Zeitschrift: Mitteilungen der Schweizerischen Entomologischen Gesellschaft = Bulletin de la Société Entomologique Suisse = Journal of the Swiss Entomological Society

Herausgeber: Schweizerische Entomologische Gesellschaft

Band: 50 (1977)

Heft: 1-4

Artikel: Prophantis smaragdina Butler and Cryptophlebia colivora Meyrick (Lepidoptera) : two important pests on Coffea arabica L. on the island of São Tomé

Autor: Derron, Monique

DOI: https://doi.org/10.5169/seals-401844

MITTEILUNGEN DER SCHWEIZERISCHEN ENTOMOLOGISCHEN GESELLSCHAFT
BULLETIN DE LA SOCIÉTÉ ENTOMOLOGIQUE SUISSE
50, 149-151, 1977

Prophantis smaragdina Butler and Cryptophlebia colivora Meyrick (Lepidoptera): two important pests on Coffea arabica L. on the island of São Tomé

MONIQUE DERRON
Chemin des Hutins 3, CH-1232 Confignon

The two most important pests on *Coffea arabica* L. in São Tomé are the pyralid *Prophantis smaragdina* BUTLER and the tortricid *Cryptophlebia colivora* MEYRICK, the latter being recorded on coffee for the first time. The life cycle and the development of the populations of both insects are described.

In São Tomé the main growing area of *Coffea arabica* L. is found at altitudes from 450 to 950 m. The coffee plant flourishes twice a year: from the middle of March until the middle of May and from the middle of August until the end of September. The two corresponding harvesting periods are from September to November (the more important one) and from March to April.

The most important pests are the pyralid *Prophantis smaragdina* BUTLER = *Thliptoceras octoguttale* FELDER & ROGENHOFER and the tortricid *Cryptophlebia colivora* MEYRICK. Both species attack the coffee berries and can cause together a damage of 80%.

P. smaragdina is known as a pest of *C. arabica* in the Ethiopean region and the islands, whereas *C. colivora* has never before been recorded on coffee. Other species of the genus *Cryptophlebia* are known to attack coffee berries in Uganda and Kenya: *C. batrachopa* MEYRICK and *C. leucotreta* MEYRICK (LE PELLEY, 1968).

LIFE HISTORY

The life history of both insects has been studied in the laboratory, with an average temperature of 24 °C and a relative humidity of 90-100% (table 1).

Tab. 1: Duration of the developmental stages of *Prophantis smaragdina* and *Cryptophlebia colivora*.

Developmental stage	Duration of the stage in days	
	P. smaragdina	C. colivora
egg	5 - 6	5 - 6
larva	15	15
prepupa	3	3
pupa	10	10
preoviposition period	4 - 6	5 - 7

The duration of the life cycle of both insects is about 40 days.

The adult of *P. smaragdina* lays eggs usually singly on green berries near or at the base of the peduncle. It lays eggs on flower buds, too. The larva attacks flower buds, green fruits and rarely young shoots. One larva can destroy 8 to 10 berries. In the laboratory pupation occurs between two leaves. In the field pupae have never been observed.

The adult of *C. colivora* lays eggs on green and ripe berries, in general more than one egg per berry is deposited. The larva attacks well developed green fruits and ripe fruits. One larva can destroy 8 to 10 berries. The pupa is formed in the fruit or between fruits joined together with threads, and often in the splits of the bark of the trunk.

THE DEVELOPMENT OF THE POPULATIONS OF *P. smaragdina* AND *C. colivora*

The development of the populations has been studied in Monte Café (Bemposta) at the altitude of 700 m, with an average annual temperature of 22 °C, a mean relative humidity of 85% and a total annual rainfall of 2200 mm.

