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Laurelcherry Smoky Moth, *Neoprocris floridana* Tarmann 1984 (Insecta: Lepidoptera: Zygaenoidea: Zygaenidae: Procridinae)[1]

Donald W. Hall[2]

Introduction

The Zygaenidae (burnets and smoky moths) are small, mostly day-flying moths, although *Neoprocris floridana* has also been collected at night at black lights by John Heppner (Tarmann 1984a, p. 77). At least three zygaenid subfamilies (Zygaeninae, Procridinae, and Chalcosiinae) appear to be monophyletic (Epstein et al. 1999). General reviews of the characteristics and biology of the Zygaenidae and subfamilies are provided by Epstein and Adams (2009), Ebert et al. (1994), Epstein et al. (1999) and Tarmann (2004). All native New World zygaenids belong to the subfamily Procridinae.

The typical resting position of zygaenids is with the wings folded back and roof-like over the abdomen (Figure 1).

The family Zygaenidae is best known for the spectacular colors of some of the Palearctic species, particularly those belonging to the genus *Zygaena*. Common name terminology for zygaenids is not uniform. However, brightly-colored species of the genus *Zygaena* are usually known as burnets while the less colorful species of *Zygaena* and the Old World Procridinae are often called foresters. Our eastern U.S. species are known as either smoky moths or skeletonizers (after the feeding habits of early instars).

Figure 1. Laurelcherry smoky moth, *Neoprocris floridana* Tarmann, male in typical resting position.
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The following five species of zygaenids besides *Neoprocris floridana* occur in the eastern US:

Harrisina americana (Guérin 1829)—grapeleaf skeletonizer moth

Acoloithus falsarius Clemens 1860—Clemens' false skeletonizer

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Acoloithus novaricus Barnes & McDunnough, 1913—no common name

Pyromorpha dimidiata (Herrich-Schäffer, 1854)—orange-patched smoky moth

Pryeria sinica Moore, 1877—*Euonymous* defoliator moth (Introduced from Japan and now established in Virginia and possibly also Maryland).

Adults of the first four species can be differentiated from *Neoprocris floridana* by the presence of some orange color on the prothorax (*Harrisina americana*, *Acoloithus falsarius*, and *Acoloithus novaricus*) or wings (*Pyromorpha dimidiata*). *Neoprocris floridana* contains no orange (or yellow). The introduced species, *Pryeria sinica*, has clear wings. For color photographs, distribution maps, and seasonal data for these species, see their respective species pages at the North American Moth Photographers Group website (http://mothphotographersgroup.msstate.edu/).

Some tiger moths, the yellow-collared scape moth (*Cisseps fulvicollis* [Hübner]), and the black-winged Dahana moth (*Dahana atripennis* Grote) (Erebidae: Arctiinae: Arctiini: Ctenuchina), resemble zygaenids. However, both moths have some orange or yellow coloration which distinguishes them from *Neoprocris floridana*. Also, tiger moths have only a single complete front wing anal vein while zygaenids have two (Triplehorn and Johnson 2005) (Figure 2).

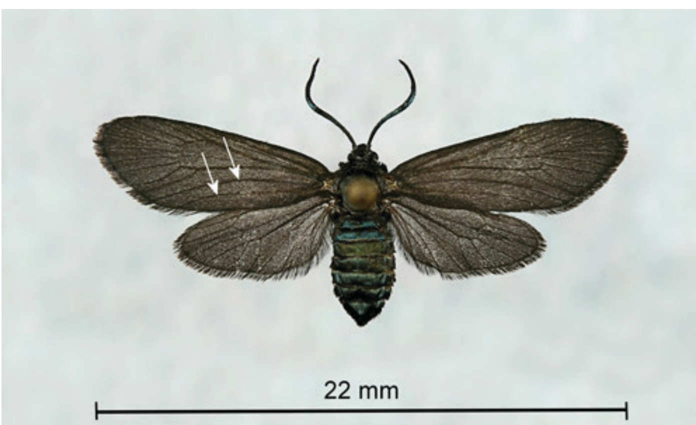

Figure 2. Laurelcherry smoky moth, *Neoprocris floridana* Tarmann, pinned and spread female showing the two complete front wing anal veins (arrows).
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Distribution

Neoprocris floridana occurs throughout Florida except for the Keys (North American Moth Photographers Group) and is also reported from Lee County, Alabama (Hyche 1998). Its host plant, Carolina laurelcherry (*Prunus caroliniana* [Mill.] Aiton) (Rosaceae), is native to the coastal states from North Carolina to Texas and also Arkansas (Plants Database 2014). It is likely that *Neoprocris floridana* is present in other southeastern coastal states where its host plant is found.

Description

Eggs

The light yellow eggs are flattened and slightly rectangular (approximately 0.6 × 0.45mm) (Figure 3). The upper surface is irregular, but many appear to have a central crater bounded by a ridge on each side. The chorion is microscopically reticulated (Figure 3 [inset a]).

