



## A review of the biology and literature of the Gulf Coast Toad (*Incilius nebulifer*), native to Mexico and the United States

JOSEPH R. MENDELSON III<sup>1,2,5</sup>, CHASE. T. KINSEY<sup>3</sup> & JAMES. B. MURPHY<sup>4</sup>

<sup>1</sup>Zoo Atlanta, Atlanta, GA, 30312, USA

<sup>2</sup>School of Biology, Georgia Institute of Technology, Atlanta, GA, 30332, USA

<sup>3</sup>School of Forestry and Wildlife, Auburn University, Auburn, AL, 36849, USA

<sup>4</sup>Division of Amphibians and Reptiles, Smithsonian Institution, Washington, DC, 20013 USA

<sup>5</sup>Corresponding author. E-mail: [jmendelson@zoatlanta.org](mailto:jmendelson@zoatlanta.org)

### Abstract

The Gulf Coast Toad (*Incilius nebulifer*) is an abundant and widespread species within its range in the United States and Mexico, so it appears on many faunal checklists and is considered in diverse kinds of research. We review the basic biology, distribution, and published history of this species, identifying only those records and publications referable to *I. nebulifer*, to help researchers identify published works pertaining to *I. nebulifer* rather than *I. valliceps*, with which it formerly was considered to be conspecific.

**Key words:** Amphibia, Anura, Bufonidae, *Incilius nebulifer*, Gulf Coast Toad, Mexico, United States

### Introduction

*Incilius nebulifer* (Girard, 1854; Fig. 1), the Gulf Coast Toad, is an abundant species within its range in the United States and Mexico, appearing in many faunal checklists. It is considered in many ecological studies and is the basis for a large number of other research studies in fields such as physiology. Of especial importance is the large number of dissertations and publications involving *I. nebulifer* and/or *I. valliceps* emanating from the productive laboratory of W. F. Blair at the University of Texas during the 1950s–1960s, all of which are presented under the single taxon *Bufo valliceps*. Mulcahy & Mendelson (2000) removed *I. nebulifer* from the synonymy of the abundant Mesoamerican species *I. valliceps* (Wiegmann 1833), but for the majority their taxonomic histories *I. nebulifer* and *I. valliceps* have been considered conspecific. Further, the two species were variously referenced under the taxon *Bufo valliceps*; Frost *et al.* (2006) removed the taxon *nebulifer* from the genus *Bufo*, and it was eventually placed in the genus *Incilius* by Frost *et al.* (2009). Earlier reviews (e.g., Smith & Taylor 1948; Porter 1970), under the name *Bufo valliceps*, are difficult to interpret because they do not distinguish locality records or references referable specifically to either *I. nebulifer* or *I. valliceps*. All recent reviews (e.g., Dodd 2013; Lemos-Espinal & Smith 2007) are based on political boundaries and thus exclude records and references relevant to much of the wide geographic distribution of *I. nebulifer*. In this contribution we summarize the basic biology of *I. nebulifer*, present every geographic record of which we are aware and in which we have confidence, and summarize the publications referable specifically to *I. nebulifer*, regardless of how the taxonomy appears in the publication, across its entire range in both USA and Mexico.

### *Incilius nebulifer* (Girard, 1854)

Gulf Coast Toad

*Bufo granulosus* Baird & Girard, 1852:173. [Not of Spix, 1824]. Type-locality “between Indianola and San Antonio, Texas” [restricted to “Indianola, Calhoun County, Texas” by Schmidt, 1953:66.]. Holotype (fide Kellogg, 1932), United States

National Museum (USNM) 2595, age and sex unknown, collected by J. H. Clark in 1851, under the direction of survey leader J. D. Graham (not examined by authors) Fouquette & Dubois (2014) rejected the restriction of the type locality, claiming lack of published evidence.

*Bufo nebulifer* Girard, 1854:86, preoccupied by *Bufo granulosus* Spix, 1824

*Bufo nebulifera* Baird, 1859a:44.

*Chilophryne nebulifera* Cope, 1862:358.

*Incilius nebulifer* Cope, 1863:50.

*Bufo valliceps* Peters, 1863:81.

*Bufo nebulifer* Mendelson & Mulcahy, 2000:182

*Cranopsis nebulifer* Frost, Grant, Faivovich, Bain, Haas, Haddad, de Sá, Channing, Wilkinson, Donnellan, Raxworthy, Campbell, Blotto, Moler, Drewes, Lynch, Green & Wheeler, 2006:364.

*Ollotis nebulifer* Frost, Grant & Mendelson, 2006:558.

*Incilius nebulifer* Frost, Mendelson & Pramuk, 2009:418–419.

*Bufo (Incilius) nebulifer* Fouquette & Dubois, 2014:315.

