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**A STUDY ON BIOLOGY AND INVASIVE  
CHARACTERISTICS OF**

*Annona glabra*

**IN**

**BELLANWILA-ATTIDIYA WETLAND**

by

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Thesis submitted in partial fulfillment of the requirement for  
the Degree of Master of Science (Forestry and Environment Management).

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## ABSTRACT

*Annona glabra* L. (Annonaceae) commonly known as pond apple or monkey apple is considered as an alien invasive species in Sri Lanka. It has been introduced possibly in the 19<sup>th</sup> century, and the purpose of introduction is not known. This species is seen growing as clusters in many wetlands, particularly in the wet-zone of the country, and its spreading has identified as a serious threat to the survival of the wetland ecosystems.

Biology of this species has not been studied in Sri Lanka, and therefore this study was designed to conduct preliminary investigation on the biology and invasive characteristics of the tree.

Bellanwila-Attidiya wetland is one of the wetlands, which has been recognized as a wetland of international importance. *Annona glabra* is seen spreading rapidly in this wetland as well.

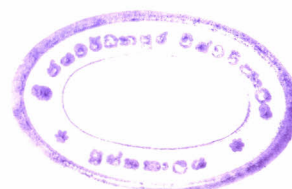
In the present study some invasive characteristics of *Annona glabra* have been studied for a period of 7 months. These include seed germination and vegetative propagation experiments. In addition observations on phenology (flowering, fruiting & flushing) and pollination were made to understand the life cycle of the species. Apart from the above studies, distribution pattern & the cover percentage of pond apple has been studied, and the average number of seeds in a fruit is also established.

Distribution pattern of *Annona glabra* varies with the habitat condition. Clumps with more mature trees, comprising large crown diameters can be seen at the edge of the marshland, while different sizes of clumps were seen in the open marshland area. The average cover percentage of *Annona glabra* in the study area of Bellanwila- Attidiya wetland is found to be around 35.6%. Although seed germination trails conducted under ex-situ condition did not give satisfactory results, the seedling count in the field showed that wet shady conditions are necessary for seedling establishment. Vegetative propagation experiments have proved that leaf sprouting is possible in both young & mature branches grown in the field. However damp soil with almost 100 percent moisture is needed for leaf sprouting.

A remarkable increase in flushing and flowering was observed in March 2001. However prolong observations are necessary to establish the fluctuation patterns of phenological characters. Average number of seeds in a fruit is found to be around 78. Experiments conducted using pollination bags revealed that *Annona glabra* flower has the capacity to self-pollinate or produce fruits without pollinating (apomictic).

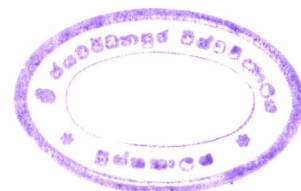
Control further spreading of the plant is seemed to be somewhat difficult. Uprooting of seedlings and saplings and periodic cutting of stems are expected to be fruitful as control measures. Mechanized removal of fully-grown trees may be possible in dry areas. Use of herbicides may be useful in destroying the tree, but careful thought is necessary if herbicides are used in natural ecosystems.

T.M.E. NANAYAKKARA  
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