

OBSERVATIONS ON THE BIOLOGY OF *OCNEROGYIA*
AMANDA STGR. (LYMANTRIIDAE), A PEST OF *FICUS*
IN IRAQ

PETR STARÝ

Institute of Entomology, Czech Academy of Science, Praha

IBRAHIM K. KADDOU

Biological Research Centre, Council of Scientific Research, Baghdad

The comparison of the present observations with data in the literature has shown that there is a considerable lack of information about the moth pest, *Ocnerogyia amanda* Staudinger on figs in Iraq. It is intended, in this paper, to cover at least some of these existing gaps.

This work was carried out in Baghdad from April to July, 1968, both in the field and in the laboratory.

The eggs are laid in groups of about 20 or more. Similar data was obtained by Buxton (1920) and Ramachandra (1922). Most eggs can be found on the lower side of the leaves and to a lesser degree on the upper-side of leaves, on the trunk or on dry leaves under the trees.

The newly-hatched first-instar larvae disperse over the leaf on which the eggs were laid and begin feeding. Movement of larvae is limited while small but becomes more extensive as they grow older. The feeding behaviour of the larvae varies with their size. First-instar larvae skeletonize the leaf surface; second-instar larvae make small holes in the leaves; older larvae eat great holes in the leaves or devour them completely except for the main ribs. The early-instar larvae are not noticeable on the tree, but those of later instars are conspicuous because of their greater size and long yellowish body hairs.

The larvae exhibit a definite diurnal migration. They feed at night but take shelter among dead leaves or soil beneath the fig trees during the day (Buxton, 1920; Ramachandra, 1922). According to Scott (1929), fig trees neighbouring mud walls were severely attacked because larvae thrive where they can find shade at certain times of the day; moreover larvae feed on the lower leaves during some part of the day whereas they feed on the more exposed foliage at night. It was found during this study that the larvae do not feed during the hot periods of the day. During this period, they congregate in places which are cooler and more sheltered than are the leaves. Such places are parts of the trunk, especially near the base, and sheltered parts of garden walls. Both young and older instar larvae may be found in such aggregations. The larvae

