November 2024

DONNELL LAKE

PLANT CONTROL SUMMARY

PREPARED FOR:
PENN TOWNSHIP BOARD
CASS COUNTY, MI

PROGRESSIVE COMPANIES

PENN TOWNSHIP BOARD

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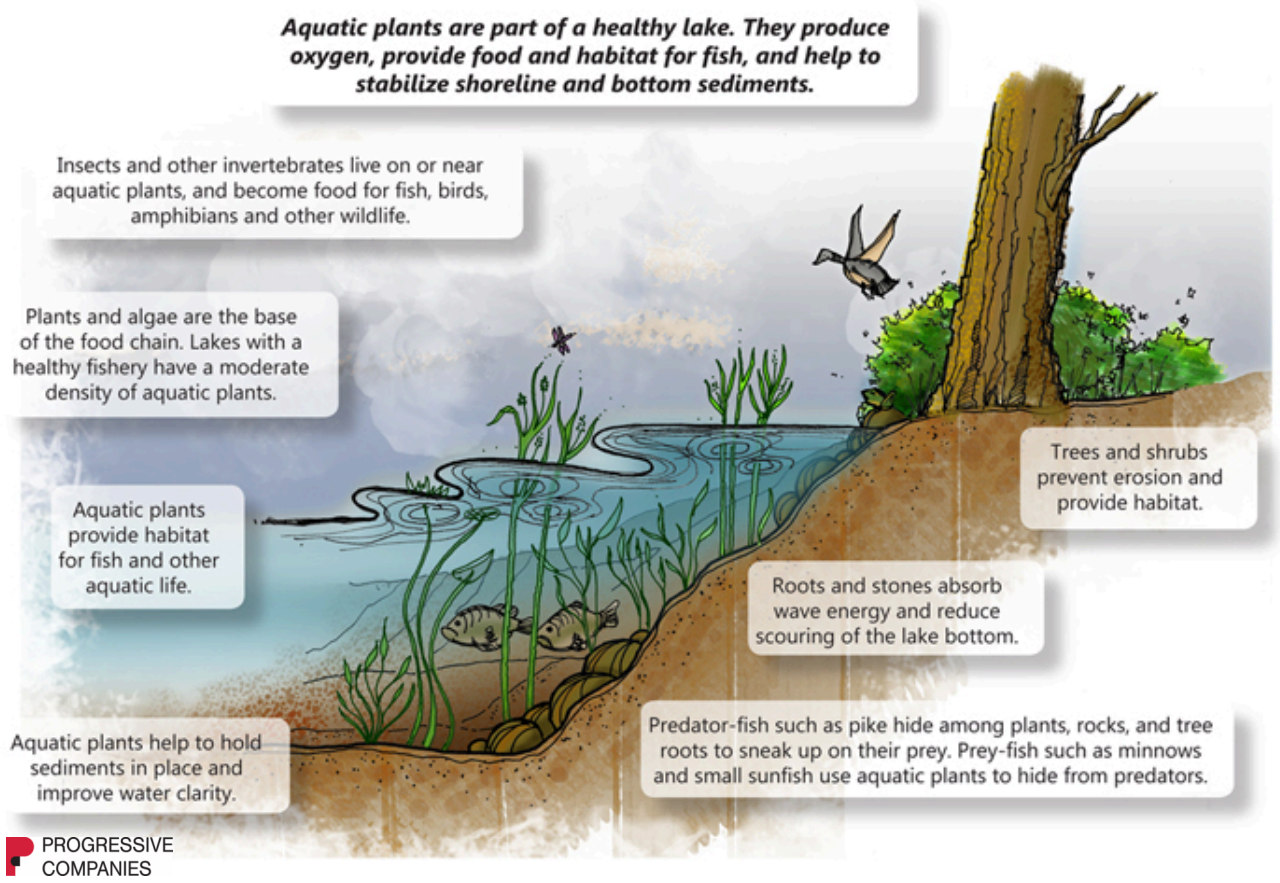
AQUATIC HERBICIDE APPLICATOR

PLM Lake & Land Management Corp.

PROGRAM SUMMARY

A nuisance aquatic plant control program has been ongoing on Donnell Lake for several years. The primary objective of the program is to prevent the spread of invasive aquatic plants while preserving beneficial native plant species. This report contains an overview of plant control activities conducted on Donnell Lake in 2024.



