

# IMPORTANCE OF THE HUNGARIAN PHYTOSOCIOLOGICAL SCHOOL ESTABLISHED AT THE UNIVERSITY OF DEBRECEN IN DEVELOPMENT OF CURRENT FIELD BOTANY

A. BORHIDI\* and ÉVA SALAMON-ALBERT

Department of Systematic Botany and Geobotany, University of Pécs, Pécs, Hungary

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The paper gives a short panoramic historical survey about the main activities of the Hungarian phytosociology, their chief protagonists, the fundamental role of professor Rezső Soó in the creation and development of the phytosociological school of Debrecen established by him in the Botanical Department of the University of Debrecen, which is celebrating the 80 anniversary of its existence and has played a determinant role in the Hungarian botany.

*Keywords:* Hungarian botany – phytosociological school – Rezső Soó – science-history – University of Debrecen

The Hungarian Phytosociological School was founded when Botanical Department of the present University of Debrecen was established in 1929 by the 26 years old Rezső Soó, appointed as an extraordinary full professor. He was an exceptionally talented, highly cultured open-minded person of a real renaissance character, well versed in literature, history, fine arts and of course in biology and chemistry; furthermore cultivated actively different fields of botany. As a taxonomist, he wrote the monograph of the genus *Melampyrum* [12, 14, 15], and – as a younger research fellow of professor Keller in Berlin-Dahlem–, he was the co-editor of the Monograph of the European and Mediterranean Orchids [7]. As a phytogeographer, he revealed the original character of the zonal vegetation of the intensively cultivated Pannonian lowlands, and established the forest-steppe theory [13]. As a phytosociologist, he published the first coenological monograph of the plant communities in Carpathian Basin [16]. The new sociological view of the vegetation [17] and the colourful personality attracted many young botanists to the Botanical Department of the University of Debrecen, which became a new-fashioned botanical school against the traditional centres of floristics at Universities and Natural History Museums of Budapest and Szeged. Many talented persons belonged to the first generation who made spectacular scientific carriers later, like Bálint Zólyomi (also excellent palynologist, director of

\* Corresponding author; e-mail: borhidi@gamma.ttk.pte.hu

National Nature History Museum, and of the Research Institute of Vácrátót), Pál Magyar (professor of silviculture), Imre Máthé (professor of agricultural botany, specialist in production biology), Miklós Ujvárosi (director of Botanical Garden of the Hungarian Academy of Sciences, specialist in agricultural weed-communities), Gábor Ubrizsy (director of the National Institute of Plant Protection, specialist in rice and vineyard communities), Ferenc Balázs (agrobotanist) and Lajos Felföldy (specialist in ruderal vegetation research, later outstanding plant physiologist and hydrobiologist). Soó gave a theoretical framework and a program to the school [18], namely: to detect and describe the Carpatho-Pannonian plant communities. Publication of the new results started from 1935 in a new botanical review series: the *Acta Geobotanica Hungarica*, which were published in six volumes and twelve fascicles between 1935 and 1949.

The Hungarian Phytosociological school was not a simply follower of the Zürich-Montpellier one. The eclectic approach and integrating character of Soó strived to reconcile the concepts of the different phytosociological tendencies. He was influenced by both Du Rietz and Braun-Blanquet, Gams, Walter and even by Warming, when he inserted the floristic based associations into the physiognomic system (*Lignosa*, *Herbosa*, *Deserta*). In the very beginning he followed Du Rietz's concept and regarded the monodominant associations as "sociations" according the Scandinavian concept. The real association for him was a community composed by to co-dominant species, which formed two "consociations" and regarded them as two subassociations. Against the highly adapted alpine and the superselected Central- and North-European plant communities he recognized the higher floristic diversity of the South-East European vegetation composed by the Carpathian, Pannonian and Balkanian floras, consequently in his association concept the geographic motive received an accentuated role, appearing in the nomenclature applied by him. He pointed out, that "the association concept must be based on the different characteristic species combinations of the communities, supported by quantitative analyses, correct calculations, ecological measurements, instead of the rigid application of the character species concept of Braun-Blanquet and his followers" [19, 22]. This is now the up-to-date concept of the plant sociology, but at that time it was considered as a heretic standpoint.

The other disadvantage of the Hungarian Phytosociological School was that the documentation of the community descriptions was based on synthetic lists and only few individual relevés were published. Many of these features of the scientific activities has been considered as "illegitimate" and rejected by the later established nomenclatural rules.

These were the reasons, why the Hungarian Phytosociological School lost the advantage of the early start and could not play significant role in the foundation of Phytosociology as it would have been possible.

In spite of all these disadvantages, the Debrecen School was internationally recognized and highly estimated. Its efficiency was undiscutable in the descriptions of the most characteristic vegetation types of the Carpatho-Pannonian belt, like the sandy and alkali grasslands and the weed vegetation. About the enthusiastic and highly

creative atmosphere of the School of Debrecen during the 30–40s, and the stimulating personality and warm human and familiar character of Soó several memorial papers have been published by Balázs, Borhidi, Felföldy, Juhász-Nagy and Simon [1–6, 10, 11].

