



Remote Sensing of Riparian Ecosystem

Guest Editors:

Dr. Miloš Rusnák
geogmilo@savba.sk

Dr. Monika Šulc Michalková
sulc@mail.muni.cz

Dr. Anna Kidová
geogkido@savba.sk

Dr. Zdeněk Máčka
macka@sci.muni.cz

Dr. László Bertalan
bertalan@science.unideb.hu

Dr. Maciej Liro
maciej.liro@gmail.com

Dr. Malia A. Volke
malia.volke@gmail.com

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Message from the Guest Editors

Riparian (streamside) zones are dynamic ecosystems that form at the interface of aquatic and terrestrial components of the landscape. They are shaped by underlying physical processes associated with river flow. In their natural state, riparian ecosystems are characterized by high spatial and temporal heterogeneity, which supports a diversity of species, habitats, and ecological processes.

Monitoring and the assessment of riparian ecosystems is challenging. Recent advances in remote sensing methods enable effective mapping, monitoring, and improved understanding of riparian systems and management outcomes. High-resolution imagery (satellite, aerial, and UAV) and digital elevation models (DEMs) constructed from LiDAR and UAVs are powerful tools for assessing the biophysical dynamics of riparian zones (e.g., hydrology, geomorphology, and vegetation) over time and three-dimensional space. Machine learning techniques can provide important insights about the long-term spatiotemporal dynamics of riparian systems (e.g., vegetation succession, habitat conditions, the extent and turnover of geomorphic surfaces) and their associated ecological functions.

