ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Animal Abstract **Element Code:** ARAAE01070

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Kinosternon stejnegeri* (Hartweg, 1938)
COMMON NAME: Arizona Mud Turtle

SYNONYMS: *Kinosternon arizonense* (Gilmore, 1922)
Kinosternon flavescens arizonense (Gilmore, 1922)
Kinosternon flavescens stejnegeri (Hartweg, 1938)
OTHER COMMON NAMES: Southwestern Mud Turtle
FAMILY: Kinosternidae

AUTHOR, PLACE OF PUBLICATION: Hartweg, Norman. 1938. *Kinosternon flavescens stejnegeri*, a new turtle from northern Mexico. Occasional Papers of the Museum of Zoology 371:1–5.

TYPE LOCALITY: "Llano, Sonora...approximately midway between Nogales and Hermosillo" [Mexico].

TYPE SPECIMEN: UMMZ 72235. Morrow Allen. 1932-07-03, see Peters (1952) and Kluge (1984).

TAXONOMIC UNIQUENESS: There are 25 species in the genus *Kinosternon* (Turtle Taxonomy Working Group (TTWG) 2025), seven of which are documented in the United States (Nicholson 2025, TTWG 2025). Three species of *Kinosternon* occur in Arizona: Yellow Mud turtle (*K. flavescens*), Sonoran Mud Turtle (*K. sonoriense*), and Arizona Mud Turtle (*K. stejnegeri*) (Holycross et al. 2022). *K. stejnegeri* has no subspecies (Nicholson 2025).

Formerly treated as *K. arizonense* (TTWG 2014, Crother 2017). McCord (2016) recommended limiting *K. arizonense* to fossil material and recognizing *K. stejnegeri* for extant populations, with *K. arizonense* retained as a separate extinct species from the Pliocene–Pleistocene. Crother (2017) retained the use of *arizonense,* pending further study, but the TTWG (2017) and Nicholson (2025) recognized *K. stejnegeri* as the extant species. Although Holycross et al. (2022) used *K. arizonense*, HDMS follows the TTWG (2025) in recognizing *K. stejnegeri* as the extant species.

For many years, this species was considered a subspecies of the wide-ranging Yellow Mud Turtle (*K. flavescens*) (Hartweg 1938; Seidel 1978; Iverson 1989, 1992; Collins 1997). By the late 1970s, differences in morphology, distribution, and activity seasons suggested that the Arizona populations might be a separate species. Based on an analysis of mtDNA, Serb et al. (2001) concluded that the molecular data supported the thesis of species dispersal and isolation during the Pleistocene and the recognition of three distinct species, including *K. arizonense*. Fritz and Havaš (2007), TTWG (2007) and Crother (2008) followed Serb et al. (2001) and recognized *K. arizonense*.

DESCRIPTION: The Arizona Mud Turtle is a small turtle with a dome-shaped shell with a flat or slightly concave top (Holycross et al. 2022). Adults vary in size, with a carapace length of 103.0–181.3 mm (4.1–7.1 in) in males and 95.5–167.3 mm (3.8–6.6 in) in females (Berry and Berry 1984). The shell is usually olive-brown or yellow-brown in color with yellow marking on the marginal shields. The underside of the shell (plastron) is yellow and hinges in the front and back to allow for it to close when the turtle retreats inside the shell (Holycross et al. 2022). The sides of the face, chin, and throat are yellow to cream in color, with no fleshy projections under the chin (Holycross et al. 2022). Arizona Mud Turtles have large cervical and gular scutes and a long interfemoral seam (Seidel 1978). Adult males have a long, thick, spine-tipped tail and a slightly concave plastron, whereas females have short, stubby tails and a flat plastron (Seidel 1978). All four feet are webbed in both sexes (Murphy 2019).