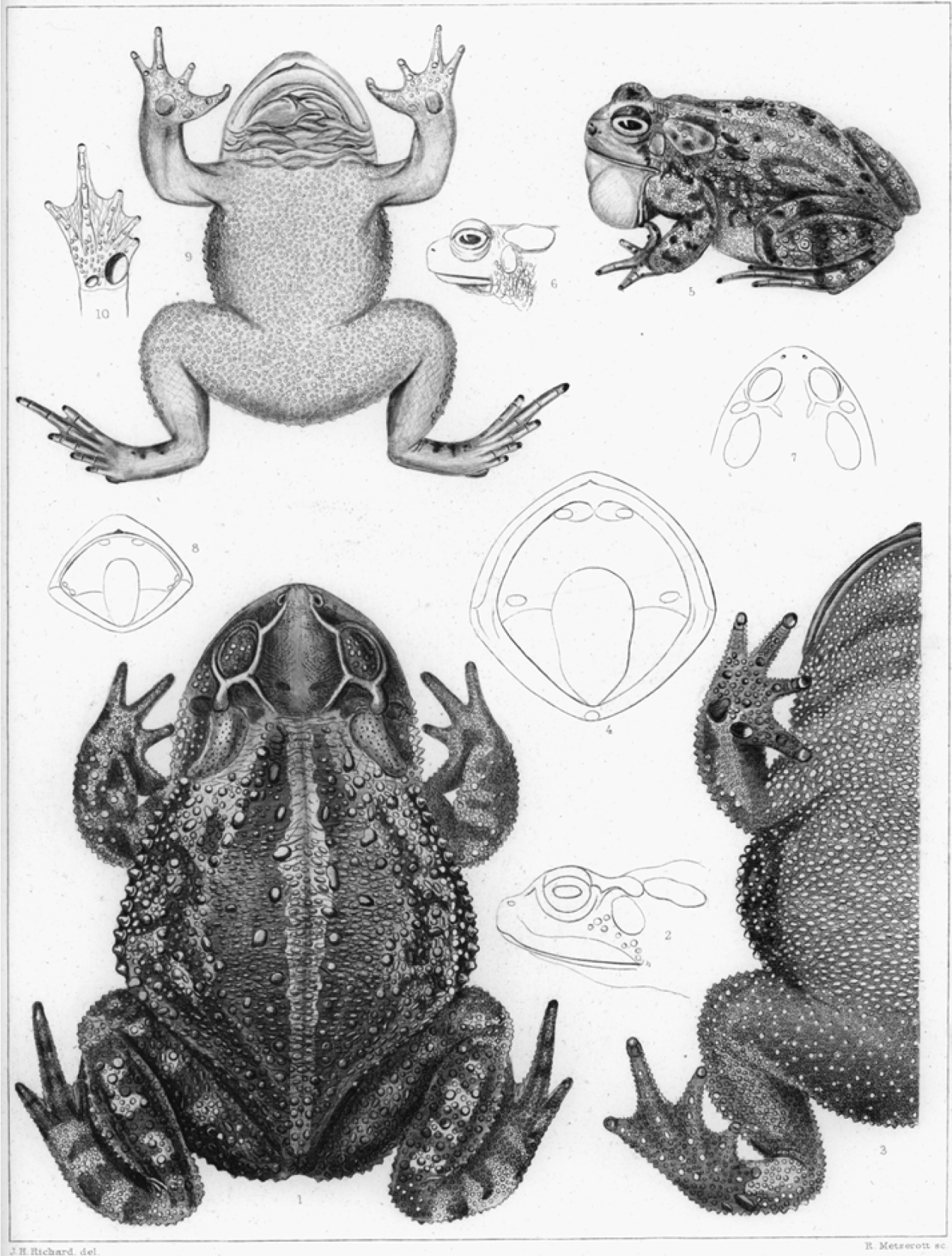
**Nomenclatural history.** This species was originally described as *Bufo granulosus* by Baird & Girard (1852) Girard (1854) provided the replacement name *Bufo nebulifer*; as the original name was preoccupied by *Bufo granulosus* Spix, 1824. Peters (1863) placed *B. nebulifer* in the synonymy of Mesoamerican species *Bufo valliceps* Wiegman, 1833, where it remained until Mulcahy & Mendelson (2000) showed that the two species were distinct. Frost *et al.* (2006a) suggested multiple taxonomic changes among New World bufonids, and referred the taxon *nebulifer* into *Cranopsis* Cope, 1875, which was shown by Frost *et al.* (2006b) to be preoccupied, so the taxon was referred to *Ollotis* Cope, 1875. *Ollotis* was found also to be unavailable, so *nebulifer* was finally referred to *Incilius* Cope, 1863, by Frost *et al.* (2009). Various English-language common names have been applied to this species, including Gulf Coast Toad, Coastal Plain Toad, Mexican Toad, Common Toad, and Nebulous Toad. Crother (2012) suggested the name Gulf Coast Toad, which is adopted here. Liner & Casas-Andreu (2008) suggested the standard Spanish name as *Sapo nebuloso*, but were consistent with Crother (2012) in suggesting the standard English name as Gulf Coast Toad.

**Definition.** *Incilius nebulifer* is a large toad, with adult females up to 125 mm and males to 98 mm SVL. The head is broad, with a complete complement of low, robust cranial crests. The snout is pointed in dorsal view, and rounded in profile. The tympanum is large (about 50% diameter of the eye). In males, the bilateral vocal slits are large and the *m. interhyoideus* forms a large, bilobed (anteroposteriorly), pigmented vocal sac that may be visible through the overlying gular skin. The skin is uniformly rough, with many evenly distributed sharply pointed tubercles. On the flanks a conspicuous lateral descending row of enlarged sharply pointed tubercles is evident. The ventral surfaces are granular, with unpointed tubercles. Ventral surfaces are usually uniform cream in color while dorsal surfaces are variable. In most individuals the dorsal pattern clearly shows a dark brown dorsal and dorsolateral background coloration, with a broad cream or yellow mid-dorsal stripe and paired dorsolateral stripes (usually ventral to the lateral row of tubercles) of a similar pale color. Variable pale brown or cream markings may be present, scattered across all dorsal surfaces. The tips of the digits are the same color as the remainder of the digit. The hands have short, robust fingers and lack webbing. The feet are long, with slender toes, being about half-webbed.

The larvae are small (attaining 20–25 mm total length) and appear, without magnification, to be nearly uniformly dark gray dorsally, with a series of conspicuous pale spots extending down the dorsal ridge of the tail. The caudal fins are tall and transparent, with some scattered melanophores and iridiophores. The ventrolateral surfaces and the ventral half of the caudal musculature are dark gray with densely distributed silvery iridiophores. The oral disc and the marginal papillae are small and the tooth row formula is 2(2)/3; the A-2 gap is broad, being about one third the length of the A-2 row. The beak is small and shallowly notched.

Advertisement call has a mean frequency of 1479–1785 and a mean pulse of 33.14–38.17 (corrected to 25°C; Porter 1964a).

**Diagnosis.** A large species of *Incilius* (males to 98 mm SVL, females to 125 mm SVL) with the full complement of cranial crests (canthal, supraorbital, supratympanic, postorbital, parietal, preorbital, pretympanic, and suborbital), none of which are hypertrophied to any considerable degree. The tympanum is large (about 50% diameter of the eye), and usually in contact with the pretympanic crest. The skin is rough, with many evenly distributed sharply pointed tubercles over all dorsal surfaces, and with a distinct lateral descending row of enlarged sharply pointed tubercles on the flanks. Tibial glands are absent. The vocal slits are large and bilateral. The parotoid glands are distinctly triangular or subtriangular in shape. The color pattern is remarkably invariable, with



**FIGURE 1.** A reprint of an engraving of *Incilius nebulifer* (original labelled as *Bufo nebulifer*) From Baird, S. F., 1859. Reptiles of the boundary. With notes by the naturalists of the Survey. Imprint: [Washington : s.n., 1859]. plate XL (40) called *Bufo nebulifer*, Grd. Figs. 1–4.



**FIGURE 2.** *Incilius nebulifer*, in life. An adult male photographed in the wild in Harris County, Texas, USA, by Matthijs Hollanders.



**FIGURE 3.** *Incilius nebulifer*, in life. A larval tadpole; image reproduced from Altig *et al.* (1998).

most individuals having dark brown dorsal and dorsolateral background coloration, with a broad cream or yellow mid-dorsal stripe and paired dorsolateral stripes (usually ventral to the lateral row of tubercles) of a similar pale color. No individuals show a distinctive “dead leaf” color pattern dorsally. The tips of the digits are of a similar color to the rest of the digit.

*Incilius nebulifer* is similar in appearance to *I. valliceps* from which it most easily is distinguished by having the dorsal coloration described above (Fig. 2), which is virtually absent in the otherwise polymorphic *I. valliceps*. The two species are parapatric about a geographic line crossing the Gulf Versant of Veracruz, Mexico, near the town of Palma Sola (Mulcahy *et al.* 2006). The tadpoles of *I. nebulifer* (Fig. 3) and *I. valliceps* are essentially indistinguishable, fitting the characters presented in the keys presented by Altig (1970), Altig *et al.* (1998), and

Mendelson *et al.* (1999)—all presented under the taxon *Bufo valliceps*. Hybridization between these two species has not been documented.

