

FINE-FILTER ANCIENT FOREST SURVEY IN THE RUSHBROOK LAKE AREA OF CENTRAL ONTARIO

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(in association with the Canadian Nature Federation)

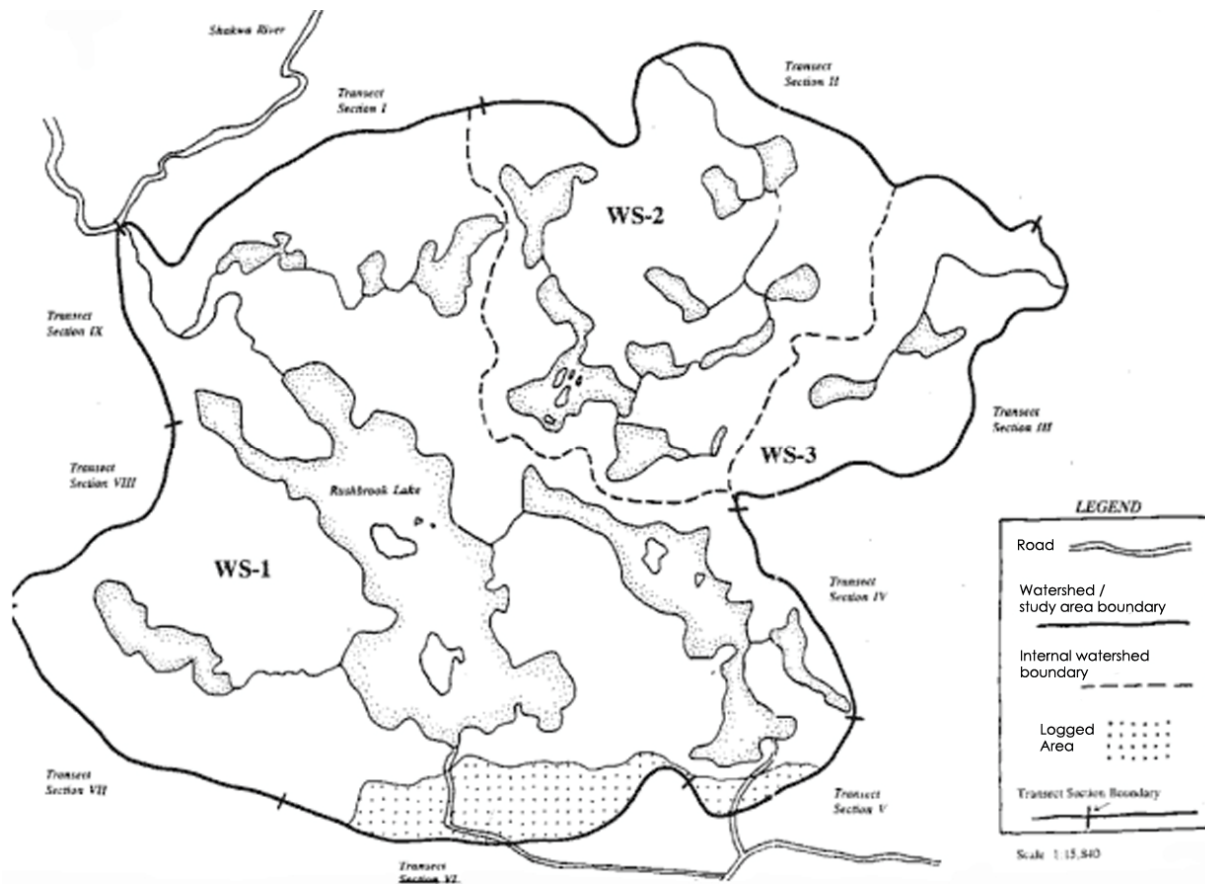
Introduction

Landscapes undisturbed by human activity provide a valuable source of baseline information for development of sustainable resource management practices (e.g. Leopold 1949, Jenkins and Bedford 1973, Noss and Cooperrider 1994). In most parts of the northern temperate forest region of North America, however, very little pristine landscape remains (Franklin 1988, Noss et al. 1994). One of the few areas where a significant amount of pristine landscape still exists is in the portion of Ontario's northern temperate forest that stretches from the Ottawa River across to the eastern shore of Lake Superior, often referred to as Site Region 4E or the Lake Temagami Natural Region (LTNR). Analysis of logging records and road locations primarily were used to identify the general location of the ancient (unlogged) forested landscapes within the LTNR (Quinby and Schultz in prep). This information, however, does not provide the exact location of boundaries between the logged and unlogged areas or the location of unrecorded logged areas. Therefore, the purpose of this study was to conduct a detailed field survey in a minute portion of the 5 million ha LTNR in order to determine the precise amount and location of ancient forested landscape. Once determined, populations and ecosystems within the ancient, unlogged area can serve as controls to evaluate the ecological effects of a variety of forestry practices. The Lower Spanish Forest area of the LTNR was chosen because (1) it was identified by an Ontario government study as the largest area of white and red pine concentration (50 yrs.+, >10% in a stand) in the entire province (Spectranalysis 1993) and (2) analysis of logging records indicated that only about half of the white and red pine portion (200,000 ha) has been logged, leaving possibly up to 100,000 ha of pristine forested landscape. Given the constraints of time and access, and the potential for its future application in scientific forest management studies, a 2,500 ha site consisting of three different small watersheds in the vicinity of Rushbrook Lake, Oullette Township was chosen for the field survey.

Methods

Following the identification of the logged areas using logging records, area-inclusive field sampling was used to further refine and confirm the boundaries of the ancient forested landscape. This involved establishing a continuous series of straight, 10 m wide transects as close to the three outer watershed boundaries as possible. Linked together, these three outer boundaries make up the perimeter of the study area (Figure 1). Also, when