

EXPANSION OF RUSHBROOK LAKE PROVINCIAL PARK

The case for protecting recreational, biodiversity and ecosystem service values
of an old-growth forest landscape near Sudbury, Ontario

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Summary

The area around Rushbrook and Shakwa Lakes in the Lower Spanish Forest of Ontario has been recognized since at least 1990 for high concentrations of old-growth white and red pine forests and a large contiguous pristine landscape. However, the provincial park that was created to protect this area does not include important recreational canoe routes, confirmed pristine watersheds, and significant tracts of old-growth forest.

We provide mapping for an expansion of Rushbrook Provincial Park that incorporates both scientific knowledge of the area and the recommendations of the Great Lakes-St. Lawrence Round Table made during the Ontario Living Legacy Process (OLL). This expansion protects pristine watersheds as well as an important canoe route loop, and it nearly doubles the amount of old-growth forest protected in the existing Park. The expansion represents the minimum viable park size to conserve ecological and recreational values, to fulfil the intended park designation, and to provide valuable ecosystem services. Additional options that improve connectivity to the Spanish River Provincial Park should be considered.

The Rushbrook Provincial Park expansion would assist Canada in meeting its international obligations under the *Convention on Biological Diversity*, and help fulfil Canada's Target #1 of the *2020 Biodiversity Goals and Targets for Canada*, that "By 2020, at least 17 percent of terrestrial areas and inland water, and 10 percent of coastal and marine areas, are conserved through networks of protected areas and other effective area-based conservation measures."

Introduction

The Lower Spanish Forest has been recognized for decades for its concentrations of old-growth white and red pine forests and large contiguous areas of ancient (unlogged) forest (Fig. 1; see Appendix 1 for 7 photographs that illustrate some features of the area). The area around Rushbrook Lake was initially identified by Iles (1990) as a provincially significant area of old-growth white and red pine forest. In addition, a provincial mapping study identified the Lower Spanish Forest as the largest area of white and red pine concentration (50 yrs.+, >10% in a stand) in the Province of Ontario (Spectranalysis 1993). Quinby and McGuinness (1996) later demonstrated that it was the largest ancient white and red pine forest landscape remaining in the world. From 1993 to 1995 Ancient Forest Exploration & Research (AFER) conducted field studies in the Lower Spanish Forest, including identification of a large core area of pristine forested landscape comprising three watersheds adjacent to Rushbrook and Marion Lakes (Fig. 2, Quinby & Suski 1995).

Later in 1997, Ancient Forest Exploration & Research (AFER) representatives, Thomas Lee and Michael Henry, explained the significance of the ancient white and red pine forests in the Lower Spanish Forest to the Great Lakes-St. Lawrence Round Table at a public hearing. Two years later in 1999, the OLL was announced following a 2½-year public land use policy development process, originally called Lands for Life. When the Round Table recommendations were released, they included a 2,716 ha park stretching from east of Marion Lake to west of Shakwa Lake, including areas of ancient forest with very high recreational value (Fig. 3). However, when the final new parks maps were released, the Park was only 2,158 ha in size and excluded the lakes and rivers with the highest recreational value, as well as most of the pristine watersheds identified by Quinby and Suski (1995). Also excluded were significant areas of old-growth forest that occur within those watersheds and near Shakwa Lake (Fig. 4).

Canada is a signatory to the *International Convention on Biological Diversity*. At the 10th Conference of Parties Meeting under the convention held in Aichi, Japan, numerous countries agreed to a set of biodiversity targets known as the “Aichi Targets.” *Aichi Target 11* states that, “By 2020, at least 17 percent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.”

Canada’s Target #1 of the *2020 Biodiversity Goals and Targets for Canada* commits to an increase of the amount of inland protected area in the country to 17 percent (Canadian Parks Council 2018). The proposed Rushbrook Provincial Park expansion would conserve part of the world’s largest ancient white and red pine landscape, would provide the public with the highest quality outdoor recreation experiences, and would make progress towards meeting Canada’s international commitments under the *Convention on Biological Diversity*.

