

LARVA, PUPA AND LIFE HISTORY OF THREE SPECIES OF
IBIDIONINI (COLEOPTERA, CERAMBYCINAE)

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ABSTRACT

The immature stages of three species of Ibidionini (*Gnomidolon varians* Gounelle, *Compsa albopicta* Perty and *C. monrosi* (Prosen), collected in Viamão, Pôrto Alegre and Salvador do Sul, all in the state of Rio Grande do Sul, are described. Notes on host plants and habits of the species, are also given.

There is very little information on the larvae, pupae and life history in general of the beetles of this tribe. Duffy, in his monograph (1960:131), reports on twelve neotropical species only, and of many of these all that is known is the host plant.

My colleague Ubirajara R. Martins, of the Departamento de Zoologia, Secretaria de Agricultura, São Paulo, is preparing a monograph of the tribe; the present contribution is part of a series intended to bring bionomical support to a classification of the group.

The larvae, pupae and life history are described of the following species of Ibidionini: *Gnomidolon varians* Gounelle, *Compsa albopicta* Perty and *Compsa monrosi* (Prosen).

MATERIALS AND METHODS

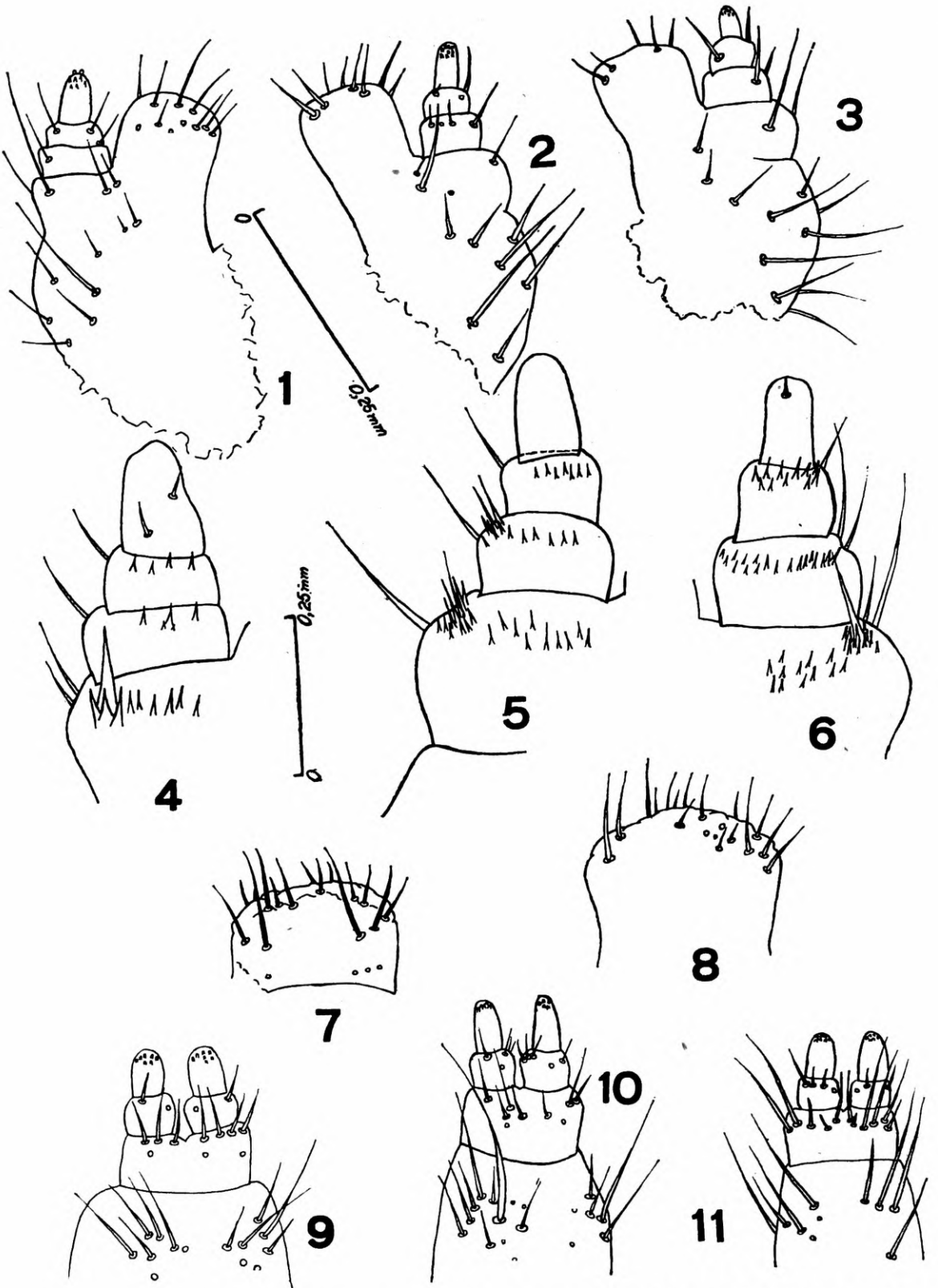
The materials were collected in the state of Rio Grande do Sul, at the following localities: Viamão (Fazenda dos Netinhos), Pôrto Alegre (Môrro do Sabiá) and Salvador do Sul (Colégio Santo Inácio).

