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Z.I. Izzatullaev,
Professor, Doctor of biological sciences, Head of Ecology and Fauna Protection Faculty
(State University of Samarkand)

RESULTS OF A STUDY OF BIVALVE MOLLUSCS OF CENTRAL ASIA

Стаття присвячена багаторічним дослідженням (1972-2001) автора двостулкових молюсків Центральної Азії. Тут встановлено проживання 51 виду цих молюсків, що відносяться до 16 родів, 8 родин і 3 рядів. Серед них 13 видів і 1 підрід описані як нові для науки. Вивчено їхню екологію, розподіл по типах водойм і біотопам, життєві форми і господарське значення.

Our long - time studies (1972-2000) of waterbodies (rivers, lakes, reservoirs, artificial ponds, canals and springs) of Central Asia and analysis of the literature show that this region is inhabited by 51 species and 8 subspecies of bivalve molluscs belonging to 16 genera, 8 families and 3 orders .

A taxonomic revision of Central Asian molluscs carried out with several methods and based on extensive collections allowed us to propose the folowing system.

Ordo Unioniformes Stoliczka, 1871

Family Unionidae Rafinesque, 1820

Genus Sinanodonta Model, 1944: S.gibba (Benson, 1855), S.orbicularis (Heude, 1880), S.ruerorum (Heude, 1880).

Genus Colletopterum Bourguignat, 1881: Subgen, Colletopterum s.str.: C.(C) bactrianum (Rolle, 1897); Subgenus Ponderosiana Bourguignat, 1881:C. (P.) cyreum sogdianum (Kobelt, 1896); kokandicum Starobogatov et Izzatullaev, 1984; C.(P.) ponderosum volgense (Shadin, 1938).

Ordo Lucinformes Stoliczka, 1871

Family Sphaeriidae Jeffreys, 1862

Subfamily Sphaeriinae Jaffreys, 1862

Genus Sphaerium Scopoli, 1777: Subgen. Sphaerium s.str.: S.(S.) corneum (L., 1758).

Subfamily. Musculiinae Starobogatov, 1984 in Stadnichenko, 1984 Genus Musculium Link, 1807: Subgenus Musculium s.str., M.hungaricum (Hazay, 1881) M.clessini (Clessin, 1880): Subgen, Parvimusculium Kornjushin et Starobogatov, 1986: M. creplini (Dunker, 1845).

Superfamily Pisidioidea Gray in Turton, 1857.

Family Pisidiinae Gray in Turton, 1857.

Subfamily, Pisidiinae s.str.

Genus Pisidium C.Pfeiffer, 1821: P.amnicum (O.F. Muller, 1774)

Subfamily Neopisidiinae Kornjushin, 1989.

Genus Odhneripisidium Kuiper, 1962: Subgen. Kuiperipisidium Izz.et Star., 1986: O.(K.) terekense Kazannikov in Izz.et Star., 1986, O.(K.) issykkulense Izz.et Star., 1986, O.(K.) polytimeticum Izz.et Star., 1986, O.(K.) sogdianum Izz.et Star., 1986: Subgen Odhneripisidium s.str.: O. (O.) stewarti (Preston, 1909), O.(O.) prashadi (Odhner, 1937), O.(O.) dancei (Kuiper, 1962), O.(O.) kungejense (Butenko et Star., 1967), O.(O.) chatyrkulense Izz.et Star., 1986, O.(O.) behningi Izz.et Star., 1986, O. (O.) gafurovi Izz.et Star., 1986, O.(O.) pamirense Izz.et Star., 1986, O.(O.) kazakhstanicum Izz.et Star., 1986 (fossil), O.(O.) tolsticvae Izz.et Star., 1986 (fossil).

Family Euglesidae Pirogov et Starobogatov, 1974.

