

SPRINGTIME *CATOCALA* AT THE ALLIGATOR CREEK WMA (WHEELER COUNTY, GEORGIA)

BY

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ABSTRACT

We surveyed the Alligator Creek WMA in Wheeler County, Georgia, on 15 to 23 May, 2021 for Lepidoptera using MV/UV lights and rotten banana/brown sugar bait. We recorded 20 species of *Catocala* mostly in sandy soil habitat dominated by oaks (*Quercus*), hawthorns (*Crataegus*) and sparkleberry (*Vaccinium arboreum*). Live images of many of the *Catocala* species seen on the bait trail are provided, including our primary goal, *C. grisatra*.

INTRODUCTION

The Alligator Creek Wildlife Management Area (ACWMA) is 3,086 acres with deep sandy soils supporting extensive xeric scrub forest with some cypress areas. From the 25-27 May 2018 the second author (JA) surveyed the Fall Line Sandhills with similar scrub habitat, sandy oak-pine woodlands and *Crataegus flava* where he recorded twenty-one species of *Catocala*. Of foremost interest among these was his series of the rare *C. grisatra* collected in UV traps.

Catocala grisatra has a limited distribution from southeastern North Carolina into Florida, is poorly represented in collections and prior to the Fall Line Sandhills experience was considered very difficult to attract to either lights or bait. We have never taken or seen a photo of this rare species in the wild. Because Fall Line Sandhills is currently being "restored" to Longleaf Pine habitat and most other known *C. grisatra* habitat had been eliminated by development and recent hurricane activity, a primary goal of this effort was to find an alternative suitable *C. grisatra* locality. To this end James Adams (JA) and Lance Durden obtained a research permit for ACWMA from the Georgia DNR, Wildlife Resources Division and they designated Jeff Slotten and the first author (RB) as additional researchers.

MATERIALS AND METHODS

Lepidoptera were sampled with a 400-watt MV illuminated sheet, twelve 15-watt UV light trap locations, a bait trail and eleven cylindrical bait traps with slotted plastic container bottoms filled with rotten bananas. On the bait trail we used a thick mixture of brown sugar and fermenting bananas recommended by Hugo Kons Jr. which requires straining out the banana juice. Survey methods are described in detail in Kons and Borth (2007a). Light trap localities are included in Figures 1 and 2; Figure 1 includes trapping

locations from ALL trips made to ACWMA – not all were sampled in May 2021. The eleven bait traps were distributed relatively evenly close to the road between N31.9753° E-82.6894° and N31.97219° E-82.6915°. Two adjacent bait trails (see Roads 5 and 6 on Figure 2) with the longer one being 0.6 miles between N31.97314° E-82.69161° and N31.979406° E-82.69585° were checked two to three times throughout each night by RB prior to the MV sheet being turned off by 2:00 am. On two nights bait trails were also checked just before dawn.

Moth photos in the plates were taken by RB with a Canon 60D equipped with a 100 mm macro lens and a Canon MT-24EX flash.

RESULTS

A check list of 20 *Catocala* species recorded during the nine nights is presented in Table 1. All of these were collected with the exception of *C. orba* which was photographed in Figure 7.

The first night temperatures dropped into the low forties so only a few *Catocala* joined the less temperature sensitive *Zales* at the bait. Cool weather continued through the second night but *C. pretiosa*, the earliest of the three *C. flava* feeders, was already beginning to show up in numbers (Figures 5, 9, 16, 18 & 20). By the third night temperatures warmed up further and *C. pretiosa* showed up on the bait trail in record numbers. As many as five or six individuals were seen at a single tree on several occasions.

On the third night we were excited to record the first *Catocala grisatra* at ACWMA in a bait trap. The only *C. grisatra* attracted to lights was collected by Lance Durden at his UV sheet just after dark. The other ten specimens of *C. grisatra* were taken primarily on the bait trail over the remaining six nights (Figures 10 & 16).

