



CREATURES
OF THE NIGHT



GLOSSARY



Glossary words are highlighted with **bold** type in the text.

adaptation - a special shape, behavior or body part that helps an organism to survive in its habitat

binocular vision - an arrangement of the eyes so that an object is seen as three-dimensional (having height, width, depth)

den - a place of shelter or refuge for an animal

drift pile - a mass of sticks, logs, leaves and other materials washed together by water currents

echolocation - the ability of an animal to navigate and find prey by using reflected sound that it has produced

humidity (humid) - dampness, especially moisture in the air

maternity colony - a bat colony with only females and their young

nocturnal - occurring at night or active at night

omnivore - animal that eats both plant and animal materials

predator - organism that must find and eat other organisms

retina - light-sensitive membrane lining the inner eyeball

slough - an area of nonmoving water with many plants growing in it, especially in a river floodplain

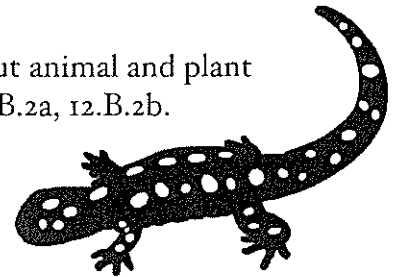
venom - an injected poison used to help catch prey items; usually injected by a bite or sting



Correlation to Illinois Learning Standards

The information in this booklet may be useful to educators when teaching about animal and plant **adaptations**. Illinois Learning Standards and Benchmarks: 12.B.1a, 12.B.1b, 12.B.2a, 12.B.2b.

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WHAT ARE CREATURES OF THE NIGHT?

They are living things that are **nocturnal**, or active at night. You will learn about several of them in this booklet.

WHY BE NOCTURNAL?

Nocturnal organisms take advantage of habitat used by other species during the day. In this way, the habitat is being used by something all through the day and night. Some of them, like the great horned owl, little brown bat and raccoon, prey upon rodents (mice, rats, voles), reptiles, amphibians and insects which are also nocturnal. Being active at night when the temperature is cooler helps to keep some nocturnal organisms, such as the cottonmouth, from overheating on very hot days. The flathead catfish is an example of an aquatic species that breathes through gills. It rests during the day and is active at night when there is more oxygen in the cooler water. For species like salamanders, the environment at night is more **humid** than in the daylight hours. They must keep their skin moist because they breathe through it. Some plants bloom at night, and they are pollinated by night-flying insects.

WHAT HELPS THEM TO SURVIVE AT NIGHT?

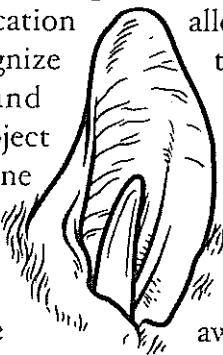
Nocturnal organisms have many **adaptations** for being active and surviving at night. A few of them are described here.

ECHOLOCAATION:

All of the bats that live in Illinois have a special hearing system for locating food and navigating in the dark. The process is called **echolocation**. In echolocation, bats send out high-pitched squeaks that bounce off objects and return to the bat as echoes.

Humans cannot usually hear these sounds although we can hear some other sounds that bats make. Bats' large, sensitive ears help to collect the returning sound waves.

Echolocation allows bats to recognize the size, shape and texture of an object and determine if it is moving. It is only used on objects that are a short distance away from a bat. With this system, bats may fly accurately in total darkness.



LARGE EYES:

Most owls are nocturnal **predators**. They have very large eyes compared with the eyes of other owl-sized birds. Some owl eyes are nearly the



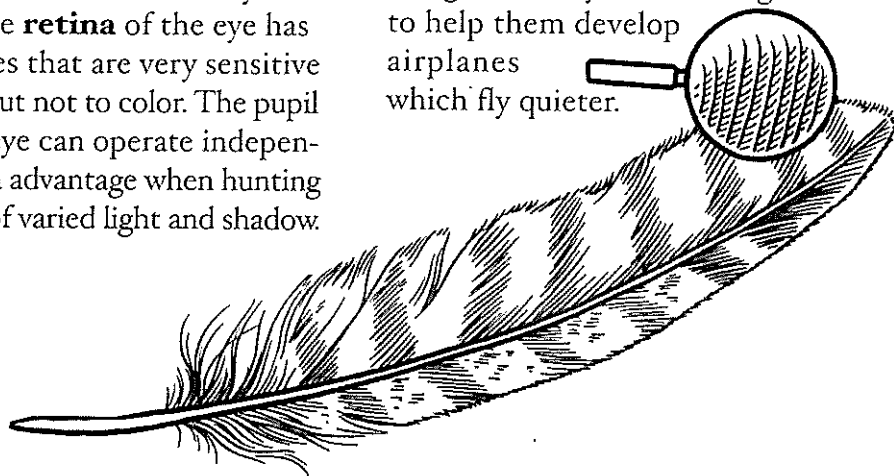
same size as human eyes. Their large eyes are placed in the front of the head, which gives them a wide field of vision and **binocular vision**. Owls cannot see in total darkness but are capable of vision in very dim light. The **retina** of the eye has structures that are very sensitive to light but not to color. The pupil of each eye can operate independently, an advantage when hunting in areas of varied light and shadow.

EXCELLENT HEARING:

An excellent sense of hearing is helpful to both nocturnal predators and prey. The ability to hear high frequency sounds is especially important.

SILENT FLIGHT:

Owls make almost no sound when flying. Silent flight helps them to catch their prey by surprise. Owl wings are very large for their body size, and their feathers are specially constructed to reduce noise. Owl flight and feather structure are being studied by aircraft designers to help them develop airplanes which fly quieter.





THE LITTLE BROWN BAT

(*Myotis lucifugus*) may be seen flying in late evening hunting for insects, such as this mayfly. A single female bat may eat more than her body weight in insects each night, while the male may eat about half of his body weight in insects nightly.

