymnaea Lamarck, descendant of 1799

***Lymnaea*(s.str).** younger generation

4. *Lymnaea* (L.)*stagnalis* Linnaeus, 1758. (Fig. 3.3. A,B.)

Material. 50 copies. It was collected from stream waters in more than 15 places of the study area.

The shell is high-conical, the number of whorls is 6.5-7, and the last one is strongly convex. The walls of the shell are thin, fragile, sometimes slightly thickened. The color of the shell is light-horned, horned or brownish-brown, sometimes purplish-white or darkens with age.

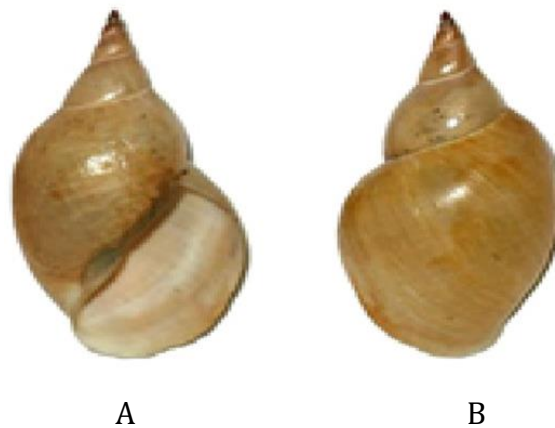


Figure 3. *Lymnaea stagnalis* (Mojurum stream). A-front view of shell, B-back view

The surface of the shell is slightly shiny. The sculpture is made up of unknown lines, and there are traces of hammering on the last scroll. The shells of the shell dome are uniformly flattened, and its upper part is sharply thinned. The seam separating the coils is not very deep, slightly curved. The mouth of the shell is large, egg-shaped, its height is equal to the height of the shell. The edges of the shell mouth are slightly sharpened. Shell dimensions: height 25-27 mm, large diameter 14-16 mm. The height of the shell mouth is 12 mm, the width is 14 mm.

Ecology. It lives in the slow-flowing part of rivers, lakes and reservoirs, often in the part of the shores thickly overgrown with algae.

Spread. Europe, North Asia and Central Asia. Kohitang was found for the first time in mountain waters. [39]

Maybe Schranck, 1803 younger generation.

5. *Lymnaea (G.) thiessea*(Clessin, 1979). (Figure 3.4)

Material. 13 copies. Vandob village, from Gubdin mountain springyggled.

Conchological signs fully correspond to the literature [16, 81]. The material studied by us differs in shell dimensions.

Shell dimensions: height 6.1-6.5 mm, large diameter 3.0-3.5 mm. Shell mouth height 2.7 mm, width 3.0 mm.

Ecology. It is a fast builder and lives in small springs.

Spread. Front and Central Asian type. in Central Asia. [37, 38]widespread. It was recorded by us for the first time in the research area.



Figure 4. Type of *Lymnaea (G.) thiessea*

6. *Lymnaea truncatula*Müller, 1774 (Fig. 3.5)

Material. 28 copies. Collected from the temporary flowing waters around the village of Khatak, the temporary (spring) springs on the right and left banks of the stream, the temporary waters flowing through the territory of the village of Aktash.

The shell is small, "bashniya", high conical. Color, yellowish, pale brownish, brownish, liverish brownish or liverish- brown. Shell walls are of medium thickness, sometimes thin. The surface of the shell is very shiny and smooth. The sculpture consists of thin lines. Shell wrappers 6 pcs. Shell "Wraps" are high, equal to 0.6-0.7 of the total height of the shell. The last whorl is large (makes up 0.7% of the shell height) and wide, strongly convex. The seam separating the shell casings is deep. The mouth of the shell is oval-ovoid. The parieto-palatal part is impenetrable, the curved columellar part does not completely cover the umbilical cord, resulting in a narrow slit-like appearance. Morphological features of the shell are variable.

Shell dimensions: height 7.5-12 mm, large diameter 3.2-3.5 mm. The height of the mouth of the shell is 4.5 mm, the width is 3.6 mm.