possible, each section of transect was located slightly to the outside of the study area boundary. Field observations consisted of searching for evidence of logging within each transect including cut stumps, skidder trails and logging roads. Observations were made within 41 transects totalling almost 19,000 m (19 km). When evidence of logging was encountered, reconnaissance was used to locate the previously unknown boundary between the logged and unlogged area. Once all the unknown logged area boundaries were located, and when the end of the last transect connected with the beginning of the first transect, the entire study area included within the encircling transects was considered ancient forested landscape. Exact locations of each individual transect are not shown on the study area map (Figure 1), however, the start and end of each transect section is shown on the map. Each individual transect can be associated with a specific transect section using the table in Figure 1.

Figure 1



Results and Discussion

Based on the field survey, no more than approximately 5% of the Rushbrook Lake study area has been logged. The logged area is located in the headwater portion of Watershed 3 (WS-3 in Figure 1) and is composed of a flat sand plain. Thus, erosional influences resulting from logging this site have most likely had minimal effect on the watershed-ecosystem downslope from the logging. No evidence of logging was found within Watersheds 2 and 3 (WS-2 and WS-3 in Figure 1).

The Rushbrook Lake study area is located within the Lower Spanish Forest Management Agreement area and although no future logging is scheduled for any portion of the study area, logging is now taking place very close to its southwest boundary. Thus, there is currently potential to utilize the study area for baseline purposes in comparison to the adjacent area currently being logged.

The study area was also identified by Iles (1990) as a provincially significant area of old-growth white and red pine. He found that (1) the oldest stands were dominated by white pine at about 170 years of age and (2) from his analysis of Forest Resource Inventory (FRI) Maps, white birch, white spruce, poplar, jack pine, red maple, sugar maple and yellow birch were common forest overstory species. However, field studies conducted by Ancient Forest Exploration & Research (AFER) in 1994 found (1) an absence of sugar maple in stands that were designated with a sugar maple component on the FRI map and (2) that black spruce was also a common forest overstory species.

AFER is currently working on numerous scientific studies within the Rushbrook Lake study area that focus on the landscape ecology of trees, herbaceous plants, snags and logs; stream habitat; and stream invertebrate communities.

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