Chapter 4. Invasive Species

Introduction and Current Status

Introduction
Since 2004, PGOLID has been very vigilant in working to prevent invasive species in their lakes and educating lake residents. These activities have included chemical treatment of invasive plants, the DNR Watercraft Inspection Program, and Educational Seminars conducted by the PGOLID Water Resource Coordinator.

In 2003, Curly-leaf pondweed was found in Pelican, Little Pelican and Bass Lakes during the lakewide plant survey (Blue Water Science). In 2005, PGOLID started a curly-leaf pondweed chemical treatment program and the results have been successful. From 2005 to 2009, there was a 95% reduction in curly-leaf pondweed in the PGOLID lakes. Eradication of this exotic species is not likely within any body of water the size of Pelican Lake, but continued management practices can keep detrimental effects of this plant to a minimum.

In 2006, PGOLID started the DNR Invasive Species Watercraft Inspection Program. In this program, PGOLID applies for DNR grant funding to have a DNR summer intern posted at their public accesses. This intern interviews boaters and inspects all boats entering and leaving Pelican Lake about invasive species. In 2008-2012, the DNR intern was present at public accesses from Thursday to Sunday every weekend from Opening Fishing to Labor Day. This program both protects Pelican Lake from invasive species and educates boaters about invasive species in Minnesota lakes. PGOLID plans to continue this program every summer in the future.

Current Status
Currently, the only invasive species present in the PGOLID lakes are curly-leaf pondweed and zebra mussels. The curly-leaf pondweed is under control by chemical treatment, and unfortunately there is no treatment for zebra mussels.

The largest threat for new invasive species establishment is Eurasian flowering rush. This invasive aquatic plant is established upstream in the Pelican River in Detroit, Sallie, Melissa and Mill Lakes. Flowering rush has been found in Buck Lake the past two summers, but the PGOLID Water Resource Coordinator and PGOLID boardmembers have dug it out. The next lake down the Pelican River is Little Pelican. PGOLID has a Flowering rush Contingency Plan to deal with the threat of this plant in the future.

Zebra Mussels

Zebra mussels were found in Pelican Lake in September of 2009 by a lake resident. The resident called the PGOLID Water Resource Coordinator, and the sample was confirmed as a zebra mussel. That same afternoon, the PGOLID Water Resource Coordinator and the DNR searched for zebra mussels and confirmed that they were established in Pelican Lake. Some mussels were over an inch long, indicating that they have been established for over a year. Later in the fall of 2009, zebra mussels were also found in Fish Lake.

Zebra mussels are ¼ to 1 ½ inches long and are D-shaped with alternating black and brown stripes. Zebra mussels are tricky to find when they are larvae (veligers), because they are not

visible to the naked eye. Zebra mussel veligers can live anywhere water is present including bilge pumps, live wells, and trailers and are easily spread into other lakes if proper decontamination processes aren't followed. This could be how they entered Pelican Lake. Zebra mussels can attach to hard surfaces such as boat lifts and docks and clog water intake pipes causing problems for property owners, cities, and businesses alike.

Curly-leaf pondweed

History

Curly-leaf pondweed is an invasive plant that can form large mats early in the summer and interfere with recreational activities. When curly-leaf pondweed dies off in early June, these large mats wash up on shore and create a nuisance.

A curly-leaf pondweed survey was performed within Pelican and Little Pelican Lakes during June 2005 for the identification and mapping of curly-leaf pondweed area perimeters. The areas that were mapped as containing curly-leaf pondweed during 2005 received herbicidal treatment during May 2006. The herbicidal treatment program was very successful. The curly-leaf pondweed program was continued during 2007 and 2008 adding Fish and Bass Lakes, and a total of approximately 31 acres were treated each year (Figure 4.1).