AIDS TO IDENTIFICATION: The head features solid yellow or cream coloring on the throat and facial areas, setting it apart from the closely related Sonora Mud Turtle, which displays a network of lines on its head and neck. The first vertebral shield does not touch the second marginal shield, which distinguishes it from the similar looking Yellow Mud Turtle (Holycross et al. 2022).

ILLUSTRATIONS

Color photo (Murphy 2019, page 84)
Color photo (Holycross et al 2022, page 57)
Color photos (AZGFD 2023,
https://reptilesofaz.org/turtle-amphibs-subpages/h-k-arizonense)
Color photo (Jones et al. 2024, page 436)
Color photos (Uetz et al. 2025, online)
Color photos (Turtle Taxonomy Working Group 2025, page 148)

TOTAL RANGE: The Arizona Mud Turtle occurs in the vicinity of Tecoripa in central Sonora, Mexico, and extends to Pima County, Arizona (TTWG 2025). In Mexico, collection records indicate it is more commonly found inland rather than coastal (Iverson 1989). The boundaries

of this turtle's distribution are reasonably well defined, although the limits remain unclear in two areas: the northwestern extent in central Pima County, Arizona, and the southeastern extent south and east of Hermosillo, Sonora (Iverson 1989).

RANGE WITHIN ARIZONA: Within Arizona, the Arizona Mud Turtle is confined to lowland areas of the Sonoran Desert in Pima County, where it is generally limited to the drainage basins of the Rios Sonoyta, Magdalena, Sonora, and northern segments of the Matape (Iverson 1989).

SPECIES BIOLOGY AND POPULATION TRENDS

BIOLOGY: The Arizona Mud Turtle is a semi-aquatic, primarily diurnal species with a specialized seasonal ecology strongly driven by the availability of surface water (Jones et al. 2025). The species exhibits pronounced seasonal activity patterns, with individuals active between the beginning of July and mid-October, with only a small minority of observations after mid-August (Iverson 1989). Arizona Mud Turtles spend most of the year in underground burrows under the mud or drying sides of desert ponds. They aestivate/hibernate until the summer monsoon in June and July refills ponds with water (Iverson 1989, Holycross et al. 2022). Their activity appears to be stimulated by rains (Iverson 1989), and turtles may remain underground during long drought periods for more than a year (Holycross et al. 2022). Its aestivation/hibernation habit and local rainfall can be very influential on population survey results. In 1982, several small ponds were found dry and without turtles but were filled with both water and turtles when revisited several days later (Iverson 1989). Although mostly diurnal, during the summer monsoon Arizona Mud Turtles may be active at night (Holycross et al. 2022).

Arizona Mud Turtles can reach large densities in very small ponds. Iverson (1989) found biomass estimates of approximately 58.3 kg/ha in one small pond and suggested the number, including juveniles, would have been even higher had the trapping time been extended.

Arizona Mud Turtles generally only move small distances. Home range axis spans from 59 to 782 m, with the average length being 357.5 m (Jones et al. 2024). Jones et al. (2024) reported that Arizona Mud Turtles travel distances of 33 to 533 m from their capture origin tanks to upland areas or other tanks. Other species of *Kinosternon* have been documented to travel up to 2 km, although most movements are probably less than 0.5 km (Stone 2001).

Predators known to prey on turtle eggs include Hognose Snakes (*Heterdon* sp.) and mammals such as Raccoons (*Procyon lotor*) (Christiansen and Gallaway 1984, Murphy 2019). Introduced species, particularly the Bullfrog (*Rana catesbeiana*), are likely predators of young

turtles (Rosen 2008). When captured or threatened, Arizona Mud Turtles may emit a foul smelling musk from glands on the sides of the body (Holycross et al. 2022).

