(Photo by Mike Redmer.)

(Photo by William Wengelewski.)

Know Your Illin

How many Illinois turtle species do you recognize? Hint:

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(Photo by Scott Ballard.)

(Photo by Dr. E.O. Moll.)

Illinois is home to a diverse array of turtles represented by 17 species from four different families. Topping the list are three extremely common species found throughout the state: the **red-eared slider** (*Trachemys scripta elegans*), **common snapping** turtle (*Chelydra serpentina*) and **painted** turtle (*Chrysemys picta*). Chances are, wherever you live in Illinois, this trio of typical turtle species lives nearby. These three can adapt to a wide variety of habitats; however, they often prefer ponds, lakes and river backwaters.

One might ask: What's the difference between a terrapin, a tortoise and a turtle? Technically, Illinois is home to "terrapins," a technical name for all aquatic or semi-aquatic turtles. The term tortoise typically is restricted to the family Testudinae (e.g., Galapagos tortoise, gopher tortoise) which have thick, "elephantine" limbs and are strictly terrestrial (land inhabitants). Regardless of the name, whether terrestrial, marine or aquatic, these reptiles all lay eggs on land.

Many Illinois residents encounter turtles while driving—sometimes even stopping to kindly escort turtles across roads. Other drive-by sightings might include a glimpse of aquatic turtles sliding off logs into the water when startled from basking. Basking turtles perch on exposed logs to warm their bodies in the sun.

A number of species prefer to inhabit flowing water such as rivers and streams. Examples include the **common map** turtle (*Graptemys geographica*), **false map** turtle (*Graptemys pseudogeographica*), **Ouachita map** turtle (*Graptemys ouachitensis*), **smooth softshell** (*Apalone mutica*) and **spiny softshell** (*Apalone spinifera*). The **common musk** turtle (*Sternotherus odoratus*) is an aquatic turtle found in mud-bottomed lakes, ponds and slow-moving streams and rivers.

(Photo by Dan Thompson.)

(Photo by Mike Redmer.)

(Photo by Carol Freeman.)

(Photo by Dr. E.O. Moll.)

ois Turtles

There are 17, including a few rarely seen.

(Photo by Scott Ballard.)

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Rarely sighted species include the **alligator snapping** turtle, (*Macroclemmys temminckii*), a southern species which may be extirpated in Illinois; the **Illinois mud** turtle (*Kinosternon flavescens spooneri*), a sand prairie specialist; the **eastern mud** turtle (*Kinosternon subrubrum*); the **river cooter** (*Pseudemys concinna*); and the **spotted** turtle (*Clemmys guttata*), a northern marsh specialist. All of these turtles are state-endangered species. In addition, **Blanding's** turtle (*Emydoidea blandingii*) is a threatened species which prefers marsh, wet prairie and wetland habitats. Many of these turtles, as well as the alligator snapping turtle, are on the state-threatened or endangered list due to habitat loss or overharvest for consumption.

And then there are those turtles we discover during forest hikes. Illinois has two turtle species not restricted to aquatic habitats and often encountered on land: the **eastern box** turtle (*Terrapene carolina*) and the **ornate box** turtle (*Terrapene ornata*).

The common snapping turtle occurs statewide and feeds on a variety of material including insects, crayfish, plants and often dead fish. A large turtle, it will vigorously defend itself on land but usually prefers to avoid confrontation in the water. Males are larger than females and can sometimes be seen on land moving between bodies of water. Females leave the water from mid-May to mid-June to make nesting migrations, when they lay large (up to 40) clutches of round, leathery eggs. Unfortunately, nesting season is the time when these turtles are most vulnerable to harvest.

As the largest of all Illinois turtles, the alligator snapping turtle can reach weights up to 155 pounds. Their largely carnivorous diet consists of fish and young turtles—food it often tricks into range through deception. The alligator

One type of sampling tool, a hoop net, caught a variety of turtles, including common snapping turtles and red-eared sliders.

snapper possesses a fleshy appendage on its tongue to lure fish. Historically it occurred in the southern-most part of the state. Young common snapping turtles often are confused with the alligator snapper because they both have three large prominent keels on the upper shell. However, the keels on large common snapping turtle shells tend to disappear with age, while the alligator snapping turtle retains them throughout life. Moreover, the alligator snapping turtle has an extra row of scales on the shell that is not present in the common snapping turtle. A state-endangered species, possibly reflecting overharvest, southern Illinois is the northernmost part of this turtle's range.