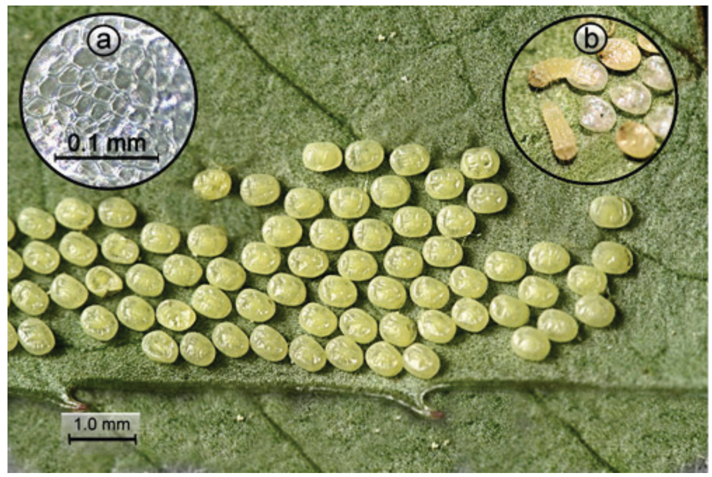

Figure 3. Laurelcherry smoky moth, *Neoprocris floridana* Tarmann, egg mass. Inset a = microscopic reticulations of the chorion surface. Inset b = eclosing larva.
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Larvae

First and second instars are yellow (Figure 4). Later instars have a pattern of dark lines.

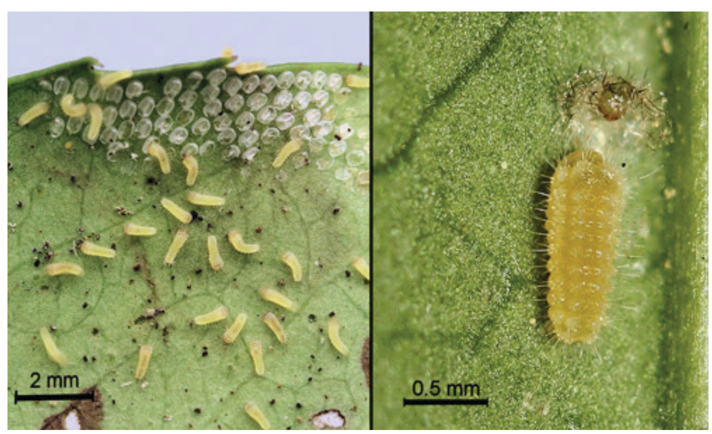

Figure 4. Laurelcherry smoky moth, *Neoprocris floridana* Tarmann, newly hatched first instar larvae (left) and newly molted second instar eating its exuviae (right).
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Full-grown larvae are approximately 1.3 cm in length (approximately ½ inch). Dorsal areas are white with black

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mid-dorsal and dorso-lateral chain-like patterns extending from the mesothorax down the length of the body. Lateral areas of the body are yellow. Dorsal, subdorsal, lateral, and ventral verrucae bear venomous setae (Figure 5 [inset a]). The head is retractile and covered by the hood-like prothorax (Figure 5 [inset b]). There are paired, sclerotized areas of unknown function (possibly exocrine) directly behind the dorsal mesothoracic verrucae (Figure 5 [inset c]). These structures have not been reported from other zygaenid larvae.

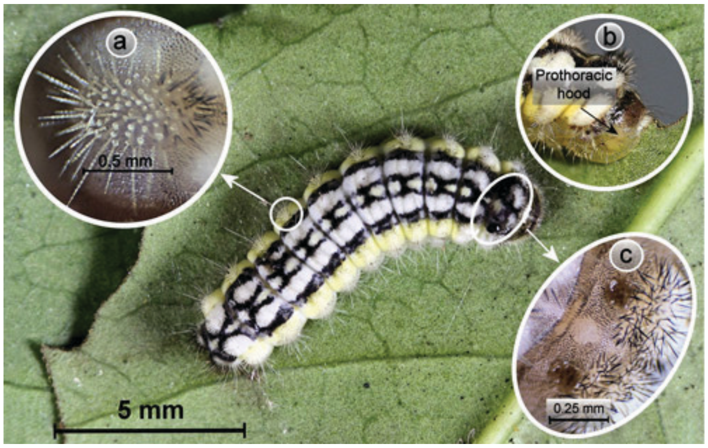

Figure 5. Laurelcherry smoky moth, *Neoprocris floridana* Tarmann, full-grown larva. Inset a = spine-bearing verruca. Inset b = hood-like prothorax hiding retracted head. Inset c = paired mesothoracic sclerotized areas.
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All procridine larvae are reported to have elliptical, semi-eversible, gland-like structures of unknown function just beneath the spiracles of abdominal segments two and seven (Efetov and Tarmann 2004, Stehr 1987, Veglialante and Hasenfuss 2012 [Supplemental Figure 4d]). In *Neoprocris floridana*, the cuticle of these glands is not well-differentiated from the surrounding cuticle. I have been able to observe them in full-grown larvae only when squeezing the larvae with forceps to cause the glands to evert.

Cocoons and Pupae

Cocoons are flattened and approximately 1.0 × 0.5 cm (approximately 0.4 × 0.2 in.).The bottom of the cocoons (the surface in contact with the substrate) is thin and papery. The upper surface is tough. Calcium oxalate monohydrate raphides (needles) produced in the Malpighian tubules are excreted through the anus and incorporated as small clumps into the outer web-like layer of silk (Naumann 1977, Ohnishi et al. 1968) (Figure 6).

The quantity of calcium oxalate raphides varies considerably. The entire surface of some cocoons is nearly covered giving them a white appearance (Figure 7).

