

Simulating wetland ecosystem services under different policy scenarios

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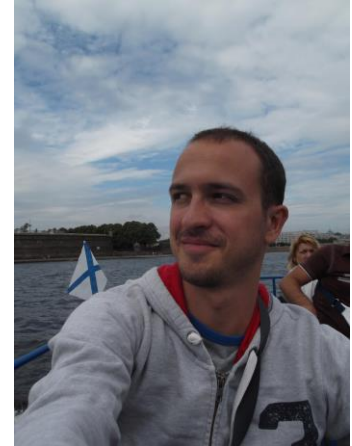
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Abstract

Wetlands provide a number of ecosystem services, including biodiversity preservation, water purification, flood reduction, and human use. Increasing urban pressure caused a progressive loss of wetland ecosystem services over the last few decades. In addition, further urban expansion is predicted to occur and to impact existing wetlands. Policies protecting wetland ecosystem services need to account for the complexity of landscape dynamics. First, urban expansion emerges from a complex interaction between individual preferences for settling and accepting payment for developing. Second, different wetland offset schemes can drive urban development in different ways, and they have different impacts on wetland ecosystem services. Third, there are trade-offs between different ecosystem services. In my project, I use an agent-based approach to simulate the socio-economical interactions at the landscape scale under different wetland policy scenarios. In these models I also account for the feedbacks between wetland ecosystem services and socio-economical dynamics. Major aims are (i) predicting the impact of different policy choices on wetland ecosystem services and urban development, and (ii) identifying points of weakness and strength in different wetland management policies.

Keywords: Wetland, ecosystem services, agent-based modelling, socio-economical dynamics, urban expansion

Geographic Location: * Beaver Hills Initiative, Alberta, Canada

How does your project link to Canadian aquatic ecosystem services?

My project links to ecosystem services provided by wetlands, and in particular on the Alberta wetland policy.