



Noxious Weeds at Lake Desire

A discussion about control techniques

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Ben Peterson

King County Noxious Weed Program

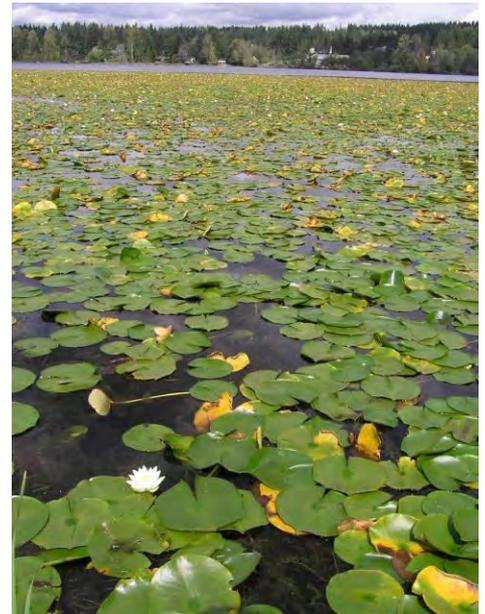
www.kingcounty.gov/weeds

Meeting hosted by the Lake Desire IAVMP Steering Committee:

- | | |
|-------------------|------------------|
| • Jan Falkenhagen | Resident |
| • Robert Gillett | Resident |
| • Suzy Gillett | Resident |
| • Lynn Jameson | Resident |
| • Betsy Locatel | Resident |
| • Jim Locatel | Resident |
| • Melody Sieger | Resident |
| • Tony Sieger | Resident |
| • Craig Wallace | Resident |
| • Sally Abella | King County DNRP |
| • Duane Jay Evans | King County DNRP |
| • Beth LeDoux | King County DNRP |
| • Katie Messick | King County DNRP |
| • Ben Peterson | King County DNRP |

How is a Noxious Weed Defined?

- Non-native plant that damages agriculture, wildlife, human health, land values or natural resources
- Defined and regulated by state law (RCW 17.10)
 - control required only where weed is not widespread
 - goal of law is to prevent spread of new invaders to un-infested areas



Impacts of Aquatic Weeds



- Clog waterways
- Impede recreation
- Foul motors
- Replace native plants
- No wildlife value
- Alter water chemistry



Eurasian watermilfoil

Myriophyllum spicatum – Class B non-designate

Approx. 12 acres at Lake Desire

- Native to Europe and Asia
- One of the most widespread aquatic pests in North America
- Reproduces by plant fragments
- Leads to:
 - Increased water temp
 - Mosquito breeding areas
 - Decay in fall can lead to increased algal growth
 - Reduces biodiversity



Fragrant waterlily

Nymphaea odorata – Class C non-designate

Approx. 3 acres at Lake Desire

Key characteristics:

- floating perennial
- Covers up to 3 acres of Lake Desire
- flowers white to pink
- thick fleshy rhizomes; round leaves



