ABSTRACT

The ecology of the solitary mud-wasp Sceliphron assimile Dahlbom was studied in Jamaica. Adults were active from sunrise until they finally settled in roosting groups a little before sunset.

A three-month study of roosting behaviour in S.assimile was carried out during a mark and recapture study. Roosting aggregations on low bushes were initiated by males and pre-reproductive females one to two hours before nightfall. Groups of 2-27 individuals almost touching each other assembled in associations at different sites along the strand, males roosted lower than females while the sexes tended to roost homogeneously. Individuals generall roosted nightly at the same spot, but 22.8% pre-reproductives, 6.4% reproductives and 13.1% of males changed their sites. Such movement decreased with increasing distance between sites. The value of gregarious roosting is discussed. Nesting activities took place during an 8.5 hr period commencing about 3 hrs after sunrise, but individuals spent only about 4 hrs nesting per day; the remainder being spent in resting and feeding. Males sought females in all places in the habitat. Pre-reproductive females made up between 35-71% of the population; they searched for nesting sites, tested mud and generally learned their environment. The number of pellets females used to construct cells, but not cell length, was negatively correlated to the body length of the builder. Like other species of Sceliphron, S.assimile collected spiders belonging to the

Argiopidae particularly, and also mainly to the Thomisidae, Salticidae and Oxyopidae. Incompletely stored cells were closed with an externally concave lamella of mud at the onset of rain and at 16.00 - 17.00 hrs E.S.T. and were never reopened on the same day

Building and provisioning rates and the consequences of nest architecture on mortality and the method of building on distribution are discussed. Prototarrhenotoky and proterandry occur and probably influence the sex ratio through differential mortality and fecundity.

From analysis of mark and recapture data the mean density of S.assimile at Green Bay was 15.4 males and 14.2 females per ha. Mean population sizes for reproductive females, strand females and strand males were 87, 259 and 281 respectively. Mean daily survival rates for the same categories were 0.945, 0.924, 0.903 respectively. At a survival rate of 0.945 the mean fecundity of Green Bay females was 8.6 and that of Mona females 8.27 eggs per female. At Mona, the fecundity in the wet season was 11.29 and in the dry season 7.50. The probable causal links between survival, fecundity and migration are discussed in terms of the areas in which different densities existed, and a model showing these relationships presented.