

On the migratory Black Sea lamprey and the nomenclature of the ludoga, Peipsi and ripus whitefishes (Agnatha: Petromyzontidae; Teleostei: Coregonidae)

M. Kottelat, N.G. Bogutskaya & J. Freyhof

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The data on the extinct migratory Black Sea lamprey are reviewed. The records from the Prut (Danube drainage) apparently refer to *Eudontomyzon mariae* while those from the Dnieper and Don refer to a larger species, which is apparently extinct. No museum material is known to survive, and its identity cannot be resolved. *Coregonus ludoga* Polyakov, 1874 is an unnecessary replacement name for *C. widegreni* Malmgren, 1863. *Coregonus lutokka* nom. n. is proposed here as a new replacement name for *C. ludoga* Berg, 1916, the ludoga whitefish of lakes Ladoga and Onega. *Coregonus maraenoides* Polyakov, 1874 is the valid name of the Peipus whitefish. *Coregonus ladogae* Pravdin, Golubev & Belyaeva, 1938 is the valid name of the ripus of Lake Ladoga.

M. Kottelat, Case postale 57, 2952 Cornol, Switzerland (address for correspondence) and Department of Biological Sciences, National University of Singapore, Kent Ridge, Singapore 119260.

N.G. Bogutskaya, Zoological Institute, Russian Academy of Sciences, Universitetskaya nab. 1, St.Petersburg 199034, Russia.

J. Freyhof, Leibniz-Institute of Freshwater Ecology and Inland Fisheries, Müggelseedamm 310, 12587 Berlin, Germany.

Introduction

The purpose of this paper is to discuss the identity of the extinct migratory Black Sea lamprey and clear the nomenclature of three species of Coregonidae from Russia and Estonia.

The *Code* refers to the International Code of Zoological Nomenclature, 4th edition. ZISP refers to the Zoological Institute, Russian Academy of Sciences, St.Petersburg, and SPU to the fish collection of the former Zoological Cabinet of St.Petersburg University, now with the Chair of Ichthyology and Hydrobiology.

Eudontomyzon sp.

According to some authors (Zhukov, 1965a, 1965b; Holcik & Renaud in Holcik, 1986; Kottelat, 1997), the anadromous parasitic lamprey from the northern Black Sea basin is a still unnamed

species, which apparently went extinct. The opinion is based upon reports on *Petromyzon fluviatilis* or river lamprey, from the Prut (Danube drainage) (Wajgel, 1884), Dnieper (Gortynsky, 1884; Emelianenko, 1914), Don (Czernay, 1850, 1852), and the Black Sea (Yashchenko, 1895)¹. *Petromyzon fluviatilis* and *P. planeri* (brook lamprey) are names that had been commonly used for pairs of predatory (anadromous) and non-predatory (sedentary) species distributed in sympatry in the Caspian, Black Sea and east Mediterranean basins before species separate from true *Petromyzon fluviatilis* and *P. planeri* were described from seas of the north-eastern Atlantic and Mediterranean along French and western Italian coasts. We refer the unnamed anadromous species to the genus *Eudontomyzon*, since it apparently represents a species paired to *Eudontomyzon mariae* (Berg, 1931) now distributed in rivers of the Black Sea from Danube to Kuban.

¹ In the catalogue of specimens by Yashchenko (1895: 99), the locality is given as "Novorossiysk" (a town on the north-eastern, Caucasian, coast of the Black Sea); however, the donor of the specimen, Ernst von Ballion (1816-1901), an entomologist, lived in Odessa (a city on the western coast of the Black Sea, in the southern part of the Ukraine, which was frequently named Novorossiya at that time). It is not improbable that "Novorossiya" on the label was misread as "Novorossiysk".

