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Something Different: Leafhoppers in the Greenhouse

About 15 years ago a greenhouse grower contacted me about small (< 3mm) leafhoppers causing pale stippling on rosemary and lavender foliage. He also reported finding the insects outdoors on these plants during the growing season. We've since seen even more dramatic injury to rosemary grown in high tunnels, with leaves almost entirely bleached, similar to twospotted spider mite injury, and newer growth showing stunting and distortion. Reports of leafhopper pests in greenhouses have been rare in my experience; outdoors, however, on some herbaceous



Sage leafhopper damage to rosemary
(Nathan Ludlow photo)

and woody ornamentals potato leafhopper is a common pest causing 'hopperburn' and last year several samples were submitted to the Diagnostic Lab with aster yellows, caused by a phytoplasma vectored by aster leafhopper.

Thanks to assistance from Florida Dept. of Agriculture taxonomists we were able to confirm this as *Eupteryx melissae*, sometimes referred to as the 'sage leafhopper.' The adults are pale with brown or grayish elongated spots on the wings and usually 5 black spots on the head. Although plants in the mint family (sage, Jerusalem sage, catnip, mints, horehound, rosemary, etc.) are preferred hosts, ours was the first case on

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lavender noted by the leafhopper specialist providing the confirmation. The literature also mentions several mallows (*Lavatera arborea* = tree mallow and *Althaea* spp.) as hosts. It's now common outdoors in nurseries and landscapes on catmint, *Nepeta x faassenii*, causing small pale spots on foliage. Originally from Europe, sage leafhopper was first reported in the US in the early 1900s from western NY, California, Maryland and Massachusetts, but has become widely distributed throughout North America. Sage leafhopper overwinters as eggs in plant stems or petioles, which facilitates introductions to new areas. In England (and possibly in milder US climates) the adults can overwinter outdoors. It appears to have multiple generations during the growing season.

Two other similar *Eupteryx* species may also be present in our region and damaging to herb plants in the mint family, although *E. melissae* is the only one I have encountered in greenhouses. *E. atropunctata*, also from Europe, was first reported in North America (eastern Canada) over 70 years ago and has been found in New York, Michigan, Connecticut, and Pennsylvania. Mints and relatives again appear to be preferred, but others include potato, sunflower and some other composites, *Althaea officinalis*, *A. rosea* (hollyhock), *Apium* sp., *Verbascum* spp., *Veronica* spp., *Verbena hybrida* and *Filipendula ulmaria*. Leaf damage resembles that caused by sage leafhopper. *E. atropunctata* also overwinters as eggs in stems but in milder years or locations adult leafhoppers may as well. In Ithaca, NY sage leafhopper and *E. atropunctata* have been found together in mixed populations on outdoor plants. Ligurian leafhopper (*E. decemnotata*), native to the Mediterranean region, is now spreading through Europe and has been



Sage leafhopper (center left) and injury on *Nepeta* (Mina Vescera photo)



Sage leafhopper injury to *Nepeta* (Mina Vescera photo)



Sage leafhopper, *Eupteryx melissae*

confirmed in 8 US states including Hawaii, Utah, New Mexico, New Jersey, North Carolina, California, and (regulatory interceptions) Florida and Pennsylvania. Beside rosemary, host plants include many relatives in the mint family (basil, lemon balm, sage, marjoram, oregano, thyme). It more closely resembles sage leafhopper in appearance, but can be distinguished by the 5 pairs of spots on the head. Excellent photos of the three can be compared at BugGuide (<https://bugguide.net/node/view/81005/bgimage>). Tasi & Lucky (2020) and Rung, et al. (2009) listed in References have clear photos of *E. melissae* and *E. decemnotata*.



Versute sharpshooter leafhoppers, *Graphocephala versuta*

There is little information on natural enemies of these leafhoppers in the US, but generalist predators (e.g. spiders) will often prey on leafhoppers and in Europe a small parasitoid wasp has been found attacking eggs. Many insecticides are labeled for leafhoppers and there is no reported resistance to any in *Eupteryx* spp. However, eggs laid within plant stems or leaves can escape effects of short-residual insecticides (including materials typically available for use on edible herbs) and adults are highly mobile, able to re-infest plantings or re-invade greenhouses from areas nearby, so where damage is unacceptable repeat applications may be needed when using such products. In Europe vacuums have been used to collect adults from herb plantings or exclusion netting used to deter infestation in production areas. In outdoor gardens no control is usually necessary, as the damage is often light and overlooked or tolerated, especially on *Nepeta* when plants are in bloom.

Graphocephala versuta, sometimes called the ‘versute sharpshooter,’ is the second leafhopper pest I have found in two greenhouses in 2014. It is a possible vector of the bacterium causing Pierce’s disease in grape and the related pathogen causing bacterial leaf scorch in oaks. On both occasions at different operations it was found in rather large numbers on *Perilla frutescens* (shiso) in very late summer. Hosts reported include blackberry, privet, grape, cherry and other deciduous trees. The infestation may have been related to unusually high numbers outdoors that year migrating into the greenhouse with the onset of cooler weather, as there were no nymphs present and the population did not persist in the range.

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