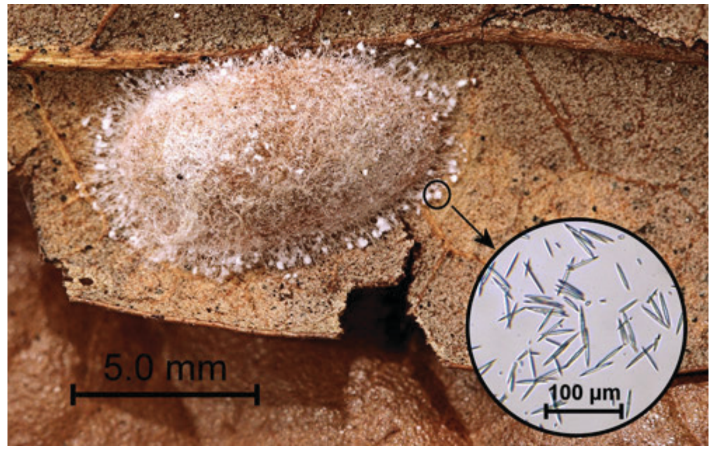

Figure 6. Laurelcherry smoky moth, *Neoprocris floridana* Tarmann, cocoon. Inset = raphides of calcium oxalate hydrate crystals.
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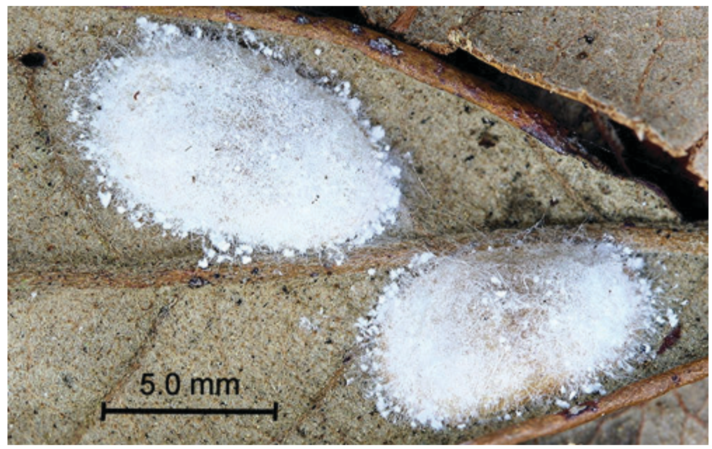

Figure 7. Laurelcherry smoky moth, *Neoprocris floridana* Tarmann, cocoons nearly covered with calcium oxalate monohydrate crystals.
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Pupae are moderately sclerotized (Figure 8) and dorso-ventrally flattened. Appendages are weakly attached to the body (Epstein et al. 1999), and abdominal tergites 3–7 (females) and 3–8 (males) bear transverse rows of spines anteriorly (Tarmann 2004) (Figure 8 [inset a]). Abdominal segments 3–7 in the male and 3–6 in the female are movable (Tarmann 2004), which facilitates protrusion of the pupa from the cocoon prior to adult eclosion. The cremaster is composed of six hooked setae (less commonly five). The setae are oriented with the hook point upward (Figure 8 [inset b]).

Adults

Adults are black with scales on the body and antennae that iridesce bright blue (Figure 9). Females are typically slightly larger than males. Tarmann (1984a, p. 78) reported wing-spreads for females of 16–21 mm and for males of 15–18 mm. Also, the abdomens of females are larger.

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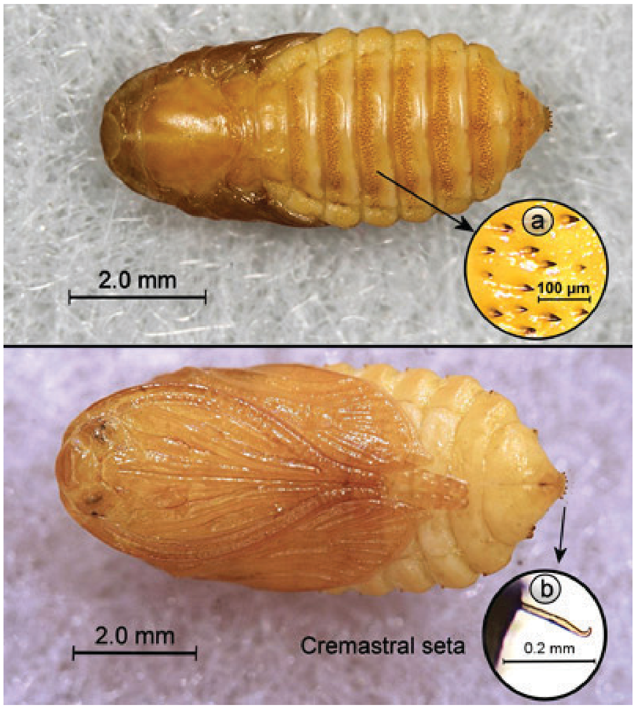

Figure 8. Laurelcherry smoky moth, *Neoprocris floridana* Tarmann, pupa - dorsal (top) and ventral (bottom) views. Inset a = spines. Inset b = magnified cremastral seta.
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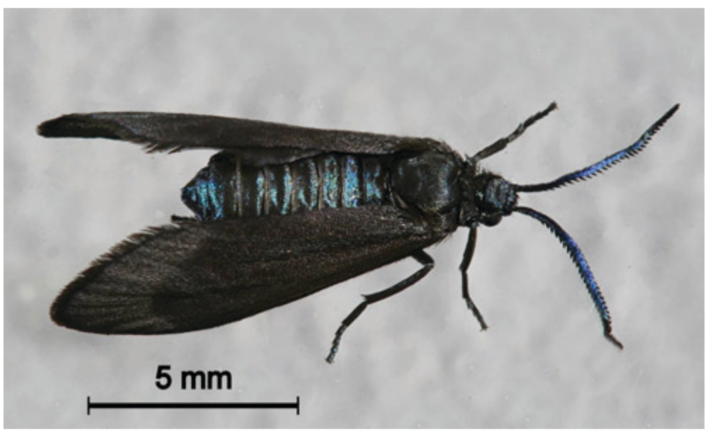

Figure 9. Laurelcherry smoky moth, *Neoprocris floridana* Tarmann, showing iridescent scales.
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Antennae are bipectinate and taper to points. Pectinations (pectin teeth) of male antennae are approximately twice the length of those of females (Figure 10). Male pectinations have numerous sensory hairs which likely function in detection of sex pheromone.