Fast Fact:

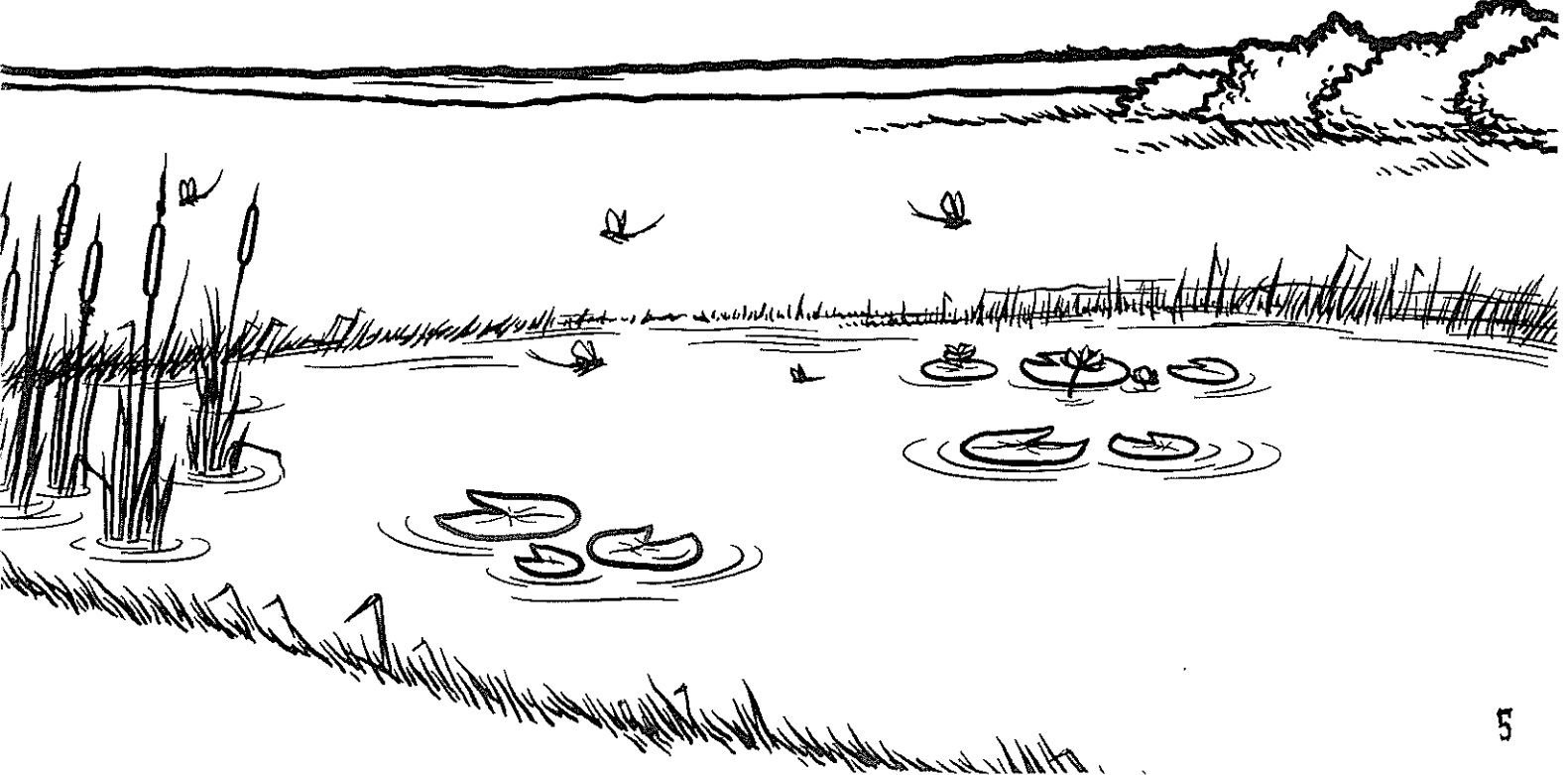
Volo Bog State Natural Area in Lake and McHenry counties is home to Illinois' largest **maternity colony** of little brown bats, with more than 1,700 females and their young.





Fill Me In!
The little brown bat uses
this process to help it find prey.

(Hint: Look for the answer on page three.)

