

Science in the Service of Wetland Conservation: Advances, Retreats, Opportunities

Summary of Presentation

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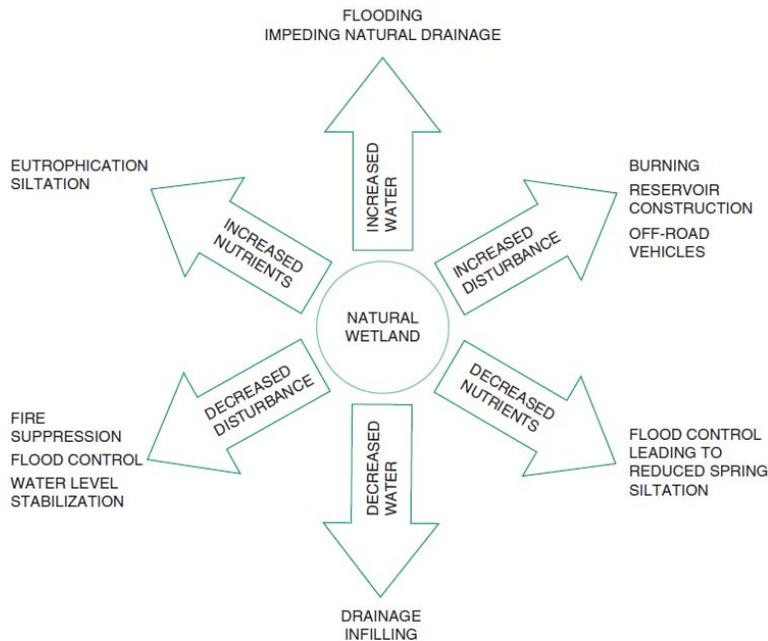
The History and Future of Our Wetlands

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1. Water level fluctuations are not only normal, but essential for many lakeshore wetlands and species. This is very important for the Great Lakes, but also for small interior lakes.
2. The same is true for rivers. Floods and erosion create sandbanks and mudflats which provide the template for new wetlands. We have altogether too many dams that both stabilize water levels and block natural sediment movement. Even the largest river of the continent, the Mississippi, is losing many wetlands owing to insufficient flooding and sediment movement.
3. Infertile habitats support many rare species. This includes sandy shorelines, lakeshore fens, gravel shorelines, sand spits and even riverine alvars. Eutrophication puts an entire suite of plant species at risk—and therefore threatens the co-occurring animals that use such wet meadow habitats. Some ecologists consider “wet meadows” to be a separate category of wetland.
4. There are too many species for species-by-species conservation, particularly in the case of plants and insects. The CSR model is one summary, and it suggests that the least known group (S, stress tolerators) are a significant proportion of our wetland flora, and are often uncommon species and/or indicate rare habitats. Many have unusual biological traits such as CAM photosynthesis, mycorrhizae, hemiparasitism, or carnivory.
5. A useful general model for wetland management is the pool and filter model, which allows us predict general consequences of environmental manipulation. Water levels and fertility are the two main filters for wetlands. Superimposed upon these are the natural disturbances described in points 1 and 2.
6. Inventory: do you call it natural history, conservation, or science? The good news is whatever the category, our understanding of field distributions is steadily improving. One example is the services provided by NHIC.



from P.A. Keddy. 2010.
Wetland Ecology p.31
 Cambridge University Press

FIGURE 1.22 Three key factors (flooding, disturbance, and nutrients) control much of the variation in wetland communities. Hence, there is a chapter in this book for each of these key factors. If any one of these three factors is changed, the wetland will change in response.

Four Key References:

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<http://www.cambridge.org/ca/knowledge/isbn/item5708528>
<http://www.drpaulkeddy.com/wetlandecology2.html>