

# TURTLES OF THE UPPER MISSISSIPPI RIVER SYSTEM

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## Background:

A total of 13 species and subspecies of turtles are known to live in the Upper Mississippi River, its backwaters and tributaries. There are a few species that could be found occasionally, but would likely account for less than 5% of the species composition of any area. These species are predominantly marsh animals and are discussed in a separate section of this paper. For additional information on turtle identification and natural history see Briggler and Johnson (2006), Christiansen and Bailey (1988), Conant and Collins (1998), Ernst and Lovich (2009), Johnson (2000), and Vogt (1981).

This information is provided to the fisheries field staff of the LTRM project so they will be able to identify the turtles captured during fish monitoring. The most current taxonomic information of turtles was used to compile this material. The taxonomy followed in this publication is the *Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico, with comments regarding confidence in our understanding* (6th edition) by Crothers (2008).

## Species Identification, Natural History and Distribution:

What follows is a synopsis of the 13 turtle species and subspecies which are known to occur in the Upper Mississippi River environs. Species composition changes between the upper and lower reaches of the LTRM study area (Wisconsin/Minnesota state line and southeastern Missouri) due to changes in aquatic habitats. For example, the Northern Map Turtle (*Graptemys geographica*) is abundant in the northern portion of the river with clearer water and abundant snail prey. In the Cape Girardeau portion of the Mississippi River, this would be an unlikely species to encounter. The Northern Map Turtle is abundant, however, in the clear, cool Ozark streams throughout southern Missouri.

### **Alligator Snapping Turtle**

#### ***Macrochelys temminckii***

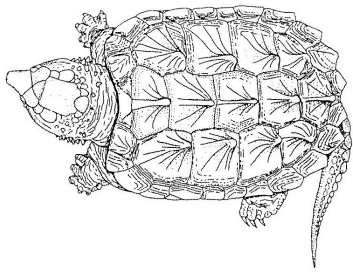
This is the largest species of freshwater turtle in the world. It can be distinguished from the Eastern Snapping Turtle by its large head, pronounced hooked beak, round bumps on tail, and an extra row of scutes on sides of the upper shell (carapace). Upper shell coloration is normally dark brown. An adult can have an upper shell length from 15 to 26 inches (38 to 66 cm) with a weight from 35 to 150 pounds (16 to 68 kg). The record weight for the species is 219 pounds (99.3 kg).

Prey: This species eats primarily fish.

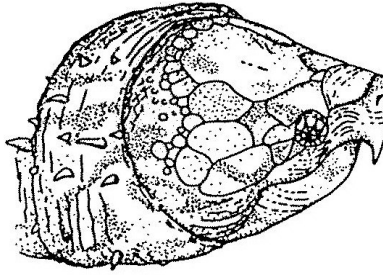
Habitat: Preferred habitat includes deep, muddy pools of large rivers, deep sloughs and oxbows.

Distribution: Lower sections of the Mississippi River and lower Illinois River. There are some historic records of this species collected near Hannibal, Missouri. However, it is unlikely that Alligator Snapping Turtles will be found north of St. Louis.

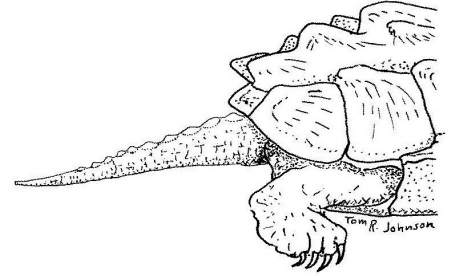
## Alligator Snapping Turtle



Dorsal View



Head View



Tail View

## Eastern Snapping Turtle (formerly Common Snapping Turtle)

*Chelydra serpentina*

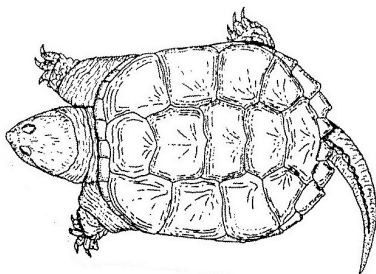
This abundant reptile can be distinguished from the Alligator Snapping Turtle by its smaller head, less prominent hooked beak, and saw toothed tail. Color is usually a dull gray to gray-brown; the neck and limbs often have some yellow. Upper shell length ranges from 8 to 12 inches (20 to 30 cm). An adult Eastern Snapping Turtle may weigh from 10 to 35 pounds (4.5 to 16 kg).

