

**TISZA-RESEARCH CONFERENCE XVIII (1987)
COMPILED BY**

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I. Participants of the Conference

Tisza-Research Conference XVIII (October 22 and 23, 1987, Novi Sad, Yugoslavia) has affirmed and deepened the continuity of investigating the Tisza. The results of the investigations which started in 1953 in the Hungarian reach of the Tisza have been primarily evaluated and discussed at the traditional annual Tisza-Research Conference, respectively reported to the professional and scientific public in "Tiscia", which is exclusively concerned with issues of Tisza-Research.

On the basis of incontestable results of the research it has been necessary to expand the investigations to the total length of the river from its source to its estuary. These unified investigations started in 1980, on the basis of an interuniversity collaboration between the University of Novi Sad and that of Szeged, and between the universities in Szeged and Užgorod.

This Tisza-Research Conference which took place in Novi Sad (for the first time outside Hungary) presented an exchange of scientific information, coordination of research methodology, insight and deepening of community investigations at an international level, too.

At XVIII Tisza-Research Conference 18 lectures have been given (7 concerning the Tisza reach in Hungary and 11 concerning the Yugoslav reach of the river). 43 participants attended the conference and took part in its work. The conference was organized by the Institute of Biology, Novi Sad, Tisza-Research Working Committee, Tisza-Research Study Group, University of Novi Sad, and the Vojvodina Academy of Science and Art, Novi Sad. It was financially supported by the Self-managing Community of Interest for Scientific Work of Vojvodina, Novi Sad, and the Self-managing Community of Interest for the Basic Regulation of Waters, Novi Sad.

The working part of the conference took place at the headquarters of the Vojvodina Academy of Science and Art, and on the second day a tour was organized to visit the protected natural reservation "Carska bara" in the Regional Park "Stari Begej" (the region of the estuary of Begej into Tisza).

The conference was also attended by the following guests: Professor Dr SLAVKO BOROJEVIĆ, academician, president of the Vojvodina Academy of Science and Art, Novi Sad

Professor Dr DRAGAN MUNITLAK, vice-chancellor of University of Novi Sad

Professor Dr ISTVÁN BENEDECZKY, honorary president of Tisza-Research Committee, Szeged

Dr GYÖRGY BODROGKÖZY, senior lecturer, acting president of Tisza-Research Committee, Szeged

Dr SÁNDOR GULYÁS, senior lecturer, committee member of Tisza-Research Committee, Szeged

Professor ANDOR RICHNOVSZKY, Eötvös József Tanárképző Főiskola, Baja

PAVLE KILIBARDA, Water Resources Management Organization Dunav—Tisa—Dunav, Novi Sad

ALEKSANDAR MAROŠAN, director of the Fish Management "Ečka", Zrenjanin
MÁRTA TÓTH, Institute for Technology and Agriculture "SZERVÓ MIHÁLY", Zrenjanin.

Professor Dr SLAVKO BOROJEVIĆ welcomed the participants of the conference in the name of the Vojvodina Academy of Science and Art. He pointed to the fact that the Academy is well informed about the endeavours and results of the Study Group in investigating the Yugoslav reach of Tisza, particularly about the work of the members from the Institute of Biology. These investigations also, in the framework of the scientific policy of the Academy, present both the scientific policy of Vojvodina and an obvious example of a realization of universal research work at the international level. So these investigations contribute to the promotion of the cultural and scientific activities of the two countries linked by the Tisza. In the applied biological disciplines, and other disciplines, too, the results of these investigations are important for the protection of the genofund and environment in the vast agrosystems of Vojvodina and Pannonian Lowlands, the adequate and rational use of natural resources in the valley of the Tisza being of main concern.

Academician S. BOROJEVIĆ, the host of the Conference, expressed his hopes in the promotion of the research work and the extension of co-operation in this international project, wishing that the ratification of the already submitted proposal for the programmatical inclusion of the academies (Vojvodina Academy of Science and Art and Hungarian Academy of Sciences) in its realisation take place as soon as possible. He wished much success in the work of the Conference and a pleasant stay in Novi Sad to the guests.

