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BOOK REVIEW: BIOLOGIE A OCHRANA MIHULÍ (BIOLOGY AND PROTECTION OF LAMPREYS)

Lubomír Hanel, Jan Andreska, Bořek Drozd, Petr Hartvich, Stanislav Lusk, 2015: *Biologie a ochrana mihulí* (Biology and protection of lampreys). Faculty of Fisheries and Protection of Waters, University of South Bohemia in České Budejovice. Pp. 552.

The monography, *Biologie a ochrana nihula* (Biology and protection of lampreys), was published in the Czech Republic last year by Lubomír Hanel, Jan Andreska, Bořek Drozd, Petr Hartvich and Stanislav Lusk (Fig. 1). The main content of the book deals with biology, protection and conservation of lamprey species in the Czech and Slovak republics.

Chapter 1 (Introduction) informs the readers that lampreys are not fishes in the general sense of the word. They superficially resemble eels but are principally different in terms of their evolutionary history, anatomy and physiology. Modern vertebrates are classified into two major groups, the gnathostomes (jawed vertebrates) and the agnathans (jawless vertebrates which are divided into two groups of myxinoids and lampreys).

Basic anatomic and morphologic characteristics of lampreys are summarized in Chapter 2 (Anatomy and morphology of lampreys) in which the basic features are described. The larvae (ammocoetes) of lampreys differ from adults by the absence of eyes and oral disc (the mouth is horseshoe shaped). Morphometric characteristics and methods of measurement of larvae and adults of lampreys are presented.

Chapter 3 (History of the development of taxonomical knowledge of lampreys) summarizes the current status on taxonomy and systematics of lampreys. According to recent studies, three families (Geotriidae, Mordaciidae and Petromyzontidae) can be recognized within the order of Petromyzontiformes. Only one family (Petromyzontidae) is

Fig 1. Boards of the book - Biology and protection of lampreys

known on the European continent.

Chapter 4 (Evolution and genetics of lampreys) presents information on evolutionary lineages in these animals. Recent investigations using complete mitochondrial cytochrome b-sequences give rise to new interpretations on relations and lineages between various genera and species. It is clear that molecular characteristics will play an important role in the future views of lamprey systematics.

Fossil lampreys are discussed in Chapter 5 (Paleontology). Lampreys are extant representatives of the ancient vertebrate group, Agnatha, and are one of the oldest groups of living vertebrates in the fossil record, more than 300 million years old. Lamprey fossils are rare because cartilage does not fossilize as readily as bone.

Chapter 6 (Importance of lampreys for mankind) explains the relationship of lampreys and humans. Lampreys were known to the Romans in the 1st and 2nd centuries AD, when they were considered regal food. Nowadays, lampreys are consumed in several countries.

Etymological notes on scientific and vernacular names of lampreys, especially from the European continent, are mentioned in Chapter 7 (Etymology and vernacular names of lampreys). Vernacular names of the species *Lampetra planeri, Lampetra fluviatilis* and *Petromyzon marinus* are given in 37 languages.

Chapter 8 (Taxonomic overview of lampreys of the world and their zoogeographical distribution) presents all of the 44 valid species of lampreys throughout the world. The key to the determination of families is enclosed, scientific synonyms of the valid species of lampreys are summarized. The basic characteristics of families and all genera are stated.

The worldwide distribution of lampreys is shown in Chapter 9 (Ontogenetic development of lampreys and their biology) which deals with the embryonic development, larval phase, metamorphosis, feeding period in parasitic species, spawning and post-spawning phase. Neoteny (sexually mature in the larval stage without going through metamorphosis) and/or paedomorphosis (retention of larval characteristics in the adult) in lampreys were described and discussed. The identification of lamprey species and the determination of their generic status have been largely based on adult dentition. Therefore, there is still a considerable disagreement regarding the appropriate classification of several species of northern-hemisphere lampreys.

In Chapter 10 (Diseases and parasites of lampreys), the most important species of parasites and diseases in various species of lampreys are summarized. The sea lamprey in the Great Lakes is considered to be one of the most detrimental invasive species.

In Chapter 11 (Environmental damages caused by lampreys and their elimination), the collapse of lake trout (*Salvelinus namaycush*), whitefish (the genus *Coregnus*) and other fish populations was described.

Chapter 12 (Monitoring of lamprey distribution) describes the methods used for marking larvae and adult lampreys. The principles of lamprey monitoring in the Czech Republic are also described in this chapter. The total of 17 lamprey species has been reported from European waters. The status of European lampreys with respect to their protection is shown, too.

Chapter 13 (Lampreys of Central Europe) provides the key for the identification of Central European species (*Petromyzon mariae, Lampetra fluviatilis, Lampetra planeri, Eudontomyzon danfordi, Eudontomyzon mariae, Eudontomyzon vladykovi*). Central European lamprey species are described in detail. The subsequent text briefly summarizes the most important information on lampreys currently confirmed in the territories of the Czech and Slovak republics.

Chapter 14 (History and significance of lampreys in the Czech Republic) deals with historic data on the distribution and importance of lampreys (*Petromyzon marinus, Lampetra fluviatilis* and *Lampetra planeri*) in the territories of Bohemia, Moravia and Silesia. It also includes historical recipes for cooking lamprey.

Chapter 15 (Threats and protection of lampreys) explains the threats and dangers lampreys may face as well as the impact of river regulation, obstructions, destruction of lamprey spawning and larval habitats through dredging, drastic river level fluctuations and water pollution.

The complete bibliography of publications on lampreys in the Czech and Slovak republics is summarized in a separate chapter. The list of published papers comprises over 200 items. The contents of the book are completed with the alphabetical indexes of scientific and common names, and the summary in English. At the end of the book there are short presentations of the authors of the book.

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