



Photo: S. Panelius

A Tribute to Rainer Rosengren (1934–2004)

Myrmecologists around the world were deeply saddened to learn of Professor Rainer Rosengren's death in February 2004. Although retired since 1999, the past six years saw him participating in many new projects both together with his previous colleagues, as well as new collaborators. His extensive knowledge of the biology of red wood ants as well as his insights in evolutionary principles provided a solid foundation for formulating new and exciting research questions.

Rainer Rosengren was invited as a keynote speaker to a myrmecological workshop on the role of the red wood ants in carbon and nutrient dynamics of forest ecosystems held at Kevo Subarctic Research Station, northern Finland in September 2004.

To pay tribute to Rainer Rosengren we dedicate this symposium as well as this special issue of *Annales Zoologici Fennici* to his memory. Fourteen talks were presented during the two symposium days and five of them are published here. In addition, several myrmecological researchers who did not participate in the Kevo workshop wanted to honour Rainer Rosengren's memory by submitting a paper to this volume.

Rainer Rosengren initiated the strong research tradition on mound-building ants in Finland, which now continues through his students and colleagues. His deep knowledge of these ants emanates from his own observations, but was also strongly reinforced by the detailed ant studies done by German researchers, most notably Karl Gösswald. With the addition of modern evolutionary thinking and novel methodology, mound-building ants rapidly became the subject of extensive studies both with respect to their social structure and their general ecology. In addition to these more evolutionary-oriented studies, the role of red wood ants as key players in forest ecosystems remained one of Rosengren's fields of interest. Yet this field has not been covered as comprehensively as other aspects of wood ant biology. The research project on the role of wood ants in forest ecosystems, and the associated symposium provide openings for new avenues of research with red wood ants once again at the core of the topic. The talks presented at the workshop confirm the important role of red wood ants in the dynamics of boreal and alpine forests. Mound-building ants contribute both to nutrient and carbon cycling of forest ecosystems. Through their mutualistic relationships with aphids these ants affect carbon flow and tree growth. As the dominating predators ants have a strong impact on the structure and biodiversity of forest animal and plant communities. The aim of this project funded by the Academy of Finland is to begin to uncover the ecological impact wood ants can have in boreal forests.

Rainer Rosengren had a unique talent of combining the social biology of red wood ants with their role in forest ecosystems. It is evident that the research in red wood ants has found new directions in addition to the studies on social organization and population biology towards more ecosystem-level oriented studies. Rainer Rosengren's seminal work and deep understanding on ants gives a solid basis for the further research and researchers to come to continue his work.

This volume would not have been possible without the contribution of many colleagues and we would like to take the opportunity to thank both the authors of the papers in this volume and the

reviewers whose input essentially helped improve the quality of the contributions. We would also like to thank Dr. Krzysztof Raciborski for transforming the manuscripts into their final form for publication — in many cases with a very tight schedule.

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