

WATER LETTUCE

LESLEY HENDERSON and CARINA CILLIERS
Plant Protection Research Institute, Pretoria

Water lettuce (*Pistia stratiotes* L.) is a perennial aquatic plant consisting of a rosette of leaves with a tuft of long, fibrous roots beneath. It grows mainly as a free-floating plant, but can survive as a semi-rooted plant in mud for prolonged periods.

The leaves are pale yellow-green, broadly obovate, narrower at their bases and are rounded straight or notched at their apices. They are ribbed towards the apices and thickened at the bases. They are softly hairy on both surfaces and with many prominent longitudinal veins radiating from the base.

Under most South African conditions plants seldom exceed 15 to 20 cm in diameter, but under suitable conditions such as tropical or hot-house conditions or nutritiously rich water they could double in size.

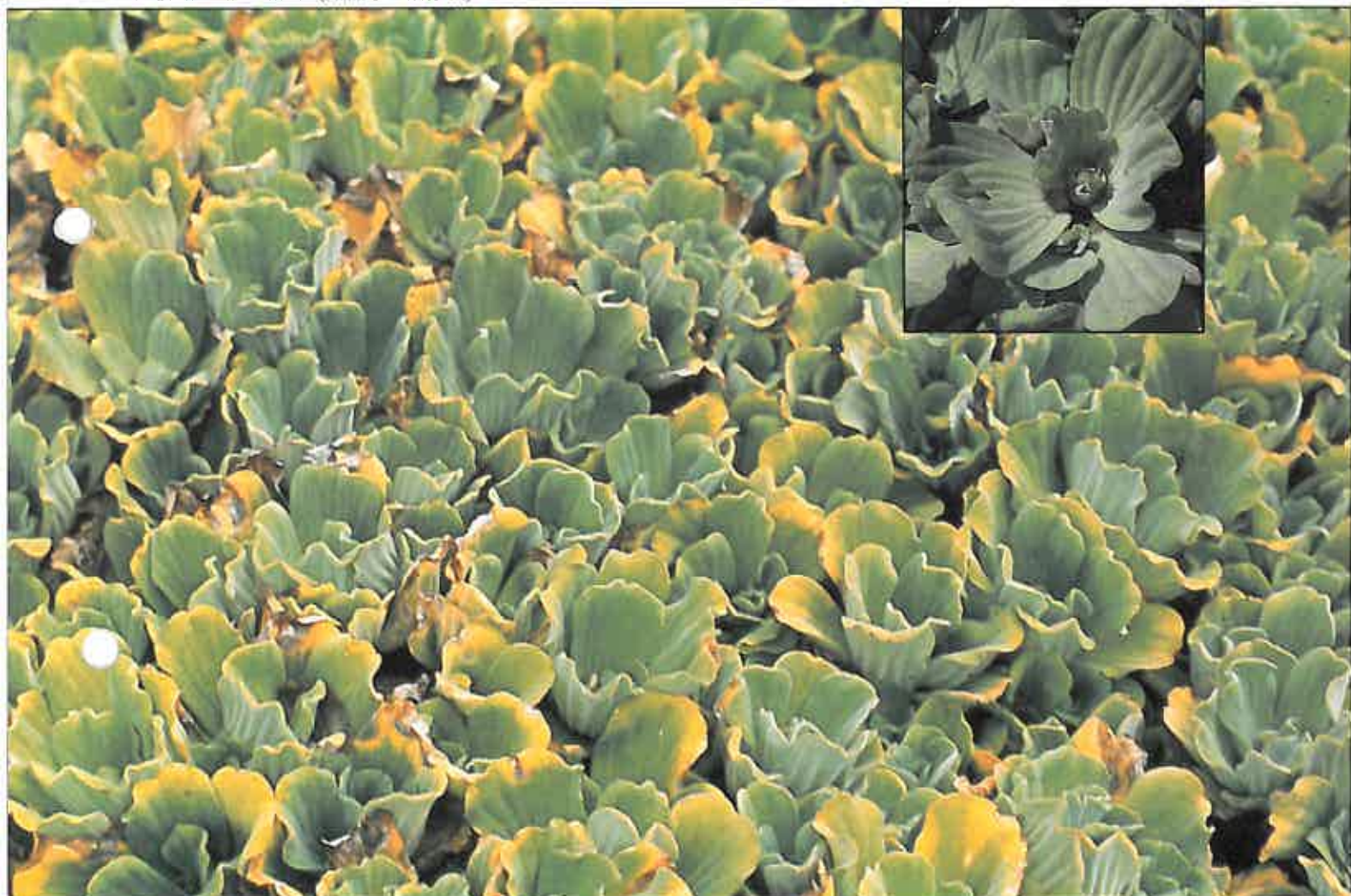
The flowers are pale green/white, inconspicuous and enclosed in a white bract. The fruit is a berry containing numerous small seeds.

