

MOTHS

of Southern 8ths



CHESTERFIELD, SOUTH CAROLINA





OBSERVATION AREAS

- 1 PRAIRIE** In a small stand of hardwoods in the middle of 12 acres of planted warm-season native grasses.
- 2 CREEK** On the rocky edge of Thompson Creek within bottomland hardwoods.
- 3 POND** On the dam of 2 acre pond sitting in the valley of mixed bottomland forest.
- 4 PINES** In the center of 20 acres of young pines planted in 2007.
- 5 SAVANNAH** On the edge of a small water feature within 15 acres of Piedmont savannah and hay fields.

MOTHS, WHO KNEW??

Unusually beautiful, hidden creatures

Moth Perceptions

Aren't they the bugs that eat your clothes, need to be cleaned off your windshield, and fly around the porch light each summer? They're dull brown, boring relative of butterflies... Right?

Moth Realities

- Of the over 11,000 moths that are native to the United States, only two species feed on fabric. So, you can probably put the moth balls away.
- Moths and butterflies are part of the Lepidoptera order of classification or if you're cool, just call them "Leps."
- Worldwide, there are estimated to be more than 160,000 different species of moths and about 17,500 of butterflies – yes, that's about nine times the number of moth species for each butterfly. We have photographed and identified over 500 different species of moths at Southern 8ths!
- The wide variety and abundance of moths and their caterpillars make them a prime food source for birds. Since a nest of young songbirds need up to 9,000 caterpillars before they fledge, think of them as bird baby food. Gerber's could learn a thing or two from these Leps.
- If there is a plant nearby, there is probably a moth that feeds upon it, and not just during the summer. Moths live year-round in many areas.
- Moths are important pollinators. Studies have found that pollinating moths visit more plant species at night than bees do during the day.
- It is estimated that only about 70% of moths are attracted to lights and not all moths are nocturnal, which makes "mothing" that much more interesting.
- Because moths are widely distributed and found in all manner of habitats, fluctuations in moth populations serve as a useful early warning signals when something is wrong in the environment.

MOTH SCIENTIFIC FAMILIES

Crambidae **Worldwide Species ~ 10,000 species**

This family is large and very diverse. Many species of *Crambidae* rest with folded wings that allow them to hide on a stem of grass and are called grass moths. Others, like the ones illustrated in this guide, are boldly patterned and rest with wings spread.

Erebidae **Worldwide Species ~ 24,500**

One of the largest families of moths by species count and contains a wide variety of sizes ranging from ¼" to over 5". While many can be dull and drab, the moths of the *Erebidae* family shown in this guide are very distinctive and bold in pattern and color.

Geometridae **Worldwide Species ~ 23,000**

Their name derives from geo "the earth" and metri "measure" in reference to the way their larvae, or "inchworms", appear to "measure the earth" as they make their way in a wave-like fashion. This movement is called looping. You'll notice that the Geos in our book appear colored and patterned to be well camouflaged.

Notodontidae **Worldwide Species ~ 4,000**

These moths are generally heavy-bodied and fold their wings across the back of the body at rest causing them to look like stubby stalks or cigars. They are usually gray or brown. The adults do not feed; they do all their eating as caterpillars. Some, like one found at Southern 8ths, have a tuft of hair on the trailing edge of the forewing which protrudes upwards at rest.

Saturniidae **Worldwide Species ~ 2,300**

Members of this family are noted for their size; our cover moth, the Luna, measures nearly 6 inches across. Like *Notodontidae*, adults do not eat. They are characterized by large, lobed wings with thick bodies covered in hair-like scales. They are frequently brightly colored and often have translucent eyespots on their wings. These moths are some of the largest insects alive today.

Sphingidae **Worldwide Species ~ 1,500**

This family of moths, called sphinx or hawk moths, are medium to large in size, and are distinguished by their flying abilities. They are often mistaken for hummingbirds as they hover while feeding on nectar. They are one of the fastest and most powerful fliers in the insect world, reaching speeds of nearly 15 miles per hour.

WANT TO BE A MOTH-ER?



Believe it or not, there are a lot of folks who stay up at night with a white sheet and bright lights to observe the moths that are attracted to the lights. Go ahead and do a web search on “Nothing”. You’ll be surprised.

There is even a worldwide National Moth Week [nationalmothweek.org], a citizen science event held the last full week of July each year. For help identifying moths, and many other plants and animals, visit the social network inaturalist.org.