Prey: This species is an omnivore, essentially consuming anything that it can capture or fit into its jaws (both fresh and carrion). Some examples include: invertebrates, fish, amphibians, aquatic plants and carrion.

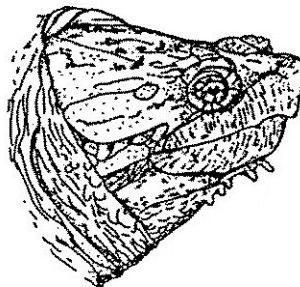
Habitat: This species lives in a variety of aquatic habitats including rivers, backwater areas, swamps, marshes, lakes, and ponds.

Distribution: The Eastern Snapping Turtle occurs through the entire Midwest.

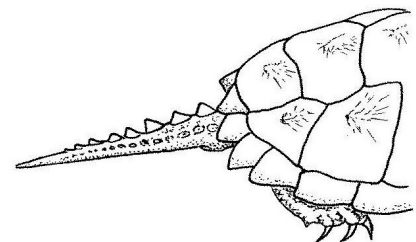
## Eastern Snapping Turtle



Dorsal View



Head View



Tail View

## Eastern Musk Turtle (formerly Common Musk Turtle or Stinkpot)

### *Sternotherus odoratus*

This is one of the smallest species of turtles in the world. Upper shell length may be between 3 1/4 and 4 1/2 inches (8 to 11.5 cm). Their color is black or dark brown with a few thin, yellow stripes running along the sides of the head and neck. The lower shell is proportionally reduced in size and does not provide much protection for the limbs and tail. The name “musk or stinkpot” turtle comes from its ability to produce a musky odor from small glands located in the skin between the upper shell and lower shell (plastron) along the sides.

Prey: Small aquatic animals such as aquatic insects, small fish, and tadpoles.

Habitat: Eastern Musk Turtles occur in a variety of aquatic habitats: streams, rivers, sloughs, swamps and lakes.

Distribution: This is an eastern and southern species and found along the Upper Mississippi River up to, but not likely north of Dubuque, Iowa.

### Map Turtles (*Graptemys* spp.):

This is a confusing group of turtles to identify. Map Turtles captured in the middle and lower part of the Upper Mississippi River can be a real challenge to identify. Most of the key identification features are shell shape and yellow head markings. The coloration of the lower shell does not markedly vary between the various species of *Graptemys* in the LTRM study areas and should not be used for identification. The taxonomy of the Map Turtles, especially of the big river populations, is somewhat in flux. The *Field Guide to Reptiles and Amphibians of Eastern and Central North America* (Conant and Collins, 1998) has kept the full species status for the Mississippi Map Turtle (*G. kohnii*). However, Vogt (1980) proposed that the Ouachita Map Turtle (*G. ouachitensis*) be elevated to a full species and that the Mississippi Map Turtle (*G. kohnii*) be treated as a subspecies of the False Map Turtle (*G. pseudogeographica*). In other words, many of the turtles captured in the Upper Mississippi River system are highly polymorphic and difficult to separate into species and subspecies.

## False Map Turtle

### *Graptemys pseudogeographica pseudogeographica*

A “typical” Map Turtle with dorsal keel along the upper shell and a serrated edge along the rear of the shell. Upper shell length averages from 3 1/2 to 10 3/4 inches (9 to 27.3 cm). The coloration of the upper shell is a light brown with a pattern of yellow or light orange lines, which resemble a road map. The yellow markings on the head of the False Map Turtle is normally as follows: The marking behind the head is thin and with a backward “L”-shape and usually allows a few neck lines to reach each eye. The spot(s) below the eye are very small.

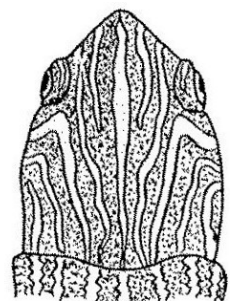
Prey: All our Map Turtles consume a variety of snails, mussels, crayfish, aquatic insects and dead fish.

