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## **The development and extension of bivalves in the basin of the Amudarya and Syrdarya rivers**

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**Abstract:** The article presents data on the extension of bivalves to environmental groups. It was established that in the basin of the Amudarya and Syrdarya lives 9 species and 2 subspecies of bivalve molluscs belonging to the 4 families and 2 orders, which can be divided into three ecological groups: peloreofil, pelolimnofil, reofil. Large clams are common in the middle and lower levels of the rivers.

**Keywords:** bivalves, molluscs, extension.

## **Амударё ва Сирдарё хавзаси сув типларида иккипаллали моллюскаларнинг тарқалиши, шаклланиши**

**Қисқа маълумот:** Амударё, Сирдарё ва унинг атрофидаги сув типларидаги икки паллали моллюскалар 2 оила 4 уруғга тааллуқли бўлиб улар 9 тур ва 2 кенжа турга ҳамда 3 хил экологик гуруҳларга: пелореофил, пелолимнофил, реофилларга мансубдир. Йирик икки паллали моллюскалар фақат дарёларнинг ўрта ва қуйи қисмида тарқалганлиги таҳлил қилинган.

## **Развитие и распространение двустворчатых моллюсков в бассейне рек Амударья и Сырдарья**

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**Аннотация:** в статье приводятся данные о распределении двустворчатых моллюсков на экологические группы. Установлено, что в бассейне рек Амударья и Сырдарья обитает 9 видов и 2 подвида дву-

створчатых моллюсков, принадлежащих 4 семействам и 2 отрядам, которых можно распределить на 3 экологические группы: пелореофил, пелолимнофил, реофил. Крупные двустворчатые моллюски распространены в среднем и нижних уровнях рек.

**Main importance of the theme.** It is very theoretically and practically important to study the ecology and extension of two subspecies mollusks in between biotopes of Uzbekistan. Simple of type of snail, existence and not existence of teeth will helps to define them. It produce at the same time the extension of two sub species mollusks, important place of more by numbers in ecosystem (they consist the main mass among benthos organisms in many water types), the history of fauna in fresh water, problems of hydrobiology and other principles and also, it attracts the researcher's point in solving tasks, ecologic monitoring and bio-indication.

**The history of studying.** The main ideas were given in works by V.I.Zhadin (1950, 1952), Z.I.Izzatullaev, Ya.I.Strabogatov (1970) about mollusks in water of Central Asia and their zoogeography. Systematic structure, ecology and extension of mollusks in fresh water were specially studied first time in the works by V.I. Zhadin.

The information which collected by Z.I.Izzatullaev about Central Asia in 1972-1987 were analyzed and several articles published (Izzatuaev 1972, 1976,1985; Izzatullaev, Strobogatov 1974,1984).

Some new type of two sub species mollusks which were deeply investigated the water mollusks of Central Asia in Zarafshan river that collected 1976 and were kept materials in the collection fund of Zoology Institute (in Sakt Petersburg) of Academy of Science of Russian Federation were entered to the science by Z.I.Izzatullaev

(1987). (Izzatullaev, 1978,1995; Strobogatov, Izzatullaev 1984).

The ecology and extension of two subspecies mollusks in between biotopes of Uzbekistan haven't been special fully studied yet.

**The Material and studying methods.** There were 141 examples collected scientific materials for the investigation from rivers of Uzbekistan in 2002-2014: Amudarya, Syrdarya and Zarafshan and its nearby water types.

Except this, the collection materials which kept in the Institute of Plant and Animal World of Academy of Science of Uzbekistan and in the chair of "Ecology and protection of environment" of Samarkand Sate University were used. The following mollusks V.I.Zhadin (1938, 1952), Ya.I.Strobogatov, Z.I.Izzatullaev, (1984), Z.I.Izzatullaev, Kh.T.Boymurodov (2009) were studied with methods and used the system for two sub species mollusks of Central Asia which created by Z.I.Izzatullaev [1,2].

The ecology and extension of two subspecies mollusks in between biotopes of Uzbekistan deeply analyzed.

**The ecology and extension in biotope.** The location chracteristics in Uzbekistan river and water reservoir of fauna of two sub species mollusks influenced to the extension and development.

The materials were collected from rivers of Uzbekistan: Amudarya, Syrdarya, Zarafshan and Kashkaradya and the information were given in the 1-table about extension in the following biotope of two sub species mollusks according to the investigation.

Recently, Kattakurgan, Kuyimozor, Chimkurgan, Pachkamar, Tallimarjon, Sothern Surkhan water reservoirs nearby rivers were built and created many canals. It was

useful not only for agriculture but also, to the development of fishing farms and rich source for living the mollusks [3].

Uzbekistan was one of the oldest farm roots of the world that is why many water constructions were built in 2-3 centuries BC.