Aquatic plants are an important component of lakes. They produce oxygen during photosynthesis, provide food, habitat and cover for fish, and help stabilize shoreline and bottom sediments. There are four main aquatic plant groups: submersed, floating-leaved, free-floating, and emergent. Each plant group provides important ecological functions. Maintaining a diversity of native aquatic plants is important to sustaining a healthy fishery and a healthy lake. Invasive aquatic plant species have negative impacts to the lake's ecosystem. It is important to maintain an active plant control program to reduce the introduction and spread of invasive species within Donnell Lake. Plant control efforts in 2024 consisted of three surveys and three herbicide treatments.

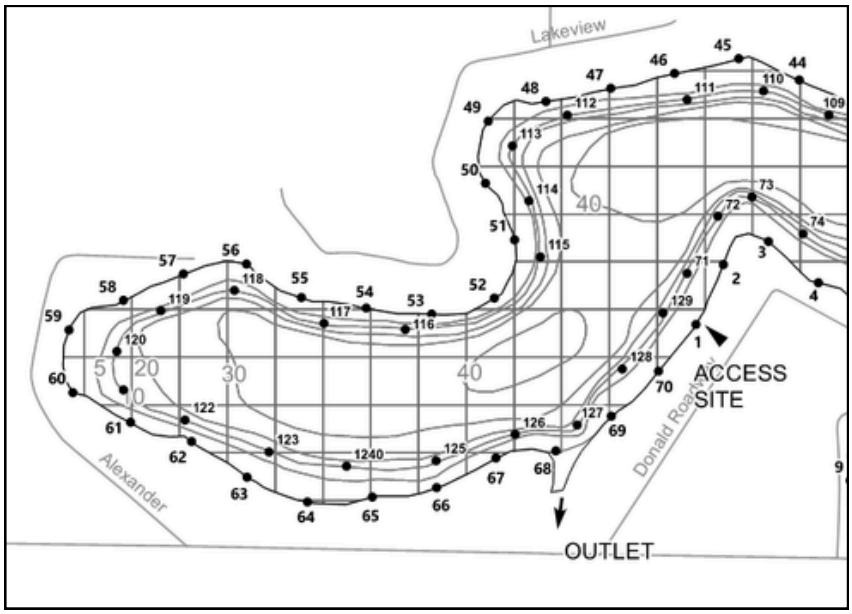
PLANT CONTROL

Plant control activities are coordinated under the direction of an environmental consultant, Progressive Companies. Scientists from Progressive conduct GPS-guided surveys of the lake to identify problem areas, and georeferenced plant control maps are provided to the plant control contractor. GPS reference points are established along the shoreline and drop-off areas of the lake. These waypoints are used to accurately identify the location of invasive and nuisance plant growth areas.

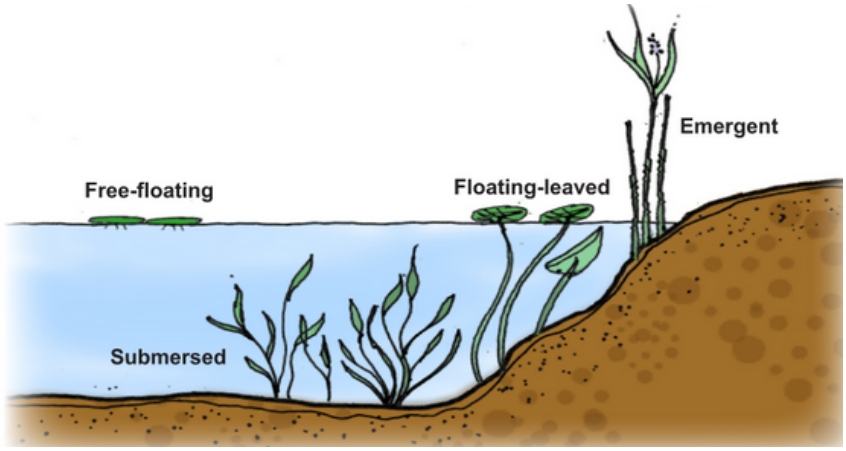
Eurasian milfoil
Myriophyllum spicatum

Curly-leaf pondweed
Potamogeton crispus

Starry stonewort
Nitellopsis obtusa



Primary plants targeted for control in Donnell Lake include Eurasian milfoil, curly-leaf pondweed, and starry stonewort. These plants are non-native (exotic) species that tend to be highly invasive and have the potential to spread quickly if left unchecked. Plant control activities conducted on the lake in 2024 are summarized in Table 1.



