

Forestiera Lace Bugs Guild

(No common names)

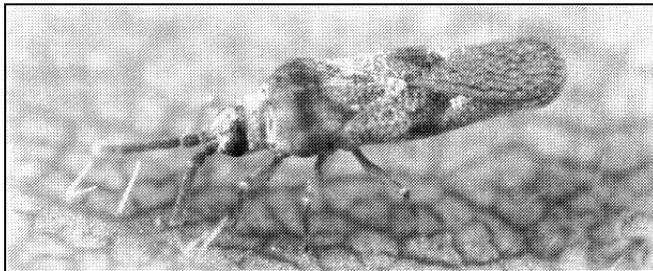
Leptoypha elliptica
Leptoypha ilicis

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DESCRIPTION

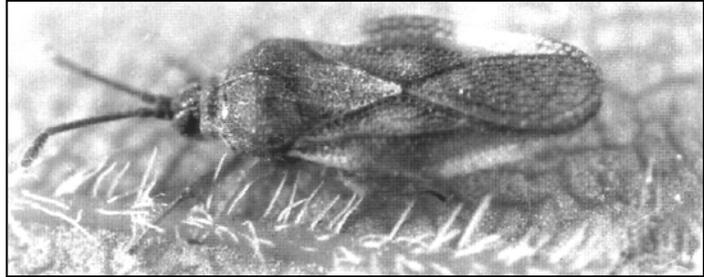
Taxonomy and Basic Description

Both adults and nymphs of the family Tingidae are strictly phytophagous. Lace bugs are mostly host-restricted, developing on plants of only one genus or several related genera. They are found mainly on woody plants, the nymphs feeding on lower surfaces of leaves. Their feeding on mesophyll tissues usually results in a bleached or chlorotic appearance of the upper leaf surface and dark spots of excrement on the lower surface. Some lace bugs feed on herbaceous vascular plants and species of one genus (*Acalypta*) feed mainly on mosses.



Leptoypha ilicis (from Wheeler, 2002)

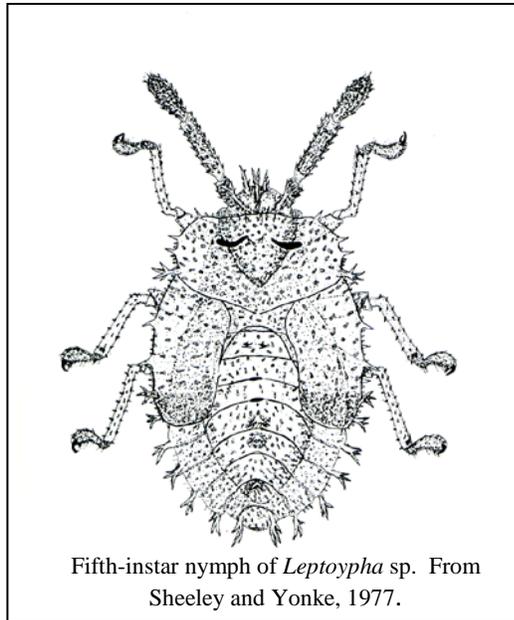
Leptoypha elliptica (from Wheeler, 2002)



Lace bugs associated with small trees and shrubs of the genus *Forestiera* (olive family; Oleaceae) include two morphologically similar species of *Leptoypha*. McAtee described *L. elliptica* from Texas in 1917; *L. ilicis* was described in 1919 from Georgia by Drake. Only recently was the specific name of the latter species shown to be a misnomer. This lace bug was named *ilicis* because of its assumed host association: *Ilex*

sp. Its actual hosts are species of *Forestiera*, the plant mentioned in the original description having been misidentified. *Forestiera* species bear a superficial resemblance to certain species of *Ilex* (holly; family Aquifoliaceae).

Leptoypha species are small (about 3 mm long or 0.12 in.), elongate or narrowly oblong, and straw-yellow to reddish-brown. A hood (prothoracic covering of the head) and paranota (lateral expansions of pronotum), which characterize many lace bugs, are lacking. Also absent is the translucent lacy appearance of the forewings (hemelytra) that is typical of the Tingidae; elevations of the forewings also are absent. *Leptoypha elliptica* adults are 2.8 to 3 mm (0.11 to 0.12 in.) long, broadly elliptical, and widest at the middle of the forewings, which are broadly rounded at their tips. *Leptoypha ilicis* is more elongate, the body nearly subparallel, and about 2.2 mm (0.08 in.) long.



Nymphs have not been described, but those of other *Leptoypha* species are light brown, oblong or elliptical, flattened, and with the dorsal (upper) surface covered with granulate setae or hairs. The margins of the thorax and abdomen bear short, stout spines; the head has two or three apical spines.