GUIDE BASICS

The guide is organized by the size of the moth and appear from smallest to largest. Their actual size is shown in circles on each page. The top of each page is banded by the moth’s most dominant or striking color.

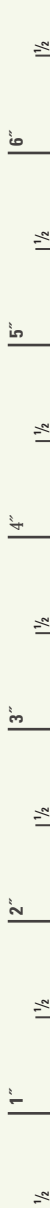


How can you tell moths and butterflies apart?

Moths rest with their wings open, butterflies tend to rest with their wings closed. However, butterflies may sun themselves with their wings open.

Most moth antennae are leaf or feather-shaped. Butterflies have slender, curved antenna with a bulb on the tip.

Moths tend to be stockier and have fuzzy bodies. Butterflies are smooth and lean.



HAWAIIAN BEET WEBWORM MOTH

Spoladea recurvalis



Photo: Southern 8th's Staff

$\frac{3}{8}$ "

(9-11 mm)

CRAMBIDAE

Host Plants

Beet, many herbaceous weeds

The Hawaiian beetle webworm moth might be named for the tropical paradise, but its distribution is worldwide, with a preference for tropical or subtropical climates. This small moth has a wingspan less than an inch wide, yet it is intricately patterned and beautiful. This is true of many small moths, so it pays to look at them closely.

RANGE Worldwide distribution, with the exception of Antarctica

WHERE WE FOUND THEM Prairie, Creek, Pond, Savannah

MEDIA MOTH

Samea baccatalis

Photo: Southern 8ths Staff



CRAMBIDAE

Host Plants

Undocumented

Another small moth of less than an inch in width, this one features a wonderful contrasting pattern of unique golden wings with white spots edged in black. This is a truly Southern moth that you won't find in the Northeastern states, but you just might see one in Costa Rica.

RANGE Southeastern United States and Central America

WHERE WE FOUND THEM Prairie, Creek

DISTINGUISHED COLOMYCHUS

Colomychus talis



Photo: Southern 8ths Staff

$\frac{1}{2}$ " - $\frac{3}{4}$ "

(13-20 mm)

CRAMBIDAE

Host Plants

Undocumented

A distinguished moth indeed! Pink wings with large brass patches and a gold fringe make this moth one of the most beautiful of family Crambidae. This species is endemic to the southeastern United States – meaning it's only found in our region – ranging as far north as Virginia and as far west as Louisiana.

RANGE Southeastern United States

WHERE WE FOUND THEM Creek

DELICATE CYCNIA, DOGBANE TIGER MOTH

Cycnia tenera

Photo: Andy Reago & Chrissy McClarren



EREBIDAE

Host Plants

Indian Hemp,
Butterfly Weed

This moth is notable for making clicking sounds which may disrupt the echolocation of bats. If these clicks are ineffective, then the moth is also chemically protected from predators by feeding on toxic host plants in the larval stage. The clicking sounds also help bats that have encountered it before identify it as distasteful. The expanding native grassland habitat at Southern 8ths provides plenty of host plants for Delicate Cycnia.

RANGE Throughout North America

WHERE WE FOUND THEM Prairie, Creek

BLACKBERRY LOOPER

Chlorochlamys chloroleucaria



Photo: Jen Forman Orth

$\frac{5}{8}$ " - $\frac{7}{8}$ "

(16-23 mm)

GEOMETRIDAE

Host Plants

Red Strawberry,
Blackberry

Is that a good looking moth or what? See those feathery antennae? They're pheromone detectors... and they come in handy when a male moth of this species is looking for a mate. One of the emerald moths, its common name comes from the fact that caterpillars of this species eat the foliage of blackberry and strawberry, and form loops with their bodies while crawling.

RANGE Throughout the eastern United States and Canada

WHERE WE FOUND THEM Creek

HARNESSED TIGER MOTH

Apantesis phalerata

Photo: Southern 8ths Staff



EREBIDAE

Host Plants

Clover, Dandelion,
Plantain, and related
herbaceous species

What does this moth look like to you? Tiger stripes? A horse's harnesses? Maybe both? The striking pattern and coloration of the tiger moth is found in a number of its close relatives. It is likely a warning sign to predators: "I taste bad," or "I'm poisonous," or maybe the moth just wants predators to think so. As a caterpillar, the harnessed tiger moth is dark brown with orangey setae ("hair") and a pale tan dorsal stripe.

