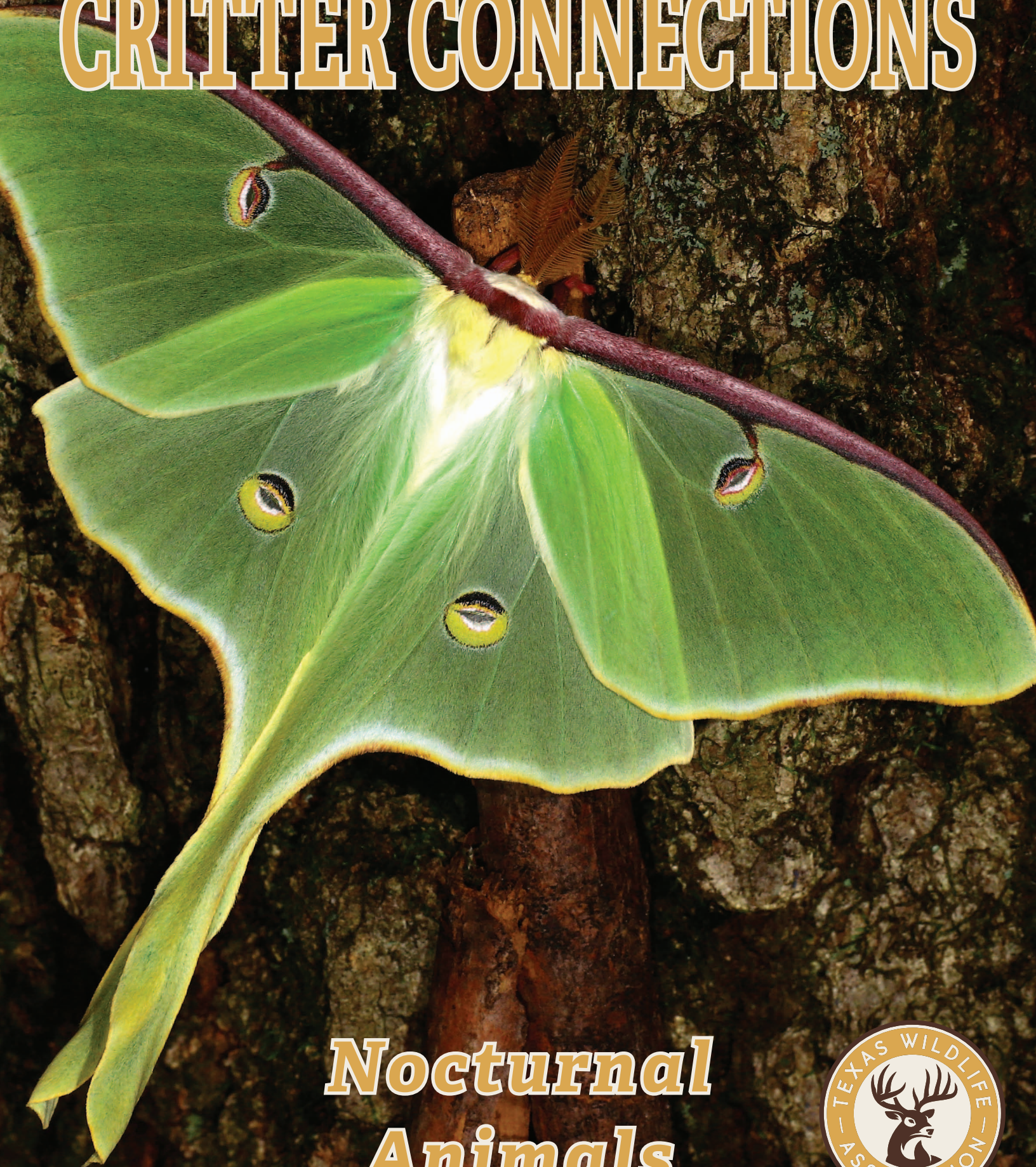




# CRITTER CONNECTIONS



## Nocturnal Animals





# Havard Agave



Agave in bloom in Big Bend National Park

There are 11 species of agave, a type of succulent, found in Texas. An agave species native to west Texas is the *Agave havardiana*, also called the Havard Agave and Century Plant. It is the largest agave plant in the Big Bend National Park! This plant can take 20-50 years to mature. Once it is mature, it will grow a stalk, or tall woody-like stem, that can be several feet tall. Flower clusters grow on the top of this stalk and bloom a beautiful bright yellow color during the summer. This plant blooms only once during its lifetime, after which it will die. This agave plant can be identified by its large, blue-green leaves that are tipped with a sharp, brown spine. New leaves sprout from the center stem, or heart



Agave havardiana in the Chisos Mountains

of the plant, pushing the older leaves closer to the ground. As these older leaves continue to grow, they begin to curl towards the ground giving the plant its famous shape. Agaves are sometimes confused with yucca plants. A clever way to tell these plants apart is the size, shape and color of the leaves. *Agave havardiana* leaves are much bigger than yucca leaves and are a dull color due to the thick waxy coating that helps the plant save water.

