

Good news for conservation: mitochondrial and microsatellite DNA data detect limited genetic signatures of inter-basin fish transfer in



In the last few decades, numerous populations of European grayling, *Thymallus thymallus*, have been suffering from stocking-induced genetic admixture of foreign strains into wild populations. Concordantly, genetic introgression was also reported for grayling stocks inhabiting the Upper Drava River, but all published genetic data based on specimens caught at least a decade ago, when stocking load was strong. Here, we applied mitochondrial control region sequencing and nuclear microsatellite genotyping to Upper Drava grayling fry collections and reference samples to update patterns and extent of human-mediated introgression. In contrast to previous data, we highlighted an almost genetic integrity of Drava grayling, evidencing limited genetic signatures of trans-basin stocking for grayling of Northern Alpine Danubian origin. Recent hybridisation was detected only twice among sixty-nine samples, while several cases of later-generation hybrids were disclosed by linking mitochondrial sequence to nuclear genetic data. The observed past, but very limited recent genetic introgression in grayling from Upper Drava seems to reflect shifting stocking trends, changing from massive introduction of trans-basin fish to more conservation-oriented strategies during the last 27 years. In a conservation

context, we encourage pursuing the use of local wild grayling for supportive- and captive-breeding, but underline the need for genetic approaches in brood-stock selection programs. Finally, our integrated results from sibship reconstruction validate our strictly fry-based sampling scheme, thus offering a reasonable alternative also for other rheophilic fish species with similar life-history characteristics.

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