**Descriptions.** The original description, as *Bufo granulatus* by Baird & Girard (1852) provided perfunctory details focusing on the cranial crests and coloration. The subsequent taxonomic note (Girard 1854), replacing the preoccupied name *granulosus* with *Bufo nebulifer*, provided no additional morphological descriptions. Baird (1859) also presented a brief description. Cope (1889, as *B. valliceps*) provided a description that is consistent with that of *I. nebulifer* (rather than *I. valliceps*) and indeed it appears to be based mostly on material that is geographically referable to *I. nebulifer*; references to specimens therein that geographically are referable to *I. valliceps* are limited to the “Varieties” section of the account. Kellogg’s (1932, as *B. valliceps*) description is a composite representing specimens referable to both *I. nebulifer* and *I. valliceps*. Descriptions referable to *I. nebulifer* may be found in the following publications: Wright & Wright (1938; 1949; both as *B. valliceps*); Blair *et al.* (1957, as *B. valliceps*), Conant (1958; 1975; both as *B. valliceps*); Dickerson (1969, as *B. valliceps*), Cochran & Goin (1979), Smith (1978, as *B. valliceps*); Behler & King (1979, as *B. valliceps*); Garrett & Barker (1987, as *B. valliceps*); Branson (1995, as *B. valliceps*), Dundee *et al.* (1989, as *B. valliceps*); Conant & Collins (1998, as *B. valliceps*); Trauth *et al.* (2004, as *B. nebulifer*), Lemos-Espinal & Smith (2007, as *B. nebulifer*), Dorcas & Gibbons (2008, as *B. nebulifer*); Elliott, Gerhardt, & Davidson (2009, as *B. nebulifer/Ollotis nebulifer*), Oliver-López *et al.* (2009, as *Ollotis nebulifer*), Tipton *et al.* (2012), and Lemos-Epinal & Dixon (2013). Descriptions of metamorphic and juvenile individuals were provided by Greuter (2004). Descriptions of the tadpole (as *B. valliceps*) were presented by Wright (1929) and, in the form of dichotomous keys, were presented by Altig (1970), Altig *et al.* (1998), and Dodd (2013); Limbaugh & Volpe (1957) and Gosner (1960) described the tadpole through early development. Chromosomal information was presented by Cole *et al.* (1968), Bachman (1970), and Beck & Mahan (1979).

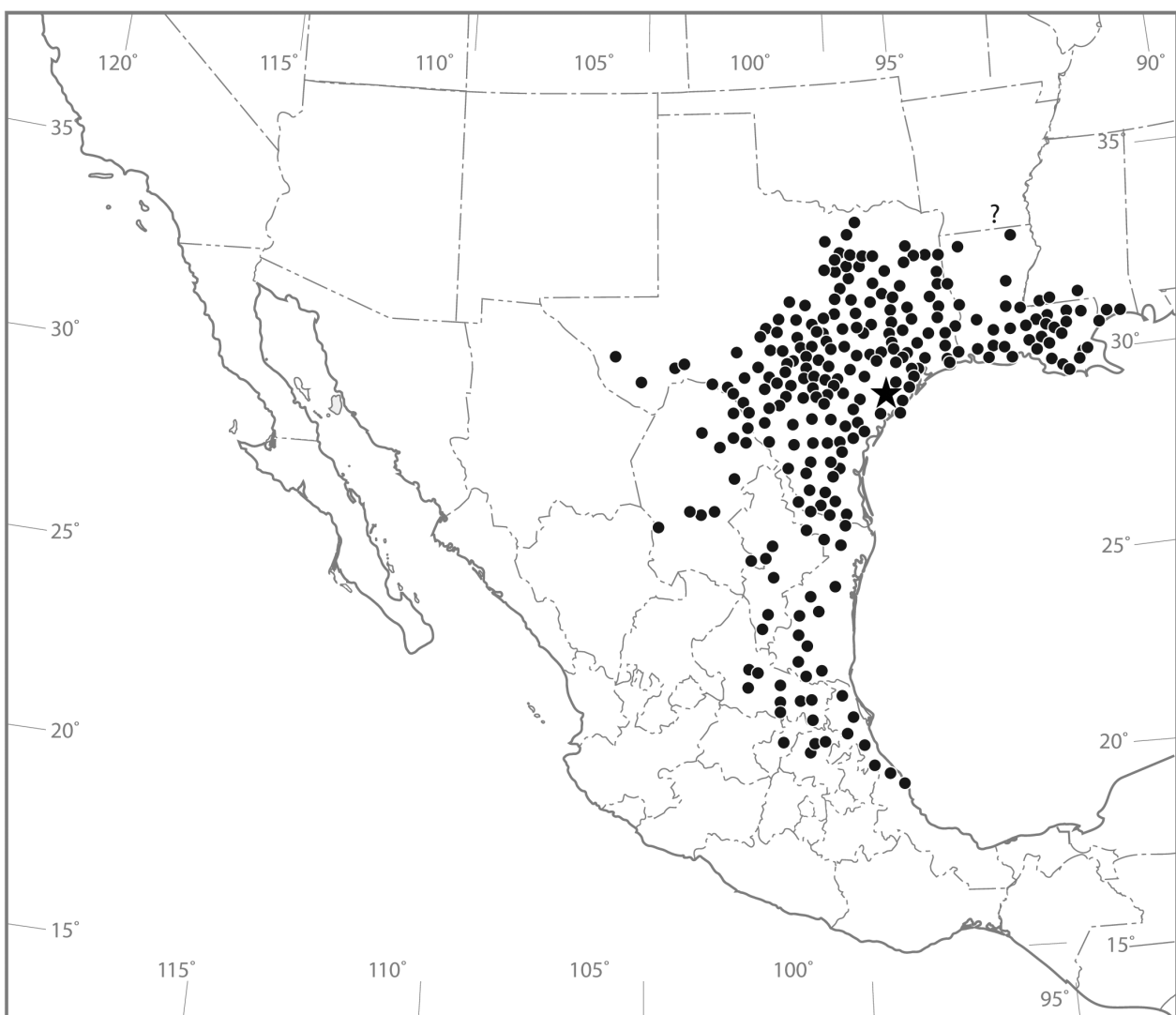
**Illustrations.** Illustrations appear in all of the references cited in “Descriptions” above except that of Baird & Girard (1852). The illustration in Cope (1889) is referable to *I. nebulifer*. Others published illustrations include Cochran (1961, as *B. valliceps*), Clark (1971, as *B. valliceps*), Blair (1972, as *B. valliceps*), Mattison (2007, as *B. nebulifer* and Waddle (2011, as *I. nebulifer*). Illustrations of several osteological elements, based on un-vouchered specimens(s) from San Luis Potosi, Mexico, were presented by Holman (2003). The drawing presented by Powell *et al.* (1998:fig. 58; as *B. valliceps*) is intended to refer to populations in USA (i.e., *I. nebulifer*) but in fact represents the Neotropical species *I. campbelli*; Lemos-Espinal & Dixon (2013:fig. 6) reprinted the same image to represent *I. nebulifer*.

