



Water Gardens and Introduced Species

Introduction

Constructing a water garden is a unique and enjoyable way to accent a property. There are many types of aquatic plants and animals commonly used in water gardens including water lettuce, cattails and koi. Many of the popular species are not native to the area or watershed in which they are being planted.

Introduced species are defined as any individual, group, subspecies or

Water lettuce (Pistia stratiotes) is a favorite among water gardeners because of its hardiness and beauty. However, if released, this plant can create a dense floating mat, crowding native emergent species and shading submerged species. In August 2000, U.S. Fish & Wildlife staff discovered water lettuce in Bull Creek, a tributary to the Erie Canal in North Tonawanda, N.Y.

population that enters an aquatic ecosystem outside of its historical native range. These species may be plants or animals and may arrive from different countries or from different locations of the same country. Non-native species like goldfish and purple loosestrife, are now prevalent in many regions across the U.S. after first being used as ornamentals. Once established, introduced species may cause ecological and economic problems and can be difficult if not impossible to control or eradicate.

Why should we be concerned?

■ Ecological Concerns

The introduction of a new species into an ecosystem may affect native and endemic species. For example, many fish species depend on areas of vegetation for cover, feeding, and spawning and can be affected by



Water Hyacinth (Eichhornia crassipes), native to South America, was discovered by U.S. Fish and Wildlife Service staff in August 2001 in the same creek where water lettuce was found.

changes in plant species composition and density. Native and migratory bird populations dependent on native plant communities for feeding, nesting and stopover can also be affected.

■ Economic Concerns

The successful invasion and establishment of non-native aquatic plants and animals can result in local and regional economic losses. Habitat changes caused by invasive species can reduce revenues generated by nature-based tourism as destinations lose their attraction or become next to impossible to access. Industrial facilities, such as hydroelectric power companies, face the costly challenge of controlling invasive species to maintain operations. In addition, as plant densities increase, navigation, irrigation and flood control can be affected.

The newest potential vector advancing the spread of invasive aquatic plants is the Internet, where seeds and plants can be purchased from locations worldwide.





Japanese knotweed (Polygonum cuspidatum) was introduced into N. America as an ornamental hedge and is now common along creeks.

Such easy access emphasizes the need to educate consumers about the harmful effects of invasive species as well as state and federal laws prohibiting the possession of certain species.

What can you do?

Once an introduced species becomes established, complete eradication is often impossible. Preventing invasions of aquatic plants by emphasizing the importance of informing water gardeners, retailers, and greenhouse operators about proper disposal procedures and pathways of spread, may be the most effective control alternative. To minimize the risk of introducing plant species:

- Dispose of cuttings and unwanted plants by freezing and then placing in household trash. (Plant materials can also be burned where backyard burning is legal.)
- Never include cuttings or unwanted plants in compost. (Seeds can be tolerant of drying and freezing.)
- Never dump unwanted plants or plant materials into a waterbody.
- Create water gardens only in areas isolated from waterways to avoid accidental release.
- Use native plant species.
- Report any releases to a local resource agency.
- Know local, state, and federal laws.

Purple loosestrife (Lythrum salicaria) causes habitat destruction in wetlands.



For more information:

U.S. Geological Survey
<http://nas.er.usgs.gov>

Aquatic Nuisance Species Task Force
<http://www.ANSTaskForce.gov>

U.S. Fish and Wildlife Service
<http://www.fws.gov>

Sea Grant Nonindigenous Species
<http://www.sgnis.org>

Reducing the Introduction and Damage of Aquatic Nonindigenous Species
<http://www.ridnis.ucdavis.edu>

National Invasive Species Council
<http://www.invasivespecies.gov>

U.S. Department of Agriculture
<http://plants.usda.gov>



Water chestnuts (Trapa natans) are controlled by mechanical harvesting in many lakes.

Contact:

U.S. Fish & Wildlife Service
 Lower Great Lakes Fishery
 Resources Office
 405 North French Road, Suite 120A
 Amherst, New York 14228
 Phone: (716) 691 5456
 Fax: (716) 691 6154

U.S. Fish & Wildlife Service
 1 800/344 WILD
<http://www.fws.gov>

July 2002