

ECOLOGY OF VECTOR MOSQUITOES IN SRI LANKA – SUGGESTIONS FOR FUTURE MOSQUITO CONTROL IN RICE ECOSYSTEMS

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Abstract. Mosquito-borne diseases are a major public health threat in Asia. To explore effective mosquito control strategies in rice ecosystems from the ecological point of view, we carried out ecological analyses of vector mosquitoes in Sri Lanka. During the 18-month study period, 14 *Anopheles*, 11 *Culex*, 5 *Aedes*, 2 *Mansonia*, and 1 *Armigeres* species were collected, most of which are disease vectors for malaria, filariasis, Japanese encephalitis, or dengue in Sri Lanka and elsewhere in Asia. The density and occurrence of *Anopheles* and *Culex* species were the highest in seepage pools and paddy fields, where the majority of niche overlaps between larval mosquito and aquatic insect species were observed. All 7 aquatic insect species, which are larval mosquito predators, overlapped their niche with both *Anopheles* and *Culex* larvae. This suggests that conserving these aquatic insect species could be effective in controlling mosquito vectors in the study site. Correlations between several climatic factors and mosquito density were also analyzed, and weather conditions, including higher temperature, lower relative humidity, and higher wind velocity, were found to affect mosquito oviposition, propagation, and survival. These findings deepen our understanding of mosquito ecology and will strengthen future mosquito control strategies in rice ecosystems in Asia.

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