**Fossil Record.** Holman (2003) reviewed published accounts of fossils referred to *B. cf. valliceps* and *B. valliceps* from Scurry County and Culberson County, Texas, USA, respectively. Both records are presumed to be referable to *I. nebulifer*, though both are extralimital with respect to the modern range of the species. The Scurry County record is from the Pliocene, and the Culberson County record is from the Pleistocene. Mulcahy & Mendelson (2000) posited a Miocene–Pliocene vicariant speciation event separating *I. nebulifer* and *I. valliceps* along the Caribbean Coast of modern-day Veracruz, Mexico, with subsequent Pleistocene dispersal of *I. nebulifer* northward into modern-day USA. This hypothesis is not entirely consistent with the fossil records from western Texas, USA. Holman (2003) in his review of North American anuran fossils states definitively the only fossil record of *I. valliceps* (= presumably *I. nebulifer*) is from Fowlkes Cave, Culberson County, Texas; thus he casts doubt on the validity of the Pliocene record from Scurry County, Texas.

**Remarks.** The town of Indianola, referenced in the type locality, no longer is recognized after being decimated by a series of hurricanes in the 1800s. It was located near the mouth of Matagorda Bay on the Gulf Coast of Calhoun County, Texas, USA, at approximately N 28° 30’, W 96° 29’. Despite the initial taxonomic misstep by Baird & Girard (1852) and the recent taxonomic changes of generic names for the clade of Mesoamerican bufonids (Frost *et al.* 2006a; 2006b; 2009), the species was referred consistently to as *B. valliceps* in all literature and taxonomic checklists (e.g., Gorham 1974) from the time of Cope (1863) until Mulcahy & Mendelson (2000). Consequently, the literature on this species is relatively simple to search and interpret, so long as the reader can determine the provenance of the material being discussed (i.e., USA and northern Mexico vs. southern Mexico and Central America). With this distinction in mind, the majority of the literature relating to ecology, behavior, and physiology that was published under the name *Incilius* (= *Bufo*) *valliceps* actually pertains to *I. nebulifer*. Note that Trauth *et al.* (2004) incorrectly listed Mulcahy & Mendelson as the authority for the taxon *nebulifer* when, in fact, it is Girard.

**Etymology.** The name *nebulifer* is derived from *nebula*, meaning “cloud” and “fer” meaning “bearing” and is in reference to the generally clouded color pattern of this species. The etymology provided by Dodd (2013), for the taxon *nebulifer*, is incorrect.

**Distribution.** We present a map of locality records in Fig. 4. Consideration of the distribution of *I. nebulifer* suggests that it is limited at its southern extent by the seemingly minimal eastern tail of the Trans-Mexican Volcanic Axis (Mulcay *et al.* 2006), whereas it appears to be capitalizing upon human habitat disturbance and actively expanding its distribution eastward in the United States (Vogel and Pechman 2010; Milko 2012). Presumably, the northern distributional limit is delimited by winter temperatures, although the species does occur in areas known to experience hard freezes. Similarly, it appears that the western distributional limits are contained by the cooler conditions on the uplift of the Sierra Madre Oriental in Mexico. In USA and extreme northern Mexico, the distributional pattern appears to follow permanent drainages in the Chihuahuan Desert, suggesting that aridity plays a factor in delimiting the range in this area. However, none of these hypotheses regarding physiological effects of low temperatures and dryness as factors limiting the distribution have been explicitly tested.



**MAP.** The distribution of *Incilius nebulifer*. Dots indicate locality records. The approximate location of the type locality is indicated with a star. Question mark indicates a valid specimen record that likely does not represent a natural, nor established, population (see text).

Distributional notes were presented by Hallowell (1856), Baird (1859), Garman (1887), Cope (1888), Strecker (1902), Stone (1903), Gadow (1905), Strecker (1908a,b; 1909; 1926a–d), Sanders (1909), Strecker (1926a–c),

Strecker & Williams (1927), Strecker (1928), Burt & Burt (1929), Strecker (1930), Burt (1935), Strecker & Johnson (1935), Schmidt & Owens (1944), Smith & Buechner (1947), Smith (1948), Blair (1950), Brown (1950), Milstead *et al.* (1950), Peterson (1950), Reese & Firschein (1950), Anderson *et al.* (1952), Smith & Sanders (1952), Raun (1959), Milstead (1960), Webb & Packer (1961), Lewis (1974), Conant (1977), Carl (1980), Rackowitz *et al.* (1983), Thornton & Smith (1993), Blair *et al.* (1995), McAllister & Ward (1986), Fleet & Aubrey (1997), Ramírez-Bautista (1999), Dixon (2000), Dayton *et al.* (2001), Johnson (2002), Gifford & Fontenot (2003), Hibbitts *et al.* (2008), Price (2009), Lazcano *et al.* (2012), Dixon & Hibbitts (2013), Farr *et al.* (2013), and Maxwell (2013).

Although this species is listed in most literature and field guides (e.g., Conant & Collins 1998; Dorcas & Gibbons 2008) as occurring in the state of Arkansas, USA, Trauth *et al.* (2004) reported that the occurrence in that state is based on but a single record (first reported by Smith & Langebartel (1949) near Calion, Union County, Arkansas; no additional records have been found. While Trauth *et al.* (2004) continued to list the species as part of the fauna of Arkansas, it seems unlikely that a viable population ever existed within the boundaries of Arkansas; that record is indicated on the map herein, but is not considered as part of the natural range of the species. A geographically proximal record, from Morehouse Parish, Louisiana, USA, is based on a specimen in the University of Louisiana at Monroe (ULM 16976) and does appear to be properly identified (J. L. Carr, pers. comm.); we have no information to discredit the validity of its locality data. However, we agree with J. Boundy (pers. comm.) that the natural northern boundary of *I. nebulifer* in Louisiana appears to lie in the lower Red River Valley, in Rapides Parish. The locality mapped by Dundee *et al.* (1989) for Richland Parish is not based on an extant voucher specimen (J. Boundy, pers. comm.); so, we do not include that record here. Given the proximity of Caddo Parish, in northwestern Louisiana, to known records in adjacent counties in northeastern Texas gives us a somewhat objective reason to predict the presence of the species in northeastern Texas, despite the apparent lack of records. Specimens mapped from Jones County, Mississippi, USA (Mendelson, *in* Lannoo 2005) are based on specimens at the University of Southern Mississippi that have highly suspect locality data (R. L. Jones, pers. comm.); based on this information, we discount records from that county.

