Mini data sheet on *Hygrophila polysperma* (Acanthaceae)

Added in 2010 – Deleted in 2012

Reasons for deletion:
Hygrophila polysperma was added to the EPPO Alert List in 2010 and transferred to the List of Invasive Alien Plants in 2012.

Why
Hygrophila polysperma (Acanthaceae, common name: Indian swamp weed) is an aquatic perennial plant native to Asia. The species is traded as an aquarium plant. Within the EPPO region, it is not recorded as naturalized. Considering the invasive behaviour of this species elsewhere in the world, it is considered that flowing freshwater bodies of the Mediterranean and temperate countries are at risk, and that the species should usefully be monitored, particularly in countries currently importing this species as an aquarium plant. *H. polysperma* is therefore added to the Alert List.

Geographical distribution
EPPO region: *H. polysperma* has been found in thermal waters in Germany, Hungary and Poland (casual only).
Asia (native): Bangladesh, Bhutan, Cambodia, China (Guangdong, Guangxi, Yunnan), India, Lao, Myanmar, Nepal, Pakistan (Sindh), Thailand, Vietnam.
North America: USA (Florida, Texas, Virginia), Mexico (Tamaulipas).

Morphology
H. polysperma is a hairy perennial plant with both aquatic and emergent stems, which is rooted in the soil. The aquatic form has opposite, elliptic to oblong leaves of 8 cm long and 2 cm wide. The emergent form differs in having smaller, narrower and darker leaves. Flowers are small, solitary, nearly hidden by leaves, with a bluish-white corolla measuring 8 mm. The fruit is a capsule of 7-9 mm long covered with hairs, especially near the top, splitting length-wise to release 20 to 30 tiny round seeds.

Biology and ecology
H. polysperma is reported as a fast-growing and fast-spreading invasive plant. Submerged plants may occupy the entire water column while emergent plants grow in shallow water areas and in saturated sediments along the shoreline. *H. polysperma* forms monocultures with emersed stems rooted at 3 m or more below the water surface. In North America, growth of shoots begins with the increase of water temperature in March. Shoots reach the surface in late spring. During summer, fragments with numerous adventitious roots break away and readily root upon contact with soil. These shoots form large and heavy floating mats which can have detrimental impacts. The mat or individuals can sink and produce a new colony. The old root crowns produce new shoots, which grow slowly during the winter. The importance of seeds in plant reproduction is not certain.
The invasive behaviour of this plant is considered to be due to its multiple growth forms, and its ability to produce a high biomass and to form a dense canopy at the water-air surface. The species is also considered to be capable of positive net photosynthesis at low light levels. It can subsist within a temperature range of 18 to 30°C, and a pH range of 6.5 to 7.8 (other publications mention a pH range of 5-7). The species tends to grow more vigorously in flowing water. In Florida, the species has been reported as able to expand from 0.04 ha to 0.41 ha in one year.

In which habitats
In warmer climates, *H. polysperma* prefers flowing streams, but it may also be found in slow-moving waters and in lakes. According to the Corine Land Cover nomenclature, the following habitats are invaded: continental waters (water courses, water bodies), banks of continental water, riverbanks/canalsides (dry river beds).
Pathways
Within the EPPO region, *H. polysperma* is imported for aquarium purposes in large quantities into various countries such as Austria, Estonia, France, Hungary, Latvia, the Netherlands and Switzerland.

H. polysperma fragments very easily (vegetative reproduction), and these plant fragments can be spread by boats or wildlife.

Impacts

H. polysperma can out-shade other submersed plants, and is even reported to out-compete the very invasive *Hydrilla verticillata* (EPPO Alert List), as well as *Ludwigia repens*. It can occupy the entire water column and restricts light to other species, displacing native flora and fauna, and disrupting the aquatic ecosystem balance. Additionally, when large stands of *H. polysperma* die, their decomposition can create anoxic conditions resulting in fish death. Mats formed by the plant may also provide suitable breeding grounds for mosquitoes. *H. polysperma* clogs irrigation and flood-control canals, and interferes with water control pumping stations. It is also detrimental to navigation and recreational activities such as fishing and swimming.

Control

The species is considered to be difficult to control, even more so than *Hydrilla verticillata*. The use of mechanical harvesters further fragments the plant and favours its spread. Registered aquatic herbicides only marginally control *H. polysperma*. Endothal is the only active substance mentioned in the literature as having some efficacy against the plant.

In the USA, this species is listed at the federal level as a noxious weed, and is regulated in many States.

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