

# **THE GEOHISTORY OF BÁTORLIGET MARSHLAND**

**An Example for the Reconstruction of Late Quaternary  
Environmental Changes and Past Human Impact  
from the Northeastern Part of the Carpathian Basin**

Edited by

**PÁL SÜMEGI and SÁNDOR GULYÁS**



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*Troillus europeus* field from Bátorliget Marshland

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## Foreword

*to Katherine Jane Willis for her generous help*

One of the very first fieldworks of my life during the time of my undergraduate studies at the University of Debrecen, which was called Kossuth Lajos University at the time, was organized to the area of Bátorliget marshland in 1982 by the Department of Botany. I was touched by the extraordinary geological, pedological, and botanical exuberance of this landscape even during this very first visit. I could make it to the marshland almost every single year afterwards, first together with my teachers, then with my colleagues, and later on with my students as well. These trips always gave me the chance to admire the beauty of the surviving patches of the Central European ancient temperate woodlands year after year. These forests cover an area of 250–300 ha comprising the most spectacular woodland area of the Great Hungarian Plain together with the Fényi Forest.

Nevertheless, I can still hear the voices of my botany professors in my head as they were talking about the evolution and importance of the flora and the fauna of the marshland. I must mention the names of Mária Papp, Miklós Nagy, my ecology professor Pál Jakucs, my zoology professor Jenő Szabó, and Mihály Endes the naturalist friend of mine who had an extensive knowledge even at the professorial level. Finally, I must not forget about my physical geography professor Zoltán Borsy, who came up with a theory regarding the evolution of the forms present in the surrounding blown-sand area, which is acceptable even today. All their words and the attractive natural beauty of the temperate landscape made me start my way on the path of researching the unique flora and fauna of this area. From 1986 onwards, a detailed analysis of the present-day mollusk fauna was initiated, working together with István Nyilas, my colleague from the department of zoology, who was an associate professor at the time, in the area of the marshland and the surrounding woodlands. Our results revealed another aspect of the versatility of the fauna, previously unknown. However, as the gained compositions of the malacofauna seemingly indicated a new evolutionary history of the Hungarian flora, highly different from the one advocated previously, I started to learn more about the geological as well as the faunal and floral history and evolution of the area, getting myself acquainted with the thoughts of the former generations of geologists, geomorphologists, botanists, and zoologists from the literature.

As I have learnt it from the literature, the area of the marshland had gotten into the focus of scientific interest more than 100 years ago. The researchers of the Agrogeological Department of the Hungarian Geological Institute were the first to organize field trips to the area (1909). This was followed by the investigations of János Tuzson (1914), a researcher of the Hungarian Natural History Museum, who was also the first to introduce this previously unknown area to the wider scientific community.

Afterwards I happened to have come across a book on a sparkling debate between the zoologist Endre Dudich and the famous malacologist Lajos Soós, regarding the evolution of the Bátorliget fauna. Then I learned about the efforts on how this outstanding landscape had been put under protection and thus had survived for the following generations, from the writings of Professor Rezső Soó, who was a leading botanist and established a school of botany as well at the University of Debrecen. I could read about the events and results of scientific researches carried out during the first half of the 20<sup>th</sup> century in the book of Professor Székessy (1954). Nevertheless, this book was the first to present concrete information and data regarding the evolutionary history of the area, including the pollen analytical findings of Gerő Csinády, which has remained uninterpreted for about 50 years.

Professor Sándor Mahunka implemented researches in the protected area of the marshland during the second half of the 20<sup>th</sup> century and invited me to take part in this work. It was a real turning point in my scientific life, as we could present the results of our 5-year malacological research in a volume edited by him in 1991. In this work I was able to put forth my questions and doubts regarding the previously proposed evolution of the landscape, as well as the flora and the fauna of the marshland on the basis of the revealed composition of the present-day mollusk fauna.

I am also thankful to the area of the marshland for giving me a chance to make the most important meeting regarding my professional progress and the elucidation of the true history of the area with the researchers of the University of Cambridge in 1993, Keith David Bennett and Katherine Jane Willis. From this time onwards, detailed investigations started regarding the environmental history of the area in collaboration with these colleagues, enjoying financial support from the No. 9 project of the OMFB-British Council, and the OTKA grants F-4027, T-034392. The finalization of our work was possible by the generous support of the NKFP 5/0063/2002 grant with the final results presented on the pages of this volume.

Besides my progress in scientific and human relations, it was this area that has driven my attention to the problems and hardships surrounding the environmental reconstructions made for the past 10–15,000 years within the Carpathian Basin. I have also realized how little is known of the mosaic-like versatility and complexity of the landscape, with the individual building blocks of soils, flora, fauna, and climate, and their importance in landscape evolution. Furthermore, I have also learnt that the pollen and environmental historical schemes prepared for the Western and Northern European areas, and readily adopted for the area of the Carpathian Basin, are not suitable for use in such studies here, hampering the elucidation of the true Quaternary evolutionary history in the basin. Finally, the gained results have shown us the prevailing environmental conditions of the individual human cultures, which settled within the basin, including several high cultures. Furthermore, these have also revealed the relationship between man and environment throughout the course of history, shedding light on the smaller-greater transformations as well.

Another important achievement of this work was that we could pass these newly acquired experiences and views onto the new generation of researchers, our students, who were and are still working with us in solving such problems as active participants of our research groups. I would like to take the opportunity to express my gratitude to these present and former undergraduate and graduate students of mine, namely *Sándor Borsos, Mihály Braun, Attila Cseh, Tamás Deli, Krisztina Dobó, Zoltán Elek, Krisztina Horváth, Zoltán Horváth, Zoltán Hunyadfalvi, Gusztáv Jakab, Péter Juhász, Ágnes Kelemen, Zoltán Kohán, János Kozák, László Márk, Enikő Magyar, Sándor Molnár, Antal Nagy, Péter Olajos, János Öreg, Gergő Persaits, Péter Sólymos, Endre Szabó, Gabriella Szegvári, Péter Szilassi, Anikó Tóth*, and *Csaba Tóth* for their generous help in the field and lab work and their support to prepare this book. I am also grateful to all my co-authors, including *Sándor Gulyás*, who is also a co-editor of this volume and keenly put the texts into English.

I am deeply indebted to the workers of the NKFP Coordinating Office, personally to *Violetta Fodor* coordinator, and director *Kámory Lajos* for supporting our application and work to the hilt. Furthermore, I would like to express my appreciation to the large number of anonymous reviewers who by their support enabled us to receive the indispensable financial support of the grants OTKA F-4027, T-034392, OMFB-British Council, and NKFP 5/0063/2002. I must mention here *Csanád Bálint*, the director of the Institute of Archeology, Hungarian Academy of Sciences, and the dean of the University of Szeged, Faculty of Sciences, *Gábor Mezősi*, who accommodated this NKFP program at their institutes, and made this publication possible. I would like to express my appreciation to the team of editors working at the Archeolingua Press under the leadership of *Erzsébet Jerem (Rita Kovács and Réka Benczes)* for the thorough review of the full manuscript and making this publication a high-quality one.

I am highly concerned that this book will bring as much joy and satisfaction to the Hungarian and international readers, be either unprofessional or professional working in environmental history, geoarcheology, soil, vegetation, fauna, flora and landscape evolution, as it brought to us during the process of writing and editing. I also believe that the marshland of Bátorliget and the surrounding woodlands will preserve not only the traces of people inhabiting them during the course of history, but those of our work as well for the forthcoming generations.

Pál Sümegi  
editor