In the western extreme of its distribution, in the Chihuahuan Desert, *I. nebulifer* appears to be restricted to the primary watercourses draining into either basins or into the Rio Grande that forms the US–Mexican border. In Mexico, Lemos-Espinal *et al.* (2004) do not list this species, under any taxonomic name from the State of Chihuahua; based on records of species in drainages into the Rio Grande in Texas, USA, we suspect this species will be found in similar drainages in Chihuahua, Mexico. Espino de Castillo *et al.* (2009) mention a toad they refer to *Incilius valliceps* from Los Riscos cave, in the State of Querétaro, but with no mention of voucher specimens; we do not include this record on the map presented here.

**Biology of The Gulf Coast Toad.** The catalogue account for *Bufo valliceps* (Porter, 1970), as well as Porter's (1962; 1964a–c) overall concept of the species, is a composite of *I. nebulifer*, *I. valliceps*, and additional species of *Incilius* (Mendelson 1998); however, those records and literature cited that pertain to specimens from the currently known range of *I. nebulifer* are valid for this latter species.

**Morphology.** Morphological descriptions and analyses of morphological data were presented by Bauldauf (1958), McAlister (1961), W. Martin (1967; 1971), R. Martin (1972a,b), Martin & Gans (1972), Gans (1973), Emerson (1982), Hutchinson & Savitzky (2004) R. Martin (1972b). The analyses of sternal morphology and inguinal fat body organs by da Silva & Mendelson (1999) included specimens referable both to *I. nebulifer* and *I. valliceps*, however no differences in these structures are evident between the two species (Mendelson *et al.* 2011). The osteological review provided by Martin (1973) is problematic because it was based on specimens referable to *I. nebulifer*, but also included a skeletal specimen identified as *Bufo valliceps* (the specimen in Martin 1973:fig. 2D is TNHC 41994; T. LaDuc, *in litt.*); this specimen bears the locality data “Mexico: Sinaloa” which is greatly extralimital for the either *I. nebulifer* or *I. valliceps*. Blair (1962; 1970) discussed the importance of various types of data to inform understanding of this species, with respect to other bufonids. Cytological comparisons with other bufonid species were presented by Sanders & Cross (1964). A morphologically anomalous specimen was described by Freed (1992) and larval deformities by Drake *et al.* (2007). Effects of long-term preservation on specimens were reported by Deichmann *et al.* (2009).

**Reproduction, development, and hybridization.** Various aspects of the reproductive biology, including the advertisement calls, of *I. nebulifer* have been documented by A. P. Blair (1947), Wright & Wright (1949), Duran (1954), Martin (1958), W. F. Blair (1956a; 1960a), Thornton (1960), Awbrey (1963), Porter (1964a), Hubbs &

Martin (1967), Grubb (1970, 1973a), W. Martin (1972), Wiest (1982), Sullivan & Wagner (1988), Dundee *et al.* (1989), Ryan & Sullivan (1989), Branson (1995), Wagner & Sullivan (1992; 1995), Foley (1994), Greuter (2004), Lannoo *et al.* (2005), Salinas (2009), Jones & Ratnam (2009), Pierce & Hall (2012), and Oyervides & Zaidan (2013). Development, metamorphosis, and ontogeny and factors affecting them have been documented by Taylor (1942), Wright & Wright (1949), Volpe (1957), Limbaugh (1956), Limbaugh & Volpe (1957), Conant (1958, 1975); Blair (1953; 1956b; 1960a; 1963), Turner (1960, 1962), Hubbs *et al.* (1963), Ballinger & McKinney (1966), Yew (1966; 1969), Licht (1967), Grubb (1973b), Dundee *et al.* (1989), Pierce & Montgomery (1989), Nelson (1993), Rosenberg (1990), Rosenberg & Pierce (1995), and Conant & Collins (1998). Various aspects of hybridization with other anurans have been discussed by Blair (1941), Orton (1951), Liner (1954), Thornton (1954, 1955), A. P. Blair (1941), W. G. Blair (1956b; 1958; 1959; 1960a; 1961b; 1963; 1964; 1966; 1972), Moore (1955), Volpe (1956; 1959; 1960), Gosner & Black (1958), Fox *et al.* (1961), Kennedy (1962), Brown (1971a, b), Guttman (1972), Brown & Brownell (1971), Brownell (1971), Sanders (1978; 1985; 1986), Hillis *et al.* (1984), Dundee *et al.* (1989), Greuter (2004), Brown & Mesrobian (2005), Mulcahy *et al.* (2006), and Mendelson *et al.* (2011). This older literature regarding hybridization must be interpreted in the context of the taxonomic separation of *I. nebulifer* and *I. valliceps* by Mulcahy & Mendelson (2000), and also in the context of the re-analyses of data from the laboratory of W. F. Blair presented by (2008) and subsequently re-analyzed by Brandvain *et al.* (2014). Additional, recent, studies of hybridization were presented by Vogel (2007) and Vogel & Johnson (2008).

**Habitat use.** Habitat use by the adults has been discussed by Pope (1919), Wright & Wright (1949), Thornton (1960), Awbrey (1963), Brattstrom (1963), Wilks (1963), Grubb (1968, 1970), Neill & Grubb (1971), Grubb (1976), Moore (1976), Whiting *et al.* (1987), Dundee *et al.* (1989), McAllister *et al.* (1989), Foley (1994), Reid & Whiting (1994), Irwin (1997), Mendelson (1998), Mulcahy & Mendelson (2000), Means (2005), Mulcahy *et al.* (2006), Lemos-Espinal & Smith (2007), Vogel & Johnson (2008), Salinas (2009), Oliver-López *et al.* (2009), Gehlbach (2010), Walls *et al.* (2011), Hernández-Salinas *et al.* (2012), and Milko (2012). Associations with caves has been reported by Mohr (1948), McAlister (1954), Baker (1957), Redell & Knox (1962), Redell & Finch (1963), and Reddell (1970). Specific associations with saltwater were documented by Viosca (1926), Allen (1932), Burger *et al.* (1949), reviewed by Neill (1958), Mueller (1985), Alexander *et al.* (2012) and Hua & Pierce (2013). Responses to fire were reported by Brown *et al.* (2011; 2014). Potential effects of exposure to introduced plant species were reported by Cotton (2009) and Cotten *et al.* (2013).

