DISTRIBUTION, TAXONOMY AND GENETIC STATUS OF THE EUROPEAN SPECIES OF THE GENUS *GOBIO*

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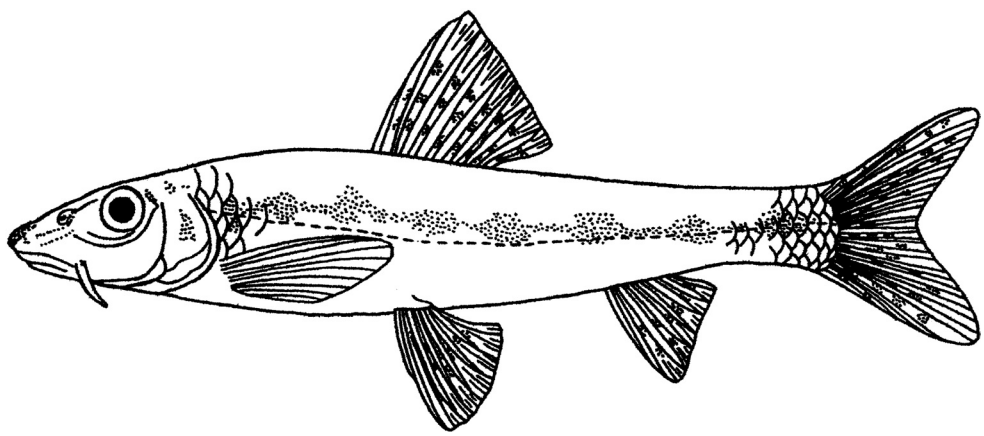

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PREFACE

Changes in the taxonomy of gudgeons from European waters

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An international conference on the ***"Distribution, Taxonomy and Genetic Status of the European Species of the Genus Gobio"***, held in Brno on September 9–11, 2003, has shown that these inconspicuous fishes, the gudgeons, have become the foremost objects of interest of European ichthyologists. There were several reasons for directing investigations at gudgeon problems. Some of the *Gobio* taxa, such as *G. albipinnatus, G. kesslerii,* and *G. uranoscopus,* have become species of conservation concern within EU countries. Within their ranges in Europe "special areas of conservation" have been established, creating the NATURA 2000 system. Thus, it has become necessary to determine their distribution over the hydrological systems of individual countries (Košćo et al. 2005, Lusk et al. 2005, Mustafić et al. 2005, Povž et al. 2005, Šanda et al. 2005). The revision carried out by Kottelat (1997), connected with the reduction of the species and subspecies structure of the genus *Gobio* in Europe, was a challenge for ichthyologists to reveal new species or elevate previous subspecies to species status. Besides the morphological approach, a further tool appeared in the molecular methods of evaluating genetic differences, as indicated by the most recent studies of the gudgeon taxa (Schreiber 2002, Wolter et al. 2003, Callejas et al. 2004, Doadrio & Madeira 2004, Mendel et al. 2005, Šlechtová et al. 2005).

A fleeting glimpse of the past

Small fishes included in the genus *Gobio* are distributed throughout European waters. The taxonomical structure of this genus was successively enriched by descriptions of new species and subspecies. This period, lasting almost 200 years, was in a way closed by Berg (1949) who evaluated a number of taxa at the species and subspecies level as mere synonyms, and presented a review of the status and taxonomic structure of the genus *Gobio* in Europe and Asia. Subsequently, in the second part of the 20th century, there appeared a number of papers studying the distribution and taxonomy of taxa within the genus *Gobio.* Among them, it is worth noting the paper by Bănărescu (1961) in which the author established two subgenera of the genus *Gobio* Cuvier, 1816, viz *Rheogobio* Bănărescu, 1961 (type species *Cyprinus uranoscopus* Agassiz*)* and *Romanogobio* Bănărescu, 1961 (type species *Gobio kessleri* Dybowski*)*. His initiative (and his subsequent papers Bănărescu (1964, 1992)) determined that his subgenus

Romanogobio was recently given the status of an independent genus (N a s e k a 1996). It is interesting to note that B ă n ă r e s c u did not acknowledge this genus *Romanogobio* (N a s e k a et al. 1999). In recent years, even *Rheogobio,* previously treated as a subgenus, has been considered an independent genus in connection with *Gobio uranoscopus* (N a l b a n t et al. 2004).

Another substantial moment in the history of *Gobio* taxonomy is the revision of European fish species by K o t t e l a t (1997). Abandoning the subspecies level created a prerequisite to descriptions of new species or redescriptions of subspecies to the species level. The classification of several gudgeon taxa as "subspecies" persisted for some time, e.g. in *Gobio* and *Gobio (Romanogobio) albipinnatus* (see B ă n ă r e s c u et al. 1999, N a s e k a et al. 1999, N a s e k a 2001). At present, only the species level tends to be applied in most cases.

The present and the near future

Looking at the most recent papers on gudgeon taxa (D o a d r i o & M a d e i r a 2004, N a s e k a & F r e y h o f 2004, V a s i l ' e v a et al. 2004, K o t t e l a t & P e r s a t 2005), it appears that the international conference on the ***"Distribution, Taxonomy and Genetic Status of the European Species of the Genus Gobio"*** (Brno 2003) literally started a race of ichthyologists to divide as quickly as possible the current taxa of *Gobio* into three separate genera *(Gobio, Romanogobio* and *Rheogobio)* and describe new species. Besides the classical morphometric characters, the descriptions also make use of osteological and genetic analyses and, applying suitable statistics, a more detailed and deeper knowledge of gudgeon diversity is obtained. One must accept the fact that the quite understandable variation at the interspecific and intergeneric level creates conditions for different opinions on the validity of the various taxa. It is obvious that differences found, e.g. by molecular-genetic methods will reflect a certain specific structuralisation. On the other hand, it is necessary to establish certain criteria that prevent the description of new taxa, based on minimum differences due to natural (e.g. geographic) intraspecific variability, resulting in excessive complexity of the system. The situation may be further complicated by the fact, in real life, practical protection is unable to accept taxonomic changes that occur at short time intervals, and one must accept that it may even appear to be unnecessary. The use of the subspecies category is still open to discussion, even if no longer as a taxon. At present, with greater emphasis being put on the knowledge and protection of genetic (intraspecific) diversity, the difference between "population" and "species" is too enormous. It is worthwhile giving some consideration to using the term "subspecies" to denote the structure of a species, when this unit could indicate, besides certain geographic location, certain morphological or genetic differences.

Increasing knowledge poses the question of whether the existing circumstances cannot make the research an end in itself; whether the system of financial support of scientific research does not lead to *per se* publications of "new, original discoveries" with each new research grant number, to producing the greatest possible number of papers, and perhaps even to make oneself "visible" at any price. In view of the above, one may expect that, in spite of the modesty on the part of the researches, the endeavour will prevail to reconstruct the gudgeon taxonomy, including the description of new species.

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