

Wisconsin Wildlife Fast-Facts

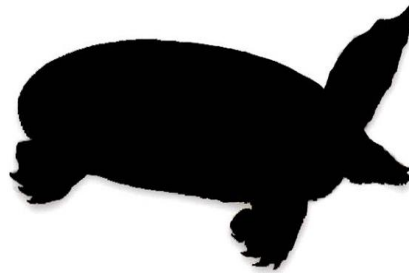
From various sources by Christian W. Cold WDNR Ladysmith

Turtles have been around for an incredibly long time - so long, that they have been rightfully described as “creatures, which are entitled to regard the brontosaur and mastodon as brief zoological fads”.

Of the eleven species, found in our state, two represent the heavyweights – those who arouse the greatest curiosity (and anxiety) in the folks, who encounter them. It’s time to lift the veil and get to know a couple of our cold-blooded neighbors a little better.....

Snappers and Leatherbacks

Wisconsin’s big turtles



Spiny soft shell turtle

Apalone spinifera

Synonyms: leatherback, pancake turtle, miskwaadesi (Chippewa for turtle), Mesheka (Chippewa for mud turtle)

Description: A huge chocolate pancake with legs.

A large, flat, light olive to dark brown, aquatic turtle with a flexible, leathery shell.

Upper rim of carapace (upper shell) often has light yellow-olive band.

Large, fully-webbed feet. Sharp beak with protruding, flexible, fused, tubular nostrils.

Front of carapace is saturated with small, protruding, leathery spines.

Male carapace to 8". Female carapace to 21.3". Weight to 26 lbs.

Males have longer, thicker tails.

Seven recognized subspecies (2 in WI).

Note: WI also has another species of soft shell turtle (smooth) - not covered here.

Range: Montana and southern Canada south to Georgia and Carolinas, and west to New Mexico and northeast Mexico.

Introduced to New Jersey and rivers of Arizona.

Wisconsin status: Locally common (*but declining locally) through most of the state.

Rare in the extreme north.

Absent from Door County peninsula and extreme northeast.

Common in suitable stretches of the Black, Chippewa, Wisconsin, Wolf, Flambeau, St. Croix, and Mississippi Rivers (and their tributaries).

Both eastern and western subspecies are present in Wisconsin.

** WI decline determination is based on historical wetland losses, increased frequency of roadside mortality and anecdotal reports of local commercial turtle trappers.*

Origin: There is considerable debate on the origin of turtles. The fossil record reveals many examples of animal "prototypes" of rudimentary turtle design. These experiments were expressions of convergent evolution, and appear to have initiated in marine environments of the Old World (Eastern Hemisphere). Semi-aquatic animals with dermal armor have risen and faded in a succession of attempts by lineages to adapt and persist in unstable and dynamic environments.

Most evidence suggests that ancestral turtles emerged from a clade of marine reptiles during the late Permian (260MYA) to early Triassic (245 MYA). True turtles (order Testudines) emerged 215 MYA, making them of older reptile lineage than both lizards and snakes. Soft shell turtles (Family Trionyxidae) appear to have emerged during the Jurassic Period (210-144MYA) but origin remains unresolved. The fossil record reveals that several forms were present worldwide (except Antarctica) by the Pliocene (2-5MYA) and Miocene (5-26 MYA).

Habitat: Primarily rivers and drainage lakes (some inland seepage lakes).

Mostly areas with sand or muck bottoms.

Less-so in rocky and heavily vegetated areas.

Not found in temporary ponds and marshes.

Not found in stagnant or heavily-polluted (low D.O.) waters, this turtle is an indicator of good water quality.

Mud/sand bottoms w/gravel, sandbars, & beaches are important requirements.

Hatchlings prefer shallows on the lee shore of sandbars, or other near-shore areas.

Large, coarse, partially-submerged, woody debris (logs & blowdowns) offer preferred basking sites (large, smooth, relatively - flat boulders too).

Home range: From 1 to 32 square miles.

Females have the larger home ranges.

Habits & behavior: A bottom-probing (benthic) feeder.

Continually investigates (probes w/nostrils) beneath stones and submerged objects.