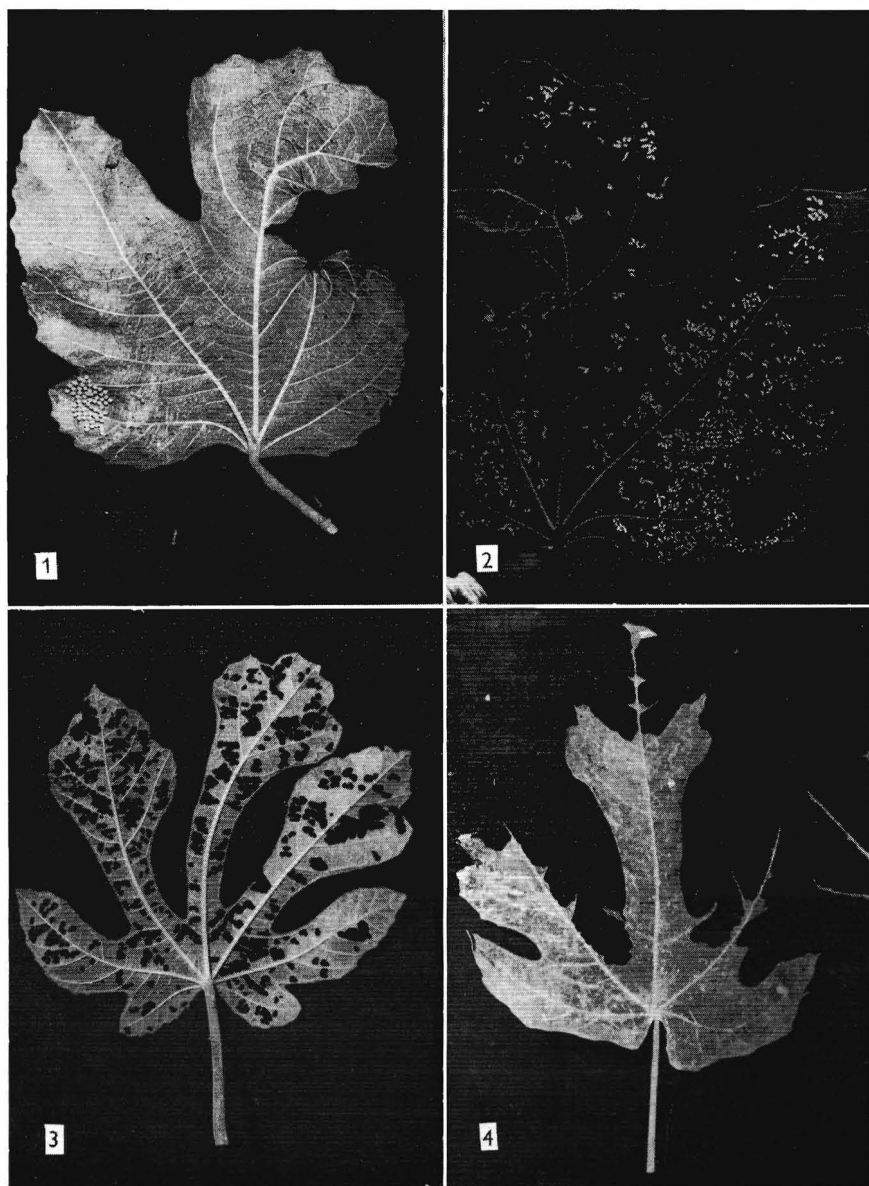
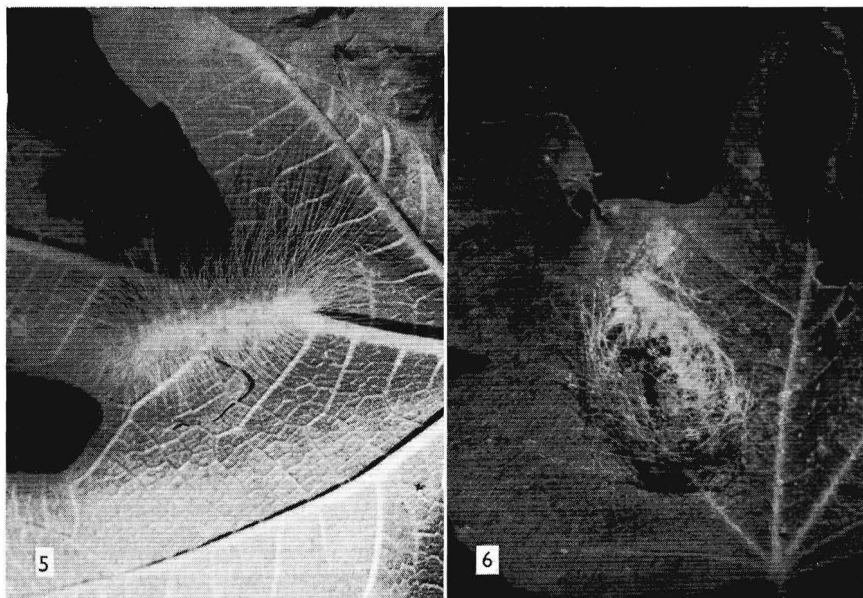


Fig. 1 Eggs of *Ocnerogyia amanda* Stgr.

Figs. 2-4. Damage to fig leaves by larvae. 2, By first-instar larvae; 3, by second-instar larvae; 4, by late-instar larvae.



Figs. 5, 6. *Ocnerogyia amanda* Stgr. 5, Late- instar larva; 6, cocoon.