Phytosociology under the name plant coenology enjoyed an exceptionally favourable situation by the end of the 40s, when the national agro- and silviculture were placed on ecological base, and the economically significant fields of grassland- and forest-typology developed. The theoretical and methodological foundation of this progress was put down in two Geobotanical Symposia settled at Vácrátót in 1949 and 1950, which were simultaneously the training course of the second and third generations of the Hungarian phytosociology.

The outstanding persons of the second generation in Phytosociology were/are Lajos Tímár (specialist in alluvial communities), Pál Jakucs (specialist in hairy-oak woods and bush-woodlands, later professor of Debrecen), Tibor Simon (monographer of the North-East Hungarian mountains and lowlands, later professor of the Budapest University) István Précsényi (protagonist of the quantitative coenology, later professor of Debrecen) Zoltán Baráth, András Horánszky and the group of the experimental coenology at the Agricultural University (Précsényi, Koltay and Vinczeffy).

At the middle of the 50s the centre of the Hungarian Phytosociological School moved with Soó and his research fellows from Debrecen to the Loránd Eötvös University at Budapest, where he grew the third generation represented by Gábor Fekete, Magda Járai-Komlódi, Tamás Pócs, Gábor Vida, Pál Juhász-Nagy, Edit Láng and the senior author of this paper. At the same time, he developed centres of Phytosociology in the Natural History Museum and in Vácrátót under the direction of Bálint Zólyomi with the participation of Margit Kovács, István and Vera Kárpáti, Julia Szujkó-Lacza. The 50s and 60s were the highlighted period of the Hungarian Phytosociology, when it rose to the first line of the European coenology. However, the successful period got to the end in 1968 with the economic crisis, when the Hungarian agro- and silviculture turned from the ecological based practice to the production-centred one. Phytosociologists were directed to different international ecological programs (IBP, MAB) instead of educating new young generation.

The Phytosociological School of Debrecen has been reorganized in the framework of the Man and Biosphere Program and as a new fortress of the numerical ecology. The activity started as early as in 1957, when Pál Juhász Nagy had to remove from Budapest to Debrecen due to participation in the armed appraising of the Hungarian Revolution of 1956 where his activity was not known. In 1963 he received a grant to the University of Bangor, where he worked a year under the direction of professor Greig-Smith, and developed his new theory and mathematical-statistical methods for a better understanding and studying plant communities. The intense research of Botanical Department at University of Debrecen restarted under the direction of Pál Jakucs, the former student of Rezső Soó in 1971. New activities have been put into the focus of the department: establishment of standard field stations for a permanent and long-term study of structure and compositional dynamics, phenology, production, eco-physiological processes of plant communities. Different programmes have been

implemented, as the internationally highly esteemed Síkfőkút Project, Rejtek-project, etc. with outstanding young participants forming the fourth generation of the School of Debrecen, Ilona Mészáros (specialist in plant ecophysiology), László B. Papp, Mária Papp, Béla Tóthmérész (specialist in numerical coenology) and János Attila Tóth (specialists in production biology) etc. The theoretical phytosociological work and implementation of new numerical methods started by Juhász-Nagy, followed by the highly important educational activity of the originally-thinking professor István Précsényi.

Starting from the 80s an intensive healthy competition has evolved between the Botanical Department, Ecological Department of Debrecen, the Ecological and Botanical Institute of Vácrátót and the Botanical and Ecological Department of the Eötvös University in Budapest. In Debrecen Pál Jakucs and István Précsényi, in Vácrátót Gábor Fekete, Tamás Pócs, Sándor Bartha an outstanding personality of the fourth generation, and the senior author of this paper, in Budapest Pál Juhász-Nagy and his excellent students, János Podani, Beáta Oborny and Tibor Standovár, in the University of Szeged István Bagi, at the University of Pécs a satellite-school founded by the senior author of this paper, with Balázs Kevey, Éva Salamon-Albert and Tamás Morschhauser, in the West Hungarian University at Sopron Dénes Bartha, are developing the fifth generation of the Hungarian Phytosociology and Community Ecology. And we cannot forget the school-forming activity of the recently departed colleagues, the professors Gyula Czimber of Mosonmagyaróvár and the exceptionally effective Zoltán Tuba, creator of the first eco-physiological school in Gödöllő. It is necessary to accentuate the importance of the 30 years long activity of Balázs Kevey, who was student of Professor Pál Jakucs at Debrecen, his extended field activity published in many publications and culminated in his great monograph on the Hungarian forest-associations [8].

This fifth generation is the manifestation, that the dream of Rezső Soó, the founder of the Hungarian Phytosociological School in Debrecen came to true. More than two hundreds of young botanists and ecologists worked out the system of the natural habitats of Hungary, the monitoring system of the habitats, the data base of the habitats and communities existing in the national territory of Hungary [9], all these are important achievements for the International Program of the European Vegetation Survey.

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