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Protective Forests as Ecosystem-based Solution for Disaster Risk Reduction (Eco-DRR)

*Edited by Michaela Teich,
Cristian Accastello, Frank Perzl
and Karl Kleemayr*

ACADEMIC EDITOR
Michaela Teich
Austrian Research Centre for Forests (BFW), Austria

CO-EDITORS
Cristian Accastello
Consorzio Forestale Alta Valle Susa (CFAVS), Italy

Frank Perzl
Austrian Research Centre for Forests (BFW), Austria

Karl Kleemayr
Austrian Research Centre for Forests (BFW), Austria

About the book

Protective forests are a key component to reduce natural hazard risks in mountain areas by preventing or decreasing the frequency, magnitude and/or intensity of snow avalanches, rockfall, landslides, floods, and debris flows. This book summarizes the state-of-the-art knowledge and introduces methods and decision support tools to facilitate the use of protective forests for Ecosystem-based Disaster Risk Reduction (Eco-DRR) as part of an integrated risk management in the Alpine Space. Moreover, it highlights how translating scientific knowledge into practical solutions can only be achieved by an active and iterative exchange with practitioners and policy makers, and a common understanding of applied concepts and definitions. Only then can protective forests be managed sustainably under constantly changing climate and socio-economic conditions.

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Meet our Academic Editors

Michaela Teich
Austrian Research Centre for Forests (BFW), Austria
Dr. Michaela Teich is a forest scientist with a special interest in working in inter- and transdisciplinary teams, aiming to contribute to the sustainable management of protective forests and natural hazard risks in mountain areas. She earned a master's degree from Technische Universität Dresden in 2006, before joining the WSL Institute for Snow and Avalanche Research SLF in Switzerland as a research assistant. In 2014, she completed her Ph.D. on forest-avalanche interactions at ETH Zurich, and then studied the snowpack in bark beetle- and fire-disturbed forests for four years at Utah State University, USA. Dr. Teich is currently leading the Unit of Snow and Avalanches at the Department of Natural Hazards of the Austrian Research Centre for Forests (BFW).

Cristian Accastello
Consorzio Forestale Alta Valle Susa (CFAVS), Italy
Dr. Cristian Accastello is a forester from Torino, Italy. After a master's degree in forest and environmental sciences, he earned his Ph.D. in 2020 at the University of Turin, focusing on the economic value of mountain forest ecosystem services. During his research career, he has worked on various European projects related to forest management in mountain areas, promoting the recognition of forest's services for the protection against natural hazards and climate change mitigation through the development of methods and decision support systems for stakeholders. In 2021, he joined the Consorzio Forestale Alta Valle Susa, an association of public forest owners located in the Western Italian Alps, to explore the application of continuous-cover silviculture and climate-smart forestry in Alpine environments.

Frank Perzl
Austrian Research Centre for Forests (BFW), Austria
Dipl.-Ing. Frank Perzl completed his degree in forestry at the University of Natural Resources and Applied Life Sciences (BOKU), Vienna in 1995 and his diploma in geographic information systems in 2004, before joining the Austrian Research Centre for Forests (BFW) in 2005. His main topics are the forest and natural hazard inventory, protective functions and effects of forests in application-oriented projects, and expert reports for the public and private sectors. He has developed assessment procedures for the protective functions and effects of forests. Examples include guidelines for Austrian programs for the improvement of protective forests, natural hazard maps commissioned by major infrastructure operators, and modeling of the protective function of Austrian forests against snow avalanches, rockfall and shallow landslides.

Karl Kleemayr
Austrian Research Centre for Forests (BFW), Austria
Dr. Karl Kleemayr completed his studies in torrent and avalanche control at the University of Natural Resources and Applied Life Sciences (BOKU), Vienna in 1989 and worked for two years at the Austrian Service for Torrent and Avalanche Control (WLV). He then earned a Ph.D. at the BOKU in 1996. His further research included finite element calculations and avalanche dynamics modeling, but during his career, he advocated for an ecosystem-based risk management approach. From 2004 to 2021, Dr. Kleemayr led the Department of Natural Hazards at the Austrian Research Centre for Forests (BFW) with great dedication and commitment. He passed away in 2021, long before his time, and is greatly missed by the natural hazard and protective forest community.

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