It propagates mainly by budding, and large plants are usually surrounded by a host of small "daughter plants". Seedlings originating from seeds were observed for the first time on the Sabie River in September 1987 and it confirmed that viable seed is produced in South Africa.

RELATED SPECIES

Water lettuce is the only species in the genus *Pistia* and it is not likely to be confused with any other species in South Africa. There are several indigenous species in the same family, including arum lilies, but

FIG. 1. Water lettuce (*Pistia stratiotes* L.)



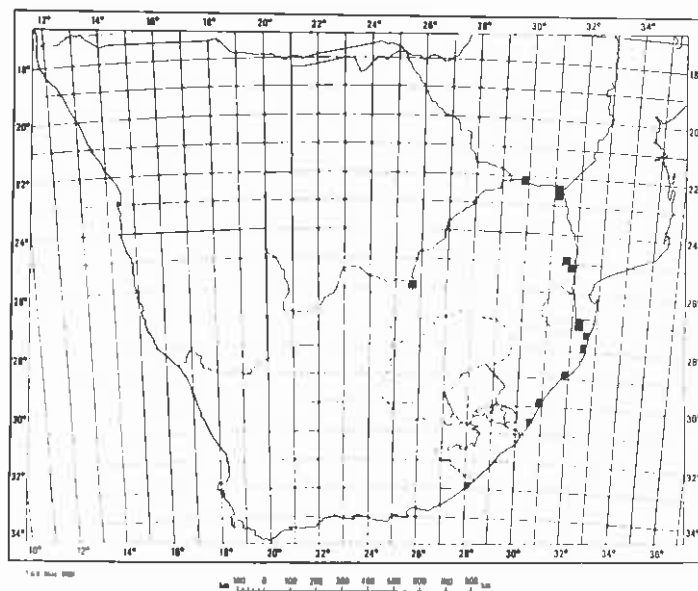


FIG. 2. Distribution of water lettuce

all are terrestrial herbaceous plants with tuberous roots.

DISTRIBUTION

Water lettuce is found virtually throughout the tropical and subtropical regions of the world. Its origin, however, is much disputed by botanists. The possibility that it is adventive in numerous areas is enhanced by its ancient medicinal use. It has been known in Egypt since the time of Pliny (77 AD) who records its use in healing wounds and erysipelas.

It is widespread in tropical Africa and reported as troublesome in the Upper Nile, Zambia, Kenya, Zimbabwe and the littoral regions of Angola and Mocambique. It is one of the major floating constituents of sudd in the Niger Delta.

In South Africa it occurs almost entirely in the subtropical regions of the Transvaal and Natal. It has been recorded along the Limpopo, Levubu, Pafuri and Sabie Rivers in the Transvaal and in isolated pans in the Pafuri area of the Kruger National Park. In Natal it has been recorded at scattered localities along the entire length of the coastal belt. Localised communities occur in the north along the Pongola River floodplain, and on pans, lakes and swamps. It was recorded at East London in the eastern Cape in 1981. These plants almost certainly owe their origin to plants brought to the area from Durban by individuals for their garden features or by a local nursery. Plants introduced as "cover" for fish resulted in its appearance far inland at a recently constructed dam in Mafikeng. The absence of water-lettuce-specific natural enemies in South Africa confirms that the plant is not indigenous to Africa. Most of the host-specific natural enemies are on record from South America

which indicates that the weed is probably indigenous to that continent.

ECOLOGY

Water lettuce grows in a wide variety of aquatic habitats but appears to thrive best in still water or areas of minimal flow. Its tolerance of salinity seems to be low. It grows best in frost-free areas but can survive moderate frost. It is capable of existing on moist soil in a reduced form, particularly in humid conditions.

It is spread mainly by rivers and floods. Seedlings and also smaller plants may be distributed by attachment to birds or other animals. It is more likely, however, that seeds are picked up in mud by wading birds. It also, to some extent, owes its distribution to human agency. Its presence in the Sabie River in the Eastern Transvaal, for example, is the result of its deliberate introduction in a garden pond upstream and hence "accidental" distribution into the river.

LEGISLATION AND CONTROL

Water lettuce is a declared weed under the Conservation of Agricultural Resources Act, No. 43 of 1983, mainly as a preventive measure to stop the sale and distribution of this plant. In South Africa it is considered a minor problem and no herbicides are registered for its control. The host-specific weevil, *Neohydronomus affinis* (Hustache) (Coleoptera: Curculionidae), was imported and established on water lettuce. Wherever it has been released, this weevil has brought the weed under biological control. As biological control is permanent once it has been implemented, water lettuce is not likely ever to become a major problem in South Africa.