

## Catalogue of American Amphibians and Reptiles.

Powell, R. and M.E. Gifford. 2010. *Leiocephalus lunatus*.

***Leiocephalus lunatus* Cochran**

*Leiocephalus personatus lunatus* Cochran 1934a: 153. Type-locality, "Santo Domingo City, Dominican Republic." Holotype, Field Museum of Natural History (FMNH) 166, an adult male, collected by G.K. Cherrie in 1895 (not examined by authors).

*Leiocephalus lunatus*: Schwartz 1967:24.

• **CONTENT.** Six subspecies are currently recognized: *L. l. lunatus*, *L. l. arenicolor*, *L. l. lewisi*, *L. l. louisae*, *L. l. melaenascelis*, and *L. l. thomasi*.

• **DEFINITION.** *Leiocephalus lunatus* is a moderately sized member of the genus (maximum SVL in males to 67 mm, females to 60 mm; Schwartz 1967) with the following combination of characters (Pregill 1992; Schwartz and Henderson 1991): nasal overlap of premaxillary spine complete or not, nasal-maxillary suture straight, nasal processes of frontal not exposed, frontal narrow, parietal table U-shaped in adults, supratemporal lateral, supratemporal process of squamosal indistinct, skull roof rugose, angular process of dentary not well-developed, transition to tricuspid crowns at teeth 7–9 on dentary, hypapophyses of posterior trunk vertebrae usually narrow, 2 rows of scales between internasals and anterior pair of frontals, with posterior row composed of 3 or a single pair of enlarged scales, median head scales 3–10 (mode 4), supraoculars usually 6/6, supraorbital semicircles usually complete, parietals always in contact, most lateral parietal scales subequal or slightly larger than median pair, single row (occasionally 2) postparietals, enlarged lateral postparietal scale present, 3 internasals (usually 2 in contact with rostral), loreals 2–8, 4 lorilabial scales anterior to enlarged subocular, cephalic scale ridges restricted, temporals 7–14, moderately enlarged temporal scale present in some individuals, preauricular scale small, lateral neck scales keeled and undifferentiated, lateral trunk scales not reduced, middorsal crest prominent, scales attenuate (50–68 from occiput to vent), usually 4 postanal escutcheons, tricarinate scales of first and second toes enlarged (fringe moderate), lateral neck folds moderate, nuchal fold moderately convex, no lateral fold on trunk.

The dorsum is tan-to-brown with creamy, white, grayish sandy, or buffy dorsolateral lines or sandy to tan (often with a bronze sheen), or with a pale creamy zone crossed by a series of pale tan chevrons. Dorsal crest scales are alternating cream and tan or black and golden. The head is brown, not suffused with darker markings except on the supraoculars. No face mask is present. Nuchal and transverse bars present or absent (depending on locality), dorsum occasionally flecked with yellow. Flanks can be orange to brownish with green scales (yellow and brick-red scales present in some individuals), the latter at times



**FIGURE 1.** Adult male *Leiocephalus lunatus louisae* from Isla Saona, República Dominicana (photograph by M.E. Gifford).

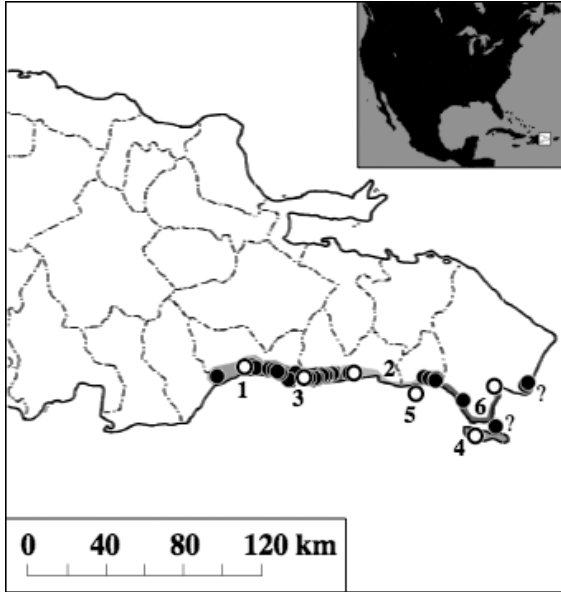
forming vertical bars that become yellow bars on the lower sides and venter, or are dark reddish brown with scattered turquoise flecks, or even dark gray to black (obscuring nuchal/shoulder patches). A lateral line between the limbs may be present. The black nuchal/shoulder patch is variable, ranging from large and conspicuous, entire or broken, or merely indicated, or (rarely) entirely absent. The throat in males bears bold, discrete black spots on a white or pale gray ground color; females have faint gray spots. The venter is unpatterned white, pale yellowish, tan, or lavender. The underside of the tail is bright orange.