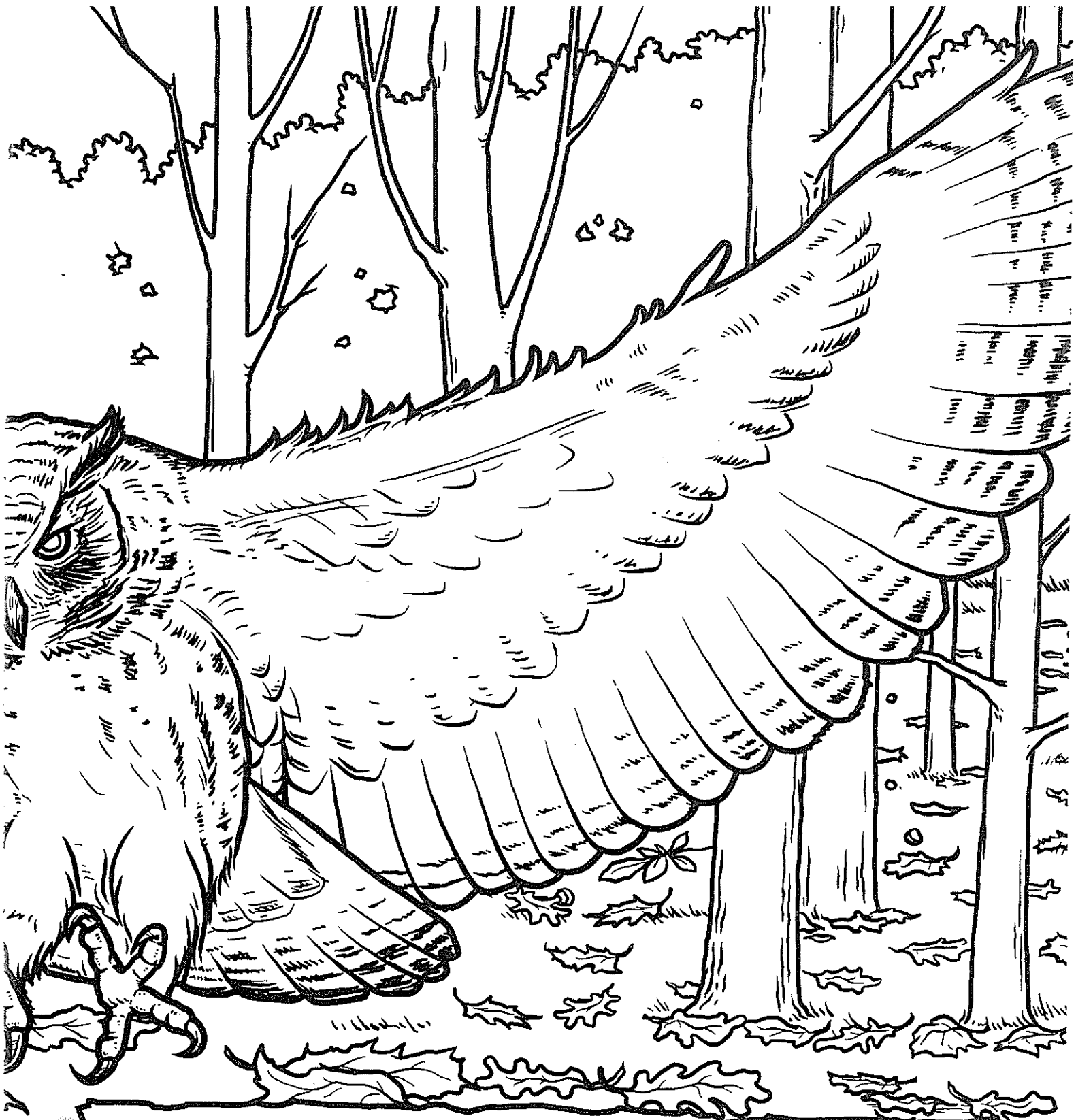


Fill Me In!

The great horned owl uses its sense of _____
to help it find prey in dim light.

_____ ○ _____



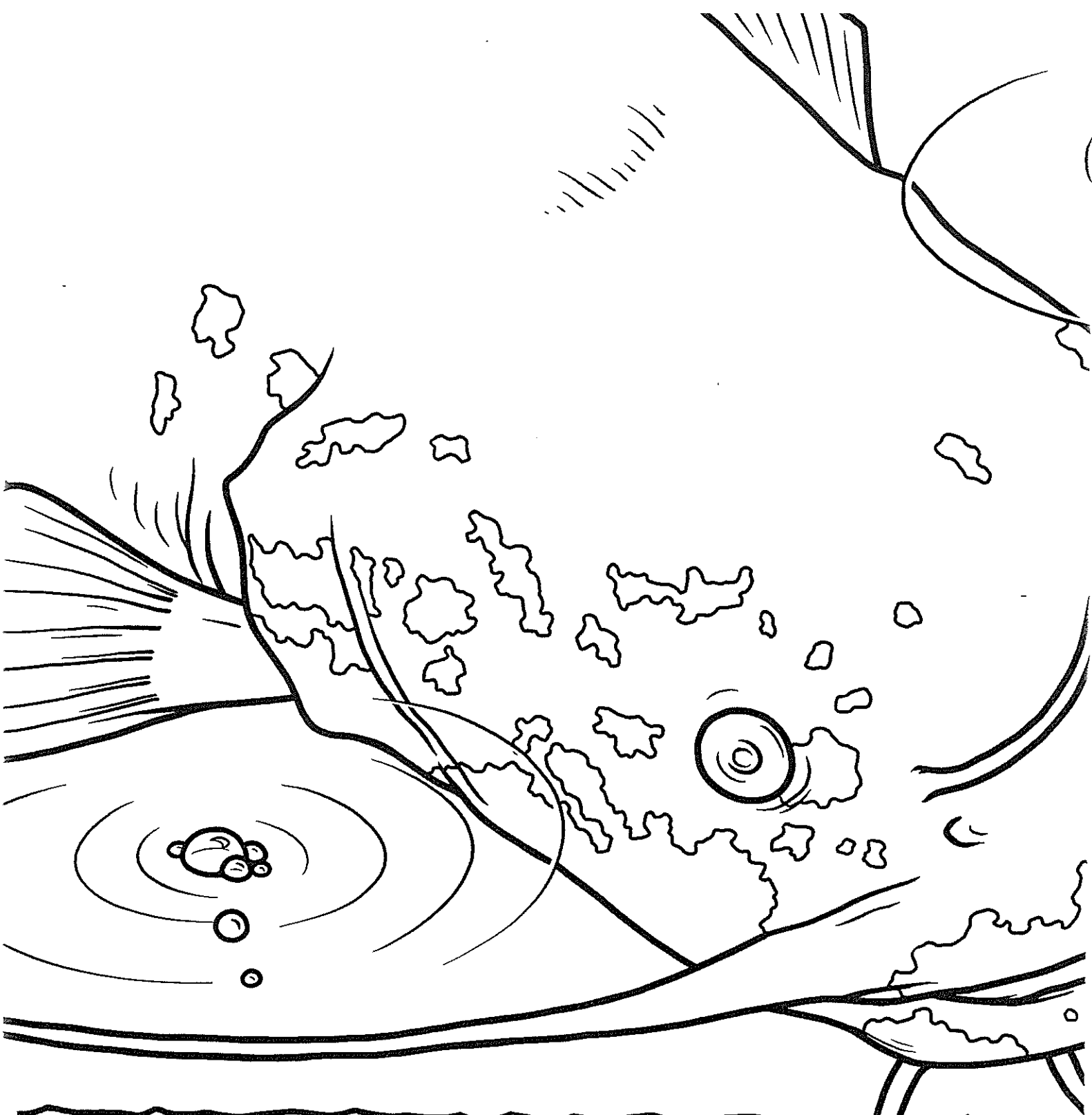


THE WHITE-FOOTED MOUSE

(Peromyscus leucopus) moves about the forest floor at night searching for the seeds, plant materials, insects and spiders that it feeds upon. The great horned owl (*Bubo virginianus*) moved to its hunting perch early in the evening waiting for this chance. It locates the mouse using its excellent senses of vision and hearing and flies quietly to capture it.