The description and figure of the material from the Prut by Wajgel (1884) actually seems to refer to *E. mariae*, which is distributed in the Danube tributaries below the Iron Gate. Contrary to statements by Holcik & Renaud (in Holcik, 1986) and Zhukov (1965a, 1965b), unlike the migratory lampreys of the Dnieper and Don, the Prut lamprey described by Wajgel is not a large one and is not migratory. Wajgel records its size as 143-190 mm TL and merely reports that it is present near Kolomea [now Kolomyia; 48°31'N 25°00'E] in April-June, i.e. the post-metamorphosis and spawning period reported for *E. mariae*. There is no information in Wajgel suggesting a migratory life-style or postlarval feeding. He simply reports that the fishermen say that in July they move "towards the sea" [gegen das Meer ziehen], which is not equivalent to "to the sea". Kolomyia is about 600 km from the Black Sea and in the 1880s local fishermen were unlikely to know the long range extent of fish movements. Wajgel's data show that he had ammocoetes in the size ranges 100-175 mm, collected together with the adults of about the same size; this strongly suggests that the whole life cycle occurs in the same area and that the dispersal of the fish by supposed downstream movement is probably nothing more than drifting of adults naturally dying (died) after spawning.

Gortynsky (1884: 560) reports the river lamprey from the rivers Western Dvina (flowing in the Baltic Sea) and Porositsa (basin of the upper Dnieper) giving the length up to 20 inches (about 50 cm). It is not improbable that his description was based on specimens from the Dvina only, i.e. on the true *Lampetra fluviatilis*. Emelianenko (1914: 273) discuss adult lampreys of large size (up to 30-50 cm of the total length) from the Dnieper. He says that he personally saw individuals up to 28 cm. This size can only correspond to the river lamprey; spawning adults of the brook lampreys of different species attain only 16-18, rarely 20 cm.

In the reviews of the Don fish fauna, Czernay (1850, 1852) clearly distinguishes "*Petromyzon fluviatilis*" and "*P. planeri*" by the size and diagnostic characters (respectively, olive vs. steel coloration, presence vs. absence of a gap between the dorsal fins) (Czernay, 1852: 49). It may be mentioned that the occurrence of the river (migratory) lamprey in the Don was earlier stated by Pallas (1814: 66).

Zhukov (1965a, 1965b) reviewed distributional and biological information by earlier authors and later used the name *Lampetra pontica* for this species. This name was already published by Yashchenko (1895: 99), but as a nomen nudum (manuscript name given in the collection by unknown person). Berg (1911: 40) examined the

specimen (missing now from SPU) and identified it as a larva of *L. planeri*, i.e. the brook lamprey. Zhukov's proposal of *L. pontica* is not accompanied by a description. His text (Zhukov, 1988, p. 34, lines 6-13) reads: "30-32 species of lampreys are known, including 4 in the southern hemisphere. In waters of Belorussia, lampreys are represented by two freshwater species of the genus *Lampetra*. However, till the first half of the 20th century the migratory European lamprey *Lampetra fluviatilis* reached Belorussia from the Baltic Sea, and about 300 years ago from the lower Dnieper used to come the migratory Black Sea lamprey *Lampetra pontica* sp. n., which was already completely extinct by the beginning of 18th century [45-48]". Zhukov's mention of the 18th century is rather strange, since he had earlier (1965a, 1965b) concluded that "migratory lampreys inhabited Dnieper not so long ago" and he cited Emelianenko (1914). Emelianenko (1914: 273) commented that the lamprey is a commercial fish in the lower Dnieper in Dnieper Porogi [Dnieper rapids, in lower Dnieper, now flooded by Kakhovskoye Reservoir] and that the species is distributed in the whole Dnieper system. Belling (1926: 55) reports a lamprey caught on 18 January 1924 under the ice in the lower Dnieper at Britany [near Nikopol, now in the middle part of the Kakhovskoye Reservoir; 34°38'N 57°68'E], a locality rather close to the delta. He further comments that "the lamprey is sometimes caught in the lower Dnieper according to fishermen and Brauner's report, though these data are not published".

