

**COSEWIC**  
**Assessment and Status Report**

on the

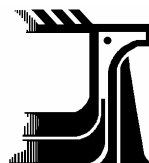
**Ogden's pondweed**  
*Potamogeton ogdenii*

**in Canada**



**ENDANGERED**  
**2007**

**COSEWIC**  
COMMITTEE ON THE STATUS OF  
ENDANGERED WILDLIFE  
IN CANADA



**COSEPAC**  
COMITÉ SUR LA SITUATION  
DES ESPÈCES EN PÉRIL  
AU CANADA

COSEWIC status reports are working documents used in assigning the status of wildlife species suspected of being at risk. This report may be cited as follows:

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For additional copies contact:

COSEWIC Secretariat  
c/o Canadian Wildlife Service  
Environment Canada  
Ottawa, ON  
K1A 0H3

Tel.: 819-953-3215  
Fax: 819-994-3684  
E-mail: [COSEWIC/COSEPAC@ec.gc.ca](mailto:COSEWIC/COSEPAC@ec.gc.ca)  
<http://www.cosewic.gc.ca>

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Ogden's Pondweed — photo of collection at the Department of Agriculture, Ottawa (DAO).

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## COSEWIC Assessment Summary

### Assessment Summary – April 2007

**Common name**

Ogden's Pondweed

**Scientific name**

*Potamogeton ogdenii*

**Status**

Endangered

**Reason for designation**

This species is an aquatic plant that is globally at risk with low population numbers and only 11 extant sites known worldwide. In Canada, it is known from only 3 sites in southeastern Ontario where it was last collected in 1987. Recent fieldwork has documented the loss of habitat and probable extirpation of one population but failed to relocate the others – one of these is a historic site in a relatively undisturbed region with no specific locality information. The presence of aquatic invasive plants in areas around presumed extant populations suggests a further decline in overall area and quality of habitat for native pondweeds. However, the species, which is easily confused in the field with other similar narrow-leaved pondweeds, may still be present in Canada in suitable habitats in the vicinity of previously known sites.

**Occurrence**

Ontario

**Status history**

Designated Endangered in April 2007. Assessment based on a new status report.



**COSEWIC**  
**Executive Summary**

**Ogden's pondweed**  
*Potamogeton ogdenii*

**Species information**

Ogden's pondweed (*Potamogeton ogdenii*) is a submerged, annual aquatic plant with freely branching, compressed and thread-like, rigid stems. The long narrow leaves are greenish-brown. *Potamogeton ogdenii* is similar to other narrow-leaved members of the genus, such as *P. confervoides*, *P. zosteriformis*, *P. hillii*, *P. foliosus*, *P. friesii*, *P. strictifolius*, *P. obtusifolius*, and *P. pusillus*. Ogden's pondweed was described in 1983 as a new species.

**Distribution**

Ogden's pondweed occurs in southern Ontario, western Connecticut, central New York, central Vermont, and western Massachusetts. In Canada it has an extent of occurrence of 1000 km<sup>2</sup>, if the historic locality is assumed to occur roughly in the centre of Hastings Co.

**Habitat**

This species is found in slow-moving streams, beaver ponds, and lakes with clear, alkaline water. The two recent Ontario sites are associated with marble bedrock.

**Biology**

Ogden's pondweed reproduces mainly vegetatively by the production of winter buds called turions. Seeds are uncommonly produced. Like other narrow-leaved pondweeds, Ogden's pondweed probably provides habitat for aquatic invertebrates, food for mammals and waterfowl, and cover for amphibians and fish.

**Population sizes and trends**

The only Canadian occurrences of Ogden's pondweed are in eastern Ontario where it is known from Hastings County (1873), Murphys Point Provincial Park (1974), and Davis Lock on the Rideau Canal (1987). None of these sites were confirmed in

2005 or 2006 but suitable habitat exists in the vicinity of the two more recently documented sites. The species is likely still present in Canada.

### **Limiting factors and threats**

Potential threats to Ogden's pondweed are habitat destruction, competition from invasive plants, and low population numbers.

### **Special significance of the species**

As is the case with other pondweeds, Ogden's pondweed may be eaten by waterfowl and mammals, and provides cover for aquatic invertebrates and fish. No traditional or Aboriginal uses of Ogden's pondweed have been documented.

### **Existing protection**

Ogden's pondweed is considered critically imperiled globally and is designated as Endangered in Massachusetts and New York. The species has no formal status in Canada.



## COSEWIC HISTORY

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) was created in 1977 as a result of a recommendation at the Federal-Provincial Wildlife Conference held in 1976. It arose from the need for a single, official, scientifically sound, national listing of wildlife species at risk. In 1978, COSEWIC designated its first species and produced its first list of Canadian species at risk. Species designated at meetings of the full committee are added to the list. On June 5, 2003, the *Species at Risk Act* (SARA) was proclaimed. SARA establishes COSEWIC as an advisory body ensuring that species will continue to be assessed under a rigorous and independent scientific process.

## COSEWIC MANDATE

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) assesses the national status of wild species, subspecies, varieties, or other designatable units that are considered to be at risk in Canada. Designations are made on native species for the following taxonomic groups: mammals, birds, reptiles, amphibians, fishes, arthropods, molluscs, vascular plants, mosses, and lichens.