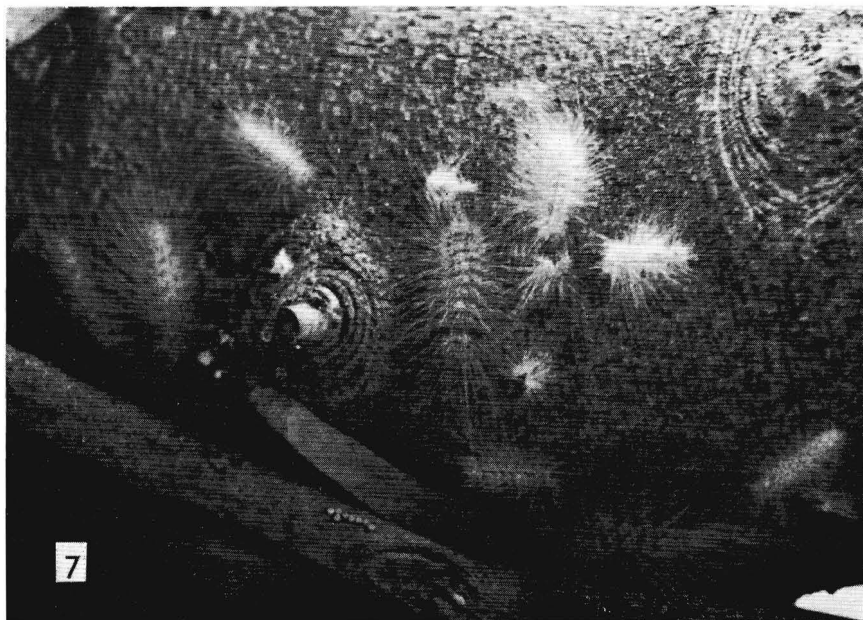


Fig. 7. Congregation of larvae at the base of a trunk.

were observed to feed in the late afternoon during July. It is possible, however, that during the hottest periods of the year feeding is restricted to the hours of darkness, especially on more exposed and unprotected fig trees.

According to Ramachandra (1922), the larvae have six moults. Larval and pupal stages last about 24 days and 8–11 days respectively. Scott (1929) reported somewhat similar results, the egg, larval and pupal stages being 5–6, 21 days and about a week respectively.

The cocoon is spun of rough yellowish-grey silk. The texture is irregular and the pupa is fully visible in its cocoon. Laboratory observations have shown that the larvae do not spin the cocoons on plain surfaces, but only on the sides or on the top of the cage. In nature, they do not occur on green leaves, but can be found on shaded trunks, usually the lower parts, and in dry leaves. Other preferred sites are sheltered parts of garden walls. Usually, congregations of pupae occur in suitable places. The congregation of the pupae is similar to that of the larvae; the old larvae select obviously microclimatically favourable sites for pupation, whereas the younger larvae occur in such places only temporarily and migrate to their feeding sites. The number of pupae observed in one congregation is usually three to five. The distance from a tree is usually not more than about five meters.

The adults can be caught easily in light traps in late evening hours. There is sexual dimorphism, the female being light brown while the male is somewhat smaller in size and with orange hind wings.

The seasonal occurrence of the moth was noted to be continuous throughout the summer. This is considered as unusual among Mesopotamian Lepidoptera, which generally aestivate during summer (Buxton, 1920). It was found during the present investigation that adults occur in the last 10 days of May. The eggs and young larvae were observed during the first half of June and the pupae and adults at the end of June and in the first half of July. Obviously, there are at least two generations and perhaps three a year. Ramachandra (1922) similarly reported the duration of the entire life cycle as being about one and one half months and that there are probably three generations a year.

The lack of aestivation in this moth during the unfavourable hot summer months is obviously permitted by the ability of the larvae to migrate to protected shelters and return to feeding sites at times when conditions are cooler.

O. amanda is very important economically causing serious damage to fig trees. Larvae feed on the leaves and sometimes devour them com-

pletely. Often the greater parts of trees were observed to be practically leafless with only the ribs left and none of the leaf tissues. The shrivelling and dropping of fruits may be also observed, and is caused by a sequence of leaf damage and water-regime to the damaged tree. Other factors may also be responsible for it, such as the exposure of fruits to direct hot sunlight and, in some cases, infestation by a fly, which stunts the growth of fruits and causes their shedding.

According to Buxton (1920), this pest should be fairly easy to keep in check; the Arab growers burn the dead leaves and other rubbish in heaps beneath the trees. This destroys all stages of the insect as well as its hiding places. But this study has shown that such a control method is not sufficient because burning does not destroy all individuals of the pest; the trunks of the trees and garden walls are not touched. More recent methods should provide adequate control of this insect pest. If the population of larvae reaches economic levels, treatment by insecticides must be undertaken during that period of the day when the larvae are present and feeding on the trees—i.e. late afternoon, evening and night.

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