Genus Euglesa Leach in Jenyns, 1832; Subgenus Euglesu s.str.: E.(E.) hissarica (Izz.et Star, 1985): Subgenus Euglesa s.str.: E.(E.) heldreichi (Clessin, 1874), E.(E.) pallida (Gassies, 1855), E.(E.) buchtarmensis Krivosheina, 1978, E.(E.) irtyschensis Krivosheina, 1976, E.(E.) zugmayeri (Weber, 1910). E.(E.) obliquata (Clessin in Martens, 1874), E.(E) turkestanica Izz., 1974, E.(E.) crassicardo Krivoshina, 1976, E.(E.) curta (Clessin, 1877), E.(E.) joudoniana (Gassies, 1855); Subgenus Roseana Fagot, 1892: E.(R.)borealis (Clessin in West., 1855): Subgenus Cyclocalyx Dall, 1903: E. (Cycl.) mitchelli (Prashad, 1937), E.(Cycl.) gurvichi Izz. et Star., 1985, E.(Cycl.) obtusalis (C. Preiffer, 1921).

Genus Pseudeopera Germain, 1913: Subgenus Pseudeupera s.str.: P.(P.) turanica (Clessin in Martens, 1874).

Genus Cingulipisidium Piragov et Starobogatov, 1974: Subgen. Cingulipisidium s.str.: C.(C.) faroense (Mtch, 1864), C.(C.) nitidum (Jenyns, 1882), C.(C.) fedderseni (Westerlund, 1890).

Genus Henslowiana Fagot, 1892: Subgen.Henslowiana s.str,: H.(H.) conica (Baudon, 1857).

Ordo Cardiiformes Ferussac, 1821

Family Lymnocardiidae Stoliczka, 1871

Subfamily Didacninae Ebersin, 1962

Genus Cerastoderma Poli, 1795: C. rhomboides (Lam., 1819), C. istmicum (Issel, 1869).

Subfamily. Hypaninae Star., 1970.

Genus Hypanis Menetries, 1832: Subdenus. Adacna Eichwald, 1838: H. (A.) minima minima (Ostroumoff, 1907), H. (A.) m. sidorovi Star., 1974, H. (A.) vitrea bergi Star., 1974; Subgenus. Monodacna Eichwald, 1838: H. (M.)colorata (Eichwald, 1841).

Family. Scrobiculariidae H. Adams et Adams, 1856:

Genus Abra Leach in Lam., 1818: A. segmentum Reclus, 1843

Family Corbiculidae Grau, 1847, Genus, Corbicula Megerle, 1811: C.cor. (Lam., 1818), C. fluminalis (O.F.Muller, 1774), C.purpurea Prime, 1864.

Genus Corbiculina Dall, 1903: C.ferghanensis (Kursalova et Star., 1971), C.tibetensis (Prashad, 1929).

Subordo Myoidei Stoliczka, 1871.

Family Dreissenidae Gray in Turton, 1840.

Genus Dreissena van Beneden, 1835: D. polymorpha aralensis (Andr. 1897), D.polymorpha obtusecarinata (Andr., 1897), D. caspia pallasi (Andr., 1897).

As can be seen from the taxonomic list, the most abundant among bivalve molluscs of Central Asia are Euglesidae (20 species), Pisidiidae (15) and Unoinidae (5 species and 2 subspecies), the rest are represented b 1-5 species. Of the total number of subspecies and 14 species are described as new for science, 7 species are indicated as new for the fauna of the CIS and 5 species are recorded for the first time to Central Asia. Three species of the genus Sinanodonta that are regarded as new for the CIS faunae are found in the fauna of Central Asia. These representatives of East Asian Sinanodonta were introduced in CIS in the 1960 s with the East Asian complex of herbivarous fishes (Hypophthalmichthys molitrix, etc.) introduced in waterbodies of Central Asia .

A taxonomic revision of the genus Odhneripisidium with reference to its species inhabiting the CIS, and of the families Unionidae and Corbiculidae with reference to its species inhabiting Central Asia is made.

Ecology and biology of Corbiculina are studied and boundaries of the in distribution within Central Asia are determined. It has been established that of 5 species of corbiculids of the region two of them belong to the genus Corbiculina and are oviviparous C.tibetensis and C.ferghanensis; three others presumably oviparous species belong to the genus Corbicula: C. cor, C. fluminalis, C.purpurea.

