

# TaHome Nature Education: Nocturnal Wildlife Grades 3-5



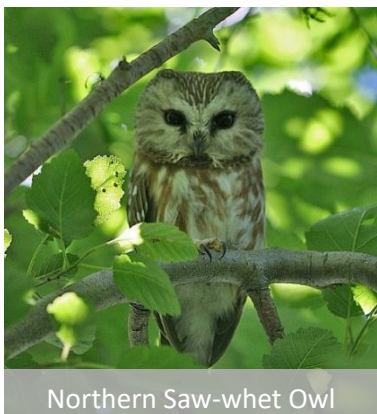
## Reading: Tahoe at Night

What kinds of things go on in nature while most of the human world sleeps? Many wild animals are **nocturnal**, which means they rest during the day and are active at night. There are many advantages to a nocturnal lifestyle, such as avoiding predators, less competition for food, and avoiding the heat of the day. Nocturnal animals can be hard for scientists to study in the dark. TINS researchers place trail cameras in spots around Tahoe where these animals are likely to pass through, and often capture images of these animals roaming around at night, such as this White-tailed Jackrabbit pictured above. These and many other animals are busy throughout the night, searching for food or mates, and hiding from predators. What animals have you spotted at night near your home?

Moths use the night to search for food with less competition and to hide themselves from predators. If you have ever hung out outdoors at night with a lantern on, you may have noticed that the light acts like a bug magnet, drawing in flies, moths, and other flying insects with an attraction to light. This attraction can be dangerous for insects, who may be killed by hot bulbs, or be disoriented by artificial lights and waste valuable energy that could be used finding food or mates. Spiders, bats, and nocturnal birds even learn to hunt near lights that stay on at night. Some scientists believe that moths are attracted to lights because they confuse it for the light of the moon and stars, natural light sources that help them to navigate the night. Moths living in places with a lot of light pollution have started evolving to be less active to avoid artificial light. To help moths stay active and do the helpful things they do, like spread pollen, people can reduce their light pollution and help moths.



Pandora Moth



Northern Saw-whet Owl

Most bird species are **diurnal**, meaning that they are active during the day and rest at night. Most owls however, prey on rodents and other nocturnal animals, so they are nocturnal as well. Owls have special traits that help them thrive in a night time environment. Their large eyes and excellent hearing help them locate prey in the dark. They have special fringed feathers on their wings that allow them to fly silently and make them excellent hunters. During spring and fall migrations, nocturnal bird activity increases significantly. Most bird species travel during the night, when fewer predators may be out, the air is calmer, and the stars and moon can help them find their way. This spring, look up at the sky at sunset to watch for [migrating birds](#) like Sandhill Cranes, American White Pelicans, and more. After dark you can also listen for flight calls from these sky travelers.

Our diurnal nature as humans is more of an exception than a rule for mammals. Only about 20% of mammal species are diurnal; instead most mammals (70%) are actually nocturnal! Other mammals may be **crepuscular**, meaning they are most active around dawn and dusk. Coyotes are one example of a mammal that can be crepuscular, diurnal, or nocturnal depending on where they live. Human activity can often shift the behavior of wild animals and make them more nocturnal, especially in places like Tahoe where humans and wildlife are in close contact. This shift can be seen in urban bears at Tahoe, who prowl neighborhoods at night but wish to avoid interaction with humans.



Bats make up a quarter of all mammal species and are usually nocturnal, aside from fruit eating bats. All sixteen of the bat species that can be found at Tahoe are active during the nights of warmer months, when their insect food supply is available. Tahoe bats eat moths, mosquitos, beetles, grasshoppers, and more. To spot a bat in Tahoe, try laying down near a pond or other body of water that attracts lots of insects at dusk. Look up and watch for their quickly flapping wings above you.



If you try this in the spring or early summer, you are likely to hear a frog chorus to enjoy while watching for bats. Most frog species are nocturnal, preferring the more humid weather of night. Male frogs can be heard in loud groups croaking through the night for a mate. This chorus will start as the frogs wake up around dusk. On calm evenings they can often be heard from very far away, but if they spot you coming close, they may go quiet all at once to avoid being caught.

Plants, like animals, also have daily rhythms. Scientists have noticed that at night trees will slightly lower their branches, and just before sunrise they will start to come back up again. Many flowers bloom during the day, spreading out their petals and making their nectar available to pollinators. At night, the darkness and cool air signals bottom petals on flowers to close up around the upper petals, seemingly tucking themselves in for the night. At Tahoe, this can help protect the flowers from frost. Dandelions and poppies are easily seen examples of flowers that do this. While most plants are more “awake” during the day, there are some plants whose flowers only bloom at night, such as Evening Primrose and Moonflower. Night blooming flowers are often white, and attract bats or moths, who pollinate plants that diurnal [pollinators](#) wouldn't ever get to.

Nocturnal life is still a scientific frontier with much to explore. Advances in technology have only recently allowed us to learn through tools such as trail cameras, machines that detect and identify the high tones of bat calls, and artificial lights that help us see more than we could otherwise. What new ideas can you discover about nightlife?



## Activities for Grades 3-5

### Day v. Night Sit Spot

How different is a place at night versus during the day? Find a spot close to your home that you can visit both during the day and at night. Ideally, this will be a place you believe you can spot some wildlife.