Fast Fact:

The great horned owl will eat nearly anything that it can catch and kill, such as opossums, skunks, snakes and even other owls, although most of its diet consists of cottontails and mice.



THE FLATHEAD CATFISH (*Pylodictis olivaris*) spends the daylight hours near a log, in a **drift pile** or in a deep pool in the water. At night this **predator** moves to shallower areas in riffles or along the shore where it searches for prey items, including crayfish. Crayfish are an important food source for many aquatic species, and they also help to recycle nutrients in aquatic systems.

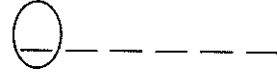
Fast Fact:

The flathead catfish lives in large streams, rivers and reservoirs. It may weigh more than 60 pounds.

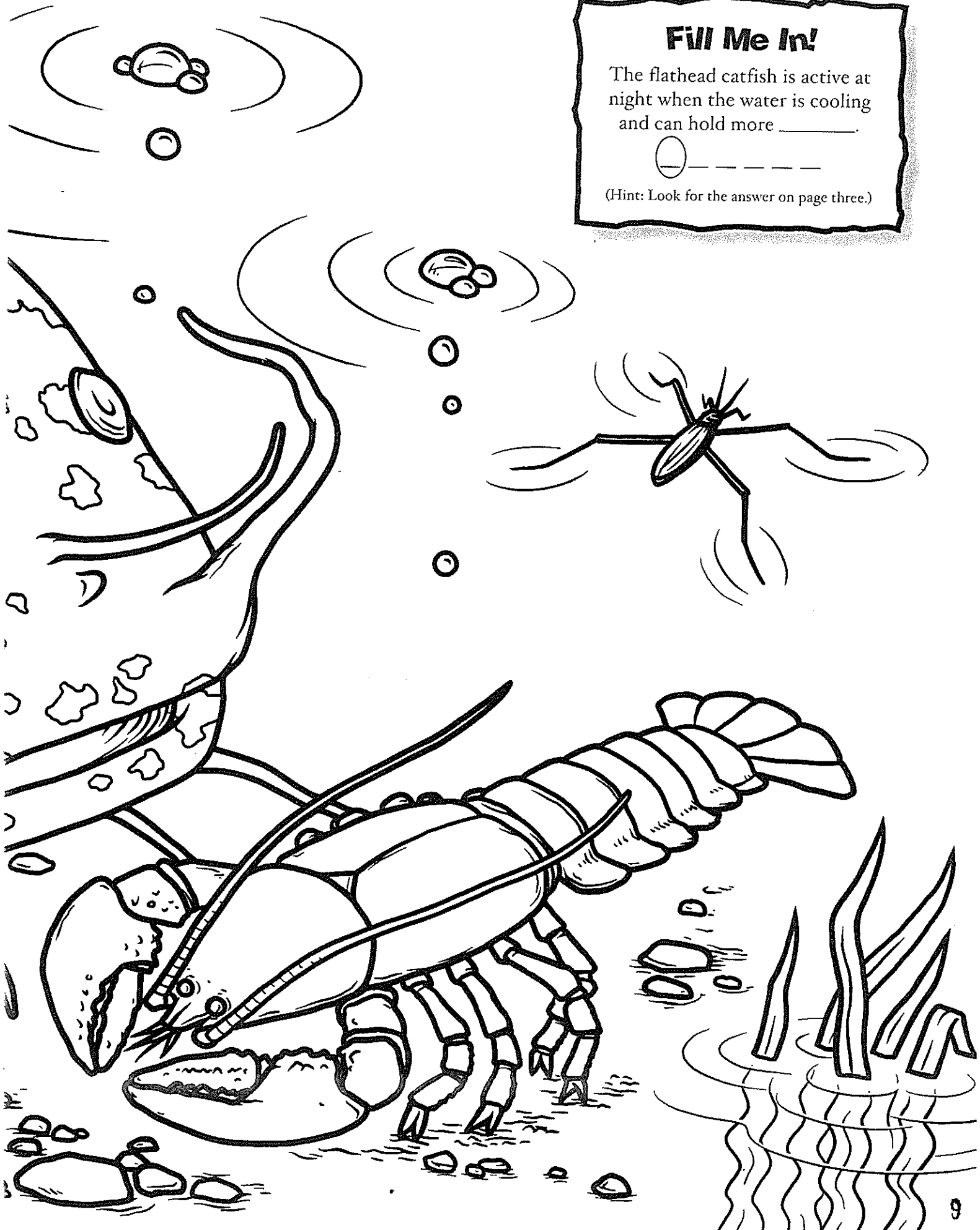


Fill Me In!

The flathead catfish is active at night when the water is cooling and can hold more _____.