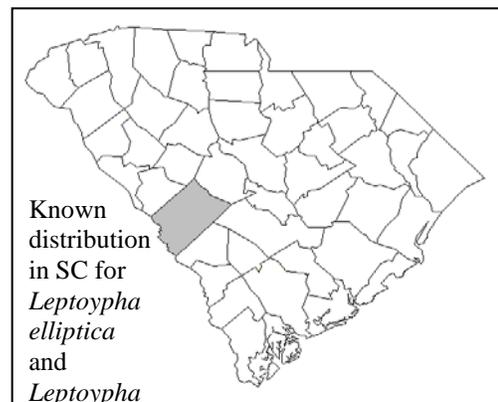
Status

No federal or state designation has been given to *Leptoypha elliptica* or *L. ilicis*. These species have no official status but are range-restricted. They are known only from the Savannah River Bluffs Heritage Preserve near North Augusta in Aiken County, where they were found on upland swamp privet (*Forestiera ligustrina*). *Leptoypha elliptica* was observed in 1992 and in 2001, whereas a co-occurring population of *L. ilicis* was found only in 2001.

Upland swamp privet is considered rare in South Carolina where it is known only from Aiken and Edgefield counties. It is also rare in Georgia and absent in North Carolina and Virginia. (Weakley 2004). Elsewhere, the lace bugs also feed on upland swamp privet and swamp privet (*F. acuminata*) (Wheeler 2002) and might use the latter plant as a host in South Carolina. Although swamp privet is recorded from eight counties (Aiken, Allendale, Barnwell, Beaufort, Dorchester, Fairfield, Hampton and Jasper), it is an uncommon plant in South Carolina. It is also uncommon in Georgia and absent in North Carolina and Virginia (Weakley 2004).

POPULATION SIZE AND DISTRIBUTION

The ranges of both lace bugs generally coincide with those of their forestiera hosts. Swamp privet is found sporadically from southern Indiana and central Illinois; west to the eastern portions of Kansas, Oklahoma, and Texas; and east to South Carolina, Georgia and Florida. Upland swamp privet has a more restricted range: central Kentucky and Tennessee to eastern Texas, southern South Carolina, southwestern Georgia, southern Alabama, and northern Florida. *Leptoypha elliptica* has been recorded from Florida, Georgia, Illinois, Indiana, Kentucky, Missouri, South Carolina, Tennessee and Texas. The known range of *L. ilicis* is similar: Florida, Georgia, Illinois, Indiana, Kentucky, Missouri, Oklahoma, South Carolina, Tennessee and Texas (Wheeler 2002).



Estimates of population size are not available for either lace bug. The author's fieldwork in South Carolina and elsewhere suggests that densities are less than those of most other tingids

associated with woody plants. The intensity of foliar chlorosis typically is less than that associated with the feeding of many other lace bugs of trees and shrubs.

HABITAT AND NATURAL COMMUNITY REQUIREMENTS

As specialist herbivores on upland swamp privet and swamp privet, *L. elliptica* and *L. ilicis* are restricted to habitats and communities that harbor their host plants. In South Carolina, suitable habitats for swamp privet are swamp forests, particularly over calcareous substrates; upland swamp privet is found in upland forests or slopes along streams, mainly on calcareous rocks or shell middens (Weakley 2004). Two rare species of the genus in South Carolina, Godfrey's privet (*F. godfreyi*) and wild olive (*F. segregate*), need to be surveyed as additional possible hosts of these two lace bugs.

CHALLENGES

Any reduction in the size of upland swamp privet and swamp privet populations will adversely affect herbivores, such as the two species of *Leptoypha*, that feed only on members of this plant genus. Maintenance of South Carolina populations of the lace bugs depends on preservation of host-plant populations. Upland swamp privet, swamp privet, and their specialist herbivores are potentially threatened by habitat fragmentation, alteration, and loss due to urban sprawl, increased recreational use, and competition from invasive species.

CONSERVATION ACCOMPLISHMENTS

Even though the lace bugs have not been targeted for conservation, designation of their sole area of known occurrence in the State at Savannah River Bluffs Heritage Preserve has provided protection for one of their hosts, upland swamp privet.

CONSERVATION RECOMMENDATIONS

- Protect critical habitats for lace bugs from habitat degradation.

MEASURES OF SUCCESS

As research and management needs are identified, projects will be initiated to address those needs.

LITERATURE CITED

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Weakley, A.S. 2004. Flora of the Carolinas, Virginia, and Georgia (updated 7 June 2004). University of North Carolina Herbarium, Chapel Hill, North Carolina. [<http://www.herbarium.unc.edu/flora.htm>].

Wheeler, A.G., Jr. 2002. *Leptoypha elliptica* McAtee and *L. ilicis* Drake (Hemiptera: Tingidae): new distribution records of seldom-collected lace bugs, with clarification of host-plant relationships. *Proceedings of the Entomological Society of Washington*. 104:687-691.