Program Goals

Goals of the curly-leaf pondweed herbicide control efforts include:

1. Minimization of floating and drifting cut and fragmented curly-leaf pondweed plants which will inevitably be spread throughout the lakes and transported to non-infested lakes
2. Prevention of the development and maturity of turions (nodules that propagate the plant)
3. Prevention of matting curly-leaf pondweed on the water's surface. This prevention will improve recreational activities and increase lake-user safety
4. Allowance of the native plant community to become reestablished in places where they are currently being displaced by curly-leaf pondweed to improve fish habitat

Treatment Process

A Minnesota Department of Natural Resources (MN DNR) *permit to destroy aquatic vegetation* must be obtained yearly before the application of herbicide is allowed. All property owners that are adjacent to the treatment areas must provide written herbicide application authorization before the MN DNR will issue a permit.

Summary/Discussion

Curly-leaf pondweed is now surveyed every spring, and dense areas are treated with herbicide. The largest areas of curly-leaf pondweed are now sufficiently thinned-out, and PGOLID is in maintenance-mode with annual treatments in small areas.

Participation by property owners, Lake Improvement District supporters, Lake Improvement District Board Persons, Minnesota Department of Natural Resources personnel and others have all contributed successfully to this program. Continued surveying and herbicidal treatments are recommended in order to keep this exotic aquatic plant managed within Bass, Little Pelican and Pelican Lakes. Eradication of this exotic species is not likely within any body of water but continued management practices can keep detrimental effects of this plant to a minimum.