Zhukov's text is not accompanied by morphological information, and his references "45-48" are: 45 Zhukov (1965a), 46 Zhukov (1965b), 47 Zhukov (1968) and 48 Zhukov (1969). None of these references include any information on morphology, even very short. Therefore *L. pontica* is a nomen nudum. Some of these references themselves refer to earlier publications, but they are irrelevant as the Code Art. 13.1.2 explicitly requests reference to a publication containing the morphological data, not reference to a publication which itself refers to another publication, etc.

The "description" of Dnieper migratory lamprey by Emelianenko (1914: 273) is much too vague to provide data usable for the identification of the species. An examination of Czernay's materials still kept at Kharkov University (Ukraine) is needed to check if the lampreys collected from the Don (Czernay, 1850, 1852) are preserved.

Coregonus lutokka nom. n.

Coregonus widegreni ludoga Berg, 1916: 97 (junior homonym of *C. ludoga* Polyakov, 1874).

The name *C. ludoga* was first proposed by Polyakov (1874) and was later considered a nomen nudum. Polyakov's (1874) text is included in the minutes of a meeting of the Society of Naturalists of Saint Petersburg. He reported on his observations of the fishes of various northern lakes of the former Russian Empire. For coregonids, he lists various species, some with new names. Most of the new names are clearly nomina nuda, being accompanied by neither a description nor an indication. But some are available, as they are accompanied by an indication to a published description.

In his discussion of coregonids, Polyakov repeatedly refers to the works of Malmgren and Kessler. There is no explicit reference as to which of Malmgren and Kessler's papers Polyakov referred, but his use of "*Cor. Widegrenii* Malm.", "*Cor. Widegrenii* Kessler", "*Baerii* Kessler", etc. indicates that he was at least aware of Malmgren (1863; the original description of *C. widegrenii*) and Kessler (1864; the original description of *C. baerii*).

Polyakov (1874: xxxi) mentions:

"*Coregonus ludoga* (*Cor. Widegrenii* Malmgr.)"

"*Coregonus ludoga* var. *Kessleri* (*Cor. Widegrenii* Kessler)"

"*Coregonus ludoga* var. *maraeoides* (*C. maraena* K. and Ml.)".

The citation "*Coregonus ludoga* (*Cor. Widegrenii* Malmgr.)" makes *C. ludoga* available by indication to *C. widegrenii* Malmgren, 1863 (p. 52); it is an unnecessary replacement name (Art. 12.2.3), thus invalid, and cannot be used (Code, Art. 52.2). The name *C. ludoga* is often cited with Berg as the author. Berg (1916: 97) described a *C. widegrenii ludoga*, treating Polyakov's *C. ludoga* as a nomen nudum. This makes the name *C. ludoga* Berg available. Berg's account is based on the "*C. fera* Jurine" of Kessler (1864: 136-138; 1868: 54). As Berg's *C. ludoga* refers to the ludoga whitefish of Lake Ladoga and Polyakov's *C. ludoga* to the Valaam whitefish (*C. widegrenii* of Malmgren), the two names are not synonyms. But Berg's *C. ludoga* is a junior homonym of Polyakov's *C. ludoga*, thus an invalid name (which must be replaced: Code, Art. 23.3.5) and the Ladoga's ludoga is left without a valid name. We propose *Coregonus lutokka* as a new replacement name for *C. ludoga* Berg, 1916 [lutokka, a Finnish variant of the fish's name ludoga]. Berg did not designate type material; as his account is based on Kessler (1864), the material used by Kessler constitutes the type series. This material is no longer extant and was apparently already missing in SPU collection as early as 1895 and in ZISP collection as early as 1954, as it is mentioned by neither Yashchenko (1895: 78-79) nor Pravdin (1954: 56).