REPRODUCTION: Mating takes place in summer, and a clutch of brittle-shelled eggs is laid in an underground nest. The clutch size ranges from 1 to 7 eggs, dependent on body size (Iverson 1989, Holycross et al. 2022). Arizona Mud Turtles can oviposit 2–3 clutches per year during July and August, and eggs hatch at the beginning of the next rainy season (Iverson 1989). Egg size is not dependent on female body size, with eggs ranging from 29.9 to 35.2 mm (1.18–1.39 in) long by 16.2 to 19.5 mm (0.64–0.77 in) wide and weighing 5.85–6.76 g (0.21–0.24 oz). Females become sexually mature in about 6–10 years at body sizes between 12–13 cm (about 5 inches) (Iverson 1989).

FOOD HABITS: The Arizona Mud Turtle is a carnivore that feeds on adult and larval toads and frogs, aquatic invertebrates such as fairy shrimp, fish, and insects (Iverson 1989, Holycross et al. 2022). It has been observed pulling breeding toads under the surface of the water at night (Jones 2011). Iverson (1989) suggested this turtle is primarily a diurnal feeder.

HABITAT: In Arizona, Arizona Mud Turtles usually inhabit low valleys and gently sloping bajadas. The species occurs in and around seasonal ponds in desert, grassland, and thornscrub habitats and is often found in or near sources of temporary water such as within irrigation and low-valley ditches, anthropogenic cattle ponds (“tanks”), puddles in washes, arroyos, and ponds (Iverson 1989, Holyross et al. 2022, Jones et al. 2024). Its natural habitat historically likely included pools, arroyos, riverbed oxbows, and playas that held water only during the wetter parts of the year; however, these turtles are more commonly found in temporary water impoundments created by humans (e.g., presas, ponds, tanks, and roadside ditches) and tend to avoid permanent streams and rivers (Iverson 1989, Holycross et al. 2022). Although most often found in anthropogenic tanks, Arizona Mud Turtles will use ephemeral rainwater pools when they are available (Jones et al. 2024).

A conspicuous structural feature of the grassland habitat they occupy is the presence of numerous extensive mounded burrow complexes of the Banner-tailed Kangaroo Rat (*Dipodomys spectabilis*) (Jones et al. 2024). At one site in Arizona along the Arizona/Mexico border, Arizona Mud Turtles were strongly associated with Banner-tailed Kangaroo Rat burrows for aestivation/hibernation sites, shelter, and possibly nesting (Jones et al. 2024).

ELEVATION: In Arizona, Arizona Mud Turtles occur between 2,000–3,500 ft (610–1,070 m) (Holycross et al. 2022).

PLANT COMMUNITY: Sonoran Desertscrub (Holycross et al. 2022).

The desert grassland habitat consists of a mixture of native and exotic grasses including *Bouteloua* spp. (gramas), *Sporobolus* spp. (dropseeds), *Aristida* spp. (threeawns), *Eragrostis intermedia* (plains lovegrass), *Digitaria californica* (Arizona cottontop), and the exotic *Eragrostis lehmanniana* (Lehmann lovegrass). Desert trees, principally *Neltuma velutina* (velvet mesquite), heavily invade the grassland (Jones et al. 2024).

POPULATION TRENDS: Prior to 1981, the Arizona Mud Turtle was only known from 21 locations in south-central Arizona (7) and Sonora, Mexico (14). Intensive field work by Iverson (1989) throughout and beyond its known range in 1981, 1982, and 1984 added 44 new locations and re-confirmed presence in all but five of the known locations. Iverson (1989) stated that the turtle was probably more common than historically due to the proliferation of small earthen stock tanks, which seemed to create the optimum microhabitat for this species.

The U.S.–Mexico border harbors a relatively unstudied population of Arizona Mud Turtles that is facing increasing threats from development and construction in this region. Jones et al. (2024) studied two stock tanks along the U.S.–Mexico border in Pima County, Arizona, and reported population estimates using closed-population models of 50 individuals (95% CI 42 to 65) in 2011 and 74 individuals (95% CI 62 to 96) in 2019. An open-population model estimated 63 turtles in 2018 for the same site. The estimated average annual survivorship rate was 0.98 based on recaptures (Jones et al. 2024). The overall size-class distribution changed significantly from 2011 to 2019, with a shift from juvenile age classes to larger adults. In 2011, 23 out of 41 turtles were smaller than 90 mm (shell-length) and, by 2019, only 5 out of 53 turtles were smaller than 90 mm. Additionally, in 2011, only one of the 41 captured turtles were larger than 170 mm, while in 2019, seven of the 53 turtles were larger than 170 mm. Although apparently stable in recent decades at this site, the population appears to be small and vulnerable to development in the vicinity of the U.S.–Mexico border (Jones et al. 2024).

