

Cypress Twig Gall Midge, *Taxodiomyia cupressiananassa* (Osten Sacken) (Insecta: Diptera: Cecidomyiidae)¹

Celina Gomez and Russell F. Mizell III²

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

-
1. This document is EENY-430, one of a series of Featured Creatures from the Entomology and Nematology Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. Published: February 2009. This document is also available on Featured Creatures Website at <http://creatures.ifas.ufl.edu>. Please visit the EDIS Website at <http://edis.ifas.ufl.edu>. Additional information on these organisms, including many color photographs, is available at the Entomology and Nematology Department website at <http://entnemdept.ifas.ufl.edu/>.
 2. Celina Gomez, undergraduate intern, North Florida Research and Education Center (REC)-Quincy FL; Russell F. Mizell III, assistant program director and professor, North Florida REC-Quincy FL; Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida, Gainesville FL 32611.

The Institute of Food and Agricultural Sciences (IFAS) is an Equal Opportunity Institution authorized to provide research, educational information and other services only to individuals and institutions that function with non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, marital status, national origin, political opinions or affiliations. U.S. Department of Agriculture, Cooperative Extension Service, University of Florida, IFAS, Florida A. & M. University Cooperative Extension Program, and Boards of County Commissioners Cooperating. Millie Ferrer, Interim Dean

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.

Pupae: The pupae are obtect (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.

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.



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

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

- Bennett P, et al. (2006). Buckeye Yard and Garden Online newsletter. Buckeye Yard and Garden Online.
http://hcs.osu.edu/bygl/bygl2006_15.html (3 April 2008).
- Chen C, Appleby J. 1984. Biology of the cypress twig gall midge, *Taxodiomyia cupressiananassa* (Diptera: Cecidomyiidae), in central Illinois. *Annals of the Entomological Society of America* 77: 203-207.
- Hodges A, Buss E, Mizell RF III. 2006. *Insect Galls of Florida*. UF/IFAS. SP 343.
- Terrel C. (2005). *Plant health care report* 11:5. The Morton Arboretum.
<http://www.mortonarboretumphc.org/> (3 April 2008).