

## NAIADS

### WATER NYMPHS

*Najas flexilis* and *N. gracillima*

### NATIVE TO MAINE

Maine is home to three native naiad species. One species, slender naiad (*N. flexilis*), also called northern water-nymph, is common in Maine. The others: southern naiad (*N. guadalupensis*) and thread-like naiad (*N. gracillima*) are quite rare. Though a rare species, thread-like naiad has been included in this guide because it has more features in common with the invader European naiad than the more common, slender naiad.

**Habitat:** Both native species discussed below are found in the submersed plant community, often growing in the sandy or gravel substrates of lakes, ponds and slow moving streams. Thread-like naiad is particularly sensitive to pollution, and has disappeared in some parts of its natural range.

**Description:** The branching stems of both native naiads are slender and flexible (up to 1 meter long, but often much shorter), growing from slight roots. Thread-like naiad is a very delicate plant with wispy stems branching lightly near the tips. The habit of slender naiad is more variable: some plants are tall and sparse; others short and bushy. The leaf arrangement of both species is mixed. Leaves may occur in opposite pairs and/or whorls along the stem, and be clumped into delicate sprays at the stem tips. The leaves are slender (1 to 4 cm long), linear, serrated (actually spined) along their margins, and sharply pointed at the tip. The tiny, inconspicuous flowers, followed by slender fruits, develop in the leaf axils. The fruits are about 3mm long, cylindrical, and pointed at both ends. The surface may appear to be smooth but magnification reveals many tiny, shallow indentations, or pits, arranged in longitudinal rows. The fruits turn brown as they mature.

The table on page 102 compares four key features that help to distinguish the two native naiads from each other and from their invasive look alike, European naiad, *Najas minor*: (Magnification is generally needed to observe these features. To observe leaf bases, gently pull the leaf away from the stem.)



Slender naiad leaves at the stem tip

**Origin and Range:** Both species are native to Maine and New England. Slender naiad's range includes much of the northern and western United States. The range of thread-like naiad includes most of the eastern and central-eastern United States and California. In Maine, the distribution of slender naiad is fairly widespread. The other two native species, including thread-like naiad, are rare.



*N. flexilis*



*N. gracillima*

**Annual Cycle:** Unlike most aquatic plants, naiads are true annuals, dying back completely in the fall and relying upon seeds to regenerate the following season. Seeds germinate in the spring and plants are generally visible by early summer. Vegetative reproduction may occur during the growing season. Tiny flowers, followed by seeds, are produced in the leaf axils. (Male and female flowers occur separately on the same plant.) Plants become brittle and begin to break down at the end of the growing season, fragmenting, drifting and eventually depositing their seeds on the sediments.

**Value to the Aquatic Community:** Naiads are an important food source for a wide variety of waterfowl and marsh birds. Muskrats also feed upon the stems and leaves. The slender branches provide food and shelter for fish and invertebrates.

**Look Alikes:** Maine's native naiads may be confused with European naiad, some fine-leaved pondweeds, and some stoneworts.



Thread-like naiad leaves at stem tip; note the visible serrations



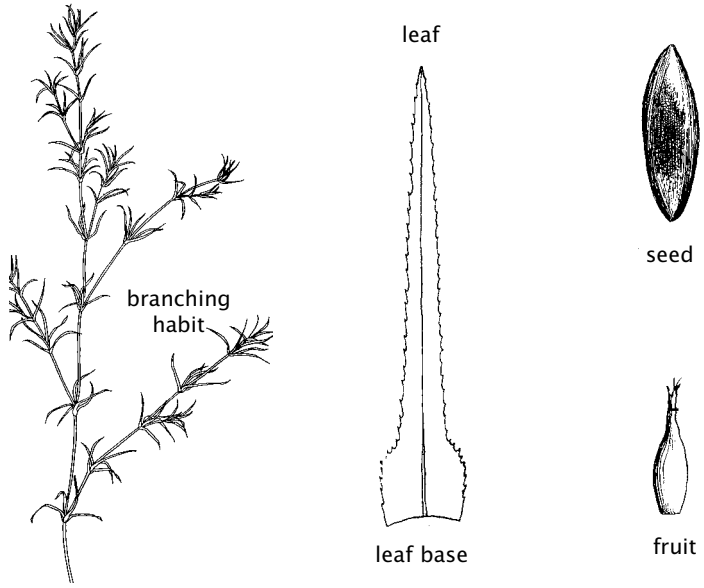
Thread-like naiad leaf base

## Naiad Species Comparisons Chart

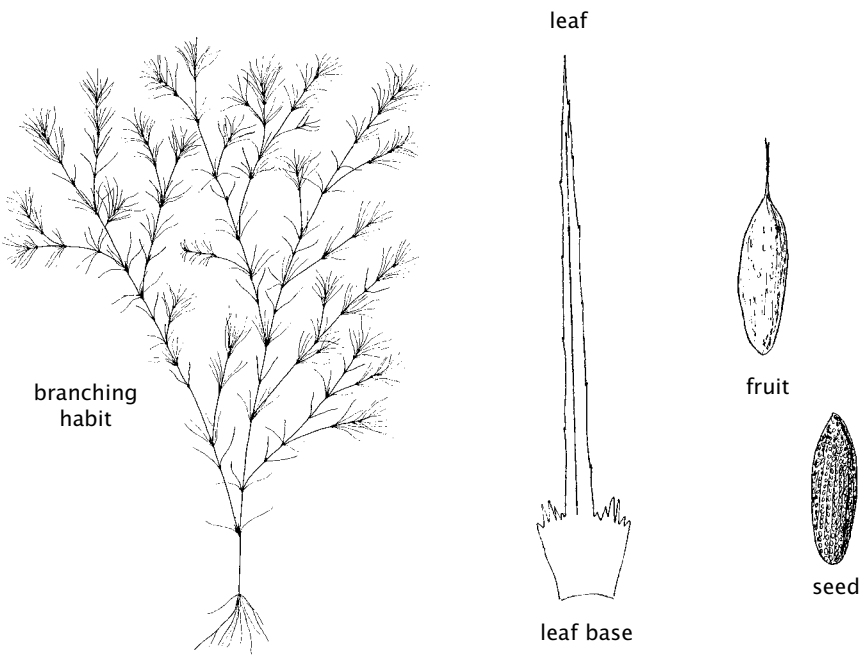
NAIAD SPECIES	LEAF SERRATIONS	LEAF BASES	LEAF FORM	SEEDS
<b>slender naiad</b> <i>Najas flexilis</i> (common native)	Very fine serrations (actually spines) are often hard to see, even with a good hand lens. Each side of the leaf has 20 to 100 minute spines.	Leaves broaden gently where they meet the stem (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).
<b>thread-like naiad</b> <i>Najas gracillima</i> (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).
<b>European naiad</b> <i>Najas minor</i> (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).



EUROPEAN NAIAD  
LOOK ALIKES



Slender naiad (*Najas flexilis*)



Thread-like naiad (*Najas gracillima*)