Eurasian watermilfoil *Myriophyllum spicatum*

Ecology: Eurasian watermilfoil is a rooted, submersed macrophyte considered one of the most widespread and problematic aquatic weeds in North America (Ward and Newman 2006). This stoloniferous, perennial, vascular plant consists of long underwater stems that branch and produce whorled, pinnately compound leaves and emergent flowers (Haynes 1988).

Eurasian watermilfoil is extremely adaptable and can survive in a wide range of environmental conditions, though it prefers lakes, ponds, shallow reservoirs and low energy rivers. Eurasian watermilfoil can tolerate freshwater to slightly brackish water and a broad range of temperatures (Spencer and Lekic 1974; Newroth 1985). Watermilfoil will overwinter under the ice utilizing carbohydrate reserves in shoots and roots (Titus et al. 1975). Eurasian watermilfoil requires high light levels and in early spring grows rapidly to the surface where it forms dense canopies that overtop and shade the surrounding vegetation (Titus et al. 1975; Madsen et al. 1991).

Reproduction occurs through sexual and vegetative means and is considered a key characteristic in the successful spread of this species. Fragmentation typically occurs after flowering through autofragmentation or by disturbance from natural causes or human activities (Smith and Barko 1990).

Eurasian watermilfoil affects recreation by interfering with swimming and boating, reducing the quality of sport fisheries and by reducing the aesthetic appeal of the water (Newroth 1985). Eurasian watermilfoil has been shown to have significant negative impacts on the native ecosystems it invades. Watermilfoil negatively affects native plant abundance and density by forming dense mats along the surface of the water resulting in light reduction (Smith and Barko 1990; Madsen 1994). Eurasian watermilfoil supports a lower abundance and diversity of invertebrates and can have long term impacts on fish foraging opportunities, resulting in reduced growth and condition of some fish species (Keast 1984; Lillie and Budd 1992; Engel 1995; Madsen et al. 1995). Eurasian watermilfoil also has less value as a food source for waterfowl than the native plants it replaces (Aiken et al. 1979).

Distribution: Native to Europe, Asia and northern Africa, Eurasian watermilfoil was first documented in North America in 1942 in Washington D.C (Couch and Nelson 1985). Eurasian watermilfoil spread rapidly throughout the United States after its introduction, primarily through human activities (Couch and Nelson 1985). The presence of Eurasian watermilfoil is currently confirmed in 45 states and three Canadian Provinces (Creed 1998; Jacono and Richardson 2008) and it continues to spread. Local populations of Eurasian watermilfoil in Utah were first documented in 1993 and are established in Fish Lake, Otter Creek Reservoir and Mantua Reservoir (Jacono and Richardson 2008; Pers. Comm. Mike Ottenbacher. 2008. Southern Region Aquatic Program Manager, Utah Division of Wildlife Resources; Pers. Comm. Craig Schaugaard. 2008. Northern Region Aquatic Program Manager, Utah Division of Wildlife Resources). It is also found near boat ramps in the waterfowl management areas surrounding the Great Salt Lake and in

Cache county (Pers. Comm. Val Bachman. 2008. Waterfowl Management Area Superintendant, Utah Division of Wildlife Resources).

Long distance spread is linked to the aquarium and aquatic nursery trade, while short distance dispersal is connected with activities that increase watermilfoil fragmentation such as motor boating and mechanical weed harvesting (Reed 1977; Nichols and Shaw 1986).

Pathways of Introduction: It is not known how Eurasian watermilfoil was introduced into Utah waters, but it was likely introduced through boat traffic. While spread can occur by wind, water and waterfowl dispersal, evidence for plant fragment transport is documented as one of the most important dispersal mechanisms for Eurasian watermilfoil (Johnstone et al. 1985; Smith and Barko 1990; Johnson and Carlton 1996).

Management Considerations: Control methods for Eurasian watermilfoil have been widely studied and include mechanical, chemical and biological options (Johnson and Blossey 2002). Mechanical removal is not suggested because of the risk of increasing spread through fragmentation unless infestation has reached peak levels. Harvesting is usually conducted twice during a growing season and cut plants should be removed from the water after harvest. Water draw down is another mechanical control method that has been successful (Bates et al. 1985)

The herbicides 2, 4-D, diquat, diquat and complexed copper, endothall dipotassium salt and endothall, complexed copper and flouridone have been used with success (Westerdahl and Getsinger 1988). There is, however, concern that these methods may harm certain non-target organisms (Nichols 1991; Cooke et al. 1993).

The native North American weevil, *Euhrychiopsis lecontie*, has shown potential for biological control. It has been associated with natural declines of watermilfoil at northern lakes (Sheldon 1994; Bratager et al. 1996). Studies have found the herbivorous weevil to cause significant damage to Eurasian watermilfoil while having little impact on native species (Creed and Sheldon 1994a, 1994b, 1995).

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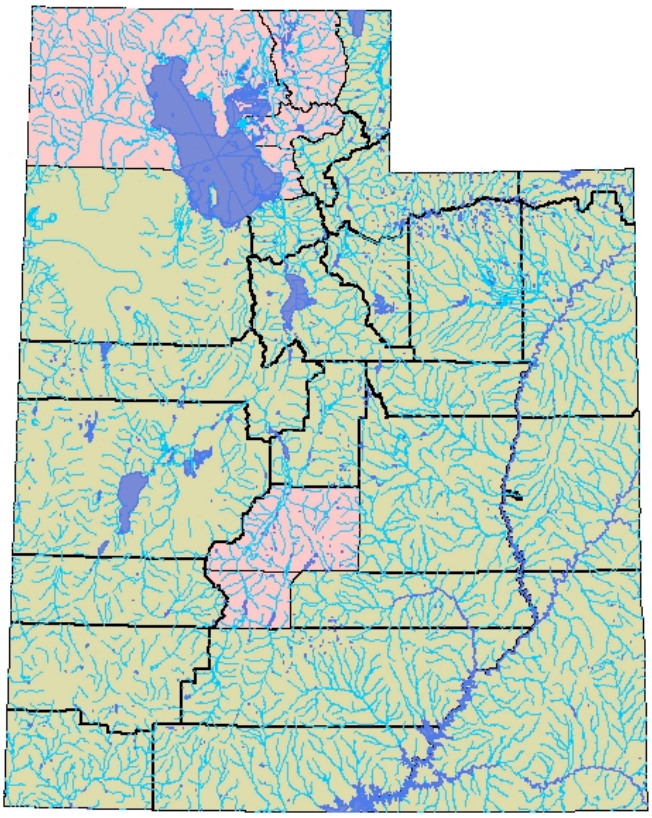
Eurasian Watermilfoil

Major Waterways
Counties where Eurasian Milfoil is present.



Alison Fox, University of Florida
www.forestryimages.org