## COSEWIC MEMBERSHIP

COSEWIC comprises members from each provincial and territorial government wildlife agency, four federal entities (Canadian Wildlife Service, Parks Canada Agency, Department of Fisheries and Oceans, and the Federal Biodiversity Information Partnership, chaired by the Canadian Museum of Nature), three non-government science members and the co-chairs of the species specialist subcommittees and the Aboriginal Traditional Knowledge subcommittee. The Committee meets to consider status reports on candidate species.

## DEFINITIONS

Wildlife Species	A species, subspecies, variety, or geographically or genetically distinct population of animal, plant or other organism, other than a bacterium or virus, that is wild by nature and is either native to Canada or has extended its range into Canada without human intervention and has been present in Canada for at least 50 years.
Extinct (X)	A wildlife species that no longer exists.
Extirpated (XT)	A wildlife species no longer existing in the wild in Canada, but occurring elsewhere.
Endangered (E)	A wildlife species facing imminent extirpation or extinction.
Threatened (T)	A wildlife species likely to become endangered if limiting factors are not reversed.
Special Concern (SC)*	A wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.
Not at Risk (NAR)**	A wildlife species that has been evaluated and found to be not at risk of extinction given the current circumstances.
Data Deficient (DD)***	A category that applies when the available information is insufficient (a) to resolve a species' eligibility for assessment or (b) to permit an assessment of the species' risk of extinction.

\* Formerly described as "Vulnerable" from 1990 to 1999, or "Rare" prior to 1990.

\*\* Formerly described as "Not In Any Category", or "No Designation Required."

\*\*\* Formerly described as "Indeterminate" from 1994 to 1999 or "ISIBD" (insufficient scientific information on which to base a designation) prior to 1994. Definition of the (DD) category revised in 2006.



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The Canadian Wildlife Service, Environment Canada, provides full administrative and financial support to the COSEWIC Secretariat.

# **COSEWIC Status Report**

on the

## **Ogden's pondweed**

*Potamogeton ogdenii*

**in Canada**

2007

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## SPECIES INFORMATION

### Name and classification

Scientific name: *Potamogeton ogdenii* Hellquist & R.L. Hilton  
Common names: Ogden's pondweed; potamot d'Ogden  
Family: Potamogetonaceae (Pondweed family)  
Major plant group: Monocot flowering plant

Ogden's pondweed was first described in 1983 based on a 1970 collection by Robert Haynes and Stanley Smith in Columbia County, New York (Hellquist & Hilton, 1983). In 1970, the plants were thought to be *Potamogeton x longiligulatus*, then considered to be a hybrid between *P. strictifolius* and *P. zosteriformis* (Hellquist & Hilton, 1983). Later work placed *P. x longiligulatus* in synonymy under *P. strictifolius* (FNA, 2000). The hybrid between *P. strictifolius* and *P. zosteriformis* should be called *P. x haynesii* (Hellquist & Crow, 1986). Further study of the Columbia County material resulted in the plants being described as a new species, *Potamogeton ogdenii*, that had probably originated as a hybrid between *P. hillii* and *P. zosteriformis* (Hellquist & Hilton, 1983). Its treatment as a distinct species has been accepted in recent treatments, such as Gleason & Cronquist (1991) and FNA (2000).

### Description

Ogden's pondweed is a submerged, annual, aquatic plant with freely branching stems that are compressed-filiform and rigid. The leaves are green to greenish-brown, 5-7 cm long and 3-9 nerved (Hellquist & Hilton, 1983). The leaf apex is cuspidate to aristate, 1.2-2.9 mm wide with 1-2 rows of lacunae (air cells) on each side of the leaf midrib. The leaf-like stipules are brown and slightly fibrous with a partially shredded tip. Fruits are only occasionally produced and occur in cylindrical spikes 5-11 mm long with 2-4 whorls. Each orbicular fruit is dark green and 2.2-3 mm across. Winter buds (turions) are uncommonly produced (Hellquist & Hilton, 1983) but appear to be the most common method of reproduction (Hellquist & Mertinooke-Jongkind, 2003). The turions can be produced terminally or laterally and are 37-92 mm long and 26-60 mm wide with ascending outer leaves. In many cases, the winter buds are undifferentiated leaves crowded together (Hellquist & Hilton, 1983). Rhizomes aren't produced; however, the plant can perennate from fragments (Hellquist & Hilton, 1983). Line drawings can be found in Crow & Hellquist (2000), Hellquist & Hilton (1983) and Holmgren (1998).