Observations and rearing were done at the Museu Anchieta, Pôrto Alegre and the paper prepared in the Departamento de Zoologia da Secretaria da Agricultura, São Paulo.

Parts of the host plant (branches and lianes) were intentionally cut and left in the field, to induce the females to lay the eggs. Later this material, completely dry, was taken to the laboratory. No attack was observed on live parts of host plants. The best period for collecting larvae was from March to September.

A number of fully grown larvae (late instar), were transferred to glass vials, where pupation was observed. The vials were

Museu Anchieta, Pôrto Alegre, Rio Grande do Sul. Work done partly under a grant of the Fundação de Amparo à Pesquisa do Estado de São Paulo.



Gnomidolon varians Goun.: 1, maxilla (ventral view); 4, maxillary palp (dorsal view); 9, labium. *Compsa albopicta* Perty: 2, maxilla (ventral view); 5, maxillary palp (dorsal view); 8, labrum; 10, labium. *Compsa monrosi* (Prosen): 3, maxilla (ventral view); 6, maxillary palp (dorsal view); 7, labrum; 11, labium. (Figures 1-3 and 7-11, and 4-6, respectively, to the same scale.)

placed in the dark and, during the cooler periods, in the oven at 18-25°C. The remaining larvae were left in the host plant for continued observation of behaviour and of the construction of the pupal cells.

The larvae and pupae used for morphological studies were preserved in 70% alcohol after short boiling in water.

Anatomical pieces dissected from these materials were prepared on microscopic slides by the alcoholic process. The pieces, especially mouthparts, are so small that it was not always possible to mount them in a standard position, as can be seen from the illustrations.

Figures were drawn with the aid of an OPL camera lucida and posteriorly corrected in a phase-contrast microscope.

The specimens are deposited in the collections of the Museu Anchieta and Departamento de Zoologia.

Gnomidolon varians Gounelle

(Figs. 1,4,9,16,18,20,25,28,30,32,34-36)

LOCALITY AND HOST PLANT

This species was observed in two lianas, *Pithecoctenium echinatum* (Jacq.) K. Sch. (Bignoniaceae), and another which it was impossible to identify on account of lack of proper herbarium materials, especially flowers. Identification was made by the late Dr. José Correa Gomes Junior, Instituto de Botânica da Secretaria da Agricultura do Estado de São Paulo. Both host plants were found at Viamão (Fazenda dos Netinhos), March, 1965.