• **DIAGNOSIS.** *Leiocephalus lunatus* may be distinguished from other Hispaniolan congeners by the following combination of characters (Henderson and Schwartz 1984; Henderson et al. 1984): lateral folds absent (present in *L. melanochlorus* and *L. schreiberi*), row of middorsal scales (absent in *L. pratensis*), preauricular scale small (much larger than adjacent temporal scales in *L. barahonensis* and *L. semilineatus*), dorsal crest scales attenuate (not attenuate or strongly overlapping in *L. rhutidira* and *L. vinculum*), and face mask absent (present in *L. personatus*).

• **DESCRIPTIONS.** In addition to the original descriptions by Cochran (1934a, 1934b), Mertens (1939), and Schwartz (1967, 1969), detailed descriptions are in Cochran (1941), Schwartz and Henderson (1991), and Pregill (1992).

• **ILLUSTRATIONS.** Cochran (1941, as *L. personatus lunatus*) provided black-and-white illustrations of dorsal, lateral, and ventral views and a line drawing of dorsal head scalation. Line drawings of lateral views of the heads and shoulders and of the throats of 5 subspecies are in Schwartz (1967). Black-and-white photographs are in Mertens (1939). Fernández (2007) provided a color photograph, and a black-and-white image of the same photograph is in Henderson and Powell (2009).

• **DISTRIBUTION.** *Leiocephalus lunatus* is restricted to the southeastern coast of the Dominican Republic and on islas Catalina, Catalinita, and Saona. The range was illustrated in Cochran (1941), Schwartz (1967), and Schwartz and Henderson



**MAP.** Distribution of *Leiocephalus lunatus* (modified from Schwartz and Henderson 1991). Circles mark type-localities, dots indicate other records, and question marks denote records of populations that have not been assigned to subspecies.

(1991).

• **FOSSIL RECORD.** None.

• **PERTINENT LITERATURE.** In addition to the primarily systematic publications cited elsewhere, Gifford (2005) discussed ecology and conservation issues and Gali and Schwartz (1982) provided a brief ecological and biogeographical comparison with *L. personatus*. Henderson and Binder (1980) and Henderson et al. (1987) noted predation by *Uromacer catesbyi*, Schwartz and Henderson (1991) and Henderson and Powell (2009) provided summaries of natural history, Gifford and Powell (2007) described sexual size dimorphism and reproductive characteristics, Fitch (1981) noted sexual size dimorphism, and Lang (1989) and Hass et al. (2001) utilized this species in phylogenetic analyses.

The species is included in checklists, guides, and keys by Barbour (1935, 1937), Böker (1939), Etheridge (1966), Grant (1956), Henderson and Schwartz (1984), Henderson et al. (1984), MacLean et al. (1977), Marx (1958), Mertens (1938a, 1938b), Powell (1993), Powell et al. (1996, 1999), Schwartz (1968, 1980), Schwartz and Henderson (1988), Schwartz and Thomas (1975), SEA/DVS (1990, 1992), and Frank and Ramus (1995).

• **REMARKS.** Cochran (1941) and Schwartz (1967) indicated that *Leiocephalus lunatus* was part of the *L. personatus* complex, but Pregill (1992) found no evidence to support the recognition of this group, although *L. lunatus* and *L. personatus* are sister species.

• **ETYMOLOGY.** The name *lunatus* is from the Latin (= crescent or half-moon), presumably in reference to the crescent-shaped shoulder patches; *arenicolor* is from the Latin (= sand-color), presumably in reference to the sandy dorsal color in this subspecies; *lewisi* is a patronym honoring J.K. Lewis, who collected some of the paratypes of this subspecies; *louisae* is a matronym honoring Miss Louisa Bowditch Barbour (Cochran 1934b), Thomas Barbour's daughter and a member of the Utowana Expedition; *melaenacellis* is from the Greek ΜΕΛΑΝΟΣ and ΚΕΛΙΣ (= black spot), presumably in reference to the very prominent black nuchal and shoulder patch in this subspecies; *thomasi* is a patronym, presumably honoring Richard Thomas, friend and field companion of Albert Schwartz.