Ogden's pondweed belongs to sub-section *Pusilli* of the genus *Potamogeton*. This sub-section is made up of the linear-leaved pondweeds, including *P. confervoides*, *P. zosteriformis*, *P. hillii*, *P. foliosus*, *P. friesii*, *P. strictifolius*, *P. ogdenii*, *P. obtusifolius*, and *P. pusillus*. Due to their close vegetative similarity and morphological variability, members of this group are difficult to identify without flowers or fruit (Haynes, 1974). *P. confervoides* is distinctive with its branching leaf clusters alternating along the stem. *P. zosteriformis* has flattened stems 2 mm or more in width. *P. hillii* has flowering/fruitlet peduncles that are mainly axillary. *P. foliosus* has elongate rhizomes and spikes with only

1 or 2 whorls of flowers or fruit. *P. freisii* has rounded leaf tips and turions with outer leaves at right angle to the inner leaves. *P. strictifolius* has white stipular sheathes and leaves that are usually 3 to 5-veined. *P. obtusifolius* has non-fibrous stipular sheathes and leaves up to 3.5 mm wide. *P. pusillus* has non-fibrous stipular sheathes and fruits 1.5 to 2.2 mm across. Although the genus *Potamogeton* has historically been divided into several sections and subsections, Haynes and Hellquist, authors of the Flora of North America treatment of the genus (FNA, 2000), do not believe that recognition of infrageneric categories is warranted. In vegetative condition, Ogden's pondweed is also very similar to non-flowering plants of water stargrass (*Zosterella dubia*). The latter lacks the prominent midvein that is found on leaves of the genus *Potamogeton*.

Fruiting or flowering specimens of Ogden's pondweed can best be identified using keys and/or illustrations in Gleason & Cronquist (1991), Hellquist & Hilton (1983), Hellquist & Crow (1986), Crow & Hellquist (2000), Hellquist & Mertinooke-Jongkind (2003), Holmgren (1998), or FNA (2000).

### **Genetic description**

No specific genetic information was found for this globally rare species.

### **Designatable units**

The species is treated as a single designatable unit.

## **DISTRIBUTION**

### **Global range**

Ogden's pondweed is a globally rare species that occurs in lakes, ponds, and slow-moving streams in southern Ontario (2 current and 1 historic sites), western Connecticut (2 current and 3 historic sites), central New York (3 current and 2 historic sites), central Vermont (2 current and 2 historic sites), and western Massachusetts (2 current sites) (Figure 1). Globally, there are 11 populations considered current or extant plus eight historic populations.

### **Canadian range**

In Canada, Ogden's pondweed is found only in southeastern Ontario (Figure 2). The first collection was made in 1873 by John Macoun but due to the vague locality of "Hastings County", this site is plotted in the centre of the county on Figure 2 (site 3). Only two other locations are known. These were collected at Murphys Point Provincial Park (site 1) in 1974 and at Davis Lock on the Rideau Canal (site 2) in 1987 (Appendix 1). If the Hastings County site is included and assumed to be in the central part of the county, the total extent of occurrence (EO) is 1000 km<sup>2</sup>. According to C.B. Hellquist (pers. com., March 2006, to B. Bennett, COSEWIC Plants Subcommittee) there are no additional Canadian records.



Figure 1. North American distribution of *Potamogeton ogedenii* (after FNA, 2000).