The citation "*Coregonus ludoga* var. *Kessleri* (*Cor. Widegrenii* Kessler)" makes *C. kessleri* available by indication to *C. widegrenii* as used by Kessler (Code, Art. 12.2.1). Although there is no explicit bibliographic indication, this refers to Kessler (1864: 142, pl. 3) or Kessler (1868: 54), two known uses of that name by Kessler. The material included by Kessler in his *C. widegrenii* constitutes the type series. The probable syntypes are four specimens mentioned by Yashchenko (1895: 79) as "*Coregonus* sp.? (Valaam whitefish) coll. K. Kessler, from corf, [no date]". Later, Pravdin (1954: 49) noted that he examined 3 specimens from the Zoological Museum of Leningrad [= St.Petersburg] University labelled as "Kessler, Valaam" (these may represent the specimens from the sample mentioned by Yashchenko). To our knowledge, the specimens are not extant. *Coregonus kessleri* Polyakov is a junior synonym of *C. widegrenii* Malmgren since Kessler has clearly shown that he described the same fish as Malmgren.

Coregonus maraeoides Polyakov, 1874

Coregonus maraeoides Polyakov, 1874 is a name which has been used for a whitefish species from Lake Peipsi (= Chudskoye, or Pskovsko-Chudskoye) in Estonia and Russia. This name was first proposed by Polyakov (1874) and was later considered a nomen nudum. If a nomen nudum in Polyakov, the name *C. maraeoides* would then be available from Berg (1916) for the same fish, except that in the meantime the name *C. maraeoides* had also been made available by Fatio (1885) for a pre-Alpine species, making Berg's name a junior homonym and permanently invalid.

The original indication by Polyakov (1874) making the name *C. maraeoides* available is in the above-mentioned minutes of the meeting of the Society of Naturalists of Saint Petersburg. The citation "*Coregonus ludoga* var. *maraeoides* (*C. maraena* K. and Ml.)" refers to *C. maraena* of Kessler and Malmgren. There are two publications by Kessler (1864, 1868) using the name *C. maraena*. The 1864 (p. 149) paper contains a description of *C. maraena* Bloch based on the whitefish of the Pskovsko-Chudskoye Lake (named Peipsi Lake in Estonia), while the 1868 (p. 55) paper includes under this name fishes from several lakes (Pskovsko-Chudskoye, Ladoga, Onega and others in the Onega area). The Malmgren reference might be Malmgren (1863: 51 [German translation: 1864: 324]); there are possibly other references to this species in other Malmgren's papers to which we do not have access (see references in Dean, 1917: 96-97). Malmgren's account is based on material from



Fig. 1. Head of the neotype of *C. maraenoides*, lateral view.

Lake Ladoga and refers to a whitefish with a Finnish vernacular name “Walkea-siika” (*Coregonus lavaretus pallasi* n. *aspius* Smitt, 1882 by Pravdin, 1954: 36 or *Coregonus pallasii* Valenciennes, 1848 by Bogutskaya & Naseka, 2004: 141). Both accounts are accompanied by morphological data, so the name *C. maraenoides* is clearly available. The type series includes all the material on which Kessler and Malmgren’s accounts are based, that means two different species inhabiting different lakes. In order to definitively link the name to the commercially important “Chudskoy [Peipsi] whitefish” it is necessary to designate a lectotype or a neotype. Kessler’s (1864) account is based on several specimens, of which two are mentioned explicitly in a table of morphometric data on p. 149-150. However, no specimen collected by Kessler before 1864 or 1868 is extant in ZISP and SPU. No specimens that could be individuals described as “*C. maraena*” (Walkea-siika) by Malmgren are now deposited in Finnish Museum of Natural History as we could judge by the list of the coregonids and Malmgren’s specimens kindly sent to us by Martti Hilden of this museum. All the syntypes are thus lost. We are now in a situation which can only be solved by the designation of a neotype. We designate ZISP 53230 (out of ZISP 18611), 346.5 mm SL, as neotype. Its locality is

Chudskoe Lake [Peipsi] (Pskov Expedition, 1912-1913, collector I.D. Kuznetsov), and it conforms to the description of *C. maraenoides* given by Kessler (1864: 149, as *C. maraena*) (Fig. 1). This specimen, among others, is described by Berg (1923: 89-90) as *C. maraena maraenoides*.

