

TISZA RESEARCH

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The organized Tisza research was initiated by Professor Dr. GÁBOR KOLOSVÁRY, member of the Academy of Sciences, head of the Department of Zoology in the Attila József University, 18 years ago. By his active co-operation, he was directing the activity of a small but enthusiastic research-team till his death ensued in 1969.

In the beginning, the members of the work-team (Tisza-Research Working Committee), after organizing expeditions, went about the complete Hungarian stretch of the Tisza. These investigations were necessary as there were earlier many investigators dealing with the research work connected to the Tisza, these investigations were, however, independent of one another, having different aims, giving but a mosaic-like knowledge of the Tisza and its immediate vicinity. The expeditions led by Academician KOLOSVÁRY, on the other hand, resulted in getting a complete survey over the river. It was rendered possible to point out the subsequent considerable research tasks, having started from theoretical and practical points of view.

As a result of that — and after taking into consideration the social claims, as well — the Tisza research was more and more concentrated on two areas since 1968. One of these is the Tisza stretch situated between Tiszafüred and Kisköre, the other the Region Conservation District at Mártély-Sasér. Above the Tisza II river barrage built at Kisköre, up to Tiszafüred, a lake of approximately 200 sq. km surface will take shape in a few years from now. The "lake" formed as a result of this enormous remaking of nature is expected to affect the living world through its effect exerted on the water-household of the neighbourhood. It is because of the latter fact that the Tisza-research work-team have chosen as one of their pronounced activities, to investigate the Tisza-stretch and its vicinity, taking advantage of the possibilities of the huge "field experiment".

The about 25 km long Tisza-stretch between Mártély and Sasér lies north of Hódmezővásárhely, and the work-team actively participated in its establishing as a Region Conservation District. At this Tisza-stretch, there are to be found some biotopes which show a nice view and are valuable, at the same time, on the basis of the vegetable and animal kingdoms, as well: Tisza dead-arms, willow-plantations, marshlands. The anthropogenous intervention has only brought about a comparatively minor change, the country reconstruction can, therefore, be solved in this Region Conservation District comparatively easily. That is meaning a reconstruction as perfect as possible of the original plant-cover and animal life. The work team have taken the initiative in the work of reconstruction since 1971, and the project

of region reconstruction synthesizing the result of their earlier work has already been prepared.

Since 1974, the activity of the research-team has also included a third basic area: that of Csongrád. In the following decades, here will be built the Tisza III river barrage in Hungary. There will be raised by that some problems similar to those at Kisköre. In addition to evaluating the effect of remaking nature, the research work in this area is also justified by the fact that there are several valuable and almost irreplaceable Tisza-stretches in that part. In order to protect these, we have to do everything in our power, paying a great attention to this problem already during designing the river barrage in the Tisza and the reservoir belonging to that. Here arises a third problem, as well, and a basic research-activity is needed for preparing that well. The Danube—Tisza canal, to be built later on, is contemplated to discharge into the reservoir at Alpár connected to the Csongrád river barrage. That, however, means that the waters of both rivers will be mingled. An important task is, therefore, to establish the expected effect of mixing on the quality of the water utilized *inter alia* for irrigation, as well.

The research activity in these three regions distinguished is meaning the long-range research activity of the work-team accepted and promoted by the Hungarian Academy of Sciences. This research activity was earlier joined with the International Biological Programme, then with the programme "Man and Biosphere", following the former one. It has a part in the main long-range task named "Protection of the man and his natural environment (biosphere)", as well, co-ordinated by the Hungarian Academy of Sciences.

Offering a brief survey of the researches in progress in the three districts, the following may be emphasized:

In the stretch between Kisköre and Tiszafüred, in order to establish the effect exerted by the "lake" in formation on the local climate, and taking into consideration the prevailing direction of wind, in the vicinity of Abádszalók and Sarud a meteorological station was set up each. The development expected of the biological equilibrium in this artificial ecosystem, leading through the food chain up to fish production, has been analysed by the help of investigating water chemistry, water pollution, bacteriology, phyto- and zooplankton, as well as benthos. The investigations in the adjacent terrestrial ecosystems have been carried out primarily in meadows and grasslands. Their aim is to study the structure of stand and the vegetable organic matter production, as well as to estimate the fauna of these ecosystems in detail, affecting various problems from taxonomic questions till population-dynamical examinations and covering every major taxonomic category.

In addition, there is something more to be emphasized in connection to the investigations started in the region of Csongrád. In the 1950s, in this area, a detailed phytogeographic survey was performed. Taking the results of surveying for our basis, it may be established, too, what kind of changes in the plant-cover have been induced by the anthropogenous effect taking place since then; and from that, important conclusions can be drawn concerning the future, as well.

The investigations taking place in the region between Mártély and Sasér are a little of different character, the main aim being here country reconstruction. An important task in this Region Conservation District is, therefore, to carry out a many-sided investigation of backwater, meadows, grasslands and woods in the flood area because all these biotopes will be affected by the country reconstruction. There is

still another difference in these investigations as a result of that this Region Conservation District lies close to Szeged, the seat of the Tisza-Research Working Committee. This vicinity makes possible a continuous investigation of the selected ecosystem and that is of great importance in hydrobiological, botanical, and zoological relations equally, promoting the analysis of these phenomena in their progress.

There are approximately fifty persons working in the work-team and mainly the zoological and hydrobiological directions are strong. The results of Tisza research in the last four years were measured not long ago. The preparation of the nature reconstruction project of the Region Conservation District between Mártély and Sasér, doubtless the most important result, has already been mentioned.

Some additional remarkable establishments are as follows:

The complex physical-geographical and climatological survey of the reservoir of the Tisza II river barrage,

as well as the detailed geographical survey of the Region Conservation District between Mártély and Sasér were completed.

It was established, what kind of effect was exerted in the region of Kisköre on water quality and algal population by the various water-movements and damming.

The effect of the degree of changes in the arid and humid periods upon the species composition of the marshland plant-stands in the Tisza flood area, as well as the influence of a lasting water-cover upon the major hygrophilous species occurring in the flood areas were established.

The avifouna of the various woods along the Tisza was surveyed in detail and the role of the bird species of various nourishments in the traffic of materials and energy established. The effect of the microclimatic and biotic factors was investigated primarily in ant populations living in grass-associations along the Tisza and the occurrence of biting midge (gnat) species, living along the Tisza was mapped out.

In co-ordinating the research activities of the investigators living in various regions of the country, an important part has been filled by the conferences organized for some time past in the Spring of any year. The 15 to 20 lectures delivered have offered a good survey of the results of the work performed and, at the same time, the harmonization of the research projects concerning the subsequent period was also enabled by the conferences. In the co-ordination and publication of the research results in Hungary and abroad, a considerable part has been played by the TISCIA, as well, having already its volume XI this year. This publication was initiated by Academician KOLOSVÁRY, as well, and the first four volumes were compiled by him. The TISCIA has been sent by the work-team (the Tisza-Research Working Committee) to every quarter of the world and more than 120 journals, periodicals or other scientific publications were returned in exchange for its copies.

The number of papers published in the TISCIA have been about 300.

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