**Community ecology.** Feeding ecology has been documented by Strecker (1927a), Campbell & Davis (1968), Clark (1969), and McGehee *et al.* (2001). Predators and possible antipredator mechanisms have been documented by Strecker (1927b), Wright & Wright (1949), Licht (1968), Neill (1968a,b), Grubb (1972), Clark (1974), Brown (1974), Platt & Fontenot (1993), Tucker (1994), Adams (2005), and Mendelson (2005). Palatability of the tadpoles was tested by Adams *et al.* (2011). Parasites have been reported by Walton (1929), Harwood (1930), Hoffpauir & Morrison (1966), McAllister *et al.* (1989), McAllister & Donn (1990), and Martin & Dresser (1991). Pathogens were reported by Gaertner *et al.* (2010), and Saenz *et al.* (2010). Interspecific associations with other anurans have been discussed by Glass (1946), Wright & Wright (1949), Axtell (1958), Blair (1961a), James (1966), Moore (1976), Gambs & Littlejohn (1979), Foley (2005), Mitchell & Lannoo (2005a,b), Schwalbe & Goldberg (2005), Franklin & Killpack (2005), Sredl (2005), Sredl & Field (2005), Sullivan (2005), Wallace (2005), Vogel & Pechmann (2010), and Preston *et al.* (2014). Associations with other species caught in traps with this species were reported by Blair (1960b). Population trends were discussed by Boundy (2005). Camper & Dixon (1988) evaluated a microchip marking technology in the species. Road and industrial mortality was reported by Flickinger (1981) and Ray *et al.* (2006); road mortality and scavenging by *Thamnophis proximus* was reported by Watson (2007).

**Physiology and behavior.** Various aspects of the physiological parameters and responses in this species have been presented by Morgan & Stokes (1936), Svedberg & Hedenius (1934), Sanders (1962), Wittliff (1964), Campbell & Davis (1971), Guttman (1974), Withers (1978), Prasad *et al.* (1984), Wygoda (1989), Williams (1992), Williams & Wygoda (1993), Verma & Pierce (1994), Moore (1997), and Rowson *et al.* (2001). Veterinary protocols were presented by Brannelly *et al.* (2012) and Brannelly (2014) and notes on captive care were provided by Walsh *et al.* (1992). Phototactic responses were presented by Jaeger & Hailman (1973) and Hailman & Jaeger (1974); however, the source for the specimens used by Jaeger & Hailman (1973, presented as *B. valliceps*) is not reported, so referral of data as relevant to *I. nebulifer* is speculative. Interspecific effects of injections of pituitary extracts were presented by Quinn & Mengden (1984). Hemoglobins and transferrins were described by Fox *et al.* (1961). Resistance to cardiotoxins was reported by Moore *et al.* (2009) The parotoid secretions were analyzed by



Porter (1964c), but results are based on specimens referable both to *I. nebulifer* and *I. valliceps*. Serological comparisons were made by Durio (1960) and biochemical components in the skin were analyzed by Cei *et al.* (1968). Use of this species for human pregnancy testing was evaluated by Aguirre-Pequeno (1950). Effects of potentially toxic chemicals were evaluated by Chen & Chen (1933), and Shaw & Grushkin (1957). Effects of radiation were reported by Blair (1960c) and Clayton (1960). Clark (1971) reported on use of branding as a means of marking individuals. Greding (1971) reported on learning in this species.

**Evolution.** The phylogenetic literature, with respect to *I. nebulifer*, can be difficult to interpret if the authors did not state the provenance of the samples used in their analyses. For example, Baldauf (1959) implies that the individuals used in his morphological analyses were collected in the USA (and possibly may be the same individuals reported by Baldauf, 1958), but one cannot be certain. Maxson (1984) and Maxson *et al.* (1981) included "*Bufo valliceps*" in their studies from Texas, so they can be assigned with certainty to *I. nebulifer*.

All phylogenetic treatments of the taxon "*valliceps*" published prior to 2000 were based, variously, on specimens or samples representing either *I. valliceps* (sensu stricto) or *I. nebulifer*. The modern reader of those papers is encouraged to check the geographic source of the material included in any particular analysis and assign the appropriate taxonomic name. Because of the well-supported sister-taxon relationship between *I. nebulifer* and *I. valliceps* (Mulcahy & Mendelson 2000; Mulcahy *et al.* 2006; Mendelson *et al.* 2011), the taxonomic differences typically have virtually no bearing on the overall evolutionary discussions presented by those authors. The exception, however, is the result presented by Van Bocxlaer *et al.* (2010), wherein they reported that the species pair *valliceps* + *nebulifer* was rendered paraphyletic by a sample identified as "*I. macrocristata*" (= *I. macrocristatus*). Mendelson *et al.* (2011) reviewed all of the relevant material, presented a clarification of the issue and determined that Van Bocxlaer *et al.* (2010) had included a misidentified specimen in their analyses (i.e., their sample of "*I. macrocristata*" actually represented *I. valliceps*). In their broad analysis of amphibian relationships, Pyron & Wiens (2011) chose to compile various published genetic sequences (i.e., GenBank) to create chimera to represent the taxa "*Bufo valliceps*" and "*Bufo nebulifer*" for their analyses; their compilation of sequences from various sources into singular OTUs included the misidentified material from Van Bocxlaer *et al.* (2010), with the result that Pyron & Wiens presented "*valliceps*" and "*nebulifer*" not to be sister taxa. Because their analyses include clearly misidentified material, this section of their overall phylogenetic tree is inadmissible. Thus, the sister relationship between *I. valliceps* + *I. nebulifer* remains is supported by all modern phylogenetic analyses that are based on accurately identified material. Phylogenetic relationships, biogeographic history, and evolutionary natural history of *I. nebulifer* were presented and discussed by Mulcahy & Mendelson (2000), Mulcahy *et al.* (2006), and Mendelson *et al.* (2011). The relative phylogenetic diversity of *I. nebulifer*, with respect to other North American bufonids, in terms of conservation prioritization was presented and discussed by Goebel (2005).

**Conservation and education.** Summary of possible conservation threats to this species were presented by Hammerson & Canseco-Márquez (2004), Mendelson (2005), Frías-Alvarez *et al.* (2010). Use of habitat by this species following mining activities was reported by Walton (2012). Use of these common toads in conservation-awareness education programs was described by Rommel (2012).

## Acknowledgements

We are grateful to the following individuals for extraordinary assistance in tracking down various references, localities, and voucher specimens: O. Flores-Villela, A. Durso, C. Franklin, J. Campbell, D. Frost, L. Canseco-Marquez, M. Oyervides, T. LaDuc, R. McDiarmid, H. M. Smith, A. Pessier, W. Farr, J. Pramuk, J. Minnick, M. Lannoo, C. Anthony, B. Lock, E. Smith, J. Carr, J. Boundy, H. Dundee, R. Jones, and P. Crump. The website *Amphibian Species of the World* (Frost 2014) was especially useful.

## References

- Adams, C.K. (2005) *Relationships between predation, breeding site choice, and palatability of larval anurans in eastern Texas*. M.S. Thesis, Stephen F. Austin State University, Nacogdoches, Texas, 39 pp.
- Adams, C.K., Saenz, D. & Conner, R.N. (2011) Palatability of twelve species of anuran larvae in eastern Texas. *The American Midland Naturalist*, 166, 211–223.