In the name of the University of Novi Sad Professor Dr DRAGAN MUNITLAK, vice-chancellor, greeted the Conference and gave a brief survey of the educational organization at the University and its cultural and scientific role. He emphasized that since 1954, when the first part of the University, the Faculty of Agriculture started its activities, 12 faculties, 4 colleges, 6 pedagogical academies and 65 research institutes have become part of this highest scientific institution in Vojvodina. Its coming into existence was not fortuitous, but it was an organic process of the traditional social, economical, cultural and scientific development in this region. This is why the board of the University of Novi Sad pays due attention to the activities of the Tisza-Research Study Group. Its endeavours are highly appreciated not only with respect to the results so far, but still more with respect to the programme comprising the survey of the whole valley of the Tisza, the realization of which is supported by the University.

II. Review of the results of the former investigations in the Yugoslav reach of the Tisza

The programmatical and organized integration of the research group of the Institute of Biology in Novi Sad in the investigations of the Yugoslav reach of the Tisza started in 1978 as an inter-university co-operation (Novi Sad—Szeged). After

the election of the vice-president of the Project Council and a member of the editorial board of "Tiscia" from Novi Sad, the number of the researchers has been growing and the issues and content of investigations have been enlarged in some disciplines, but so far only in the field of microbiology, hydrobiology and zoocenology, and recently in macrophytes.

The basic program orientation bearing on the complex community investigations has been directed towards:

- the investigation of physico-chemical conditions of the soil and the water regime of the Tisza valley;
- the microbiological analysis of the composition and dynamics of the bacterioplankton;
- the quantitative and qualitative analysis of the seasonal dynamics of phyto- and zooplankton, bottom fauna and ichthyofauna;
- phytocenological investigations of macrophytes in the Tisza valley;
- complex zoocenological investigations of soil nematodes, insects, birds and mammals;
- the protection of nature, maintenance and promotion of natural resources in the Tisza valley.

These complex community investigations on the lower flow of the Tisza in Yugoslavia continue the former sporadic investigations in the Tisza valley. Works in ichthyology and ornithology appeared already in 1950, and those in hydrobiology, helminthology and terriology at the beginning of the seventies.

The results of the complex community investigations of the Tisza have shown a multidisciplinary character. Beside stating the situation concerning the composition and biocenotical evaluation of the communities of some ecosystem types along the Tisza valley, they have contributed to the realization of meliorating interventions, and also to the protection, maintenance and promotion of the environment and its components.

Considering the international situation of the river, the research programme of the Tisza was already included in the CMEA programme in 1984, under the theme III/1: "The ecological bases of the optimal use and protection of communities".

Investigations on the Yugoslav section of the river Tisza have been carried on by gradually increasing the number of collaborators, expanding (and deepening) the issues and contents of the investigations in various disciplines (Tab. 1 and 2). So far, the investigations have been partly carried on along the whole course of the river, from the border to the estuary (Syrphidae and Culicidae-Diptera and terriofauna), or they have had a stationary character (the region of Carska bara and Mrtva Tisa — microbiology, hydrobiology and ichthyology). The result of our investigations on the Yugoslav section of the Tisza are presented in the supplement 1 (P=publications) and in the supplement 2 (R=reports).

III. Reports on the studies of this Conference

Tiscia XXIII (1988) is the proceedings of XVIII Conference on investigations of the Tisza. The following seven papers presented at the Conference have been presented only in abstracts:

Tab. 1. *Papers of meetings*

Year	Conference	№				Discipline					
		Au- thors	Pa- pers	Flo- rist.	Micro- biol.	Hyd- ro- biol.	Entho- mo- log.	Orni- tho- log.	Terri- olog.	Para- sitol.	Ich- thyo- log.
1978	IX.	2	2	1		1					
1980	XI.	1	1	1							
1981	XII.	2	2	1		1					
1982	XIII.	6	5	1		2			1		1
1983	XIV.	6	3			1			1		1
1984	XV.	11	6		1	1	1	1	1		1
1985	XVI.	9	6		1	1	2		1		1
1986	XVII.	8	3		1	1				1	
1987	XVIII.	17	13	1	2	3	1			1	3
Total		9	63	41	5	5	11	4	1	4	7

