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## A NEW FOSSIL *PERCA* FISH (TELEOSTEI, PERCIDAE) FROM THE NEOPLEISTOCENIAN SEDIMENTS OF SOUTHERN UKRAINE

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**A New Fossil *Perca* Fish (Teleostei, Percidae) from the Neopleistocenian Sediments of Southern Ukraine.** Kovalchuk O. M. — A new fossil species *Perca neopleistocenica* Kovalchuk, sp. n. from Southern Ukraine is described. It differs from other species of the genus by width and configuration of praeoperculum, and also by quantity of cogs on the posterior edge of os praeoperculare.

**Key words:** *Perca*, new species, os praeoperculare, alluvium, beginning of the Middle Neopleistocene, Zaporozhye region, Ukraine.

**Новый ископаемый вид рода *Perca* (Teleostei, Percidae) из неоплейстоценовых отложений на юге Украины.** Ковальчук А. Н. — Описан новый ископаемый вид *Perca neopleistocenica* Kovalchuk, sp. n. из южной Украины. Он отличается от других видов рода шириной и конфигурацией предкрышки, а также количеством зубцов на заднем крае ос прaeoperculare.

**Ключевые слова:** *Perca*, новый вид, ос прaeoperculare, аллювий, начало среднего неоплейстоцена, Запорожская область, Украина.

### Introduction

New locality of the fossil fauna Lysa Gora was discovered in 2009 during the field paleozoological investigations of expedition of the National Museum of the Natural History, National Academy of Sciences of Ukraine. It is situated near Vasilyevka, Zaporozhye region (Southern Ukraine). This locality is a natural outcrop (to 20 m high) of Miocenian and Pleistocenian sediments on the left bank of the Dnieper River. Two horizons of sands and gravelites with numerous fossil remains of fishes and mammals were selected in deposits of clays, limestones, loesses and fossil soils. Lysa Gora—1 is a former Neopleistocenian river avandelta.

Remains of perch from these sediments were found to be different from all other species of the genus in a number of characters and described here as a new species. Determination of the fossil remains was realized by comparison with collection of the recent and fossil material, and also with use of corresponding zoological (Shcherbukha, 1981) and paleontological works (Radu, 2005). Description of the new taxon was carried out on the scheme, proposed by I. A. Korobkov for the fossils (Korobkov, 1971), on the basis of the special work of J. Lepiksaar (1994) and principles of acting International Codex of Zoological Nomenclature (International Code..., 2003).

### *Perca neopleistocenica* Kovalchuk, sp. n.

**Material.** The holotype (fig. 1) is a near-complete left praeoperculum. It is deposited in the Department of Vertebrate Paleozoology and Paleontological Museum, National Museum of the Natural History (NMNH), National Academy of Sciences of Ukraine (Kyiv).

Referred material. One praeoperculum certainly belong to the new taxon. The attribution of a few postcranial bones (vertebrae etc.) is less certain.

**Locality.** Lysa Gora—1 (47°28.373" N, 35°16.114" E), left bank of the Dnieper River, near Vasilyevka, Zaporozhye region, Southern Ukraine.

**Geological age.** Beginning of the Middle Neopleistocene (Likhvin age, Holstein, MQR 3, OIS 11).

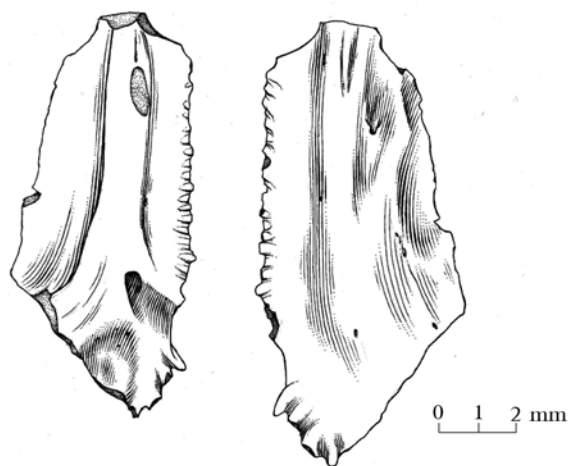


Fig. 1. *Perca neopleistocena* sp. n., left praeoperculum: 1 — anterior view; 2 — posterior view.

Рис. 1. *Perca neopleistocena* sp. n., левый праеоперкулум: 1 — вид спереди, 2 — вид сзади.

**Diagnosis.** New fossil *Perca* species is characterized by broadest praeoperculum with smaller, frequent massive rounded cogs.