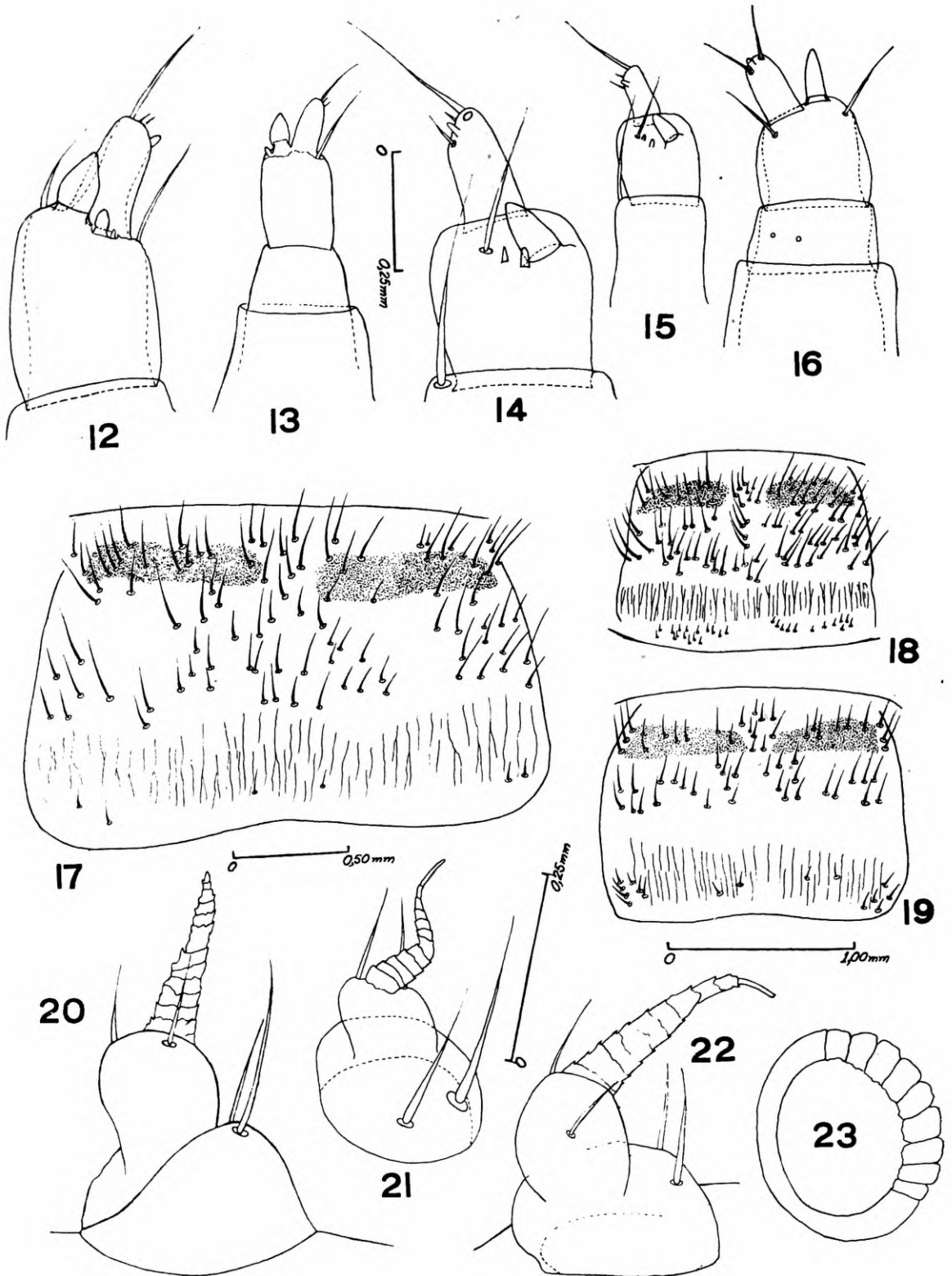
LARVA (figs. 25 and 28)

This is a highly characteristic larva. The present descriptions is based on the last instar.

Length, 12,3 - 19; width, 1,8-2,0 mm.

Head rectangular. Labrum rounded, with long hairs. Clypeus transverse, distinct. Mandibles laterally oblique. Maxilla (fig. 1) with maxillary lobe rounded at apex and with hairs; dorsally on the maxillary lobe, at the level of the palpifer, there are short pointed processes similar to those on the palpifer, and on the first and second segments of the maxillary palpi (fig. 4). There (fig. 4) is a well developed "process of palpifer" (Duffy, 1953:53, fig. a). Mentum rectangular, with long hairs on the anterior portion (fig. 9). One ocellus on each side of head. Supplementary process of the antenna (fig. 16) almost as long as the third antennal segment.

Pronotum rectangular, with two transverse sclerotized areas (fig. 18) on the anterior part; anterior two thirds with many hairs. Posterior part of the pronotum with a finely rugose transverse area, behind which are many short hairs. Propleura with an anterior sclerotized area. Prosternum with hairs. Eusternum rugose. Legs (fig. 20) with segmented unguiculus.



Gnomidolon varians Goun.: 16, antenna; 18, pronotum; 20, leg. *Compsa albopicta* Perty: 14 and 15, antenna; 19, pronotum; 22, leg; 23, spiracle. *Compsa monrosi* (Prosen): 12 and 13, antenna; 17, pronotum; 21, leg. (Figures 12, 13, 15 and 14, 16, 23 and 17, and 18, 19 and 20-22, respectively to the same scale.)

Abdominal segments (observation of more than fifty larvae) always extended, especially from the sixth segment to the apex (fig. 25, 28). Ampullae microgranulate.

PUPA (figs. 30 and 32)

Length 6,8-11,6 mm; width 2-3,3 mm.

Frons finely rugose between the insertion of the antennae, with two hairs on each side, one longer than the other. Antennae with eleven joints. Antennal scape cylindrical, strongly curved inwards. In older pupae the antennal multicarination is visible. Segment III longer than IV and V, which are subequal.

Prothorax elongate, cylindrical, scarcely constricted anteriorly and posteriorly. Pronotum with a transverse row of hairs, irregularly distributed and best seen in younger pupae. Some hairs apparent near the posterior margin of the pronotum. Mesonotum trapezoidal, glabrous. Metanotum smooth.

