

THE INFLUENCE OF FOOD SUPPLEMENTATION UPON
THE REPRODUCTIVE STRATEGY AND MOVEMENT
PATTERNS IN THE HAWAI'I 'AMAKIHI
(*LOXOPS VIRENS*)*

Charles van Riper III
Department of Zoology
University of Hawaii at Manoa
Honolulu, Hawaii 96822

The objectives of this study were to investigate the influence of food availability on: 1) territory establishment, shape, and size; 2) nesting success; and 3) post-breeding dispersal in the Hawai'i 'Amakihi (*Loxops virens*). From 1970 through 1975 birds were color-banded and their territory boundaries recorded in the Pu'u-lā'au area on the southwestern slope of Mauna Kea, Hawai'i. Supplemental food sources, consisting of 20% sugar-water in feeders placed on yellow boards, were supplied in an area that heretofore had not been utilized for nesting. The feeders were placed at three different locations, each an "average" territorial distance from the other and from all contiguous territorial boundaries. Feeding bouts were recorded from 10 January through 10 June 1975 utilizing blinds, stopwatches, binoculars, and a tape recorder.

Territory establishment and shape in the 'Amakihi were directly influenced by food availability; size was not. In the presence of a large food surplus, elongated overlapping territories were established around the periphery with one major territorial pair centrally located. The food surplus was utilized by territory holders, transient immatures, and introduced White-eyes (*Zosterops japonica*). Of the birds utilizing the food resources, only the major territorial 'Amakihi pair ranked above the White-eye, suggesting potential competition. Nectar appears to be an important factor during the breeding cycle of the 'Amakihi, with the greatest influence exerted during the latter stages of egg laying and early incubation due to an increase in desertion rate. It was found that post-breeding dispersal in the 'Amakihi can be suppressed when a continued food supply was made available.

* Abstract.