

Natural and Constructed Wetlands

Jan Vymazal
Editor

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Nutrients, heavy metals and energy cycling,
and flow

 Springer

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Preface

Wetlands are extremely diverse not only for their physical characteristics and geographical distribution but also due to the variable ecosystem services they provide. Wetlands provide many important services to human society but are at the same time ecologically sensitive and adaptive systems. The most important wetland ecological services are flood control, groundwater replenishment, shoreline stabilization and protection, sediment and nutrient retention, water purification, biodiversity maintenance, wetland products, cultural and recreational values, and climate change mitigation and adaptation. The ecosystem services are provided by natural wetlands but also by constructed wetlands. Constructed wetlands utilize all natural processes (physical, physicochemical, biological) that occur in natural wetlands but do so under more controlled conditions. The constructed wetlands have primarily been used to treat various types of wastewater, but water retention, enhanced biodiversity, and wildlife habitat creation are the important goals as well. The necessity of bridging knowledge on natural and constructed wetlands was the driving force behind the organization of the International Workshop on Nutrient Cycling and Retention in Natural and Constructed Wetlands which was first held at Třeboň, Czech Republic, in 1995. The workshop was very successful and naturally evolved in a continuation of this event in future years.

The ninth edition of the workshop was held at Třeboň on March 25–29, 2015. The workshop was attended by 36 participants from 15 countries of Europe, North America, Asia, and Australia. This volume contains a selection of papers presented during the conference. The papers dealing with natural wetlands are aimed at several important topics that include the role of riparian wetlands in retention and removal of nitrogen, decomposition of macrophytes in relation to water depth, and consequent potential sequestration of carbon in the sediment and a methodological discussion of an appropriate number of sampling for denitrification or occurrence of the genus *Potamogeton* in Slovenian watercourses. The topics dealing with the use constructed wetlands include among others removal of nutrients from various types of wastewater (agricultural, municipal, industrial, landfill leachate) on local as well as catchment scale and removal of heavy metals and trace organic compounds. Two

papers also deal with the effect of wetlands in the mitigation of global warming and the effect of drainage and deforestation in climate warming.

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