

WD-BB-64

2019

## Brittle Naiad

### Species Description

Brittle naiad is a submerged aquatic plant with substantially branched stems that easily fragment. The leaves are curled, recurving (curled backwards) with age, and approximately one inch long with a noticeably serrated leaf-edge. The branching and curled leaves give brittle naiad a bushy appearance.

Brittle naiad can grow to a length or height of approximately 2.5 meters. Tiny flowers are produced in the leaf axils, which fertilize and mature into oblong seeds. Brittle naiad also reproduces and spreads with auto- and artificial- fragmentation. The plants are annual, not persisting past late fall, and depend on seed germination for continual infestation. It can form dense shoals and surface mats in water 12 feet deep. Brittle naiad is often confused with coontail, native naiad, and some macroalgae, such as *Chara*. Native naiad can be distinguished through its thicker, broader leaves.



Brittle Naiad (*Najas minor*)

### Life Cycle

As an annual, brittle naiad rapidly and continuously grows until the parent plant dies in late fall. Tiny flowers are produced in leaf axils around July, which fertilize and develop seeds from September through October. Auto-fragmentation occurs with the seeds still attached and the fragments disperse using water currents. The seeds are then deposited in the fall after the plant dies or throughout the growing season by waterfowl defecation, and they germinate in early spring to late summer.

### Species Range and U.S. Distribution

Brittle naiad grows natively throughout various countries in Europe and Asia. The Eastern U.S., California, and Ontario, Canada consider brittle naiad as an exotic invasive species. It has potential to proliferate in water bodies throughout the U.S.

### How was Brittle Naiad Introduced?

Brittle naiad was initially brought into U.S. waterbodies as a food source for waterfowl, a popular idea in the 1930s. These birds consume brittle naiad throughout the year, spreading and establishing new populations though defecating viable seeds and dislodging seeds from the main plant as they eat.

### **Where Does Brittle Naiad Invade?**

Brittle naiad can grow as deep as five meters and prefers calm environments. Areas with heavy boat traffic usually fragment established brittle naiad with propeller-activity and water current, preventing upward growth and spreading the infestation. Brittle naiad is tolerant of turbidity and eutrophic water – while the plant may not thrive, establishment is inevitable.

### **What Makes Brittle Naiad a Good Invader?**

Artificial fragmentation easily occurs since brittle naiad is so fragile and is inherently prepared to auto-fragment. Small pieces get stuck to waterfowl, other animals or water-related equipment and are carried throughout and between water bodies. Fragments are small enough where they are often unnoticed. Any seeds present stay attached to the plant fragment, depositing and potentially establishing a new population. Waterfowl consume brittle naiad, where the seeds are still capable of germinating after being passed, also possibly establishing a population. The seeds disperse with any water movement and over-winter, making it hard to predict where new establishment might occur.

### **How Does Brittle Naiad Spread?**

Brittle naiad mainly spreads by means of auto- and artificial- fragmentation. Fragments drift using water movement, and cling to boats, trailers and recreation equipment. Waterfowl further spread brittle naiad by consumption or accidental transportation and depositing seeds wherever they land.

### **Why is Brittle Naiad a Problem?**

No natural controls are known for brittle naiad. While waterfowl may feed on the plant, any seeds consumed or fragments created are potential sources of new populations or infestations. Native and local vegetation, even milfoil and hydrilla, are outcompeted by brittle naiad growth. Chemical treatment can control the growth of multiple invasive exotics, but could possibly be accompanied by negative ecological impacts. Brittle naiad is also easily confused with natives, especially other naiads, making plant recognition and harvest a challenge.

### **What are Some Solutions to the Brittle Naiad Problem?**

- Physical: Manual and mechanical harvesters have been used in Iowa and Wisconsin, but likely spread the plant further due to loose fragments and forced seed dispersal.
- Biological: No biological control is known.
- Chemical: Diquat, Endothall and Fluridone herbicides have been successfully used by US Army Corps of Engineers to control brittle naiad. These products do tend to have broader spectrum impacts, and are not as target specific as some herbicides; therefore, impacts to some native plants in the area of treatment may occur.

### **What Can I Do To Help?**

Most importantly, **recognize it**. Brittle naiad is best identified by its bushy appearance and visibly toothed leaves. Then, **report it** to authorities for official identification by NHDES. Other look-alike plants or macroalgae can be mistaken for brittle naiad. Please confirm the population even if you are unsure of the initial identification. Prevention is key, so follow Clean, Drain, Dry protocols for decontamination of transient recreational gear.

For more information about exotic aquatic plants, please contact the Exotic Species Program at (603) 271-2248, or go to <https://www.des.nh.gov/> and search “Exotic Species.”