EXECUTIVE SUMMARY – Recovery Strategy for the Engelmann's Quillwort (*Isoetes Engelmannii*) in Ontario

Prepared by the Engelmann's Quillwort Recovery Team of Canada

The preparation of the Recovery Strategy for the Engelmann's Quillwort was led by Parks Canada Agency and the Ontario Ministry of Natural Resources to meet the requirements of the *Species at Risk Act* and the *Accord for the Protection of Species at Risk in Canada*. This recovery strategy is being adopted under the *Endangered Species Act, 2007* (*ESA, 2007*), which requires the Minister of Natural Resources to ensure recovery strategies are prepared for all species listed as endangered or threatened. With the additions summarized below, the Recovery Strategy for the Engelmann's Quillwort (*Isoetes Engelmannii*) in Canada meets all of the content requirements outlined in the ESA 2007.

The identification of critical habitat is not a component of a recovery strategy prepared under the ESA 2007. However, it is recommended that the areas of critical habitat identified in this recovery strategy be considered when developing a habitat regulation under the ESA 2007.

EXECUTIVE SUMMARY

This national Recovery Strategy provides guidance for the recovery of Engelmann's quillwort *(Isoetes engelmannii)* in Canada. Engelmann's quillwort was listed as *Endangered* under the Species at Risk Act given that there are only two known populations in Canada, restricted to two rivers in Ontario. In addition, the Canadian populations are disjunct from the core range of the species in the northeastern United States.

Engelmann's quillwort is an aquatic member of a large group of fern allies, which are primitive plants with a long fossil history; they are thought to be remnants from the last glaciation. This species is unique and is considered an indicator of high species diversity and high quality aquatic habitats. Consequently, Engelmann's quillwort contributes to Canada's overall biodiversity.

There are a number of anthropogenic and natural threats to the Englemann's quillwort including mechanical damage, nutrient enrichment, unusual fluctuating water levels, herbicide application, invasive species, competition, predators, erosion and deliberate damage.

Recovery for this species is deemed feasible due to the presence of reproductive individuals and suitable habitat. Maintaining existing populations and their habitat should be a relatively smallscale undertaking.

The goal of this Recovery Strategy is: *To ensure the sustainability of Engelmann's quillwort populations on the Severn and Gull Rivers and any other populations that may be discovered.*

In order to achieve this goal, seven objectives have been identified and 24 actions have been ranked. The identified objectives include: determining the population sizes, distribution, viability, and genetic affinity to other populations; determining the ecological requirements of the species; identifying and monitoring the subpopulations; identifying and mitigating negative impacts; using government policy and regulation to conserve Engelmann's quillwort; establishing educational tools and programs for conservation and stewardship; and developing restoration techniques and protocol.

The critical habitat for Engelmann's quillwort has been proposed as a section on each of the Gull and Severn rivers in Ontario, coincident with all the known populations in Canada, as well as 300 m and 150 m downstream from the most distal population at the Severn and Gull Rivers, respectively (see figures 3 and 4). Upstream portions of critical habitat include 150 m for both locations. If other populations are discovered, it is recommended that the critical habitat provision will be applied similarly to these new areas.

Knowledge gaps fall within three broad categories: basic ecology, geographical and biological affinities of disjunct populations, genetic analysis to distinguish Engelmann's quillwort from its hybrid and threat analysis.

In order to evaluate the effectiveness of efforts to ensure the sustainability of Engelmann's quillwort, eight performance measures are presented. The performance measures are linked to each recovery objective in order to track progress more specifically.

To ensure the implementation of this recovery strategy, an action plan will be developed by 2009.