On the result of moving fish in water reservoirs and fishing farms *Colletopterum bactrianum*, *Colletopterum cyreum sogdianum* types from *Colletopterum* family of two sub species mollusks were begun to extend.

*Unionidae* and *Corbiculidae* family type of two sub species mollusks we found in water type of rivers, water reservoirs, canals and fishing farm of Uzbekstan. They were extended under not flown water clay, sandy, stony flown water clay and flown water biotopes. [4,5].

*Colletopterum ponderosum volgense* types in not flown water and *Corbicula cor* type in stony biotopes were eextended. *Corbiculidae* family type were extended in sandy biotopes of the bank of rivers and they were mainly servived under the sand. *Sinanodonta orbicularis*, *S. gibba*, *S puerorum*, *Corbiculina tibetensis*, *C. Ferghanensis* types were extended in flown water clay. It was studied *Colletopterum bactrianum*, *C.cyreum sogdianum* types in flown water. *Sinanodonta* family type can be existed for 1-2 pieces in 1m<sup>2</sup> which live in flown water, *Corbiculidae* family type can be existed for 1-3 pieces in 1m<sup>2</sup> in sandy biotopes were defined.

It was defined the extention and enlarging areals in the banks of river and water reservoirs were acclimitazed *Colletopterum ponderosum volgense* from Volga and *Sinanodonta gibba*, *S. Puerorum* from Chinese complex fish to the rivers of Uzbekistan in 1960. *Corbicula cor* could be existed in sandy places and sometimes stony biotopes of middle and end of Amudarya river.

1-table The extension of two sub species mollusks in biotopes

№	Type of mollusks	The prevalence of shellfish					
		Not flowed water clay	Stony lands	Sandy lands	Flowed water clay	Flowed water	Compactness in mid.n (1m <sup>2</sup> exist- ence of mollusks in biotopes)
	Bivalvia class Sinanodonta family						
1	Sinanodonta or- bicularis	-	-	-	+	-	1-2
2	Sinanodonta gibba	-	-	-	+	-	1-2
3	Sinanodonta puerorum	-	-	-	+	-	2-3
	Colletopterum family						
4	Colletopterum bactrianum	-	-	-	-	+	1
5	Colletopterum cyreum sogdia- num					+	2-3
6	Colletopterum ponderosum volgense	+					1
	Corbicula fami- ly						
7	Corbicula cor	-	+	+	-	-	1-3
8	Corbicula pur- purea	-	-	+	-	-	1-2
9	Corbicula fluminalis	-	-	+	-	-	1-3
	Corbiculina family						
10	Corbiculina ti- betensis	-	-	+-	+	-	1-2
11	Corbiculina ferghanensis	-	-	+	+	-	1-3
	Total	1	1	5	5	2	

+ existed types .      – not existed types.

Kattakurgan, Kuyimozor, Chimkurgan water reservoirs were build by bulding overflow weirs, they used for keeping unused water and they supported the agricultural fields with water in needed season. That's why, *Corbicula cor*, *C. purpurea*, *C. fluminalis*, *Corbiculina tibetensis*, *C. Ferghanensis* from *Corbiculidae* were extended in sandy, flown water and not flown water clay where were created by them [2, 4].

*Sinanodonta*, *Colletopterum* and *Corbiculidae* types from *Unionidae* family were extended the water reservoir which located in the middle and end parts of river. The snail of died *Sinanodonta gibba*, *S.orbicularis* types were collected from water reservoir of Kattakurgan and Chimkurgan.

It was defined the created water reservoirs in the following area were rich for fauna of two sub species mollusks.

*S.orbicularis*, *S. gibba*, *S puerorum* from *Sinanodonta* root of *Unionidae* family, *Colletopterum bactrianum*, *C.cyreum sogdianum*, *C.pondersum volgense* from *Colletopterum* root, *Corbicula cor*, *C. purpurea*, *C.fluminalis* from *Corbicula* root of *Corbiculidae* family, *C. tibetensis*, *C. ferghanensis* from *Corbiculina* root were live in the bank of Zarafshan river [6].

It was defined there were 9 type and 2 small type of *Unionidae* and *Corbiculidae* family live in under the water type of the bank of Uzbekistan river according to the investigation and studying the literatures and they belong to 2 family and 4 roots. According to the extension in biotopes in not flown water clay, stony places 1 type, in sandy places, flown water clay 5 types and in flown water 2 types living were defined (1- table).

The following was studied an average number of total amount of two sub species mollusks which found in biotopes of water type consists of following: each 7 % in stony and not flown water clay, in each 36% in sandy places and flown water clay and 14% in flown water.

On the conclusion, it is allowed to tell that it was defined 9 types and 2 small types *Unionidae* and *Corbiculida* family live in water types of Uzbekistan river. It was defined 1 type in not flown water clay, stony places, 5 types in sandy places, flown water clay and 2 types in flown water live according to the extension in biotopes.

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