1. *Leiocephalus lunatus lunatus* Cochran

*Leiocephalus personatus lunatus* Cochran 1934a: 153. See species synonymy.

*Leiocephalus lunatus lunatus*: Schwartz 1967:24.

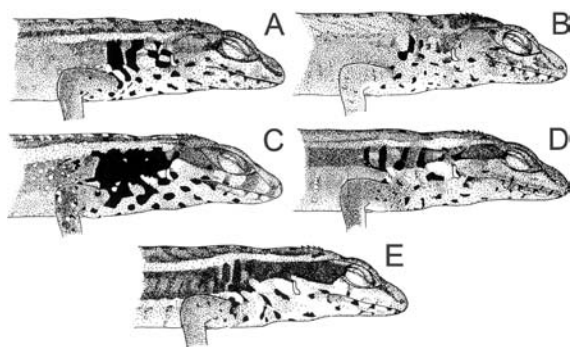
• **DEFINITION.** This subspecies is characterized by the following combination of characters (Schwartz 1967, N = 28): large size (males to 67 mm SVL, females to 55 mm), high mean number of loreals (4.7), and modally 4 median head shields. Dorsal coloration (in males) is tan to brown, often dotted with yellow; dorsolateral lines creamy and prominent; usually 1 nuchal and 1 scapular bar; lateral nuchal and scapular patches large, extensive, and black; throat white to gray with large more-or-less equally sized black spots extending onto the chest; ventral ground color variable, ranging from white and creamy to tan or extremely pale translucent green, or with pale lavender on the sides of the belly.

2. *Leiocephalus lunatus arenicolor* Mertens

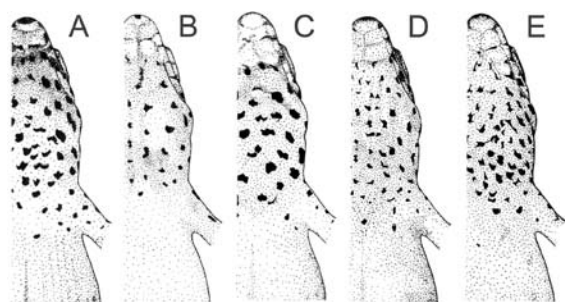
*Leiocephalus personatus arenicolor* Mertens 1939: 48. Type-locality, "Sandstrand bei San Pedro de Macoris [sandy beach at San Pedro de Macoris]," Dominican Republic. Holotype, Forschungsinstitut und Naturmuseum Senckenberg, Frankfurt/Main (SMF) 25715, an adult male, collected by R. Mertens on 9 March 1939 (not examined by authors).

*Leiocephalus lunatus arenicolor*: Schwartz 1967:27.

• **DEFINITION.** This subspecies is characterized by the following combination of characters (Schwartz 1967, N = 62): large size (males to 65 mm SVL, females to 53 mm), high mean number of loreals (4.5), and modally 4 median head shields. Dorsal coloration (in males) is sandy to tan, often with a bronze sheen or creamy flecks; dorsolateral lines faint (dorsum almost unicolored) to white, grayish sandy, or buffy; at times with one nuchal and one scapular transverse bar, but these usually are absent or reduced to a series of dark dots on the dorsal crest scales; lateral nuchal and scapular patches restricted and some



**FIGURE 2.** Lateral views of head and neck of *Leiocephalus lunatus lunatus* (A), *L. l. arenicolor* (B), *L. l. melaenacelis* (C), *L. l. thomasi* (D), and *L. l. louisae* (E) (from Schwartz 1967).



**FIGURE 3.** Ventral views of throats of males of *Leiocephalus lunatus lunatus* (A), *L. l. arenicolor* (B), *L. l. melaenacelis* (C), *L. l. thomasi* (D), and *L. l. louisae* (E) (from Schwartz 1967).

times absent; throat white to gray with relatively few black dots of unequal size, sometimes entirely absent and rarely extending onto the chest; ventral ground color white, pale yellowish-green, pale buffy or creamy, with the sides of the belly lavender-gray.

