

ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Animal Abstract

Element Code: ARAAD01011

Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Chrysemys picta bellii* (Gray, 1831)

COMMON NAME: Western Painted Turtle

SYNONYMS: *Emys bellii* Gray 1831; *Emys oregoniensis* Harlan 1837; *Chrysemys nuttallii* Agassiz 1857; *Chrysemys pulchra* Gray 1873; *Chrysemys cinerea* var. *bellii* Boulenger 1889; *Chrysemys treleasei* Hurter 1911

FAMILY: Emydidae: Picta

AUTHOR, PLACE OF PUBLICATION: *Chrysemys picta bellii* (Gray, 1831), Syn. Rept., Pp.31.

TYPE LOCALITY: “The type locality was not stated, but was designated as “Manhattan, Kans.” (Riley County, Kansas) by Smith and Taylor (1950b).” (Degenhardt et al., 1996).

TYPE SPECIMEN: “*C. p. bellii* Gray, 1831, was named from a type in the Royal College of Surgeons Museum, England. That specimen was destroyed by bombing in World War II.” (Degenhardt et al., 1996).

TAXONOMIC UNIQUENESS: *Chrysemys picta bellii* is 1 of 4 subspecies in the *Chrysemys picta* complex, and the only subspecies that occurs in Arizona. The other subspecies currently recognized includes *C. p. picta* (Eastern Painted turtle), *C. p. marginata* (Midland Painted turtle), and *C. p. dorsalis* (Southern Painted turtle). Per Nature Serve (2007), “Patterns of morphological variation (Ultsch et al. 2001) cast doubt on the validity of current subspecific designations. Patterns of mtDNA variation suggest that recognizing *Chrysemys picta dorsalis* (southern painted turtle) as an evolutionary species (*C. dorsalis*) distinct from *C. picta* may be justified (Starkey et al. 2003); data for other subspecies did not support status as distinct species. Starkey et al. (2003) proposed that the two species be recognized as monotypic (no subspecies), but conceded that the merits of recognizing subspecies are debatable. Starkey et al. (2003) stated that their conclusions on species boundaries must be regarded as tentative because they lacked evidence from nuclear genes. Studies currently underway by these authors should shed additional light on the phylogeography and taxonomy of the *C. picta* complex”.

DESCRIPTION: The subspecies *bellii* is the largest of the four subspecies, has light netlike lines on the carapace, bars on the marginals, and intricate branching pattern on the plastron (Behler and King, 1979). For the species *Chrysemys picta*, this is a small to medium size 2.5-10.0 in (6.3-25.4 cm) aquatic turtle that has a dark, smooth, unkeeled, low carapace (shell covering the back); males are much smaller than females. The carapace is generally black, brown, or olive, marked with yellow and red around the edges. The marginal shields are often marked with light lines and reticulations. The rear edge of the carapace is smooth and the

plastron (shell covering the belly) is red to yellow with a single, large, dark patch in the center. The plastron has 12 scutes and lacks a prominent hinge (BISON-M accessed 2007). Head, neck and forelimbs are green to gray-green with prominent yellow to red striping. Brennan (2006) reports dark olive-gray head and limbs with numerous cream and yellow stripes, with a dark horizontal bar running through the middle of each eye. The upper jaw is notched and has two tooth-like projections; the crushing surface often with a ridge or row of tubercles parallel to the jaw margin. The hind feet are webbed, and the claws on the front feet are slender; the nails of the front feet of males are longer. According to Degenhardt et al. (1996), "Males also tend to differ from females in that they have longer and thicker tails with the anal opening nearer the tip rather than closer to the body." The young are similar to adults, but brighter. In juveniles, the plastron is red to orange, with the central dark figure well developed. The carapace might have indistinct vertebral stripe and weak dorsal keel. (Degenhardt et al., 1996; Stebbins 2003; Brennan and Holycross 2006).