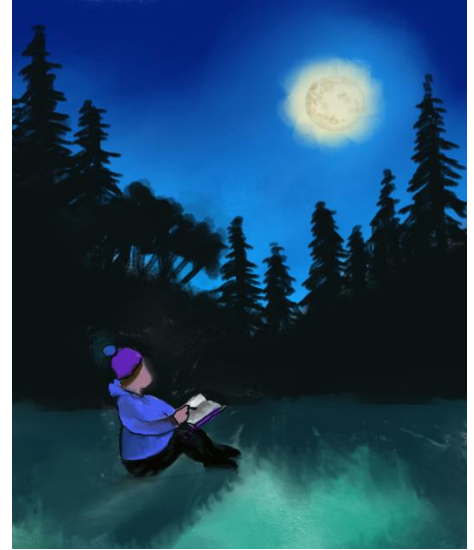
First, do a Sit Spot observation during the day. Take a notebook to your spot and sit for at least ten minutes and write down these observations during the day:

1. What do you see?
2. What do you smell? Are the smells strong or faint?
3. What sounds do you hear? Are they near or far?
4. What wildlife can you observe using any of your senses?
5. What does the air feel like?

Next, return to the same spot after dark with an adult. Take your notebook and a flashlight or headlamp to write and be sure to dress for cool temperatures. Try to do your ten-minute sit spot with your light turned off. Give yourself time to adjust to the dark. Then turn on your light and answer the same questions you did during the day.

Compare what you saw during the day versus during the night. Tell a friend or family member:

1. Which time of day did you see more?
2. Which time of day did you hear more?
3. Did you see similar or different animals during the day and night? Why do you think this is?
4. Did you observe with your senses differently between day and night?



Long-eared Owl

### Owl Imitations

Imitate the night vision of an owl and their silent wing feathers.

First, imitate different kinds of feathers. You will need:

- A smooth rope
- A very frayed rope or long piece of twine

To start, make sure you are in an open space away from other people. One at a time, swing each rope quickly over your head like a helicopter blade. Listen for whirring sounds made by this motion. Decide which rope best imitates the silent wing feathers of owls. Tell a friend why you think that rope was a better owl imitator.

Next, imitate the night vision of an owl. To do this, you will need to be in the dark for at least 30 minutes. This is how long it takes for human eyes to fully dilate and adjust to seeing in the dark. You could take your family on a night hike to pass this time. After 30 minutes, cover your left eye completely while you shine a flashlight at the ground and stare at the light for two minutes with your right eye. You must keep your left eye fully closed in order for this experiment to work. After two minutes, turn off the light. Keep your left eye covered and closed and look around at the landscape with your right eye.

Now quickly switch and cover your right eye and look around with your left eye. Which eye was better able to see in the dark? Why do you think this is? Why did one eye not see as well?

## Moth Magnets

Because it can be difficult to find animals in the dark of night, sometimes the best way to observe nocturnal animals is to bring them to you! Moths are attracted to bright lights and the smells of rotting fruit or other sugary liquids they can eat. On a warm night, try an experiment to see which bait brings more insects. First, predict which lure will attract more insects: a broth or a bright light? Write down your prediction and why you think it will work best.

Create a moth broth by mixing up just a bit of a few ingredients you can find at home, such as:

- Banana peels
- Any fruit that has gone bad
- Wine, beer, or vinegar
- Fruit juice
- Apple cores
- Syrup or honey
- Soda that went flat

Mash and mix your ingredients until they blend together into one mushy juice. Near dusk on a warm night, use a paintbrush or rubber gloves to spread the moth broth onto a tree trunk, stump, or your fence. Return after dark with a flashlight to observe who your moth broth has lured! Set a five-minute timer and count the number of bugs that you see on your moth broth in that time.

On another night, try setting up a moth light trap. Hang up a white sheet between two trees or ski poles stuck in the dirt. After dark, shine a bright light, such as a flashlight or lantern, onto the sheet, lighting up as much of the sheet as possible. Wait at least 30 minutes before counting your bugs, so they have time to find your light. Then, just like before, set a five-minute timer and count the number of bugs that you see on the sheet in that time.

Revisit your prediction. Answer these questions with a family member:

1. Which lure did you think would attract more insects?
2. Which lure actually attracted more insects? Why do you think this lure worked better?
3. What other kinds of lures could you use to attract nocturnal insects? What about other nocturnal animals?





## Flower Movement

Watch how a flower opens and closes throughout the day. Find a planted flower, preferably one outside that has petals large enough for you to count (a dandelion or poppy work well), that you can easily visit several times in a day. Choose a warm day to take a photo of this flower from the same spot at these four times throughout the day:

- When you first wake up (the best is just after sunrise)
- Lunchtime
- Late afternoon
- Just before you go to bed (after dark)

Now, look at your four photos in the order you took them. Discuss these questions

with a friend or family member:

1. Describe the flower at each point of the day.
2. Which time of day were the flower petals the most open? Why do you think this is?
3. Which time of day were the flower petals the most closed? Why do you think this is?
4. If you were to pick this flower, do you think it would still open and close throughout the day?

If you the flower is surrounded by at least twenty others just like it, isn't on someone else's property, or comes from your own garden, pick the flower and try the experiment again with it indoors in a jar of water.

## Words to Know

Nocturnal: active during the night and resting during the day

Diurnal: active during the day and resting during the night

Crepuscular: active around dawn and dusk

## Palabras para conocer

Nocturno

Diurno

Crepuscular



## Further Learning

[Watch](#) a Great Horned Owl hunt.

Build a nocturnal animal using Legos.

Experiment with different moth broth recipes (like [this one](#), or [that](#)) to see which one attracts the most insects.

[Watch](#) flowers blooming in a time-lapse video.

[Listen](#) to sounds of the night to help you relax or sleep.