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Conference Abstract

Names and Terminology Matter: The case of the genus *Carassius*

Lukáš Kalous[‡], Pradeep Kumkar[§], Josef Wanzenböck[|], Marek Šmejkal[¶], Lukáš Choleva[#,¤], Dunja K. Lamatsch[|]

‡ Czech University of Life Sciences Prague, Praha, Czech Republic
§ Czech University of Life Sciences Prague, Prague, Czech Republic
| University of Innsbruck, Mondsee, Austria
¶ Institute of Hydrobiology, Biology Centre of the Czech Academy of Sciences, České Budějovice, Czech Republic
# University of Ostrava, Ostrava, Czech Republic
¤ Institute of Animal Physiology and Genetics of the Czech Academy of Sciences, Liběchov, Czech Republic

Corresponding author: Lukáš Kalous (kalous@af.czu.cz)

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Abstract

The naming of objects, processes, and various entities is crucial for effective communication. Precision is essential in both technical contexts and in the interpretation of natural phenomena. Clear and accurate terminology facilitates communication among specialised scientists and with stakeholders who make decisions affecting the environment and the behaviour of human society. While simplification is sometimes necessary to make scientific concepts more accessible to target audiences, it should never lead to bias or a misrepresentation of underlying biological facts. The fishes of the genus *Carassius* exhibit numerous unique characteristics, including a combination of sexual and asexual (gynogenetic) modes of reproduction, resulting in both clonal and recombinant offspring. The appearance of males within clonal all-female populations remains an unresolved phenomenon. Chromosomal diversity in *Carassius* is substantial, with some lineages exhibiting a tetraploid count of 100 chromosomes, while others show both 100 and approximately 150 chromosomes, indicating a shift toward hexaploidy. The higher chromosome counts are often accompanied by the presence of microchromosomes, further contributing to the cytogenetic diversity of the genus. Octoploid individuals have also been reported, typically arising from genome addition

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events. Hybridisation between individuals of maternally distinct evolutionary lineages resulting in fertile descendants contributes to the genetic and reproductive multifaceted nature of this genus. Such mismatches can lead researchers to reinterpret biological or ecological patterns in ways that align with established terminology, even if this oversimplifies or distorts the underlying complexity. On the other hand, the above-mentioned complexity also leads to the creation of new terminology that may be recognised only within the scientific groups that introduced it. Scientific understanding is shaped by shifts in prevailing scientific paradigms, shifts that have been remarkably dynamic in the case of fishes of the genus *Carassius*. Our intention is to enhance conceptual clarity and support accurate communication about this taxonomically and ecologically complex group.

Keywords

Taxonomy, Nomenclature, Invasive species, Endangered species, Unisexuals

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Conflicts of interest

The authors have declared that no competing interests exist.