AIDS TO IDENTIFICATION: The subspecies *Chrysemys picta bellii* is similar looking and can be confused with *Trachemys scripta* (Pond Slider), which has an orange-red patch on each side of the head, and *Clemmys marmorata pallida* (Southern Pacific Pond Turtle).

ILLUSTRATIONS:

Color photo (Brennan 2006,

<http://www.reptilesfaz.com/Turtle-Amphibs-Subpages/h-c-picta.html>)

Color photo (Brennan and Holycross 2006: Pp.51)

Color photo (Behler and King 1979: Plate 293)

Color photo (Stebbins 2003: Plate 20)

Color photo (Degenhardt et al. 1996: Plate 28)

Color photos (In http://www.chelonia.org/chrysemys_gallery.htm)

Color photo (Suzanne L. Collins, 2001 in CNAH <http://www.cnah.org/>)

Color photos (William Leonard, 2004-2005 in CalPhotos

http://calphotos.berkeley.edu/cgi/img_query?)

Color photo and U.S. range map (Mike Pingleton, in <http://nas.er.usgs.gov/>)

Color photos (CaliforniaHerps.com 2001-2007)

Color photo (in Borealforest.org)

TOTAL RANGE: A dweller of habitats extending from southern Canada into mainly the northern mid-western states. There are several populations scattered across the southwestern United States including parts of Colorado, New Mexico and northeastern Arizona. Introduced populations can be found in Arizona, California, Colorado (northwestern), and Florida. There is an unverified report from Labyrinth Canyon, Kane County, Utah (Stebbins 2003). They have also been reported from the Gulf of Mexico and northern Chihuahua (Rio Santa Maria).

RANGE WITHIN ARIZONA: Native to the St. Johns and Lyman Lake areas in Apache County. Introduced to rivers, canals, urban lakes, and reservoirs around Phoenix (Maricopa Co.), Tucson (Pima Co.), and Cottonwood (Yavapai Co.). (Brennan 2006; Brennan and Holycross 2006).

SPECIES BIOLOGY AND POPULATION TRENDS

BIOLOGY: *Chrysemys picta bellii* is most active diurnally, from March through October, though warm weather may stimulate activity in earlier months, especially in southern states. Evening activity on land may occur during nesting (BISON-M, accessed 2007). Much of the day is spent basking in groups of a dozen or more, in the warm surface water, on mud-banks, on rocks near water, or most often on logs. When it senses danger, it is quick to dive into the water and swim some distance away before resurfacing. At night, they often are found underwater on the bed of the pond, lake or river. “Thermoregulation by basking is especially important when the water is cold and it is necessary to elevate body temperatures for feeding, digestion, and reproduction.” (Degenhardt et al., 1996). The turtle usually hibernates from October to March (or April in colder climates) in soft mud at the bottom of a body of water during the winter. Hatchlings typically spend their first winter of life inside the shallow, subterranean nest where they emerged the preceding summer. Neonates at northern localities may be exposed during the winter to subzero temperatures and frozen soil, and apparently survive exposure to such conditions by supercooling. However, mortality does occur when hatchlings develop considerable lactic acidosis during winters in which temperatures fall below 0 °C for weeks or months. (Hartley et al., 2000).

Age of maturity varies in different parts of its range. According to Degenhardt et al. (1996) “in *C. p. bellii*, age at maturity is reached later and the size is larger in northern populations. Frazier et al. (1993) presented evidence suggesting that warmer and longer growing seasons result in more rapid attainment of sexual maturity in male *Chrysemys picta*.” In New Mexico at elevations below 1200 m, Christiansen and Moll (1973) found that males matured as early as the third year, and were able to mate in the spring of the following year, and that females do not usually mature until at least 2 years later than males (Degenhardt et al. 1996).