Water lily
Nymphaea odorata
Murray
© 2000 Univ. Florida



Purple Loosestrife

Lythrum salicaria- Class B Regulated

Approx. 0.5 disperse acres at Lake Desire

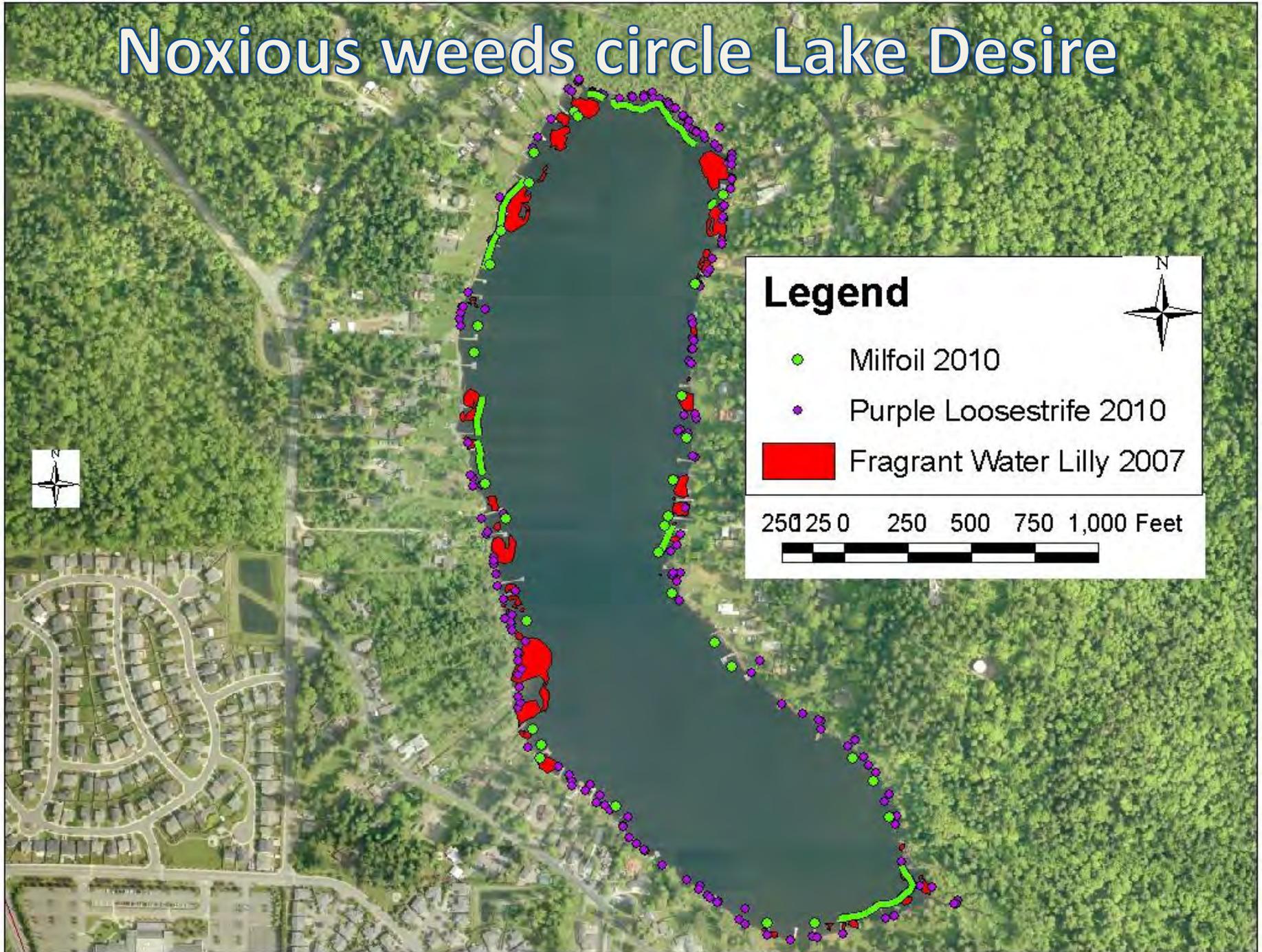
Key characteristics:

- alters wetland ecosystems by replacing native
- Displaces wildlife nesting habitat
- stems are square and branched;
- leaves opposite, long and narrow
- up to 2.5 million tiny seeds/plant
- magenta flowers July and August



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Noxious weeds circle Lake Desire



What is our goal?

- Management of aquatic weeds in Lake Desire
- Options include:
 - **Eradication** (complete wipeout)
 - **Control** (prevent spread & reduce population)
 - **No Management** (current conditions or worse)
 - *purple loosestrife will still have to be controlled*



What is an IAVMP?