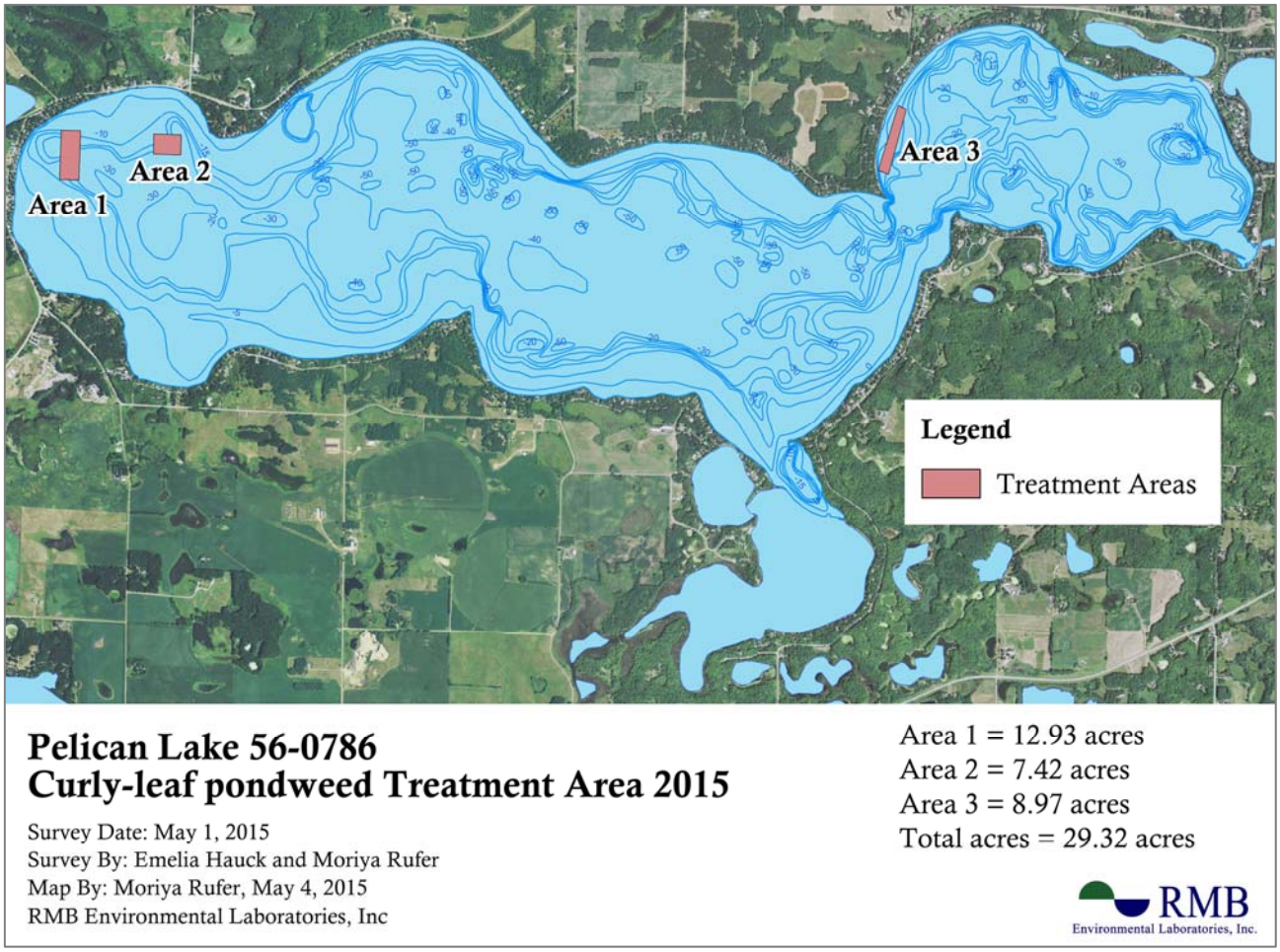

Figure 4.1 Curly leaf pondweed treatment areas, 2015.

