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INSECT SUCCESSION IN THE DECOMPOSITION OF A MAMMAL IN COSTA RICA[1]

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Abstract.—Observations were made on the decomposition of a dead dog during the dry season of 1977 in the Central Valley of Costa Rica, Central America. The terrain is classified as premontane humid forest and the observations were made in a secondary forest. The general pattern of decomposition was basically the same as has been described by authors in other latitudes, but different in the ecological complexity and the insect fauna involved. The classification used for human cadavers by forensic pathologists in Costa Rica and other countries in the American tropics was utilized in this study. It includes the following stages: discoloration, emphysematic (bloated), liquefaction and skeletal remains. The succession of different species appeared to depend on their specific feeding preferences, interspecific competition, and the microclimate provided by the substratum. Marked changes in the activity of populations during crepuscular periods coincided with an increase in relative humidity and a decline in temperature in the macroenvironment of the surrounding forest. Included among the principal insect consumers of the remains were the calliphorid dipterans *Phaenicia eximia* Wiedemann and *Hemilucilia segmentaria* Fabricius, the piophilid dipteran *Prochyliza azteca* McAlpine and the coleopteran *Dermestes carnivorus* Fabricius. The most important predators were the histerids *Euspilotus aenicollis* Marshall, *Hister punctiger* Paykal and *Geomysaprinus* (*Priscosaprinus*) *belioculus* Marshall. Some of these species have also been associated with a similar type of substratum in the tropical rain forest and tropical dry forest in Costa Rica.

Introduction

Much is known about the behavior and taxonomy of the principal groups of insects that participate in the successional stages of decomposition in temperate zones, but relatively few studies have been made in tropical zones (Bohart and Gressit 1951; Cornaby 1974; Payne 1965). Previous studies have shown that certain general patterns exist during the decomposition process that accounts for the natural or slightly altered ecological conditions. The decomposition phenomenon, although it presents a continuum of changes, has been divided into various phases or stages in order to facilitate its study

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