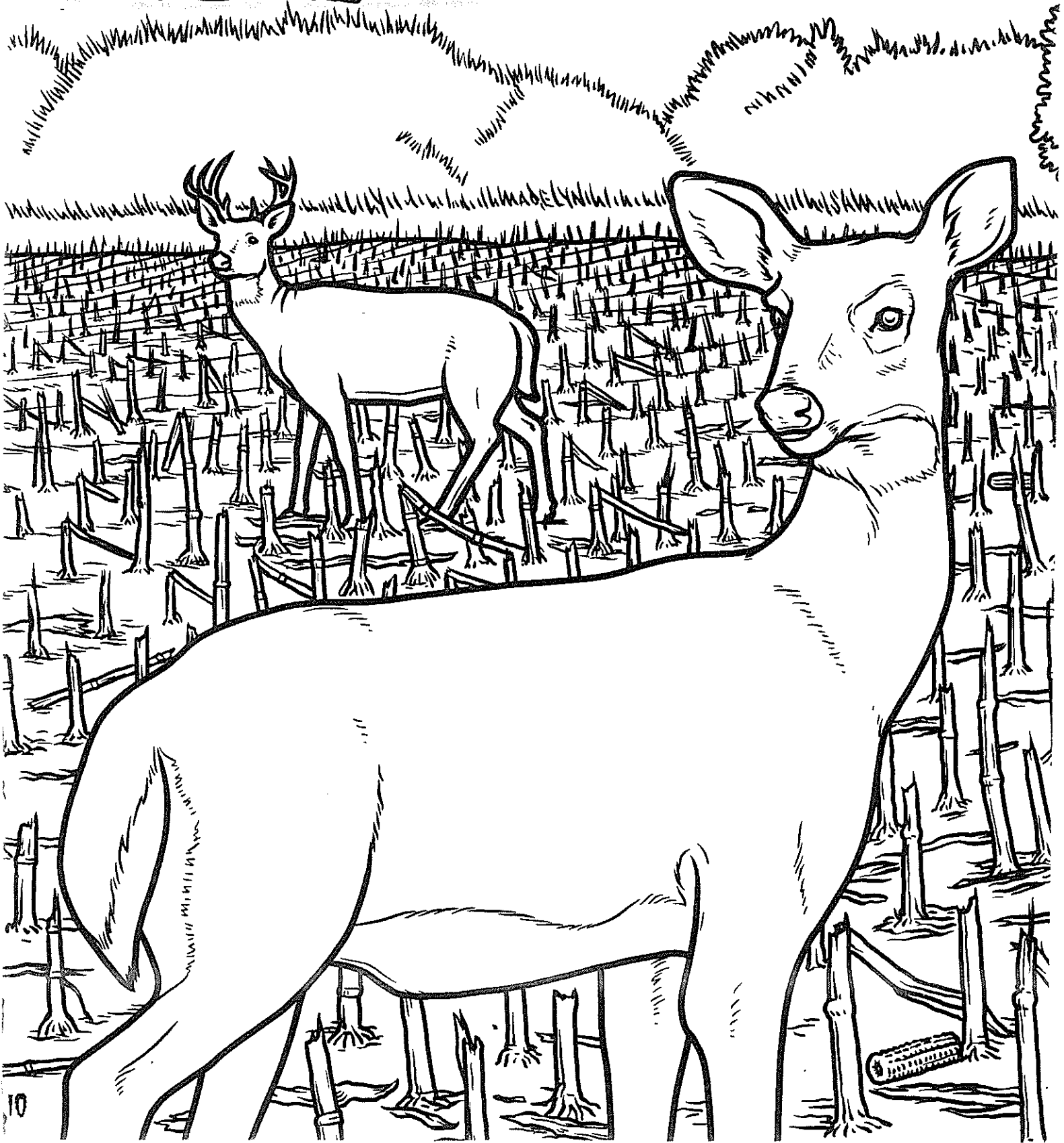
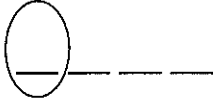


(Hint: Look for the answer on page three.)



Fill Me In!

The white-tailed deer often feeds on agricultural crops such as soybeans and _____.





THE WHITE-TAILED DEER (*Odocoileus virginianus*) prefers wooded areas to live in but does move into other areas to feed, especially agricultural fields. Active mainly at night, at dusk and at sunrise when they may be hard to see, deer are sometimes killed by collisions with vehicles.

Fast Fact:

Deer-vehicle collisions occur most often in the fall mating season when the animals move about more and in the spring when pregnant does move more slowly than usual.



THE VIRGINIA OPOSSUM (*Didelphis virginiana*) lives in both rural and urban areas in Illinois. It is an **omnivore**, an animal that will eat plant materials, animal materials and scavenged items, including pet food and garbage.

Fast Fact:

This mammal will try to escape when threatened. If escape is not possible, it may "play 'possum" by pretending to be dead. It is really in shock, but it recovers quickly.

Fill Me In!

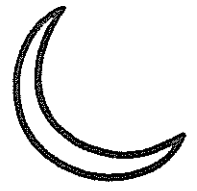
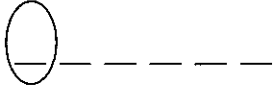
The Virginia opossum may be found
in _____ and rural areas of Illinois.

○ _____



Fill Me In!

The southern flying squirrel feeds on hickory nuts and _____, among many other items.





THE SOUTHERN FLYING SQUIRREL (*Glaucomys volans*) lives in wooded areas which contain many dead trees. It feeds on seeds, hickory nuts, acorns, tree buds, insects and other items that gray, fox and red squirrels use during the day. It makes its **den** in an old woodpecker cavity.

Fast Fact: A flap of loose skin between the front and hind legs allows this mammal to glide from higher to lower positions when moving between trees or branches.



THE SPOTTED SALAMANDER (*Ambystoma maculatum*) breathes mainly through its skin, so the skin must remain moist. It is active most often at night or after a heavy rain, when the **humidity** is high. The raccoon (*Procyon lotor*) is also **nocturnal** and will eat salamanders it can catch.

Fast Fact:

The diet of the spotted salamander includes earthworms, snails, slugs, millipedes, spiders and insects.