RANGE Throughout eastern North America

WHERE WE FOUND THEM Creek, Savannah

PAINTED LICHEN MOTH

Hypoprepia fucosa



Photo: Andy Reago & Chrissy McClarren

$\frac{3}{4}$ " - $1\frac{1}{2}$ "
(4-18 mm)

EREBIDAE

Host Plants

Various lichens,
mosses, and algae

The painted lichen moth definitely has that "don't eat me, I'm toxic" look to it, which warns predators that this species is poisonous or distasteful. These moths can produce high-frequency sounds, possibly used for discouraging predators such as bats. In its caterpillar stage, this species feeds on lichens, hence the name, but also very occasionally on smaller caterpillars of the same species. Yes, even moths can be cannibals.

RANGE Throughout the eastern United States and Canada

WHERE WE FOUND THEM Prairie, Creek, Pond, Pine

ONE-SPOTTED VARIANT

Hypagyrtis unipunctata

Photo: Southern 8ths Staff



$\frac{3}{4}$ " - $1\frac{7}{8}$ "
(20-47 mm)

GEOMETRIDAE

Host Plants

Alder, Birch, Elm,
Hawthorn, Oak, Poplar,
Aspen, Cottonwood,
Willow, and other
deciduous trees

As their name suggests, these moths vary widely in appearance, but all have a single white spot near the tip of each wing. They are masters of disguise, often blending perfectly with tree bark. Male and female one-spotted variants look different (sexually dimorphic). Females have a wider wingspan and more heavily scalloped outer wing margins.

RANGE Throughout the United States and Canada

WHERE WE FOUND THEM Prairie, Creek, Pond

SYCAMORE TUSSOCK MOTH/BANDED TUSSOCK MOTH

Halysidota harrisii/tessellaris



Photo: Anita Gould

EREBIDAE

Host Plants

Sycamore Tussock Moth:
American Sycamore

Pale Tiger Moth:

Alder, Ash, Heaths,
Blueberry, Cranberry,
Huckleberry, Elm,
Grapevine, Oak,
and many others

These moths are so similar as adults, the only way to tell *Halysidota harrisii* and *Halysidota tessellaris* apart is through dissection. Although the caterpillars of each species are visibly distinct. But if you're seeing a moth like this around sycamore trees, chances are... you guessed it... it's a sycamore tussock moth (*Halysidota harrisii*).

RANGE Both species range throughout the eastern United States, from Maine west to North Dakota, south to Texas

WHERE WE FOUND THEM Prairie, Creek, Pond

SNOWBERRY CLEARWING MOTH

Hemaris diffinis

Photo: Southern 8ths Staff



$\frac{7}{8}$ " - $1\frac{1}{8}$ "
(22-30 mm)

SPHINGIDAE

Host Plants

Coral Honeysuckle vine,
Indian Hemp, Snowberry,
Waxberry
or Ghostberry

Have you ever seen a moth hovering around flowers during the daytime like a hummingbird? It's safe to say that you've seen a "Hummingbird Moth." Snowberry clearwings' fuzzy yellow thorax and black abdomen mimic the color pattern of bumble bees to deter predators. They are members of family *Sphingidae*, some of the fastest fliers in the insect world. 15 miles per hour may be a slow for a car, but for moths that's about the speed limit.

RANGE Throughout eastern United States north of Florida, west to Wyoming

WHERE WE FOUND THEM Prairie

BOLD-FEATHERED GRASS MOTH

Herpetogramma pertextalis



Photo: Andy Reago & Chrissy McClarren

$\frac{7}{8}$ " - $1\frac{1}{8}$ "

(22-28 mm)

CRAMBIDAE

Host Plants

Violets and other low herbaceous species

While similar to the zigzag herpetogramma (see page 25), this species has a paler pattern and feeds on different host plants than its close relative.

RANGE Eastern United States, reaching it's southernmost point in central Alabama

WHERE WE FOUND THEM Creek, Pines

COMMON GRAY

Anavitrinella pampinaria

Photo: Southern 8th's Staff



GEOMETRIDAE

Host Plants

Domesticated Apple,
Maple, Poplar, Aspen,
Cottonwood, Ash,
and many others

A gray and black moth, peppery in appearance, this species and its close relatives are superbly camouflaged against tree bark, where they prefer to rest during daylight hours. Just like their parents, the larvae/caterpillars are well camouflaged as well, looking like twigs.