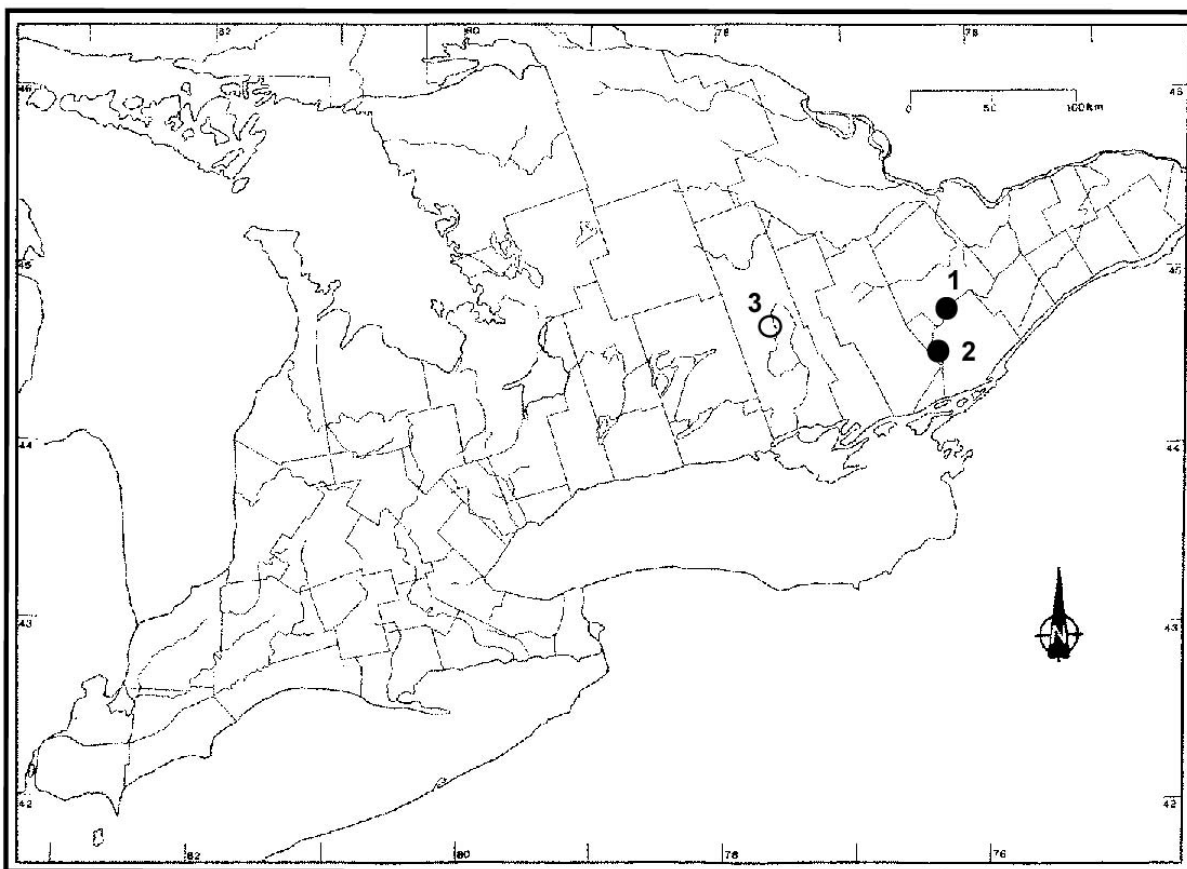


Figure 2. Distribution of *Potamogeton ogdenii* in Canada. Solid dots represent possibly extant populations recorded after 1970. The open circle is the 1873 record plotted in the centre of Hastings County.

The treatment of Ogden's pondweed in FNA (2000) lists only the 1987 collection from Ontario. Although the 1974 collection from Murphys Point is not listed in FNA (2000), the specimen was identified by C.B. Hellquist in 1985 and accepted in Hellquist (1985). The omission of the Murphys Point record from FNA (2000) is probably just an inadvertent error. The 1873 record from Hastings County is not listed in FNA (2000) either because of its age or due to the vague locality; however, the specimen was identified by C.B. Hellquist and the record is noted in Hellquist & Mertinooke-Jongkind (2003).

Considering the similarity between Ogden's pondweed and the other eight linear-leaved species in the province, it is likely that *Potamogeton ogdenii* has been overlooked and could be less rare within its presently-known range or more widespread in Ontario than is currently known. Nonetheless, pondweeds have been widely collected across southern Ontario. Major herbaria, such as DAO (the official acronym for the herbarium at the Central Experimental Farm, Agriculture and Agrifood Canada, Ottawa), contain thousands of *Potamogeton* specimens from the province. At DAO, the vast majority of these collections have been identified or verified by such pondweed experts

as C.B. Hellquist or R.R. Haynes. Amongst all these DAO pondweed specimens, only one has been determined to be *Potamogeton ogdenii*—the 1987 collection from Davis Lock (specimen shown in Figure 3). Since Ogden’s pondweed is probably of hybrid origin between *P. hillii* and *P. zosteriformis*, it might be assumed that Ogden’s pondweed would occur where the ranges of the two parents overlapped. Although *P. zosteriformis* is quite widespread in Ontario, *P. hillii* is restricted primarily to Manitoulin Island and the Bruce Peninsula—a long distance from the known sites of Ogden’s pondweed. At most locations in the US, however, Ogden’s pondweed is found only with one of the parents, *P. zosteriformis* (Hellquist & Mertinooke-Jongkind, 2003).



Figure 3. Specimen of *Potamogeton ogdenii* from Davis Lock (photo of collection at the Department of Agriculture, Ottawa (DAO)).

Although there has been considerable collecting of *Potamogeton* species within the apparent range of Ogden’s pondweed in the province, no comprehensive surveys have been undertaken and until such intensive sampling is done, the Ontario distribution of Ogden’s pondweed (and other narrow-leaved species of *Potamogeton*) should be considered tentative.

## HABITAT

### Habitat requirements

Ogden’s pondweed is found in clear, slow-moving streams, beaver ponds, and lakes. The water is probably hard (alkaline) since both Ontario sites are associated with

marble bedrock. Crow & Hellquist (2000) and Hellquist & Hilton (1983) report the habitat as “alkaline waters”. Hellquist & Mertinooke-Jongkind (2003) describe the habitat as “ponds and lakes with high alkalinity”. Although the species was not found by the author at the Davis Lock station in 2005, the location is well-described by the 1987 collection data. The quiet bays at the site support a diverse community of pondweeds including: *P. strictifolius*, *P. robbinsii*, and *P. zosteriformis*. The habitat on the Davis Lock specimen is “In 7-10 feet of water”.

The 1974 record of Ogden’s pondweed from Murphys Point Provincial Park is from one of a series of beaver ponds along a small creek with limited flow. In August of 2005, beavers were gone from most of the length of the creek and only a small, central watercourse remained. The only pondweed habitat consisted of shallow, scattered pools along the creek bed. Small populations of five other pondweed species were found in the creek: *P. foliosus*, *P. illinoensis*, *P. natans*, *P. gramineus*, and *P. epihydrus*. The habitat given for the Murphys Point collection is “Shallow waters of Black Creek, 1 m upstream from beaver dam”.

### **Habitat trends**

With so few stations in the province and none re-located in 2005, not enough is known about general habitat trends for this species. It is clear, however, that the beaver pond habitats at the Murphys Point site have disappeared in recent years and indicates a reduction in available habitat.