The frenulum of male Procridinae consists of a single bristle (Tarmann 2004). Tarmann (1984a [p.16] and 1984b [p. 67, Figure 226]) reported that the frenulum of female *Neoprocris* consists of three bristles.

However, of 25 female *Neoprocris floridana* of the overwintering generation from Gainesville, Florida, that I examined, only two had frenula with three bristles. All others had only two bristles (Figure 11). It is possible that females from different populations or different generations of the same population vary with respect to the number of bristles in the frenulum.

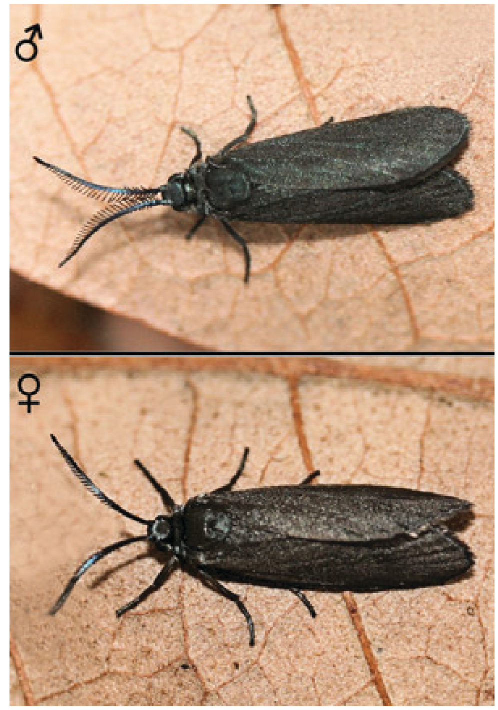

Figure 10. Laurelcherry smoky moth, *Neoprocris floridana* Tarmann, male (top) and female (bottom).
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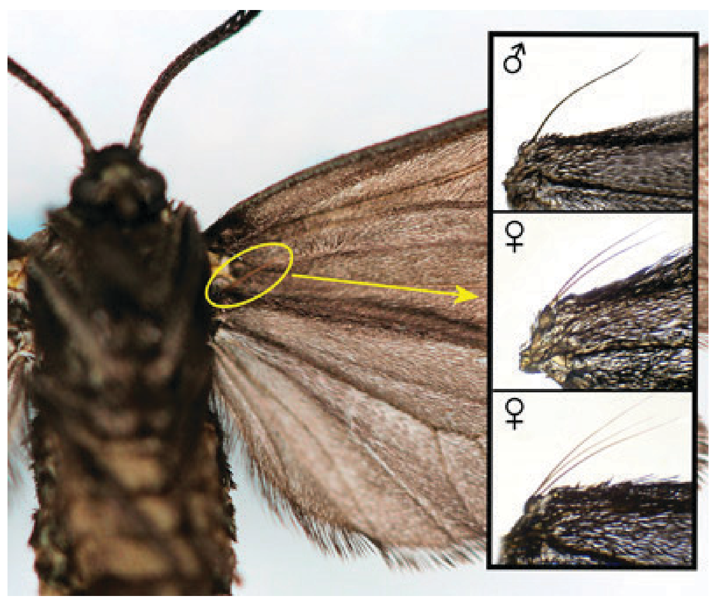

Figure 11. Laurelcherry smoky moth, *Neoprocris floridana* Tarmann, frenulums. Insets: male (top), female - two bristles (middle), female – three bristles (bottom).
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Chaetosemata of Procridinae are separated (divided) in contrast to those of the other subfamilies which are fused mediodorsally (Tarmann 2004) (Figure 12).

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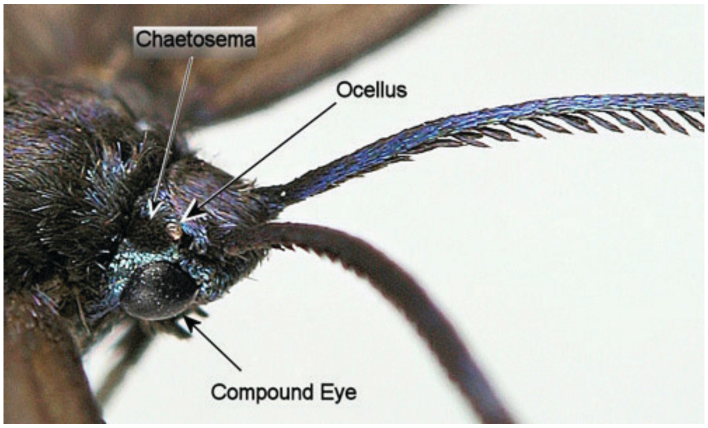

Figure 12. Laurelcherry smoky moth, *Neoprocris floridana* Tarmann, chaetosema.
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Host Plant

The only known larval host plant for *Neoprocris floridana* is Carolina laurelcherry, *Prunus caroliniana* Aiton (Rosaceae) (Tarmann 1992), and there are no other zygaenids known to feed on this species. Carolina laurelcherry is a small evergreen tree with shiny, dark green, leathery leaves (Figure 13).


