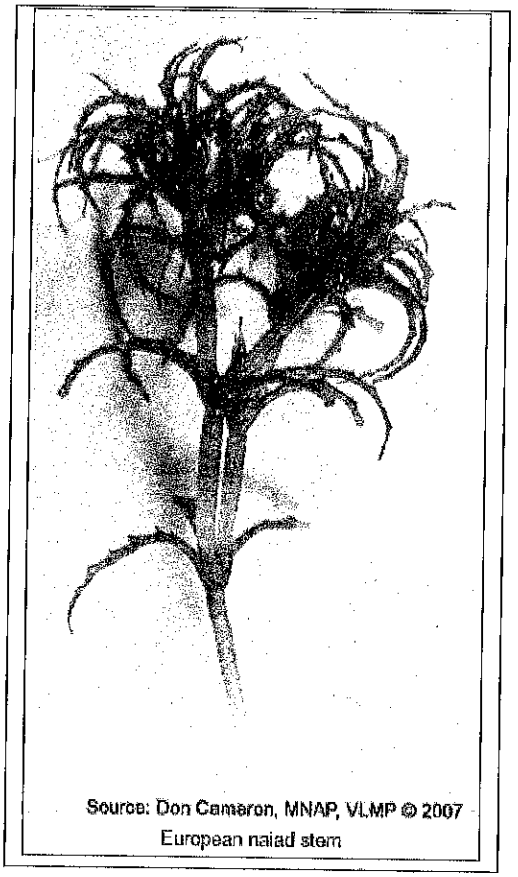
European Naiad on Milton Three Ponds

TPPA briefing for the Milton Board of Selectmen
16 November 2015



Source: Don Cameron, MNAP, VLMP © 2007
European naiad stem

Recommendation

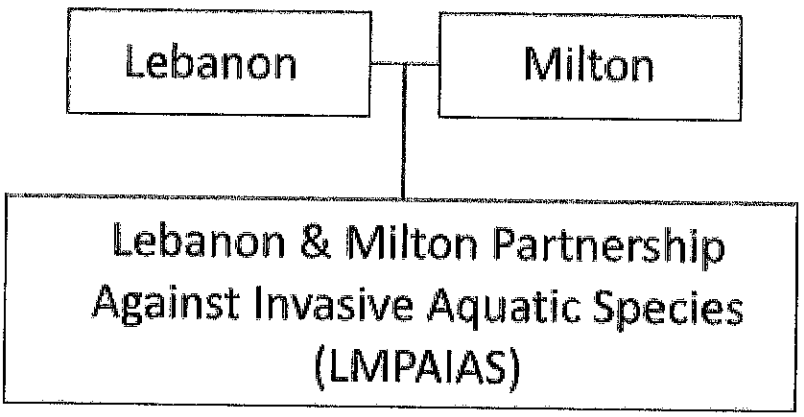
1. **That Lebanon and Milton reach a formal Agreement to form a Partnership against IAS (Invasive Aquatic Species) on Three Ponds.**

An Agreement:

- **whose Spirit and Intent is to share resources,**
- **that defines the Services each town will provide,**
- **that expresses a strong commitment to control IAS,**
- **that includes formulae to determine each Town's share of the Partnership's annual budget.**

The Patnership:

- **a lawfully organized municipal entity,**
- **authorized and empowered by both Towns,**
- **reports to both Towns,**
- **manages our community's IAS Control Program**



2. **Start by forming a citizen-based planning committee**

Q. Is European Naiad a Serious Problem?

A. Yes,

UNLESS IT IS CONTROLLED.

- **It can**
  outcompete native vegetation,
  drive out animals that depend on this vegetation,
  greatly hamper fishing, boating, and swimming
  cause a decline in surrounding lake property,
  deplete available oxygen, leading to fish kills.

- **It is**
  fast-growing
  grows from seeds and produces many.
  easily spread to other waterbodies by boats and wildlife

- **Spread prevention is a major concern**
- **Impact to our local economy could be significant**

Q. Can European Naiad be controlled?

A. Yes

- Many other communities have succeeded
- It was first Introduced in the US in 1930s
- It exists in essentially all States east of the Mississippi
- There are effective control methods

But control

- will be difficult,
- may take several years, possibly generations
- It will require substantial leadership, participation, and resources from surrounding communities

Q. What are we doing about controlling E Naiad?

A. The following:

- **TPPA and others are working to define the scope of the problem, including control cost estimates, and other resources required.**
- **ME DEP and NH DES are jointly developing recommendations for a control program to include**

  permitted control methods,

  lists of certified Invasive Plant Removal companies,

  size of coverage estimates

  permit requirements, and

  possibly Surface Use Restrictions.
- **These recommendations are expected in December.**
- **Lebanon and Milton will soon establish a citizen-based planning committee, authorized and empowered by both towns to plan for and manage the program to control E Naiad, starting this year, and for long as it takes.**