### **Habitat protection/ownership**

The Davis Lock station occurs in the navigable water of Sand Lake and the Rideau Canal, which is one of the National Historic Sites of Canada operated and maintained by Parks Canada. The Murphys Point station occurs in a provincial park that is owned by the provincial government and administered by Ontario Parks. The 1873 collection from “Hastings County” is too vague to comment on ownership.

## **BIOLOGY**

### **Reproduction**

Ogden’s pondweed can reproduce (uncommonly) by seeds and by the production of winter buds called turions (Hellquist & Hilton, 1983). Fruit is produced in mid-summer and the turions are produced towards the end of the growing season (Hellquist & Mertinooke-Jongkind, 2003). Ogden’s pondweed can also disperse and perennate by fragments (Hellquist & Hilton, 1983). In the US, Ogden’s pondweed reproduces primarily by turion production (Hellquist & Mertinooke-Jongkind, 2003).

## **Survival**

Pondweeds are eaten by waterfowl and mammals; however, there are no known studies relating to Ogden's pondweed in particular. Pondweeds could be eaten by aquatic insects and molluscs, but no specific information was found. No information was found on plant survival, age structure, or recruitment rate and none is reported for *P. hillii*, one of the parent species (Makkay, 2005).

## **Physiology**

Ogden's pondweed is associated with alkaline water (Crow & Hellquist, 2000; Hellquist & Hilton, 1983; Hellquist & Mertinooke-Jongkind, 2003). In the United States, alkalinity is reported as 71.5 to 107.0 mg/l CaCo (Hellquist & Mertinooke-Jongkind, 2003). No information was found regarding climatic or other tolerance limitations.

## **Movements/dispersal**

The flowers of most species of pondweeds are wind pollinated, and the seeds are dispersed by water or waterfowl (Sculthorpe, 1967). Winter buds would also be dispersed by water and waterfowl (Haynes, 1974).

## **Nutrition and interspecific interactions**

Like other aquatic plants, narrow-leaved pondweeds provide habitat for aquatic invertebrates, food for mammals and waterfowl, and cover for amphibians and fish (Makkay, 2005). No information was found on the ecological role of Ogden's pondweed in particular; however, it would probably serve a similar ecological role as other narrow-leaved pondweeds.

## **Behavior/adaptability**

No information was found regarding the effects of stress, disturbance, or other environmental pressures on Ogden's pondweed.

## **POPULATION SIZES AND TRENDS**

According to the Ontario Natural Heritage Information Centre, Ogden's pondweed has been found at three sites (Appendix 1). The oldest collection is from Hastings County but due to its age (1873) and vague locality data, it is considered to be historic. The other two sites (dated 1974 and 1987) are recent enough to be considered at least potentially extant.

## **Search effort**

Field visits were made in 2005 to the 1974 and 1987 sites. Additional fieldwork was done elsewhere within the presumed range of the species in the area between the two

recent sites and central Hastings County. Based on a consideration of the dates of the two recent Ontario collections, and the mid-summer time of fruit production recorded in Hellquist & Mertinooke-Jongkind (2003), fieldwork was conducted in mid-August of 2005. In mid-July of 2006, additional areas were searched in Murphys Point Provincial Park.

The most recent Ontario collection of Ogden's pondweed was made by K.W. Spicer on 27 June 1987 at Davis Lock at the west end of Sand Lake, which is on the Rideau Canal. The specimen was originally identified as *P. strictifolius* but was revised to *P. ogdenii* in 1995 by R.R. Haynes. This site was searched by the author on 11 August 2005. Most of the day was spent paddling in the area described on the herbarium label. The area consists of extensive quiet shallow bays with diverse aquatic vegetation including numerous species of *Potamogeton*. Several specimens of possible *P. ogdenii* were collected but were later determined to be mainly *P. strictifolius*.

The area is probably little changed from 1987 with no recent development and little evidence of disturbance to the aquatic vegetation in the sheltered bays adjacent to the canal. Although the wake from passing boats using the canal could disrupt the aquatic communities, there was little evidence of such disturbance away from the channel. There was considerable Eurasian water-milfoil (*Myriophyllum spicatum*) in the main channel but little of this invasive species was established in the quiet bays. Although Ogden's pondweed was not found at Davis Lock in 2005, it should be presumed to still be extant but probably in small numbers that would be easily overlooked amongst several similar species that were common there.

In 1974, Kathy Lindsay, while conducting a life science survey of Murphys Point Park Reserve (later regulated as Murphys Point Provincial Park; Lindsay, 1974), collected Ogden's pondweed in the shallow water of Black Creek near a beaver dam. This area was searched by the author on 17 August 2005. Most of the day was spent walking nearly the entire length (over two km) of the creek in the park. In the past, the creek within the park has consisted of a series of interconnected beaver ponds that provided much aquatic habitat; however, in the summer of 2005, most of the ponds were drained. In the last few years, beaver ponds have been somewhat erratic in this section of Black Creek (T. Kiese-walter, pers. com., 2006). Since the mid-1990s the beaver populations had been low in the area and the dams had not been maintained (M. Ogilvie, Park Superintendent, pers. com., 2007). In 2005, the area consisted of a narrow, rocky stream (with very little flow), passing through a series of meadow marsh communities. The only habitat suitable for pondweeds was scattered, small, shallow pools within the creek bed. Several *Potamogeton* collections were taken from these pools but none were ultimately identified as Ogden's pondweed. Considering the limited habitat and thorough search made by the author, it would seem that Ogden's pondweed no longer occurs in Black Creek in Murphys Point Provincial Park.