Second and all posterior tergites with one transverse row of brownish papillae. The number of these papillae varies from 6 to 10. On tergites IV, V and VI there are some other papillae in front of the transverse row. On the seventh tergite there are six papillae: four near the hind margin and two in front of these. The eighth tergite has four papillae in younger pupae and only two in better sclerotized ones.

Femora straight; intermediate pair bidentate at apex; tips of the posterior pair with a long spine externally and a short projection on the inner side. Tibiae straight, as long as the femora.

LIFE HISTORY

The larval galleries, in both host plants, are straight, placed (fig. 34) either just below the bark, or a little deeper. In both cases the frass is compressed in all extension of the gallery by the larva.

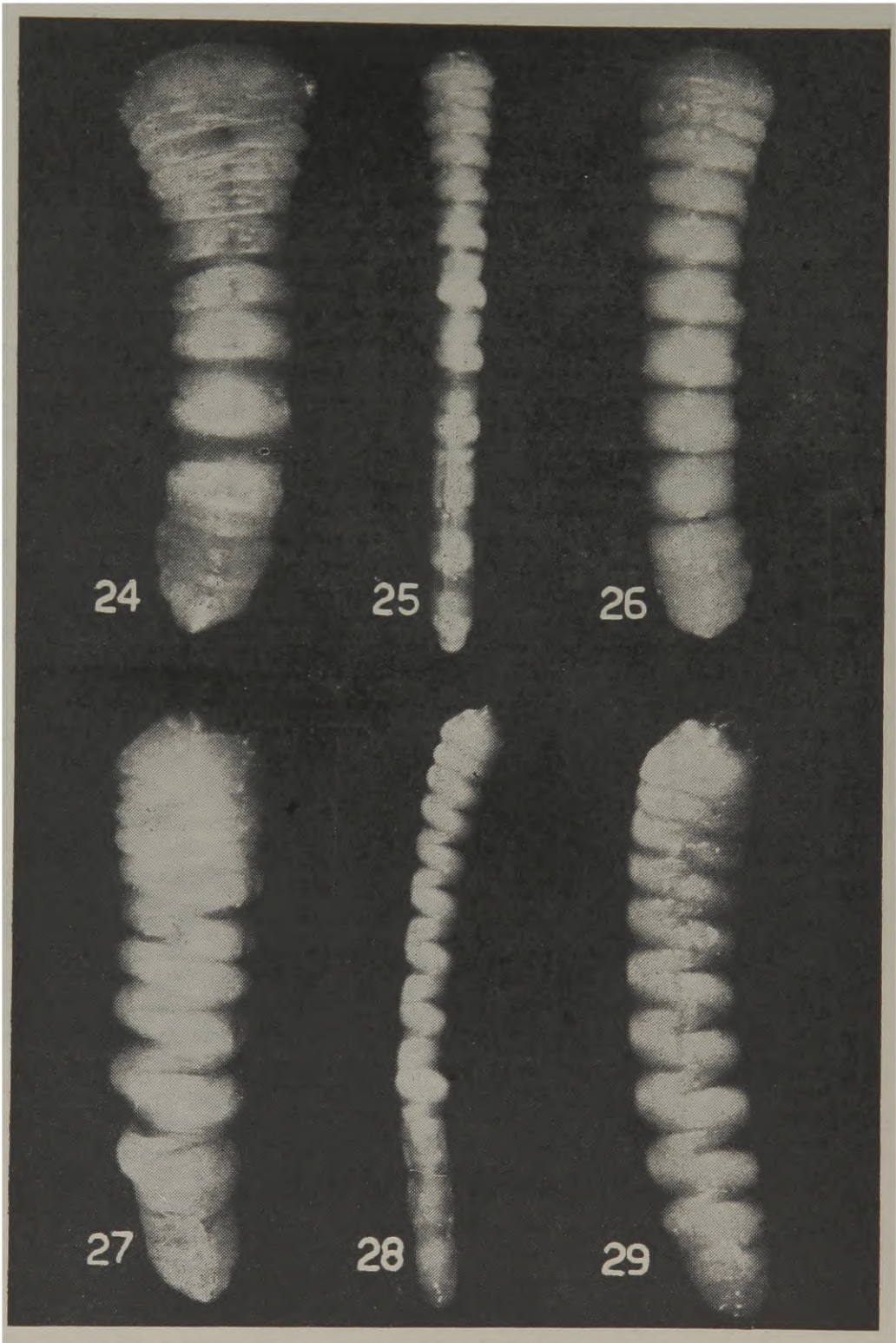
The pupal chamber (figs. 35 and 36) can be excavated two ways: either the larva goes to the interior of the sap-wood, at about 4 mm (fig. 35) or stays immediately under the bark, at about 1-1,5 mm (figs. 35 and 36).