### 3. *Leiocephalus lunatus lewisi* Schwartz

*Leiocephalus lunatus lewisi* Schwartz 1969:80. Type-locality, "0.9 km E Boca Chica, Distrito Nacional, República Dominicana." Holotype, Carnegie Museum of Natural History (CM) 45867, an adult male, one of a series collected by R.F. Klinikowski, D.C. Leber, and R. Thomas on 23 August 1963 (not examined by authors).

• **DEFINITION.** This subspecies is characterized by the following combination of characters (Schwartz 1969, N = 55): large size (males to 67 mm SVL, females to 55 mm), high mean number of loreals (4.7), and modally 4 median head shields. Dorsal coloration (in males) is tan to brown, often dotted with yellow; dorsolateral lines creamy and prominent; usually at least 1 black nuchal and scapular transverse bar; lateral nuchal/shoulder patches small and divided; throat white to gray with large, more-or-less uniformly sized black spots that extend onto the chest; ventral ground color variable, from white and creamy to tan,

extremely pale translucent green, or with lavender on the sides of the belly.

### 4. *Leiocephalus lunatus louisiae* Cochran

*Leiocephalus personatus louisiae* Cochran 1934b: 177. Type-locality, "Saona Island, Dominican Republic." Holotype, Museum of Comparative Zoology (MCZ) 37551, an adult male, collected by the Utowana Expedition on 8 April 1934 (not examined by authors).

*Leiocephalus lunatus louisiae*: Schwartz 1969:32.

• **DEFINITION.** This subspecies is characterized by the following combination of characters (Schwartz 1967, N = 18): small size (males to 57 mm SVL, females to 50 mm), low mean number of loreals (3.9), and modally 4 median head shields. Dorsal coloration (in males) is dark gray, usually with chevrons; dorso-lateral lines white or creamy; lateral nuchal and scapular patches variable, but usually restricted and often indistinguishable anteriorly from the dark gray to brown sides; throat white to faint greenish with either very tiny or large discrete spots that extend onto the chest; ventral ground color pale yellow-green; hindlimbs tan and usually unspotted.

### 5. *Leiocephalus lunatus melaenacelis* Schwartz

*Leiocephalus lunatus melaenacelis* Schwartz 1967: 29. Type-locality, "... western end, Isla Catalina, La Romana Province, República Dominicana." Holotype, Museum of Comparative Zoology (MCZ) 81096, an adult male, one of a series collected by D.C. Leber, R.F. Klinikowski, A. Schwartz, and R. Thomas on 20 August 1963 (not examined by authors).

• **DEFINITION.** This subspecies is characterized by the following combination of characters (Schwartz 1967, N = 17): size moderate (males to 61 mm SVL, females to 60 mm), high mean number of loreals (4.4), and modally 4 or 5 median head shields. Dorsal coloration (in males) is tan to grayish-brown, with very prominent gray to buffy dorsolateral lines; nuchal and scapular transverse bars are present in adults; lateral nuchal and scapular patches large and jet-black; throat white to pale gray with relatively few large black spots that extend onto the chest; ventral ground color pale yellow with lavender sides; upper surfaces of hindlimbs tan and spotted with dark brown and cream; tail is bright orange above.

### 6. *Leiocephalus lunatus thomasi* Schwartz

*Leiocephalus lunatus thomasi* Schwartz 1967:31. Type-locality, "0.5 mi. (0.8 km) NW Boca de Yuma, La Romana Province [La Altagracia Province], República Dominicana." Holotype, Museum of Comparative Zoology (MCZ) 81097, an adult male, one of a series collected by A. Schwartz on 30 August 1963 (not examined by authors).

• **DEFINITION.** This subspecies is characterized by the following combination of characters (Schwartz 1967, N = 52): large size (males to 66 mm SVL, females to 55 mm), low mean number of loreals (3.8), and modally 4 median head shields. Dorsal coloration (in males) is grayish-tan and often chevronate; bold buffy dorsolateral lines are present; black nuchal and scapular transverse bars are present; the lateral nuchal/shoulder patches are bold and black, but often indistinct due to dark reddish-brown sides; the throat is greenish-white to pale yellowish with a few scattered large black spots that vary in size; the ventral ground color is pale greenish; the upper surfaces of the hindlimbs tan and with scattered dark brown and pale tan scales; the tail is brownish-orange above.