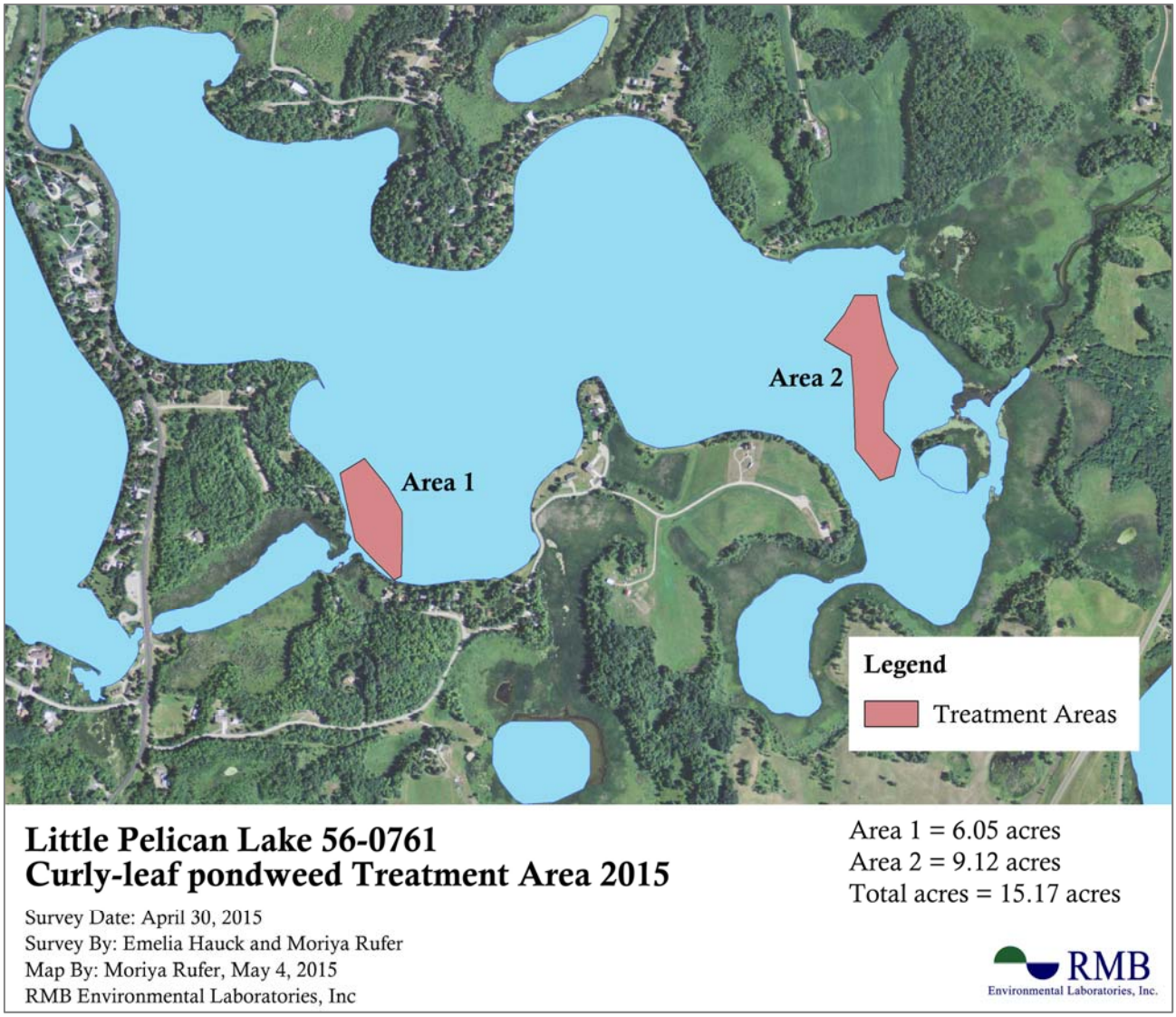

Figure 4.2 Curly leaf pondweed treatment areas, 2015.

Eurasian Flowering Rush

Figure 4.2 Flowering rush on Detroit Lake's public beach

Origin in the Watershed

FR was introduced into North America as an ornamental garden plant from Eurasia. It was first identified in Deadshot Bay in the mid-1970s, and spread into the Big Detroit by the end of that decade (Figure 4.2). By the early 1980s it was found in many places around Big and Little Detroit; and moved down the Pelican River to Muskrat, Sallie and Melissa Lakes (Figure 4.3). In 2007, it was found in Mill Lake, and 2008 it was found in Buck Lake. The next lake down the chain is Little Pelican. As of July 2009, the furthest FR population documented is Buck Lake (Figure 4.4).

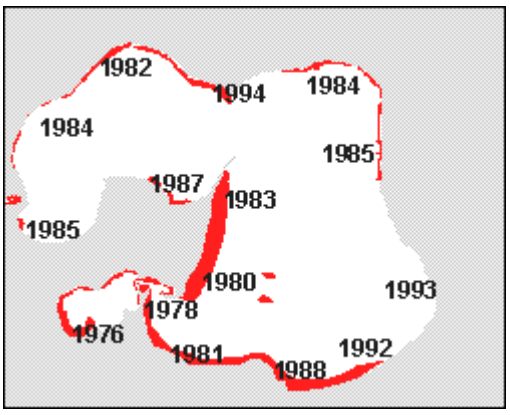

Figure 4.3 Detroit Lake Flowering Rush spread.
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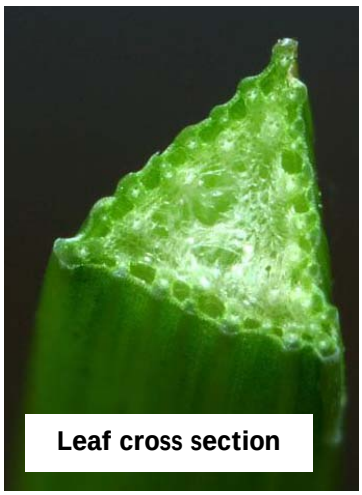

Affects of Introduction

FR is an extremely invasive aquatic plant. It displaces native riparian vegetation, and easily invades areas not occupied by other plants. It grows in dense clusters up to 10 feet deep. Depending on water levels it can become emergent.

FR makes aesthetics difficult. It can prevent boating, swimming, and can limit fishing. Shoreline access becomes difficult. As a result property values decrease.

Virtually all of Pelican Lake up to 10 feet of water is vulnerable to FR invasion. Most of Pelican Lake's beaches contain a limited density of native aquatic plants, thus making it more vulnerable.

PGOLID Contingency Control Plan

The Water Resource Coordinator shall monitor the district and upstream of the district for the introduction of FR, as well as the success of the treatment and methods of control used by the PRWD and DNR. The FR Contingency Control Plan will be updated accordingly.

