



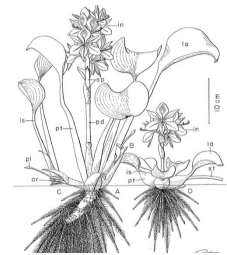
Beautiful Threat : Water Hyacinth spreads in the Limpopo

In 2010 high floods washed water hyacinth (*Eichhornia crassipes*), an invasive aquatic plant of South American origin, into the Limpopo from the Crocodile River in South Africa. The plant is now spreading along the Limpopo between Martin's Drift and Zanzibar, and beyond.

This extremely invasive water weed with beautiful flowers can drastically alter ecosystems and cause economic hardship. Multiplying quickly and breaking loose in clumps to float away, the weed can eventually grow to cover the entire body of water in just three weeks' time, cutting off the supply of oxygen and light to negatively

affect fish and other aquatic organisms.

The plant is no respect of political boundaries and threatens to degrade water quality in the downstream Limpopo as it passes from Botswana to Zimbabwe and Mozambique.



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Water hyacinth spreading at weir on Limpopo River (Left). A weevil, *Neochetina eichhorniae* is extensively used to control the weed (Right)

Control:

- Mechanical Control: *using manpower machines and barriers*
- Herbicides
- Biological control: *insects that eat the plant*
- Source control: *reduction of dissolved nutrients*
- Integrated control: *combined methods*

Controlling the Invader

Botswana's Department of Water Affairs (DWA) has initiated the process of combating the weed by getting assistance from the communities and the farmers of the Limpopo River. The Department has installed diamond mesh barrier at Zanzibar to prevent the plants from floating downstream.

Another similar filter will be erected at Olifants/Marico River confluence. The weed was physically removed in Marico River in November 2012. The immediate control option Botswana developed is the physical removal method.

As the Limpopo is trans-boundary Botswana DWA has

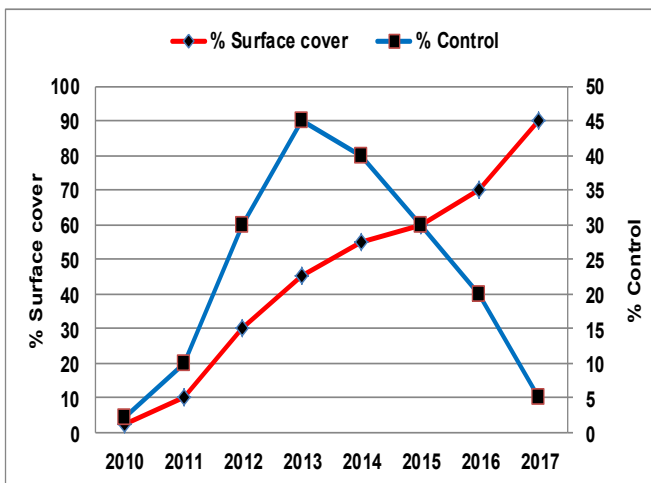
been in touch with the DWA, Republic of South Africa.

People living near the river need to be aware that the plant quickly gets out of control. They should avoid growing the plant in homes and yards. In all LIMCOM's Member States, it is unlawful to transport the weed.

The Science behind the Issue



The diamond mesh filter at Zanzibar erected Feb. 2013



Graph showing in red line the weed's level of infestation by year 2017 (with no control); the blue line shows the physical control that started (2013) and will intensify with chemical control or biocontrol. If the control is effective we may expect that the weed can be controlled by 2017 to 5%.

The USAID RESILIM Program supports the LIMPOPO Watercourse Commission (LIMCOM) in helping the people and ecosystems of the Limpopo River Basin to adapt to climate change through effective transboundary water management.

LIMCOM's Integrated Water Resources Management plan has identified water quality as a key challenge in the Limpopo Basin.

This work is supported by LIMCOM international cooperation partners



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Water hyacinth is a free-floating perennial water plant that forms large, dense mats on the water surface. Each plant consists of a crown of several broad, leathery leaves and spongy inflated leaf stalks. Roots are a mass of fine, hairy fibrous roots reaching up to deep waters. In shallow water the roots may take hold in the substrate of mud or sediment. Plants can survive on damp soil for several months with rhizome. Increased sediments store the seeds until flood conditions revive them.

Water hyacinth grows in still or slow-flowing fresh water. Optimum growth occurs at temperatures of between 28°C and 30°C, and requires abundant nitrogen, phosphorus and potassium.

The weed is easily spread when there is high flooding as clumps of the plant break away and are carried from a colony to other locations.

Water hyacinth will rapidly take over an entire waterway. Under favorable conditions it can double its mass every five days, forming new plants on the ends of stolons. It also grows from seed which can remain viable for 20 years or longer.

This enormous reproductive capacity causes annual reinfestation from seed and rapid coverage of previously treated areas, making ongoing control necessary.

Studies of the rate of the spread of the plant, its behavior related to flooding and its impacts on water quality need to be carried out in the Limpopo.