Ecology. Telmatophile. Mostly, it lives on the edge of dry and small springs and in the mud.

Spread. Palearctic species, Europe, Caucasus, Western Siberia, South of Eastern Siberia and Central Asia [37]. It was recorded for the first time in the area of the Kohitang mountain range.

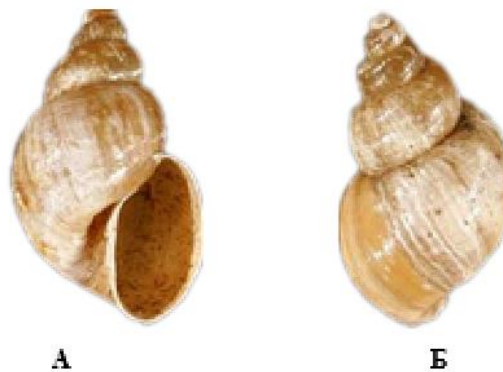


Figure 5. Lymnaea truncatula (Khatak Village).

A-front view of shell, B-back view

7. Lymnaea (R) auricularia Linnaeus, 1758 (Fig. 3.6)

Material. 35 copies. The middle part of the river basin, the water of the river flowing through the territory of the village of Khatak, is collected from small streams in the villages of Zarabuloq and Zarabog.

The shape of the conch mouth is similar to the structure of the human eardrum. Shell whorls are 3.5-4, the first three whorls form a short dome, resulting in a pointed tip with a slightly bent shape. The last whorl grows rapidly and is almost equal to the size of the entire shell. The seam separating the shell is deep, slightly curved.

The color of the shell is light-yellow, yellow, yellowish-horned, horned and pale-horned. The shell is thin-walled, fragile, opaque. The surface of the shell is shiny. The sculpture consists of thin lines. The mouth of the shell is very large, wide oval. The umbilicus is completely or almost completely covered by the columellar edge.

Shell dimensions: height 2.5-3.1 mm, large diameter 22-25 mm. The height of the mouth of the shell is 29 mm, the width is 21 mm.

Ecology. Phytorheophilic. Slow and fast-flowing live on the shores of various water bodies, among algae.

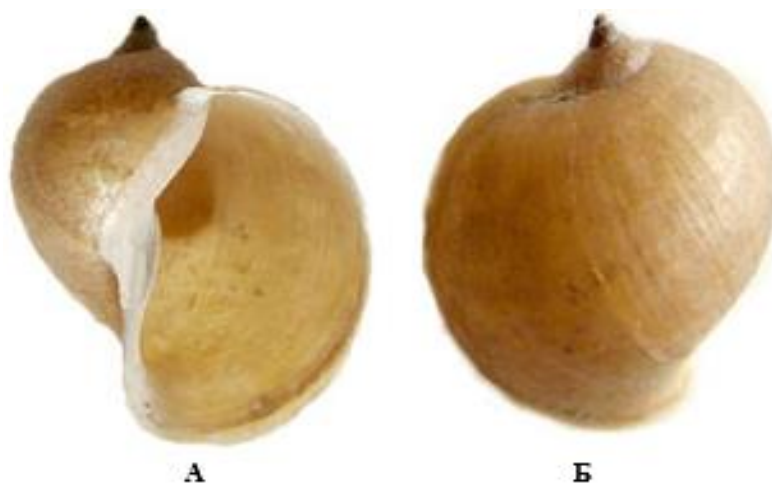


Figure 6. *Lymnaea auricula*. A-front view of shell, B-back view

Spread. A common species of the Palearctic. Europe, Western Middle East, Siberia and Central Asia. [37].

8. *Lymnaea oblonga*Puton, 1847. (Fig. 3.7)

Material.44 copies. Mechilisoy and Kampirtepasoi streams were collected from springs and springs in Khojanqo village.