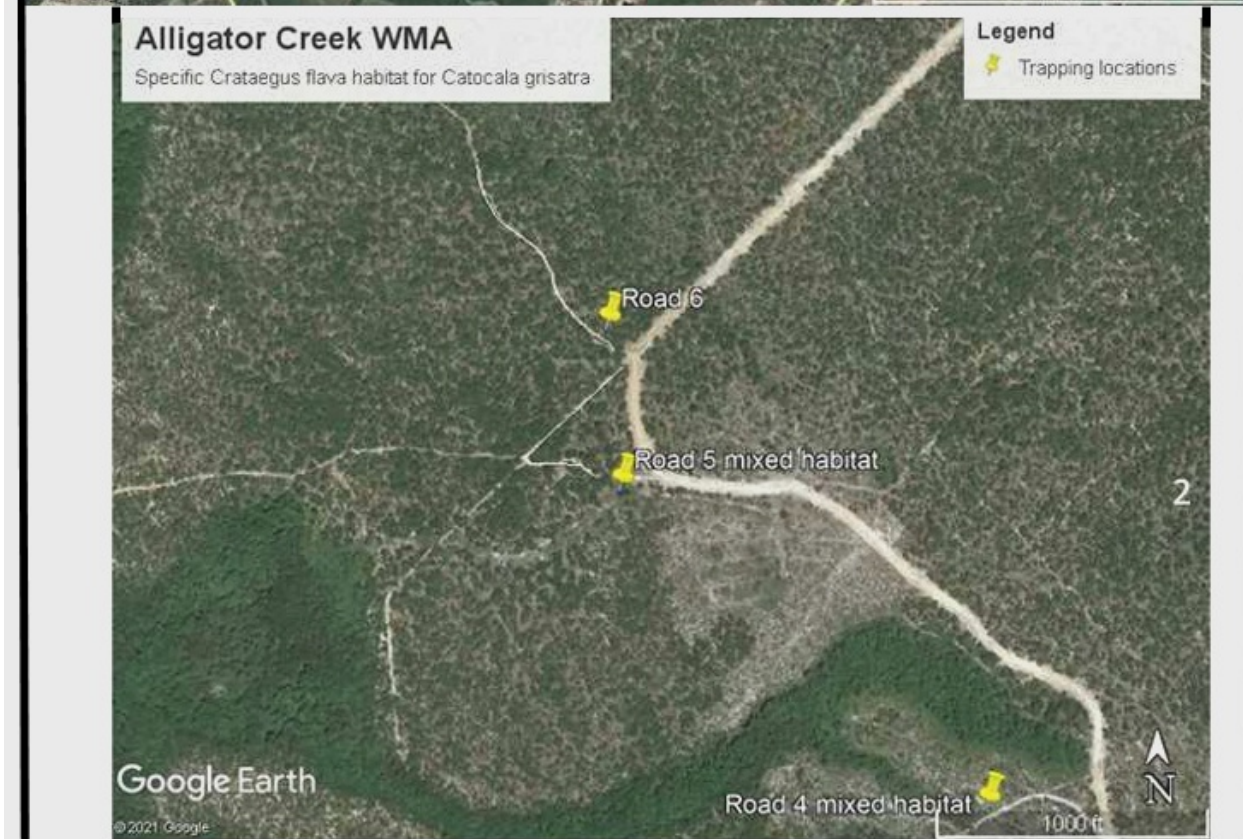