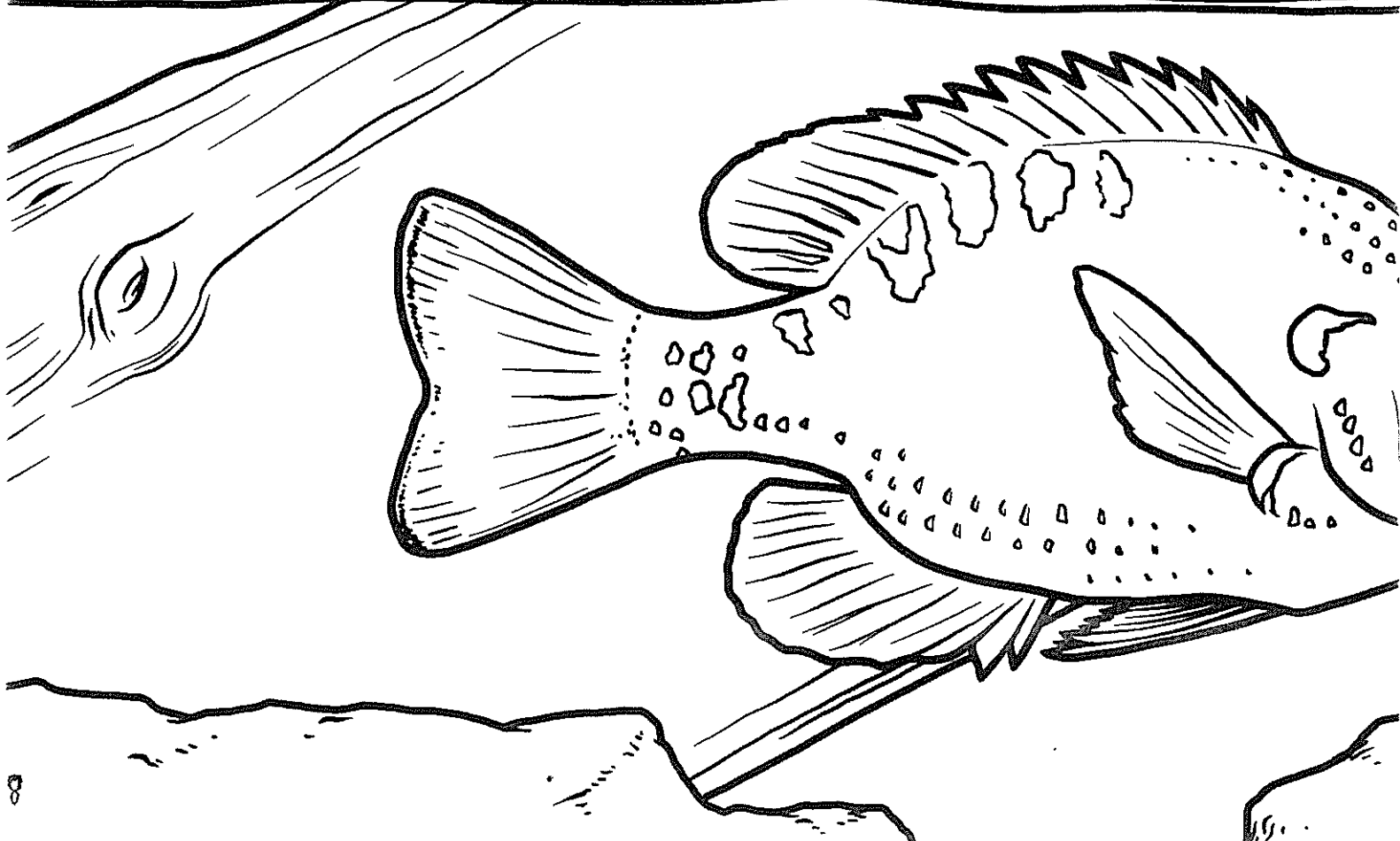
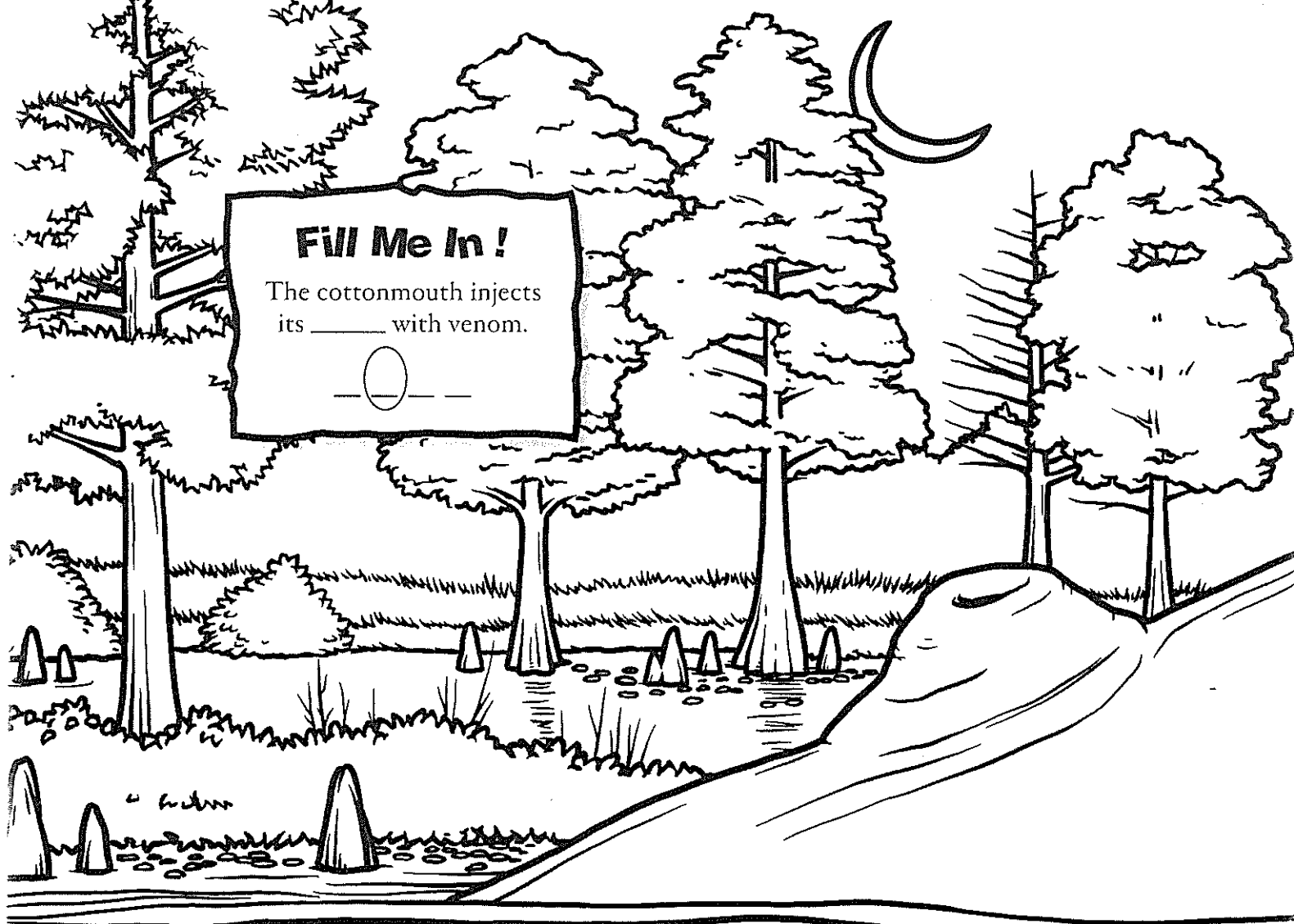
Fill Me In!

