KNOWLEDGE CONVERSION FOR ENHANCING MANAGEMENT OF EUROPEAN RIPARIAN ECOSYSTEMS AND SERVICES

COST CONVERGES

RIPARIAN VEGETATION RESPONSES TO GLOBAL CHANGES

WG 1 Workshop, Madrid (Spain), 29-30 January, 2020

Minutes

LIST OF THE PRESENTATIONS

1. **Invited speaker:** Vegetation responses to global changes: Field observations and modelling perspectives (***WALTER BERTOLDI,*** *University of Trento, Italy)*
2. Riparian trees responses to multiple stressors under global changes: how to scale up from individuals to ecosystem impacts? (***PATRICIA RODRIGUEZ GONZÁLEZ****, University of Lisboa, Portugal*)
3. Vegetation encroachment as a general response to multiple pressures (***DIEGO GARCÍA DE JALÓN****, University Politécnica de Madrid, Spain*)
4. Fluvial processes feedback to Salicaceae. Description, thresholds and responses (***EMILIO POLITI****, University of Trento, Italy*)
5. Modelling vegetation responses under different scenarios of climate change (***VANESA MARTINEZ FERNÁNDEZ****, Universidad Politécnica de Madrid, Spain*)
6. River-forest-human interaction changes in dam reservoir backwater zone of mountain stream (***MACIEJ LIRO***, Polish Academy of Sciences, Poland)
7. Structure evolution of the riparian vegetation and its role in bar stabilisation on the braided-wandering river system (***ANNA KIDOVA***, Slovak Academy of Sciences, Slovakia)
8. Flood pulsing system - Assessment and Conservation (***TOMASZ OKRUSZKO***, Warsaw University of Life Sciences, Poland)
9. Invasive riparian species and the effect of climate change on flood conveyance (***TIMEA KISS***, University of Szeged, Hungary)
10. Afforestation of riparian forests on channel systems hydromorphology in the northern Negev desert (***ROEY EGOZI***, Soil Erosion Research, Israel)
11. Yearly changes in herbaceous vegetation composition of Riparian ecosystem of Axios river (***ELENI ABRAHAM***, Aristotle University Thessaloniki, Greece)
12. Monitoring socioecological indicators in Mediterranean river basins (***SONIA SANCHEZ MATEOS***, University Autónoma of Barcelona, Spain)
13. Using the Norwegian Nature Classification System (NiN) for mapping of riparian vegetation and its change over time (***PEGGY ZINKE***, Sciencemonastery AS, Norway)
14. Riparian vegetation responses to hydromorphological alterations in Mediterranean systems: examples from Greek National River Monitoring Network (***EVA PAPASTERGIADOU***, University of Patras, Greece)
15. Riparian habitat quality evaluation in the Czech Republic - development of a new methodological approach (***JIRI JAKUBINSKY***, Global Change Research Institute, Czech Republic)
16. Opportunities for restoring riparian vegetation at different scales based on responses to changes and existing management in Scotland (***ROBERTO MARTÍNEZ***, Scottish Environment Protection Agency, Scotland)
17. Indicators of vegetation responses to global changes: A multi-scale approach (***MARTA GONZÁLEZ DEL TÁNAGO***, Universidad Politécnica de Madrid, Spain)

SYNTHESIS OF THE DISCUSSIONS AND NEXT STEPS

The presentations and the associated discussions concerned mainly the responses of riparian vegetation to different natural and human-induced disturbances in different geographic and socio-economic contexts.

Along the first part of the Seminar the presentations showed a general overview of concepts, field work and modelling approaches and the most likely expected biomorphic responses, as vegetation encroachment, river narrowing and recruitment areas decrease.

The following sessions of the Seminar included different cases studies reporting examples of riparian and floodplain vegetation responses to flow regulation, invasive species, overgrazing and channelization. Examples from semiarid zones (Israel) assessing the influence of riparian tree plantations on riparian soil gully erosion, and examples of riparian restoration under multiple socioeconomic constraints were presented and further discussed. Finally, after several presentations documenting different approaches of riparian vegetation assessment in several countries, a multi-scale process based methodology to characterize and assess the riparian vegetation in European rivers was presented, summarizing the previous work and the preliminary conclusions of the main topics conforming the content of Worgking Group 1.

The presentation referred to this multi-scale process-based approach was followed by a general discussion including different topics as mentioned below:

1. Proposal of a multi-scale process-based approach to identify indicators of Riparian Vegetation for characterization and assessment of changes due to multiple causes of degradation

2. Some discussion topics:

    a. Detection of low relevance of Riparian Vegetation in the WFD
    b. Wide dispersion in Methodologies and approaches, evidenced from COST participants contributions in previous workshop WG 1 in 2018 and realized again from the case studies and experiences presented by participants in the current one in 2020.
    c. Often misunderstanding on the concepts of characterization and assessment.
    d. Need of developing guidelines to characterize status and assess riparian vegetation degradation.
    e. How to develop understanding on vegetation responses to multiple causes of degradation. This includes to measure changes, to document disturbance, and to establish functional process-based links between causes and responses
    f. Need to unify terminology issues (pressures, stressors, disturbances…) for clarity in knowledge transfer of our outputs
    g. Identification of responses vs causes of change depending on scales of analysis
    h. Need of covering Biotic and Abiotic causes of change
    i. Issues to define “reference” conditions or the target image of riparian vegetation
    j. Need to consider that different embedded spatial scale drivers may be producing convergent responses
    k. Need to incorporate proper temporal scales, trajectory concept and resilience
    l. Need to incorporate uncertainty

3. In-situ brainstorming exercise with meeting participants to contribute ideas of potential vegetation indicators of vegetation responses for different disturbances operating at different spatial scales in riparian vegetation

4. First proposal, by Tomasz Okruszko, about the relevance/feasibility of planning a collaborative paper compiling existing data (hydrological and vegetation data) from case studies across Europe on the flood pulse effects on riparian vegetation changes. The idea was approved and Tomasz will prepare a proposal describing the goals of the study and the minimum data requirement to be distributed across participants and discussed in next Annual MC meeting in Thessaloniki in order to determine the potentiality of developing this paper.

Further steps:

Discussion on the further steps to be achieved in order to provide information for WG3. Deadlines agreed in previous meeting were updated as shown in the table 1.

Table 1. Expected deadlines for deliverables

Deliverables (done, in progress, planed)	**Expected**
Report about riparian vegetation assessment	February 2020
Paper about riparian vegetation assessment	July 2020 submit paper
Policy brief	September 2020
series of figures about States/pressures relations	February 2020