The painted turtle is a common species and occurs throughout the state as the classic pond turtle. Medium-sized, with females usually larger than males, painted turtles have a depressed, smooth shell with brightly colored patterns on the lower shell. Like all Illinois pond turtles, males have longer front claws than the female, with these claws used in a mating ritual. Their diet consists of mussels, plants and insects. Painted turtles nest up to three times a year between mid-May and July, with up to 20 eggs laid in each clutch.

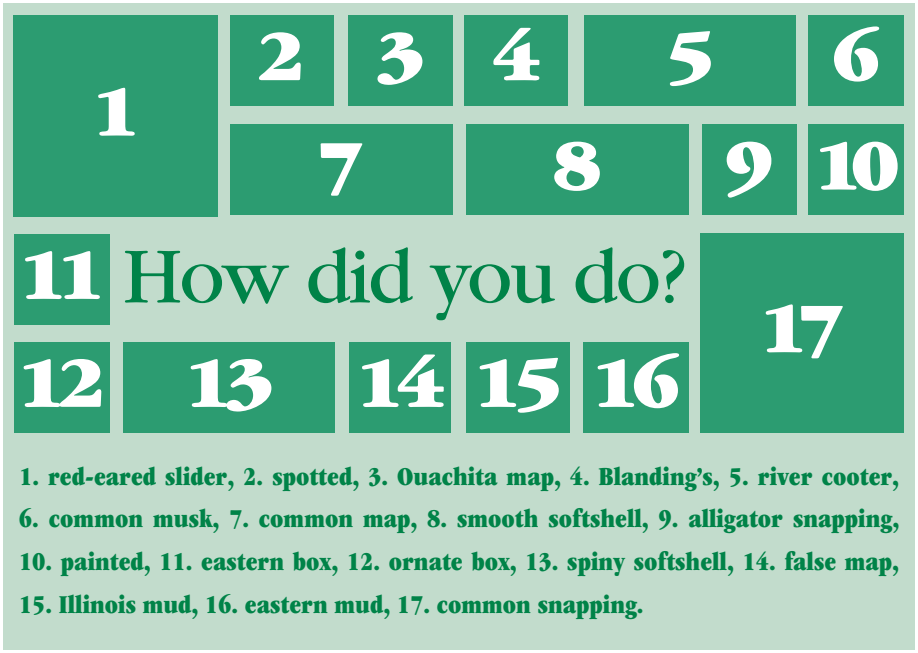
The common musk turtle, or stinkpot, is a small, black turtle that occurs statewide in stagnant, mud-bottomed water. The name refers to a musky smell produced by secretions from the hinge of the shell that are released when the animal is startled or handled. The stinkpot can be recognized by its small body size, large head and presence of chin barbels. It lays up to 13 ellipsoidal, hard-shelled eggs during the May to July nesting season.

Box turtles—eastern and ornate—are the only Illinois species that can completely retract within their shell. The eastern box turtle prefers forested areas while the ornate box turtle, the more uncommon of the two species, is a prairie specialist. They are usually found walking on land. Typically, both species lay ellipsoidal eggs in June. Males can be differentiated from females by the large, concave depressions present on the bottom of their shells. Box turtles feed on a variety of invertebrates, berries and fungi; however, the ornate box turtle tends to be more carnivorous than its counterpart. It is the box turtle most likely to bite when handled.

The most common turtle in Illinois is the red-eared slider, which utilizes a wide variety of habitats and can be recognized by a distinct red patch on the side of the head in juveniles and females. The young feed mainly on insects while older individuals include more plant material in their diet. Sliders nest in mid-May to July, average 12 eggs per clutch and nest up to three times per year. Males can be identified by the long claws on their front limbs. Red-ears, primarily the males, become melanistic (loss of vibrant color and pattern) with age.

Three species of map turtles occur throughout the rivers of Illinois: the common map, false map and Ouachita map turtle. Head markings are used to identify each species. Map turtles exhibit sexual dimorphism in that the females are considerably larger than males and have a stouter head, and males have larger foreclaws than females. Map turtles persist on a diet of plants, insects and mollusks.