SPECIES PROTECTION AND CONSERVATION

Status definitions: https://hdms.azgfd.com/species-list/columns
Heritage Network Conservation Status Rank definitions:
https://hdms.azgfd.com/species-list/columns/#SRANK

AGENCY STATUS

AZGFD:	2 (AZGFD, AWCS 2022)
USFWS (Endangered Species Act):	None (USDI, FWS 1991)
U.S. Forest Service:	None
Bureau of Land Management:	None

Mexico: None

OTHER STATUS

Heritage Network Status: GNR
S2

IUCN: NT (Jones et al. 2025)

PREVIOUS STATUS

AGENCY STATUS

AZGFD: 1B (AZGFD SWAP 2012)

USFWS: C3, as *K. flavescens arizonense* (USDI, FWS 1985, 1989)
C2, as *K. flavescens arizonense* (USDI, FWS 1982)

MANAGEMENT FACTORS: The main threats to the Arizona Mud Turtle center on the availability and distribution of surface water (Rosen 2008, Jones et al. 2025). Hydrological changes associated with tank deterioration and a consistent drying trend threaten the species (Rosen 2008, Jones et al. 2025). Gradual decline and senescence of cattle tanks where tanks are not maintained will result in local extirpations (Rosen 2008). Because the ephemeral ponds where the mud turtles usually reside are often isolated, many populations are subject to local extirpation if their habitat is destroyed. Groundwater pumping and other water diversions are principal threats because they fragment and degrade the turtle's habitat, impacting its survival and reproductive success (Rosen 2008, Jones et al. 2025).

Alteration and removal of water sources can have especially severe impacts in arid regions that are more susceptible to drought. For conservation of semi-aquatic species like the Arizona Mud Turtle, it is essential to preserve natural hydrological systems and limit development of water diversion systems such as dams and reservoirs (Rosen 2008). Because anthropogenic water sources and isolated ponds frequently serve as essential habitat for the species, sites with known occurrences of Arizona Mud Turtles should emphasize restoration and maintenance of anthropogenic tanks and ponds and ensure adequate buffers to protect adjacent upland areas (Jones et al. 2025).

The species has been affected by habitat loss and habitat degradation caused by development and agricultural conversion (Rosen 2008). Land management practices that involve complete removal of the vegetation, mechanical turning of the soil, or filling in ponds and other waterbodies would be detrimental to the areas Arizona Mud Turtles inhabit (Berriozabal-Islas 2020). Additionally, extensive and ongoing modifications of the Sonoran Desert for ranching, agriculture, and flood mitigation may threaten the abundance of the species (Iverson 1989).

Select populations are considered to be microendemic, making them further vulnerable to habitat loss (Berriozabal-Islas 2020). Development along the United States-Mexico border adds strain on the species' habitat and the local connectivity of metapopulations (Jones et al. 2025). A small and vulnerable, yet significant, population that occurs at the US–Mexico border is threatened by increasing development and border construction (Jones et al. 2024). One of 12 overwintering burrow complexes used by radio-tracked individuals was destroyed by a U.S. Border Patrol construction yard following completion of a study (Jones et al. 2024). Development impacts may be mitigated if kangaroo rat burrows and other similar features are avoided during construction activity (Jones et al. 2024).

