Mini data sheet on *Pistia stratiotes* (Araceae)

Added in 2007 – Deleted in 2012

Reasons for deletion:
Pistia stratiotes was added to the EPPO Alert List in 2007 and transferred to the List of Invasive Alien Plants in 2012.

Why
Pistia stratiotes (Araceae) is an aquatic plant originating from South America. It is extensively traded for ornamental and aquarium purposes. The plant is thought to spread via dumpings of aquarium or escapees from ornamental ponds. It is an invasive plant often found in the tropics and subtropics. Its common name is 'water lettuce' in English and 'laitue d'eau' in French. In the EPPO region, it is considered invasive in Islas Canarias (Spain). While absent from Scotland, it is listed in the Scottish Wildlife and Countryside Act which prohibits importation of the plant as well as of *Eichhornia crassipes* (see EPPO RS 2006/243) which resembles *P. stratiotes*.

Geographical distribution
EPPO region: France (found once in the Landes department but no longer present), Germany (found once in 1981 but no longer present), Italy (Campania, Emilia-Romagna, Lombardia, Toscana, Veneto), Russia (near Moscow), Slovenia (naturalized in a thermal stream), Spain (found in Pais Vasco and southern Spain but no longer present; Islas Canarias, considered invasive) (Victoria Eugenia Martin Osoria & Wolfredo Wildpret, pers. comm.).
Asia: Cambodia, China, Indonesia, Malaysia, Philippines, Thailand, Vietnam.
Africa (invasive): Burkina Faso, Seychelles, Swaziland.
North America: USA (Arizona, California, Colorado, Delaware, Georgia, Hawaii, Kansas, Louisiana, Maryland, Mississippi, Missouri, Ohio, New Jersey, New York, North Carolina, South Carolina, Texas), Virgin Islands (US).
Oceania: Australia (invasive) (Australian Capital Territory, New South Wales, Northern Territory, Queensland, Western Australia), Cook Islands (Rarotonga Island), French Polynesia, Guam, New Caledonia, Northern Mariana Islands (Rota Island), Papua New Guinea, Solomon Islands, Vanuatu.
South America: Puerto Rico (invasive).

Note: The plant is considered to be native from South America, but a comprehensive list of countries could not be found. The plant has been eradicated from New Zealand. The plant is casual in France and perhaps also in other temperate countries of the EPPO region.

Morphology
P. stratiotes is a free-floating perennial of quiet ponds which forms colonies. It is stoloniferous and has long, feathery, hanging roots. Leaves are light green and velvety-hairy with many prominent longitudinal veins, obovate to spathulate-oblong, 15 cm long and forming a rosette. Flowers are inconspicuous, few, unisexual, and enclosed in a leaf-like spathe. The fruit is a green berry.

Biology and ecology
Water lettuce reproduces both by seeds and vegetatively. Vegetative reproduction involves daughter vegetative offshoots of mother plants on short, brittle stolons. Rapid vegetative reproduction allows water lettuce to cover an entire lake, from shore to shore, with a dense mat of connected rosettes within a short period of time. In Florida (US), densities of up to 1,000 rosettes per m² have been reported. Stolons are spread by water currents and floods, and are also moved by boats or fishing equipments. The most commonly accepted pathway of this species into the USA is in ballast water released by ships from South America.

Habitats
P. stratiotes occurs in lakes, water courses, wetlands.

Environmental requirements
P. stratiotes is usually found in lakes and rivers, however it can survive in mud. Its optimal growth temperature ranges from 22 to 30°C but it can endure temperature extremes of 15°C and 35°C.

Impacts

Dense mats can have a negative economic effect by blocking waterways, thus increasing navigational difficulties and hindering flood control efforts. They can also lead to a lower concentration of oxygen in covered waters and sediments by blocking the air-water interface and root respiration. Extremely thick mats of *P. stratiotes* can prevent sunlight from reaching underlying water. The cumulative effect of these negative characteristics of the plant is a loss of biodiversity in invaded habitats. *P. stratiotes* mats can also serve as a breeding place for mosquitoes.

Control

The most common physical control method is raking the plant from the pond's surface. Chemical treatment can be done against *P. stratiotes.* For example, the contact herbicide endothall has been used successfully in North America. A biological control programme against *Pistia stratiotes* was undertaken simultaneously with programmes for other aquatic invaders such as *Eichhornia crassipes*, *Salvinia molesta* and *Hydrilla verticillata*, to avoid the increase of other invasive species as one was controlled.

Regulatory status

In Australia, the plant is regulated in Western Australia, New South Wales, Queensland, Northern Territory and Australian Capital Territory. In the USA, the plant is regulated in Alabama, California, Connecticut, Florida, South Carolina, and Texas. A Pest Risk Analysis has been performed for the Pacific islands and is available from the Internet. In the United Kingdom, the Scottish Wildlife and Countryside Act prohibits the release of *P. stratiotes* into the wilderness.

Sources

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