

Snowbush spanworm (larva), white-tipped black (adult), *Melanchroia chephise* (Stoll) (Insecta: Lepidoptera; Geometridae: Melanchroia)¹

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The Featured Creatures collection provides in-depth profiles of insects, nematodes, arachnids and other organisms relevant to Florida. These profiles are intended for the use of interested laypersons with some knowledge of biology as well as academic audiences.

Introduction

Melanchroia chephise (Stoll 1782) (formerly *Phalaena chephise* Cramer 1782), commonly known as the snowbush spanworm, is an occasional insect pest of snowbush shrubs, along with several other ornamental plant species (Caldwell 2007). Found throughout the southern United States (Sanchez et al. 2018), these gregarious moth caterpillars can commonly be found defoliating their chosen hosts soon after they emerge en masse (Caldwell 2007). The colorful appearance of the caterpillars may be alarming (Figure 1), but they pose little risk to people, and usually offer no lasting harm to the plants they feed on. The adult moths, with their black and white wings, can be an attractive addition to a pollinator garden.



Figure 1. *Melanchroia chephise* caterpillar feeding on snowbush host plant.

Credits: Alan Chin-Lee, used with permission

They have been found as far north as Wisconsin, though this is far outside of their usual range (Devitt 2017).

Distribution

Melanchroia chephise can be found ranging from the southern parts of North America through South America and the Lesser Antilles (Figure 2) (Sanchez et al. 2018).

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Figure 2. Distribution map for *Melanchroia chephise* in the United States.

Credits: Map accessed from North American Moth Photographers Group (<https://mothphotographersgroup.msstate.edu/>).

Description and Life Cycle

Eggs

Eggs of the snowbush spanworm are oval and about 0.7 mm in diameter. They have a salmon-pink to yellow coloration with a pebbled surface (Figure 3) (Caldwell 2007). The eggs of the snowbush spanworm are deposited individually at the base of leaf petioles (structures attaching leaves to stems) on their preferred host plants (Caldwell 2007). Eggs take approximately six days to hatch into caterpillars (Sanchez et al. 2018).



Figure 3. Cluster of *Melanchroia chephise* eggs on leaf surface.

Credits: Alan Chin-Lee, used with permission

Larvae

Larvae are banded in white and black stripes that transition toward yellow and black as the caterpillar matures (Figure 4). Their heads and two pairs of prolegs (false legs appendages along the abdomen) are reddish-orange in coloration. They move by arching their backs and then pushing their

front end forward in a classic ‘inch-worm’ movement. At full size they can reach up to 25 mm (approximately 1 inch) in length (Caldwell 2007). Larvae develop through six molts, feeding at the top of their host plant and working their way down (Caldwell 2007). They remain in the larval stage for up to 18 days.



Figure 4. Caterpillars of *Melanchroia chephise* at various stages of growth (instars).

Credits: Doug Caldwell, UF/IFAS Extension Collier County

Pupae

Pupae are around 10 mm (approximately 0.5 inches) in length (Caldwell 2007). Antennal segmentation can be seen in the pupae casing, and they are brown in coloration (Forbes 1945). Pupae can be found either in the foliage of their host plant or in the leaf litter beneath it (Figure 5) (Caldwell 2007). They remain in the pupal stage for up to seven days (Sanchez et al. 2018).



Figure 5. Pupa of *Melanchroia chephise*.

Credits: Alan Chin-Lee, used with permission

Adults

Both male and female *Melanchroia chephise* adults have bipectinate (feather-like) antennae. Their wings are black or dark brown and usually have a white or yellow blotch on the tip of the forewings (Figure 6). Both males and females have rusty brown thoraxes. Abdomens are black, though males will have a tuft of rusty orange setae (hair-like structures) at the end of their abdomens (Pitkin 2002). *Melanchroia chephise* are day-flying moths, and females produce a pheromone to draw in males as potential mates (Caldwell 2007).



Figure 6. Adult *Melanchroia chephise* resting on snowbush host plant. Credits: Don Hall, UF/IFAS

Host Plants

In Florida, the most common host plant is the snowbush (*Breynia nivosa*). Other host plants include edible amaranth (*Amaranthus tricolor* (Amaranthaceae)), white sapote (*Casimiroa edulis* (Rutaceae)), snow-on-the-mountain (*Euphorbia marginata* (Euphorbiaceae)), Otaheite gooseberry (*Phyllanthus acidus* (Euphorbiaceae)), and foliage flower (*Phyllanthus angustifolius* (Euphorbiaceae)) (Heppner 2003).

Economic Importance

This insect is generally of minor economic importance, as it is only an occasional pest, and when it does become a pest its effects are not typically long-lasting. While occasional outbreaks can defoliate snowbushes in a localized area, the host plants usually recover with minimal treatment. The aesthetic value of infested or damaged shrubs may be reduced for a season or several months if heavy defoliation occurs (Caldwell 2007). Such instances can reduce plant marketability or warrant plant managers to intervene with some form of control.

Damage

The damage caused by *Melanchroia chephise* can be distressing to homeowners who encounter it for the first time, but the snowbush is generally a vigorous grower and will recover with little to no intervention (Caldwell 2007). These caterpillars can defoliate a snowbush when they are present in large numbers. Occasionally, once the foliage has been consumed they will even chew the bark from the twigs, leaving damage that looks like that caused by rabbits or other vertebrates. In some cases, this bark feeding damage can girdle the stems, cutting off nutrient and water circulation and causing the attached foliage to die (Figure 7). Shrubs defoliated in this way that do not die may take a month or more to recover (Caldwell 2007). If stems are girdled by a large infestation of caterpillars, extensive pruning to reduce stems back below the girdling damage may be required to encourage plant recovery and new growth.



Figure 7. Stem girdling damage of *Melanchroia chephise* on host plant, snowbush (*Breynia nivosa*). In the absence of foliage, the caterpillars will feed on the woody tissue.

Credits: Dr. Chris Marble, UF/IFAS Mid-Florida Research and Education Center

Management

Cultural control

Proper plant maintenance is the best approach to minimizing the risk of infestation and damage. Choosing shrubs that are not a host plant to this caterpillar and increasing the diversity of plants in the landscape can reduce the incidence of outbreaks. A monoculture of snowbush introduces the possibility of extensive damage if there is a *Melanchroia chephise* infestation.

Mechanical control

Hand picking the caterpillars or pruning away the tips of heavily infested branches before the caterpillars disperse throughout the shrub can immediately reduce caterpillar numbers and may effectively control the infestation.

Chemical control

In some cases, insecticides may be warranted to suppress infestations and protect plant health and value. *Bacillus thuringiensis*, a naturally occurring bacteria commonly sold as an insecticide will effectively control this caterpillar pest. Other insecticides that effectively control caterpillar pests include chlorantraniliprole and Spinosad. Be sure to apply products following label directions and choose products that will suppress your target pest without affecting nearby beneficial organisms. Insecticides that control caterpillars should not be used in a pollinator garden where desirable caterpillars are present as they will also kill those caterpillars.

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