Active later in spring than most turtles (late April in WI).

Time in water is spent primarily foraging, floating with current or buried in bottom along shallows, where it extends long neck to surface (snorkels) to probe surface with tubular nostrils.

Shy and alert, this turtle is quick-to-water when approached- even at great distances.

When disturbed on land, it “lifts & launches” itself towards the water like a bouncing Frisbee. It swims almost as fast as you can run.

When water temp. drops to 55°F., turtle seeks refuge & becomes inactive.

Winters in concentrations at bottom of deeper pools (w/low current & high D.Oxygen), where it buries itself in 2-4” of bottom substrate.

Diet: Primarily invertebrates, esp. crayfish (>50%), and insects (35%).

Also “fresh” carrion, small fish, mollusks, frogs, and tadpoles.

Reproduction: Breeds in May (WI).

Female selects well-drained site (sand or gravel) that is free of vegetation & shading.

She digs nest & deposits 15-38 round, brittle (not rubbery like w/snapper) eggs in sand within 100 meters of water during late May to mid-June (N Wisconsin).

Sex of young apparently not affected by ground temperature.

Hatch occurs in late August/early September.

Overwintering as eggs (late nesters) has been reported in southern part of range.

Life span: >25 years in captivity.

Large female reported to 50 years.

Predators: Adult soft shells have few enemies- other than humans.

Skunks, raccoons, opossum, & fox relish the eggs. large predatory fish, eagles, herons, otter, & mink seek the hatchlings. Humans favor the flesh of the young adults (8-10 Inches).

Special adaptations & limitations: Adept and efficient swimmers.

Eyesight is excellent (including long-range vision).

Vascular lining of pharynx and cloaca aids in respiration (absorbs oxygen), allowing individuals to remain submerged for extended periods of time (extrapulmonary respiration). This metabolic requirement restricts wintering soft-shells to well-oxygenated environments ($DO > 10\text{ppm}$), where they can remain aerobic until spring.

Human dimensions: The flesh of this turtle is esteemed by many, who harvested it via set-lines and baited hoop traps on the larger river systems, during the open season (July 15 – Nov. 30).

Conservation status: Most population, survival and recruitment data remains inconclusive and is highly-anecdotal. The nesting soft shell appears to be alert and tentative-enough to steer clear of most motor vehicles (unlike the snapper), however roadside mortality may be significant, where favored sites coincide with heavy traffic. Nest predation (esp. skunks & raccoons) may be excessive on sites where nesting turtles congregate with disastrous impacts to local populations.

The cutaneous metabolic pathway of respiration makes this turtle especially susceptible to pollutants and biocides.

Unlike most other turtles, soft shells are quickly eliminated by use of the fish poison Rotenone.

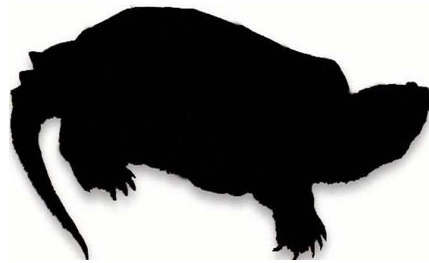
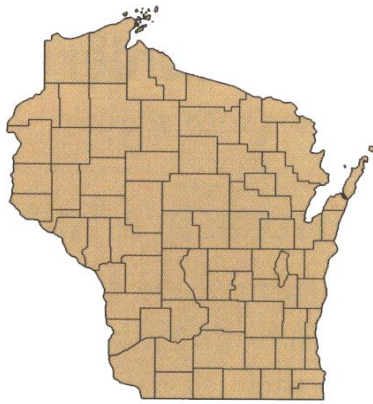
The recent trend of Increased shoreline development continues to reduce turtle habitat.

Heavy metals (especially mercury) are accumulated by crayfish- a principal food of soft-shells. Given the long life span of the turtle, the likelihood of mercury bioaccumulation (and secondary poisoning of anything that eats a large soft shell) is high.

An emerging threat is disease - associated with the expanding pet trade (in-part, facilitated by the internet). Exotic and/or infectious pathogens may be unleashed on native ecosystems, when turtles - suffering from poor diets and unsanitary conditions escape (or are intentionally released) by pet owners. Pathogen introductions may also originate from rehabilitated and translocated turtles.

