

## Par Example an Abstract concerning the distribution of the autochthonous brown trout in Carinthia/Austria:

by Wolfgang HONSIG-ERLENBURG & Klaus KUGI

The Danube-basin descent brown trout can be considered as autochthonous in Carinthia. Stocking, especially since the second half of the 20<sup>th</sup> century initiated a mixing and cross breeding and as a consequence actually there is hardly any population remaining, that is truly by 100 % descendent of the Danube form.

Within the frame of a project, committed by the Naturschutzbund of Carinthia, the Provincial Government, the Natural Scientific Society of Carinthia and the Univ. Graz (Dr. Steven Weiss) the mitochondrial DNA was investigated of 10 brown trout populations. The investigated fish were chosen from brooks, where no stocking is known and where by the existence of natural or anthropogenic disruptions of the longitudinal river continuum fish cannot migrate upstream from lower regions.

### Results:

One single population of brown trout was found in a brook within the "Unteres Gailtal" that contains to 100 % genetic material of the Danube form (Da-9). The Naturschutzbund of Carinthia leased this brook in order to conserve the genetic pool of the fish.



@ Jean-Martin Fierz (FIBER/CH)



@ Jürgen Jurgeit NP Hohe Tauern/A

### References:

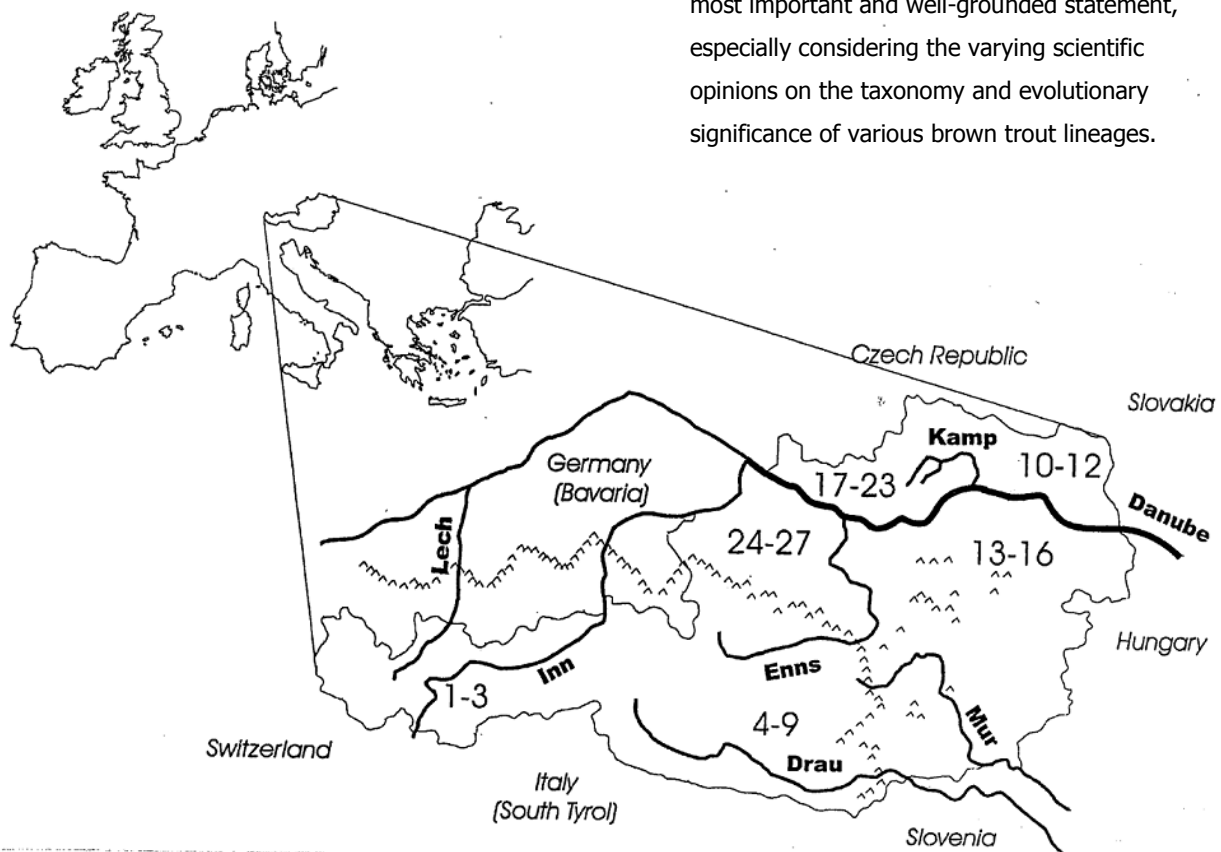
Steven Weiss; Assoc. Prof. Karl-Franzens University Graz, Graz Austria; IUCN Focal Point Authority for Salmonid Fishes in Eurasie  
Helmut Belanyecz, ÖKF Österreichisches Kuratorium für Fischerei und Gewässerschutz  
Laikre (1999) Conservation Genetic Management of Brown Trout (*Salmo trutta*) in Europe  
Report by the Concerted Action on Identification, Management and Exploitation of Genetic Resources in the Brown Trout (*Salmo trutta*) (EU FAIR CT 97-3882)  
Wolfgang HONSIG-ERLENBURG & Klaus KUGI



