

Management of invasive aquatic plants in Minnesota: an IPM perspective

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Integrated Pest Management

- **systematic approach**
- **different tactics for management of pests**
- **single program**

Integrated Pest Management

- **Integrated** – a focus on interactions of pests, crops, control methods, and the environment rather than individual weeds, insects or disease.

Integrated Pest Management	Invasive Aquatic Plant Management
Pests	Invasive aquatic plants
Crops	Native aquatic plants
Environment	Environment

Integrated Pest Management

Pest conflicts with

Invasive harms or threatens

Integrated Pest Management	Invasive Aquatic Plant Management
Profit	Economy
Health	Human health
Convenience	
	Environment
	Natural resources
	Use of natural resources

Integrated Pest Management

■ Management

Keep pests below the levels where they can cause economic damage

Does NOT mean eradicating pests.

Tactics that are both effective and economical

Minimize damage to the environment

Purple loosestrife in Minnesota



- **Displace native plants**
- **Reduce quality of habitat for wildlife**

Purple loosestrife in Minnesota



purple loosestrife biocontrol
Galerucella californiensis, G. pusilla



Realistic expectations: : ***Suppression of purple loosestrife*** ***by herbicide***

- Limited number of sites (*57 in 2009*)
- Small
- Upper reaches of watersheds



Invasive aquatic plants in Minnesota

Eurasian watermilfoil

**Discovered in Minnesota in
1987**



Eurasian watermilfoil

- **Displace native plants**
- **Interfere with use of surface waters**

■ *Euhrychiopsis lecontei* Milfoil weevil



**Potential for
biocontrol of
Eurasian watermilfoil**

Application of granular 2,4-D

*Plus
mechanical
harvesting*



Eurasian watermilfoil

Gray's Bay, Lake Minnetonka, MN

Year	Estimated acres to be treated	Actual acres treated
2008	160	160
2009	160	123
2010	160	0
2011	53	0
2012	32	140

Invasive aquatic plants in Minnesota

Curly-leaf pondweed



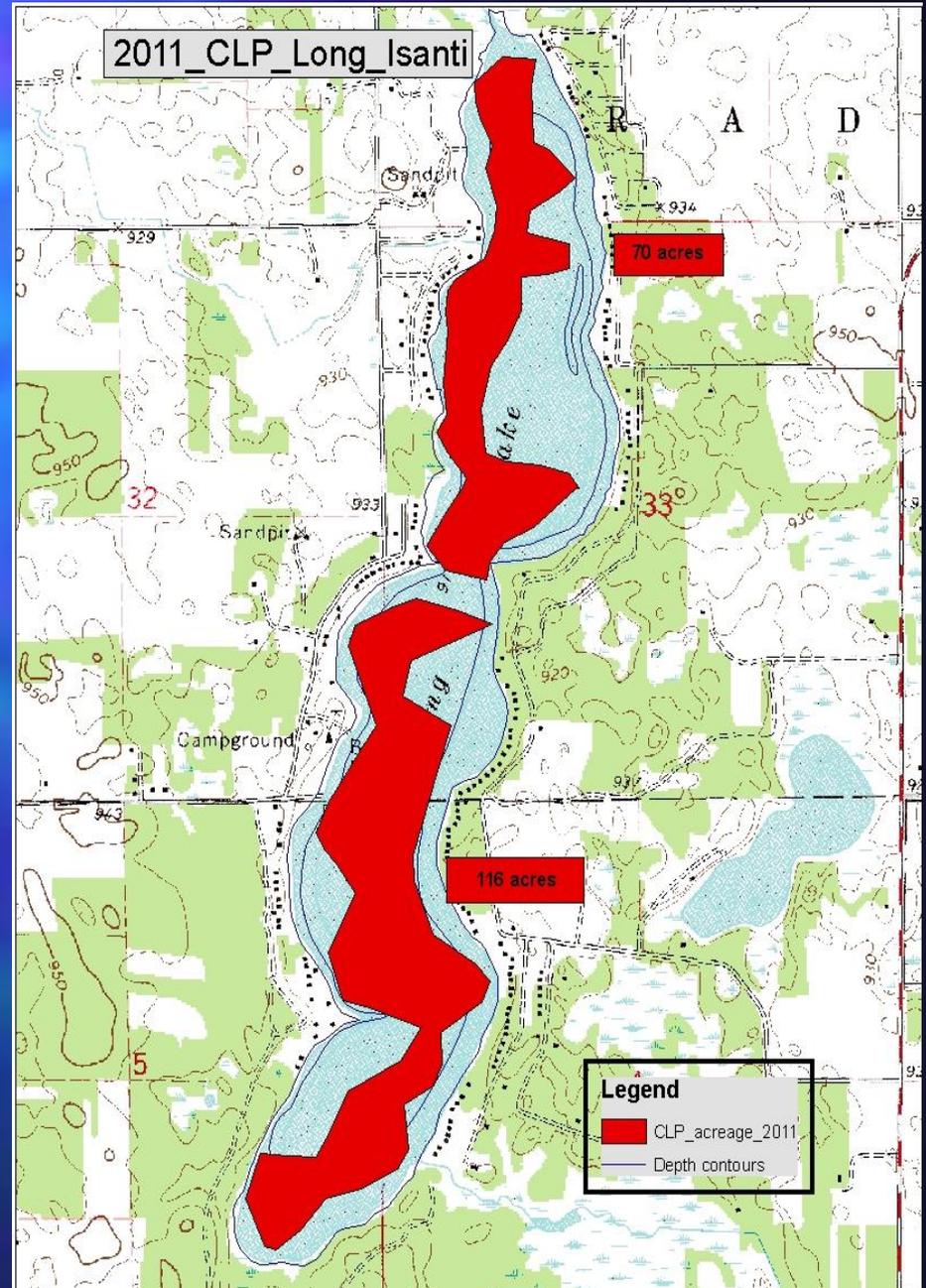
Invasive aquatic plants in Minnesota

Curly-leaf pondweed

- **Displace native plants**
- **Contribute to low water clarity**
- **Interfere with use of surface waters**

Lake-wide control of curly-leaf pondweed in *eutrophic to hypereutrophic* lakes

Ideal: 'Flip' a lake into a clear water state with native submersed plants - Ecological Benefits



Invasive Aquatic Plants in Minnesota



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Integrated Pest Management

- Narrow leaved cattails