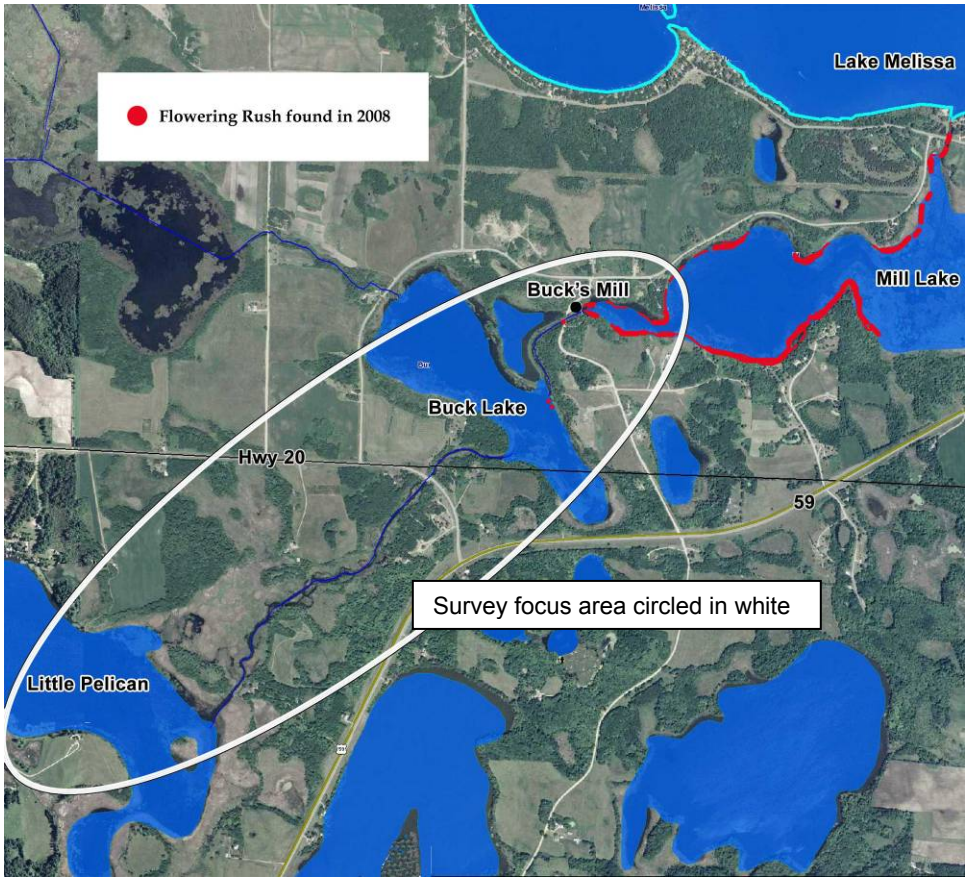

Figure 4.7 Eurasian flowering rush survey area showing known locations of flowering rush.

Annually, numerous surveys will be conducted by the Water Resource Coordinator. Canoeing down the Pelican River is the best method, since many survey areas are too shallow and too dense with aquatic vegetation for a motorized boat. The survey focus will be just north of the Bucks Mill Dam in Mill Lake, the Pelican River south to Buck Lake, and the Pelican River into Little Pelican Lake (Figure 4.7). PGOLID has requested DNR surveys in Little Pelican Lake as well.

If small stands of FR are discovered south of Bucks Mill, the Water Resource Coordinator will acquire a DNR permit for hand removal. The Water Resource Coordinator with an accompanying PGOLID board member will remove the plant(s) with a shovel. All discovered stands of FR will be documented by a GPS location so the sites can be monitored in following years.

In the future, if larger areas of FR are discovered that are unable to be removed by hand, chemical treatment will need to be implemented. The Water Resource Coordinator will seek permission from all landowners within 150 feet of the proposed treatment area, and the PGOLID board will acquire a DNR permit and hire a chemical applicator to treat the infested areas. The chemical imazapyr under the label *Habitat* would be applied annually over several years for control. Residents near the infected area would be educated on the spread and treatment of FR to encouraging best management practices of this exotic plant.

The PGOLID board has set aside funding for chemical treatment of FR if the need arises. This flexibility in the budget allows for swift mitigation of any new problem areas. In addition, the DNR has a new grant program for Early Detection/Rapid Response to invasive species. Under this grant, PGOLID could apply for funding to chemically treat FR if it is ever found in a large area south of Mill Pond.