Agave plants have adapted to their hot and dry environment by using a special kind of photosynthesis. The plant opens its stomas, or tiny openings on the plant, at night to gather carbon dioxide and closes these tiny openings during the day. This helps the plant survive by lowering the amount of water it loses to its hot environment.

Agave plants need the Mexican long-nosed bat, also called the Greater long-nosed bat, as a pollinator. In turn, this bat depends on the agave plant's nectar for food as it migrates. This is called a symbiotic relationship, or a relationship that helps both the plant and the bat.

Agave plant's leaves have strong fibers that have been used to make ropes, paper, clothing, brushes and much more! What a neat native Texas plant!

Article source from [www.nps.gov](http://www.nps.gov)

Photos from Wikimedia Commons: National Park Service Digital Image Archives and Dylan W. Schwilk

## Build a Bat

### Materials:

For this craft you will need a black crayon or washable marker, an empty toilet paper roll, construction paper, glue, googly eyes (optional), and a silver, gold, or white marker. Always ask an adult for help when using scissors.

### How to make your own Mexican free-tailed bat:

Color a toilet paper roll with a black crayon or washable marker - this is the body of your bat!

Push the top of the toilet paper roll closed to make the shape of the bat's head. Make sure to glue it shut.

Cut out two bat wings from black construction paper or paper that you have colored black. Glue the wings to your toilet paper roll.

It's time to make a face! Glue the googly eyes to your bat or draw eyes with a marker.

Draw a mouth on your bat. Make sure to use a silver, white, or gold marker so it will show up!

If you want to hang up your bat, you can glue a piece of string or yarn to the top of the bat. Have an adult hang up your bat.

Grab another empty toilet paper roll and start again to build your own group, also known as a colony, of bats! Be sure to draw some food for your bats! Do you remember what Mexican free-tailed bats eat?



Activity source: [www.craftymorning.com](http://www.craftymorning.com)

# Did you know...



- ... that some animals sleep during the day and are awake at night?
- ... that owls can fly without a sound?
- ... that snakes can sense heat with special organs on their nose?
- ... that the Spadefoot toad can stay underground for several years at a time?
- ... that opossums are North America's only marsupial?
- ... that Mexican free-tailed bats can fly up to 100 miles each night?
- ... that most moths' dark colors help them camouflage during the day?
- ... that Agave plants rely on bats for pollination?



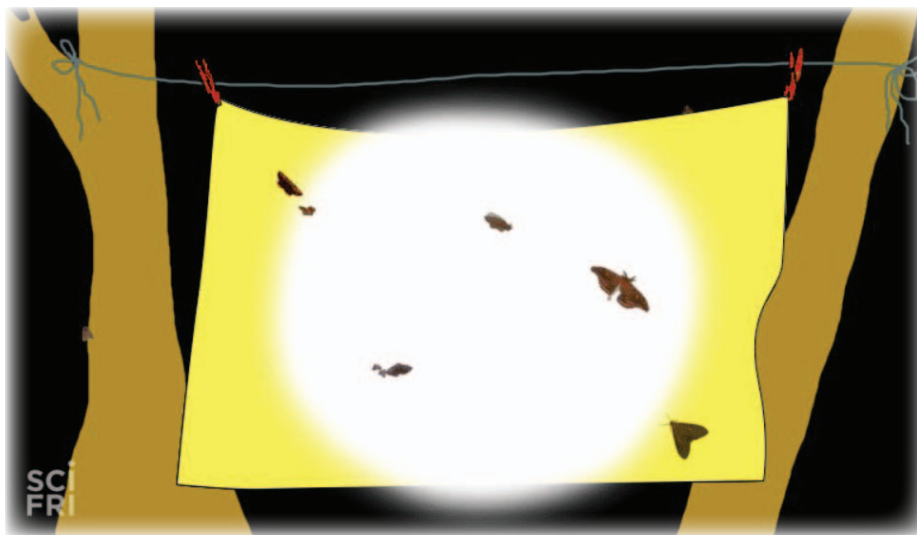
Photo by USFWS

Bats emerging from cave

## Moth Madness

For this activity you will need a white sheet or poster board, clothespins, a flashlight, and a pen and paper to record your findings!

