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

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Cixiidae
- *Cixius nervosus*
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Achilidae
- *Cixidia pallida*
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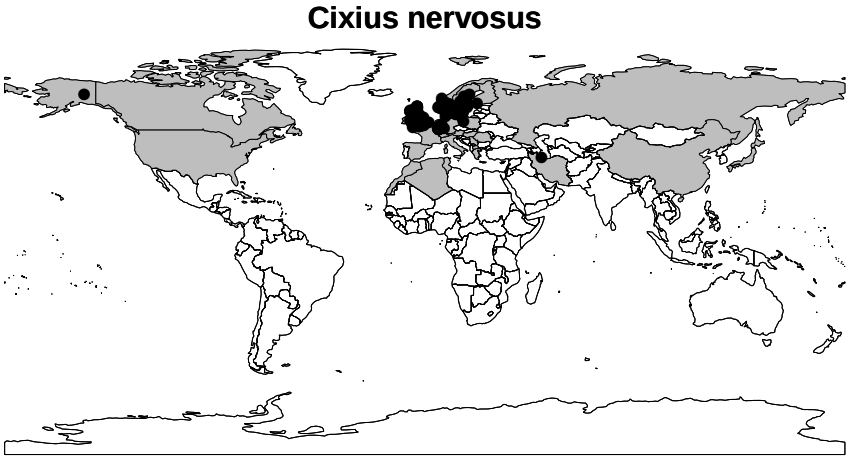
Cixiidae

- 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)

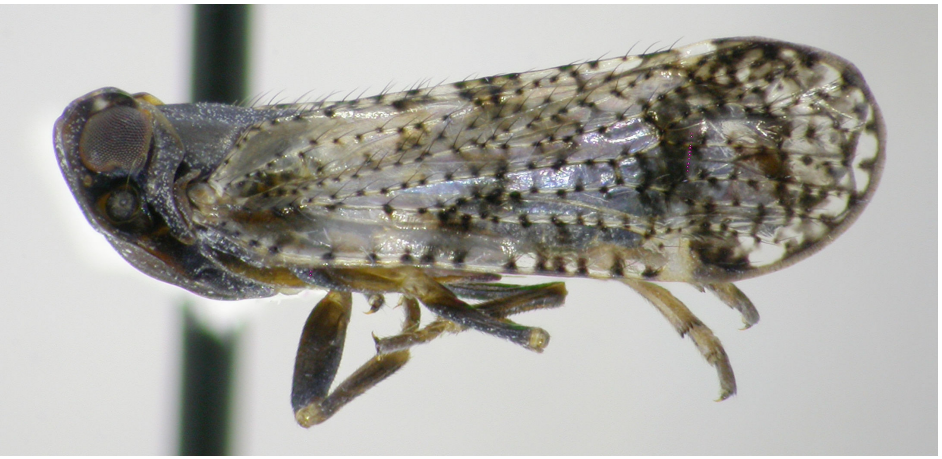
[1]

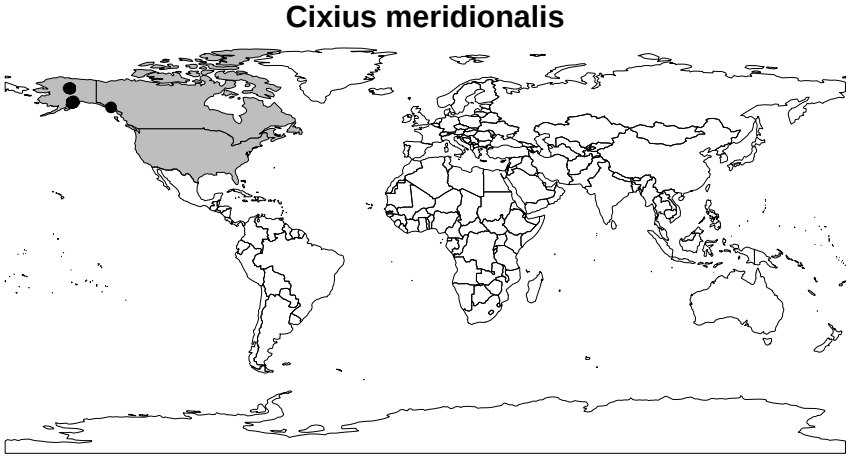


- Widespread: North America, Europe, Asia, and northern Africa.
- Adults polyphagous on woody shrubs including *Alnus*, *Betula*, *Salix*, and others; nymphal host(s) unknown.