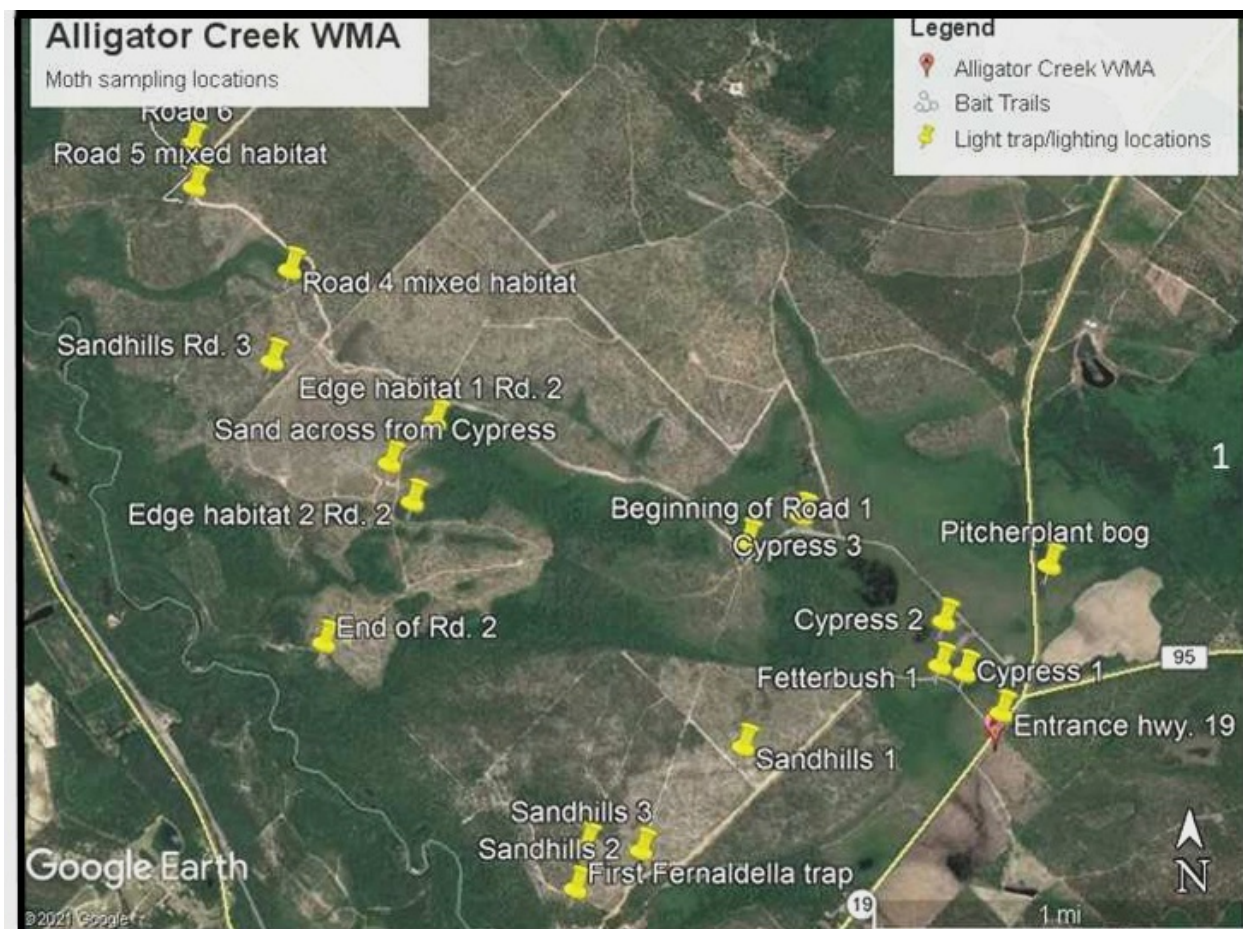