Habitat: False Map Turtles live in the river channel, as well as backwaters. They can often be seen basking on logs.

Distribution: The False Map Turtle ranges from the mouth of the St. Croix River south to the southeastern corner of Missouri. There is obvious heavy intergradation between this race and the Mississippi Map Turtle.



Lateral View



Dorsal View

## Mississippi Map Turtle

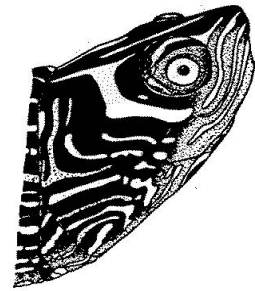
*Graptemys pseudogeographica kohnii*

General shell shape and coloration of this subspecies is similar to that of the False Map Turtle. The yellow markings on the head are normally as follows: The crescent-shaped marking behind the eye is wider than that of the False Map Turtle and always reaches under the eye which prevents any neck lines from touching the eye. The yellow spot(s) below each eye are either very small or not present. Upper shell length ranges from 6 to 10 inches (15 to 25.4 cm).

Prey: All our Map Turtles consume a variety of snails, mussels, crayfish, aquatic insects and dead fish.

Habitat: Mississippi Map Turtles live in the river channel, as well as backwaters. They can often be seen basking on logs.

Distribution: Mississippi Map Turtles occur in the Mississippi River south of Hannibal, Missouri. This subspecies also can be found in the Illinois and Missouri rivers.



Lateral View

## Ouachita Map Turtle

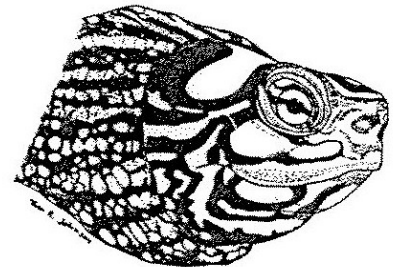
*Graptemys ouachitensis ouachitensis*

This is a common species of Map Turtle through most of the upper Mississippi River system. Coloration of the upper shell is a light brown with some yellow or orange-yellow “map lines” and with one, or sometimes two black marking per scute. The important characteristics that distinguish this species from all other Map Turtles is the head markings. The yellow marking behind each eye is wide, crescent or “L” shaped, and seldom extended down and forward to under each eye. There is normally a large yellow spot directly below each eye and another spot below this on the lower jaw.

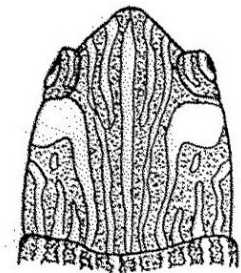
Prey: All our Map Turtles consume a variety of snails, mussels, crayfish, aquatic insects and dead fish.

Habitat: This turtle lives in rivers, streams, sloughs, oxbow lakes, and reservoirs.

Distribution: There is a broad area of sympatry with other Map Turtle species and subspecies from southwestern Wisconsin to southeastern Missouri in the Mississippi River. It also occurs in the Illinois and Missouri rivers.



Lateral View



Dorsal View

## Northern Map Turtle (formerly Common Map Turtle)

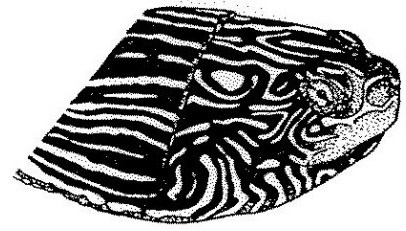
### *Graptemys geographica*

This species has a lower dorsal ridge along the upper shell compared to other *Graptemys* species. Also, the head of adult females is proportionally larger than the other species. The upper shell is an olive-brown with numerous yellow “map” lines and only faint brown marking in each scute. The important characteristic is the marking on the head behind each eye: It is small, somewhat longitudinal, and may be round or triangular in shape. Upper shell length ranges from 7 to 10 3/4 inches (18 to 27.3 cm).