Climate change represents a multifaceted threat by disrupting the balance of desert ecosystems and ecohydrology (Jones et al. 2025). According to modeling by Berriozabal-Islas et al. (2020), climate change may result in estimated potential area of occupancy in 2070 declining by 6% under an optimistic global climate change scenario and by approximately 15% under a pessimistic scenario. The distributional centroid for other species of *Kinosternon* shifted under projected climate change scenarios, with most species shifting north (Butler et al. 2016). Although potentially suitable habitat for Arizona Mud Turtles may increase slightly by 2050 under some climate change scenarios (Berriozabal-Islas et al. 2020), it is unlikely that range shifts for *Kinosternon* species will keep pace with climate change due to their limited dispersal abilities (Butler et al. 2016).

Because turtles have temperature-dependent sex determination, temperature fluctuations predicted with climate change may negatively impact populations in the future (Butler et al. 2016).

PROTECTIVE MEASURES TAKEN: As of 2023 *Kinosternon stejnegeri* has been listed in CITES Appendix II (as *Kinosternon* spp.). Turtles have protection from exploitation under Mexico’s wildlife and natural resource laws, although enforcement of this legislation is reportedly inconsistent (Jones et al. 2025).

Jones et al. (2024) recommended permanent protection of the Altar Valley population in Pima County that they studied because it was one of the few populations documented on or near federal public land. They also recommended restoration of the tank complex and its surrounding uplands within 1 km.

SUGGESTED PROJECTS: Continued conservation and restoration measures should focus on strategic restoration of riparian corridors and cattle tanks in the context of basin-level planning, as well as management practices that take into account desertification, drought, and habitat degradation in known ranges (Frost et al. 2007, in Jones et al. 2025). Restorative work

on existing tanks should ideally take place during the winter–spring terrestrial period when turtles are dormant in burrows (Jones et al. 2024).

Additional research regarding the distribution, demographic trends, habitat use, space requirements, and year-to-year site consistency of this species is critical to its protection (Jones et al. 2025). Studies of the spread and impact of introduced crayfish and its control are critically needed (Rosen 2008). Genetic studies are an important conservation priority to assess hybridization with exotic genotypes (Rosen 2008). The metapopulation dynamics of populations along the border should be evaluated, including connectivity to other populations in the area on both sides of the border (Jones et al. 2024). Jones et al. (2024) also recommended studies on the turtle's reproductive ecology and the interactions between Arizona Mud Turtles and Kangaroo Rats, along with the behavioral patterns of turtles sheltering inside Kangaroo Rat burrows.

International coordination in the border region is necessary for effective evaluation of range-wide patterns and trends (Jones et al. 2025). Populations along the border are highly vulnerable to the disturbances associated with the U.S.–Mexico border development, including habitat fragmentation from road construction, fence building, and land clearing (Jones et al. 2024). Suggested accommodations for wildlife include providing passageways through border fencing and underpass structures beneath frequently used roadways (Jones et al. 2025).

LAND MANAGEMENT/OWNERSHIP[1]

BLM – Organ Pipe Cactus National Monument, Lower Sonoran Field Office
Tribal – Tohono O'Odham Indian Reservation
USFWS – Buenos Aires National Wildlife Refuge
Private

SOURCES OF FURTHER INFORMATION

LITERATURE CITATIONS:

Arizona Game and Fish Department. 2012. Arizona's State Wildlife Action Plan 2012–2022. Arizona Game and Fish Department, Phoenix, Arizona. 233 pages.

Arizona Game and Fish Department. 2022. Arizona Wildlife Conservation Strategy: 2022–2032. Arizona Game and Fish Department, Phoenix, Arizona. 378 pages.

Arizona Game and Fish Department. 2023. Online field guide to the reptiles and amphibians of Arizona. Online at https://live-reptilesofaz.pantheonsite.io

[1] The list is based on where HDMS has records for the species and potentially may not be complete.