Fig. 1. Moth sampling locations

Fig. 2. *Crataegus flava* habitat at ACWMA

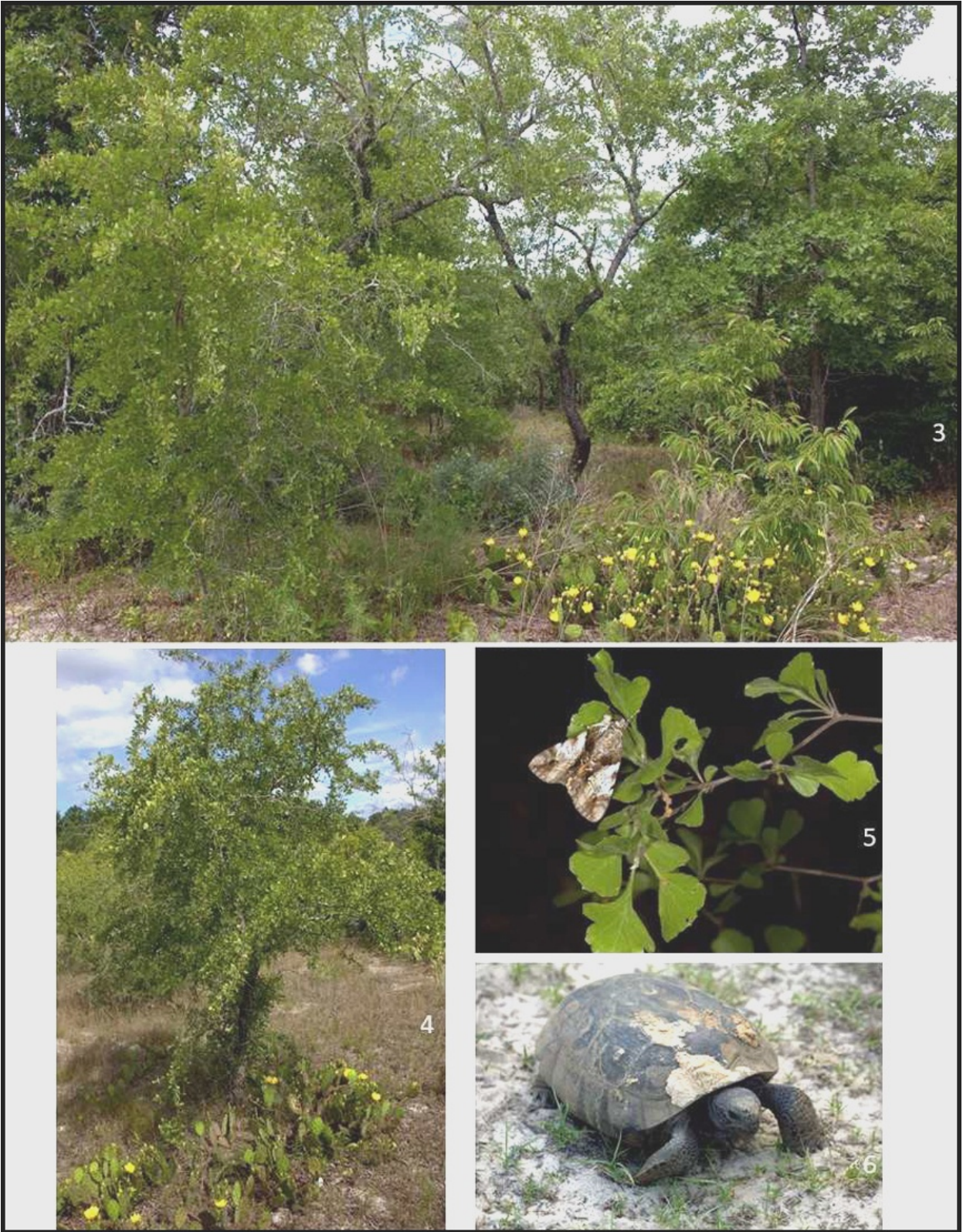


Fig. 3. Mixed oak, hawthorn, sparkleberry habitat at ACWMA

Fig. 4. *Crataegus flava* tree at ACWMA

Fig. 5. *C. Pretiosa* on leaves of *Crataegus flava*

Fig. 6. Gopher tortoise (*Gopherus polyphemus*) burrowing in sandy soil of ACWMA

A third *Crataegus flava* feeder, *C. alabamiae* (Figure 11), gradually increased in numbers and by the end of the nine nights was nearly as common as *C. pretiosa* (Graph1). Other Rosaceae feeders included specimens of *C. praeclara* collected by JA and Jeff Slotten in light traps placed in wetter habitats within the wildlife management area. Three species known to feed on *Crataegus marshalli* including *C. orba* (Figure 7), *C. lincolniana* and *C. mira* (Figure 14), were seen as singletons only. *Catocala clintonii* is probably the earliest *Catocala* on the wing at ACWMA and was already showing significant wear throughout the study period (Figures 15 & 20). Like *C. clintonii*, *C. ultronia* is a common and widespread Rosaceae feeder which we generally didn't bother to collect after securing a few examples (Figure 8).