Figure 1. Regional Study Area Location and Ancient Pine Forest (from Quinby and McGuinness 1996; protected areas in green)

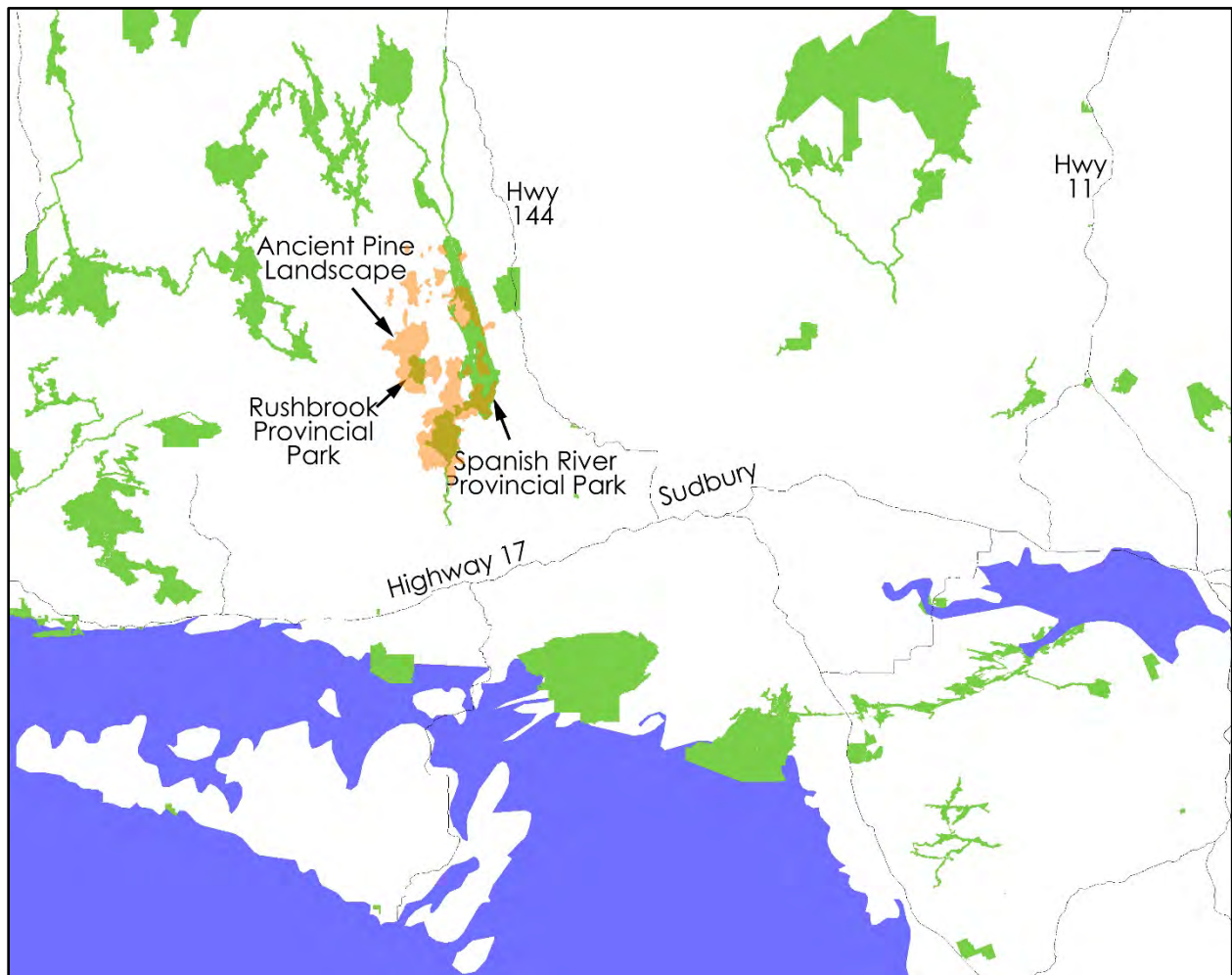


Figure 2. Rushbrook Provincial Park in Relation to Confirmed Ancient Forest Watersheds