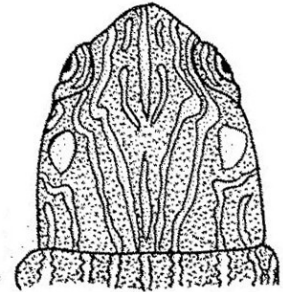
Prey: All our Map Turtles consume a variety of snails, mussels, crayfish, aquatic insects and dead fish. Females primarily eat snails, naiads and crayfish while males eat some snails but prefer aquatic insects.

Habitats: Occurs in rivers and streams with muddy or rocky bottoms, as well as backwater areas and oxbows. This species is less tolerant of highly turbid water.

Distribution: Occurs from northwestern Wisconsin and east central Minnesota south to northeastern Missouri in the Mississippi River. Occasionally found in the lower Illinois River.



Lateral View



Dorsal View

## Midland Painted Turtle

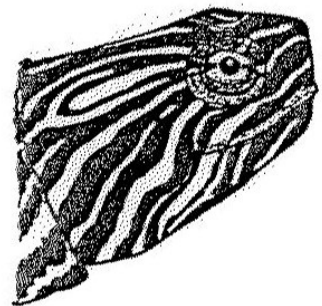
### *Chrysemys picta marginata*

Painted Turtles are colorful, medium-sized turtles which may occur in a variety of aquatic habitats. Upper shell coloration is an olive-brown and the shell margin is edged in orange and yellow. The lower shell is normally yellowish-orange or light orange with a center pattern of gray. Upper shell length ranges from 4 1/2 to 5 1/2 inches (11.5 to 14 cm).

Prey: Painted Turtles eat a large amount of aquatic vegetation plus insects, crayfish and occasionally snails.

Habitats: Occurs in marshes, lakes, ponds, rivers and river backwaters. These habitats must contain an abundance of aquatic vegetation.

Distribution: May occur in the Upper Mississippi River system where it intergrades with the Western Painted Turtle.

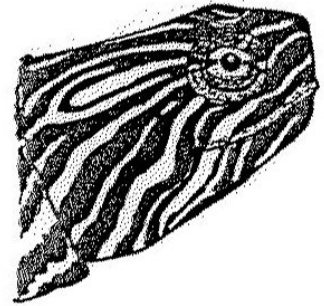


Lateral View

## Western Painted Turtle

*Chrysemys picta bellii*

This is a common subspecies of turtle in the Midwest and should be an abundant reptile in Mississippi River backwater in most states. The upper shell is normally darker than the Midland Painted Turtle. The upper shell is a very dark olive-brown to nearly black, with some irregular yellow lines. The lower shell is usually bright orange with a complex gray, yellow and orange pattern covering much of it. This marking follows the scute seams outward from the center. Upper shell length ranges from 5 to 7 inches (12.5 to 18 cm). Lines on the head and neck are orange or yellow.



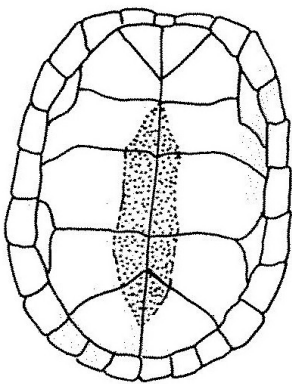
Lateral View

**Prey:** Painted Turtles eat a large amount of aquatic vegetation plus insects, crayfish and occasionally snails

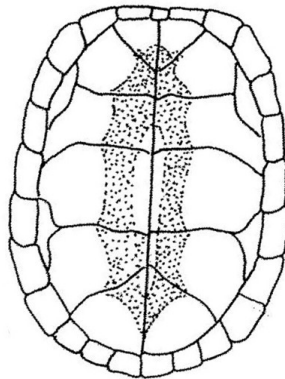
**Habitat:** This abundant turtle lives in slow-moving rivers, sloughs, oxbows and marshes.

**Distribution:** Occurs from Minnesota and Wisconsin south to eastern Missouri. This subspecies intergrades with the Midland Painted Turtle throughout much of Wisconsin and Illinois.