There are, however, areas of diverse aquatics in the protected bays of Big Rideau Lake within and adjacent to the park, especially Hoggs Bay into which Black Creek empties. Some of these areas (including parts of Hoggs Bay) were examined briefly for Ogden's pondweed on 17 August 2005 but no plants resembling Ogden's pondweed



were found. On 14 July 2006, a more extensive survey of the Hoggs Bay area was undertaken. The author spent most of the day paddling in this large shallow bay and several small nearby bays in Big Rideau Lake. Hoggs Bay supports extensive shallow aquatic zones dominated by a diverse collection of pondweeds. During the survey, eleven species of *Potamogeton* were noted in Hoggs Bay, including lots of *P. zosteriformis*. Unfortunately, no plants of Ogden's pondweed were found. There was considerable Eurasian water-milfoil established in the bays. Despite the additional 2006 survey of Hoggs Bay, much more extensive inventories would be needed to determine whether the species still occurs in the park or nearby. Ogden's pondweed seems to have disappeared from Black Creek, but it should be presumed to be extant in the park or in nearby wetlands but perhaps in small numbers that would be easily overlooked amongst several similar species that are common in the area.

On 18 August 2005, the author spent the day examining a series of seven wetlands in Hastings County and Lennox & Addington County with similar environmental characteristics to the Murphys Point and Davis Lock sites. The sites visited in Lennox and Addington County are: wetlands along an unnamed stream just southeast of Mitten Lake, adjacent to County Road 41; the northeast end of Little Mellon Lake; and the east end of Haley Lake. In Hastings County, the sites are: Beaver Creek just east of Crowe Lake, adjacent to County Road 33; Beaver Creek adjacent to Beaver Creek Road; Beaver Creek adjacent to Shanick Road, and the Moira River adjacent to Highway 7. One hour or less was spent at each of these locations. Specimens of pondweeds were collected from most of these sites and compared with material at DAO that had been verified by either R.R. Haynes or C.B. Hellquist; however, none of the author's collections were Ogden's pondweed.

Given the results of the field study, and examination of *Potamogeton* specimens at DAO, it would seem that Ogden's pondweed is very rare in the province. The lack of confirmation in 2005 of the two most recent sites (Murphys Point and Davis Lock) does not mean the species has disappeared from those locations. The difficulty in identifying the species in the field, coupled with the fact that several similar species are quite common within its apparent range, indicates that Ogden's pondweed could be very easily overlooked if present in small numbers and intermingled with more common species. As with other species of *Potamogeton* that produce turions, populations of Ogden's pondweed have been found to vary greatly from year to year at individual sites (Hellquist & Mertinooke-Jongkind, 2003). This yearly variability may have affected the outcome of the 2005 field study.

## **Abundance**

Nothing can be reported on the species' abundance since no Ogden's pondweed was found in 2005. None of the Ontario specimen labels give any indication of abundance.

## **Fluctuations and trends**

No information is available on the fluctuations or trends on the species since no Ogden's pondweed was found in 2005 and none of the Ontario specimen labels give any indication of abundance.

## **Rescue effect**

Considering the endangered or threatened status of Ogden's pondweed in adjacent states—and its overall rarity in the United States—it is unlikely that Ontario populations could be replenished by propagules from the US.

## **LIMITING FACTORS AND THREATS**

Potential threats to Ogden's pondweed are habitat destruction, such as loss of beaver ponds, and competition from invasive plants, such as Eurasian water-milfoil. The extent of such impacts may be minimal at present. At Davis Lock, little impact from invasive plants was evident on the diverse aquatic communities in the quiet bays where Ogden's pondweed is assumed to have been found. There was also little evidence for invasive plant impact in Black Creek at Murphys Point. However, Eurasian water-milfoil is common in bays of Big Rideau Lake adjacent to and within Murphys Point Provincial Park; extensive areas with good aquatic plant diversity and only a limited presence of the water-milfoil are also present. Curly pondweed (*Potamogeton crispus*) is an invasive aquatic but it was not seen at Davis Lock and is present in only small numbers in the Murphys Point area. Another invasive aquatic that is common in eastern Ontario is European Frog's-bit (*Hydrocharis morsus-ranae*). This species was not seen in the vicinity of Davis Lock, and was rare along Black Creek and in Hoggs Bay.

Although beaver ponds are ephemeral by nature, if a rare species does not spread easily, a population in a pond could be eliminated from an area when the pond was drained. Ogden's pondweed is also at risk across its range due to its low population numbers. Hellquist & Mertinooke-Jongkind (2003) report a global population of only ten extant sites (only one of the two recent Ontario sites is listed).

## **SPECIAL SIGNIFICANCE OF THE SPECIES**

As is the case with other pondweeds, Ogden's pondweed may be eaten by waterfowl and mammals, and provides cover for aquatic invertebrates and fish. No traditional or Aboriginal uses of Ogden's pondweed have been documented.

