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In memoriam: Associate Professor Rudolf Šoltés (April *8, 1945 – January †9, 2023)

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In January 2023, the scientific community lost Assoc. Prof. RNDr. Rudolf Šoltés, CSc., one of the first co-editors of our journal, Oecologia Montana, which he edited from 1992 to 1996.

Rudolf Šoltés was born on April 8, 1945, in Poprad - Veľká (Slovakia). After completing his elementary education, he continued studies at the Middle Industrial School of Chemistry in Svit. His interest in natural sciences led him to study at the Faculty of Natural Sciences of the Comenius University (FNS CU) in Bratislava, where he graduated in Biology-Chemistry in 1969. Dr. Šoltés worked as an assistant at the Faculty of Natural Sciences of Comenius University between 1970 and 1974. He passed the Rigorous Examination in 1973 and was awarded the degree of RNDr. (rerum naturalium doctor). Later (1980-1985), he completed doctoral studies at the same faculty with the title of CSc. (candidatus scientiarum), during which he defended his doctoral thesis on the ecological and syntaxonomic evaluation of bryocenoses in the High and Belianske Tatras, a topic that in its significance goes beyond the national importance. The Commission of the Slovak Academy of Sciences awarded him the scientific qualification degree IIa in 1994, and in 2014 he received the title of Associate Professor in General Ecology and Ecology of Individuals and Populations at the Faculty of Ecology and Environmental Science, Technical University of Zvolen.

In January 1974 Rudolf Šoltés started working as an autonomous researcher in the biological department of the Research Centre of the Tatra National Park (TANAP) in Tatranská Lomnica. His scientific work was dominated by his interest in flora, and he made a particularly important contribution to the expansion of knowledge on mosses of the Tatra Mountains. He worked in this position until 1994. From 1995 to 2007 he worked as a researcher in the TANAP Administration and in the State Forests of TANAP.

Immediately after his arrival, Dr. Šoltés started work on planning a botanical garden representing Tatra flora, which was planned to be located on the Štrbské Pleso site. The effort to establish it stemmed from the need to preserve the gene pool of endangered taxa, which at that time were all considered to be native taxa of the flora. The garden was also intended to fulfil an educational function and to enable visitors who did not wish to undertake demanding alpine hiking to learn about most of the Tatra plants. In the preparation of these documents, Dr. Šoltés demonstrated excellent knowledge of Tatra vegetation as well as the floristic composition of sociological units in the wild, and their synecological peculiarities. The plan for the construction of a botanical garden was approved in 1977, but this plan was not finally implemented, and construction of an exposition of alpine flora was not initiated until 1989 in Tatranská Lomnica.

Between 1975-1980 Rudolf Šoltés was a member of the team of researchers of „Ecological foundations of the creation and protection of forest landscapes". Within this project, he was the main investigator of the subtask „*Anthropic influences on bryoflora of the model area of Tatranská Lomnica*", wherein he cooperated with the Department of Geobotany (FNS CU) and the Department of Systematic Botany (FNS CU). Considering the previously little developed topic, he proposed an inventory of bryoflora of the model area on sites affected by anthropic activity as well as on control areas. A total of 7450 ha of the model area was surveyed, which with its diverse synecological conditions, expresses the habitat diversity of the entire territory of the High Tatras, from foothills to the subnival stage. During the inventory of the territory 385 species of bryophytes were identified in 2786 localities, which was the first complete inventory of the bryoflora of the territory to date. Of the species found, nineteen were identified as apophytic - responding to anthropic encroachment. The task was beneficial for the extension of basic scientific knowledge and became a prerequisite for further theoretical and applied research in the field of environmental protection and for other disciplines. In the final report, concrete proposals and implementation measures were proposed. These proposals were feasible, cost effective, and had the potential to help protect some of the most precious sites as well as to mitigate the adverse impacts caused by anthropic activities.

In 1981-1985 the staff of the TANAP research station solved the research task „*The carrying capacity of the landscape environment of TANAP with*

regard to the tourist-recreational, sport and healing function", under the coordination of the University of Forestry and Woodworking in Zvolen (now the Technical University of Zvolen). Within this task, Dr. Šoltés was the main investigator of the stage „*Research and quantification of criteria for the evaluation of bryoflora and lichenoflora as indicators of the carrying capacity of the area*".

In 1981, he began to develop a proposal for the establishment of state nature reserves on the territory of TANAP. He compiled a list of rare and scarce species of bryophytes in TANAP and cooperated in the synthetic design of the reserves.

Between 1984-1985 Dr. Šoltés also participated in the solution of a similarly conceived research task „*Vegetation carrying capacity of the surroundings of hiking trails in TANAP, on selected hiking trails*". During the inventory, the localities of rare and scarce bryophytes were found in 16 localities, including: *Brachythecium erythrorhizon, B. vanekii, Bucegia romanica, Cyrtomnium hymenophylloides, Eucladium verticillatum, Oxystegus tenuirostris, Riccardia multifida, Sphagnum papillosum, Sphagnum subnitens, S. warastorfii, Tortula sinensis*.

Since 1986, Dr. Šoltés has collaborated on the broadly conceived task of „*High-mountain Ecosystems of the Western Carpathians and Ecological Consequences of Human Activities*" and its subtask „*The impact of emissions on the vegetation of TANAP*". Within this task he was the leader of the phase „*Impact of emissions on non-forest vegetation of TANAP of vascular plants and lichenoflora on transects*".