PLANT CONTROL

TABLE 1. DONNELL LAKE 2024 PLANT CONTROL ACTIVITIES

Date	Plants Targeted	Acreage
May 22	E. milfoil	0.50
July 11	E. milfoil	0.50
September 12	E. milfoil, *Phragmites*	1.25
Total		**2.25**

In 2024, 2.25 acres of Donnell Lake were treated with aquatic herbicides throughout the growing season. Small areas of Eurasian milfoil were selectively targeted during each treatment with the systemic herbicide ProcellaCOR. Two areas of non-native *Phragmites* were identified at the water's edge, and treated in September.

Curly-leaf pondweed, a non-native species, was observed in relatively high numbers along the drop-off during the May plant survey. As this plant sometimes dies back on its own early in the season, the Donnell Lake Conservation Club asked that its treatment be suspended in 2024 to allow for observation and reassessment of the need to actively manage this species. When scientists from Progressive returned to Donnell Lake in June, the curly-leaf pondweed had dropped out of the water column entirely without any intervention. A similar observational approach will be taken in 2025.

The invasive macro-algae starry stonewort is present around much of the lake, though generally in water deeper than 10 feet. At this depth, there are no present recreational or navigational problems being caused by its presence, nor does it seem to be interfering with the established native plant community. One small area of starry stonewort was observed growing in shallow water near the inlet. Due to its low density and the likelihood of being outcompeted by the native macro-algae *Chara*, treatment for starry stonewort was not prescribed this year. Progressive will continue to monitor this population closely and will provide further recommendations as necessary.

PLANT INVENTORY SURVEY

In addition to the surveys of the lake to identify invasive plant locations, a detailed vegetation survey of Donnell Lake was conducted on July 29 to evaluate the type and abundance of all plants in the lake. The table below lists each plant species observed during the 2024 survey, the relative abundance of each, and 2023 abundance for comparison. At the time of the 2024 survey, 17 submersed species, two floating-leaved species, and eight emergent species were found in the lake. Donnell Lake maintains a good diversity of beneficial, native plant species.

TABLE 2. DONNELL LAKE 2024 PLANT INVENTORY DATA

Common Name	Scientific Name	Group	2024 Percentage of sites where present	2023 Percentage of sites where present
Thin-leaf pondweed	*Potamogeton* sp.	Submersed	79	16
Illinois pondweed	*Potamogeton illinoensis*	Submersed	79	89
Chara	*Chara* sp.	Submersed	70	76
Starry stonewort	*Nitellopsis obtusa*	Submersed	59	21
Slender naiad	*Najas flexilis*	Submersed	40	7
Wild celery	*Vallisneria americana*	Submersed	40	79
Submersed bulrush	*Schoenoplectus subterminalis*	Submersed	24	30
Flat-stem pondweed	*Potamogeton zosteriformis*	Submersed	23	7
Sago pondweed	*Stuckenia pectinata*	Submersed	14	1
Large-leaf pondweed	*Potamogeton amplifolius*	Submersed	9	0
Small pondweed	*Potamogeton pusillus*	Submersed	7	0
Eurasian milfoil	*Myriophyllum spicatum*	Submersed	4	0
Water marigold	*Bidens beckii*	Submersed	3	0
Richardson's pondweed	*Potamogeton richardsonii*	Submersed	3	4
Bladderwort	*Utricularia vulgaris*	Submersed	1	4
Curly-leaf pondweed	*Potamogeton crispus*	Submersed	1	1
Elodea	*Elodea canadensis*	Submersed	1	0
White waterlily	*Nymphaea odorata*	Floating-leaved	29	39
Yellow waterlily	*Nuphar* sp.	Floating-leaved	11	10
Purple loosestrife	*Lythrum salicaria*	Emergent	53	64
Arrowhead	*Sagittaria latifolia*	Emergent	34	21
Pickerelweed	*Pontederia cordata*	Emergent	17	20
Lake sedge	*Carex lacustris*	Emergent	16	14
Cattail	*Typha* sp.	Emergent	13	10
Bulrush	*Schoenoplectus* sp.	Emergent	10	13
Swamp loosestrife	*Decodon verticillatus*	Emergent	4	4
Phragmites	*Phragmites australis*	Emergent	3	0

Exotic invasive species