### LITERATURE CITED

- Barbour, T. 1935. A second list of Antillean reptiles and amphibians. *Zoologica (New York)* 19:77–141.
- . 1937. Third list of Antillean reptiles and amphibians. *Bull. Mus. Comp. Zoöl.* 82:77–166.
- Böker, H. 1939. Über einige Ergebnisse meiner Forschungen am Deutsch-Dominikanischen Tropenforschungsinstitut. Sobre algunos resultados de mis investigaciones in el Instituto Científico Dominicano-Alemán. Veröffentlichungen des Deutsch-Dominikanischen Tropenforschungsinstituts (Publicaciones del Instituto Científico Dominicano-Alemán) (1):14–77 + plates II–XI.
- Cochran, D.M. 1934a. A new lizard, *Leiocephalus personatus lunatus*, from the Dominican Republic. *Occas. Pap. Boston Soc. Nat. Hist.* 8:153–156.
- . 1934b. Herpetological collections made in Hispaniola by the Utowana Expedition, 1934. *Occas. Pap. Boston Soc. Nat. Hist.* 8:163–188.
- . 1941. The herpetology of Hispaniola. *Bull. U. S. Natl. Mus.* (177):vii + 398 p.
- Etheridge, R. 1966. The systematic relationships of West Indian and South American lizards referred to the iguanid genus *Leiocephalus*. *Copeia* 1966: 79–91.
- Fernández, E. 2007. Hispaniola. A Photographic Journey Through Island Biodiversity. Biodiversidad a Través de un Recorrido Fotográfico. Harvard Univ. Press, Cambridge, Massachusetts.
- Fitch, H.S. 1981. Sexual size differences in reptiles. *Univ. Kansas Mus. Nat. Hist. Misc. Publ.* (70):1–72.
- Frank, N. and E. Ramus. 1995. A Complete Guide to Scientific and Common Names of Reptiles and Amphibians of the World. N G Publ., Inc., Pottsville, Pennsylvania.
- Gali, F. and A. Schwartz. 1982. A new subspecies of *Leiocephalus personatus* from the República Dominicana. *J. Herpetol.* 16:177–179.
- Gifford, M.E. 2005. Ecotones and hybrid zones: implications for conservation illustrated by ground-dwelling lizards from Hispaniola. *Iguana* 12:235–239.
- and R. Powell. 2007. Sexual dimorphism and reproductive characteristics in five species of *Leiocephalus* lizards from the Dominican Republic. *J. Herpetol.* 41:521–527.
- Grant, C. 1956. Report on a collection of Hispaniolan reptiles. *Herpetologica* 12:85–90.
- Hass, C.A., L.R. Maxson, and S.B. Hedges. 2001. Relationships and divergence times of West Indian amphibians and reptiles: Insights from albumin immunology, p. 157–174. In C.A. Woods and F.E. Sergile (eds.), *Biogeography of the West Indies: Patterns and Perspectives*. CRC Press, Boca Raton, Florida.
- Henderson, R.W. and M. H. Binder. 1980. The ecology and behavior of vine snakes (*Ahaetulla*, *Oxybelis*, *Thelotornis*, *Uromacer*): A review. *Milwaukee Pub. Mus. Contrib. Biol. Geol.* (37):1–38.
- Henderson, R.W. and R. Powell. 2009. *Natural History of West Indian Reptiles and Amphibians*. Univ. Press Florida, Gainesville.
- and A. Schwartz. 1984. A guide to the identification of the amphibians and reptiles of Hispaniola. *Milwaukee Pub. Mus. Spec. Publ. Biol. Geol.* (4):1–70.
- , —, and S.J. Incháustegui. 1984. Guía para la identificación de los anfibios y reptiles de la Hispaniola. *Mus. Nac. Hist. Nat. Ser. Monogr.* (1):1–128.
- , —, and T.A. Noeske-Hallin. 1987. Food habits of three colubrid tree snakes (genus *Uromacer*) on Hispaniola. *Herpetologica* 43:241–248.
- Lang, M. 1989. Phylogenetic and biogeographic patterns of basiliscine iguanians (Reptilia: Squamata: "Iguanidae"). *Bonn. Zool. Monogr.* (28):1–172.
- MacLean, W.P., R. Kellner, and H. Dennis. 1977. Island lists of West Indian amphibians and reptiles. *Smithson. Herpetol. Info. Serv.* (40):1–47.
- Marx, H. 1958. Catalogue of type specimens of reptiles and amphibians in Chicago Natural History Museum. *Fieldiana Zool.* 36:409–496.
- Mertens, R. 1938a. Amphibien und Reptilien aus Santo Domingo, gesammelt von Prof. Dr. H. Böker. *Senckenbergiana* 20:332–342.
- . 1938b. Anfibios y reptiles de Santo Domingo coleccionados por el Prof. H. Böker. *Veröffentlichungen des Deutsch-Dominikanischen Tropenforschungsinstituts (Publicaciones del Instituto Científico Dominicano-Alemán)* (1):82–95.
- . 1939. Herpetologische Ergebnisse einer Reise nach der Insel Hispaniola, Westindien. *Abh. Senckenberg. Naturf. Gesell.* (449):1–84 + 10 plates.
- Powell, R. 1993. Comments on the taxonomic arrangement of some Hispaniolan amphibians and reptiles. *Herpetol. Rev.* 24:135–137.
- , R.W. Henderson, K. Adler, and H.A. Dundee. 1996. An annotated checklist of West Indian amphibians and reptiles, p. 51–93 + 8 pl. In R. Powell and R.W. Henderson (eds.), *Contributions to West Indian Herpetology: A Tribute to Albert Schwartz*. SSAR Contrib. Herpetol. (12), Ithaca, New York.
- , J.A. Ottenwalder, and S.J. Incháustegui. 1999. The Hispaniolan herpetofauna: Diversity, endemism, and historical perspectives, with comments