Figure 13. Carolina laurelcherry, *Prunus caroliniana* Aiton (Rosaceae), branch of mature tree showing foliage, cherries, and blooms. Inset = leaf from sapling showing serrated edges.
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The margins of leaves of older trees are usually entire (smooth), but the leaf margins of younger plants are often serrated (Figure 13 [inset]). The small white flowers are borne in the leaf axils on 2–3 inch racemes in February and March and the resulting shiny black cherries (Figure 13) are eaten by birds which then spread the seeds causing the plant to be somewhat weedy. For general information on Carolina laurelcherry, see Godfrey (1988), Haehle and Brookwell (1999), and Nelson (2003).

Because of its attractive foliage, Carolina laurelcherry has been used as an ornamental or for hedges and screens in home landscapes (Figure 14).


Figure 14. Carolina laurelcherry, *Prunus caroliniana* Aiton (Rosaceae), pruned into a hedge.
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Life Cycle and Biology

There are three generations per year with adults reported from February–April, July, and September–October (Heppner 2003). Winter diapause is spent in the pupal stage (personal observation).

Prior to adult eclosion, the pupa (pharate adult) forces its way out of the cocoon (dorsal side up) by repeated, sequential lengthening and shortening of the abdomen while hooking the dorsal bands of spines of the abdominal segments into the cocoon to move itself forward. When all but the terminal segments of the abdomen are out of the cocoon, the adult emerges. The pupal exuviae is left protruding from the cocoon (Figure 15) anchored by the cremaster.

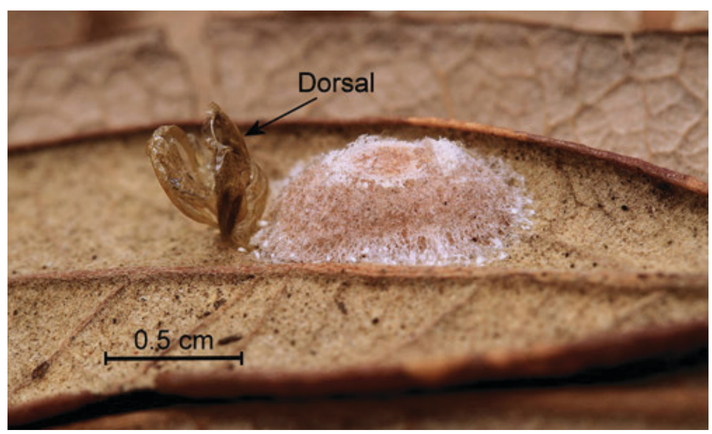

Figure 15. Laurelcherry smoky moth, *Neoprocris floridana* Tarmann, cocoon with protruding pupal exuviae.
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Adult zygaenids have a well-developed proboscis and visit flowers. I have been unable to observe *Neoprocris floridana* feeding on native flower species, but Joe Cicero (personal communication) observed one feeding on a flower of exotic Indian mustard, *Brassica juncea* (L.) Czern. (Brassicaceae).

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Pheromones and mating: The position of the pheromone glands in Procridinae is unusual. While sex pheromone glands of most Lepidoptera are in the terminal segments of the abdomen, those of procridines are under the anterior edges of the 3rd–5th tergites (Hallberg and Subchev 1997, Subchev 2014) and are connected to the outside by ducts to setae. The pheromone is believed to be released through pores in the setae (Hallberg and Subchev 1997). To release the pheromone, procridines have a unique calling posture with the wings spread downward and the abdomen bowed to expose the anterior edges of tergites 3–5 (Hallberg and Subchev 1997) (Figure 16) which would normally be covered by the posterior edges of the preceding tergites.

Figure 16. Laurelcherry smoky moth, *Neoprocris floridana* Tarmann, female in characteristic procridine calling posture.
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Some Procridinae use enantiomers (stereoisomers that are mirror images of each other and non-superimposable on one another) of 2-butyl-(Z)-7-tetradecenoate as sex pheromones (Curtis et al. 1989, Landolt and Heath 1987, Landolt and Heath 1991, Landolt et al. 1986, Subchev 2014, Subchev et al. 2010). *Neoprocris aversa* (Edwards), a southwestern US species has been shown to use the (R) enantiomer of 2-butyl-(Z)-9-tetradecenoate (Subchev 2014). The pheromone of *Neoprocris floridana*has not been identified.

Males attracted to caged females flutter around with their claspers spread (Figure 17). Caged virgin females are attractive to males throughout most of the photophase except in February during time periods when temperatures are too low for activity. Calling throughout the entire photophase has been previously reported for at least two Palearctic procridines, *Theresimima ampellophaga* (Bayle-Barelle) and *Rhagades pruni* Denis & Schiffenmuller (Toshova and Subchev 2005).

Mating is end-to-end with the male's wings on top (Figure 18).

Figure 17. Laurelcherry smoky moth, *Neoprocris floridana* Tarmann, female (caged) and male with claspers spread attempting to mate.
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Figure 18. Laurelcherry smoky moth, *Neoprocris floridana* Tarmann, mating pair, female (left), male (right).
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Eggs are usually laid in large clusters on the undersides of young leaves near the leaf margins (Figure 19).

