**ABSTRACT**

_Eupatorium odoratum_ is a common weed native to lowland tropical America including Trinidad, where it occurs in open land but not in forest. Introduced to the Old World, it is a serious weed in tropical forests, plantations, and pasture.

In Trinidad it is attacked by many polyphagous and oligophagous insects. Descriptions are given of the life cycles of the latter, comprising Lepidopterous, Dipterous, and Coleopterous species, attacking buds, stems, leaves and seeds.

The ecology is described of a leaf-feeding Arctiid _Ammalo insulata_ Wlk. In South and Central America, geographic variations are found with some infertility between extremes. Adults were caught in light-traps, and larvae were occasionally abundant; both are nocturnal. When plant growth recommences with the rains in June, populations of this moth increase, but decrease in the dry season to a minimum in May. Eggs are parasitised by _Telenomus_ sp. and larvae by five tachinids and are affected by a nuclear polyhedrosis virus.

Females preferentially oviposit on leaves of _E. odoratum_. In laboratory tests larvae rejected most plants without trial and completed development only on three species of _Eupatorium_. This moth, if freed of virus, is recommended for release against _E. odoratum_.

The results are discussed; populations of some insects especially where the larvae require young growth, may be limited by lack of suitable plant during the dry season. Parasites, predators, or inter-specific competition may regulate population size of others. Large seasonal
population fluctuations in *A. insulata* are controlled by the host plant growth cycle; long-term regulation may result from parasite and predator attack at low population densities, and mortality from virus at high densities.

It is suggested that in the Neotropics insect attack prevents the growth of *E. odoratum* in forest, and restricts its growth generally.