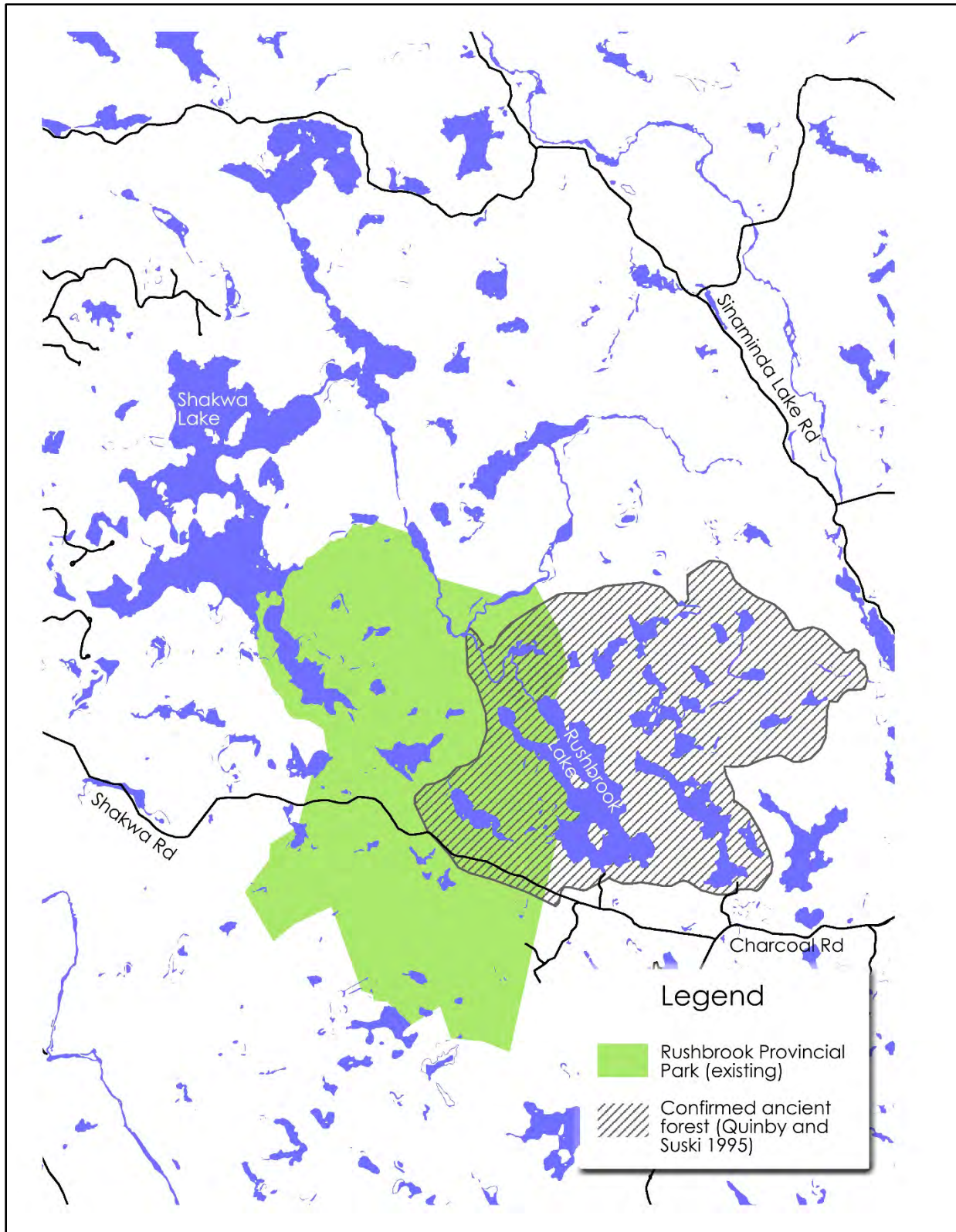


Figure 3. Rushbrook Provincial Park in Relation to the Ontario Living Legacy Great Lakes-St. Lawrence Round Table Recommendations (from Partnership for Public Lands 2001)