REPRODUCTION: In Arizona, mating occurs in the spring and fall with clutches of 1-20(25) eggs each, buried in moist, shallow nests on the bank in spring and early summer; females can lay up to 4 clutches of eggs per season (Brennan, 2006). The clutch size varies across the species range. According to NatureServe (2006), “often more than one clutch/year in most of the range (often 2 in Wisconsin, 2-3 and sometimes 4 in Nebraska). Clutch size averages 4 in Virginia, 8 in Maine and Michigan, 10 in Wisconsin and New Mexico, 13 in Washington, 14 in Nebraska, 16 in Idaho, and 20 in Saskatchewan.” Most nests are flask-shaped, average about 12.5 cm deep, and are in sandy or loamy soil (Degenhardt et al. 1996). Eggs are white to cream color and about 20 x 32 mm in size. Incubation time is 65-80 days. Sex is temperature-dependent in this species. “In general, lower incubation temperatures produce more males whereas higher temperatures produce more females; however, *C. picta* has two threshold temperatures for sex determination and females are also produced at the both the higher and lower thresholds.” (Degenhardt et al., 1996). Hatchlings measure 7/8 – 1 1/8 inches, and usually remain in the nest during winter months.

FOOD HABITS: The species is an opportunistic omnivore. Because of their fixed tongue, they can not swallow on land, thus their food must be obtained and eaten in the water. Their diet includes a variety of aquatic plants, crayfish, snails, insects, tadpoles, frogs, fish, spiders, earthworms, mollusks, and carrion. The young tend to be more carnivores than adults. Per Stebbins (2003), the species “sometimes scavenges.”

HABITAT: Normally aquatic; frequents ponds, marshes, small lakes, ditches, shallow coves within reservoirs and banks of streams where water is slow moving, quiet or sluggish and bottoms sandy or muddy, grown to aquatic vegetation.

ELEVATION: For the species, the elevation ranges from sea level to around 8,500 ft. (2,950 m). Elevations in New Mexico where the subspecies *C. p. belli* have been found range between 900m in the Pecos River near the Texas border, to 1700m in the Rio Grande and 1600m in the San Juan River. In the St. Johns area of Arizona where one of the natural populations occurs, elevations range between 5,600 - 5,930 feet (1706 – 1807 m).

PLANT COMMUNITY: Frequents herbaceous wetland, scrub-shrub wetland, forested wetland, riparian areas.

POPULATION TRENDS: Unknown.

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: None

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

OTHER STATUS: A, Determined Threatened in Mexico (NORMA Oficial Mexicana NOM-059 SEMARNAT-2018).

MANAGEMENT FACTORS: Threats include habitat degradation, mortality on roads, and human-associated increases in predators (e.g., raccoons, squirrels), use of pesticides, and exploitation in the pet trade.

PROTECTIVE MEASURES TAKEN:

SUGGESTED PROJECTS: Surveys to determine overall range of natural population in northeastern part of state.

LAND MANAGEMENT/OWNERSHIP: Unknown.

