Notes on two Fulgoroidea (Hemiptera) species associated with black spruce

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January 25, 2014
Contents

Cixiidae
  *Cixius nervosus*
  *Cixius meridionalis*

Achilidae
  *Cixidia pallida*
  *Cixidia sp.*
Cixiidae

- Nymphs subterranean, feeding on roots of vascular plants or on fungi; adults usually on woody plants.
- Economically important as vectors of phytoplasmas.
- Sometimes associated with ants.
- Two species in Alaska
  - *Cixius nervosus*
  - *Cixius meridionalis*
Cixius nervosus (Linnaeus, 1758)

- Widespread: North America, Europe, Asia, and northern Africa.
- Adults polyphagous on woody shrubs including *Alnus, Betula, Salix*, and others; nymphal host(s) unknown.

\(^1\)from http://www.naturspaziergang.de/Zikaden/Zikadenfotos/Cixius_nervosus_01_11-07-11.jpg
Widespread in northern Nearctic: Arctic Circle in Alaska south to Montana and east to Labrador.

“No biological data are available” (Kramer, 1951).
Cixius meridionalis

Objectives

- Host plants?
- Life history?
<table>
<thead>
<tr>
<th></th>
<th>June</th>
<th>July</th>
<th>August</th>
<th>September</th>
</tr>
</thead>
<tbody>
<tr>
<td>adult female $(n = 30)$</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>adult male $(n = 10)$</td>
<td></td>
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<td></td>
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<tr>
<td>$5^{th}$ instar $(n = 88)$</td>
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<tr>
<td>$4^{th}$ instar $(n = 92)$</td>
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<td>$3^{rd}$ instar $(n = 53)$</td>
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<tr>
<td>$2^{nd}$ instar $(n = 11)$</td>
<td></td>
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<tr>
<td>$1^{st}$ instar $(n = 3)$</td>
<td></td>
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<tr>
<td>egg $(n = 1)$</td>
<td></td>
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</tbody>
</table>
Cixius meridionalis

Findings

- Nymphal host plants include *Picea mariana*, *Empetrum nigrum*, *Vaccinium vitis-idaea*, and *Chamaedaphne calyculata*.
- Multi-year life history.
Achilidae

- Nymphs and adults feed on fungi, usually under bark of logs.
- At least two species in Alaska
  - *Cixidia pallida*
  - *Cixidia sp.*
One specimen from birch bark near Fairbanks, 1975.

Biology unkown.

²from http://ag.udel.edu/enwc/research/planthoppers/families/species/images/Figure2Cixidia2.jpg
Cixidia sp.

- Undescribed species from Interior Alaska and Kenai Peninsula.
- Nymphs in rotting black spruce logs.