Q. What will the Program Cost?

A. Don't know yet, but

- **In the 1st year**

  States and TPPA Funds MAY be sufficient to cover costs

- **In future years**

  We will need funds from TPPA, Town Budgets, and Grants

Q. What can I do to help?

A. Two things:

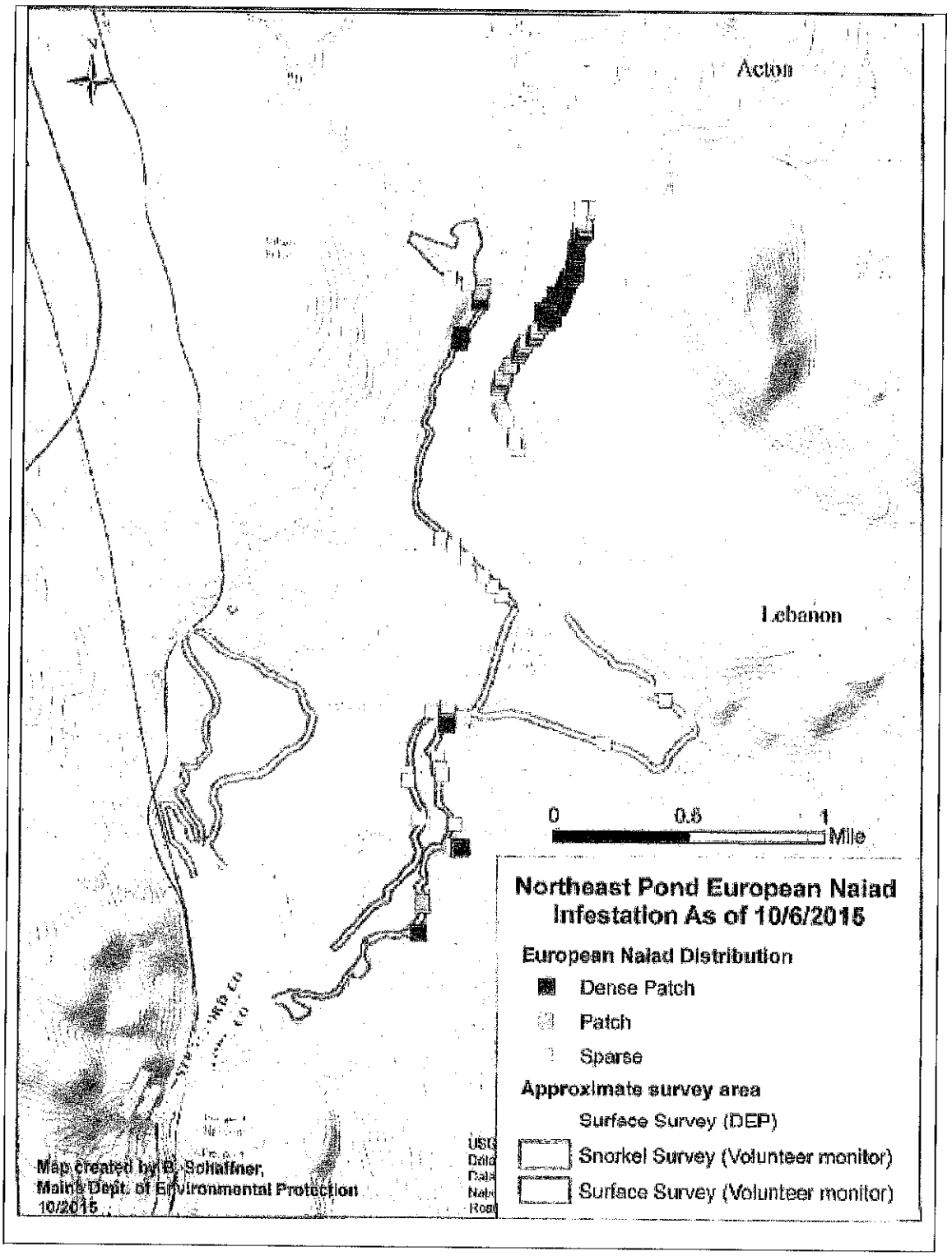
- **Vote at Town Meeting to appropriate funds for the control program.**
- **Volunteer to**

  Serve on the citizen-based planning committee

  Be a Weed Watcher

  Be an E Naiad manual plant remover

European Naiad -- Where Found.



Milton Board of Selectmen briefing - 16 November 2015

Portland Press Herald, 13 October.