[1] from `http://www.naturspaziergang.de/Zikaden/Zikadenfotos/Cixius_nervosus_01_11-07-11.jpg`

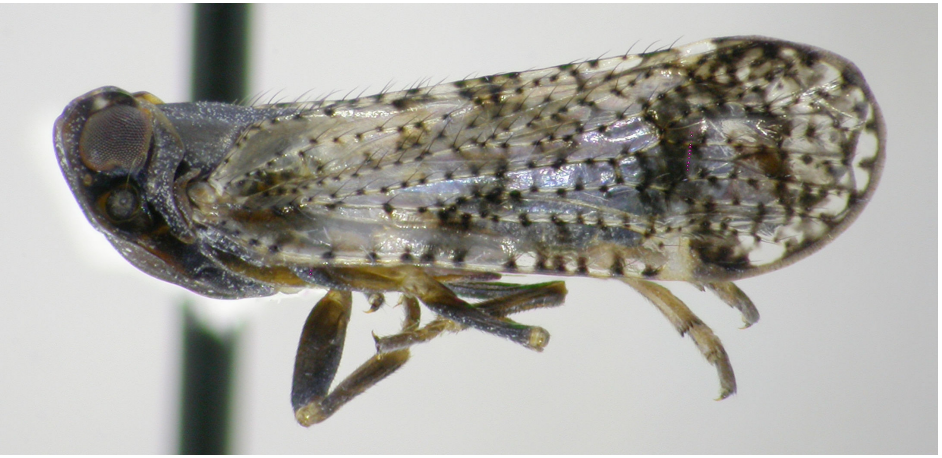
Cixius meridionalis Beirne, 1950





- Widespread in northern Nearctic: Arctic Circle in Alaska south to Montana and east to Labrador.
- "No biological data are available" (Kramer, 1951).

