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# Coniferous Plantation Management in Central Zone Provincial Parks

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## Abstract

*From as early as the 1920s, land managers in central Ontario have used planting of native and non-native coniferous trees as a method of stabilizing soils, reclaiming abandoned pastures, and improving the aesthetic quality on publicly owned land. Many of these past management objectives were met as these plantations became successfully established on the landscape. Since their establishment, some of the plantations were included within the boundaries of regulated provincial parks. Over the past three decades, there has been little plantation stewardship in these parks, which has resulted in a legacy of overstocked and unhealthy stands with poor structural, species and genetic diversity. Ontario Parks' central zone staff has recently completed vegetation stewardship planning for Killbear, Balsam Lake, and Springwater Provincial Parks. We will soon be implementing the plantation management recommendations. This paper summarizes the history, rationale, implementation, and challenges involved with managing coniferous plantations in central Ontario protected areas.*

**Keywords:** *coniferous plantation management, vegetation stewardship, Killbear Provincial Park, Springwater Provincial Park, Balsam Lake Provincial Park*

## Introduction

From as early as the 1920s, land managers in central Ontario have used planting of native and non-native coniferous trees as a method of stabilizing soils, reclaiming abandoned pastures and improving the aesthetic quality on publicly owned land. Many of these past management objectives were met as these plantations became successfully established on the landscape.

Since their establishment, some of the plantations were included within the boundaries of regulated central zone provincial parks. Over the past three decades, there has been little plantation stewardship in these parks, which has resulted in a legacy of overstocked and unhealthy stands with poor structural, species and genetic diversity.

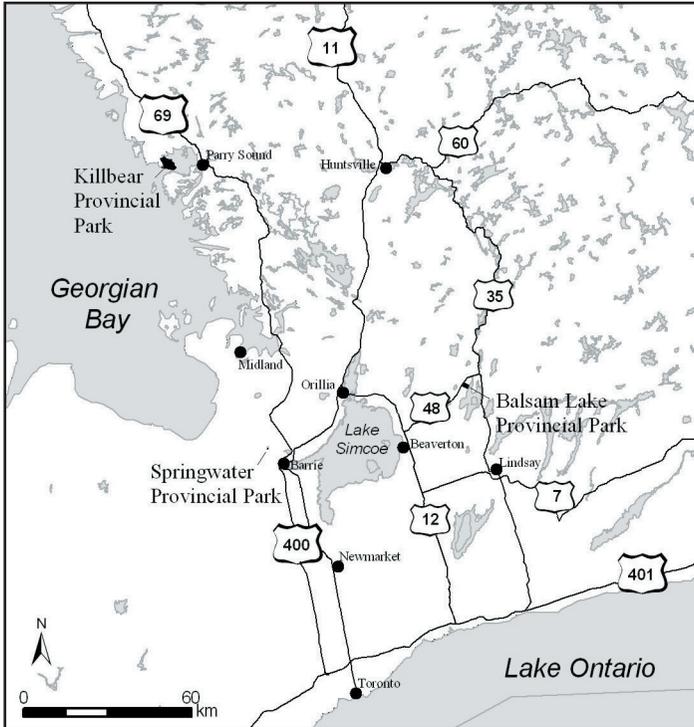
In response to this, Ontario Parks central zone staff has recently completed vegetation stewardship plans for Killbear (Korol, 2005a), Springwater (Korol, 2005b), and Balsam Lake (Korol, 2005c) Provincial Parks. We will soon be entering the implementation phase of the planning process. This paper summarizes the objectives, procedures, implementation, challenges, and opportunities involved with managing coniferous plantations in Ontario Parks' central zone.

## **Study Areas**

Killbear Provincial Park is located 13 km west of Parry Sound on the east coast of Georgian Bay (Figure 1). This Natural Environment Class park was regulated in 1971 and includes 1133 ha of land and 623 ha of water. The park is in Ecodistrict 5E-7, which is characterized by vast bedrock barrens and associated open upland coniferous and deciduous forests, especially in the vicinity of the Georgian Bay shore (Brunton, 1993). The soils of the ecodistrict consist of a shallow veneer of acidic to neutral silts and sands overlying bedrock with occasional deep, sandy, glaciofluvial deposits (Hills, 1959). Kershaw (1997) identified regosolic soils along the park's sandy beaches, well-developed brunisolic and weak luvisolic profiles under the tolerant hardwood forests, podzolic and brunisolic soils beneath coniferous forests, and gleysolic silts in the lowland hardwood communities.

Balsam Lake Provincial Park is located 6 km southwest of Coboconk in the City of Kawartha Lakes (Figure 1). This 449 ha Recreation Class park was regulated in 1968 and is in Ecodistrict 6E-9, which is described as a gently undulating to rolling landscape with ice-laid material deeply covering the bedrock over 80% of the area (Lindsay, 1986). Hills (1959) described the ecodistrict (Site District 6E-9) as an area of high lime, stony loamy till with outcrops of shallowly covered limestone and trains of siliceous and low-base sand. The soils of the park are predominantly of the rocky shallow, calcareous loams of the Dummer Loam (shallow phase) soil class, presenting generally dry mesic sites over most of its surface area (Gillespie and Richards, 1957).