Figure 7.*Lymnaea oblonga* (running waters in Mechilisoi)

The shell is tall tower-shaped, brown, the number of whorls is 5, slowly increasing, strongly blistered, stair-like. The height of the last whorl is less than 0.70 of the total height of the shell. The mouth of the shell is strongly elongated oval in the height of the shell. The upper part of the mouth forms a sharp corner. The navel is narrowly slit.

Shell dimensions: height 6.5-7.1 mm, large diameter 3.5-3.8 mm. Shell mouth height 2.9 mm, width 2.7 mm.

Ecology. Lives under and on stones of springs and fountains.

Spread. Widespread throughout the Palearctic [44]. It was recorded by us for the first time in the research area.

9. *Lymnaea subdisjuncta*, Neville, 1878. (Fig. 3.8.)

Material.10 copies. Collected from the water of Mechilisoy and Ingichka streams.

This species is distinguished by the highest height of the coils among the species of the group (the height of the coil is 0.3 of the height of the shell). The sac of the male reproductive system is equal to the size of the presupium or slightly shorter.

Shell dimensions: height 18.9 mm, large diameter 12.0 mm. The height of the roll is 5 mm.



Figure 8. *Lymnaea subdisjuncta*(Waters of Mechilisoy and Ingichka streams)

Ecology. It lives in river banks, canals, small ditches, springs and reservoirs among plants and in mud. In terms of numbers, it ranks next to the above type and in some places it can be found up to 20-30 pieces per 1 m². Often found with *Lymnaea auricularia* and *Lymnaea bactriana*. May breed in June. Lives more than 1.5 years. Phytophil and pelolimfonil, euribiont.

Spread. Central Asia [58].

10. *Lymnaea bactriana*Hutton, 1849. (Fig. 3.9.)

Material.37 copies. It was collected from the waters of the Hawthorne basin, Okdara river basin, and the village of Zarabog.

Shell ovate or conical ovate, 4-4.5 one blistered. The last roll is expanded. The tangent line is almost straight, the seam is deep, slightly inclined.

The mouth of the shell is oval, the palatal edge is smooth. The navel is narrowly slit. Shell dimensions: height 16-18 mm, large diameter 10-13 mm. The height of the mouth of the shell is 7.5 mm, the width is 6.9 mm.

Ecology. Phytophil. The plain region is abundant among the algae of slow-flowing water bodies.



Figure 9. *Lymnaea bactriana* (Zarabag village).

Spread. Endemic species of Central Asia. Distributed in all altitude regions [38].

Physidae Firzinger, 1833 family

Among the representatives of the Physidae family distributed in Central Asia, there are 3 species belonging to 2 subfamilies (Aplexinae, Physinae) and 2 genera.

Physinae Fitzinger, 1833 The Younger Family

11. Costatella acuta Draparnaud, 1805. (Fig. 3.10.) A,B,V

Material. 40 copies. Zarmitan stream basin; It was collected from the flowing waters and their basins in the village of Vandob, the waters around the villages of Ko'tyrbulok, Ko'ktonli and Khatak.

The shell is of medium size, the coils are turned to the left, triangular-ovoid, the shell walls are thick, transparent or opaque. The color of the shell is light-horned, sometimes white or brown.

The surface of the shell is smooth as silk. The dome of the shell is pointed, consisting of 4-5 whorls, distinguished by slightly raised and shallow sutures, the last whorl is strongly raised.

The mouth of the shell is simple, wide, pointed-ovoid, the edge of the mouth is large, sometimes a labial tumor is developed. The upper part of the mouth is attached to the wall of the shell at an acute angle. The umbilical cord is completely closed as a result of the outward turning of the columellar edge.

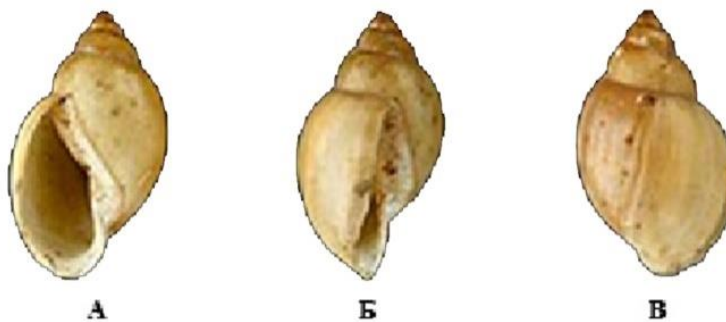


Figure 10. Costatella acuta (from the waters around the village of Vandob). A-view of the shell from the front, B- from the side, V-from the back

Shell dimensions: height 10-17 mm, width 6-9 mm, shell mouth height up to 10 mm, width 7.5 mm.