Berriozabal-Islas, Christian, Aurelio Ramírez-Bautista, Ferdinand Torres-Ángeles, João F. M. Rodrigues, Rodrigo Macip-Ríos, and Pablo Octavio-Aguilar. 2020. Climate change effects on turtles of the genus *Kinosternon* (Testudines: Kinosternidae): an assessment of habitat suitability and climate niche conservatism. Hydrobiologia 847:4091–4110. https://doi.org/10.1007/s10750-020-04402-y

Berry, James F. and Cynthia M. Berry. 1984. A re-analysis of geographic variation and systematics in the yellow mud turtle *Kinosternon flavescens* (Agassiz). Annals of the Carnegie Museum 53(7):185–206. https://www.biodiversitylibrary.org/part/330480

Butler, Christopher, Brian D. Stanila, John B. Iverson, Paul A. Stone, and Matthew Bryson. 2016. Projected changes in climatic suitability for *Kinosternon* turtles by 2050 and 2070. Ecology and Evolution 6(21):7690–7705. https://doi.org/10.1002/ece3.2492

Center for North American Herpetology. 2025. Standard English names for North American amphibians and reptiles database. The Center for North American Herpetology, Standard English Names for North American Amphibians and Reptiles Committee. Online at https://cnah.org/SSARnames.aspx

Christiansen, James L. and Benny J. Gallaway. 1984. Raccoon removal, nesting success, and hatchling emergence in Iowa turtles with special reference to *Kinosternon flavescens* (Kinosternidae). The Southwestern Naturalist 29(3):343–348. https://doi.org/10.2307/3671365

Collins, Joseph T. 1997. Standard common and current scientific names for North American amphibians and reptiles. Fourth edition. Society for the Study of Amphibians and Reptiles. Herpetological Circular No. 25. 40 pages.

Crother, Brian I., editor. 2008. Scientific and standard English names of amphibians and reptiles of North America north of Mexico, with comments regarding confidence in our understanding. Sixth edition. Society for the Study of Amphibians and Reptiles Herpetological Circular 37:1–90.

Crother, Brian I. and Society for the Study of Amphibians and Reptiles Committee on Standard English and Scientific Names, editors. 2017. Scientific and standard English names of amphibians and reptiles of North America north of Mexico, with comments regarding confidence in our understanding. Eighth edition. Society for the Study of Amphibians and Reptiles Herpetological Circular 43:1–104.

Fritz, Uwe and Peter Havaš. 2007. Checklist of chelonians of the world. Vertebrate Zoology 57(2):149–368. https://doi.org/10.3897/vz.57.e30895

Frost, D., G. Hammerson, and H. Gadsden. 2007. *Kinosternon arizonense* (errata version published in 2016). The IUCN Red List of Threatened Species 2007(1): e.T63666A97379712.

Gilmore, Charles W. 1922. A new fossil turtle, *Kinosternon arizonense*, from Arizona. Proceedings of the United States National Museum 62:1–8. https://doi.org/10.5479/si.00963801.62-2451.1

Hartweg, Norman. 1938. *Kinosternon flavescens stejnegeri*, a new turtle from northern Mexico. Occasional papers of the Museum of Zoology 371:1–5. https://hdl.handle.net/2027.42/56810

Holycross, Andrew T., Thomas C. Brennan, and Randall D. Babb. 2022. A field guide to amphibians and reptiles in Arizona. Second edition, revised. Arizona Game and Fish Department, Phoenix, Arizona. 165 pages.

Iverson, John B. 1989. The Arizona Mud Turtle, (*Kinosternon flavescens arizonense* (*Kinosternidae*), in Arizona and Sonora. Southwest Naturalist 34(3):356–368. https://doi.org/10.2307/3672164

Iverson, John B. 1992. A revised checklist with distribution maps of the turtles of the world. Privately printed. 363 pages.

Jones, Cristina. 2011. Wildlife field notes: *Kinosternon arizonense*: Arizona Mud Turtle. Arizona Wildlife Views, January–February 2011 54(1):25.