Springwater Provincial Park is located 8 km northwest of Barrie along Hwy. 26 in Simcoe County (Figure 1). The study area includes 47 ha of regulated

**Figure 1.** Location of Killbear, Springwater and Balsam Lake Provincial Parks

park land and approximately 145 ha of surrounding Crown land that will be added to the park (OMNR, 1994). Springwater is in Ecodistrict 6E-6, which is dominated by a series of 64 m high sand and till islands bordered by shorecliffs, beaches, dunes and boundary terraces (Hanna, 1984). From west to east through the centre of the study area, the following gradient of soil types is present: Alliston sandy loam, organic, Tioga sandy loam/Vasey sandy loam, Sargent gravelly sandy loam (Hoffman *et al.*, 1962).

### **Vegetation Stewardship Objectives**

Objectives for vegetation stewardship plans were identified for each study area in their respective park management plans (OMNR, 1985; OMNR, 1994; OMNR, 2000), which have all been publicly reviewed and approved. These objectives and their associated details are variable and can be interpreted differently by project managers (e.g., ecologists, superintendents). The two objectives identified in the Killbear management plan are to provide specific prescriptions to address vegetation stewardship needs in all of the park's zones and outline how the impacts of vegetation stewardship activities will be monitored and evaluated. The Balsam Lake park manage-

ment plan simply states that all proposed planting projects will be directed by an approved planting and maintenance program as stipulated in a vegetation stewardship plan. Nine specific objectives (e.g., remove Scotch pine and replace with indigenous species) are identified in the Springwater park management plan.

The primary vegetation management issues at Killbear are the protection and monitoring of provincially rare vascular plants and beach vegetation communities and the conversion of red pine (*Pinus resinosa*) and white spruce (*Picea glauca*) plantations to more ecologically appropriate forest communities. Vegetation stewardship activities at Balsam Lake will strive to significantly reduce the current number of white spruce, white pine (*Pinus strobus*), and red pine in plantations and establish a mix of tolerant hardwoods in managed plantations and allow and encourage old fields to succeed to a forested community with a variety of native tree, shrub, and herbaceous species. The main objectives at Springwater Provincial Park are to significantly reduce the numbers of native conifers in plantations, remove all non-native conifers, and establish native mixed forest in old fields.

## **Preparation of Stewardship Plans**

Prior to writing the stewardship plans, comprehensive literature reviews were conducted. Information sources included air photos, maps, and existing park inventories, management plans and policy manuals. Interviews with current and retired MNR staff, foresters, and residents were also completed. Existing information was updated by conducting field surveys, during which spatial and floristic inventory data were collected on vegetation communities, using a global positioning system unit. Vegetation communities were then mapped and assigned to relatively homogeneous vegetation stewardship units. Management prescriptions for each stewardship unit were prepared.

Upon completion, the draft plans were circulated internally for comment. Once the reviews were completed and the plans revised, as with all stewardship plans, they were subject to the class environmental assessment for provincial parks and conservation reserves (OMNR, 2005). This process initially involves issuing public notices via mail and newspaper/internet ads, with 30-day comment periods. Public input is then considered as the projects are revised, screened, and assigned to a category based on anticipated environmental impacts and public/agency concerns. Next, a notice of completion is issued, which provides a final opportunity for those who commented on the draft plan to resolve concerns or request an individual environmental

assessment. Upon satisfactory resolution of public and agency concerns, a statement of completion is issued and the implementation phase can begin.

## **Implementation of Stewardship Plans**

Where feasible, park staff will implement these stewardship plans; but due to limited fiscal and human resources, it will be necessary for Ontario Parks to seek out innovative approaches to on the ground activities. In the case of Springwater, we anticipate that revenues from the sale of the mature timber in plantations will offset many management costs. We also intend to actively recruit volunteers (e.g., scout troops, 'friends of' organizations, naturalist clubs) for planting and monitoring activities. We will also be seeking partnerships with post-secondary, resource management student groups and local stewardship councils. The stewardship plans considered here use an adaptive management approach and implementation of prescriptions will be phased in over the next several decades. Should monitoring reveal that a prescription is not achieving the desired objective, or is otherwise ineffective, it will be modified.

## **Challenges and Opportunities**

As described above, the process of preparing and implementing park stewardship plans is both lengthy and complex. It requires knowledge of local forest ecology, silviculture, plantation management, and park planning processes. Once the implementation phase is reached, sources of funding and labour must be sought and coordinated. However, with a little creativity and persistence we can expect benefits such as improved ecologic integrity and greater community involvement in and awareness of our protected areas system and its objectives.

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