ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Animal Abstract **Element Code:** ARAAE01020
Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Kinosternon flavescens*
COMMON NAME: Yellow Mud Turtle
SYNONYMS:
FAMILY: Testudines: Kinosternidae

AUTHOR, PUBLICATION: Agassiz, L. 1857. Contributions to the Natural History of the United States of America. Vol I. Little, Brown and Co. p. 430.

TYPE LOCALITY: "Texas, near San Antonio; …lower Rio Grande; …Red River, Arkansas; …Camp Yuma; …Gila River;" (Seidel 1978). Note: All of the locations cited above except the Texas, San Antonio, have been disputed in Iverson 1978.

TAXONOMIC UNIQUENESS: There are six species of *Kinosternon* in the United States, and an additional six subspecies or populations. Three of the species, *K. arizonense, K. flavescens* and *K. sonoriense* are found in Arizona, and two subspecies. The Arizona Mud Turtle (*K. arizonense*) and two subspecies of *K. sonoriense* are found only in Arizona.

DESCRIPTION: A small (shell up to 165 mm or 6.5" in length) turtle with a dome shaped shell. The carapace is flat on top and is usually olive-brown to yellow-brown in color. The marginal shields are often yellow. The underside of the shell (plastron) is yellow and has two hinges so that the front and back can close when the turtle retreats inside. The top of the head is gray or brown and there are small, fleshy projections (tubercles) on the throat (Brennan and Holycross 2006). Feet are strongly webbed; male has a long, thick, spine-tipped tail (NatureServe 2016).

AIDS TO IDENTIFICATION: The throat and sides of the face are plain yellow or cream distinguishing this turtle from the similar looking Sonora Mud Turtle which has reticulations on the head and neck. The first vertebral shield of the Yellow Mud Turtle is in contact with the second marginal shield distinguishing it from the similar looking Arizona Mud Turtle (Brennan and Holycross 2006).

ILLUSTRATIONS:
Black and white drawing (Stebbins 1985: plate 17)
Color photo (Behler and King 1979: plate 313)
Photo: http://www.reptilesofaz.org/Turtle-Amphibs-Subpages/h-k-flavescens.html

TOTAL RANGE: Northern Nebraska and Illinois south to Sonora, Durango and Tamaulipas, and west to southeast Arizona.

RANGE WITHIN ARIZONA: White Water Creek, Sulphur Springs Valley, Cochise County; San Simon Valley, southern Graham County.

SPECIES BIOLOGY AND POPULATION TRENDS

BIOLOGY: A semi-aquatic turtle that is most active during the day. During the warm season it spends most of its time in the water. Occasionally travels overland during rainy conditions. Hibernates in an underground burrow during the cold months of winter and aestivates underground during the hot, dry summer months (Brennan and Holycross 2006). Activity is stimulated by summer rains in Southwest; may remain inactive underground if ponds fail to form due to lack of rain or runoff (Iverson 1989). When captured or threatened it may emit a foul smelling musk from glands on the sides of the body (Brennan and Holycross 2006).

Other species of *Kinosternon* have been documented to travel up to 2km, although most movements are probably less than 0.5 km (NatureServe 2016).

Iverson et al (2009) investigated orientation in juvenile Yellow Mud Turtles. They found that hatchlings probably used visual or perhaps olfactory senses to orient towards water, but second-year turtles seemed to have an internal compass mechanism. It was further postulated that the ingrained compass might become functional only after a successful migration (i.e., finding water).

REPRODUCTION: Mating takes place in summer and a clutch of up to 10 brittle-shelled eggs are laid in an underground nest in summer. Females may remain in the nest with the eggs for several days after laying them (Brennan and Holycross 2006).

Copulation occurs on land or in water in late spring or early summer. Lays 1-2 clutches of 1-9 eggs; 2-3 (typically 2) clutches of 2-7 eggs are laid from July to mid-August in the Southwest. May divide clutch between two nests dug on successive days. Eggs hatch after 10+ months at beginning of next rainy season in Southwest. Females become sexually mature in 6-10 years in the Southwest (Iverson 1989).

An earlier study in New Mexico (Christiansen and Dunham 1972) found that during the Mud Turtle activity period from mid-April to mid-October, maximum sperm and testicular size occurred in August and September. Ovulations occurred from mid-May to mid-June with all eggs laid by July 1. About four eggs are laid per clutch, and evidence suggests that there is only one clutch per year.

FOOD HABITS: The Yellow Mud Turtle is primarily carnivorous. It feeds on insects, snails, fish, frogs, and carrion. It may also eat some plant material (Brennan and Holycross 2006).

Forages mostly in water, sometimes on land; capable of subterranean feeding (NatureServe 2016).

HABITAT: In Arizona, it is an inhabitant of Chihuahuan Desertscrub and Semidesert Grassland communities. Found primarily in low valley bottoms, usually in or near sources of permanent or temporary water. It frequents pools within washes, ponds, cattle tanks, large puddles, and ditches (Brennan and Holycross 2006). Prefers soft mud or sand bottoms in ponds. Seeks shelter underground or burrows in mud underwater.

ELEVATION: Range-wide: Sea level to 5200 feet (0-1585m). Actual elevational range in Arizona based on collections: 3,428-4120 feet (1045-1256 m).

PLANT COMMUNITY: Chihuahuan Desertscrub and Semi-desert Grassland communities.

POPULATION TRENDS: Unknown for Arizona. There are only three known occurrences. Range-wide, the short term trend is considered to be relatively stable. For peripheral populations in the northeast portion of its range (e.g., Illinois) and the far southwest (e.g., Arizona) some protections or interventions are suggested (NatureServe 2016). In the southwest, Iverson (1989) believes that these turtles may be more abundant now than they were historically because of the increased use of earthen reservoirs for watering livestock.

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: *K. flavescens* None (USDI, FWS 1996)
[*K. f. flavescens* C2 USDI, FWS 1989]

STATE STATUS: 2 (AZGFD, AWCS 2022)
[1B (AGFD SWAP 2012)]

OTHER STATUS: None.

MANAGEMENT FACTORS: Overall, not generally considered to be threatened, although local threats may impact some populations. Declines to more fragile and isolated populations in Illinois were caused by conversion of wetlands to agriculture use, degradation of sandy habitats by forestry, road construction and overgrazing. Predators (e.g., raccoons, coyotes, foxes and egg-eating snakes) have been mentioned in some reports. Other threats identified include declining water tables, water pollution (including from agricultural chemicals), disturbance and collection by humans (although it was mentioned elsewhere that this turtle is not desirable in the pet trade), NatureServe 2016.

PROTECTIVE MEASURES TAKEN: None.

SUGGESTED PROJECTS: Conduct surveys around known occurrences and potential habitat in the general known localities in Arizona to determine both presence and relative abundance. Arizona is the extreme western extension of this species.

LAND MANAGEMENT/OWNERSHIP: BLM – Safford Field Office (including the Aravaipa Canyon Wilderness); Private.

SOURCES OF FURTHER INFORMATION

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ADDITIONAL INFORMATION:

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