

# Cypress Twig Gall Midge, *Taxodiomyia cupressiananassa* (Osten Sacken) (Insecta: Diptera: Cecidomyiidae)<sup>1</sup>

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## Introduction

The cypress twig gall midge, *Taxodiomyia cupressiananassa* (Osten Sacken), attacks bald cypress (*Taxodium distichum*) and pond cypress (*T. ascendens*), inducing galls that develop from leaf bud tissue which negatively affect the appearance of these ornamental trees.



Figure 1. Galls formed by the cypress twig gall midge, *Taxodiomyia cupressiananassa* (Osten Sacken).

Credits: Russel F. Mizell, III, University of Florida

## Distribution

This midge is found in the midsection of the U.S. from north Illinois, Indiana to Florida and west to Louisiana, Tennessee, and Alabama.

## Description

### Adults

The adults are tiny flies with hyaline wings covered with short setae. The thorax and appendages of males are tan and the abdomen is tan-orange. The abdomen of the female is orange-red. Males and females are approximately 1.57 and 2.17 mm long, respectively.

### Eggs

The eggs are bright orange, translucent, about 0.6 mm long by 0.08 mm wide, and average 15 eggs per cluster.

### Larvae

The larvae when newly hatched are light orange, about 0.6 mm long by 0.09 mm wide. At this point the sternal spatula is not visible but becomes visible as larvae mature, it then changes color to orange-red and reaches about 1.5 mm long by 0.072 mm wide.

1. This document is EENY 430, one of a series of the Entomology and Nematology Department, UF/IFAS Extension. Original publication date February 2009. Reviewed January 2015. Visit the EDIS website at <https://edis.ifas.ufl.edu>. This document is also available on the Feature Creature website at <https://entnemdept.ufl.edu/creatures/>.

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## Pupae

The pupae are obiect (wings and appendages are appressed to the body) and bright orange. Males and females are approximately 1.53 mm and 1.84 mm long, respectively.

The oval shaped galls are formed on the terminal portion of the branchlets. When mature they resemble miniature pineapples that look like elongate swellings on the leaflets. The color varies from pink at first, turning light green as development progresses. However, the galls appear white most of the time because of a covering of fine, powdery material. When adults emerge the galls turn brown. Overwintering galls are usually copper-brown, dropping with branchlets in late autumn. The galls average 20 mm in length, but larger galls may reach 3 cm in length and 2 cm in width and may contain an average of 16 larvae. The number of midge larvae inside is highly correlated with the length of the gall. The gall tissue is spongy and succulent but becomes less succulent as the midge larvae mature.



Figure 2. Gall formed by the cypress twig gall midge, *Taxodiomyia cupressiananassa* (Osten Sacken), on bald cypress, *Taxodium distichum*. Credits: Albert Mayfield, Florida Department of Agriculture and Consumer Services, Bugwood.org

## Life Cycle and Biology

The life cycle of *T. cupressiananassa* is univoltine in the northern U.S. and bivoltine (two generations) in northern Florida.

The flies overwinter as larvae on the ground in the fallen galls in early November and pupate in mid-April inside the galls.

Adults flies emerge in mid-May for an extended period of time. Nearly 95% of the adult midges emerge within three weeks of the onset of emergence. Copulation occurs the same day as adult emergence. After mating, the female midge flies to the leaves where it oviposits on the new developing foliage an average of 120 eggs during their one to two day life span.

The midge larvae induce gall formation by the leaflets initiating as pink swellings of the branchlets at the feeding sites. Galls rapidly increase in size during the first three weeks and at the same time, larvae gradually move toward the longitudinal axis of the gall where each larva makes a small chamber which it occupies. Before pupation, the larvae reverse their position so that their heads point toward the gall surface.

For adult emergence, the pupa moves through the larval chamber and breaks the gall surface until its head and thorax are completely outside. The second generation feeds until mid-September and in late October the galls and foliage fall from the trees.

## Hosts

Bald cypress (*Taxodium distichum*) and pond cypress (*T. ascendens*) are the only hosts recorded for this insect.

## Damage

It appears that some genetic lines of cypress are less susceptible to the gall midge than others. Apparently, the galls do not appreciably harm tree health. However, the appearance of cypress, a commonly planted ornamental, is made unsightly by the brown galls. Also, gall-infested branches droop due to the weight of the numerous galls.



Figure 3. Damage caused by the cypress twig gall midge, *Taxodiomyia cupressiananassa* (Osten Sacken). Credits: Russel F. Mizell, III, University of Florida



Figure 4. Unsightly drooping cypress branch caused by weight of galls of the cypress twig gall midge, *Taxodiomyia cupressiananassa* (Osten Sacken).

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## Management

Collect and destroy fallen galls in autumn or in early spring before the midges become active and start laying eggs. This reduces the number of galls in a new season.

Insecticide applications are not recommended because high populations are often regulated by natural enemies that emerge at the same time as the midges such as the following parasitoids:

- *Tridymus* sp. (Hymenoptera: Pteromalidae), which attacks the first instar just before it becomes imbedded in the gall tissue. This is the dominant species in the *T. cupressiananassa* parasitoid complex.
- *Aprostocetus fidius* Girault (Hymenoptera: Eulophidae)
- *Tetrastichus* sp. (Hymenoptera: Eulophidae), which attacks young larvae in developing galls.
- *Inostemma* sp. (Hymenoptera: Platygasteridae), which attacks the egg or newly hatched midge larva.
- *Platygaster virginiensis* (Ashmead) (Hymenoptera: Platygasteridae)

## Selected References

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