SOURCES OF FURTHER INFORMATION**REFERENCES:**

- 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.
- Behler, J.L., and F.W. King. 1979. The Audubon Society Field Guide to North American Reptiles and Amphibians. A Chanticleer Press Edition. Alfred A. Knopf. New York. Pp. 450-451.
- BISON-M: Biota Information System of New Mexico. Species Account: Turtle, Painted, Western. New Mexico Game & Fish. <http://www.bison-m.org/booklet.aspx?id=030435>. Accessed: 1/29/2007.
- Borealforest.org. Northwestern Ontario Reptile & Amphibian Species – Western Painted Turtle, *Chrysemys picta bellii*. Accessed: 2/15/2007.
- Brennan, T.C. 2006. Reptiles of Arizona: Painted Turtle, *Chrysemys picta*. Accessed: 1/16/2007. <http://www.reptilesfaz.com/Turtle-Amphibs-Subpages/h-c-picta.html>.
- Brennan, T.C. and A.T. Holycross. April 2006. A field guide to amphibians and reptiles in Arizona. Arizona Game and Fish Department. Phoenix, Arizona. Pp. 50-51.
- CaliforniaHerps.com. Western Painted Turtle- *Chrysemys picta bellii*. Accessed: 1/25/2007. Available <http://www.californiaherps.com/turtles/pages/c.p.bellii.html>.
- Degenhardt, W.G., C.H. Painter, and A.H. Price. 1996. Amphibians and reptiles of New Mexico. University of New Mexico Press. Albuquerque. Pp. 100-102.
- Hartley, L.M., M.J. Packard, and G.C. Packard. 2000. Accumulation of lactate by supercooled hatchlings of the painted turtle (*Chrysemys picta*): implications for overwinter survival. Journal of Comparative Physiology B: Biochemical, Systemic, and Environmental Physiology. Vol. 170, No. 1, pp. 45-50. February 2000.
- Integrated Taxonomic Information System (ITIS). Retrieved 2/15/2007 from ITIS, <http://www.itis.usda.gov>.
- LeClere, J. Reptiles and Amphibians of Minnesota: Western Painted Turtle, *Chrysemys picta bellii*. Accessed: 2/15/2007.
- Mussulman, J. 12/2006. Discovering Lewis and Clark-Natural History-Turtles. Accessed 1/30/2007. <http://www.lewis-clark.org/content/content-article.asp?ArticleID=2813>.
- NatureServe. 2006. NatureServer Explorer: An online encyclopedia of life [web application]. Version 6.1. NatureServe Arlington, Virginia. Available <https://explorer.natureserve.org/> (Accessed: January 25, 2007).
- Packard, G.C., M.J. Packard, C.L. Morjan, and F.J. Janzen. Cold-Tolerance of Hatchling Painted Turtles (*Chrysemys picta bellii*) from the Southern Limit of Distribution. Journal of Herpetology, Vol. 36, No. 2, pp. 300-304, 2002. Copyright 2002 Society for the Study of Amphibians and Reptiles.
- Stebbins, R.C. 2003. Peterson Field Guides: Western reptiles and amphibians. Third Edition. Houghton Mifflin Company. New York. Pp. 251-252.
- The Center for Reptile and Amphibian Conservation and Management. Western Painted Turtle- *Chrysemys picta bellii*. Accessed 1/30/2007. Available: <http://herpcenter.ipfw.edu/>

The Reptiles of British Columbia. Western Painted Turtle-*Chrysemys picta bellii*. Accessed 1/30/2007. Available: <http://www.bcreptiles.ca/turtles/westernpaint.htm>.
Wikipedia, the free encyclopedia. Thomas Bell. Accessed: 1/30/2007.
http://en.wikipedia.org/wiki/Thomas_Bell_%28zoologist%29.
World Chelonian Trust-Conservation and Care. 2007. *Chrysemys*-Painted turtles. Accessed 1/31/2007. http://www.chelonia.org/chrysemys_gallery.htm.

MAJOR KNOWLEDGEABLE INDIVIDUALS:

Dr. Andrew HolyCross – Arizona State University, Tempe.

ADDITIONAL INFORMATION:

Scientific name description: *Chrysemys* comes from the Greek word *khrysos* meaning golden, yellow or lt. green, and *emys* meaning turtle probably refers to the yellow stripes on the head of all members of this genus. The word *picta* in Latin means painted or embroidered which is probably referring to the delicate shell pattern; the word *bellii* was named in honor of Bell, Thomas (1792-1880) a dental surgeon and naturalist, who for a time was professor of zoology at King's College, London in 1836 (Wikipedia, 2007).

Revised: 2007-01-31 (TWS)
2007-02-22 (SMS)
2023-05-05 (MBL)

To the user of this abstract: you may use the entire abstract or any part of it. We do request, however, that if you make use of this abstract in plans, reports, publications, etc. that you credit the Arizona Game and Fish Department. Please use the following citation:

Arizona Game and Fish Department. 20XX (= **year of last revision as indicated at end of abstract**). X...X (= **taxon of animal or plant**). Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ. X pp.