The risks of *routine turtle rehabilitation may in-fact outweigh the benefits.

* Perhaps limit turtle rehab to (trauma-only) cases with listed (endangered, threatened or special concern) and locally-indigenous species (where every individual counts). CWC



Common snapping turtle

Chelydra serpentina

Synonyms: snapper, mud turtle, Mikonoh/Mikinaak (Chippewa)

Description: A large to massive, dark turtle with ridged or smooth carapace, which is serrated at the posterior edge. Carapace is often coated with algae.

Older specimens usually have a smoother carapace.

Plastron (lower shell) is small and X-shaped (reason for pugnacious disposition).

Long tail with dorsal row of “saw-tooth” projections.

Head is large with powerful shearing jaws.

Limbs are stout and heavily scaled.

Feet are partially webbed, with long, strong claws.

Males to 20” (carapace) and 85 lbs. Cloaca is posterior to carapace edge.

Females smaller with shorter tails. Cloaca is at or under carapace edge.

Range: Maine and southern Canada, west to Montana.

South to New Mexico and south Florida.

(Entire continental United States east of the Rockies.)

Wisconsin status: Widespread and common but *declining.

** WI decline determination is based on historical wetland losses, increased frequency of roadside mortality and local, anecdotal reports of commercial turtle trappers.*

Origin: See soft shell turtle account (above) for basic turtle prehistory.

The family *Chelydridae* has a long fossil history.

Several now-extinct snapper species once occurred in North America, Asia, and Europe.

The earliest turtle of “snapper design” (found to-date) is from Late Cretaceous (70MYA) of Montana.

Also specimens from Late Paleocene (55 MYA) of North Dakota, which had a higher carapace dome (probably an adaptation against the large turtle-eating crocodilians that existed in the area at that time).

Of nine described forms, seven are now extinct.

Habitat & home range: Abundant in large water bodies with mud bottoms & abundant aquatic vegetation.

Any permanent water including ponds, lakes, rivers, creeks, ditches & sloughs.

Also found in heavily polluted areas (including municipal sewer systems!).

Hatchlings and small juveniles live in small streams & shallows (<20” deep).

Mature turtles migrate to ponds, larger rivers, marshes & shallow bays of larger lakes, where they establish adult territories.

Large males have permanent home ranges & often remain in same area for many years (>10 yrs recorded).

Females are much more mobile & have larger home ranges (some are “homeless transients”).

Population density: Adults: 1-75 individuals per hectare (about 2 ½ acres) of good habitat.

Overall northern population averages 1.5 adults/ha.

Habits: Almost totally aquatic.

Usually submerged and rarely basks (except just-after spring emergence).

Prefers water depth of 20”.

Does not live in deep areas (>8’) but may swim across such areas.

In spring, feeding begins when water temp. reaches 60’ F.

Most active at night (but not strictly nocturnal).

Capable of long overland treks during periods of drought, however this species is intolerant of prolonged high temperatures and dehydrates rapidly.

Very large snappers can survive many weeks out of water if they can partially bury in mud to avoid dehydration.

Ill disposition, when confronted on land. Agitated turtles lunge and strike, while emitting strong, pungent odor.

When in water, turtle is more intent on swimming away and they do not attack people who are swimming.

Large males are very sedentary, but fiercely aggressive towards each other (size-based dominance).

Primary period of activity is mid-May to mid-August.

Adults congregate during late fall (mid Oct) in abandoned muskrat/beaver tunnels, stream bank undercuts or bury themselves in mud/decayed vegetation'

Some individuals remain "lethargically-active" under the ice.

Diet: Omnivorous – but highly herbivorous!

Bulk of animals in diet includes slow forage fish, carrion, and invertebrates.

Plants (to 65%) include pondweeds, smartweed, water lily, arrowhead, cattail, wild celery, duckweed & algae.

Several studies reveal that snappers are not a serious predator of young waterfowl.

A snapper eats approx. 1X its body weight per year.

Reproduction: Breeds just before hibernation or just after spring emergence.