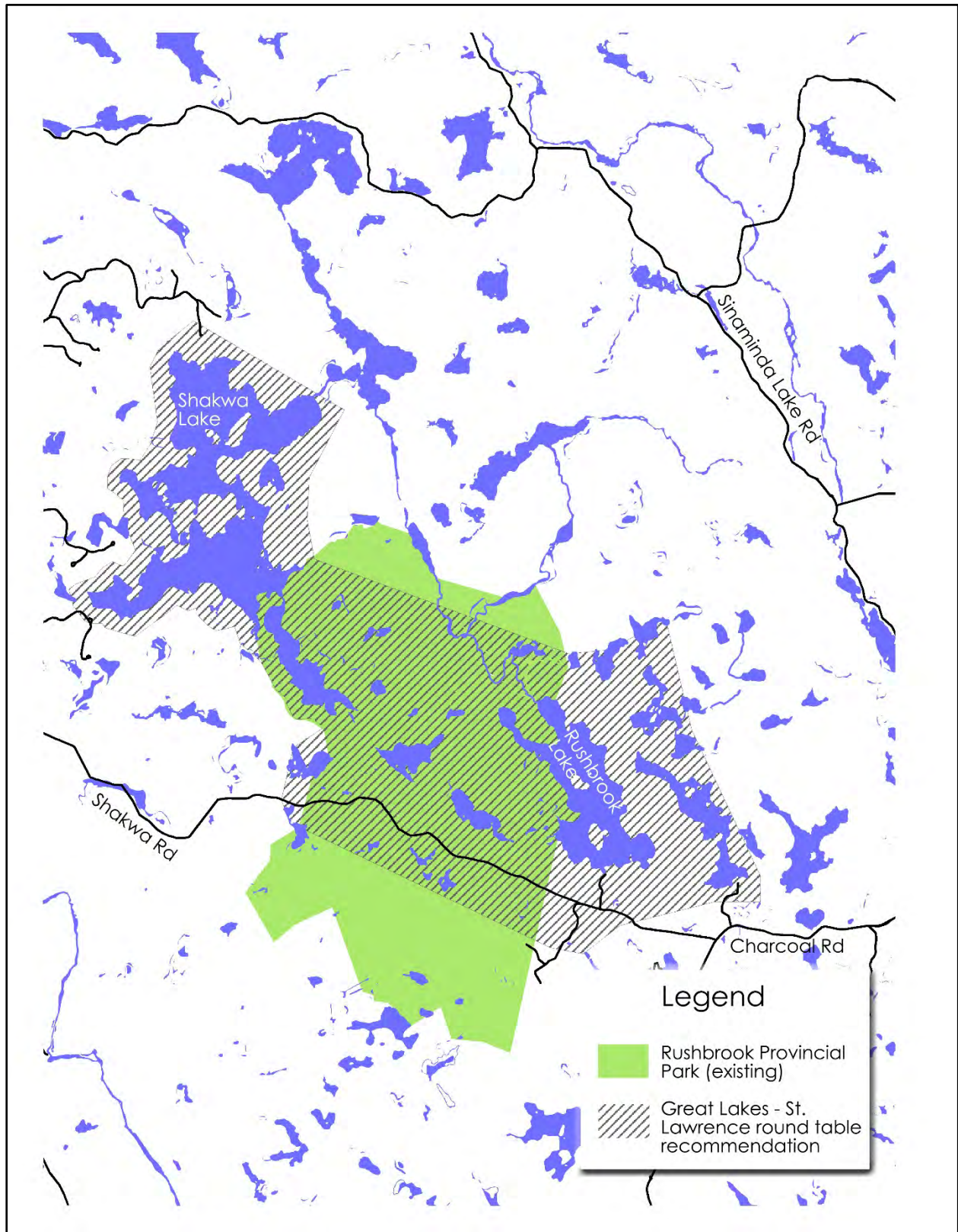
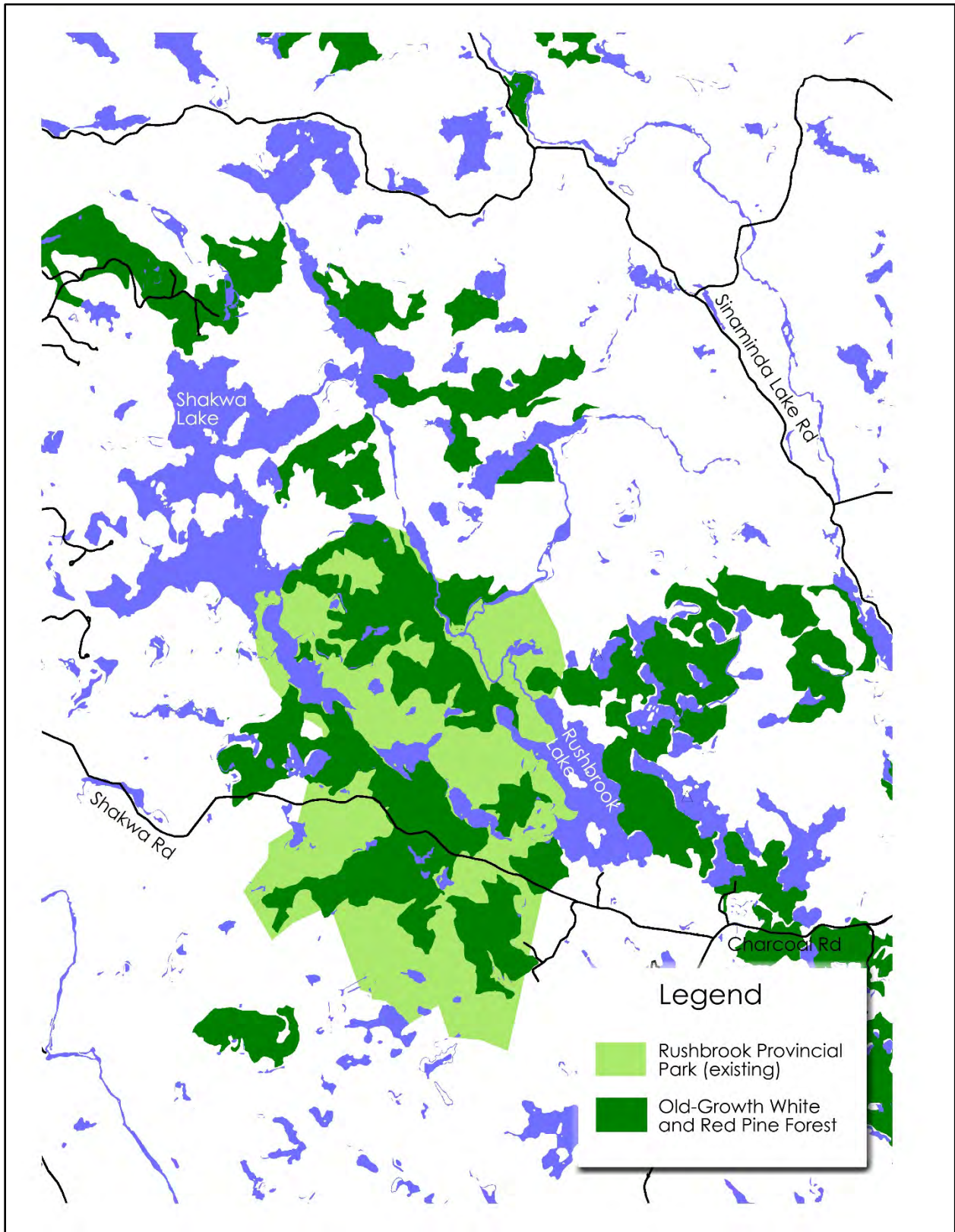