Jones, Michael T., Lisabeth L. Willey, Chelsea Mahnk, David Hall, Rodrigo MacipRios, Trevor Parsons, and Noah Charney. 2024. Spatial and population ecology of *Kinosternon stejnegeri* on the border of Arizona, United States, and Sonora, Mexico. Western North American Naturalist 84(4):434–446. https://doi.org/10.3398/064.084.0404

Jones, Michael T., Lisabeth L. Willey, R. Macip-Ríos, and R. A. Lara Resendiz. 2025. *Kinosternon stejnegeri.* The IUCN Red List of Threatened Species 2025: e.T63666A3127646. https://dx.doi.org/10.2305/IUCN.UK.2025-1.RLTS.T63666A3127646.en.

Kluge, Arnold G. 1984. Type specimens of reptiles in the University of Michigan Museum of Zoology. Miscellaneous Publications, Museum of Zoology, University of Michigan. 167:1–85. https://hdl.handle.net/2027.42/56411

McCord, Robert D. 2016. What is *Kinosternon arizonense*?. Historical Biology 28(1-2):310–315.

Murphy, John C. 2019. Arizona's amphibians & reptiles: a natural history and field guide. Second edition. Book Services. 332 pages.

Nicholson, Kirsten E., editor. 2025. Scientific and standard English names of amphibians and reptiles of North America North of Mexico, with comments regarding confidence in our understanding. Ninth edition. Society for the Study of Amphibians and Reptiles. 87 pages. Online database at https://cnah.org/

Peters, James A. 1952. Catalogue of type specimens in the herpetological collections of the University of Michigan Museum of Zoology. Occasional Papers of the Museum of Zoology, University of Michigan 529:1–55. https://hdl.handle.net/2027.42/56977

Rosen, Philip C. 2008. Aridlands turtles in southwestern North America II. A review of conservation status and problems. Sonoran Herpetologist 21(12):130–135.

Seidel, Michael E. 1978. *Kinosternon flavescens* (Agassiz) Yellow Mud Turtle. Catalogue of American Amphibians and Reptiles 216:1–4.

Serb, Jeanne M., Christopher A. Phillips, and John B. Iverson. 2001. Molecular phylogeny and biogeography of *Kinosternon flavescens* based on complete mitochondrial control region sequences. Molecular Phylogeny and Evolution 18:149–162. https://doi.org/10.1006/mpev.2000.0858

Stone, Paul A. 2001. Movements and demography of the Sonoran mud turtle, *Kinosternon sonoriense*. Southwestern Naturalist 46:41–53. https://doi.org/10.2307/3672372

Turtle Taxonomy Working Group [John W. Bickham, John B. Iverson, James F. Parham, Hans-Dieter Philippen, Anders G. J. Rhodin, H. Bradley Shaffer, Phillip Q. Spinks, and Peter P. van Dijl]. 2007. An annotated checklist of modern turtle terminal taxa with comments on area of taxonomic instability and recent change. Pages 173-199 *In:* H. Bradley Shaffer, Nancy N. FitzSimmons, Arthur Georges, and Anders G.J. Rhodin, editors. Defining turtle diversity: proceedings of a workshop on genetics, ethics, and taxonomy of freshwater turtles and tortoises. Chelonian Research Monographs 4:173–199. https://iucn-tftsg.org/checklist/

Turtle Taxonomy Working Group [Peter P. van Dijk, John B. Iverson, Anders G. J.Rhodin, H. Bradley Shaffer, and Roger Bour]. 2014. Turtles of the world: annotated checklist and atlas of taxonomy, synonymy, distribution, and conservation status (7th edition). *In:* Anders G. J. Rhodin, P. C. H. Pritchard, Peter P. van Dijk, R. A. Saumure, John B. Iverson, and Russell A. Mittermeier, editors. Conservation Biology of Freshwater Turtles and Tortoises: A Compilation Project of the IUCN/SSC Tortoise and Freshwater Turtle Specialist Group. Chelonian Research Monographs 5:329–479. doi:10.3854/crm.5.000.checklist.v7.2014 https://iucn-tftsg.org/checklist/