The dimensions of the pupal cells are: length, 14-20 mm; width, 2,2-2,5 mm. Only longitudinal pupal chambers were observed, that is, those in which the length is in the same direction of the vessels.

Before pupation the larva prepares the emergence hole, but only into the sap-wood, never going through the bark. This last portion of the pupal chamber is plugged with strongly compressed frass (fig. 35, central cell).

Larvae of the last instar are rather large, reaching 19 mm; the largest pupa measured only 11,6 mm. It seems that a noticeable reduction in size occurs at pupation.

In Caxias do Sul (Vila Oliva), Rio Grande do Sul, a higher and cooler place, the adults were collected in February, suggesting a longer period of development.



Larvae. *Compsa albopicta* Perty: 24, dorsal view; 27, lateral view. *Gnomidolon varians* Goun.: 25, dorsal view; 28, lateral view. *Compsa monrosi* (Prosen): 26, dorsal view; 29, lateral view.

Compsa albopicta Perty

(Figs. 2,5,8,10,14,15,19,22-14,27,31,33,37,40)

LOCALITY AND HOST PLANT

Larvae of this species were found in two localities: Pôrto Alegre (Môrro do Sabiá) and Viamão (Fazenda dos Netinhos), both in the state of Rio Grande do Sul. At the two places they attack the liane, *Serjania* sp. (Sapindaceae).

The host plant is also attacked by another and similar species of the genus, *Compsa multiguttata* Melzer; this caused some difficulties, until I was able to get one liane attacked exclusively by *C. albopicta*. The following notes are on this material.

LARVA (fig. 24 and 27)

Head rectangular. Labrum (fig. 8) with irregular anterior margin, 10 with hairs. Clypeus transverse, distinct. Maxilla as in fig. 2. Ventral side of palpifer and of segments I and II of the palpi (fig. 5) with acuminate processes, more abundant on the external side of the palpifer and on segment I of the palpi. Maxillary lobe (dorsal view, fig. 5) with acuminate processes as described for the previous species. Mentum and palpi as in fig 10. Supplementary process of antennae half as long (figs. 14 and 15) as the last segment.

Pronotum (fig. 19) as in the preceding species, with posterior hairs more closely grouped on each side of the base. Propleurae with a sclerotized anterior area. Prosternum with short hairs. Eusternum rugose and glabrous. Legs as in fig. 22; unguiculus segmented.

Ampullae microgranulate. Abdominal spiracles (fig. 23) with subcircular peritrema; the air chambers are distinct, nine in the specimen studied.

PUPA (fig. 31 and 33)