- on Navassa Island, p. 93–168. *In* B.I Crother (ed.), *Caribbean Amphibians and Reptiles*. Academic Press, San Diego.
- Pregill, G.K. 1992. Systematics of the West Indian lizard genus *Leiocephalus* (Squamata: Iguania: Tropiduridae). *Univ. Kansas Mus. Nat. Hist. Misc. Publ.* (84):1–69.
- Schwartz, A. 1967. The *Leiocephalus* (Lacertilia, Iguanidae) of Hispaniola. II. The *Leiocephalus personatus* complex. *Tulane Stud. Zool.* 14:1–53.
- . 1968. The *Leiocephalus* (Lacertilia, Iguanidae) of Hispaniola. III. *Leiocephalus schreibersi*, *L. semi-lineatus*, and *L. pratensis*. *J. Herpetol.* 1:39–63.
- . 1969. Two new subspecies of *Leiocephalus* from Hispaniola. *J. Herpetol.* 3:79–85.
- . 1980. The herpetogeography of Hispaniola, West Indies. *Stud. Fauna Curaçao Carib. Isl.* 61:86–127.
- and R.W. Henderson. 1988. West Indian amphibians and reptiles: A check-list. *Milwaukee Pub. Mus. Contrib. Biol. Geol.* (74):1–264.
- and —. 1991. *Amphibians and Reptiles of the West Indies: Descriptions, Distributions, and Natural History*. Univ. Florida Press, Gainesville.
- and R. Thomas. 1975. A check-list of West Indian amphibians and reptiles. *Carnegie Mus. Nat. Hist. Spec. Publ.* (1):1–216.
- SEA/DVS (Secretaría de Estado de Agricultura/Departamento de Vida Silvestre). 1990. La diversidad biológica en la República Dominicana: reporte preparado por el Departamento de Vida Silvestre para el Servicio Alemán de Cooperación Social-Técnica y Fondo Mundial para la Naturaleza (WWF-US). Apendices. Secretaría de Estado de Agricultura, SURENA/DVS. Sto. Domingo, República Dominicana.
- . 1992. Reconocimiento y evaluación de los recursos naturales de la Zona Costera del Este. Secretaría de Estado de Agricultura, Departamento de Vida Silvestre. Santo Domingo, República Dominicana.

---

**Robert Powell**, Department of Biology, Avila University, Kansas City, MO 64145, USA (robert.powell@avila.edu) and **Matthew E. Gifford**, Bell Museum of Natural History, University of Minnesota, Saint Paul, MN 55108, USA (giffo031@umn.edu).

Primary editor for this account, Andrew H. Price.

Published 15 January 2010 and Copyright © 2010 by the Society for the Study of Amphibians and Reptiles.

---