Large males chase females and forcibly inseminate them (no courtship).

Female selects open (exposed to sun) site and deposits 10-96 (usually 25) round, leathery eggs in early June (N Wisconsin).

Clutch sizes are larger at northern latitudes.

Egg laying is usually during early morning or late evening.

A study at Horicon Marsh (1966) found 70 nests in muskrat houses (ave. clutch size of 44 eggs).

Dams are a favorite nesting site.

Incubation average is 55 days.

Egg sex ratio is usually 50/50, but low temps produce predominantly males.

Hatch is in August (WI).

Some nest will hatch but the young will not emerge until the following spring.

Hatchlings are size of quarter.

Young males are sexually mature at 5-7 years.

Young females sexually mature at 9-19 years.

Special adaptations & limitations:

Feeds submerged only - water pressure is essential for swallowing.

Not a powerful swimmer, but rather a “bottom walker”, who surfaces periodically for air.

Eyesight is very good. Hearing is good.

Female snappers can retain viable sperm for several years.

Some hibernating snappers push their heads out of the bottom mud and absorb oxygen through membranes in their mouth & throat (extrapulmonary respiration)

Most snappers do not expose themselves but remain deeply buried in fine sediments and also obtain O₂ from a gland in the anus.

Soft shells can do this too.

Predators: Hatchlings and small young are taken by raccoons, mink, muskrat, otter, crows, herons & bitterns, gulls, eagles, bullfrogs, and large predatory fish (esoxids, bass, bowfin & catfish).

Eggs are taken by skunks (primarily), raccoons, fox, & opossum.

Nest predation often exceeds 90% in some areas.

Adults are taken by humans for food (or destroyed under the guise of public service- in the mistaken belief that this action benefits “more-valuable” wildlife).

Life span: 20 to 60 years. Record of 75 years.

Approx. 60% of individuals who reach adulthood will live to age 50.

Human dimensions: The snapper (and soft shell) are today, the primary turtles harvested for human consumption in America.

Turtles are taken in baited hoop traps during the summer or by probing likely spots through the ice with poles and hooks during the winter.

A 1982 study (MN Pollution Control Agency) revealed that snappers from the Mississippi River (south of the Twin Cities) contained high levels of PCB's.

Up to 10,000 ppm of PCB's have been found in fat, brain tissue & testes.

(This would be a lethal dose if ingested by a human).

Conservation status: See (preceding) soft shell turtle conservation status comments.

The extent of the individual and commercial harvest on snapper populations remains unclear. In Wisconsin, a possession limit, size restriction and open season framework provides a great measure of protection, however actual harvest and size information is not obtained (or required) at this time (2008).

See Wisconsin Herptile Regulations link at end.

The #1 threat to adult turtles today appears to be motor vehicles.

Nesting females bear the brunt of roadside mortality.

With additional commercial harvest & naturally-slow turtle recruitment rates, populations may become vulnerable to depletion without additional regulation & population monitoring (harvest data).

In summary, by developing a systematic process of assessing turtle limiting factors, and by taking corrective actions and evaluating the population response to those actions, we may ultimately better manage the integrity and destiny of all native turtle populations for the future.

A note to naturalist handlers:

Snappers are probably the easiest and most forgiving turtles to maintain in captivity. (If you can't keep a snapper alive, you can't keep a cactus alive)

When handling for interpretation, don't hold a snapper by its tail (you're not a chiropractor and it doesn't need a spinal adjustment).

Support the turtle like you're holding a pizza – with flat of one hand against plastron while maintaining position by gently holding the tail (or back of carapace) with the other hand. **Important point** - Make sure the head is facing-away from you (or something terrible might happen!).

Soft shell turtles may also be handled in this way (but use free hand flat on posterior carapace for support).

Note: Soft shell turtles are much-more difficult to maintain in captivity. Consult w/ compiler for advice.

The compiler highly recommends the following book for kids and adults:

Holling C. Holling. 1979. **Minn of the Mississippi**. Houghton Mifflin Co., Boston, 87pp.

Wisconsin Amphibian & Reptile Regulations :

[Wisconsin's Amphibian and Reptile Regulations](#)