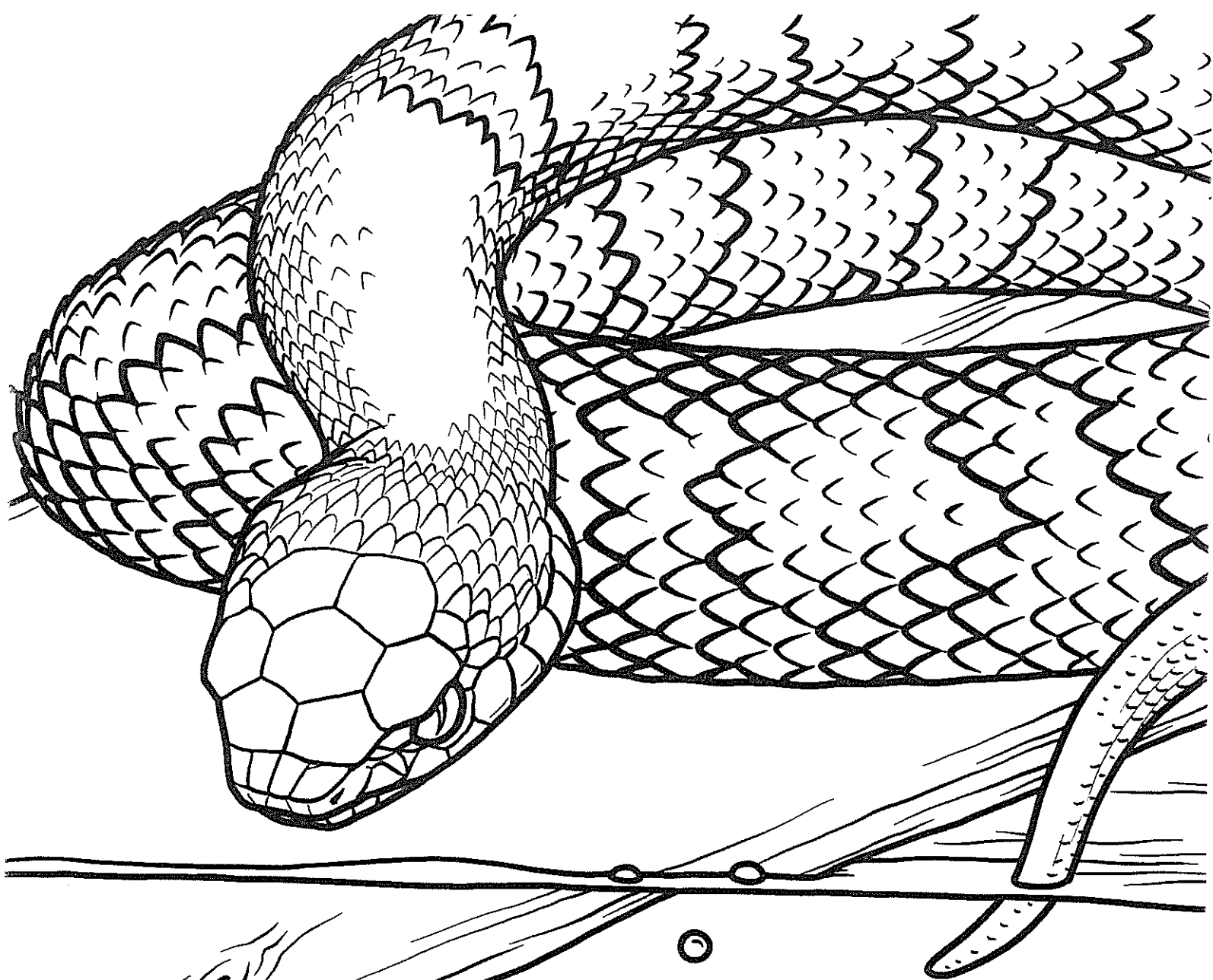
The spotted salamander finds _____
to eat under logs and rocks in the forest.

_____○_____



Fill Me In!
The cottonmouth injects
its _____ with venom.
— ○ —

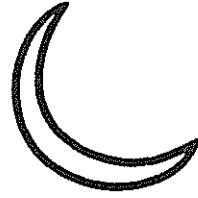
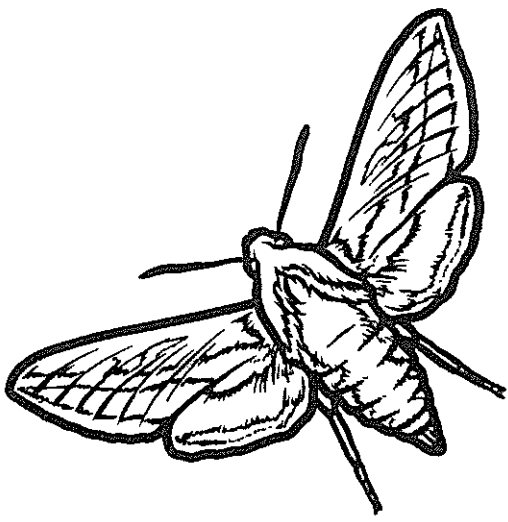




THE COTTONMOUTH (*Agkistrodon piscivorus*) lives in the swamps and sloughs of extreme southern Illinois. It hunts at night for fishes, birds, lizards, other snakes, amphibians and insects. It injects its prey with **venom**.

Fast Fact:

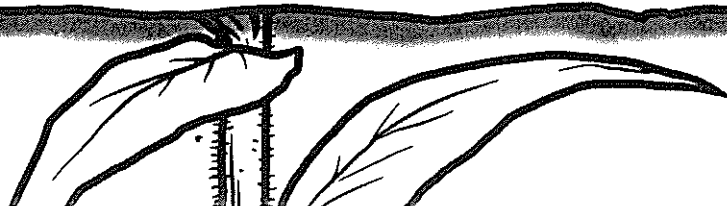
When disturbed, this snake may raise its head and open its mouth showing the white lining or "cottonmouth."