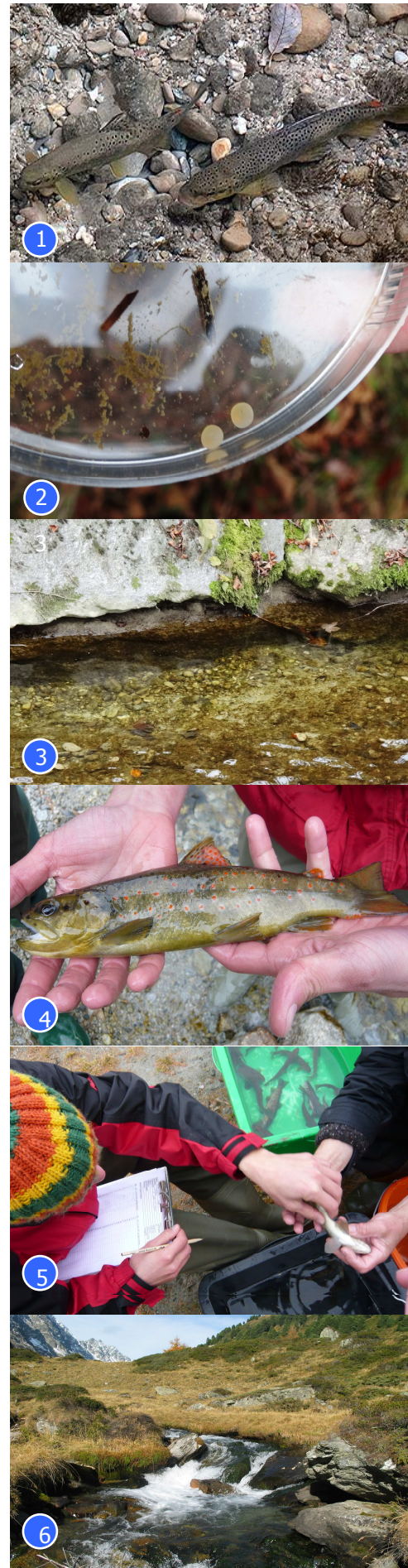
## Policy Statement Danube Trout Conservation Management

Brown trout *Salmo trutta* is one of the most important freshwater fish species in Europe. In many waterways throughout Europe it is also a managed species, subject to the vagaries of local laws and perspectives. Over 10 years ago the project TROUTCONCERT (EU FAIR CH 97-3882) brought researchers from at least 12 countries together to summarize the state-of-art on the conservation genetic perspectives of the species (Laikre 1999).

While the „state-of-art“, by definition is continuously developing, and many new details on the evolutionary complexity of brown trout have emerged, the essential management recommendations from this report remain valid. Accordingly, „it is insufficient and inappropriate to regard the species „brown trout“ as the basic conservation and management unit“. Furthermore, „the basic units for management and conservations are local populations. This is the most important and well-grounded statement, especially considering the varying scientific opinions on the taxonomy and evolutionary significance of various brown trout lineages.



An overview of the Austrian section of the Danube and some of the major tributary systems sampled in this study. The Mur River meets the Drau before it reaches the Danube at river kilometer 1367 in Croatia. Small symbols approximate the forward edge of glacial tongues (about 20 000 years BP) according to the 1 : 500 000 map of van Husen (1987).



While European geneticists are almost unanimous concerning these two conclusions, management practices in some regions remain provincial and misguided. Additionally, EU „law“ concerning the cross-border trade of live brown trout (a good fish) undermines local conservation goals.

These problems are especially acute in the Alpine region, where stocking with hatchery reared fishes is done at a very high level. Both eggs and fry of domesticated brown trout strains are freely traded across EU borders and very often used to support stock release programs. There is a large literature on the economic inefficiency and ecological inefficacy of these efforts.

In contrast to the more diverse Danubian group of brown trout, Atlantic-basin fish in the upper Danube represent a more limited and derived gene pool in the region. The predominant mechanism of introduction has been the release of hatchery-reared fish but some level of natural colonization may have occurred in the relatively recent (late to post-Pleistocene) past. Nonetheless, significant phylogeographic structure of the Danubian clade can still be found in the upper Danube and at least some isolated populations (Blühnbach, Lohnbach, Gossenkollersee and Anrasersee) are dominated or fixed for Danubian-clade haplotypes. Continued stocking of allochthonous strains of brown trout will erode the genetic integrity of natural populations in this region.

As introduced fish have been shown to be both economically and ecologically inefficient (Weiss & Schmutz 1999 a,b) we strongly recommend that their use in a sustainable and conservation-oriented management strategy in the upper Danube be reconsidered.

### What we (EAA) want:

We highly discourage the use of domesticated Atlantic basin strains of brown trout in Danubian and Adriatic basin waters of the Alpine region. Furthermore, within this region there is a tremendous variety of stream habitats to which local strains of brown trout are adapted. The best management practice, in full concordance with the EU TROUTCONCERT recommendations, is to limit the use and transfer of hatchery fish to the smallest watershed region possible, most preferably, the same river.

1. Where regional strains are developed their use should be limited to waters where there is a demonstrated need due to a lack of recruitment of overall ecological potential, and
2. Genetic characterization should support that the heritage of the hatchery strain is the same as the wild stocks, to the best degree possible.

**1.** Brown trouts (spawner and milter) looking for a spawning ground **2.** eggs from the spawning ground to control if there is real spawning ground or already been left before egg deposition. **3.** The mapping of Spawning grounds are an efficient parameter to control the self-reproduction of Brown trouts Pictures 1-3 @ Jean-Maritn Fierz (FIBER/CH)  
**4.5.6.** Project "Trout ExamInvest" on autochthone brown trouts in the Nationalpark Hohe Tauern in Austria with the aim to protect and to develop strategies Pictures 4-6 @ Florian Jurgeit NP Hohe Tauern