Figure 4. Rushbrook Provincial Park in Relation to Local Old-growth White and Red Pine Forest



Methodology and Results

The proposed Rushbrook Provincial Park expansion was designed by incorporating the following features:

- the ancient forest area identified and confirmed by Quinby and Suski (1995),
- the recommendations made by the OLL Great Lakes-St. Lawrence Round Table,
- a 200-meter buffer around Shakwa Lake,
- adjustments to boundaries to capture old-growth forest and high recreation value forest adjacent to Shakwa and Charcoal Lakes, and
- exclusion of some areas known to be degraded by extensive modern logging.

The proposed expansion would increase the size of Rushbrook Provincial Park to approximately 5,875 ha, which is a 172% increase. This dramatically increases the ecological integrity, old-growth forest conservation, and recreational value of the Park as described below.

Recreation Value

Rushbrook (South Rushbrook Old Pine) Provincial Park was designated through Ontario's *Living Legacy Land Use Strategy* (OMNR 1999) as a natural environment park. The purpose of this designation is to protect high quality recreational and educational experiences in an attractive outdoor setting (Ontario Parks 2006). While the Park boundaries recommended by the Round Table (Fig. 3) encompassed numerous recreational lakes, portages, hiking trails and campsites, the existing Park has very low recreational potential, with no campsites or recognized portages.