Examination of the front edge of the shell is used distinguish between the spiny (small spines are present) and smooth softshell turtles. In addition, spiny softshells have flared nasal septa present in the nostrils. These large turtles are found in rivers and larger lakes statewide; however, smooth softshells rarely occur in lakes while spiny softshells tolerate a wide range of habitats. Females are much larger than males, and lay an average of 18 round eggs



1. red-eared slider, 2. spotted, 3. Ouachita map, 4. Blanding's, 5. river cooter, 6. common musk, 7. common map, 8. smooth softshell, 9. alligator snapping, 10. painted, 11. eastern box, 12. ornate box, 13. spiny softshell, 14. false map, 15. Illinois mud, 16. eastern mud, 17. common snapping.

in sand or mud up to four times per year from mid-May to July. Behavior can help differentiate the two: spiny softshells will defend themselves, often biting when handled, while smooths do not.

Scientists use a variety of equipment and methods to survey turtle populations including hoop nets, basking traps, fyke nets and trammel nets, as well as collection of specimens from roadways during the nesting season. Researchers collect data such as species, carapace (top of shell) length and width, plastron (bottom of shell) length and width, sex and weight. Eggs collected from females are used to learn about reproductive effort (e.g., clutch size, egg size, weight). All these data provide scientists with information regarding turtle population structure.

Since the majority Illinois turtles are aquatic, most of the research is conducted on the Mississippi and Illinois rivers. Long-term turtle monitoring projects have been established at the Great Rivers Field Station (Illinois Natural History Survey) and the Kibbe Field Station (Western Illinois University). The programs include mark and recapture studies implemented to look at movement, homing, sex ratio, growth and population estimates.

Want to know more?

A good source to learn more about Illinois' reptiles and amphibians is "Field Guide to Reptiles and Amphibians of Illinois" (Phillips, C.A., Brandon, R.A. and E.O. Moll, 1999; available by e-mailing Pubs_sales@inhs.uiuc.edu or calling (217) 244-2161) or visiting the Illinois Natural History Survey's reptile and amphibian Web site at www.inhs.uiuc.edu/animals_plants/herps.

Because red-eared sliders are abundant and highly susceptible to capture in the southern two-thirds of the state, large sample sizes can be readily collected. As a result, this is the most-researched species and serves as a model for other turtle investigations.

For instance, red-eared sliders provide insight as to how recent climatic warming may impact turtle populations as scientists have discovered that females are producing an extra clutch of eggs during the nesting season. Turtle sex is determined in the nest by ground temperature (i.e., warmer ground temperatures produce females, cooler produce males). Female sliders lay an extra clutch during the relatively cool spring, and the resulting all-male hatch can skew the male-to-female sex ratio. Such a scenario could have serious impacts on the health of the species and its population.

More than 30,000 turtles (46,000 captures) have been studied on the Mississippi and Illinois rivers at the Great Rivers Field Station over a period of 14 years. In addition, Western Illinois University Kibbe Field Station continues to expand on 11 years of long-term data collection on the Mississippi River. Turtles are marked in order to look at movement, growth, and genetics of different populations and species, including research undertaken by Earthwatch Institute students (a competitive nationwide scholarship program for high school students) and university faculty.

Male red-eared sliders can be identified by their long foreclaws. This group includes a melanistic (dark) turtle.

During the research project, Iowa Department of Natural Resources biologist Chad Dolan set hoop nets baited with fish carcasses.

Turtles are an important component of aquatic ecosystems because they serve as a means of cleansing, maintaining and preserving the balance of these important habitats. Turtles consume carrion (dead fish, crayfish and aquatic insects), material that would be left to decompose if not utilized. Turtles also feed on aquatic vegetation, preventing these plants from colonizing or overwhelming a portion of a water body.

A common misnomer is that turtles feed exclusively on live fish, often generating the belief that turtles can be detrimental to fish populations. With the exception of the alligator snapping turtle, turtles generally cannot catch healthy fish. Rather, they are opportunistic, opting to feed on dead or dying fish encountered while perusing the bottom of their aquatic kingdom.

Although not an everyday encounter for most, turtles are yet another Illinois treasure.

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