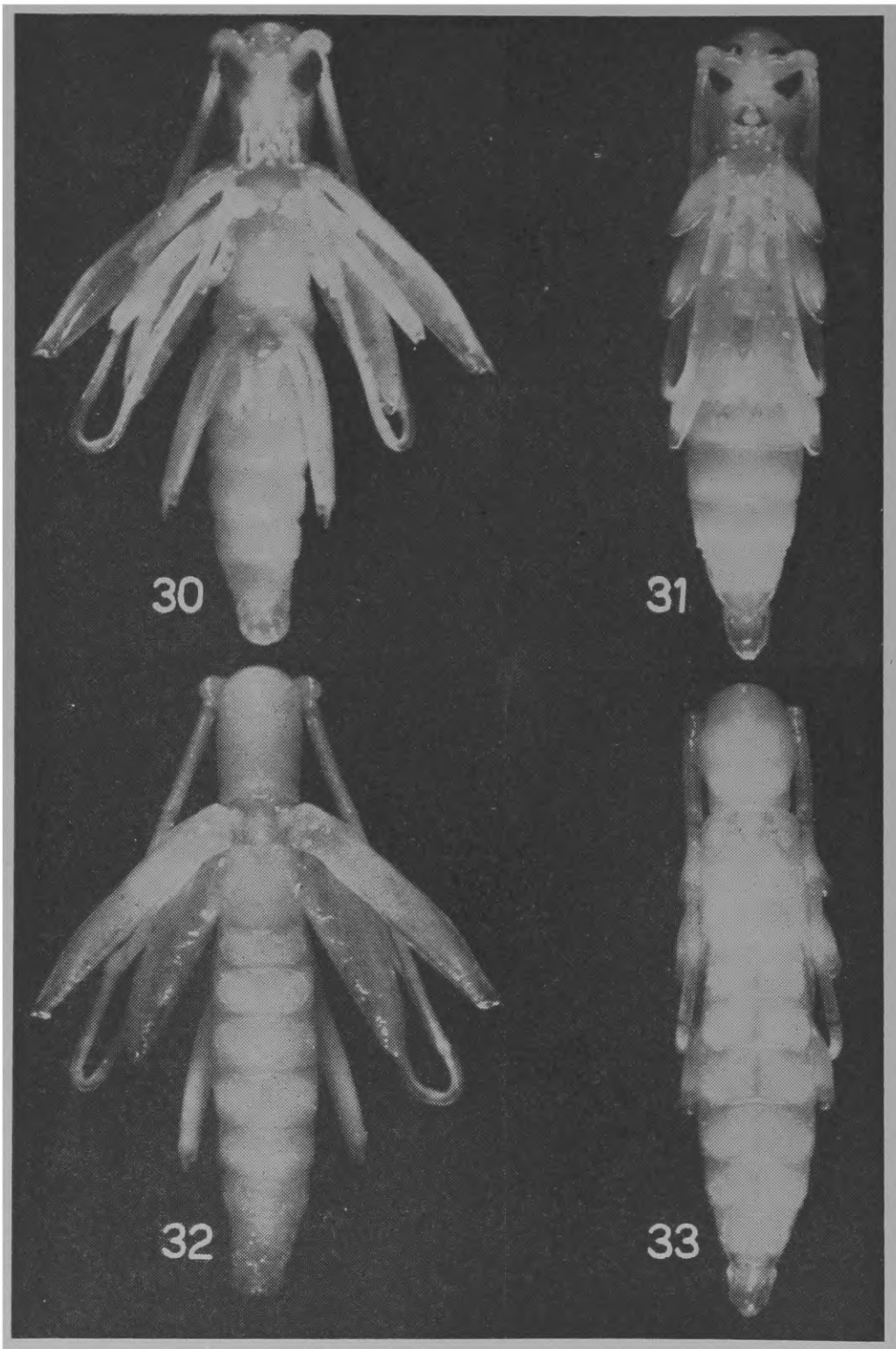
Length, 9,1-10,3 mm; width, 3,3-3,8 mm.

Frons glabrous. Antennal scape cylindrical, short and curved. Posteriorly the antennae reach the hind margin of the first abdominal segment, where they turn forwards.

Prothorax cylindrical, scarcely constricted anteriorly and posteriorly. Pronotum with a row of short hairs near the middle and on each side of base. Metanotum smooth.

The abdominal papillae are abundant and not disposed in rows; except on the second tergite, where they are transversely organized; the posterior ones (40x) are better developed and recurved.

Femora pedunculate and clavate, short, unarmed at the tips.



Pupae. *Gnomidolon varians* Goun.: 30, ventral view; 32, dorsal view.
Compsa albopicta Perty: 31, ventral view; 33, dorsal view.

LIFE HISTORY

Well developed larvae were found from August to February. The emergence of adults occurred between September and February. These data show a wide emergence period and probably different oviposition periods. The host plant was completely dry.

As in the preceding species, the larval galleries are straight (fig. 37) but the frass is more densely compressed. The host plant is constituted by several vascular bundles (fig. 37); the galleries were located either under the bark or between these bundles. The galleries are 2-4 mm in width.

The large number of larvae living in a short length of the host plant hindered observation of the behavior in building the pupal chamber. The chamber is longitudinal and always in the vascular bundle. As in the preceding species, the emergence hole ends under the bark and is plugged with frass densely compressed. Width of the pupal chamber, 2-4 mm.

***Compsa monrosi* (Prosen)**

(Figs. 3,6,7,11,13,17,21,26,28,38,39)

LOCALITY AND HOST PLANT

The larvae were found in two host plants: *Pithecoctenium echinatum* (Jacq.) K. Sch., (Bignoniaceae) and *Acacia decurrens* Willd. (Leguminosae) respectively from Viamão (Fazenda dos Netinhos), in October 1964 and March 1965, and Salvador do Sul (Colégio Santo Inácio), in November 1965.

LARVA (fig. 26 and 29)

The larva of *Compsa monrosi* is extremely similar to that of *C. albopicta*, described above, this only differential characters are given here.

