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RH: Integrated resource management in the Saint Croix River Basin•Probst et al.

INTEGRATING REGIONAL BIODIVERSITY CONSERVATION WITH OTHER RESOURCE MANAGEMENT IN THE SAINT CROIX RIVER BASIN, U.S.A.

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Abstract. Holistic ecosystem management has been hampered by reductionist, fine-filter approaches that target single species, isolated issues, and narrow resource considerations. Conversely, coarse-filter ecosystems approaches can retard the integration of resource issues that cross ecosystem boundaries. General, low-resolution assessments should be completed to guide local, detailed studies or to prevent narrowly focused management projects that may be developed without knowledge of the broader framework of objectives. We present a general assessment approach with goals of 1) establishing a continental or interregional context for understanding natural resource issues identified by scientists and practitioners, and 2) identifying and integrating separate issues before initiating detailed research and management activities. We identified 13 interregional or continental issues for the Upper Great Lake States that can be integrated in the Saint Croix River basin of northern Wisconsin and central Minnesota, U.S.A. Because of its diversity in landscapes, land-uses land ownerships, and geography, the Saint Croix River basin presents an opportunity for integrating resource management issues as diverse as conservation, forest products, agriculture, industry, tourism, and recreational and residential development. **Major terrestrial landcovers in the basin are forested (50%) and openland (agriculture, grassland, and shrubland) (42%). Of the forested lands, nearly 75% is upland deciduous, and 11% is upland conifer. Less than 7% of the landcover is lowland deciduous forest, but in conjunction with other riparian components (aquatic ecosystems-8%, lowland shrub-9%) represents a critical resource that is threatened in the region and North America in general. Developed land is presently less than 1% of the landcover, but growing rapidly.** To illustrate an approach to integrated consideration of interregional issues for research and natural resource planning, we describe issues and their broader context for landscape-level resource integration at the level of a 6th order river basin. As an example, we present a framework for integrating one species group of concern – area-sensitive birds – with the other issues and resources in the St. Croix River basin, and for evaluating this landscape's relative importance to this issue within its broader spatial context.

Landscape Ecology

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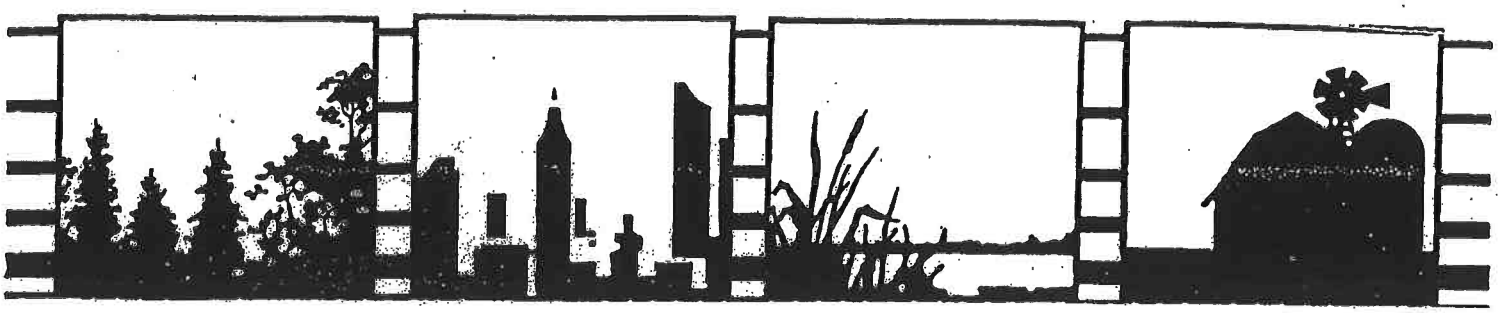

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MULTI-SCALE PLANNING FOR BIODIVERSITY AND OTHER RESOURCES

Resource managers have traditionally dealt with small spatial scales such as forest stands or management compartments. Concerns about the cumulative effects associated with resource management and utilization require assessments over large spatial and long temporal scales. A broad-scale, "top-down" approach to forest planning can improve assessments of cumulative effects.

Landscape ecology concepts are being applied in the Saint Croix River watershed to develop broad-scale approaches to problems of biodiversity and other related resources. Located along the border between northern Wisconsin and central Minnesota, the Saint Croix River represents an outstanding opportunity for research on ecology in an area with diverse, extensive resource utilization. The lands and waters in or near the Saint Croix River watershed are used for forest products, agriculture, industry, tourism, human residence, and diverse recreational opportunities close to the major metropolitan area of Minneapolis-Saint Paul. Maintaining biodiversity, human uses and ecosystem integrity among multiple land ownerships and management objectives will provide a model for managing a variety of adjacent public ownerships for diverse public benefits.

St. Croix River Valley Ecosystems Program

Regional Biodiversity

A. Forests, Barrens, Open Lands
   1. Habitat Area and Pattern
   2. "Sources and Sinks"
   3. Regional Population Processes

B. Land–water Interactions
   1. Nutrient Flow
   2. Riparian Communities
   3. Herpetofauna
   4. Wetlands Wildlife
   5. Recreation Impacts

C. Wetlands and Climate Change

D. Aquatic Resources
   1. Game Fish
   2. Non–game Fish
   3. Breeding Birds
   4. Migrant Birds
   5. Invertebrates