Tab. 2. *Publications in the periodical Tiscia*

Year	Volum.	№				Discipline					
		Au- thors	Pa- pers	Flo- rist.	Micro- biol.	Hid- ro- biol.	Entho- mo- log.	Ich- thyo- log.	Orni- tho- log.	Terri- olog.	Para- sitol.
1979	XIV.	4	2	1		1					
1983	XVIII.	10	4	1		1		1		1	
1984	XIX.	5	2			1		1			
1985	XX.	14	6		1	1	1	1	1	1	
1986	XXI.	10	3		1	1		1			
1987	XXII.	8	3			1	1	1			
1988	XXIII.	26	12	1	4	2	1	3			1
Total		7	77	32	3	6	8	3	8	1	2

FEKETE, E.:

Chemical parameters and the tendency of water quality change of the river Maroš

Among the tributaries of the river Theiss, Maroš takes a special place, both regarding protection against flood and in relation to water quality. A short review is given about those geologic and hydrologic circumstances which determine the special water quality of the river in relation to Theiss.

The analysis made through mathematical-statistical methods for the O₂, N and P regime shows minimal water quality aggravation. The water controll made in the recent years, indicates a considerable increase of nitrogen, nitrites and nitrates.

The obtained data significantly indicate the dependence between the biologic state and chemical parameters. It also should be mentioned that the results of heavy metal controll are indicating the dependence of the density and species number of microorganisms in the water.

GÁL, D.

Seasonwise changes of the zooplankton of the Dead Theiss — Tiszaug in the years 1981—1986

The zooplankton investigation in the mentioned period (Testacea, Rotatoria, Entomostraca) in the Dead Theiss — Tiszaug, was made on the basis of monthly collected samples at three points: 1 — at the bridge, 2 — on the north end of Dead Theiss, 3 — in the middle between the first and second point. On all three points, mainly dominating were Rotatoria, both regarding the number of species and number of individuals, making 50—70% of total zooplankton. Entomostraka appear as mean values (30—40%) except in spring, when occasionally the number of species and number of individuals reaches 60%. Testacea are represented with the smallest number of species and individuals. Between particular investigation points, the differences were considerable:

1. At the bridge open water is dominating. On this point the number of species is the largest, while the number of individuals of particular species is on average smaller.
2. The northern part of the Dead Theiss shows a strong eutrophication, almost throughout the year it is covered by water plants having the poorest zooplankton.
3. The individuality of this midpoint is of transitional character. Open water is mainly dominating, although occasionally total coverage appears mostly by Potamogeton. As far as species are concerned it is poorer in relation to the first point, but particular species occasionally appear in large number of individuals. Because of that, the total density is here mostly the largest.

Characteristic species on particular points:

1. *Nebela collaris*, *Brachionus quadridentatus*, *Acroperus harpae*
2. *Arcella stellata*, *Brachionus falcatus*, *Alona quadrangularis*
3. *Diffugia corona*, *Lecane luna*, *Chydorus sphaericus*

MALIK, ERZSÉBET

The causes of fish pestilence and ammonium poisoning in eutrophic waters and polluted stagnant waters

In recent decades in fish ponds, resp. particular stagnant waters with intensive production, on several occasions, massive carp pestilence occurred, caused by an unknown carrier of gill disease, known in literature as gill necrosis.

This work shows the measuring methods of increased ammonium quantity in eutrophic waters, while of interest was also to register the changes in carp behaviour. The fact is that changes in the gill tissues (hystolysis, hypertrophia and hyperlasia, degeneration of gill tissues, in some cases hyperemia resp. ischaemia) are showing great similarity to the symptoms of ammonium poisoning. The measuring of ammonium in blood was used as differential diagnosis. The concentration of N being 4—5 mg · dm⁻³ NH₄ in blood, proves a stress condition caused by ammonium.

DOBLER, ENIKŐ:

The Maroš river water quality

Out of four water quality parameters, the author has investigated saprobity and trophity. Samples for saprobiologic analysis were taken regularly from the year 1967 in weekly and fortnightly intervals at Mako, RK 25.5 and RK 2.0. The results are

shown by a differential curve on the basis of mathematical — statistical elaboration. One curve represents the seasonwise and the other the changes during five years. The analysis of trophicity of the river was made since the year 1974, by measuring the chlorophyll concentration. The results indicate a slow, but gradual increase.