Figure 19. Laurelcherry smoky moth, *Neoprocris floridana* Tarmann, ovipositing female.
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Eggs hatch in approximately 10 days. Larvae eclose by chewing through the chorion at the end of eggs (Figure 2, [inset b]). Sometimes (but not always), they eat the chorions of the eggs. Early instars are leaf skeletonizers (Figure 20, left). Later instars feed on leaf edges (Figure 20, right) and sometimes completely defoliate host plants (Figure 21)

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including mature trees. Newly-molted larvae of all instars conserve nutrients by eating their exuviae (Figure 4).

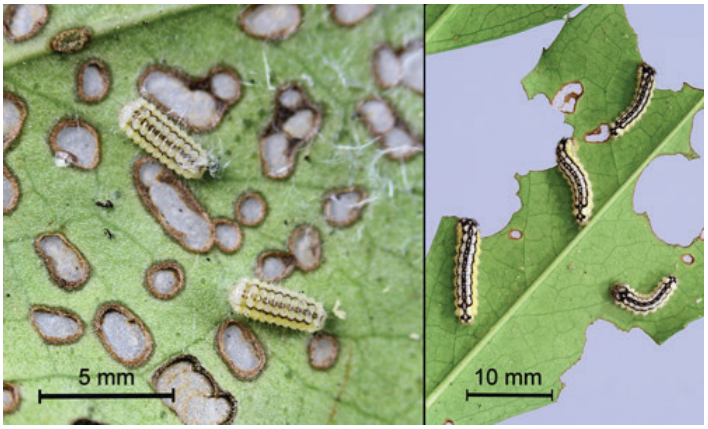

Figure 20. Laurelcherry smoky moth, *Neoprocris floridana* Tarmann, early instars on skeletonized leaf (left) and late instars feeding on leaf edge (right).
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Figure 21. Carolina laurelcherry (*Prunus caroliniana*), sapling defoliated by laurelcherry smoky moth, *Neoprocris floridana* Tarmann.
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Full-grown larvae spin cocoons on dead leaves in the litter beneath the host plants.

Medical Importance

Diaz (2005) listed Zygaenidae (including *Neoprocris* spp.) among the families of Lepidoptera with envenoming caterpillars. Zygaenid caterpillars, including those of *Neoprocris floridana* have mildly venomous setae. The setae are borne on prominent sub-dorsal, lateral, sub-spiracular and ventral verrucae on the meso- and meta-thorax and abdominal segments one through eight (Figure 5). Each venomous seta has a basal bulb and is annulated throughout its length (Figure 5 [inset a]). The setae appear identical to those of the Oriental procridine *Artona funeralis* Butler described by Tsutsumi (1959) who found that the setae were hollow and filled with a yellow urticating fluid. In contrast to stings by caterpillars of most other lepidopteran families, the tips of the venomous setae of *Artona* were not broken off and left embedded in the skin.

I pressed a full-grown caterpillar against my inner wrist and within a minute I experienced a mild, burning itch followed by erythema (reddening) in the area contacted by the caterpillar. Within five minutes a raised wheal (blister) appeared covering the area contacted by the caterpillar (Figure 22). The burning itch was completely gone within an hour. By two hours, the wheal had disappeared, but the area was still erythematous.

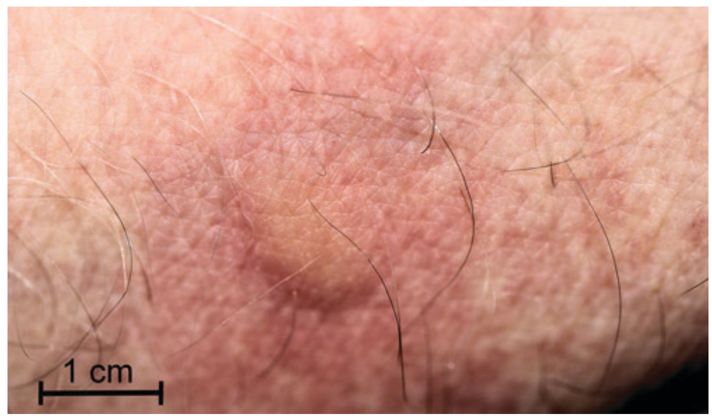

Figure 22. Laurelcherry smoky moth, *Neoprocris floridana* Tarmann, wheal and erythema from sting by venomous setae.
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Natural Enemies

Parasitoids

The only parasitoids known from *Neoprocris floridana* are tachinid flies. Patton (1958, p. 80) reported *Phorocera subnitens* Aldrich & Webber (Tachinidae) from a moth larva identified as "near *Triprocris*" feeding on laurelcherry. The moth larva was certainly *Neoprocris floridana*. O'Hara (2013) listed the tachinid under its current name, *Chetogena subnitens* (Aldrich & Webber 1924).

Of overwintering *Neoprocris floridana* cocoons which yielded live moths or flies (N=204), 23 (11.3%) were parasitized by tachinids. Because of their small size, each *Neoprocris floridana* will support development of a single tachinid. The tachinid life cycle is shown in Figure 23. The tachinid egg is laid near the front of the host larva's body where the larva cannot reach it to remove it. After hatching, the tachinid larva penetrates the integument of the *Neoprocris floridana* larva but maintains a respiratory funnel to the

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outside which it also maintains in the *Neoprocris floridana* pupa. The tachinid larva completes its development within the *Neoprocris floridana* pupa and usually pupates within the host pupal exoskeleton inside the host cocoon. Subsequently, the adult fly breaks out of its puparium, through the host pupal exoskeleton, and forces its way out of the host's cocoon (probably by using its ptilinum).