Blueberry feeders including *C. andromedae*, *C. louseae* (Figure 13) and *C. gracilis* (Figure 17) and oak feeders including *C. coccinata* (Figure 12), *C. ilia*, *C. umbrosa*, *C. micronympha*, *C. similis* (Figure 15) and *C. connubialis* gradually increased in numbers over the period but remained far less common than *C. pretiosa* and *C. alabamiae* on the bait trail.

DISCUSSION

With its scrubby mixed oak-hawthorn forest (Figure 3) growing in sandy soils we considered the ACWMA to be a potentially good site for Spring *Catocala* diversity. Those expectations were exceeded in our May 2021 survey where we collected 20 *Catocala* species. Extensive stands of *Crataegus flava* (Yellowleaf Hawthorn) (Figures 4 & 5) at the ACWMA contributed to exceptionally healthy populations of *C. pretiosa* and *C. alabamiae* and notably to the presence of the rare *C. grisatra*. Over many years we had only found small numbers of *C. pretiosa* and *C. alabamiae* on any given night and *C. grisatra* was exceptionally difficult to find as an adult.

At the ACWMA bait proved to be the best method to attract *C. grisatra*. Of twelve specimens collected only one came to light, six to the bait trail and five to bait traps. On the bait trail less than half of the individuals seen were collected as *C. grisatra* tended to be the wariest *Catocala* at the baited trees and was often very difficult to approach. As soon as a flashlight was shined on the tree most *C. grisatra* individuals would fly towards the light or up into the trees. Trying to get good live pictures of it was especially frustrating because the moth would inevitably be gone after we glanced down to adjust a camera setting or altered the lighting in any way. *Catocala grisatra* occasionally revealed its hindwings on a tree but mostly just before

taking off. The best opportunity to get a picture was when an individual was heavily preoccupied with feeding on the thick fermented banana bait. We never saw more than one *C. grisatra* at a time on a given tree and no more than five on a given night. Jeff Slotten did collect two *C. grisatra* on the night that we saw five individuals by quickly using his one-handed jarring technique.

Extant populations of *C. grisatra* are nearly unknown which makes the ACWMA a particularly valuable site for Lepidoptera conservation. Any management approach that removes the critical *Crataegus flava* foodplant could adversely affect the long-term survival of this species. Prescribed burns are part of the management regimen at the ACWMA but managers are interested in conserving the *Catocala* there. We recommended using only patchy burns during appropriate times which consider the mid-March through mid to late April larval stage of *C. grisatra*.

Several other *Catocala* at the ACWMA are also worthy of special consideration. The large stands there of *Vaccinium* contribute to vigorous populations of *C. louseae*, *C. gracilis* and *C. andromedae* (though *C. gracilis* and *andromedae* are widespread in the state). *Catocala orba* and *C. lincolniana* have also rarely been found in Georgia so other *Crataegus* at the ACWMA should also be preserved. *Catocala praeclara* was restricted to the Cypress wetland habitats. The remaining *Catocala* recorded at the ACWMA are widespread generalists not currently in need of special management consideration.

The ACWMA is an excellent site for baiting with wide, level bait trails, and on this trip no annoying critters discovering and exploiting the bait. Mosquitoes (Culicidae) and carpenter ants (*Camponotus pennsylvanicus*) were not a problem at night, although bumblebees (*Bombus*) swarmed to the bait during the day (Figure 19). Hymenoptera such as European hornets (*Vespa crabo*) consumed a few moths in the bait traps. Despite warnings to the contrary, no Eastern Diamondback Rattlesnakes (*Crotalus adamanteus*) or other venomous snakes were encountered. Distant gunshots and dogs barking were unsettling during nights when RB was alone at the site. His imagination with thoughts of Freddy Krueger making him feel he wasn't really alone on the trail made him really appreciate the companionship of his colleagues earlier on the trip. Hopefully researchers will find additional *Crataegus flava* sites suitable for *C. grisatra* and the species will continue to thrive in the ACWMA.