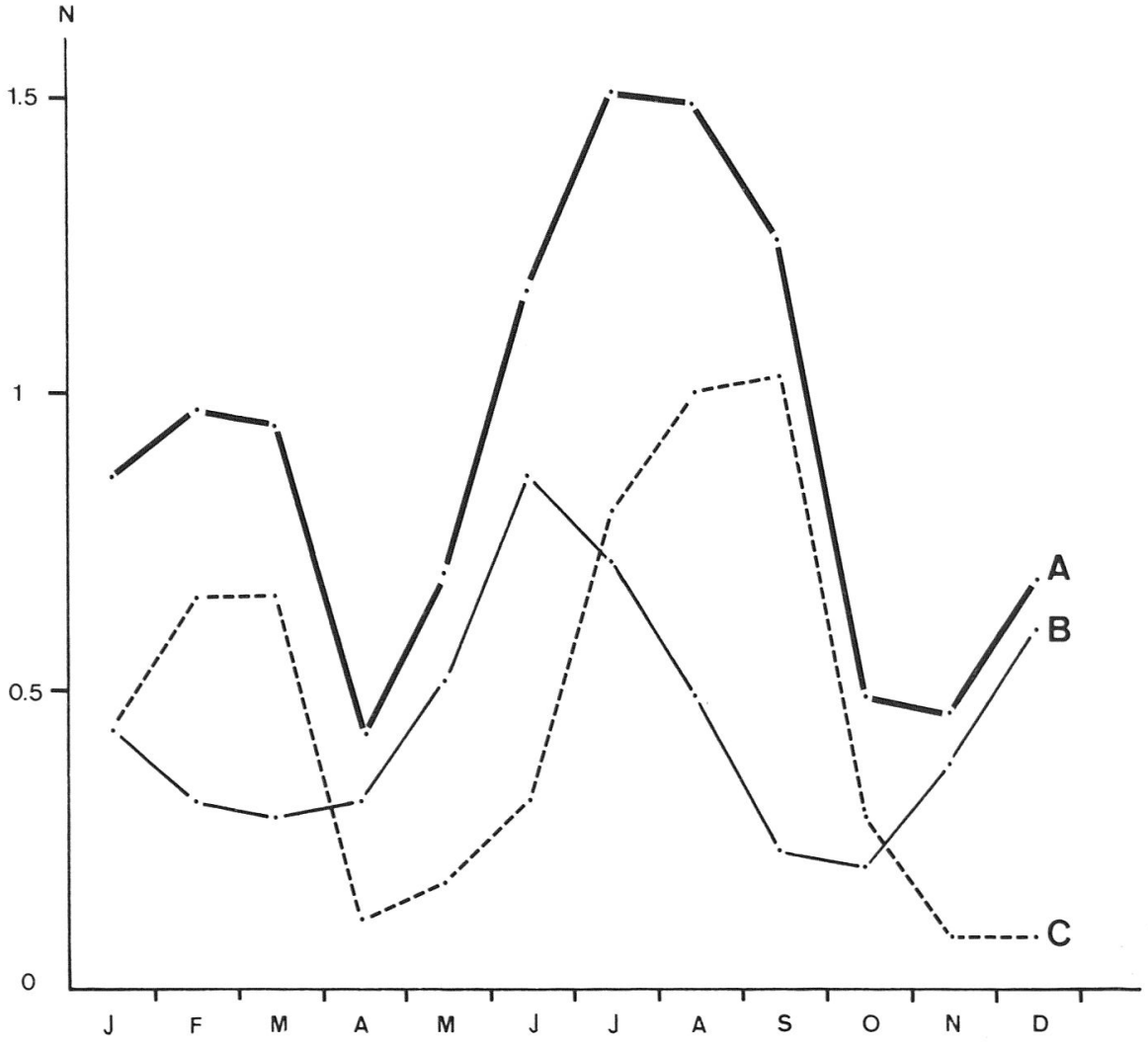

Fig. 1: Number (N) of larvae of *Prophantis smaragdina* (C) and of *Cryptophlebia colivora* (B) per twig (A = B + C).

On an area of 98 plants 4 secondary twigs (carrying each about 40 berries) have been sampled weekly. The number of both *P. smaragdina* and *C. colivora* have been counted (fig. 1).

There are fruits in various stages of development nearly during the whole year. The pests are practically never short of food. However, the development of the populations of *P. smaragdina* and *C. colivora* follows the phenology of the coffee plant. *P. smaragdina* is active in the period between the formation of flower buds and ripening of the fruits. It reaches its maximum period of activity (June) when medium-sized fruits are available. It is not found in ripe fruits. *C. colivora* begins to appear when there are medium-sized fruits and reaches a peak with completely developed green fruits and ripe fruits (September).

NATURAL ENEMIES

The eggs of both species are parasitized by *Trichogrammatoidea* sp. at a rate which can be as high as 90%. The larvae of *P. smaragdina* are parasitized by *Phanerotoma* sp. (Braconidae) and an undetermined tachinid species. An undetermined braconid species parasitizes the larvae of *C. colivora.*

REFERENCES

LE PELLEY, R.H. 1968. *Pests of Coffee.* Longmans, London, 590 pp.