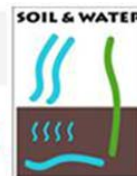


Teacher	Dr. Zuzana Urbanová
Contact	University of South Bohemia, Department of Ecosystem Biology urbanz00@prf.jcu.cz
Lectures	Wetlands and carbon fluxes Wetland restoration
Key words	Wetland, peatland, carbon, methane, organic matter, decomposition, sink, climate, drainage, management, restoration, conservation
Learning objectives	To explain to students the importance of wetlands in local and global scale with the emphasis on their ecosystem functions and role in carbon cycling. To make students familiar with the processes related to CO ₂ and CH ₄ production and emissions in wetlands and also with the factors driving these processes. To emphasize the importance of feedbacks and relation to climate. To present wetlands as an important part of landscape with many valuable functions which are very sensitive to land-use and climate changes. To show that at least some functions of disturbed wetlands can be restored and to present different restoration approaches. To present restoration as a new developing active approach in nature conservation.
Main subjects	Detailed description and explanation of carbon cycling in wetlands and its particularity in comparison to the other types of ecosystems. The clarification of the role of wetlands in global carbon cycling, CO ₂ and CH ₄ emissions, their carbon sink function and explanation of all the factors influencing these processes and their links. Elucidation of wetland function in relation to climate in local and global scale. The introduction into the history of wetland management, wetland protection and restoration. Basic overview about wetland losses due to human activities and highlighting of wetland ecosystem functions that are disturbed and lost due to these activities. Introduction of basic restoration ideas and aims with the overview of basic restoration decision manual. Presentation of different restoration techniques using different examples of restored wetlands (drained peatland, cut-away peatland, channeled stream, etc.). Presentation of specific aims and restoration measures on these real examples with emphasis on importance of monitoring and evaluation of restoration success.

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Eesti Maaülikool
Estonian University of Life Sciences

**Relevance to
EduSaPMan**

One of the main aim of the network is to introduce interaction between soil, plant and water. All these three elements are also included in wetlands, where they interact under specific conditions. Therefore the lectures that are focused on wetland carbon fluxes and restoration perfectly fit to the basic idea of the network. Wetlands can act as model ecosystems to show all the links between different components of the ecosystems. Moreover wetlands, due to their important role in global carbon cycle, represent one of the "hot topics" in current research related to climate change. On the other side, wetland restoration represents a current trend in active nature conservation approaches which fits to the idea of the network to inform students about applied science in terms of nature conservation.

**Recommended
literature**

Biogeochemistry of wetlands. K.R. Reddy and R.D. DeLaune, 2008.
The Biology of Peatlands. H. Rydin and J. Jeglum, 2006.
Peatlands and Climate Change. M. Strack (ed.), 2008.
Wetlands: Ecology, Conservation and Restoration. R.E. Russo (ed.), 2008.