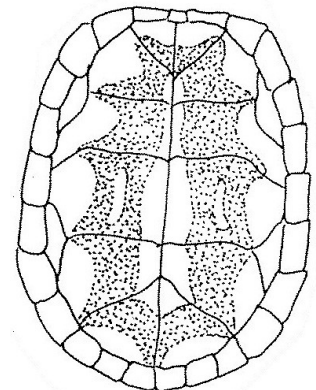
### Painted Turtle Plastrons (bottom shell)



Midland Painted Turtle



Midland X Western Painted Turtle



Western Painted Turtle

## River Cooter

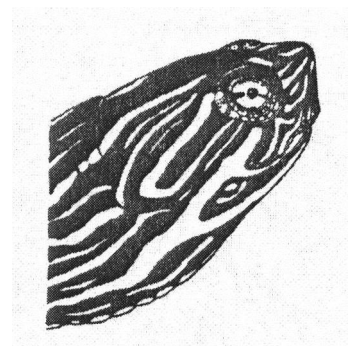
*Pseudemys concinna*

This is a large turtle with a proportionately small, blunt head. General coloration is an olive-brown upper shell with numerous concentric yellow lines. Head and limbs are normally dark brown or black with many yellow lines. The lower shell is a plain yellow or there may be a few faint gray markings on the forward section. Upper shell length ranges from 9 to 13 inches (23 to 33 cm).

**Prey:** Aquatic plants make up the bulk of this species' diet, but some aquatic insects, snails, and crayfish are eaten.

**Habitat:** Because this species eats mostly aquatic vegetation it should be uncommon in the Mississippi River or backwaters.

**Distribution:** Southeastern Missouri, southern Illinois and southward.



Lateral View

## Red-eared Slider

### *Trachemys scripta elegans*

This is one of the most common species of turtle in the lower Midwest states. The color of the upper shell is olive-brown with numerous black and yellow lines. The lower shell is yellow with a large, dark brown blotch on each scute. The upper shell length ranges from 5 to 8 inches (12.5 to 20 cm). The head and neck are dark green with numerous black and yellow lines. Females and young males have a distinct red or dark orange stripe present on each side of the head behind the eye. Old males lack this red marking and are often covered with an excess of black pigment (obscuring any yellow stripes).

Prey: Red-eared Sliders are an opportunistic omnivore, eating a wide ranging of aquatic plants and animal food.

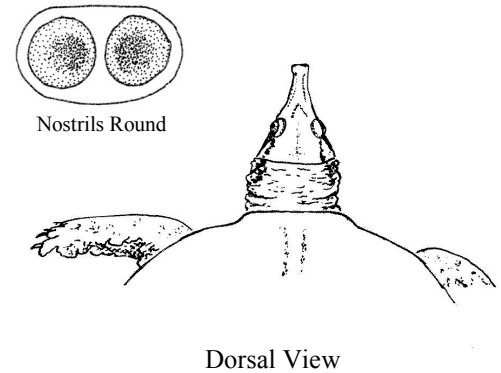
Habitat: Red-eared Sliders live in slow moving rivers, sloughs, oxbows as well as ponds, lakes, and swamps.

Distribution: Southeast Iowa, eastern Illinois and south.

## Midland Smooth Softshell

### *Apalona mutica mutica*

This is the less common of the two softshells found in the Upper Mississippi River. The dorsal coloration of Smooth Softshells are olive-gray or light brown with a few dot-and-dash markings while large females are usually covered with dark brown mottling. A light line bordered by black is usually present behind each eye. Males range in shell length from 5 to 7 inches (12.5 to 18 cm); females from 7 to 14 inches (18 to 35.6 cm). The entire upper shell is smooth with no small bumps or spines.



Prey: Softshell turtles eat a variety of aquatic animals including small fish, crayfish, snails, and aquatic insects.

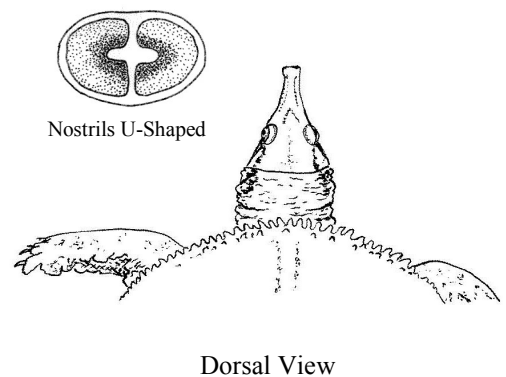
Habitat: This species resides in large rivers and streams where sand and/or mud is abundant.