Turtle Taxonomy Working Group [Anders G. J.Rhodin, John B. Iverson, Roger Bour, Uwe Fritz, Arthur Georges, H. Bradley Shaffer, and Peter P. van Dijk.]. 2017. Turtles of the World: Annotated Checklist and atlas of taxonomy, synonymy, distribution, and conservation status (8th Ed.). *In:* Anders G. J. Rhodin, John B. Iverson, Peter P. van Dijk, R. A. Saumure, Kurt A. Buhlmann, P. C. H. Pritchard, and Russell A. Mittermeier, editors. Conservation biology of freshwater turtles and tortoises: a compilation project of the IUCN/SSC tortoise and freshwater turtle specialist group. Chelonian Research Monographs 7:1–292. doi: 10.3854/crm.7.checklist.atlas.v8.2017 https://chelonian.org/crm-7/

Turtle Taxonomy Working Group [Anders G. J. Rhodin, John B. Iverson, Uwe Fritz, N. Gallego-García, Arthur Georges, H. Bradley Shaffer, and Peter P. Van Dijk.] 2025. Turtles of the world: annotated checklist and atlas of taxonomy, synonymy, distribution, and conservation status (10th edition). *In:* Anders G. J. Rhodin, John B. Iverson, Peter P. van Dijk, Craig. B. Stanford, Eric V. Goode, Kurt A. Buhlmann, and Russell A. Mittermeier, editors. Conservation Biology of Freshwater Turtles and Tortoises: A Compilation Project of the IUCN/SSC Tortoise and Freshwater Turtle Specialist Group. Chelonian Research Monographs 10:1–575. doi:10.3854/crm.10.checklist.atlas.v10.2025. https://chelonian.org/crm-10/

Uetz, Peter, P. Freed, R. Aguilar, F. Reyes, J. Kudera, and J. Hošek, editors. 2025. The Reptile Database, last changed or updated: 2025-09-20. http://www.reptile-database.org

USDI, Fish and Wildlife Service. 1982. Endangered and threatened wildlife and plants; review of vertebrate wildlife for listing as endangered or threatened species; notice of review. Federal Register 47(251):58454–58460.

USDI, Fish and Wildlife Service. 1985. Endangered and threatened wildlife and plants: review of vertebrate wildlife; notice of review. Federal Register 50(181):37958–37967.

USDI, Fish and Wildlife Service. 1989. Endangered and threatened wildlife and plants; animal notice of review; notice of review. Federal Register 54(4):554–579.

USDI, Fish and Wildlife Service. 1991. Endangered and threatened wildlife and plants; animal candidate review for listing as endangered or threatened species; notice of review. Federal Register 56(225):58804–58836.

MAJOR KNOWLEDGEABLE INDIVIDUALS:

John B. Iverson, Dept. of Biology, Earlham College, Richmond, Indiana

EXTERNAL LINKS:

Arizona Wildlife Conservation Strategy
Online Field Guide to the Reptiles and Amphibians of Arizona
NatureServe Explorer
iNaturalist

ADDITIONAL INFORMATION:

The genus name *Kinosternon* is derived from the Greek “kinein,” meaning movable, and “sternon,” meaning chest, which refers to the double hinged “plastron” (the bottom portion of the shell) that allows the turtle to retract into and fully close its shell (Jones 2011). The species name *stejnegeri* is a patronym honoring Leonhard H. Stejneger (Latinized genitive form meaning “of Stejneger”), a longtime curator at the United States National Museum (Smithsonian Institution) and considered one of the most influential figures in North American herpetology, recognized for his work in taxonomy and biogeography (Center for North American Herpetology 2025).

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Arizona Game and Fish Department. 2026. *Kinosternon stejnegeri*, Arizona Mud Turtle. Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, Arizona. 13 pages.