THE EVENING-PRIMROSE (*Oenothera biennis*) is a plant of prairies, thickets, roadsides and fields. Its yellow flowers open in the evening and wilt the next day. The flowers are pollinated by night-flying sphinx moths when they come to feed on flower nectar.

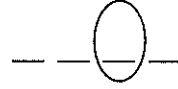
Fast Fact:

Sphinx moths are large insects which are often seen hovering around flowers. They resemble a hummingbird in size and flight.



Fill Me In!

The evening-primrose depends upon a sphinx _____ to pollinate it.



ON THE RIGHT TRACK

Nocturnal animals are active when it is hard for us to see them. We may only know that they've been in an area by the signs that they leave. When conditions are right, an animal may leave tracks. On this page you will see the tracks of five of the animals from this booklet. Draw a line from the track description to the drawing of the track(s).

A. WHITE-TAILED DEER

There are two separate parts to this track, although sometimes they appear together and make an upside-down heart shape.

D. VIRGINIA OPOSSUM

The front and hind feet tracks of the opossum are usually next to each other. The distinctive hind foot has its big toe turned inward or even slanted toward the tail. The three middle toes are close together and point forward, while the outer toe points away from the body.

B. SOUTHERN FLYING SQUIRREL

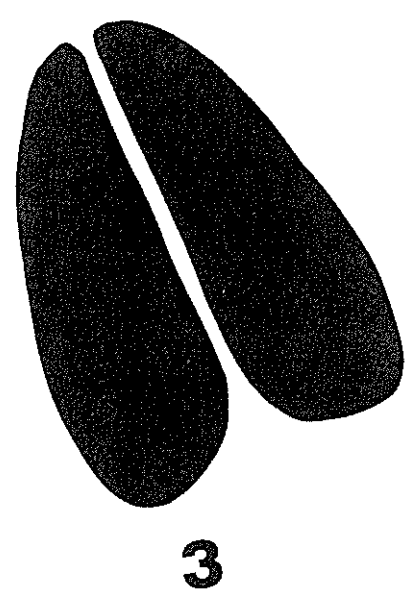
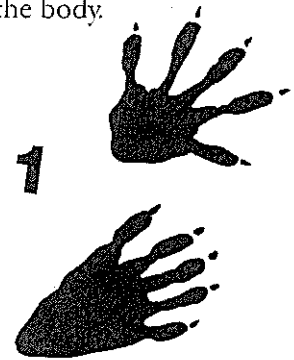
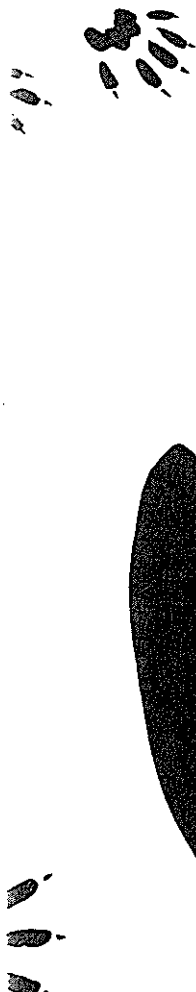
As this squirrel hops on the ground, the tracks of all four feet are often placed in a line, with the larger rear feet on the outside.

C. WHITE-FOOTED MOUSE

The tiny tracks of this mammal are most often seen in snow or mud. The larger hind feet tracks are placed slightly in front of the smaller front feet tracks.

E. RACCOON

Raccoon tracks are in pairs, with the track of the hind foot from one side of the body next to the track of the front foot of the other side of the body. The five toes on each large track point forward.



Fill Me In!

Write the circled letter from each of the nine fill-in-the-blank questions on the previous pages in the blanks below.

Now unscramble these letters to make a word. Two of the letters have been placed in their proper positions to get you started. **Hint:** The word describes something about the behavior of all of the plants and animals in this booklet.

___ C ___ N ___

WHAT DO YOU KNOW?

Let's see what you've learned about nocturnal creatures, their habitats and behaviors. Match the glossary word to its correct description.

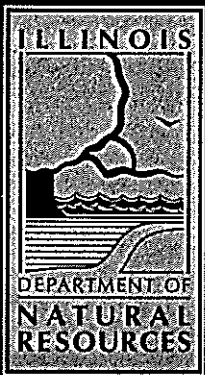
- | | |
|-------------------------|---|
| 1. ___ adaptation | A. arrangement of the eyes so that objects are seen in three-dimensions |
| 2. ___ binocular vision | B. mass of sticks, logs, leaves and other things moved together by water currents |
| 3. ___ den | C. organism, like the Virginia opossum, that feeds on both plant and animal materials |
| 4. ___ drift pile | D. special shape, behavior or body part that helps an organism to survive, such as silent flight |
| 5. ___ echolocation | E. light-sensitive lining in the eye |
| 6. ___ humidity | F. happening at night or active at night |
| 7. ___ maternity colony | G. place of shelter for an animal like the southern flying squirrel |
| 8. ___ nocturnal | H. area with water that does not flow but contains many plants; often found in a river floodplain |
| 9. ___ omnivore | I. amount of water vapor in the air |
| 10. ___ predator | J. group of female bats and their young |
| 11. ___ retina | K. organism that finds and eats other organisms |
| 12. ___ slough | L. injected poison used to help catch prey items |
| 13. ___ venom | M. using reflected sound waves to navigate and hunt prey |

Answers!

ON THE RIGHT TRACK
A-3 B-4 C-5
D-2 E-1

WHAT DO YOU KNOW?
1-D 5-M 10-K
2-A 6-I 11-E
3-G 7-J 12-H
4-B 8-F 13-L
9-C

Fill Me In!
page 5: echolocation
page 6: hearing
page 9: oxygen
page 10: corn
page 21: moth
page 18: prey
page 17: snails
page 14: acorns
page 13: urban
final answer: nocturnal



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