

*“The river is present itself
If you touch it
You have encroached upon
The last drop of the past
And the first of the future.”*

Leonardo da Vinci

Preface

The Maros/Mureş River with its 768-km length is the largest waterway in the Tisza River catchment area, and like the other rivers in the Carpathian Basin it is the lifeblood of the settlements, industrial and agricultural facilities in its valley. The ecological condition of these rivers and of their catchment area is economically important, but its value increases exponentially if we consider the natural values here, and their conservation. The rivers of the region connect the neighboring countries, making the environmental problems of these rivers international; the solutions must also be international, and cooperative.

Since 1991 Hungarian and Romanian non-governmental organizations (NGOs), by calling in experts from both countries, has started interdisciplinary research to assess the common river's environmental condition (see Appendix). The cooperating social organizations have aimed to create a database for public awareness and protection.

This book is the first published results of the cooperation between Tisza Klub and the Environmental Group of Liga Pro Europa. The information here may serve as a basis for future comparisons on the condition of the environment. It may also provide a foundation for NGOs to outline proposals for the organizations and agencies concerned.

We would like to offer our thanks to all who have helped us with our work: the generous support of other NGOs, media representatives, ministries, universities, museums and research institutions in both countries made this project possible.

We would like to particularly express our thanks to the Hungarian Parliament, the Regional Environmental Center and the Council of Europe.

In the course of our work we have covered the Szamos/Someş in 1992, and in 1994 the Fekete and Fehér Körös/Crişul Negru and Alb. Next will be the Sebes Körös/Crişul Repede and the Berettyó/Berătău River, culminating with the Upper Tisza.

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FOREWORD

Just when modern, urban man is losing contact with wilderness, the interest to reestablish this contact--to know as much as possible about plants, animals, wilderness--spreads. People are increasingly turning to the forests, caves, seashores for their recreation; even indoor nature lovers -- aquarium hobbyists, flower gardeners -- are increasing. Hundreds of amateur and professional field books are published annually in a variety of languages. And from all this, people are increasingly interested in nature conservation, especially the protection of threatened or endangered species.

Some quiet observer once noted that the disappearance of any species equals the loss of a cultural document. In truth each species is a document that clarifies just a single small, but vital, detail in the dazzlingly complex process of organic evolution. Collections are underway, across countries and continents, for both plants and animals that will soon disappear altogether. Everything from subject-specific areas, to drastic modifications to life conditions (so-called "development"), are being collected for historical preservation in herbaria and museum collections.

But this is not a solution; not even for pure science. The phyletic position of any species cannot be established solely through morphological study; biochemical, molecular, and other characteristics which cannot be determined in preserved specimens, are presently used. Other, perhaps more significant characteristics will surely be discovered in the near future. But these can only be established in living specimens.

Wilderness preservation is necessary not only to satisfy the scientific curiosity of zoologists and botanists. Each species plays a role in nature; nothing is isolated. Every species for a given location is intimately interrelated and interdependent within that community. Man is a member of that community. And human survival depends on a "sane" nature, an ecological stability with other species. Air and water pollution, deforestation (invariably followed by wholesale modification of the local climate) have drastic effects on all life.

The resistance of different species to environmental modifications varies; the most sensitive disappear at the slightest deterioration in their environment. Others can withstand substantial changes--some species actually favor moderate levels of water pollution, climate modification, etc.

But the total number of species, the biodiversity, is diminishing constantly. Within a given community, the higher the biodiversity, the more stable is a biotic community (biocoenosis). When biodiversity diminishes, a true ecological catastrophe becomes possible, spilling inevitably into the human realm.

To prevent such catastrophes, we need detailed information on biodiversity, species composition. Specialists must establish floral and faunal communities (zoologists and botanists), as well as other scientists trained to determine life conditions: temperatures, soil and water chemistry, geology, hydrology.

The following works comprise one such multi-disciplinary study, devoted to the Mureş/Maros River, the largest tributary to the Tisza, itself the largest tributary of the Danube River system. The Mureş is also the largest river system in Transylvania and

Romania. It has sources in eastern Transylvania, and drains the majority of this historical province as well as the more western provinces of Romania (Crişana and Banat) and southeastern Hungary, joining the Tisza in Hungary just north of the Serbian frontier.

The Mureş/Maros' upper reaches flow through an almost horizontal plateau, lacking a true montane (trout) zone; it develops a montane character further downstream, between Topliţa and Deda. Throughout most of its Transylvanian path the river is again a lowland stream, becoming once again a rapid river as it crosses the western Carpathians between historical Transylvania and western Romania.

This study is the result of a collaborative effort between Romanian and Hungarian scientists. Most of the data in this volume was collected on two expeditions along the river, from its source to its confluence with the Tisza. At the time of the expeditions, the Mureş /Maros River itself was already in an advanced state of pollution. The water chemistry, bacteriological conditions (as relates to public health), and faunal community compositions clearly demonstrated good conditions in the upper reaches of the river, deteriorating downstream. The terrestrial vegetation of the flood plain and river valley is also more degraded. Currently, data in the scientific literature is scarce, particularly concerning conditions prior to industrialization; early data refers only to molluscs, fish and bird life.

The Mureş/Maros Project was extraordinarily successful: rich, detailed information on the biological status of the river has been collected in just one year of investigation. Continuing studies will be necessary, to collect more data (primarily on the aquatic groups not dealt with in the present study -- various orders and families of aquatic insects, amphibians) and to extend the study along the tributaries of the Mureş, all of which influence the life of the main river.

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