<http://dx.doi.org/10.1674/0003-0031-166.1.211>

- Aguirre-Pequeno, E. (1950) Actual value of biological reactions for diagnosis of pregnancy: the Mexican Toad (*Bufo valliceps* Wiegmann) as reactive animal. *Gaceta Médica de México*, 80, 146–154.
- Alexander, L.G., Lailvaux, S.P., Pechmann, J.H.K. & DeVries, P.J. (2012) Effects of salinity on early life stages of the Gulf Coast Toad, *Incilius nebulifer*. *Copeia*, 2012, 106–114.  
<http://dx.doi.org/10.1643/CP-09-206>
- Allen, M.J. (1932) A survey of the amphibians and reptiles of Harrison County, Mississippi. *American Museum Novitates*, 542, 1–20.
- Altig, R. (1970) A key to the tadpoles of the continental United States and Canada. *Herpetologica*, 26, 180–207.
- Altig, R., McDiarmid, R.W., Nichols, K.A. & Ustach, P.C. (1998) A key to the anuran tadpoles of the United States and Canada. *Contemporary Herpetology Information Series*, 2, 1–53. Available from: <http://dataserver.calacademy.org/herpetology/herpdocs/chis/1998/2/index.htm> (accessed 7 April 2014)
- Anderson, P.K., Liner, E.A. & Etheridge, R.E. (1952) Notes on amphibians and reptile populations in a Louisiana pineland areas. *Ecology*, 33, 274–278.  
<http://dx.doi.org/10.2307/1930645>
- Awbrey, F.T. (1963) Homing and home range in *Bufo valliceps*. *Texas Journal of Science*, 15, 127–141.
- Axtell, R.W. (1958) Female reaction to the male call in two anurans (Amphibia) *Southwestern Naturalist*, 3, 70–76.  
<http://dx.doi.org/10.2307/3669038>
- Baird, S.F. (1859a) Report upon the reptiles of the route. *Reports of Explorations and Surveys to Ascertain the Most Practicable Route for a Railroad from the Mississippi River to the Pacific Ocean: Route Near the Thirty-fifth Parallel, Explored by Lieutenant A. W. Whipple, Assisted by J. C. Ives. Volume 10. Part 6 (Zoology: Reptilia)*, 4, 37–45. [Washington, District of Columbia.]
- Baird, S.F. (1859b) Reptiles of the boundary. In: Emory, W.H. (Ed.), *United States and Mexican Boundary Survey under the Order of Lieut. Col. W. H. Emory, Major First Cavalry, and United States Commissioner. Vol. 2. Part 1*. Department of the Interior, Washington, District of Columbia, pp. 1–35.
- Baird, S.F. & Girard, C. (1852) Characteristics of some new reptiles in the Museum of the Smithsonian Institution. Third part. *Proceedings of the Academy of Natural Sciences of Philadelphia*, 6, 173.
- Bachman, K. (1970) Specific nuclear DNA amounts in toads of the genus *Bufo*. *Chromosoma*, 29, 365–374.  
<http://dx.doi.org/10.1007/BF00325949>
- Baldauf, R.J. (1958) Contributions to the cranial anatomy of *Bufo valliceps* Wiegmann. *Texas Journal of Science*, 10, 172–186.
- Baldauf, R.J. (1959) Morphological criteria and their use in showing bufonid phylogeny. *Journal of Morphology*, 104, 527–560.  
<http://dx.doi.org/10.1002/jmor.1051040307>
- Baker, J.K. (1957) Biological notes. *Texas Caver*, 2, 3.
- Ballinger, R.E. & McKinney, C.O. (1966) Developmental temperature tolerance of certain anuran species. *Journal of Experimental Zoology*, 161, 21–28.  
<http://dx.doi.org/10.1002/jez.1401610104>
- Beck, M.L. & Mahan, J.T. (1979) Ammoniacal silver staining of nucleolar organizer regions in four species of *Bufo*. *Copeia*, 1979, 341–345.  
<http://dx.doi.org/10.2307/1443422>
- Behler, J.L. & King, F.W. (1979) *The Audubon Society Field Guide to North American Reptiles and Amphibians*. Alfred A. Knopf Publishers, New York, 744 pp.
- Blair, A.P. (1941) Variation, isolating mechanisms, and hybridization in certain toads. *Genetics*, 26, 398–417.
- Blair, A.P. (1947) The male warning vibration in *Bufo*. *American Museum Novitates*, 1344, 1–7.
- Blair, K.B., Killebrew, F.C., Smith, H.M. & Chiszar, D. (1995) Geographic Distribution: *Bufo valliceps*. *Herpetological Review*, 26, 152.
- Blair, W.F. (1950) The biotic provinces of Texas. *Texas Journal of Science*, 2, 93–117.
- Blair, W.F. (1953) Growth, dispersal and age at sexual maturity of the Mexican toad (*Bufo valliceps* Wiegmann). *Copeia*, 1953, 208–212.  
<http://dx.doi.org/10.2307/1440358>
- Blair, W.F. (1956a) Call differences as an isolation mechanism in southwestern toads (genus *Bufo*). *Texas Journal of Science*, 8, 87–106.
- Blair, W.F. (1956b) Comparative survival of hybrid toads (*B. woodhousei* x *B. valliceps*) in nature. *Copeia*, 1956, 259–260.  
<http://dx.doi.org/10.2307/1440291>
- Blair, W.F. (1958) Mating call in the speciation of anuran amphibians. *The American Naturalist*, 92, 27–51.  
<http://dx.doi.org/10.1086/282007>
- Blair, W.F. (1959) Genetic compatibility and species groups in U.S. toads (*Bufo*). *Texas Journal of Science*, 11, 427–453.
- Blair, W.F. (1960a) A breeding population of the Mexican toad (*Bufo valliceps*) in relation to its environment. *Ecology*, 41, 165–174.  
<http://dx.doi.org/10.2307/1931950>
- Blair, W.F. (1960b) *The Rusty Lizard: A Population Study*. University of Texas Press, Austin, Texas, 185 pp.

