

# Poinsettia Thrips, Impatiens Thrips (suggested common names) *Echinothrips americanus* Morgan (Insecta: Thysanoptera: Thripidae)<sup>1</sup>

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## Introduction

*Echinothrips americanus* Morgan is an important greenhouse foliage pest of vegetable and ornamental plants (Figure 1). This pest is polyphagous, reported from 48 plant families worldwide. The preferred hosts of *Echinothrips americanus* belong to the Araceae and Balsaminaceae plant families (CABI/EPPO 2014). This pest is native to eastern North America (Stannard 1968) and was first reported in 1984 on poinsettia, *Euphorbia pulcherrima* (Euphorbiaceae), in Georgia (Oetting 1987). Other important greenhouse crops damaged by this pest include *Impatiens* spp. (Balsaminaceae), gerbera, rose, sweet pepper, cucumber and eggplant (Vierbergen et al. 2006).

## Synonymy

*Echinothrips americanus* Morgan was first described in 1913 from Indian poke, *Veratrum viridae* (Melanthiaceae), in Quincy, Florida, by Morgan, and in 1919 described by Watson as *Dictyothrips floridensis* Watson (Watson 1947), which was later synonymized by Hood (Hood 1927).



Figure 1. Adult poinsettia thrips, *Echinothrips americanus* Morgan (dorsal view).

Credits: Babu Panthi, UF/IFAS

## Distribution

Native to eastern North America, *Echinothrips americanus* is found in the United States from Florida to New York and in Iowa on weedy plants (Vierbergen 1998). In 1984, *Echinothrips americanus* was first reported as a pest of greenhouse crops in Georgia (Oetting 1987). Outside its native range, this pest was first reported in Bermuda in 1927 (Nakahara and Hillburn 1989) and in Hawaii in 1981 (Mitchell 1983). In the Americas, *Echinothrips americanus* is present in Canada (Quebec and British Columbia), Mexico, and Puerto Rico, but is not yet established in

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California (Opit et al. 1997). In the United States, this pest is found in Illinois, Iowa, District of Columbia, Missouri, Maryland, Tennessee, Virginia, New York, Georgia, and Florida (CABI/EPPO 2011, EPPO 2014).

In Europe, the first report of this pest was from Syon Butterfly House, United Kingdom in 1989 (Collins 1989). Later, this pest was detected in the Netherlands in 1993 in shipments of *Syngonium* cuttings from the United States (Vierbergen 1998). Spread of *Echinothrips americanus* occurred rapidly across Europe between 1995 and 2005, and it is now present in 19 European countries. *Echinothrips americanus* was reported in central Russia in 2005 (Izhevskiy and Mironova 2008, Vierbergen et al. 2006). This pest was found in east Asia in 2003 and is currently found in Thailand, China (Mirab-balou et al. 2010), Japan (Itoh et al. 2003), Indonesia, and Taiwan (EPPO 2014). It has also been recorded from northeastern Australia (Mound et al. 2013).



Figure 2. Map of geographic distribution of poinsettia thrips, *Echinothrips americanus* Morgan.  
Credits: CABI/EPPO, 2011

## Description and Biology

Female adult *Echinothrips americanus* are 1.6 mm long and male adults are 1.3 mm long. The general body color of adults is dark brown with red bands between abdominal segments. Adults have eight segmented antennae (I to VIII), segments I and II are dark brown, III and IV are light brown or yellowish, V has half basal color yellow, and VI to VIII are brown (Oetting and Beshear 1993, Trdan et al. 2003). Their wings are dark in color, pale gray at base and light brown in between middle and tip of wings. Immatures are white to pale-yellow. *Echinothrips americanus* has six developmental stages: egg, first and second instar larva, propupa, pupa, and adult. *Echinothrips americanus* are typically slow-moving compared with other active thrips like flower thrips and complete all life stages on the green tissue of plants. Both sexual and parthenogenetic reproduction occurs in *Echinothrips americanus* (Krueger et al. 2017).

## Egg

An adult female inserts a single kidney-shaped egg (0.2 mm long) inside the plant tissue, preferably on the underside of a leaf, with an average lifetime fecundity of 77 eggs (Oetting and Beshear 1993). The egg cannot be seen with the naked eye because it is inserted inside the plant tissue. Development time of egg is 13.8 to 17.4 days at 23°C on cucumber (Opit et al. 1997).

## Larva

The first instar larva is white and clear, and the second instar is pale yellow. The larval stage occurs for four to eight days (Opit et al. 1997).



Figure 3. Larva of poinsettia thrips, *Echinothrips americanus* Morgan (dorsal view).  
Credits: Babu Panthi, UF/IFAS

## Pupa

The pupa progresses for two to six days through propupal and pupal stages, with both remaining inactive unless disturbed. Pupal stages, unlike larval stages, have visible, developing wing pads (Opit et al. 1997).