Ecology. It is a phytophilous species and lives among algae on the shores of slow-flowing water bodies in plains and hilly regions.

Spread. It is a Palearctic species, widespread throughout Europe and East Asia and Central Asia. [23]

PLANORBIDA Rafinesque, 1815 family

Pulmonata Gouvier in Blainville, 1854 junior class

In Central Asia, the Planorbidae family includes two subfamilies (**Boimhpalariinae Planorbinae**), they consist of 10 genera and 33 species.

Planorbinae Rafinesque, 1815 junior family

This subfamily includes 31 species belonging to 9 genera, and the following species are distributed in the studied area.

Planorbis Geoffroy, 1767 Descendant

12. Planorbis planorbis (Linne, 1758), (Fig. 3.11. A, B)

Material. 50 copies. The water in the village of Zarabog was collected from the river basin and various flowing and non-flowing water bodies on the northern slopes of the Kohitang mountain..

The shell is medium-sized, flat-spiral, has a small involute (the front shell partially covers the next one), ten-twisted, thick-walled. There are 5-6, sometimes 6-7 whorls, the upper whorls are slightly raised, the lower ones are flat. The color of the shell is horn, brown, dark or light brown. The shell is shiny and sometimes very smooth.

The sculpture consists of curved thin lines. The mouth of the shell is simple, not very large, curved oval. The edges of the mouth are straight, sharp. There is no shell umbilical.

Shell dimensions: height 3.5-4 mm, large diameter 16-19 mm.

Ecology. Phytophil. Lives among algae in permanent and temporary water bodies - ponds, ponds, lakes and springs. Drought resistant. It lives at a depth of up to 0.50 m. During wintering, it falls to a depth of 1 meter.

Spread. Widespread throughout the Palearctic. [27, 28]

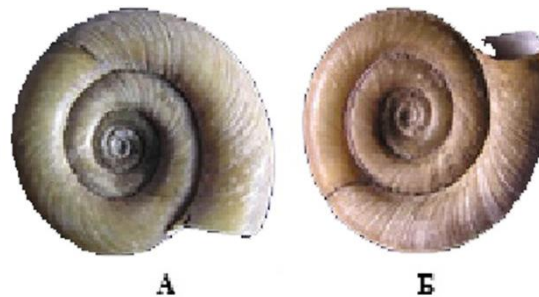


Figure 11. *Planorbis planorbis*
(Zarabog temporary waters around the village).

A-shell top view, B-bottom view

13. *Planorbis tangitarenis* Germain, 1918 (Fig. 3.12)

Material. 55 copies. It was collected from the waters of the "Surkhan" state reserve.

The shell is left-sided, relatively solid-walled, light brown to dark brown in color, and flat in shape. The whorls are 4-7, slowly increasing, sunken deeper from the lower side to the upper side. The last scroll has a clearly visible corner and a slightly developed edge. The navel is open.

Shell height 3-3.6 mm, large diameter 9.6-11.3 mm, small diameter 7.7-9.4 mm.

Ecology. Phytophil. It lives among algae in permanent and temporary water bodies - ponds, ponds, lakes and springs.



Figure 12. *Planorbis tangitarenis* waters in the territory of the Kohitang mountain-nut state reserve. A-shell top view, B-bottom view



Spread. It is distributed in all altitude regions in Central Asia. [27]. It was recorded by us for the first time in the research area.

According to the results of the conducted research, it was found that 13 species of freshwater gastropod molluscs belonging to 4 families and 5 genera are distributed in the research area.

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