RANGE Throughout eastern North America

WHERE WE FOUND THEM Prairie, Creek,
Pond, Pines

SPINY OAKWORM

Anisota stigma



Photo: Southern 8th's Staff

SATURNIIDAE

Host Plants

Oak

As the common name implies, this species mainly feeds on oaks as a caterpillar and is therefore widely distributed throughout eastern North America, thriving in oak savannas with prescribed burning. The caterpillars are very spiny (but harmless). Like other *Saturniids*, females are larger than males and the moths do not feed as adults. As if life wasn't hard enough for moths.

RANGE Throughout eastern United States and Canada

WHERE WE FOUND THEM Creek

GRAPE LEAFFOLDER

Desmia funeralis

Photo: Andy Reago & Chrissy McClarren



CRAMBIDAE

Host Plants

Grape Vine, Redbud

A moth that appreciates fine wines? Well, this one at least likes to feed on the leaves of wine grapes...and wild grapes, in its caterpillar stage. Growers of non-organic wines target grape leaffolder caterpillars with pesticides to prevent damage to their crops. It gets its common name from the caterpillars habit of folding the leaves in half for shelter.

RANGE Throughout eastern North America

WHERE WE FOUND THEM Creek, Pond Pines

SPOTTED DATANA

Datana perpiscua



Photo: Andy Reago & Chrissy McClarren

1" - 1 1/8"

(25-30 mm)

NOTODONTIDAE

Host Plant

Sumac

If you see what appears to be a moving cigar butt, it might not be tobacco-related at all. It might be a spotted datana moth, with what looks like the lit end where its head should be.

If you've got sumac trees, there's a good chance you'll attract this species.

RANGE Eastern United States north of Florida

WHERE WE FOUND THEM Creek, Pond

ROSY MAPLE MOTH

Dryocampa rubicunda

Photo: Andy Reago & Chrissy McClarren



SATURNIIDAE

Host Plants

Maple, Oak

What a showstopper! With a woolly yellow body, chalky pink and yellow wings, and pink legs and antennae, it almost looks like candy. These colors mimic the coloration and pattern of the winged maple seed cases dropped in the autumn by red maples. The rosy maple is the smallest of the silk moths, and closely resembles another species, the pink prominent (*Hyparpax aurora*).

RANGE Throughout eastern United States

WHERE WE FOUND THEM Creek

DIMORPHIC GRAY

Tornos scolopacinaria



Photo: Southern 8ths Staff

1" - 1 1/8"

(25-28 mm)

GEOMETRIDAE

Host Plants

Asters and Coreopsis

This common name of this species is a reminder that the males and females look different (sexually dimorphic). Females are pale yellow, while males are gray in color. We're certain that the Southeastern wildflower seed mix we've planted in many of the fields at Southern 8ths has created great habitat for this species.

RANGE Southeastern and central United States

WHERE WE FOUND THEM Creek

SHOWY EMERALD

Dichorda iridaria

Photo: Southern 8th's Staff



1" - 1 $\frac{3}{8}$ "
(24-34 mm)

GEOMETRIDAE

Host Plants

Sumac, Poison Ivy

Would you eat poison ivy? If you were a showy emerald caterpillar you would. This species is one of many incredible green moths commonly referred to as "emeralds." It can be distinguished from its similar close relatives by the white V formed by its scales, visible when the moth is at rest. This species uses various sumacs as larval hosts.

RANGE Throughout eastern United States and Canada

WHERE WE FOUND THEM Creek

LARGE PURPLISH GRAY

Iridopsis vellivolata



Photo: Jay Lucier

GEOMETRIDAE

Host Plants

Pines and other conifers

Among the more colorful of the “grays,” this species has a pleasing mix of gray, brown, purplish, and black patterning that assists with camouflage during the day, but stands out when the moth is attracted to a light at night. The caterpillar of this species, and many like it, has evolved a great defense from predators... it looks just like a twig.