Integrated aquatic vegetation management plan

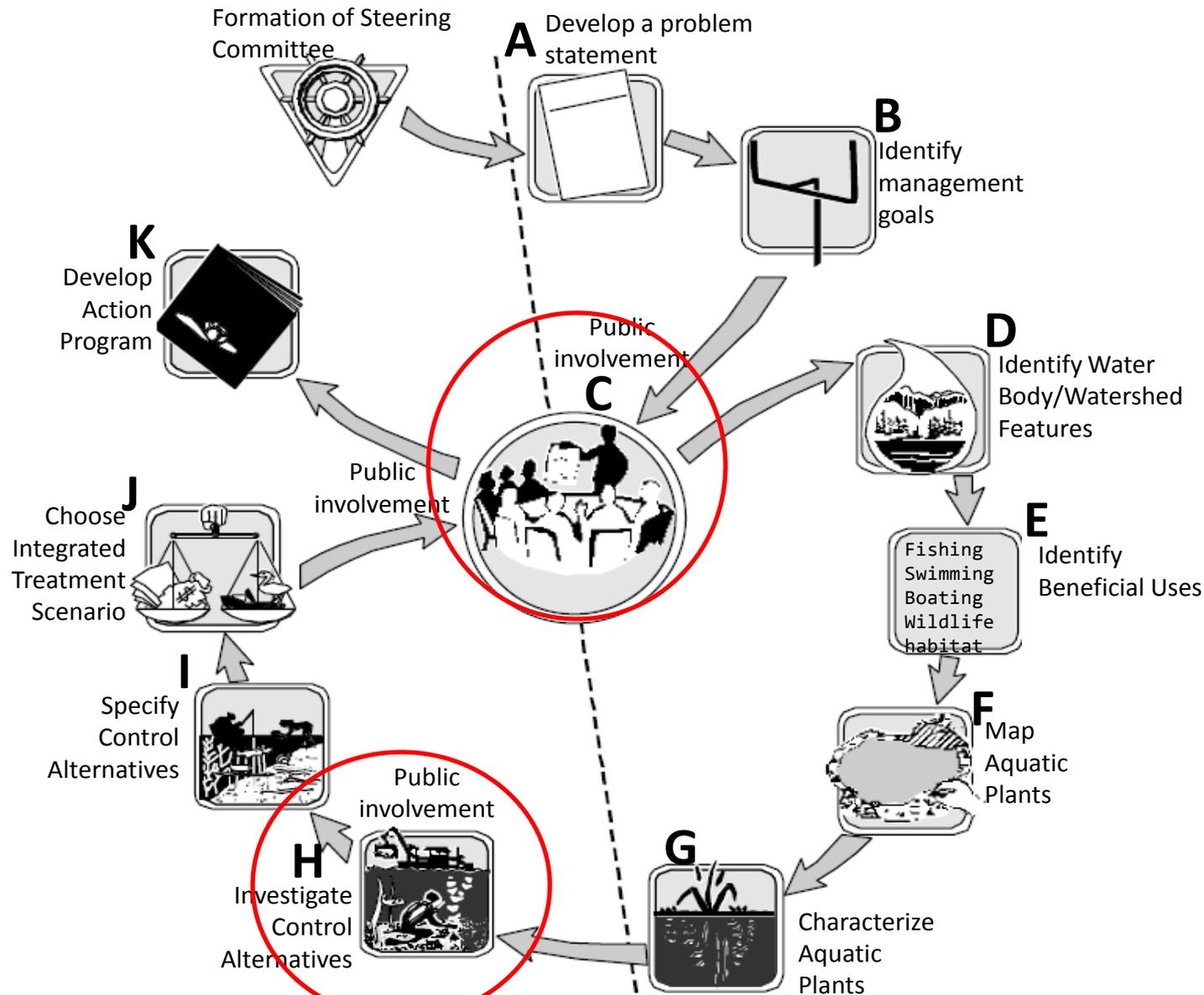
PURPOSE: To design a cost-effective and environmentally sound aquatic plant management program

- Can help with funding
- May be required to get some permits

RATIONALE: Issues are different in every water body

- Aquatic plant communities and water uses vary
- There is a range of aquatic-plant control methods
- Make sure aquatic plant management is consistent with stakeholder interests affecting the water body

Preparing an IAVMP



Control Strategy Development

Problem/Site Description

Question: ***Who funds this control work?***

Answer: ***The Lake Desire Community***

1. Grants: available with completion of the IAVMP
2. Lake Management District (LMD)
 - Community self taxation
3. Pay for it through donations and contributions

Management Tool Options

- Manual
- Mechanical
- Environmental Manipulation
- Chemical
- Biological

- **Each plant has its own specific options**
- **Permits are required**

Integrated Pest Management (IPM)

- All pest (weed) control activities involve a combinations of methods
- Often one method will be used for initial treatment (for the first year or two)
- ...Followed by another method(s) for follow-up treatment (for several years into the future)

Purple loosestrife control-Manual

Required to be controlled (Class B Noxious Weed)

Approximately 0.5 acres (very disperse) at Lake Desire

- Usually controlled by:
 - Hand cutting
 - Hand pulling/digging
- *Hand pulling/digging or cutting could be done by volunteers*
- Hand pulling/digging or cutting can be done by individual land owners
- Will not eradicate the plant, hand digging good for use in small areas by individual home owners



Purple loosestrife control-Mechanical

- Mowing/weed whacking purple loosestrife is not recommend:
 - Spreads plant parts and seeds which can re-sprout
 - Not an effective control technique



Purple loosestrife control- Environmental Manipulation

- Covering cut plants with thick black plastic or cardboard + woodchips can slow plant growth
- Covered plants will need to be monitored and maintained for several years
- Only an option in level upland areas
- Will not eradicate the plant, slows growth and seed dispersal; for use in small areas by individual home owners



Purple loosestrife control-Chemical

- Herbicide can be very effective on purple loosestrife
- 2-3 seasons of treatment required for eradication
- Glyphosate: non selective, lowest cost
- Triclopyr and Imazapyr: selective (won't harm grass/cat tails), moderate-higher cost
- from \$2,000-\$4,000 for first season
- Applied only by a certified Aquatic Herbicide Applicator



Purple loosestrife control-**Biological**

- The intentional release of specific insects to control the plant has limitations
- Two small beetles and two weevils are approved for release (difficult to collect)
- The insects need a large population of purple loosestrife to maintain their population
- Biocontrol does not lead to eradication; it is a tool used to achieve control



