

**ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM**

Animal Abstract

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CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Coleonyx variegatus bogerti*
COMMON NAME: Tucson Banded Gecko
SYNONYMS:
FAMILY: Eublepharidae: Eublepharinae

AUTHOR, PLACE OF PUBLICATION: *Coleonyx variegatus bogerti* Klauber, Trans. San Diego Soc. Nat. Hist. 10(11): 176. 1945.

TYPE LOCALITY: Collected from "Xavier, Pima County, Arizona", USA.

TYPE SPECIMEN: Holotype: SDSNH 32486, adult male. Lee W. Arnold, 17 July 1939.

TAXONOMIC UNIQUENESS: *Coleonyx variegatus* is 1 of 6 species in the genus *Coleonyx* that occurs in North America. Subspecies *bogerti* is 1 of 5(7) in the species *C. variegatus* and 1 of 3 that occurs in Arizona. The other 2 subspecies in Arizona include *C. v. variegatus* (Desert Banded Gecko), and *C. v. utahensis* (Utah Banded Gecko). Per NatureServe (2007), "Subspecies *utahensis* intergrades widely with subspecies *variegatus* (Tanner and Banta 1966) and hence is of questionable validity as a distinctive evolutionary lineage." Genetic studies may help in solving this question.

In 1987, in a cladistic analysis of the family Gekkonidae, Kluge placed the genus *Coleonyx* in the family Eublepharidae (subfamily Eublepharinae), recognized as distinct from the Gekkonidae. Bartlett and Bartlett (1999), Grismer (2002), and Stebbins (2003) likewise placed *Coleonyx* in the family Eublepharidae, whereas Dixon (2000) retained *Coleonyx* in Gekkonidae. (NatureServe 2007).

DESCRIPTION: A small lizard with lengths up to 12.7 cm (5.0 in) STL (snout-tail length), with almost half this length from the tail. Average SVL lengths in Hidalgo Co., New Mexico (Degenhardt et al. 1996) were 5.2-6.4 (5.6) cm for 40 males and 5.2-6.7 (58.5) cm for 24 females. Average lengths reported (unknown if STL or SVL) for the species varies widely from 4.5-6.0 inches in Behler and King (1979) to 2.0-3.0 inches in Stebbins (2003) and Brennan and Holycross (2006). The skin is soft, somewhat translucent, and covered in granular scales; tubercles absent. The coloration ranges from pinkish tan or tan to cream, with dark reddish brown crossbars or reticulations; the underside is usually a plain pale yellow to cream color. The head has dark brown to black spots, and a light-cream color line starts from under each eye passing just above the ear opening and ends in a loop on the back of the neck. They have a pointed snout, protruding moveable eyelids and large eyes with vertical pupils. The tail is usually plump and becomes constricted where it meets the body; if unregenerated, it is about as long as the body and has bar markings. The legs are small and the toes are slender with no pads or villi. Young usually have distinct crossbars that

break up into reticulations as the animal ages. *C. v. bogerti* in SE Arizona tends to retain the juvenile pattern (i.e. crossbars). Males develop large hemipenal bulges and possess a pair of spurs at the base of their tails. (Behler and King 1979; Degenhardt et al. 1996; Stebbins 2003; Brennan and Holycross 2006).

AIDS TO IDENTIFICATION: *Coleonyx variegatus bogerti* differs from the other subspecies of banded geckos by having 8 or more pre-anal pores in males. The closely related *C. v. variegatus* (Desert Banded Gecko) range merges to the west of *C. v. bogerti*, and the males have 7 or less pre-anal pores. In both of these banded geckos, the transverse dark body bars in adults are equal to or narrower than the light interspaces; however, in *C. v. bogerti*, the edges are darker. In addition, the head is conspicuously spotted or mottled. The Reticulated Gecko or Big Bend Gecko (*C. reticulatus*) has enlarged tubercles scattered among granular scales on its neck and sides, and is found in southeastern New Mexico and western Texas (Finding Species 2007). In urban areas, an introduced species, the Mediterranean Gecko (*Hemidactylus turcicus*), is common around homes and yards, and can be recognized by the presence of white tubercles (warts) on the dorsum, presence of toe pads, and lack of moveable eyelids.

ILLUSTRATIONS:

Color photo (Arizona Wildlife Views Special Edition: p. 109)

Color photo (Brennan and Holycross 2006: p. 91)

Color photo (Suzanne L. Collins 2001, <http://www.cnah.org/detail.asp?id=481>)

Color photo (<http://www.geckoweb.org/profile/coleonyx-variegatus-bogerti>)

Color photos of gecko and habitat (<http://www.californiaherps.com>)

Colored photos (<http://www.uga.edu/srelherp/jd/jdweb/Herps/species/uslizards/Covarbog.htm>)

Color photos (Geckos Unlimited 2003-2004, <http://www.geckosunlimited.com/bogerti.htm>)

Color photo (Randy Babb, in <http://www.reptilesfaz.com/Lizards-Subpages/h-c-variegatus.html>)

Color photos (Erik F. Enderson, in The Tucson Herpetological Society, <http://www.arts.arizona.edu/herp/COVA.html>)

Line drawing (Stebbins 2003: Plate 24)

Color photos (Behler and King: Plate 395)

Color photo of juvenal (Degenhardt et al. 1996: Plate 58)

TOTAL RANGE: Southeastern Arizona and extreme southwestern New Mexico into northern Sonora, Mexico.