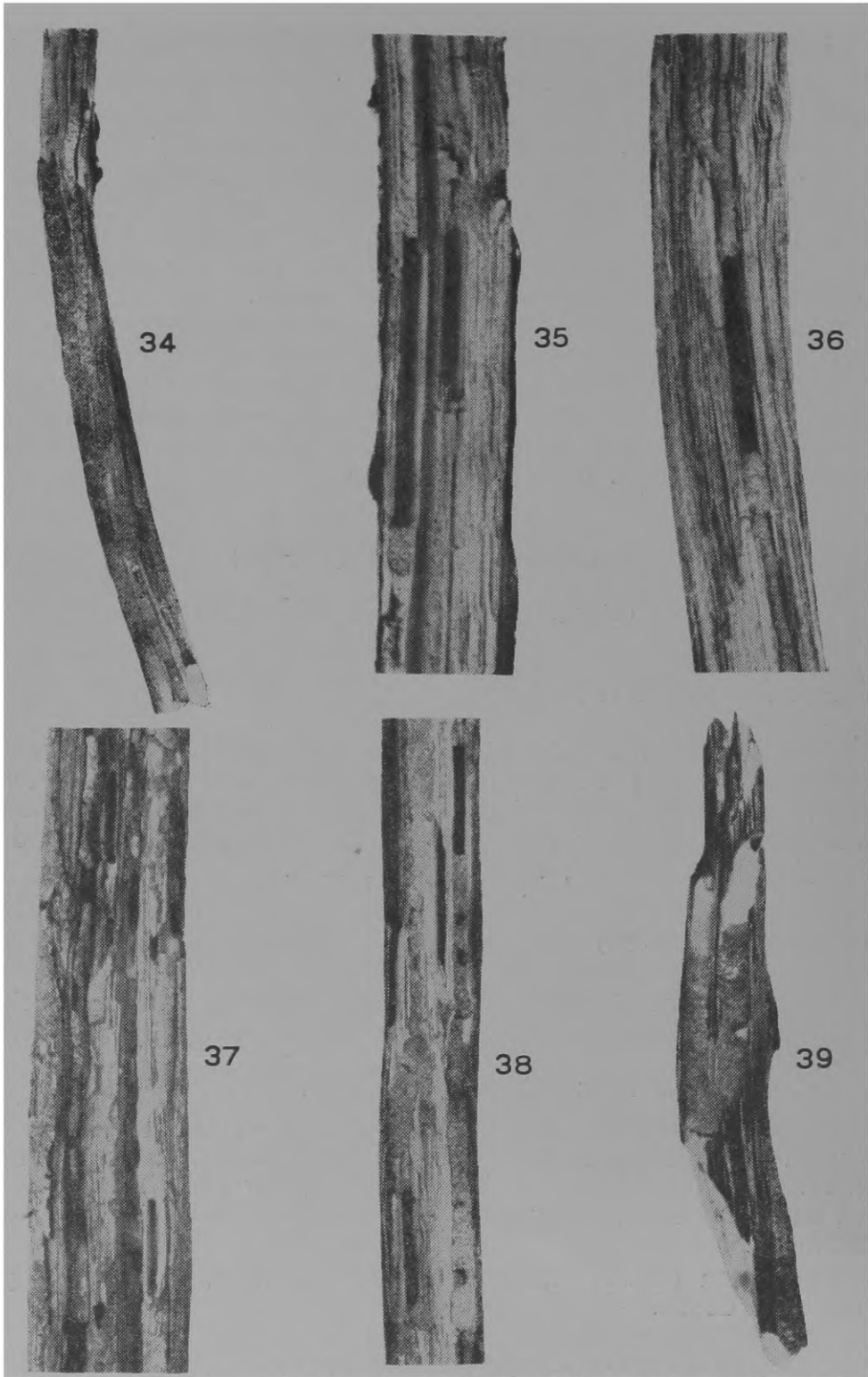
Length, 7-8,8 mm; width, 1,8-2,1 mm.

Processes present on the palpifer and on the maxillary palpi (fig. 6). Maxilla as in fig. 3. Labrum as in fig. 7. Labium as in fig. 11. Antenna similar to that of *albopicta*; the differences apparent in the present figures are due to different positioning of the specimens.

Pronotum (fig. 17) narrower and with hairs. Abdominal pubescence less dense.

PUPA

As in *albopicta*, but with fewer papillae on the tergites. On the eighth tergite there are, besides sparse papillae, about eight others in a transverse row, curved anteriorly near the hind margin.



Larval galleries and pupal chambers. *Gnomidolon varians* Goun.: 34-36.
Compsa albopicta Perty: 37. *Compsa monrosi* (Prosen): 38-39. ,

LIFE HISTORY

The larva excavates straight subcortical galleries 2-4 mm in width and with frass well compressed in all the length (fig. 38). In *Accacia decurrens* the pupal chamber is well defined (fig. 39). The larva goes inside the hard wood, about 2-3 mm under the level of the galleries, in reverse direction from that of the gallery. The pupal chamber is 11 mm long and 2,3 mm wide.