The proposed Park expansion would protect an existing canoe route loop of seven lakes, a number of side canoe routes, the connecting canoe route from Rushbrook Lake to Shakwa Lake, and the connecting route to the Spanish River. Without this expansion, the Park cannot fulfill the intention of its legal designation. With its linkages to the Spanish River Provincial Park, this expansion would create a world-class park, which provides opportunities for canoe trips from several days to over a week in length. The canoe routes within the new sections of the proposed Park alone total over 25 km in length, with at least 10 existing portages, four campsites and two hiking trails. The existing connecting canoe route to the Spanish River is over 30 km in length with six portages and numerous campsites, and should be considered for additional protection.

Conservation Status of Old-growth White and Red Pine Forest

The Lower Spanish Forest contains over 6,000 ha of old-growth white and red pine forest, which has been identified by Quinby (1993) as a globally endangered ecosystem. Current protected areas in the Lower Spanish Forest protect less than 40% of this 6,000 ha of old growth. The proposed expansion of Rushbrook Park would increase the amount of old growth within the Park by 93% and would increase the percentage of old growth protected in the Lower Spanish Forest roughly from 38% to 52% (Table 1). This leaves nearly half the old-growth white and red pine forest in the Lower Spanish Forest available for logging (some has already been logged) while protecting the remainder. As an endangered ecosystem all of the old growth white and red pine forest should be protected; therefore the proposed park expansion represents a significant compromise and should be considered as the minimum core protected area. Additional areas should be evaluated to expand old-growth forest protection and provide connectivity to the Spanish River Provincial Park.

Table 1. Area of Old-growth White and Red Pine Forest Protected in the Lower Spanish Forest

Locations	Area of Old Growth (ha)	% of Total
Existing Rushbrook Lake Provincial Park	897	14.6
Spanish River Provincial Park	1423	23.2
Proposed Expanded Rushbrook Lake Provincial Park	1732	28.3
Total Currently Protected in the Lower Spanish Forest	2320	37.9
Total Including the Expanded Rushbrook Park Area	3155	51.5
<i>Lower Spanish Forest Total</i>	6125	100.0

Ecological Integrity, Biodiversity Conservation and Ecosystem Services

The proposed expansion nearly doubles the amount of old-growth red and white pine forest within the Park. *Aichi Target 11* states that areas set aside for protection should include areas of particular importance for biodiversity and ecosystem services. Biodiversity should be considered at the species, ecosystem and genetic level (Woodley et al. 2012) and old-growth forest should be a priority for protection to meet Target 11. Old-growth white and red pine forest was identified as an endangered ecosystem by Quinby (1993), while Mosseler et al. (2003) found that old-growth forests play an important role as reservoirs of both genetic diversity and reproductive fitness.

The existing Park is bisected by a road that fragments the park into two relatively small portions. The proposed Park expansion will increase the largest unfragmented tract in the Park by 270%, from 1,372 ha to 5,098 ha in size. When AFER presented to OLL in 1999, our proposed Park boundaries for the Spanish River Provincial Park connected Rushbrook Lake to the Spanish River. This proposal was not accepted and some of the connecting natural areas have since been intensively logged. Efforts should be made to map and protect connectivity between these parks, as specified in *Aichi Target 11*.

Ecosystem services provide a variety of benefits to people. The Millennium Ecosystem Assessment (2005) categorizes them as *provisioning services* such as food, water, timber, and fiber; *regulating services* that affect climate, floods, disease, wastes, and water quality; *cultural services* that provide recreational, aesthetic, and spiritual benefits; and *supporting services* such as soil formation, photosynthesis, and nutrient cycling. The most significant ecosystem services provided by Rushbrook Provincial Park include:

- enhancing sustainable timber harvest by acting as a genetic reservoir via old-growth forest conservation (Mosseler et al. 2003),
- acting as a carbon sink, accumulating and storing large quantities of carbon over many centuries in old-growth forests (Luyssaert et al. 2008), and
- recreational, aesthetic, health and spiritual benefits provided to people through access to ancient and old-growth forests.