Distribution: In the Mississippi River from eastern Minnesota and western Wisconsin south to the Gulf of Mexico.

## Spiny Softshell

### *Apalone spinifera*

This is a common turtle in large river environs and is larger than the Smooth Softshell. Males and young turtles are olive or grayish-tan with some small black dots and circles. Large females are dark olive with brown or gray blotches scattered over the upper shell. A dull yellow line, bordered with black extends backward from each eye. Sharp bumps or spines cover the front margins of the upper shell; small spines may cover the entire shell and can be felt with a finger tip. Upper shell of males ranges from 5 to 9 1/4 inches (12.5 to 23.5 cm); females from 7 to 17 inches (18 to 43.2 cm).



Prey: Softshell turtles eat a variety of aquatic animals including small fish, crayfish, snails, and aquatic insects.

Habitat: Occurs in rivers, streams, sloughs and oxbows and is typically more abundant than the Smooth Softshell.

Distribution: Occurs from eastern Minnesota and western Wisconsin south to the Gulf of Mexico. Throughout much of the Upper Mississippi River the population of Spiny Softshell is an intergrade between the eastern and western subspecies.

### Incidental Species:

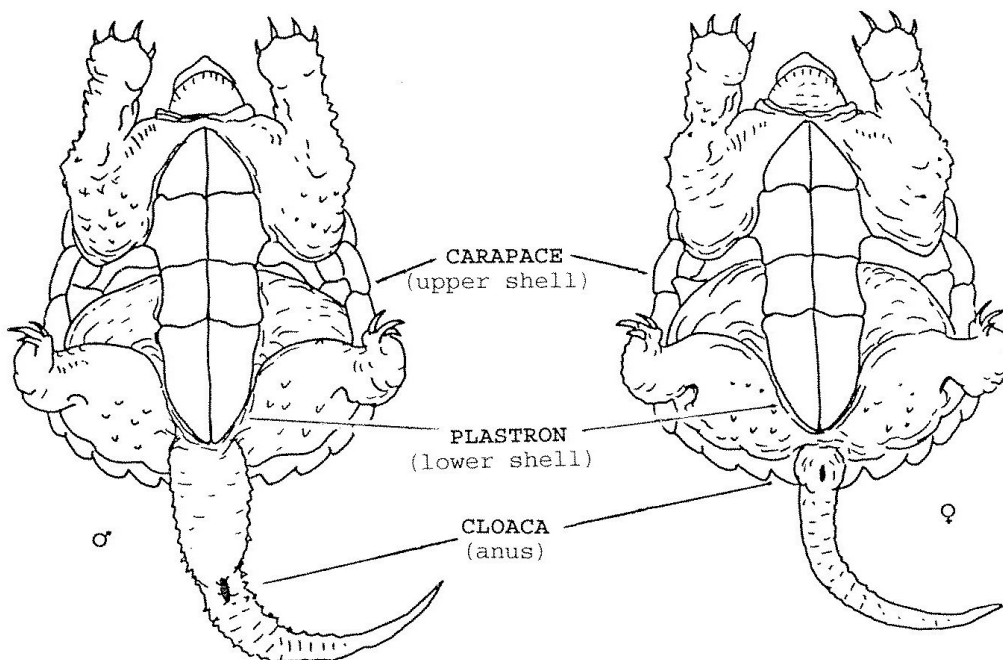
The following turtle species may be occasionally captured in the backwaters of the Upper Mississippi River. Because of their special habitat requirements, these species should not constitute a significant part of the captures. For more information on these turtles use the *Field Guide to Reptiles and Amphibians of Eastern and Central North America* (Conant and Collins, 1998) and *Turtles of the United States and Canada* (Ernst and Lovich, 2009).

