

EXECUTIVE SUMMARY¹

The Biological Field Station of the State University of New York College at Oneonta performed wide-ranging research in 2003 for Madison County in order to better understand the relationship between Eurasian water-milfoil (*Myriophyllum spicatum*) and its insect herbivores and the role that fish population composition plays in mediating the control of Eurasian water-milfoil. Eight lakes were surveyed with multiple protocols in 2003. The lakes surveyed were Bradley Brook Reservoir, Eaton Reservoir, Hatch Lake, Lake Moraine (upper basin), Lebanon Reservoir, Lower Leland Pond, Tuscarora Reservoir, and Upper Leland Pond. Results indicate that bluegill and pumpkinseed sunfish (*Lepomis macrochirus* and *L. gibbosus*) suppress populations of the aquatic macrophyte moth (*Acentria ephemerella*), the same Eurasian water-milfoil insect herbivore which was augmented in Lebanon Reservoir in 2001. Additionally, we note that substantial walleye (*Sander vitreus*) populations may limit sunfish populations permitting Eurasian water-milfoil insect herbivore densities to expand. Data are also presented further characterizing the physical and chemical characteristics and aquatic plant communities in the eight lakes. We recommend an introduction of walleye into Lebanon Reservoir in 2004 for control of sunfish and Eurasian water-milfoil.

INTRODUCTION & SUMMARY

The Biological Field Station of the State University of New York College at Oneonta (BFS) performed wide-ranging research in 2003 for Madison County in order to better understand the relationship between Eurasian water-milfoil and its insect herbivores and the role that fish population composition plays in mediating the control of Eurasian water-milfoil. Madison County has a long history of management facilitating recreational uses of its lakes which would otherwise be stymied by aggressive, invasive Eurasian water-milfoil growth. This work was funded by Madison County in a program administered by the Planning Department as outlined in Anonymous, 2003. Our work took place in eight Madison County lakes with documented histories of Eurasian water-milfoil infestation: Bradley Brook Reservoir, Eaton Reservoir, Hatch Lake, Lake Moraine (upper basin), Lebanon Reservoir, Lower Leland Pond, Tuscarora Reservoir, and Upper Leland Pond. The 2003 study had multiple research components:

- evaluation of numbers of milfoil insect herbivores and damage caused by their indigenous populations;
- characterization of the extent of Eurasian water-milfoil infestation
- evaluation of warm water fish populations by electrofishing the eight lakes;
- mapping of aquatic plant distributions in the eight lakes; and
- observations on land use practices that affect Eurasian water-milfoil around the lakes.

¹ For a complete copy of this report, contact the BFS: 607-547-8778.

Key conclusions from BFS's 2003 effort on behalf of Madison County include:

- Eurasian water-milfoil continues to be widespread and, in some lakes, inhibits recreation;
- 2003 Eurasian water-milfoil density in Eaton Reservoir was significantly reduced from 2000 and 2001 densities;
- fish population dynamics have a verifiable impact on Eurasian water-milfoil's density in a plant community by their impact on at least one milfoil insect herbivore;
- inadvertent consequences of local land use and road salting practices may facilitate Eurasian water-milfoil growth.

Organization

This report is organized as described in the following "contents" pages. Tables and figures herein are referred to as "Table 1, Table 2..." and "Figure 1, Figure 2..." respectively if they are contained in the main report while tables, figures, and graphs contained in the appendices are referred to with the letter associated with that appendix (e.g., "Figure A1", "Table B1", "Graph D3", etc). The main report is numbered 1 – ?? while appendices are numbered with the appendix letter, a dash, and the appendix page number (e.g., "E-3").

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