Figure 4. Pupa of poinsettia thrips, *Echinothrips americanus* Morgan (dorsal view).  
Credits: Babu Panthi, UF/IFAS

## Adult

Mean longevity for an adult female is 41.3 days at 25°C (Vierbergen 1998), with development from oviposition to adult emergence over 33.9, 15.0 and 11.4 days at constant 20°C, 25°C, and 30°C (Oetting and Beshear 1993).

## Hosts

*Echinothrips americanus* is a leaf-dwelling insect, which feeds on either leaf surface, but they are more frequently found on the lower surface. This pest is polyphagous with a host range of 106 plant species in 48 families (Varga et al. 2010). In Georgia, *Echinothrips americanus* has been observed feeding and reproducing on 40 cultivated and 59 native plant species out of 51 cultivated and 75 native plants tested (Oetting 1993). *Echinothrips americanus* prefers greenhouse crops in the Araceae and Balsaminaceae families.

Common host plants are: *Impatiens* spp. (Balsaminaceae), *Euphorbia pulcherrima* (Euphorbiaceae), *Dieffenbachia* and *Syngonium* (Araceae), *Cardamine hirsuta* (Brassicaceae), and *Hibiscus rosa-sinensis* (Malvaceae).

## Economic Importance

Larvae and adults puncture leaf cells with piercing-sucking mouthparts and consume the cell contents, injuring the leaf tissue and giving it a shrunk appearance (Figures 5 and 6) (Plant Health Australia 2001). Removal of chlorophyll from cells causes light spots on leaves. *Echinothrips americanus* can be detected by the presence of fecal droppings that appear as black specks on infested leaves. *Echinothrips americanus* may also feed on flowers. Recently, *Echinothrips americanus* have been reported as a serious pest of various greenhouse crops especially on ornamentals (Varga et al. 2010). This pest reduces the aesthetic value of ornamental plants by feeding on green tissue. *Echinothrips americanus* are not reported to transmit plant viruses.



Figure 5. Feeding damage of poinsettia thrips, *Echinothrips americanus* Morgan, on greenhouse grown Knock Out® rose, *Rosa radrazz* (Rosaceae).

Credits: Babu Panthi, UF/IFAS



Figure 6. Adults of poinsettia thrips, *Echinothrips americanus* Morgan, feeding on greenhouse grown cotton, *Gossypium hirsutum* (Malvaceae).

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## Management

*Echinothrips americanus* is difficult to monitor using sticky cards because they are sedentary compared with other thrips such as flower thrips. *Echinothrips americanus* can be monitored by visually observing adult or larva, or through its feeding damage symptoms. All developmental stages of *Echinothrips americanus* remain on the plant. Therefore, weeds, plant remains, and leaf litter should be disposed of properly and in a timely manner because they may move and infest clean plants.

Several biological control agents are available to suppress populations of *Echinothrips americanus*. Commercially available predators that are effective are *Orius majusculus* (Reuter) (Hemiptera: Anthocoridae), *Macrolophus pygmaeus* (Rambur) (Hemiptera: Miridae), *Dicyphus maroccanus* Wagner (Hemiptera: Miridae), *Dicyphus tamaninii* Wagner (Hemiptera: Miridae), and *Dicyphus errans* (Wolff) (Hemiptera: Miridae) (Messelink et al. 2017). Lacewing (*Chrysoperla rufilabris* Burmeister) (Neuroptera: Chrysopidae) and predatory thrips (*Franklinothrips* spp.) (Thysanoptera: Aeolothripidae) are also suggested for *Echinothrips americanus* control (Figures 7 and 8) (UF/IFAS Control Guides 2000).

A study used the predatory phytoseiid mites (Acari: Phytoseiidae), *Amblyseius swirskii* (Athias-Henriot), *Amblydromalus limonicus* (Garman and McGregor), and *Euseius ovalis* (Evans) and found that when predators were provided with a supplement of pollen as food source, they provided better control of larval and pupal thrips compared with when no supplements were given (Ghasemzadeh et al. 2017; Opit et al. 1997). When this pest is present in greenhouses, it can be managed with insecticides, but populations on woody landscape plants are difficult to control.



Figure 7. Larva of green lacewing, *Chrysoperla rufilabris* (Neuroptera: Chrysopidae), feeding on larva of poinsettia thrips, *Echinothrips americanus* Morgan.

Credits: Lance Osborne, UF/IFAS



Figure 8. Larva of vespiform thrips, *Franklinothrips vespiformis* (Thysanoptera: Aeolothripidae), feeding on larva of poinsettia thrips, *Echinothrips americanus* Morgan.

Credits: Lance Osborne, UF/IFAS

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