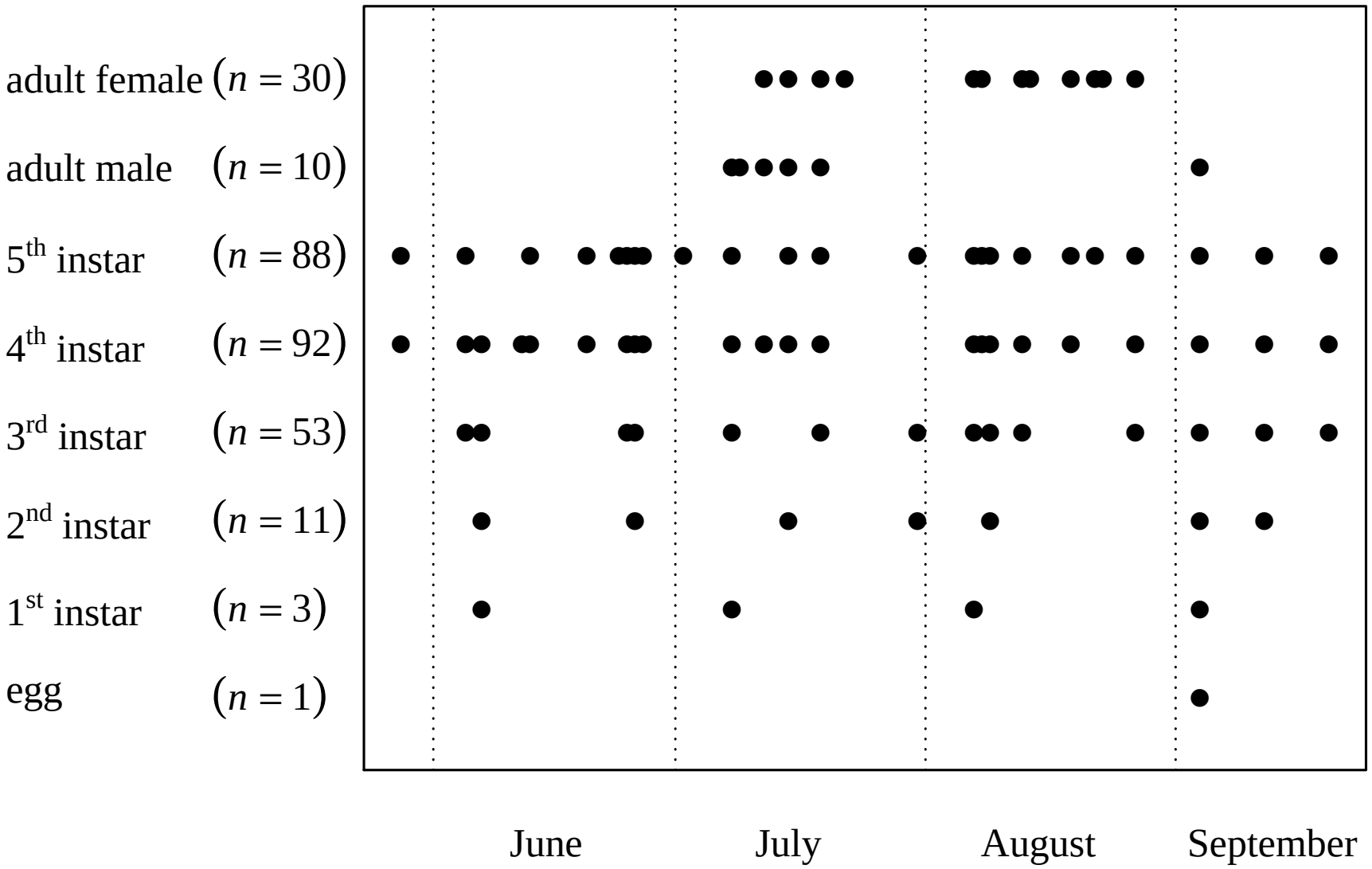
Cixius meridionalis



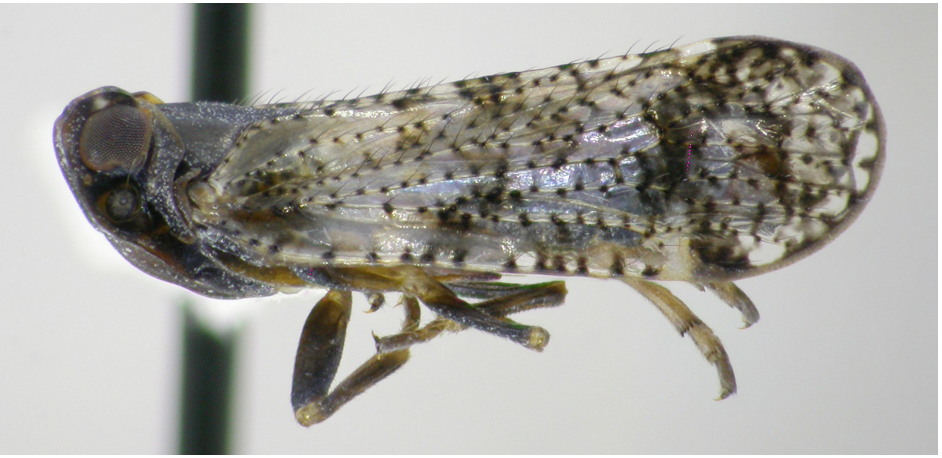
Objectives

- Host plants?
- Life history?

water
(precip)
Nikon


adult female $(n = 30)$
adult male $(n = 10)$
5th instar $(n = 88)$
4th instar $(n = 92)$
3rd instar $(n = 53)$
2nd instar $(n = 11)$
1st instar $(n = 3)$
egg $(n = 1)$
June
July
August
September

Cixius meridionalis



Findings

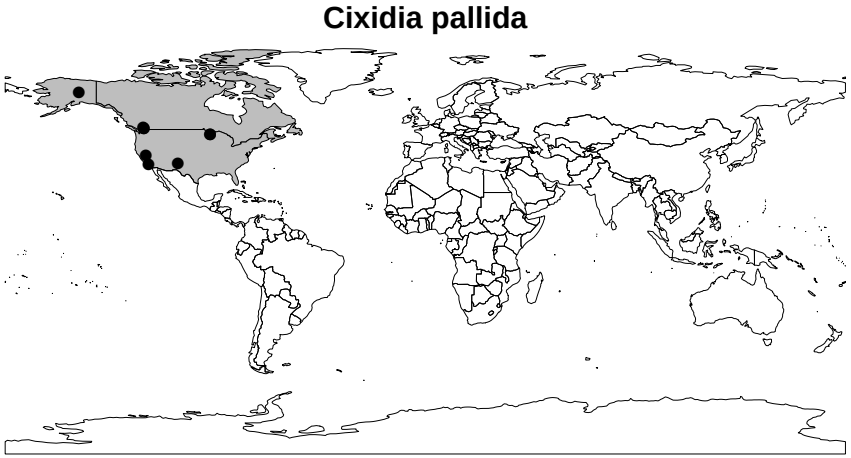
- Nymphal host plants include *Picea mariana*, *Empetrum nigrum*, *Vaccinium vitis-idaea*, and *Chamaedaphne calyculata*.
- Multi-year life history.
- Occasional association with *Myrmica alaskensis* Wheeler, 1917.

Achilidae

- Nymphs and adults feed on fungi, usually under bark of logs.
- At least two species in Alaska
  - *Cixidia pallida*
  - *Cixidia sp.*

Cixidia pallida (Say, 1830)

[2]

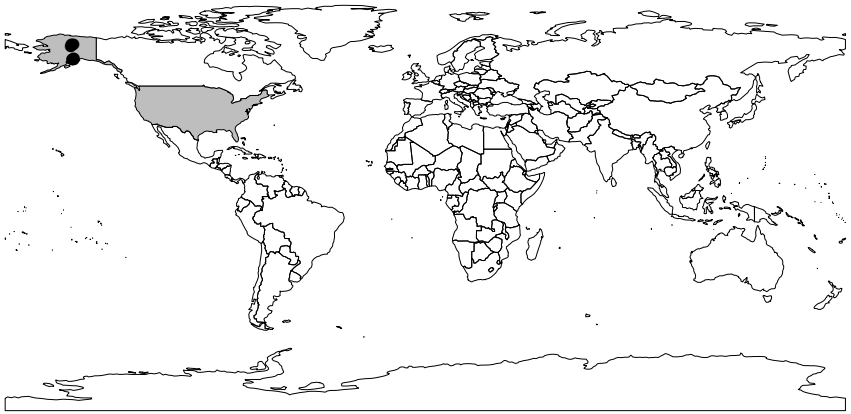


- One specimen from birch bark near Fairbanks, 1975.
- Biology unkown.

[2] from `http://ag.udel.edu/enwc/research/planthoppers/families/species/images/Figure2Cixidia2.jpg`

Cixidia sp.

Cixidia sp.



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

Questions?