Table 1: *Catocala* Survey Data for Alligator Creek WMA from 15-23 May 2021

CATOCALA COLLECTED	FOODPLANT	Bait	Bait	Bait	Bait	Bait	Bait	Bait	Bait	Bait	UV	UV	UV	UV	MV
		Trail & Trap	Trail & Trap	Trail & Trap	Trail & Trap	Trail & Trap	Trail & Trap	Trail & Trap	Trail & Trap	Trail & Trap	Trap Sheet	Trap Sheet	Trap Sheet	Trap Sheet	Sheet
		15 May 2021	16 May 2021	17 May 2021	18 May 2021	19 May 2021	20 May 2021	21 May 2021	22 May 2021	23 May 2021	15 May 2021	16 May 2021	20 May 2021	21 May 2021	21 May 2021
<i>alabamæ</i>	<i>Crataegus flava</i>		X	X	X	X	X	X	X	X					
<i>andromedæ</i>	Ericaceae			X		X		X		X			X		
<i>clintonii</i>	Rosaceae		X	X	X	X							X		
<i>coccinata</i>	<i>Quercus</i>		X	X	X		X		X		X				
<i>connubialis</i>	<i>Quercus</i>				X	X	X	X	X						
<i>gracilis</i>	Ericaceae		X	X	X	X	X	X	X	X	X				
<i>grisatra</i>	<i>Crataegus flava</i>			X		X	X	X	X				X		
<i>grynea</i>	Rosaceae				X				X						
<i>ilia</i>	<i>Quercus</i>	X	X	X		X			X	X					
<i>lincolnana</i>	<i>Crataegus marshallii</i>									X					
<i>lineella</i>	<i>Quercus</i>										X				
<i>louiseae</i>	Ericaceae				X	X	X	X	X	X					
<i>micronympha</i>	<i>Quercus</i>		X	X	X	X	X	X	X	X		X	X	X	X
<i>mira</i>	<i>Crataegus</i>						X								
<i>orba</i>	<i>Crataegus marshallii</i>					X									
<i>pretiosa</i>	<i>Crataegus flava</i>	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<i>praeclara</i>	Amalanchier												X	X	
<i>similis</i>	<i>Quercus</i>	X	X	X	X	X	X		X		X	X	X	X	X
<i>ultronia</i>	Rosaceae		X	X	X	X									
<i>umbrosa</i>	<i>Quercus</i>								X	X					