## EXISTING PROTECTION OR OTHER STATUS DESIGNATIONS

Ogden's pondweed has only recently been recognized as occurring in Ontario. It is not listed in the Ontario Plant List (Newmaster *et al.*, 1998) nor is it found in the last published rare plant list from NHIC (Oldham, 1999). The more recent listing on the NHIC website (NHIC, 2005) does include Ogden's pondweed with a subnational (provincial) rank of SH (Historical and possibly extirpated).

On the NatureServe Explorer website (NatureServe, 2005), Ogden's pondweed has a Global Rank of G1 (Critically Imperiled). In the United States, it is listed as N1 (Critically Imperiled). In the four US states in which it occurs (Connecticut, Massachusetts, New York, and Vermont), Ogden's pondweed is listed as S1 and is designated as Endangered in Massachusetts and New York (USDA, NRCS, 2005).

## TECHNICAL SUMMARY

**Potamogeton ogdenii**

Ogden's pondweed

potamot de Ogden

Range of Occurrence in Canada: Ontario

<b>Extent and Area Information</b>	
<ul style="list-style-type: none"> <li>• <i>Extent of occurrence (EO)(km<sup>2</sup>)</i> Based on a polygon including the three known specimens. For the purposes of this calculation, central Hastings County was arbitrarily used as the site of the 1873 collection. Although old, its vague locality precludes it being considered extirpated</li> </ul>	ca. 1000 km <sup>2</sup>
<ul style="list-style-type: none"> <li>• <i>Specify trend in EO</i></li> </ul>	unknown
<ul style="list-style-type: none"> <li>• <i>Are there extreme fluctuations in EO?</i></li> </ul>	unlikely
<ul style="list-style-type: none"> <li>• <i>Area of occupancy (AO) (km<sup>2</sup>)</i> On the basis that the Davis Lock and Murphys Point sites are extant.</li> </ul>	actual area <<1 km <sup>2</sup> (<2 ha) but based on a grid system of 2 km <sup>2</sup> certainly << 20 km <sup>2</sup>
<ul style="list-style-type: none"> <li>• <i>Specify trend in AO</i> (loss of beaver pond population at Black Creek)</li> </ul>	decline due to the loss of one recent location
<ul style="list-style-type: none"> <li>• <i>Are there extreme fluctuations in AO?</i></li> </ul>	unknown
<ul style="list-style-type: none"> <li>• <i>Number of known or inferred current locations</i> (historic Hastings Co population unknown but possibly still extant; possibly present in Murphys Point Prov. Park near former Black Creek population, and possibly still extant at Davis Lock)</li> </ul>	0-3
<ul style="list-style-type: none"> <li>• <i>Specify trend in #</i> (loss of Black Creek population)</li> </ul>	decline
<ul style="list-style-type: none"> <li>• <i>Are there extreme fluctuations in number of locations?</i></li> </ul>	no
<ul style="list-style-type: none"> <li>• <i>Specify trend in area, extent or quality of habitat</i> (loss of area at Black Creek and likely loss of quality due to spread of aquatic invasive plants)</li> </ul>	decline
<b>Population Information</b>	
<ul style="list-style-type: none"> <li>• <i>Generation time (average age of parents in the population)</i> (most plants reproduce vegetatively and overwinter as specialized winter buds)</li> </ul>	Unknown but potentially several years from seed to flowering
<ul style="list-style-type: none"> <li>• <i>Number of mature individuals</i></li> </ul>	unknown
<ul style="list-style-type: none"> <li>• <i>Total population trend:</i></li> </ul>	decline (loss of Black Creek population)
<ul style="list-style-type: none"> <li>• <i>% decline over the last/next 10 years or 3 generations.</i></li> </ul>	unknown
<ul style="list-style-type: none"> <li>• <i>Are there extreme fluctuations in number of mature individuals?</i></li> </ul>	unknown
<ul style="list-style-type: none"> <li>• <i>Is the total population severely fragmented?</i> (Two recent localities are within the same drainage and dispersal is by water and possibly waterfowl)</li> </ul>	no
<ul style="list-style-type: none"> <li>• <i>Specify trend in number of populations</i></li> </ul>	decline
<ul style="list-style-type: none"> <li>• <i>Are there extreme fluctuations in number of populations?</i></li> </ul>	no
<ul style="list-style-type: none"> <li>• <i>List populations with number of mature individuals in each:</i></li> </ul>	none verified but potentially up to 3 sites with plants extant
<b>Threats (actual or imminent threats to populations or habitats)</b>	
Loss of most of aquatic habitat observed at one site; threats to other site(s) mainly potential due to spread of aquatic invasive plants	

<b>Rescue Effect (immigration from an outside source)</b>	
<ul style="list-style-type: none"> <li>• <i>Status of outside population(s)?</i> USA: ranks in adjacent states are: New York (S1)</li> </ul>	
<ul style="list-style-type: none"> <li>• <i>Is immigration known or possible?</i></li> </ul>	unlikely
<ul style="list-style-type: none"> <li>• <i>Would immigrants be adapted to survive in Canada?</i></li> </ul>	yes
<ul style="list-style-type: none"> <li>• <i>Is there sufficient habitat for immigrants in Canada?</i></li> </ul>	yes
<ul style="list-style-type: none"> <li>• <i>Is rescue from outside populations likely?</i></li> </ul>	no
<b>Quantitative Analysis</b>	none available
<b>Current Status</b>	
COSEWIC: Endangered (2007)	