Invasive European naiad plant found at Maine, New Hampshire border, biologists say

www.pressherald.com

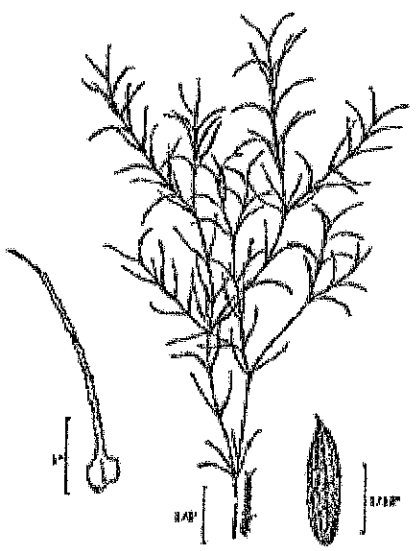
The Associated Press

ACTON – Biologists in Maine and New Hampshire say they have confirmed discovery of an invasive plant in a body of water on the border of the two states.

The Maine Department of Environmental Protection says the species is European naiad and was found in the Salmon Falls River. The river has shorelines in Lebanon and Acton, Maine, and Milton, New Hampshire.

The biologists say the plant is able to overtake native lake habitats. It grows from a seed into 7-foot-long plants, and a 1-acre infestation can generate tens of millions of seeds per season.

Environmental managers from the two states have distributed warning signs to be posted on boat ramps to urge boaters to inspect and remove plant debris before and after using the area where the plant is growing.



These images from Maine.gov, attributed to Dan Cameron of the Maine Natural Areas Program and the USDA, show the European naiad plant and seeds. *Maine.gov*

Maine Volunteer Lake Monitoring Program

Maine's Interactive Field Guide to Aquatic Invaders
and Their Native Look Alikes

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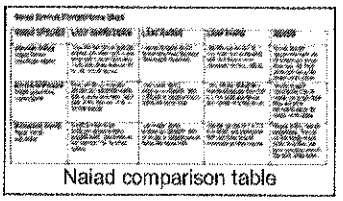
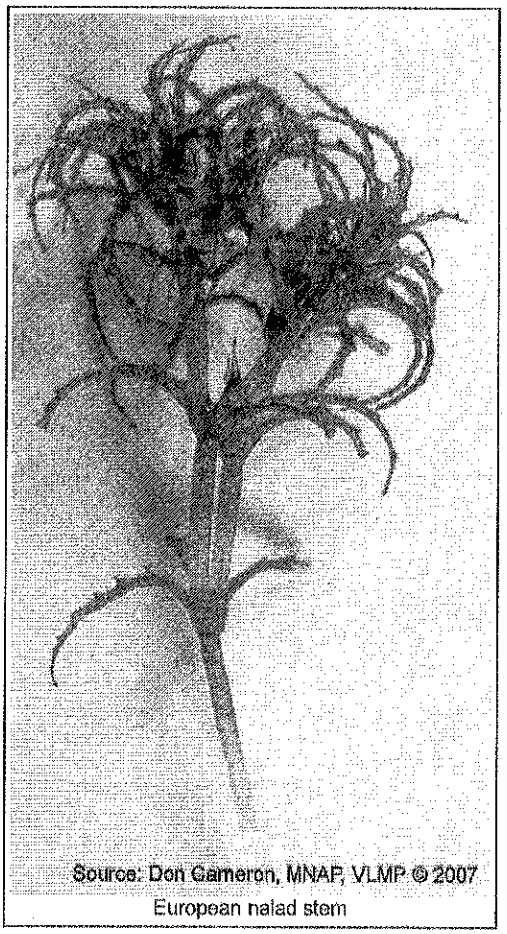
EUROPEAN NAIAD
SPINY NAIAD
Najas minor

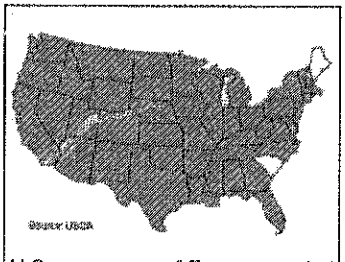

Naiad comparison table

NOT NATIVE TO MAINE - INVASIVE

Habitat: European naiad is found in the submersed plant community, growing in ponds, lakes, and slow moving streams in depths up to 5 meters. Preferring sand and gravel, the plants thrive in a wide range of substrates. European naiad is tolerant of turbidity and eutrophic (nutrient rich, productive) conditions.


