

NEW CALEDONIA

Chazeau, J., E. Bouye and L. Bonnet de Larbogne. Institute Français de Recherche Scientifique pour la Développement en Coopération, B.P. A5, Noumea Cédex. Nouvelle Calédonie.

**BIOLOGICAL CONTROL OF THE LEUCAENA PSYLLID
HETEROPSYLLA CUBANA IN NEW CALEDONIA**

Heteropsylla cubana Crawford (Hemiptera, Psyllidae) is native in tropical America and the Caribbean. It invaded the tropical Pacific islands, Australasia, and South-East Asia between 1984 and 1988. The lack of effective natural enemies of the psyllid in infested areas resulted in severe defoliation or death of the main host plant *Leucaena leucocephala* (Lam.) de Wit and subsequent heavy economic losses.

The parasite was detected in October, 1985 in New Caledonia, where leucaena is used extensively for cattle fodder and is appreciated for its role in soil conservation. Heavy impact on the host plant was soon observed.

The coccinellid *Olla v-nigrum* Mulsant (Coleoptera) was introduced from Tahiti to control the psyllid. Few adults were released before the species became established: 282 adults from the first and second generations, between January and March, 1987 in Noumea and Paita areas. *Olla* has been found in these areas since May, 1987. The predator was present in most parts of New Caledonia in July, 1989.

O. v-nigrum is known to feed on many different preys and to colonize various biotopes. At 25.7°C the duration of the life cycle was 16.8 days (Egg 2.7; L1 2.1; L2 1.6; L3 1.9; L4 4.8; Ny 3.8). The rate of egg hatching was 0.76 for wild females; during the establishment of a life table based on 29 females, hatch rate was observed to decrease to 0.05 at the end of the oviposition period. At 25.8°C the intrinsic rate of increase (r_m) = 0.165 (0.160 with the observed hatching rate); the mean length of a generation (T) = 32.2 days (31.4); the net reproductive rate (R_o) = 201.4 (153.9). The natural enemies of *O. v-nigrum* in New Caledonia are: a phorid fly (parasitism rate up to 0.33), an Encyrtid wasp, and two entomopathogens, *Beauveria bassiana*, and *Cordyceps* sp.

Damage on the host plant, population levels of *Heteropsylla*, and population levels of *Olla* were surveyed weekly or twice a week from April to July, 1989 on 36 sites in southern New Caledonia and along the west coast. *Olla* is now playing a major role among the natural enemies of *Heteropsylla*, but its action varies greatly with the locality. Young plants are more heavily damaged by the psyllid; old and tall plants need more time than medium-size plants to recover after defoliation. Rainfall remains the key factor which regulates psyllid populations. Slope orientation may sometimes explain local differences in *Leucaena* aspect.