

## **Ameisenmimikry bei Larven von *Macroxiphus siamensis* (Orthoptera: Ensifera). [Ant-mimicking in larvae of *Macroxiphus siamensis* (Orthoptera: Ensifera)]**

We offer a definite proof for ant-mimicking in larvae of *Macroxiphus siamensis*. The larval instars of this species are described in detail with respect to both morphology and behaviour.

During rainy season first instar larvae of *M. siamensis* were observed in the ground vegetation of primary moist evergreen rain forests (Sri Phang Nga and Khao Sok National Parks, Southern Thailand). Several specimens were collected and reared to adulthood in the laboratory.

Young larvae are ant-mimicking and thus differ in both appearance and behaviour from older ones and, moreover, from adult animals. Structural modifications together with significantly placed markings make them look remarkable like ants. The resemblance with the model is achieved by the following features: the primary colouration is black, the head ant-like round. The antennae are optically cut short: the basal fourth of the flagellum is black followed by a white zone, the remainder being greyish. The long pronotum is distinctly narrow in the prozona – the similarity with the neck of an ant is enhanced by indistinct pale markings on the margins of the paranota. The first three abdominal segments taper considerably and look like a petiolus; the petiolus-like appearance is further enhanced by a black-white colouration. The other abdominal segments are broad and rounded, resembling the gaster of ants. Pale markings and a dorsal yellowish longitudinal stripe let the metafemora look slim.

Ant-mimicking in *M. siamensis* is restricted to the first two larval instars, until body size exceeds about one centimeter. It is enhanced by ant-like behaviour: larvae occur together with the model ants, they run quickly on the leaves of the ground vegetation. Every 10-15 cm they stop shortly and move the antennae independently, thus imitating ants. Young *M. siamensis* feed on detritus, which permanently drizzles from the upper strata of the vegetation onto the leaves of the lowest stratum. Unlike in the laboratory, activity of the animals in the field is not strictly nocturnal; it also takes place during daytime and increases before and after rainfall. This indicates that food uptake and climatic conditions are correlated: as a consequence of the rain and the foregoing wind, a lot of detritus gathers on the leaves. Apparently these brief periods of enriched food supply are important for the detritivorous larvae.

Starting with the third larval instar body proportions, feeding habits and behaviour change completely – the animals no longer bear any resemblance with ants. The characteristic modifications of pronotum and abdomen are replaced by imago-like features, except for colouration and size. The larvae become phyllophagous and move tettigoniid-like. They are likely to be active only nocturnally in the field. In daylight they hide themselves near the ground, the body clinging tightly to structures, forelegs and antennae stretched straight forwards, middle and hind legs backwards.

At least in Thailand the phenology of *M. siamensis* seems to be correlated with seasons. During dry season we never found any larva, whereas in September, the month of maximum rainfall, young *M. siamensis* were highly abundant. According to ontogenesis in the laboratory, imagines must occur in the field during the dry season. Although large and conspicuously multi-coloured, no adult *M. siamensis* has ever been detected in the lower vegetation strata. It is speculated, that in contrast to larvae the imagines are arboricolous.