1. **Yellow Mud Turtle (formerly Illinois Mud Turtle), *Kinosternon flavescens*:** Only found in extreme southeastern Iowa, northeastern Missouri and eastern Illinois in the upper Midwest. Not known to live in the Mississippi River but may occur in marshes near the river.
2. **Blanding's Turtle, *Emydoidea blandingii*:** This is a marsh dwelling species but may occasionally occur in a slough or oxbow of the Mississippi River in Wisconsin, Minnesota, Iowa or northwestern Illinois.
3. **Wood Turtle, *Glyptemys insculpta*:** This is the species least likely to be found by LTRM station field staff. Wood Turtles reside in small rivers and streams in forested areas, however, they spend quite a bit of time wondering over land. Occurs in La Crosse, Wisconsin area and southeastern Minnesota.

### **Sex Determination in Turtles**

Besides identifying turtles to species and subspecies, it will be important to determine the sex of adults. The following description and drawings are furnished to help in this task. Young turtles usually lack sufficient characteristics to separate by sex.

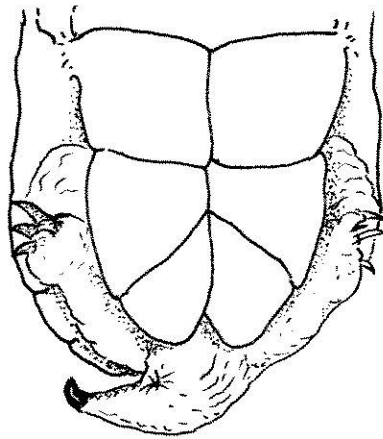
1. Alligator and Eastern Snapping Turtles: Both of these species have large tails. However, males have longer and thicker tails than females. Also, the anal opening on males is located past the outer edge of the upper shell (carapace); the anal opening of females is located on the tail before the edge of the upper shell.



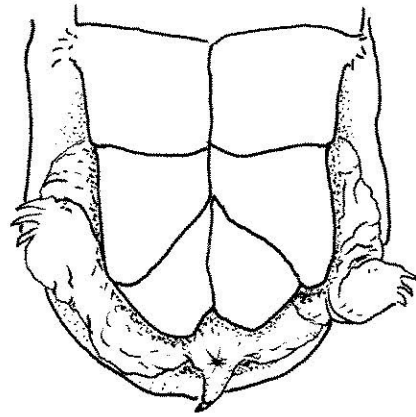
**Please Note:** Eastern Snapping Turtles under eight inches in carapace (upper shell) length may be difficult to sex. Adult males have a much thicker tail base than females and their cloaca (vent) is well past the edge of the carapace. Female's cloaca is at, or just prior, to the edge of the carapace.



2. Eastern Musk and Yellow Mud Turtles: The tail of males is very thick and long compared to females. Also, the head of male musk turtles is larger than female heads.

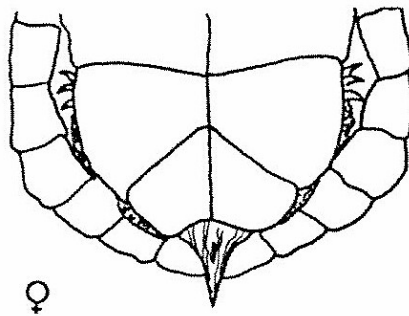


Male

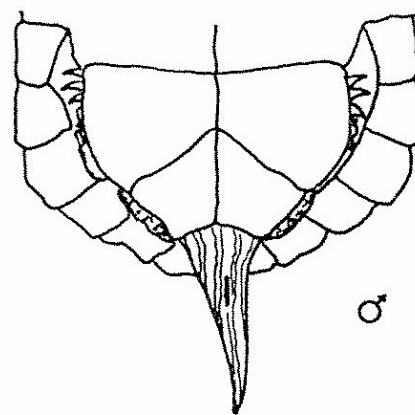


Female

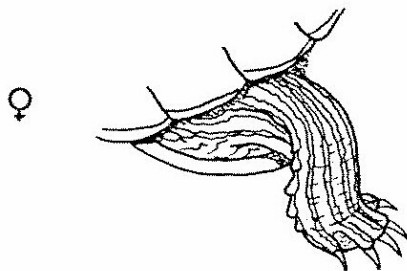
3. Sliders, Map, Painted and other “basking” Turtles: Adult males have a thicker tail than females. Also, males have long claws on the forelimbs (used in courtship), while females have short claws. Adult male Map Turtles are much smaller than females and the head of females are quite large for their shell size. This is particularly true with the Northern Map Turtle.