The chlorophyll concentration in recent years, during the vegetation period, reached the average level even up to 400—500 mg/m³. At the same time, the total number of algae was also determined. In the eighties, besides the indication of species, the biomass of phitoplanktome was also established. The work shows the changes in the phitoplanktome and biomass for the last two years.

A. VUJIĆ, BRANKA BOŽIČIĆ:

The influence of herbal cover on the number of layed eggs of particular mosquitos species
(*Diptera, Culicidae*)

Particular polyvoltine and rural species of mosquitos, show an exceptional affinity towards determined herbal species regarding the choice of place for egg laying. So particular herbal river belts become zones with the largest number of layed eggs.

In the work species of mosquitos are shown, at which a dependence appears for egg laying on the type of herbal belt along the river Theiss.

A good knowledge of herbal community zonality, enables the opportunity to forecast with great certainty the occurence of massive mosquito larvae appearance in a certain area. Such investigations were not made up to now in Yugoslavia.

BÁBA, K.:

Zoogeographic relations of snails from grass communities at two pannonic localities

The author had, according to the methods of BÁBA, in the year 1982, made parallel investigations in areas between Danube and Theiss, along the river Theiss, having loess, sandy, marshy and secondary grassy communities. It was established that the snail community of this two areas with 11 plant communities clearly differs. The area along the Theiss, with more types of soil and a flooded zone, has a richer fauna of snails. The grassy communities of both areas are inhabited mainly by continental species. Cholomediterranean elements appear in greater number between the Danube and Theiss. Quertion frainetto represents a differential faunistic element.

During investigation, two tendencies were noticed. The grassy communities are characterized by continental (pontic — pannonic, caspic-sanuatic, east-siberian) elements. With the process of marshy land flooding, east and west Siberian faunistic elements prevail. By successive overgrowing with grass, the cholomediterranean elements increase, similar to the noticed processes at closing of forest communities.

GASKÓ, B.:

Data about the inhabitation of cerambycides on flooded areas of the rivers Theiss and Maroš

The author has since the year 1974 investigated Cerambycidae on the part of rivers Theiss and Maroš (Csongrád County). Most data was collected for the communities *Salicetum albae* — *fragilis* facies *Salix alba*. Almost completely was also elabo-

rated the investigation of Cerambycidae, whose larvae are developing in herbaceous plants. For Species whose nourishing plants are *Fraxinus*, *Ulmus* and *Quercus*, the basic informations are sporadic because they tend to overlap.

It was established that the inhabitation and displacement mechanism is different for xilophagous and caulophagous ceramibycides. In the area of Körtvélyes, out of 25 species consuming *Salix alba*, 20 (80%) were from branches, 2 (8%) out of broken tree trunks, 2 (8%) from rotten tree stumps, and 1 (4%) from underground parts of plants. Five species (12%) were stenooligophagous, while the rest was oligo or polyphagous. Their displacement is in the "green belt" of forest, which in the case of the river Maroš, represents a connection with the transilvanian mountains. The oligo- and polyphagous species, except *Salix alba*, are using also other kinds of trees, which ensures, during transportation of firewood, their displacement from corresponding centers. Such is the case with *Neoclytus accuminatus* along the river Maroš, brought from Northern America. With certain modifications, the situation is similar also for other xilophagous cerambycides from nourishing trees *Ulmus*, *Fraxinus*, *Populus*, *Quercus* ..., but their displacement in the green belt and from the centers is different.

Out of 19 species of Cerambycidae, which are developing in herbaceous plants, 18 (94,7%) are polyphagous, and 1 (5,3%) monophagous, whose population in the flood zone is connected to the nourishing plant *Euphorbia lucida* distributed island-like. Other species are settled in the flood zone, from the protected area. When the flooding zone is not under water a few years, due to high biotic potential, their population is reaching high densities, while after longlasting floods for 1-2 years, they can hardly be found.