TABLE 1. STATUS OF WESTERN CHERRY FRUIT FLY (WCFF) PUPARIA AND
PACHYCREPOIDEUS VINDEMIAE (PV) RECOVERED

<table>
<thead>
<tr>
<th>Category of puparia and contents</th>
<th>Absorbent material^</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Towels</td>
<td>Sand</td>
<td></td>
</tr>
<tr>
<td>WCFF emerged from puparia</td>
<td>12</td>
<td>2492</td>
<td></td>
</tr>
<tr>
<td>Parasite (PV) exit holes in puparia</td>
<td>1103</td>
<td>1465</td>
<td></td>
</tr>
<tr>
<td>PV pupal cases</td>
<td>1150^o</td>
<td>1475</td>
<td></td>
</tr>
<tr>
<td>PV adult</td>
<td>48</td>
<td>29</td>
<td></td>
</tr>
<tr>
<td>WCFF pupae</td>
<td>0</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Intact normal puparia</td>
<td>6384</td>
<td>3696</td>
<td></td>
</tr>
<tr>
<td>PV pupae</td>
<td>155</td>
<td>118</td>
<td></td>
</tr>
<tr>
<td>PV adult</td>
<td>2846</td>
<td>1266</td>
<td></td>
</tr>
<tr>
<td>WCFF pupae</td>
<td>3</td>
<td>247</td>
<td></td>
</tr>
<tr>
<td>Abnormal puparia</td>
<td>515</td>
<td>137</td>
<td></td>
</tr>
<tr>
<td>Total puparia recovered</td>
<td>8014</td>
<td>7790</td>
<td></td>
</tr>
</tbody>
</table>

^Number of WCFF or parasites examined.
^Excess numbers within the intact normal puparia and exit holes in puparia categories are the result of super parasitization.

REFERENCES CITED


BEHAVIORAL OBSERVATIONS OF THE WALKING STICK,
ANISOMORPHA BUPRESTOIDES
(PHASMATOIDEA: PHASMATIDAE)

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I observed an aggregation of walking sticks (Phasmatodea; Phasmatidae) identified as Anisomorpha buprestoides (Stoll) (Caudell 1903, pp. 880–882) 3 June to 24 June, 1985 in Metairie, Jefferson Parish, La. Twenty-three walking sticks were removed and preserved June 6–9, 1985, and no more than seven (4 males and 3 females) were observed subsequently, hence the maximum size of the aggregation was at least 30. The aggregation was within the shelter of a section of window shutter on only one side of a large window and was observed nightly from just before sundown until 1:00 A.M. until 16 June and intermittently thereafter with spot checks during daylight.

Walking sticks consistently exited from the interior of the shutter within 20-25 minutes after sunset. The usual behavior was for solitary males to appear first, remain
on the outside of the shutter for a few minutes before re-entering the shelter. After a few minutes had elapsed, females appeared with males riding on their backs. On June 8, 1985, four coupled pairs were observed and two observations were made wherein males of different pairs exhibited insertion of the penis (see Sivinski 1978, 1980 for terminology re. what constitutes mating, coupling, and pairing). Time span for intromission was not recorded. Clark (1974) indicated that matings lasting 3 weeks for *A. buprestoides* were observed.

Forays to the ground were often made by the coupled pairs. On June 15, a coupled pair travelled to the ground from the shutter shelter and stopped atop a large piece of pine bark. With the male still in place, she wiggled her arched abdomen high into the air 3-4 times, and then appeared to be laying eggs in the interstices between the pieces of bark in the garden. A second female also repeated this behavior on another night. Hetrick (1949 a,b) observed and figured a female *A. buprestoides* laying its eggs in a sand pit excavated by the female. Since the garden of my study area was completely filled with pine bark to an average depth of 8-12 cm, it was impossible for the two females I observed to excavate pits.

A sample of 21 walking sticks was permanently removed and preserved June 6-8, 1980 yielding 11 females and 10 males; the male/female ratio of 0.587 is similar to the 0.612 ratio for *A. buprestoides* reported by Clark (1974). Average total length for females was 70.3 mm (65-75 mm) and for males 41.3 mm (35-49 mm).

It is generally agreed that walking sticks are herbivorous and generally leaf feeders (Borror and DeLong 1955, Ross 1982). Some species are monophagous; others are polyphagous (Bedford, 1978). On two occasions I observed female *A. buprestoides* actively feeding on the leaves of crepe myrtle (*Lagerstroemia indica*) and roses (*Rosaceae*). Holly (*Ilex aquifolium*) and azaleas (*Ericaceae*) were much closer to the shelter but were not eaten. In both instances, I was observing coupled pairs, but only the female fed. Male members of the coupled pairs were adjacent to leaves but did not feed. Although solitary males made forays 2-3 meters away from the shelter, none were observed feeding.

No male-female or female-female aggressive behavior was observed. Solitary males approaching coupled male-female pairs simply withdrew. However, on two separate occasions, male-male aggressive behavior was noted. The aggressive behavior appeared to be the result of chance encounters on a window ledge. In both instances, the fighting males fell to the ground, separated and then went separate ways. My observations of male-male fighting were not as complete and detailed as those of Sivinski (1978) on *Diapheromera vetieae* and *D. covilleae*.

**References Cited**


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ALTERNATE ORTHOPTERAN HOSTS
(ANUROGRYLLUS SP.)
OF EUPHASIOPTERYX DEPLETA
(DIPTERA: TACHINIDAE)

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There is a growing interest in the potential of using the tachinid Euphasiopteryx depleta (Wied.) as a natural enemy for introduction into the U.S. to control mole crickets of the genus Scapteriscus (Orthoptera: Gryllotalpidae). Adult E. depleta are attracted to the synthesized calling songs of mole crickets (Fowler & Kochalka 1985), and can be successfully reared from mole crickets under laboratory conditions (Fowler & Garcia 1986), as well as from field-collected S. acletus Rehn & Hebard, S. vicinus Scudder and S. abbreviatus Scudder (Fowler & Garcia 1987). However, E. depleta can also be captured at synthesized mole cricket calls (Walker 1982), even during those months when adult mole crickets are not calling. This indicates that E. depleta must also parasitize other nocturnally active orthopteran species (Fowler & Garcia 1987).

During the course of our collections and laboratory rearings of gryllids, we have recovered E. depleta from a species of Anurogryllus. Four E. depleta were obtained from 564 crickets collected in Ipeuna, state of Sao Paulo, Brazil (26 Feb. 1986, and 15-16 August 1986). Additionally, we have successfully reared E. depleta from Anurogryllus sp. after placing larvae under the crickets' pronota. As E. depleta has been reared from S. abbreviatus, which does not call, it is possible that song is not a prerequisite for host location. However, we feel confident that the songs of Anurogryllus are attractive to E. depleta, based upon preliminary tests with taped Anurogryllus songs in the field.

We have also been able to rear E. depleta in the laboratory on nymphs and adults of an undescribed species of Gryllus, using the same technique. This suggests that laboratory colonies could be maintained on Gryllus for subsequent field release. We have yet to find a field-collected Gryllus (>1,000 assayed) to be parasitized by E. depleta. Our collected material is maintained in our private collections.

ACKNOWLEDGEMENTS

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