RANGE Throughout the eastern United States

WHERE WE FOUND THEM Creek, Pines

ZIGZAG HERPETOGRAMMA

Herpetogramma thestalis

Photo: Southern 8th's Staff



1 1/8" - 1 3/8"
(29-35 mm)

CRAMBIDAE

Host Plants

Hazel, Basswood,
Strawberry

The zigzag herpetogramma is clearly named for its pattern, which is darker and more distinct than its close lookalike, the bold-feathered grass moth. If you're lucky, you may find one with iridescent violet or bluish highlights.

RANGE Throughout the eastern United States

WHERE WE FOUND THEM Creek, Pond, Pines

FOUR-SPOTTED PALPITA

Palpita quadristigmalis



Photo: Southern 8th's Staff

1 1/8" - 1 3/8"
(30-34 mm)

CRAMBIDAE

Host Plants

Privet

This translucent white moth earns its common name from four black spots on its otherwise pale wings: three spots on the forewings and a fourth on the hindwing. For its host plant, this moth favors one of the most invasive plant species in the Southeast – Chinese Privet. At Southern 8ths, we wish they'd eat it all.

RANGE Southeastern United States north to New Jersey

WHERE WE FOUND THEM Creek

CROCUS GEOMETER & FALSE CROCUS GEOMETER

Xanthotype sp.

Photo: Southern 8ths Staff



1 1/8" - 2"
(30-50mm)

GEOMETRIDAE

Host Plants

Generalists feeding on
many herbaceous species

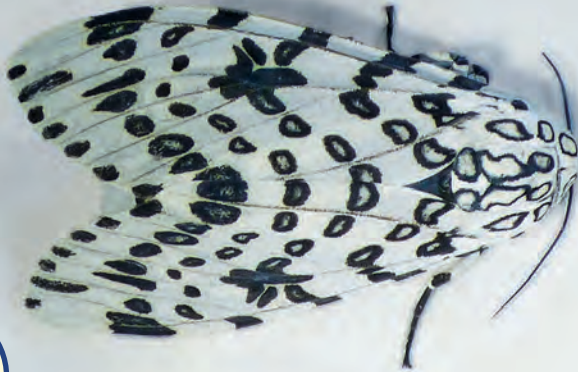
These two species are so similar in appearance that they often require dissection to tell them apart – this is not uncommon the world of insects. They are rare among moths with the classic wing shape of a butterfly. Despite being named for the crocus flower, one of the first flowers to bloom in late winter, both moths are generalists and their caterpillars feed on a wide variety of trees and shrubs.

RANGE Throughout much of North America

WHERE WE FOUND THEM Pond, Pines

GIANT LEOPARD MOTH

Hypercompe scribonia



1 ³/₈" - 1 ³/₄"
(33-45 mm)

Photo: Southern 8th's Staff

EREBIDAE

Host Plants

Plums, Cherries, Peaches,
Nectarines, Apricots,
Almonds, Maple, Willow,
and many other trees
and plants

Have you seen "wooly bear" caterpillars crossing the road in the fall? There are a few types, and the giant leopard moth caterpillar is one of them...with black fur on a reddish body with orange stripes between segments. When mating, the adult moths have been known to make it a 24-hour affair. How did this leopard get its spots? A good guess would be to say camouflage. Beneath the impressively patterned wings, the moth also has a striking, metallic blue abdomen with yellow or orange markings.

RANGE Throughout eastern North America

WHERE WE FOUND THEM Prairie, Pond, Pines

CATALPA SPHINX

Ceratomia catalpa

Photo: Andy Reago & Chrissy McClarren



1 $\frac{5}{8}$ " - 1 $\frac{7}{8}$ "
(42-47 mm)

SPHINGIDAE

Host Plants

Catalpa

The catalpa sphinx is a large and strictly nocturnal member of the family *Sphingidae*. This hawk moth is also among the fastest fliers, reaching speeds of up to 12 miles per hour. Their caterpillars can be reliably identified both by appearance and because they feed only on catalpa trees. Catalpa sphinx caterpillars are popular as fishing bait in the Southeast. Parasitic *Braconid* wasps lay their eggs in the caterpillars.

RANGE Eastern United States west to Louisiana

WHERE WE FOUND THEM Creek

LUNATE ZALE

Zale lunata



1 $\frac{5}{8}$ " - 2 $\frac{1}{8}$ "
(40-55 mm)

Photo: Southern 8th Staff

EREBIDAE

Host Plants

Plums, Cherries, Peaches,
Nectarines, Apricots,
Almonds, Domesticated
Apple, Oak, and more

While striking when viewed on a moth sheet at night, this moth is supremely camouflaged when resting on trees during the day. In addition to visiting lights at night, these moths are also easily attracted in early spring or late autumn by painting "moth bait" onto trees when flowers are sparse. This bait usually consists of brown sugar, molasses, rotten fruit allowed to ferment in a sealed container in the sun, and sometimes stale beer or other alcohol.

