

A Comparison of Waterhyacinth and Waterlettuce: Growth Strategies and Biological Control in the United States

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Waterhyacinth and waterlettuce, both weedy aquatic macrophytes, are similar in many respects. They both form mats of individual floating rosettes or interconnected ramets. Vegetative propagation is important to both species and it occurs through stolon production from axillary buds. Both display sympodial branching patterns and have short-lived leaves. Leaves are produced singly and continuously from a central bud located on the apex of a short stem (caudex). However, many differences are also obvious. For example, leaf production and turnover is 2-4 times more rapid in waterlettuce than in waterhyacinth. Exploitation of these 2 species by similar herbivorous insects frequently produces dissimilar results. For example, the South American weevils, *Neochetina eichhorniae* and *N. bruchi*, were released as biological control agents on waterhyacinth in the United States. These weevils cause plant populations to decline, but changes often occur slowly and subtly. In contrast, the weevil, *Neohydronomus affinis*, also from South America, dramatically reduces waterlettuce populations. Intensive parasitization usually prevents outbreaks of the native noctuid, *Bellura densa*, thereby preventing destruction of waterhyacinth mats. Successful control of waterlettuce in Thailand with the Asian noctuid, *Namangana pectinicornis*, suggests that the parasite-free populations recently released in Florida could be extraordinarily effective. The native pyralid, *Samea multiplicalis*, sometimes devastates waterlettuce mats despite heavy parasitization. The similar South American pyralid, *Sameodes albiguttalis*, however, is less effective against waterhyacinth even though it was introduced parasite-free. Despite similarities in growth habits and associated herbivores, waterlettuce has proven much more susceptible than waterhyacinth to biological controls. Reasons for this are discussed.