Source: Don Cameron, MNAP, VLMP © 2007
European naiad stem

Description: Unlike most aquatic plants, European naiad is a true annual. Seedlings grow from slender roots, developing stems up to 2.5 meters long that often branch profusely near the top. The leaf arrangement is not strict, and leaves may appear to be opposite, sub-opposite, in whorls or clumps. The leaves are small (rarely more than 3.5 cm long) and very slender (0.3 – 0.5mm wide), strapshaped, pointed and serrated. Unlike all native naiads whose leaf serrations or spines are virtually "invisible" to the unaided eye, the leaf serrations of European naiad, though tiny, can usually be observed without magnification. Visible serrations, therefore, provide a key characteristic for identifying this invader. A second characteristic that distinguishes European naiad from two of Maine's three native naiad species— including the most common by far, *Najas flexilis*—is the abruptly protruding (as opposed to gently flaring) blocky or fanshaped leaf base. The upper margin of the leaf base is finely toothed or "fringed" in appearance. You may need to carefully pull the leaf away from the stem and use a hand lens to see the base clearly. (Note: The leaf base of a third native species, *Najas gracillima*, is also blocky and toothed, however the occurrence of this species in Maine is rare.) Like all naiads, the flowers are small, inconspicuous, and borne in the leaf axils. The seeds are purplish, 1.5 to 3.0 mm long, spindle shaped and slightly curved, with rectangular indentations arranged in distinct longitudinal rows.


U.S. range map of European naiad

Origin and U.S. Range:
European naiad is native to Europe. It is thought to have been introduced to the US some time in the early 1900s and is now present in much of the Eastern United States including the nearby states of New Hampshire, Massachusetts, Vermont, and New York.

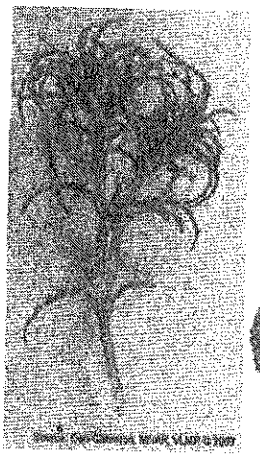
Annual Cycle: A true annual, European naiad grows anew from seeds each spring. Seeds form in the leaf axils from July through September. Although European naiad can reproduce by fragmentation during the growing season, the primary means of reproduction appears to be by seed. It is estimated that a productive, one-acre infestation will produce tens of millions of seeds per

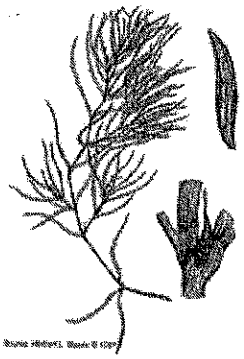
season. During the late summer or early fall, the stems of European naiad become brittle, and break up. Seeds remain attached in the leaf axils, and wind and water currents disperse the fragments.

Look Alikes: May be confused with native naiads, some fine-leaved pondweeds, and some stoneworts.

Print out a copy for the field
(Adobe Acrobat file) - To get the free Acrobat Reader go to Adobe.com.

Click Images for Larger Version





Water Quality Monitoring

Aquatic Invasive Monitoring

Maine Volunteer Lake Monitoring Program

vlmp@mainevlmp.org
24 Maple Hill Road, Auburn, ME 04210
(207)-783-7733
www.MaineVolunteerLakeMonitors.org

Naiad Species Comparisons Chart

NAIAD SPECIES	LEAF SERRATIONS	LEAF BASES	LEAF FORM	SEEDS
slender naiad *Najas flexilis* (common native)	Very fine serrations (actually spines) are often hard to see, even with a good hand lens. Each side of the leaf has 20 to 100 minute spines.	Leaves broaden gently where they meet the stem (like sloped shoulders).	Slender leaves (0.2 to 1 mm wide) are somewhat stiff, and tend to arch backward as they mature.	Seeds straight lengthwise.Faint pits on seeds are longer than they are wide (elongate along the length of the seed).
thread-like naiad *Najas gracillima* (rare native)	Fine serrations (actually spines) are generally visible with a good hand lens. Each side of the leaf has 13 to 17 minute spines.	Leaf bases blocky, bulging out abruptly, with a fringed or jagged margin along the upper side.	*Very* slender thread-like leaves (generally less than 0.2 mm wide)are flimsy, and do not arch backward.	Seeds straight lengthwise. Pits on seeds are longer than they are wide (elongate along the length of the seed).
European naiad *Najas minor* (invasive)	Small serrations are generally visible without magnification. Each side of the leaf has 7 to 15 small spines.	Leaf bases blocky, bulging out abruptly, with a fringed or jagged margin along the upper side.	Slender leaves (0.3 to 0.5 mm wide) are somewhat stiff, and tend to arch backward as they mature.	Seeds slightly curved lengthwise. The pits on the seeds of are wider than they are long (elongate around the girth of the seed).