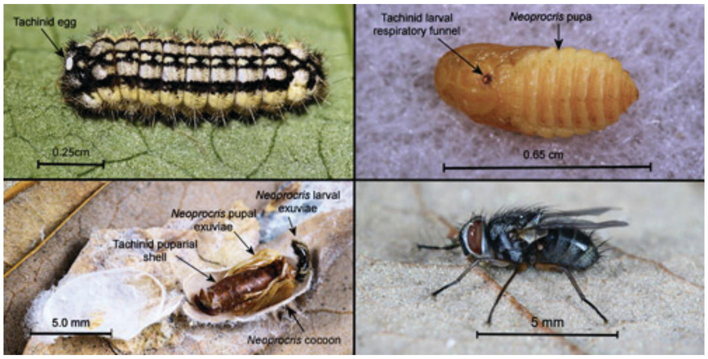

Figure 23. Life cycle of tachinid parasitoid of the laurelcherry smoky moth, *Neoprocris floridana* Tarmann.
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Predators

Laurelcherry smoky moths are likely chemically-defended from most vertebrate predators. Epstein and Adams (2009) stated that zygaenid moths are avoided by birds and other predators. However, I have fed them to exotic Cuban brown anoles, *Anolis sagrei* Dumeril and Bibron (Reptilia: Polychrotidae), and the anoles did not exhibit any aversion or short term signs of poisoning.

I have fed full-grown larvae to a wheel bug, *Arilus cristatus* (Linnaeus) (Reduviidae) which ate them without hesitation and showed no signs of poisoning. Insects are probably the major predators of zygaenids.

Defenses

Avoidance

Neoprocris floridana larvae and adults may avoid natural enemies by aposematic (warning) coloration. The yellow and white coloration of larvae with contrasting black lines (Figure 5) makes them readily recognizable to predators that may have previously had a toxic reaction to one of them.

The bright iridescence of the abdomens of adults (Figure 9), visible while the moths are in flight, may serve as a warning to potential predators. Warning coloration is proposed to be one of the functions of iridescence in animals (Doucet and Meadows 2009).

Many zygaenids are members of mimicry rings (Arillo et al. 2005). A mimicry ring is composed of a group of species that display a common warning coloration pattern and some or all of the species are unpalatable (Mallet and Gilbert 1995). Smoky moths may be members of Müllerian mimicry rings (all species in group are unpalatable) involving wasps or other chemically defended insects. In flight, smoky moths resemble dark-colored wasps. The shiny iridescence of *Neoprocris floridana* may enhance this resemblance.

Zygaenidae is one of at least six families of Lepidoptera in which larvae, when disturbed, drop toward the ground on "lifelines" of silk thread (Sugiura and Yamazaki 2006) presumably to escape predators. *Neoprocris floridana* commonly displays this behavior (Figure 24), and as a result, I commonly find them on my clothing after collecting from their host plants. Also, this behavior is common when a branch of the host plant or the entire plant has been defoliated and larvae have no food (personal observation). The wind may blow the silk lifelines or the larvae against lower branches or adjacent plants with leaves. Dozens of suspended larvae may sometimes be observed hanging from a single defoliated host tree.

Figure 24. Laurelcherry smoky moth, *Neoprocris floridana* Tarmann, larva hanging by silk life-line.
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Host feces may serve as an arrestant or attractant for parasitoids (Afsheen et al. 2008, Godfray 1994, Stireman et al. 2002, Tanaka et al. 2001). Larvae from at least 17 families of Lepidoptera forcibly eject their fecula (fecal pellets)

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(Weiss 2003). Over one third of the families with species that eject their feces (including the Zygaenidae) belong to the superfamily Zygaenoidea (Epstein 1996). Larvae that forcibly eject their fecula have anal combs or forks that serve as latches in a pressure driven system to achieve the ejection (Caveny et al. 1998). These combs or forks are usually located above the anus on the underside of the anal plate and vary in morphology between species of zygaenids (Efetov 2004).

The anal comb of *Neoprocris floridana* consists of a row of stout spines (Figure 25). However, because the larvae spend most of their time on the edges or undersides of leaves and only eject their feces several centimeters (D.W. Hall personal observation), fecal ejection may not serve an adaptive function in this species.

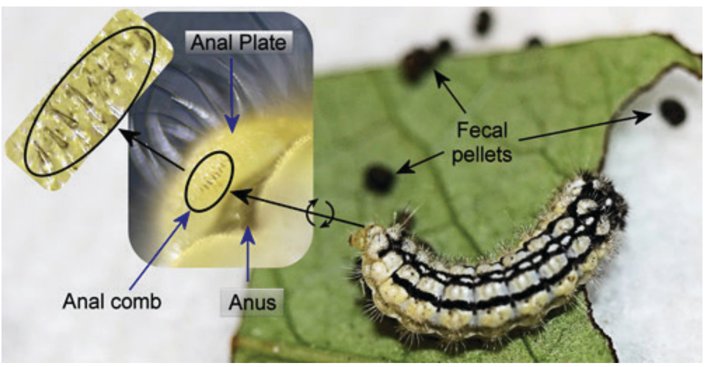

Figure 25. Laurelcherry smoky moth, *Neoprocris floridana* Tarmann, larva with ejected fecula. Insets: underside of anal plate with anal comb and enlarged anal comb.
Credits: Donald W. Hall, University of Florida

Chemical Defenses

All stages of Zygaenidae contain the cyanogenic β–glucosides linamarin and lotaustralin (Zagrobelny et al. 2007, 2008), and many species are extremely resistant to poisoning by cyanide. For chemical information on these compounds see: http://pubchem.ncbi.nlm.nih.gov/compound/11128 (linamarin) and http://pubchem.ncbi.nlm.nih.gov/compound/441467 (lotaustralin)

Linamarin and lotaustralin undergo enzymatic breakdown to release toxic, free hydrogen cyanide (HCN) as a defense when zygaenids are attacked. Cyanogenic glucosides may be sequestered from host plants and/or synthesized *de novo* (Fürstenberg-Hägg et al. 2014).