RANGE WITHIN ARIZONA: Southeastern part of state, including Maricopa, Pima, Pinal, and Santa Cruz counties, although the center of its population is in Pima County.

SPECIES BIOLOGY AND POPULATION TRENDS

BIOLOGY: *Coleonyx variegatus bogerti* is a nocturnal ground dweller active between April and October. Adults are normally active just after dark and remain so throughout the night. They

hibernate during the winter months between November and March when temperatures drop too low, and live off the fat stored in their tail. During warmer months, they avoid the heat of the day by hiding in rock crevices or under logs, fallen limbs, or rubbish. Defensive tactics observed by *Coleonyx variegatus* include squeaking, ejecting viscous liquids, and limb extension (SDNHM, 2007). Geckos are able to detect and identify potential snake predators by chemical means (Dial et al., 1989 in Degenhardt et al. 1996). When threatened, *C. v. bogerti* may use specific behaviors that draw the predator's attention to their tail instead of the body, such as curving their tail over their back and wiggling it back and forth. Some think this gives them the impression of a large scorpion. If caught by the tail, they will readily lose it. However, the tail is easily regenerated but can be costly for the geckos physically during the winter, since the tail holds their main fat reserve. They also wave their tail in a feline manor when hunting or stalking their prey (Behler and King, 1979). Banded geckos are known to mark out discrete locations some distance away from their daytime retreats for defecation. The scent of chemicals in the feces may serve as a social "signpost" to other geckos, notifying them of the resident's occupancy. Lifespan in captivity has been reported between 7 to 10 years (Geckos Unlimited 2001), and also 15+ years (Geckoweb 2007).

REPRODUCTION: In Arizona, the reproductive season generally runs from April through September, but may be shortened depending upon seasonal environmental conditions. Peak egg-laying occurs during May and June, although it may extend to September. The female lays 1 to 3 clutches (average 2) of 2 eggs, with hatchlings emerging in 45 days (about 6 week incubation); females may store sperm from early mating to produce clutches later in the year. Hatchlings are 25-30 mm SVL and reach adult size by the following spring. (Degenhardt et al., 1996; Stebbins, 2003).

FOOD HABITS: The species is an invertivore, consuming insects such as beetles, grasshoppers, insect larvae, termites, and solpugids and spiders.

HABITAT: Arid habitats in canyons, around rocky outcrops, washes, and sandy areas.

ELEVATION: For the species, the elevation ranges from sea level to about 5,000 ft. Elevations in the Tucson area range from 2,500 – 5,000 feet (762-1524 m) in the desert mountains to the north. According to Degenhardt et al. (1996), "Nickerson and Mays (1969 [1970]) found these lizards from 1212-1485 m in *Prosopis-Acacia* habitat in southeastern Arizona."

PLANT COMMUNITY: Sonoran and Chihuahuan Desertscrub. Black brush, honey mesquite, creosote bush, and catclaw-cedar-grama grass (Stebbins 2003). According to Degenhardt et al. (1996), "Nickerson and Mays (1969 [1970]) found these lizards from 1212-1485 m in *Prosopis-Acacia* habitat in southeastern Arizona."

POPULATION TRENDS: Unknown. NatureServe (2007), reports the global trend for the species as stable. They go on to say, the "Extent of occurrence, area of occupancy, and abundance probably are relatively stable from a range-wide perspective. Abundance and perhaps area of occupancy may be declining somewhat in the more populated portions of the range (e.g., California, parts of Arizona)."

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: None
STATE STATUS: None
OTHER STATUS: None

MANAGEMENT FACTORS: Threats include development from encroaching human populations across much of their southwest habitat.

PROTECTIVE MEASURES TAKEN: Unknown

SUGGESTED PROJECTS: Studies needed should include among others, complete distribution surveys and genetic studies to clarify questions concerning subspecies determinations within *C. variegatus*.

LAND MANAGEMENT/OWNERSHIP:

SOURCES OF FURTHER INFORMATION**REFERENCES:**

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MAJOR KNOWLEDGEABLE INDIVIDUALS:

ADDITIONAL INFORMATION:

Scientific name description: *Coleonyx* comes from the Greek *koleos*, meaning a sheath and *onych*, meaning nail or claw, while *variegatus* comes from the Latin *vario*, meaning variegated; *bogerti* was named in honor of Charles Mitchell Bogert, and American herpetologist, and curator of herpetology and researcher for the American Museum of Natural History.

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