ASPECTS OF THE ECOLOGY AND MORPHOTAXONOMY OF CATTLE TICKS (ACARI: IXODIDAE) IN SRI LANKA

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A two-year study was done on the ecology and morphotaxonomy of cattle ticks in different agro-climatic areas of Sri Lanka, encompassing localities at low elevation dry and wet zones, and mid country and montane wet zone. A total of 164,483 ticks were collected from 1,240 head of sampled cattle. The most abundant species was *Boophilus* sp. (Curtice, 1891), followed by *Haemaphysalis bispinosa* (Neumann, 1897), *Rhipicephalus haemaphysaloides* (Supino, 1897), *Haemaphysalis intermedia* (Warburton and Nuttal 1909), *Hyalomma brevipunctata* (Sharif, 1928), *Hyalomma marginatum isaaci* (Sharif, 1928), *Amblyomma integrum* (Karsch 1879), and *Haemaphysalis spinigera* (Neumann, 1897). *Hy. brevipunctata* was recorded for the first time on neat cattle in Sri Lanka. Keys for identification of adult and immature stages of cattle ticks were produced. Multivariate analysis of metric and descriptive character sets showed overlapping geographic variability in *Boophilus* sp. and *R. haemaphysaloides*, whereas *H. bispinosa* segregated into three disjunct populations indicative of the possibility of three distinct species. A protein profile study of *Boophilus* sp. and *R. haemaphysaloides* adult stages showed similar geographic variability as seen in the morphometric analysis. The overall tick load on the host was significantly negatively correlated with elevation, with greatest abundance at low elevation dry and wet zone localities.

Population peaks of varying periodicities and amplitudes were observed in the different species at different localities. Stepwise multiple regression analysis of tick abundance against 10 climatological variables indicated that daily temperature may have an important impact on seasonal abundance trends, appearing as a significant covariate for *Boophilus* sp., *H. intermedia* and *R. haemaphysaloides*. Individual tick species aggregated preferentially on different body regions of the host, and significant positive and negative inter-species associations were seen on different body regions. Cattle tethering strategies, acaricide use and the presence of other peridomestic animals all had impacts on cattle tick loads. Nymphs of *Amblyomma integrum* were primarily responsible for a human otoacariasis outbreak within a low country wet zone area, which resulted in infestations of more women than men, and more children (1-10 years age), and adults (>21 years age) than the intermediate age group (11-20 years).