Graph 1: No. of *Catocala* Collected on 15-23 May



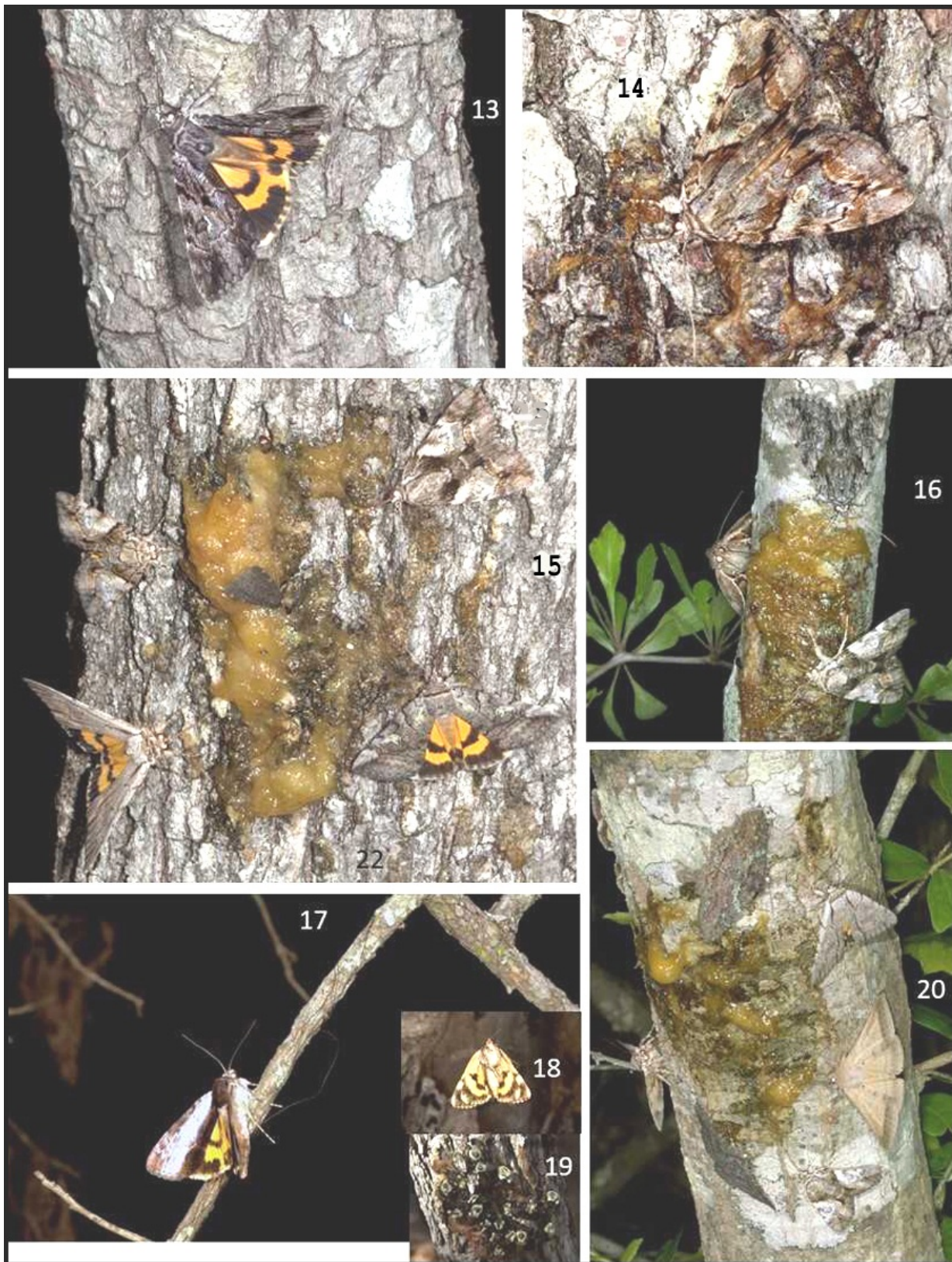
Table 1 and Graph 1: *Catocala* Survey data for Alligator Creek WMA from 15-23 May, 2021.



Fig. 7. *Catocala orba*
Fig. 8. *Catocala ultronia*
Fig. 9. *Catocala pretiosa*
Fig. 10. *Catocala grisatra*



Fig. 11. *Catocala alabamae*
Fig. 12. *Catocala coccinata*



- 13. *Catocala louiseae*
- 14. *Catocala mira*
- 15. *Catocala similis*, *C. clintonii*, *C. pretiosa*
- 16. *Catocala grisatra*, *C. ultronia*, *C. pretiosa*
- 17. *Catocala gracilis*
- 18. *Catocala pretiosa* that had just flown into a spider web
- 19. *Bombus* at bait during day
- 20. *Zale aeruginosa*, *C. clintonii*, *C. pretiosa*

REFERENCES

Alligator Creek WMA | [Department of Natural Resources Division \(georgiawildlife.com\)](http://georgiawildlife.com)
<https://georgiawildlife.com/alligator-creek-wma>

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