

Water lettuce (*Pistia stratiotes*) - a new invader

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In 1996 a new threat to the fresh-water ecosystems of Seychelles was recognised when water lettuce, *Pistia stratiotes* L. was found to be dominating the Mare Soupape on La Digue. Surveys of marsh systems carried out in July-September 1996 located the species on Mahé (Noth-East Point and Anse Forbans) and Praslin (Anse Kerlan). From anecdotal reports it appears that this species was introduced as an ornamental water plant and was first noted in the wild on La Digue in 1993, since when it has spread rapidly.

Precise data on its spread are lacking but observation made on La Digue in 1996 give an indication of its rate of spread. In January 1996 it was very localised on the Mare Soupape which was being invaded by water hyacinth, *Eichhornia crassipes* (Mart.) Solms-Laub. In July 1996 the entire marsh surface was smothered by water lettuce which was starting to move up streams. In 6 months it had spread to cover 7.03 hectares, a rate of 1.2 hectares per month. Unlike water hyacinth it is not completely restricted to fresh-water and demonstrates a remarkable degree of salinity tolerance with a well defined limit at a conductivities of 1900-2000 μ S.

The effect of this blanket cover of the Mare Soupape has been the complete collapse of the marsh ecosystem. Complete surface cover has resulted in light elimination and deoxygenation of the water, leading to death of all water plants and to stagnation. This process has killed all the aquatic fauna with the exception of three taxa able to breathe surface water; a hydrophilid beetle, mosquito larvae and the introduced pond snail *Gyraulus mauritanus* (Morelet, 1876). Fish and terrapins are now restricted to the streams which offer suboptimal conditions. Even the vigorously invasive water hyacinth has been virtually eliminated. The consequences of this ecological collapse spread to adjacent areas as the marsh provided a breeding ground for a much of the invertebrate fauna and invertebrate numbers in woodland have crashed. This is likely to have adverse effects on the Seychelles black paradise flycatcher *Terpsiphone corvina* Newton, 1867 and on the Seychelles shath-tailed bat (*Coleura seychellensis* Peters, 1868). This latter species has decline in recent years and active roosts are known only from Silhouette and LA Digue. On La Digue the newly located roost in the bed of the Rivière Quinon is occupied by bats which rely on the Mare soupape as a major feeding ground. This roost is likely to be abandoned in the very near future as a result fo the ecological collapse of the Mare Soupape. A full discussion of the effects of water lettuce invasion of the Mare Soupape was published in 1996 (Gerlach 1996) including data demonstrating the collapse of the woodland invertebrate populations in that year. The ecological

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collapse of the plateau marsh on La Digue that has been demonstrated to have occurred in 1996 is almost certain to be repeated in other areas invaded by water lettuce.

The spread of this species threatens all the marshes on Mahé, Praslin and La Digue. In January 1997 it had invaded the Rivière Mare Anglaise on Mahé but had disappeared from Anse Kerlan, Praslin. The cause of this disappearance is not known. In the same month the Scouts and Division of Environment started a trial clearance at North-East Point. This was successful in clearing a small area but demonstrated that manual clearance is not practical for the larger areas. In other countries where this species has been a problem biological control has been applied successfully and the possibilities for its use in Seychelles should be investigated.

References

Gerlach, J. 1996 - New threats to Seychelles birds. *Birdwatch* 20; 18-24.