



by Dan Gilrein
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The Alternative Chilli Thrips

There is nothing more deceptive than an obvious fact.

— Arthur Conan Doyle, The Boscombe Valley Mystery

The adage, ‘things are not always what they seem,’ was again demonstrated in the recent case of chilli thrips. It was just over 10 years ago that I first heard of this new pest in our industry, the chilli thrips (*Scirtothrips dorsalis*). While there have been past detections in the US (Hawaii in 1987, mainland interceptions in shipments and on outdoor plants) and reports from the Caribbean in the early 2000s, the first established populations on the mainland US were discovered in Florida in 2005 and Texas in 2007. A pest of many food and ornamental crops, its reputation for damage led to concerns about its potential for economic impact. Damage

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Discoloration and distortion on deciduous azalea from chilli thrips

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Chilli thrips damage to hydrangea foliage. Thrips will be usually be found in youngest unexpanded leaves

reports from the southeastern US in pepper, basil, begonia, pittosporum, schefflera, English ivy, Indian hawthorn, viburnum, ligustrum, and especially roses confirmed suspicions. A Florida factsheet (see list below) has a long list of plants on which the insect is known to reproduce. Unlike the familiar western flower thrips (WFT) which often favors flowers, chilli thrips prefers young foliage and buds, only occasionally flowers and fruits. Symptoms appear as leaf scarring, distortion or curling, bronzing and stunting, often resembling damage by broad mite or possibly chemical phytotoxicity. Roses can even be heavily defoliated. Due to its very small size even for a thrips, about half the length of WFT, and its absence on symptomatic leaves, the insect can be easily overlooked.

In 2010 after receiving a greenhouse sample of schefflera with an infestation of chilli thrips we began watching for it more closely. In late 2011 samples of *Hydrangea macrophylla* from a Long Island landscape showing leaf damage were initially suspected due to spray injury or broad mite, but no chemicals had been applied and no mites were found. In late spring, 2012 samples of *H. macrophylla* from a nursery showed the same symptoms, but this time thrips were present on new growth. They keyed out easily to chilli thrips and specimens were also

confirmed by a Florida entomologist. Since then the typical damage to hydrangea has been appearing each year in landscapes.

Strangely, roses and bedding plants growing near infested hydrangeas remained untouched. These landscape hydrangeas often had no connection to greenhouse-grown plants nearby and no chilli thrips were ever found on flowers or foliage sampled from roses, a preferred host in Florida.

The mystery was at least partly solved after sending samples of thrips, collected June 2014, to Dr. Cindy McKenzie of USDA ARS. The timing was serendipitous for including in a DNA barcode analysis comparing collections of chilli thrips



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from sites around the world. The study (Dickey, et al.: *The Scirtothrips dorsalis* Species Complex: Endemism and Invasion in a Global Pest, 4/20/2015, see references below) concluded chilli thrips is likely a complex of physically similar (indistinguishable) species. These may have different host preferences and possibly other distinguishing characteristic such as an ability to vector tospovirus. The Florida chilli thrips, also found in several other southern states and around southern Asia, is referred to as the 'South Asia 1' species. Samples from Long Island, NY are 'East Asia 1,' similar to those in Japan and South Korea. While we suspect South Asia 1 chilli thrips will not overwinter in our northern climate, it appears East Asia 1 chilli thrips can do so at least in protected sites, after finding them on spring growth of hydrangeas overwintered in unheated plastic-covered structures. In outdoor landscapes, chilli thrips and damage to hydrangea is common after late July, though it is unclear whether this results from summer migrants. This past year chilli thrips samples from Massachusetts were also confirmed on *H. macrophylla* as the East Asia 1 type. Chilli thrips and damage have been seen on Long Island on 'Pee Gee' hydrangea (*H. paniculata*), and associated with injury to deciduous azalea foliage, but some other reported hosts for this strain (e.g. grape) have not yet been affected. While damage to landscape plants has not been severe enough to require control, nursery growers have needed to treat on occasion. Fortunately Insecticide resistance does not appear to be an issue, though getting good coverage in

buds where the thrips feed can be difficult. To detect chilli thrips, tap terminals showing early symptoms (slight curling of unexpanded leaves) lightly over a white paper or surface. Specimens can be easily collected for submission to a diagnostic lab using a fine artist brush wetted and dipped in rubbing alcohol.

More information on and images of chilli thrips can be found at:

<http://ag.umass.edu/landscape/fact-sheets/chilli-thrips>

http://entnemdept.ufl.edu/creatures/orn/thrips/chilli_thrips.htm

<http://mrec.ifas.ufl.edu/lso/thripslinks.htm>

<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0123747>



Chilli thrips