All of these ecosystem services would be greatly enhanced by the proposed Park expansion. In particular, the recreational, aesthetic, and spiritual services of the Park are currently very low, but would become very significant with Park expansion. Since old-growth forest protection is nearly doubled with the park expansion, a commensurate increase in other ecosystem services and biodiversity conservation can be expected.

Figure 5. Rushbrook Provincial Park Expansion in Relation to Old-growth White and Red Pine Forest

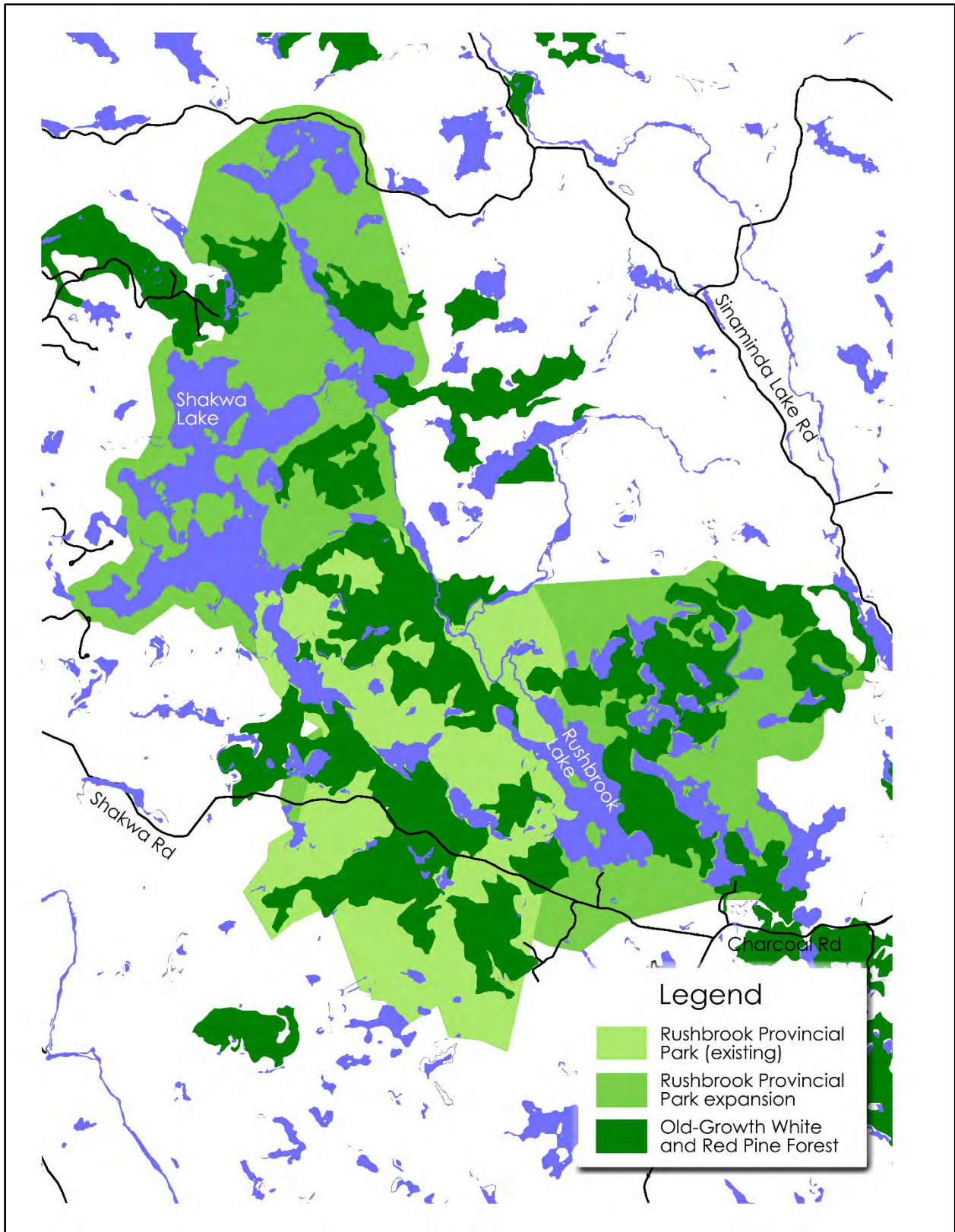
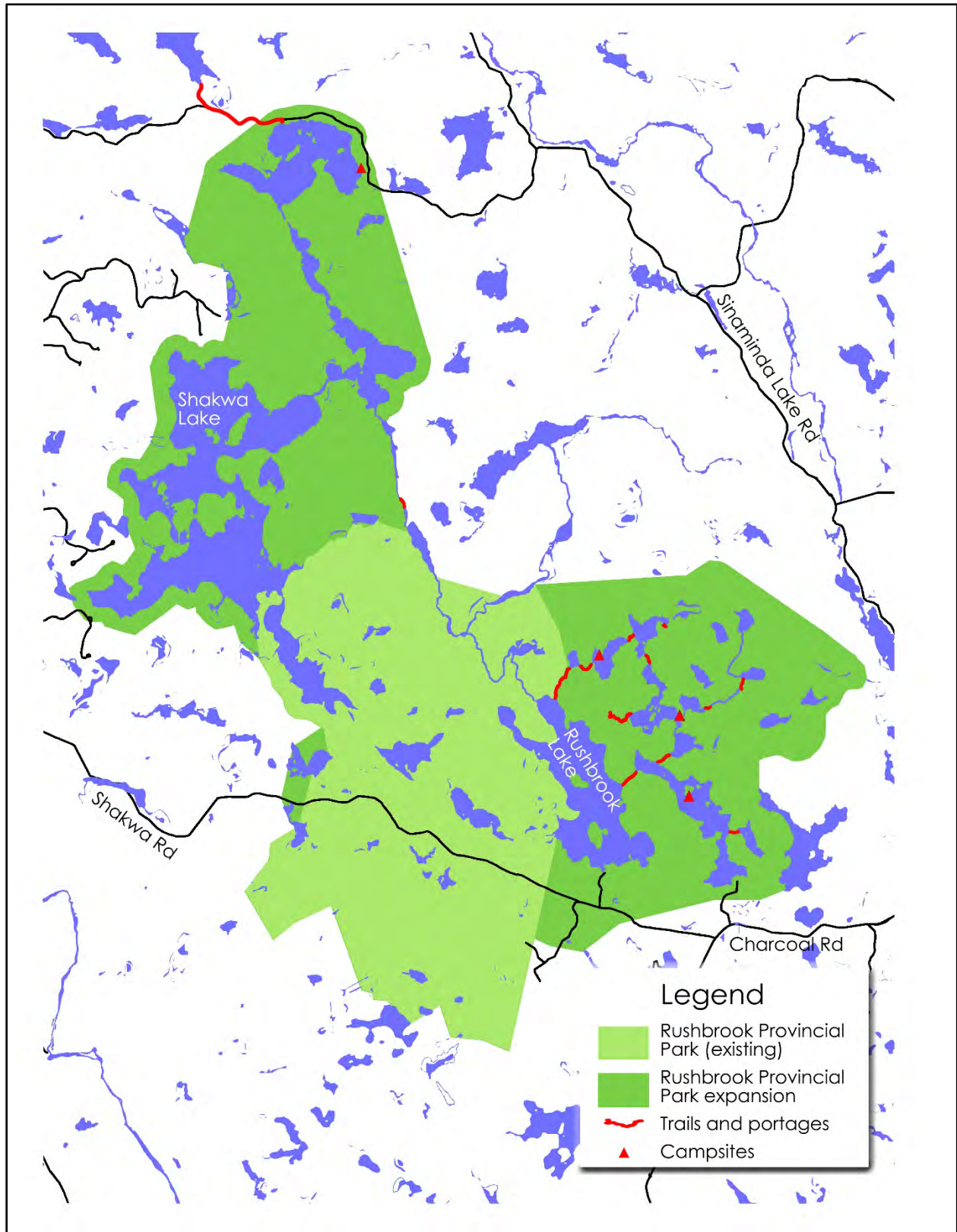


Figure 6. Rushbrook Provincial Park Expansion in Relation to Recreational Canoe Routes



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Appendix 1. Images from the Rushbrook Provincial Park Expansion





