Seasonal Flight Patterns of Hemiptera in a North Carolina Black Walnut Plantation. 6. Tingidae and Aradidae

J. E. McPherson  
Southern Illinois University

B. C. Weber  
Southern Illinois University

Follow this and additional works at: https://scholar.valpo.edu/tgle

Part of the Entomology Commons

Recommended Citation
Available at: https://scholar.valpo.edu/tgle/vol14/iss3/2
SEASONAL FLIGHT PATTERNS OF HEMIPTERA IN A NORTH CAROLINA BLACK WALNUT PLANTATION.
6. TINGIDAE AND ARADIDAE

J. E. McPherson1 and B. C. Weber 2

ABSTRACT

The seasonal flight patterns of 11 species of Tingidae and six species of Aradidae collected in window traps in a North Carolina black walnut plantation are described. Flying height distributions and seasonal flight activities of Corythucha ciliata (Say) and Gargaphia solani Heidemann are considered in detail.

RESULTS AND DISCUSSION

Eleven tingid and six aradid species were collected during the two years of this study; numbers of specimens collected for all taxa ranged from one to 91 (Table I).

Most of the species were collected in numbers too low to permit conclusions about seasonal flight patterns. However, Corythucha ciliata (Say) and Gargaphia solani Heidemann were collected in sufficient numbers (Table I) to allow a more detailed discussion of flying height distributions and seasonal flight activities.

C. ciliata occurs primarily on sycamore (e.g., Bailey 1951, Barber and Weiss 1922, Blatchley 1926, Drake 1919, Froeschner 1944, Horn et al. 1979, Morrill 1903, Wade 1917) but has also been collected from cypress (Froeschner 1944), ash, hickory, mulberry (Blatchley 1926, Drake 1919) and leather-leaf (Bailey 1951). It overwinters as adults (e.g., Bailey 1951, Barber and Weiss 1922, Froeschner 1944, Wade 1917); in central New England, overwintering adults may be found in abundance under loose tree bark in October and may not emerge until early June (Bailey 1951). Barber and Weiss (1922) felt this species probably has “two broods” (is bivoltine?) in New Jersey.

In the present study, C. ciliata adults were found from early April to early September (Table I). They were collected at all seven flying heights with over 55% captured at 3-5 m (Fig. 1).

1Department of Zoology, Southern Illinois University, Carbondale, IL 62901.
2USDA Forest Service, North Central Forest Experiment Station, Forestry Sciences Laboratory, Carbondale, IL 62901.
Table 1. Seasonal flight activity of Tingidae and Aradidae during 1977-78 in a North Carolina black walnut plantation.

<table>
<thead>
<tr>
<th>Taxon</th>
<th>No. Collected</th>
<th>Collection Height (m)</th>
<th>Range of Collection Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TINGIDAE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corythucha ciliata (Say)</td>
<td>70</td>
<td>4.27±0.21</td>
<td>1-7 1 April–2 Sept.</td>
</tr>
<tr>
<td>Corythucha cydoniae (Fitch)</td>
<td>1</td>
<td>3.00</td>
<td>— 23 June</td>
</tr>
<tr>
<td>Corythucha juglandis (Fitch)</td>
<td>26</td>
<td>4.62±0.35</td>
<td>1-7 1 April–13 Oct.</td>
</tr>
<tr>
<td>Corythucha marmorata (Uhler)</td>
<td>3</td>
<td>3.67±1.45</td>
<td>1-6 13 May–12 Aug.</td>
</tr>
<tr>
<td>Corythucha pallida Osborn &amp; Drake</td>
<td>2</td>
<td>6.50±0.50</td>
<td>6-7 22 April</td>
</tr>
<tr>
<td>Gargaphia solani Heidemann</td>
<td>91</td>
<td>1.85±0.16</td>
<td>1-7 2 June–13 Oct.</td>
</tr>
<tr>
<td>Gargaphia tiliae (Walsh)</td>
<td>1</td>
<td>6.00</td>
<td>— 29 July</td>
</tr>
<tr>
<td>Leptothypha costata Parshley</td>
<td>8</td>
<td>4.75±0.25</td>
<td>4-6 3 June–22 July</td>
</tr>
<tr>
<td>Melanorrhopalina infuscata Parshley</td>
<td>1</td>
<td>4.00</td>
<td>— 30 June</td>
</tr>
<tr>
<td><strong>ARADIDAE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aradus cinnamomeus Parshley</td>
<td>3</td>
<td>3.67±0.67</td>
<td>3-5 22 Sept.–23 Sept.</td>
</tr>
<tr>
<td>Aradus crenatus Say</td>
<td>1</td>
<td>1.00</td>
<td>— 29 April</td>
</tr>
<tr>
<td>Aradus niger Stål</td>
<td>1</td>
<td>6.00</td>
<td>— 29 Sept.</td>
</tr>
<tr>
<td>Mezira granulata (Say)</td>
<td>30</td>
<td>4.07±0.33</td>
<td>1-7 22 April–16 Sept.</td>
</tr>
<tr>
<td>Mezira lobata (Say)</td>
<td>1</td>
<td>4.00</td>
<td>— 20 May</td>
</tr>
<tr>
<td>Neuroctenus sp. (^a)</td>
<td>2</td>
<td>3.50±1.50</td>
<td>2-5 20 May–2 June</td>
</tr>
</tbody>
</table>

\(^a\)Genus is currently being revised (Froeschner, pers. comm.).

This species overwintered as adults and was apparently bivoltine (Fig. 3). Adults began to emerge from overwintering sites in early April and were present to mid-May. Their adult offspring (summer generation) occurred from late June to late July or early August. Adults of the second (overwintering) generation were present in September (and possibly in August).

*G. solani* occurs primarily on eggplant (e.g., Bailey 1951, Fink 1915, Froeschner 1944, Horn et al. 1979) but has also been collected from horse-nettle (Blatchley 1926, Fink 1915, Froeschner 1944, Somes 1916), white horse-nettle (Froeschner 1944) and sunflower (Horn et al. 1979). It overwinters as adults (Bailey 1951, Fink 1915, Froeschner 1944). Fink (1915) stated that *G. solani* may have 7-8 generations per season in the vicinity of Norfolk, Virginia, with apparently six generations on eggplant and the remainder on horse-nettle.

In the present study, *G. solani* adults were found from early June to mid-October (Table 1). They were collected at all seven flying heights with almost 70% collected at 1 m (Fig. 2). This species apparently overwintered as adults but the number of generations per year is unclear from the available data (Fig. 4). It appears that during spring (i.e., April and May), adults were either not flying or were not in the plantation. However, adults were quite active from early July to the end of the season.


ACKNOWLEDGMENTS

We wish to thank Dr. R. C. Froeschner, National Museum of Natural History, Washington, D.C., for confirming our identifications of these tingids and aradids. We also wish to acknowledge Mr. D. Brenneman and the staff of the North Carolina Division of Forestry, Morganton, for their help in collecting data and maintaining the window traps. This research was partially supported by the USDA Forest Service, North Central Forest Experiment Station.

LITERATURE CITED