Coregonus asperi maraenoides Fatio, 1885 is a junior homonym of *C. maraenoides* Polyakov, 1874. Fatio’s name is treated as a junior subjective synonym of *C. zuerichensis* Nüsslin, 1882 by Kottelat (1997), and we do not consider necessary to propose a new replacement name for it. *Coregonus lavaretus sulzeri natio sieboldi* was proposed by Berg (1932: 130) as a replacement name for *C. a. maraenoides* but is unavailable because it is infrasubspecific.

Coregonus ladogae Pravdin, Golubev & Belyaeva, 1938

Pravdin et al. (1938) established a “*Coregonus albula* infraspecies *ladogae*”. This name has been variously treated by subsequent authors, as a subspecies name (available) or as infrasubspecific (unavailable). The Russian text of the paper and the German summary disagree in two principal items: in the Russian text, the fish is named *Coregonus albula* infraspecies *ladogae* (availability of the name is discussed below) and

the authorship of the name is not specified (i.e., it must be credited to all the three authors of the paper), whereas in the German title and summary, the fish is named *Coregonus albula* m. *vimba* f. *ladogae* Pravdin & Golubew (i.e. the name is clearly unavailable as “quadrinomen” and credited to two of the three authors). Acting as first revisers, we select the Russian text as determining the authorship and the status of the name.

Berg (1948) commented that the name *C. ladogae* Pravdin et al., 1938 is preoccupied by *C. lavaretus baeri* natio *ladogae* of Pravdin (1931: 195) and proposed a new replacement name *C. albula* infraspecies *ladogensis*. However, according to the acting Code (Art. 45.5), *ladogae* is definitely infrasubspecific and hence unavailable in Pravdin (1931), and the Pravdin et al.’s (1938) *ladogae*, if available, is not a junior homonym.

The question of availability of *C. ladogae* Pravdin et al. (1938) revolves around their use of the word “infraspecies”. The Code defines infraspecific as any name below the species rank, including both subspecific and infrasubspecific names (see Glossary). The word infraspecies has been used with a variety of definition by Russian authors. For example, Berg (1935: 80; 1948: 13) explains that he uses the prefix infra- to denote races within species (infraspecies), subspecies (infrasubspecies), natio (infranatio), etc. Berg explicitly states (e.g., 1935: 81) that an infraspecies is distinguished from a subspecies, and that an infraspecies is a race.

Examination of the various works by Pravdin (e.g., 1939, 1948, 1950, 1954) shows that his terminology does not entirely correspond to Berg’s terminology. Pravdin was accurate and consistent in using the names he constructed for whitefishes. In his works, the fourth name is usually called natio (“natio” or “n.”) written between the third name and the fourth) and the fifth name is called subnatio. Pravdin only rarely used the word “subspecies”. He does not use the word infraspecies for “races”, and it is clear that when he uses the word “infraspecies” he is meaning a subspecific rank. For example, Pravdin (1954: 16) writes that he is considering only “taxonomic entities”, which he distinguishes from “races”; the latter are called by him an equivalent of “ecotypes”. When discussing ripus and kiletz, Pravdin (1939: 265-266) comments that what he is analyzing are “systematic groups” of an equal rank, not ecological “races”, and he calls them *C. albula* infraspecies *ladogae* and *C. albula* infraspecies *kiletz*, although in the 1938 paper is used *C. albula kiletz* (Pravdin et al., 1938: 226).

We conclude that Pravdin was not meaning an infrasubspecific rank when using the word infraspecies, and thus *C. albula* infraspecies *la-*

dogae Pravdin et al., 1938 satisfies the criteria of subspecific rank defined by Art. 45.6. This gives reason to consider *C. ladogae* an available name and the valid name of the ripus.

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