The emergence hole does not reach the bark and is strongly plugged with frass. The hole is 2,5 x 2 mm.

The larva studied developed until October and emergence of the adult was seen between November and December.

In *Acacia decurrens* the females of *Compsa monrosi* laid eggs on the branches previously cut by two species of *Oncideres* (Lamiinae): *O. impluviata* and *O. ocularis*.

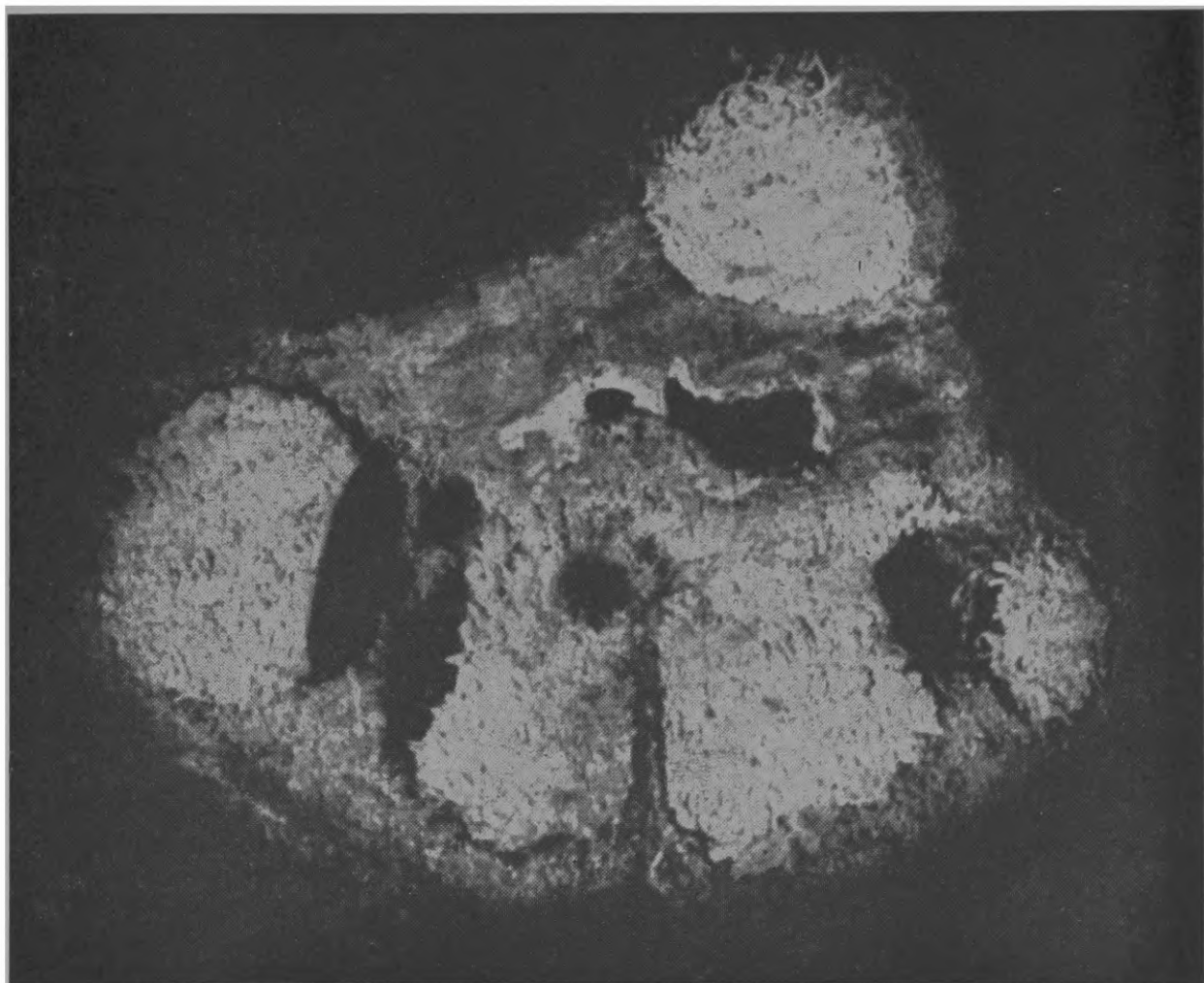


Fig. 40. Transverse section of *Serjania* sp. showing pupal chambers of *Compsa albopicta* Perty.

In *Pithecoctenium echinatum*, *Compsa monrosi* was observed with *Gnomidolon varians*. This last species developed a heavy attack, which, to a certain point, impaired the observations on *Compsa*.

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