In addition to research, he devoted himself to educational and lecturing activities for the lay and professional public. For the public he prepared a lecture in the field „*Overview of the vegetation of the High Tatras*", combined with a practical demonstration of rare representatives of Tatra flora and rare communities of individual vegetation stages in the High and Belianske Tatras. He also presented forestry significant bryophytes in TANAP, their distribution, recognition and their use in forestry typology. He gave lectures on „*Nature Protection in general and Nature Protection in TANAP*" to children and youth in the House of Pioneers and Youth in Poprad. He lectured on the importance of forests at youth recreation centres. Additionally, Dr. Šoltés prepared lectures for teachers of natural scientists, newly recruited employees of TANAP, and botanists from the Czechoslovak Academy of Sciences, as well as carried out lecturing activities within the lectureship of the TANAP Museum for foreign visitors and accompanied members of the Dendrological Society from the German National Socialist Republic on excursions.

In 1974 Dr. Šoltés prepared materials in collaboration Ing. Blahout for the 12th IUCN General Assembly. In 1979, along with Dr. Šoltésová, he prepared a paper on changes in the flora for the symposium on the 30th anniversary of the enactment of TANAP. 10 years later, on the 40th anniversary of the enactment of TANAP and the 35th anniversary of the enactment of the Tatra National Park (Poland), he prepared a paper with Ing. Chudíková for the symposium on the „*Impact of emissions on forest vegetation and non-forest vegetation of TANAP*". He took part in brylogical seminars in Budišov (1984) and Liblice (1988), and in 1989 he participated in the seminar „*Small-scale architecture and artwork in horticultural design*", organized by the House of Technology of the Czech Union of Scientific and Technical Societies, České Budějovice.

Since 2008 Dr. Šoltés worked as a researcher at the Institute of High Mountain Biology, University of Žilina (IHMB), where he continued his research. In 2011 he became the head of the Department of Microbiology and Botany. He further transferred his knowledge of bryology, phytocoenology and alpine ecology to students of the study programmes "*Nature Guard*" and "*Alpine Ecology*". He taught

Fig. 1. Last photo of Assoc. Prof. Šoltés at IHMB after the thesis defence in 2022. (Photo: V. Ruček, 2022).

the following courses: natural resources III – flora; field exercises in botany; ecotoxicology; global and landscape ecology. In 2017-2022, he was a member of the state thesis defense committee (Fig. 1).

As a supervisor, he supervised undergraduate theses at the IHMB, including: Annual economics of legal entities doing business in the TANAP area in Veľký Slavkov, Nová Lesná, Smokovec and proposal of an optimal park management model (Mikoláš 2011); Mapping of representatives of the genus *Primula* and glacial relicts of *Salix reticulata* and *Dryas octopetala* in the Belianske Tatras (Kalauz 2012); Mapping of selected endemic species of higher plants in the subalpine and alpine vegetation stage of Slovakia (Kozoň 2012); Arctic and subarctic element in the bryoflora of the Tatra Mountains with special attention to *Paraleucobryum enerve* and associated species (Bucko 2013); Development of the revitalization of calamity areas in the High Tatras from 2004 to the present day. Theory and practice (Hulínová 2013); Bioindication of environmental pollution around Mondi Ružomberok using bryophytes (Vigaš 2014); Invasive vascular plants as bioindicators of pollution in the experimental study area - Ružomberok (Mráz 2015); and Accumulation of selected element deposition in the organs of *Fallopia japonica* during ontogeny (Böhmová 2017). He prepared judgements for nine theses.

He not only contributed to their establishment and development not only through teaching, but also as a co-author of the teaching text „*Botany - Lower Plants*" (Hindák *et al.* 2009), and within the framework of the projects: *Pilot Study Programme „Ranger"* (2006-2009; European Social Fund project - Ministry of Education SR, ITMS 11230100435); Summer School of Alpine Biology (2009-2011; EEA Financial Mechanism, Norwegian Financial Mechanism project, NIL-II-017-d) and Joint Master's Degree in Ecology, Specialisation Alpine Ecology. University of Žilina and Telemark University College (2012-2017; project of the Ministry of Education of the Kingdom of Norway and the Centre for International Cooperation in Education, IJD2012/10359).

As a researcher, Dr. Šoltés he has been involved in several national and multinational projects, the most prestigious of which include: *Biotic indicators of climate change above the upper forest boundary* (2009-2011; Ministry of Education of the Slovak Republic and the Slovak Academy of Sciences project, VEGA 1/0028/09); *Water quality of the Kyrgyz mountain environment* (2011-2013; Ministry of Foreign Affairs of the Kingdom of Norway project, KGZ-11/0005); *Landscape revitalization and integrated watershed management in the municipality of Slovenská Ves* (2011; Programme for landscape revitalisation and integrated river basin management of the Slovak Republic 2011); *Development of nature conservation and of protected areas in the Slovak Carpathians* (2011-2016; partnership cooperation with the State Nature Conservancy of the Slovak Republic; Swiss-Slovak Cooperation Programme, Swiss Financial Mechanism), and *Vegetation of alpine zone as an indicator of environmental contamination* (2013-2017; APVV-0380-12).

During his professional years, Dr. Šoltés focused on the study of flora and especially peatland bryophytes. His long-standing excellence as a bryologist has shed light on the regional significance of the High Tatras and other mountain units of Slovakia. He published over one hundred original scientific papers in Slovakia, the Czech Republic, Sweden, Switzerland, and the United Kingdom. He described three new moss species in Slovakia and discovered localities of rare species unknown for 50-100 years and often thought to be extinct. In addition to his significant scientific contribution, his character was defined by modesty, diligence, and a peculiar sense of humour, and he will be fondly remembered.

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