1. To start, hang up a white sheet or large white poster board outside using the clothespins. This can be on a piece of rope between two trees, like a clothesline. Be sure hang your sheet or poster board during the day so you can see!
2. At night, shine a flashlight on your sheet or poster board. After a while, moths will begin to appear!
3. Use your pen and paper to keep count of how many moths land on your sheet or poster board! Have an adult help you identify the moths using books from your local library or trusted websites.





# Nocturnal Animals

By Amber Brown

After the sun goes down and the stars come out, the world around us comes to life. **Nocturnal animals**, or animals that are active during the night and sleep during the day, begin their day as the sun sets. Animals can be nocturnal for many different reasons. Some animals are awake at night to hunt because that is when their prey, the animals they eat, are most active. Others are active at night to avoid predators. These animals use **adaptations**, or characteristics that help the animal live in the dark. Some of the most common characteristics we see are enhanced senses. This includes things like better vision with larger eyes, better hearing or better smell. Animals you may see at night include birds, reptiles, amphibians, mammals and insects! Some animals have changed their behavior to be nocturnal, or active at night, to avoid humans. This includes animals like raccoons, opossums and skunks that live in cities and areas with more people. Some animals are active at night because of other factors, like the temperature. To avoid the summer heat, these animals sleep during the day and move more at night. Animals can be nocturnal for more than one reason! Let's take a deeper dive into some native Texas nocturnal critters.

A common bird we may see at night are owls. Owls are active at night because that is when their prey is the most active. They have several adaptations to help them hunt at night. These adaptations include large



Barred Owl

eyes to see in the dark. Adaptations unique to owls are their large wings and structures on their feathers that allow the owl to fly silently. A native Texas owl is the Barred Owl. It can be identified by its unique call. If you listen closely, the owl sounds like its saying "who-cooks-for-you" as it hoots!

Reptiles that can be active at night are snakes. Not all snakes are nocturnal, but some snakes, like owls, hunt at night because that is when their prey is most active. Other snakes are active at night to avoid the heat from the sun. The Texas Nightsnake, also called the Chihuahuan Nightsnake, is native to west Texas. This snake has a special type of eye that helps it see in low light. Other nocturnal snakes have a better sense of smell and the ability to detect heat through special pit organs on their nose. These adaptations help the snake locate its prey in the dark.



Texas Nightsnake

A native Texas amphibian that is active at night is the Spadefoot toad. The Spadefoot toad gets its name from a special adaptation on its back feet that allows it to dig like a shovel. These amphibians must keep their skin wet,



Couch's Spadefoot toad

so they have adapted to survive their dry environments. The Spadefoot toad lives underground in a deep burrow, only coming out at night after a rain. They can stay underground for many years waiting for the right amount of rainfall. The toads cover themselves with a thin layer of mucus that helps them stay wet as they go into a state of **hibernation!** We have four species of the Spadefoot toad in Texas.



A common native Texas nocturnal mammal you may have seen is the Virginia opossum. Opossums are active at night for many reasons, sometimes to stay away from humans and predators. They are adapted to be active at night with their large eyes and good sense of smell. Opossums are really neat critters! They are North America's only **marsupial**. A marsupial is an animal that carries its young in a pouch, like a kangaroo. It is very rare for an opossum to have rabies. This is because their body temperatures are lower than most other mammals, and the virus cannot survive. They also help control pests by eating ticks!



Virginia Opossum

Another nocturnal mammal we have in Texas is the bat! Bats are super important to the world's **ecosystems** because they help control agricultural pests and are pollinators. Bats are active at night because that is when insects are most active. They have many different adaptations to help them survive a life in the dark. They have special eyes that help them see better at night by collecting more light. Bats are also adapted to be active at night by using **echolocation** to hunt insects. Echolocation is when an animal uses sound and echoes to locate objects. The most common bat found throughout our state is the Mexican free-tailed bat. It was named Texas' state flying mammal in 1995! These bats can fly up to 100 miles each night looking for food. Mexican free-tailed bats are very important for agriculture, too. They eat a lot of insects that eat crops and can eat up to two-thirds of their body weight in insects each night. With the help of these bats, farmers can use fewer pesticides each year! What an awesome native Texas critter!