Fragrant Water Lily control-Manual

Voluntary Control/non-regulated (Class C Noxious Weed)

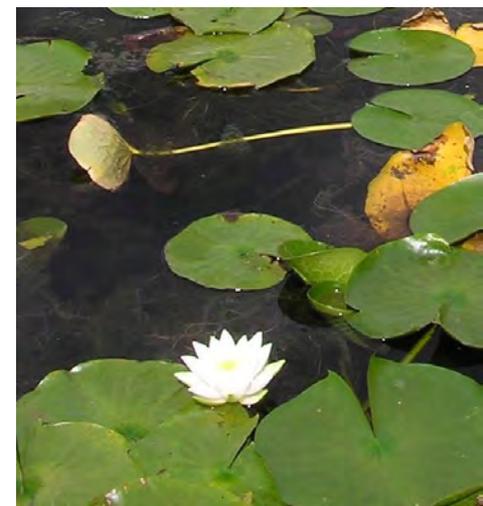
Approximately 3 acres at Lake Desire

- Hand pulling or cutting requires repeated removal and monitoring
- Must repeatedly cut and remove shoots before they reach the water surface
- Takes many seasons of repeated removal
- Only practical for small areas
- *Can be done by volunteers or individual land owners*
- High Labor costs/many volunteer hours



Fragrant Water Lily control-Mechanical

- Cutting and Harvesting machines: cut plants below the water surface (*harvesting removes cut plants*).
 - Repeated two to three times/ every year (control, not eradication)
 - Dead rhizomes can float to surface
 - Wood in lake can impede
 - Can produce plant fragments
 - ~\$1,200 - \$2,000/acre/treatment
- Backhoe on a barge- dig and haul out plants
 - Very expensive \$\$, \$\$\$



Fragrant Water Lily control- Environmental Manipulation

- Bottom screen/barrier- can suppress weed growth in small areas (boat launch or swimming area)
- ~\$10,000 installation (for 3,000 sq ft.)
- Installed by divers
 - Yearly maintenance required (~ \$2,000)
 - gas can get trapped & cause ballooning
- Water level drawdown
 - not possible



Fragrant Water Lily control-**Chemical**

- Aquatic herbicide glyphosate
 - Non selective
 - Formulated for aquatic use to not harm aquatic animals
- Likely requires two rounds of treatment, possibly for two years
- Dead rhizomes may float to surface
- \$500 - \$600/acre/treatment
- No restrictions for irrigation or recreation following treatment
- Applied only by a certified Aquatic Herbicide Applicator



Fragrant Water Lily control-**Biological**

- currently no biological control approved for fragrant water lily



Eurasian watermilfoil control-Manual

Voluntary Control/non-regulated (Class B Noxious Weed)

Approximately 12 acres at Lake Desire

- Pulling plants by hand; cutting plants using an aquatic weed cutter; raking submerged plants using an aquatic weed rake
 - Use near shore (within 20')
 - Very labor intensive
 - ~\$200/waterfront parcel for hand pulling (shallow water)
- Diver hand pulling (in deeper water)
 - Often used in small areas or as follow-up to herbicide
 - \$10,000/acre
- All manual control requires repeated follow-up



Eurasian watermilfoil control-Mechanical

- Cutting and Harvesting machines cut plants below the water surface (harvesting removes cut plants).
 - Repeated two to three times/every year (control, not eradication)
 - Wood in lake can impede
 - Can produce plant fragments
 - ~\$1,200 \$2,000/acre/treatment
- Diver Dredging –use suction dredge to remove plants
 - ~\$12,000/acre



Eurasian watermilfoil control- Environmental Manipulation

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 - Yearly maintenance required (~ \$2,000)
 - gas can get trapped & cause ballooning
- Water level drawdown
 - not possible



Eurasian watermilfoil control- Chemical

- Aquatic herbicide 2,4-D and Triclopyr (both selective)
 - Formulated for aquatic use to not harm aquatic animal
 - Likely require two rounds of treatment, possibly for two years
 - \$700 - \$1,000/acre/treatment
- Triclopyr requires careful concentration management and timing
- Water entry restrictions
 - 12 hours –Triclopyr (advised)
 - 24 hours – 2,4-D (advised)
- No irrigating using lake water
- Applied only by a certified Aquatic Herbicide Applicator



Eurasian watermilfoil control-**Biological**

- Milfoil weevil, a native insect has been studied
 - Very difficult to obtain and rear
 - Effects may take many years to become apparent
- Triploid grass carp are fish that may eat milfoil
 - Not allowed in Lake Desire because of outlet
 - Will eat all other plants first
- Biological control will not eradicate milfoil
 - Ideally lead to reduced level



What do you think?

Anonymous comment forms are available

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