The detailed analysis of distribution of bivalve molluscs in types of water bodies has been made. It is established that the lowland rivers are rich in small bivalve molluscs: pelophils of the genera Euglesa and Cingulipisidium. Mud - pelophil molluscs in rivers include also representatives of large bivalves (10 species) of the genera Corbicula and Corbiculina, Sinanodonta and Colletopterum.

Springs are inhabited by habitants of muddy, sandy and sand-muddy grounds (11 species) belonging to the genera Odhneripisidium and Euglesa. Representatives of the former genus are numbrous and complectly endemic species (O. polytimeticum, O. sogdianum, O.issykkulense) spread in the plain and in foothills. On the contrany representatives of the latter genus are widespread eurybiont species (E. obliquata, E.turkestanica) penetrating also high-mountain waterbodies. Malacofauna of freshwater lake is also represented by the superfamily Pisidioidea (22 species).

Malacofauna of the Aral sea is represented by mesohaline, pelolimnophilous and psammolimnophilous species of the genera Cerastoderma, Dreissena, Hypanis and euryhalie acclimatizant Abra segmentum. When the salinity ot the sea increase, there have been drastic changes in species composition and quantitative distribution of the bivalves. Three subspecies of the genus Hypanis, Dreissena polymorpha obtusecarinata and D. caspia pallasi are considered to be extinet.

High-mountain brakish lakes (Issyk-Kul, Chatyrkul; Songkul) are inhabited by oligohaline and evrybiont species of the genus Odhneripisidium (O.issykkulense, O.chatyrculense, O.kungejense).

Reservoirs and canals are inhabited by unionids and corbiculids, their distrbution being restricted to plain bodies of water. These molluscs are lacking in the upper reaches of rivers in Central Asia because of fast flow, low temperatures, low mineralization of water and lack of organic matter.

The fauna of bivalves of Central Asia quantitatively and qualitatively is richer and more diverse in the bodies of water of plains and middle altitudes than at high altitudes. Whereas thermophilous species of molluscs of Sogdian, Mediterranean and Asiatic Anterior origin are predominent in bodies of water of the first and the second vertical zone, Central Asian and North European cold-loving species are predominant in the third zone. The major factors that are considered to be responsible for their origin are temperature, hydrological and hydrochemical regimes, diversity of biotopes, vegetation, accumulation of organic material division of landscape.

Life-forms of bivalves have been studied. The latter are considered to belong to 9 life-forms on the basis of their morphological characterisis and habitats (e.g., kolletopterum-picturesque, corbicula-picturesque, dreissena-picthresque, etc.). The ecology of small bivalves of the genera Euglesa, Odhneripisidium has been insufficiently studied, and we do not divide them into life-forms, but consider a group of life-forms of small Pisidiidae and Euglesidae dividing them according to preferred types of bodies of water (e.g. lake life-form, river life-form, spring life-form).

An analysis of the distribution of the recent malacofaune allowed us to establish the history of origin. Zoning of bodies of water of Central Asia has been made on the basis of a study of distribution of mollusc ecologo-zoogeographic complexes.

The importance of bivalve molluscs as food of fish and waterfowl and their role as biofiltrations in bodies of water have been studied.

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Иззатуллаев З.И. Итоги исследования двустворчатых моллюсков Центральной Азии.

Статья посвящена многолетним исследованиям (1972-2001) автора двустворчатых моллюсков Центральной Азии. Здесь установлено обитание 51 вида этих моллюсков, относящихся к 16 родам, 8 семействам и 3 отрядам. Среди них 13 видов и 1 подрод описаны как новые для науки. Изучена их экология, распределение по типам водоемов и биотопам, жизненные формы и хозяйственное значение.

Izzatullaev Z.I. Results of the study of bivalve molluscs of Central Asia.

The article is devoted to many years' research (1972 - 2001) of bivalve mollusks of Central Asia. It is established that it is inhabited by 51 species of molluscs belonging to 16 genera, 8 families and three orders. Among them 13 species and 1 subgenus are described as new for science. Their ecology, distribution by basin types, byotopes, life forms and economic significance have been studied.