A nocturnal insect we see often is the moth. Most of the moths' predators are **diurnal**, or active during the day, so over time these insects evolved to be active at night to avoid their predators. Most moths are dark in color so they can blend in, or camouflage, themselves during the day. A native moth we have in Texas is the Luna Moth! Its wings have long tails that may confuse bats, one of their nocturnal predators.

It is not just animals that are more active at night! Some native Texas plants have adapted to bloom at night to attract

nocturnal animals, and in turn the animals help the plant spread its pollen and seeds. Some plants also have neat adaptations to help them retain water. Some plants will open their **stomas**, or tiny openings on plants, during the night and close their stomas during the day to reduce the amount of water they lose to their hot and dry environments.

Nocturnal animals and plants fill an important role in our ecosystems. They use their adaptations to fill the night with life. Next time you lay down for bed, think of all the interesting animals that start their day under the stars. It is easy to name a few - Texas is full of all kinds of neat nocturnal critters that are very important to the health of our natural resources!



Luna Moth

### WORD BANK

- Nocturnal animals**- Animals that are active at night and sleep during the day
- Adaptations**- characteristic that helps an animal or plant survive its environment
- Hibernation**- a deep and extended sleep
- Marsupial**- an animal that carries its young in a pouch
- Ecosystems**- group of organisms that live in and interact with each other in their environment
- Echolocation**- using sound waves to locate objects
- Diurnal**- Active during the day and sleep at night
- Stoma**- tiny opening on a plant

Article sources: [www.nps.gov](http://www.nps.gov), [www.tpwd.texas.gov](http://www.tpwd.texas.gov), [www.en.wikipedia.org](http://www.en.wikipedia.org), [www.a-z-animals.com](http://www.a-z-animals.com)

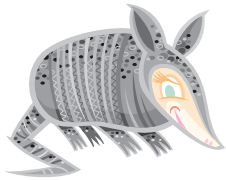
Photo Sources: Michael Durham/Minden Pictures & Bat Conservation International, Jared Schlottman, Nick Loveland, Tom Spinker, Greg Schechter, Patrick Feller

# Nocturnal Knowledge

Draw a line to the correct answer:

- |   |                   |
|---|-------------------|
| 1. An animal that carries its young in a pouch                          | A) Echolocation   |
| 2. A bird that can fly silently   | B) Stoma          |
| 3. Animals that are awake at night and sleep during the day             | C) Century Plant  |
| 4. Animals that are awake during the day and sleep at night             | D) Nocturnal      |
| 5. Reptile that can sense heat through special organs on their nose     | E) Adaptation     |
| 6. Tiny opening on a plant  | F) Marsupial      |
| 7. Characteristic that helps an animal or plant survive its environment | G) Diurnal        |
| 8. Locating objects using sound waves                                   | H) Spadefoot Toad |
| 9. The agave plant is also called a                                     | I) Owl            |
| 10. A native Texas amphibian  | J) Snake          |

Answer Key- 1. F, 2. I, 3. D, 4. G, 5. J, 6. B, 7. E, 8. A, 9. C, 10. H



## Nancy's Corner



Night skies are very important to wildlife and their ecosystems. Animals depend on these dark environments for survival, migration, and even nesting.

One way we can be better stewards for nocturnal animals is to reduce light pollution. Light pollution is the bad effects our lights have on the environment and animals that depend on dark skies. A lot of wildlife is affected by light pollution. We can lower light pollution by turning off lights when we aren't using them.



**Can you think of other ways we can be better stewards to our state's nocturnal critters?**

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# Formal Education Programs

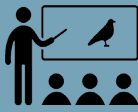
Texas Ecology | Natural Resources | Conservation | Stewardship

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## Critter Connections

Quarterly kids magazine focused on native plants and wildlife



## Educator Workshops

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[www.texas-wildlife.org](http://www.texas-wildlife.org)

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[www.texas-wildlife.org](http://www.texas-wildlife.org)

TWA is a membership-based, non-profit organization whose goal is to educate all people, especially the youth of Texas about conservation, management and stewardship of wildlife and habitat on private land.

All education programs are made possible through memberships, grants and donations. Learn more about the levels of membership as well as the educational programs TWA offers on our website.

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