### Status and Reasons for Designation

<b>Status:</b> Endangered	<b>Alpha-numeric code:</b> B1ab(ii,iii,iv)+2ab(ii,iii,iv)
<p><b>Reasons for Designation:</b></p> <p>This species is an aquatic plant that is globally at risk with low population numbers and only 11 extant sites known worldwide. In Canada, it is known from only 3 sites in southeastern Ontario where it was last collected in 1987. Recent fieldwork has documented the loss of habitat and probable extirpation of one population but failed to relocate the others – one of these is a historic site in a relatively undisturbed region with no specific locality information. The presence of aquatic invasive plants in areas around presumed extant populations suggests a further decline in overall area and quality of habitat for native pondweeds. However the species, which is easily confused in the field with other similar narrow-leaved pondweeds, may still be present in Canada in suitable habitats in the vicinity of previously known sites.</p>	
<p><b>Applicability of Criteria</b></p>	
<p><b>Criterion A:</b> (Declining Total Population): Not met. Insufficient information.</p> <p><b>Criterion B:</b> (Small Distribution, and Decline or Fluctuation): Meets Endangered B1ab(ii,iii,iv)+2ab(ii,iii,iv) due to the small extent of occurrence and area of occupancy, presence at fewer than 5 sites and continued decline in area of occupancy due to the loss of the Black Creek population and presumed decline in area of potential habitat in and around Big Rideau Lake due to the spread of invasive aquatic species. Although the presence of the two other populations could not be confirmed, one or more populations may still be extant as suitable habitat appears to be present.</p> <p><b>Criterion C:</b> (Small Total Population Size and Decline): Not met. Insufficient information since population size is unknown.</p> <p><b>Criterion D:</b> (Very Small Population or Restricted Distribution): Likely meets Threatened, D2, based on the presence of fewer than 5 sites within an area of occupancy &lt; 20 km<sup>2</sup> and the presence of an aggressively invasive aquatic plant in waters adjacent to the Davis Lock site.</p> <p><b>Criterion E:</b> (Quantitative Analysis): Not met. No analysis available.</p>	

## ACKNOWLEDGEMENTS AND AUTHORITIES CONTACTED

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### Authorities contacted

- M. Oldham, Botanist/Herpetologist, Natural Heritage Information Centre, Ministry of Natural Resources, 300 Water Street, 2nd Floor, North Tower, Peterborough, ON, K9J 8M5.
- Ken Tuininga, Canadian Wildlife Service, Environment Canada, 4905 Dufferin Street, Downsview, ON, M3H 5T4.
- Lara Cooper, Biodiversity Science Branch, Department of Fisheries and Oceans, 200 Kent Street, Station 8N180, 8th Floor, Ottawa, ON, K1A 0E6.
- Alan Dextrase, Senior SAR Biologist, Species At Risk Section, Ontario Parks, Ontario Ministry of Natural Resources, P.O. Box 7000, Peterborough, ON, K9J 8M5.
- Gloria Goulet, Coordinator, Aboriginal Traditional Knowledge, COSEWIC Secretariat, Canadian Wildlife Service, Environment Canada, Ottawa, ON, K1A 0H3.
- Tobi Kiesewalter, Natural Heritage Leader, Murphys Point Provincial Park, Ontario Parks, 2243 Elm Grove Road, RR 5, Perth ON, K7H 3C7.
- C. Barre Hellquist, Biology, Massachusetts College of Liberal Arts, North Adams, MA 01247. (personal communication March 2006).

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## **BIOGRAPHICAL SUMMARY OF REPORT WRITER**

David J. White has a B.Sc. in biology and has been conducting natural area inventories and evaluating the status and significance of rare plants for over 30 years. He began doing field surveys in 1972 for the International Biological Program. From 1973 to 1983, David was employed by the Canadian Museum of Nature as a research technician. During that period he co-authored a number of publications on rare plants, including the Atlas of the Rare Vascular Plants of Ontario. From 1984 to the present, David has worked as a self-employed life science consultant. He has completed projects ranging from natural area inventories and evaluations to reports on invasive

species. David has previously written COSEWIC status reports on three species and authored or co-authored update status reports on over 20 other species.

### **COLLECTIONS EXAMINED**

Agriculture Canada herbarium (DAO), Central Experimental Farm, Ottawa.



## Appendix 1. Ontario locations of *Potamogeton ogdenii*.

Element Occurrence number	Location	Date Last Seen	Notes from 2005 Survey
1	Murphys Point Provincial Park	1974	Species not found. Beaver ponds drained leaving very little aquatic habitat. Could occur nearby in Big Rideau Lake.
2	Davis Lock	1987	Species not found. Extensive aquatic habitat with abundant <i>Potamogeton</i> spp. Could still be extant.
3	Hastings County	1873	Not specifically searched for due to vague location.

Additional sites were searched unsuccessfully in Hastings and Lennox & Addington Counties (see additional sites where not found as listed in the section on population sizes and trends).