**Description and comparison.** The maximum preserved praeopercular length is about 1.1 cm (total length of the complete bone is near 4 cm). Considering a directly proportional dependence between viscerocranial bones and total fish body length (Lebedev, 1960), and also on the basis of comparison with praeoperculum of recent *Perca fluviatilis* Linnaeus, 1758 it is safe to say, that total body length of the new species is near 20 cm.

A surface of bone is raised, slightly bulging. Angulus superior is destroyed, angulus anterior is partially broken. Pori canales lineae lateralis are well-preserved. Medial part of the os praeoperculare is sharply defined, with developed relief. Praeopercular limbus posterior is jagged, similar to that in all species of *Perca* Linnaeus, 1758.

Cogs of the os praeoperculare should be uniform in size, whereas *Gymnocephalus* Bloch, 1793, the nearest to *Perca* genus of the family Percidae Cuvier, 1816 based on mitochondrial DNA sequence (Song et al., 1998; Mamilov et al., 2003; Sloss et al., 2004), has three long large cogs at the point of praeopercular angle. Contrary to the praeoperculum of *Perca fluviatilis* Linnaeus, which has flat saw-like infrequent cogs, praeopercular cogs of the new species are more frequent (cogs quantity proportion between *P. fluviatilis* and *P. neopleistocena* is 1 : 2), massive, adjoined face to face and rounded in the cross section.

Judging from the preserved lamina praeopercularis, the angle among two ends of bone is 120° (praeopercular angle of *P. fluviatilis* is 90°). Plate of the praeoperculum is broader, its maximum width is 0.64 cm.

**Etymology.** The specific name is a Latin derivation and reflects the age of corresponding alluvial horizon.

**Attendant material.** Besides the perch remains, pharyngeal teeth of cyprinid fishes (*Cyprinus* cf. *carpio*, *Cyprinus* sp., *Carassius carassius*, *Carassius* sp., *Tinca* sp., *Rutilus* cf. *frisii*, *Rutilus* sp., *Scardinius erythrophthalmus*, *Scardinius* sp., *Leuciscus* sp., *Chondrostoma* cf. *nasus*, *Chondrostoma* sp.), lateral ethmoid of *Cobitis* sp., teeth and bones of *Silurus* sp., *Esox lucius*, *Esox* sp., also some bone fragments of large and small mammals were found in the same alluvial layer of Lysa Gora-1.

**Distribution.** ? Middle Neopleistocene of Southern Ukraine.

**Remarks.** *Perca neopleistocenica* is described on the basis of fossil praeoperculum collected from the Neopleistocenian locality Lysa Gora–1. The age of fossil material is estimated to be 1,8 Ma. On the territory of Ukraine, fossil remains of European perch are known from the Middle-Pliocenic deposits near Kamenskoye, Zaporozhye region (Tarashchuk, 1962), from the Late Pliocene of Kairy, Kherson region and Nogaïsk, Zaporozhye region (Tarashchuk, 1962). Besides numerous bones of *P. fluviatilis* were found in the Middle-Pleistocenian and Early-Holocenic deposits near Kaniv and Kyiv (Shpet, 1949), on the territory of Palaeolithic site on the right bank of the Desna River near Novgorod-Siverskiy (Nikolsky, 1952), in materials of the mound burier of X–XI cent. Shestovitsy (Chernigov region) and Slavic settlement of VIII–XIII cent. on the bank of Vorskla River, Poltava region (Lebedev, 1960).

The recent percids are represented by a wide-variety of morphological forms. They are the subject of numerous phylogenetic studies (Svetovidov, Dorofeeva, 1963; Collette, 1963; Collette, Bănărescu, 1977; Song et al., 1998; Mamilov et al., 2003). Twelve species of 5 genera (*Stizostedion*, *Perca*, *Gymnocephalus*, *Zingel*, *Percarina*) of the family Percidae are presented in the modern Ukrainian ichthyofauna (Movchan, 2008–2009). More than 190 percid species are in the world fauna (Sloss et al., 2004), which allow to assume the evolutionary prosperity of this group of freshwater fishes.

## Conclusions

Finding a new fossil *Perca* in Neopleistocenian deposits in Zaporozhye region adds to our knowledge on the history of Ukrainian freshwater perciform fish. Fossil and recent forms of the genus *Perca* are not fully studied till present (Shcherbukha, 1992). The range of its affinity depends on their geological age, origin and environmental conditions (Shcherbukha, 1993; Yakovlev, 1964).

Thus, fossil fishes appear to be useful subjects for discussing European palaeobiogeography and freshwater environmental continuity. This encourages further development of our ability to distinguish fossil fish species on the basis of disarticulated and fragmentary osteological material, which is the case for most Ukrainian continental material.

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