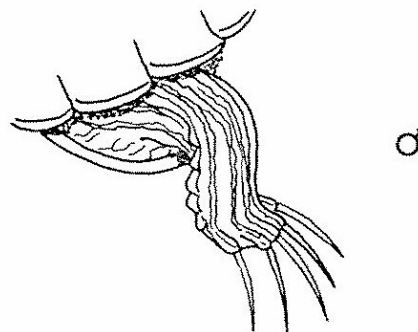
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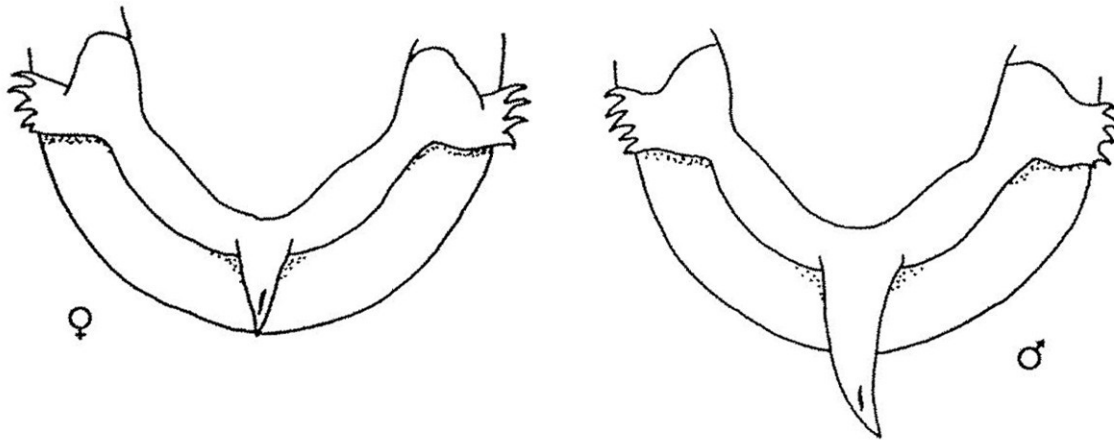


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4. Softshell: Adult male Softshells are much smaller than females. The tail of males is thicker than females and much longer. The anal opening (vent) on males is located past the edge of the carapace.



## References

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## LTRM Project Turtle Codes

<b>Turtle Species</b>	<b>LTRM Code</b>
Alligator Snapping Turtle ( <i>Macrochelys temminckii</i> )	ASNT
Eastern Snapping Turtle (formerly Common Snapping Turtle) ( <i>Chelydra serpentina</i> )	CSNT
Eastern Musk Turtle (formerly Common Musk Turtle) ( <i>Sternotherus odoratus</i> )	CMKT
False Map Turtle ( <i>Graptemys pseudogeographica pseudogeographica</i> )	FMPT
Mississippi Map Turtle ( <i>Graptemys pseudogeographica kohnii</i> )	MMPT
Ouachita Map Turtle ( <i>Graptemys ouachitensis ouachitensis</i> )	OMPT
Northern Map Turtle (formerly Common Map Turtle) ( <i>Graptemys geographica</i> )	CMPT
Midland Painted Turtle ( <i>Chrysemys picta marginata</i> )	MPTT
Western Painted Turtle ( <i>Chrysemys picta belli</i> )	WPTT
River Cooter ( <i>Pseudemys concinna</i> )	RCOT
Red-eared Slider ( <i>Trachemys scripta elegans</i> )	RESL
Midland Smooth Softshell ( <i>Apalone mutica mutica</i> )	SMSS
Spiny Softshell ( <i>Apalone spinifera</i> )	SPSS
Yellow Mud Turtle (formerly Illinois Mud Turtle)* ( <i>Kinosternon flavescens</i> )	IMDT
Blanding's Turtle* ( <i>Emydoidea blandingii</i> )	BLDT
Wood Turtle* ( <i>Glyptemys insculpta</i> )	WODT
*Indicates species are very rare and should be reported to respective state agencies if captured.	