It has been shown in *Zygaena filipendulae* (Linnaeus) (Zygaenidae: Zygaeninae) that males transfer these compounds to females as nuptial gifts, that females mate preferentially with males that have a higher content of cyanogenic glucosides, and that males may be attracted to females that emit high concentrations of HCN (Zagrobelny et al. 2007, 2008, 2014). It is unknown whether or not this is true for *Neoprocris* species.

The foliage of laurelcherry has high concentrations of cyanogenic glucosides (Hall et al. 1969, Nelson 2003) which are likely sequestered by *Neoprocris floridana* larvae. The concentration of cyanide in foliage is sufficiently high that Hall et al. (1969) suggested using crushed laurelcherry leaves as the toxicant for insect killing jars. They charged four ounce jars with five mg. of crushed leaves each and recorded knockdown times for 11 species of insects. Examples of times required for 100% knockdown were nine seconds for the mosquito *Anopheles quadrimaculatus* Say (Diptera: Culicidae), 12 seconds for the honey bee, *Apis mellifera* Linnaeus (Hymenoptera: Apidae), and 135 seconds for the squash bug *Anasa tristis* (De Geer) (Hemiptera: Coreidae).

Female Zygaeninae cover their eggs with a thin layer of proteinaceous material of glandular origin (Petersen's glands) that is believed to be poisonous and protect the eggs from parasitoids (Tarmann 2004). Similar pairs of glands, believed to be homologous to Petersen's glands, occur in the Procridinae (Tarmann 2004).

The stinging setae of older larvae (Figure 5 [inset a]) may serve to protect them from vertebrate predators, but are probably ineffective against most insect predators.

The calcium oxalate monohydrate raphides in the outer webbing layer of *Neoprocris floridana* cocoons (Figures 6 & 7) almost certainly serve a defensive function against potential predators attempting to chew into the cocoon. Raphides are common in plants and are increasing believed to have a defensive function against herbivores (Finley 1999, Hanley et al. 2007, Konno et al. 2014, Nakata 2003). *Neoprocris floridana* larvae spend considerable time and effort distributing the raphides. First they excrete the oxalate at one end of the early cocoon and turn around and appear to add material to it with the mouthparts. Next they work it into the silk webbing—first on one side of the cocoon and then the other with their mouthparts (Figure 26). The behavior is then repeated at the other end of the cocoon.

When disturbed, adults release a droplet of fluid from a pore between the inner margin of the compound eye and the base of the proboscis (Figure 27) (Epstein et al. 1999). Even grasping a wing with forceps will elicit release of the droplet by adults of *Neoprocris floridana*. The function of the droplet is unknown but may be defensive.

Archival copy: for current recommendations see https://edis.ifas.ufl.edu or your local extension office.

Figure 26. Laurelcherry smoky moth, *Neoprocris floridana* Tarmann, larva expelling calcium oxalate monohydrate from the rectum - then distributing it throughout the outer netting of the cocoon. (a) excretion of calcium oxalate. (b) larva turns around. (c) larva adds material to calcium oxalate. (d) larva uses mouthparts to distribute calcium oxalate to outer webbing of cocoon.
Credits: Donald W. Hall, University of Florida

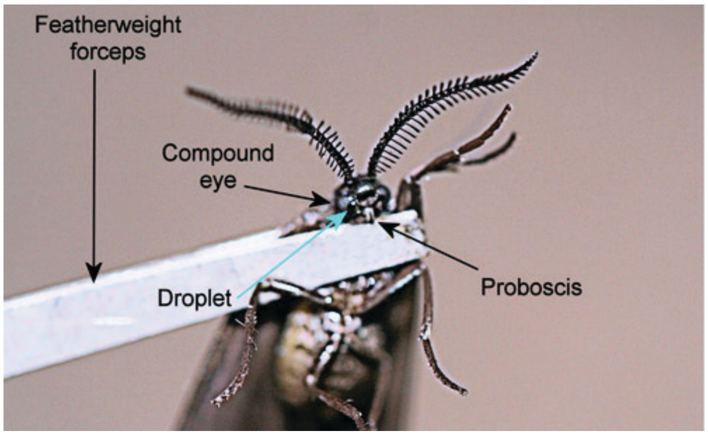

Figure 27. Laurelcherry smoky moth, *Neoprocris floridana* Tarmann, facial droplet.
Credits: Donald W. Hall, University of Florida

Management

The laurelcherry smoky moth is not economically important. Although it is common on individual plants, I have not seen damage to landscape hedges. Regular pruning of the hedges may interrupt its life cycle. If control measures are required, *Bacillus thuringiensis* applications or chemical insecticides recommended for control of other caterpillars should be effective. For current control recommendations, contact your County Extension Office.

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