RANGE Throughout North America

WHERE WE FOUND THEM Creek, Pines

LARGE MAPLE SPANWORM

Prochoerodes lineola

Photo: Southern 8ths Staff



GEOMETRIDAE

Host Plants

Birch, Plums, Cherries,
Peaches, Nectarines,
Apricots, Almonds, Maple,
Domesticated Apple,
and more

The large maple spanworm is another species that stands out on a moth sheet but blends in fantastically when at rest in nature. These moths camouflage themselves by mimicking dead leaves with near perfection. As a caterpillar, this species feeds on a wide variety of host plants including birch, cherry, apple, maple, and more.

RANGE Throughout the eastern United States and Canada

WHERE WE FOUND THEM Prairie, Creek, Pond, Pines

IMPERIAL MOTH

Eacles imperialis



Photo: Andy Reago & Chrissy McClarren

3 1/8" - 6 7/8"
(80-174 mm)

SATURNIIDAE

Host Plants

Oak, Maple, Walnut,
Birch, Alder, Cedar,
and others

Check out the Imperial Moth, one of the largest members of family *Saturniidae*. When you spread your hand, that's about the width of their wingspan. They come in light and dark patterns, with varying quantities of brown, purple and yellow coloration which match fallen leaves. As caterpillars they dwell in the treetops, then descend and dig a subterranean chamber to pupate in when they are ready to become adults.

RANGE Throughout the entire eastern United States and Canada as far west as Texas

WHERE WE FOUND THEM Creek, Pines

REGAL MOTH, ROYAL WALNUT

Citheronia regalis

Photo: Andy Reago & Chrissy McClarren



3 ³/₄" - 6 ¹/₈"
(95-155 mm)

SATURNIIDAE

Host Plants

Hickory, Walnut,
Butternut, Ash, and
other deciduous trees

This incredible species is the largest moth in North America by weight. Males have only a few days of life to find a mate, using their chemosensory antennae to detect pheromones released by females. While common in the South, they are threatened in the northern part of their range by an invasive tachinid fly and habitat loss. Their caterpillars, known as Hickory Horned Devils, are about the size of a hot dog!

RANGE Throughout the eastern United States, from New York west to Illinois, south to Texas

WHERE WE FOUND THEM Creek

LUNA MOTH

Actias luna



Photo: R. Crook

3 $\frac{7}{8}$ " - 5 $\frac{7}{8}$ "
(100-150 mm)

SATURNIIDAE

Host Plants

Alder, Beech, Plums,
Cherries, Peaches,
Nectarines, Apricots,
Almonds, Hazel, Willow,
and other deciduous
trees

Majestic enough to make the cover of this guide, the ethereal, pale green Luna moth is among the largest and most famous North American moths. Its unusual wing shape serves as a defense against predators – even if a bat or a bird snags the longer, tail-like part of the wing, the moth will still have a chance at escaping. Studies have shown that Luna moths in areas with large bat populations evolve to have longer “wing tails” increasing their chances of survival.

RANGE Eastern United States and Canada

WHERE WE FOUND THEM Creek

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To see all references used in development of this guide, visit our web page.
We are only standing on the shoulders of these writers and researchers.

<https://www.so8ths.com/nature/moth-information-references>



Southern 8ths

We're always amazed by Nature's diversity, her different trees, birds or plants. But nothing surprised us as much as when we started looking at the moths around the Farm.

We are frequently impressed with a butterfly's beauty, but we never gave much thought to the moth. But WOW, what an unusual, beautiful show of extraordinary colors, intricate patterns and size. And one of the coolest things is that observing moths is probably one of the easiest, most fulfilling citizen science effort that one can do – just a sheet and a light with no need to capture or kill.

So, we hope that this book will give you a sense of what we discovered and, perhaps, even get you and a young friend or grandchild, to put up a lighted sheet and enjoy the show.

Good mothing!

Pati & Brad

Jackson Road West, Chesterfield, South Carolina

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