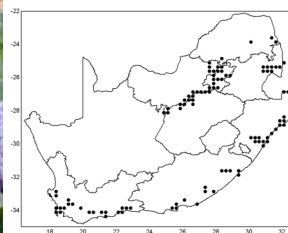


ARC-PPRI FACT SHEETS ON INVASIVE ALIEN PLANTS AND THEIR CONTROL IN SOUTH AFRICA

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WATER HYACINTH is a perennial, aquatic plant, native to the Amazon Basin of South America. Plants range from 100 mm to 1 m in height and are free-floating with long, feathery roots for absorbing nutrients from the water. The leaves have bulbous, spongy petioles (i) which act as floats. As plants become crowded, the petioles elongate and interweave to form a floating mat of vegetation. Lavender flowers are borne in spikes, and the upper petal of each flower has a purple centre with a distinctive yellow fleck (ii). Water hyacinth is a category 1 declared weed in South Africa and must be controlled, or eradicated where possible.



THE PROBLEM

In South Africa, water hyacinth was first recorded in 1908 when it was introduced as an ornamental for garden ponds. The activities of man, plus the plant's rapid reproductive rate and absence of natural enemies, has enabled it to invade water bodies throughout the country. Naturally high reproductive rates are exacerbated by the eutrophication of water caused by nutrients in factory and sewage effluent, as well as fertilizer run-off. Under ideal conditions, the weed can double its population every 11-18 days, and seeds in the sediment may remain viable for up to 20 years. Dense mats of vegetation can clog water systems (iii), interfere with recreation and irrigation, promote siltation and evapotranspiration, exacerbate the effects of flooding, and create anoxic water conditions which threaten biodiversity. Infestations also pose a health risk by creating breeding habitats for disease-carrying organisms such as the malaria mosquito and the bilharzia snail. Water hyacinth is regarded as South Africa's most damaging aquatic weed and, notwithstanding the ecological effects, currently costs the country millions of Rand per year.



THE SOLUTION

Manual control is widely used, but is labour intensive and expensive (iv). Herbicides have been used since the late 1970s, but are costly, and may have unwanted non-target effects. The first biocontrol agent was released in 1974 and, since then, South Africa has released more agents on water hyacinth than any other country. There are currently 6 established biocontrol agents, plus another insect which has just been released. Unfortunately, the biocontrol agents' efficacy is limited in areas with cold winters. Low temperatures slow their development and promote mortality, while frost destroys their habitat and food source. Furthermore, in areas where water is enriched with nutrients, plants reproduce faster than the agents' can control them. Throughout the country, eutrophication is a major impediment to the control of water hyacinth. While biological control is the most cost-effective, sustainable, and environmentally friendly method, until the problem of eutrophication has been addressed, integrated control—the combined use of chemical and biological control—is the only viable solution. An integrated control strategy, using careful and timely herbicide application, is currently being used with great success in a number of areas in the country.



environmental affairs

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