- Blair, W.F. (1960c) Radiation-induced genetic damage in the Mexican toad (*Bufo valliceps*). *Texas Journal of Science*, 12, 216–227.
- Blair, W.F. (1961a) Calling and spawning seasons in a mixed population of anurans. *Ecology*, 42, 99–110.  
<http://dx.doi.org/10.2307/1933272>
- Blair, W.F. (1961b) Further evidence bearing on intergroup and intragroup genetic compatibility in toads (genus *Bufo*). *Texas Journal of Science*, 13, 163–175.
- Blair, W.F. (1962) Non-morphological data in anuran classification. *Systematic Zoology*, 11, 72–84.  
<http://dx.doi.org/10.2307/2411454>
- Blair, W.F. (1963) Evolutionary relationships of North American toads of the genus *Bufo*: a progress report. *Evolution*, 17, 1–15.  
<http://dx.doi.org/10.2307/2406331>
- Blair, W.F. (1964) Isolating mechanisms and interspecies interactions in anuran amphibians. *Quarterly Review of Biology*, 39, 334–344.  
<http://dx.doi.org/10.1086/404324>
- Blair, W.F. (1966) Genetic compatibility in the *Bufo valliceps* and closely related groups of toads. *Texas Journal of Science*, 18, 333–351.
- Blair, W.F. (1970) Genetically fixed characters and evolutionary divergence. *American Zoologist*, 10, 41–46.  
<http://dx.doi.org/10.1093/icb/10.1.41>
- Blair, W.F. (1972) *Bufo* of North and Central America. In: Blair, W.F. (Ed.), *Evolution in the Genus Bufo*. University of Texas Press, Austin, Texas, pp. 93–101.
- Blair, W.F., Blair, A.P., Brodkorb, P., Cagle, F.R. & Moore, G.A. (1957) *Vertebrates of the United States*. McGraw-Hill Book Company, New York, 819 pp.
- Boundy, J. (2005) Museum collections can assess population trends. In: Lannoo, M.J. (Ed.), *Status and Conservation of U.S. Amphibians*. University of California Press, Berkeley, California, pp. 295–299.
- Brannelly, L.A. (2014) Reduced itraconazole concentration and durations are successful in treating *Batrachochytrium dendrobatidis* infection in amphibians. *Journal of Visualized Experiments*, 85, e51166.  
doi: 10.1670/13-059
- Brannelly, L.A., Richards-Zawacki, C.L. & Pessier, A.P. (2012) Clinical trials with itraconazole as a treatment for chytrid fungal infections in amphibians. *Diseases of Aquatic Organisms*, 101, 95–104.  
<http://dx.doi.org/10.3354/dao02521>
- Branson, B.A. (1995) The Gulf Coast Toad: a distribution master. *Reptiles and Amphibians Magazine*, (Nov/Dec 1995), 59–63.
- Brandvain, Y., Pauly, G. B., May, M. R., & Turelli, M. (2014). Explaining Darwin's Corollary to Haldane's Rule: the role of mitonuclear interactions in asymmetric postzygotic isolation among toads. *Genetics*, 197, 74–747. doi:10.1534/genetics.113.161133
- Brattstrom, B.H. (1963) A preliminary review of the thermal requirements of amphibians. *Ecology*, 44, 238–255.  
<http://dx.doi.org/10.2307/1932171>
- Brown, B.C. (1950) *An Annotated Checklist of the Reptiles and Amphibians of Texas*. Baylor University Studies Publication Series, Waco, Texas, 257 pp.
- Brown, D.J., Baccus J.T., Means, D.B. & Forstner, M.R.J. (2011) Potential positive effects of fire on juvenile amphibians in a southern USA pine forest. *Journal of Fish and Wildlife Management*, 2, 135–145.  
<http://dx.doi.org/10.3996/062011-JFWM-037>
- Brown, D.J., Duarte, Mali, A.I., Jones, M.C. & Forstner, M.R.J. (2014) Potential impacts of a high-severity wildfire on abundance, movement, and diversity of herpetofauna in the Lost Pines Ecoregion of Texas. *Herpetological Conservation and Biology*, 9, 192–205.
- Brown, L.E. (1971a) Natural hybridization and reproductive ecology of two toad species in a disturbed environment. *American Midland Naturalist*, 86, 78–85.  
<http://dx.doi.org/10.2307/2423687>
- Brown, L.E. (1971b) Natural hybridization and trend toward extinction in some relict Texas toad populations. *Southwestern Naturalist*, 16, 185–199.  
<http://dx.doi.org/10.2307/3670498>
- Brown, L.E. (1974) Behavioral reactions of bullfrogs while attempting to eat toads. *Southwestern Naturalist*, 19, 335–337.  
<http://dx.doi.org/10.2307/3669945>
- Brown, L.E. & Brownell, J.A. (1971) Relative survival of two toad species and their natural hybrids in a disturbed environment. *American Midland Naturalist*, 86, 235–238.  
<http://dx.doi.org/10.2307/2423711>
- Brown, L.E. & Mesrobian, A. (2005) The endangered Houston toad and Texas politics. In: Lannoo, M.J. (Ed.), *Status and Conservation of U.S. Amphibians*. University of California Press, Berkeley, California, pp. 150–167.
- Brownell, J.A. (1971) Effects of the interaction between a hybrid toad and parental species *Bufo valliceps* and *B. woodhousei*. Ph.D. Dissertation, University of Texas, Austin, Texas, 151 pp.
- Burger, W.L., Smith, P.W. & Smith, H.W. (1949) Notable records of reptiles and amphibians in Oklahoma, Arkansas, and Texas. *Journal of the Tennessee Academy of Sciences*, 24, 130–134.

- Burt, C.E. (1935) Further records of the ecology and distribution of amphibians and reptiles in the Middle West. *American Midland Naturalist*, 16, 311–336.  
<http://dx.doi.org/10.2307/2420031>
- Burt, C.E. & Burt, M.D. (1929) A collection of amphibians and reptiles from the Mississippi Valley with field observations. *American Museum Novitates*, 381, 1–14.
- Campbell, P.M. & Davis, W.K. (1968) Vertebrates in stomachs of *Bufo valliceps*. *Herpetologica*, 24, 327–328.
- Campbell, P.M. & Davis, W.K. (1971) The effect of various combinations of temperature and relative humidity on the evaporative water loss of *Bufo valliceps*. *Texas Journal of Science*, 22, 389–402.
- Camper, J.D. & Dixon, J.R. (1988) Evaluation of a microchip marking system for amphibians and reptiles. *Texas Parks and Wildlife Department Research Publications*, 7100 (159), 1–22.
- Carl, G. (1980) Distributional records for Johnson County, Texas. *Herpetological Review*, 11, 116–117.
- Cei, J.M., Erspamer, V. & Roseghini, M. (1968) Taxonomic significance of biogenic amines and polypeptides in amphibian skin. II. Toads of the genera *Bufo* and *Melanophryniscus*. *Systematic Zoology*, 17, 232–245.  
<http://dx.doi.org/10.2307/2412002>
- Chen, K.K. & Chen, A.L. (1933) Relative susceptibility of the Nebulous toad (*Bufo valliceps*) and the Leopard frog (*Rana pipiens*) to different substances. *Journal of Pharmacology*, 47, 295–306.
- Clark, D.R. Jr. (1971) Branding as a marking technique for amphibians and reptiles. *Copeia*, 1971, 148–151.  
<http://dx.doi.org/10.2307/1441609>
- Clark, D.R. Jr. (1974) The Western ribbon snake (*Thamnophis proximus*): ecology of a Texas population. *Herpetologica*, 30, 372–379.
- Clark, W.T. (1969) Predation by the toad *Bufo valliceps* and regulation of density in prey populations of the pillbug isopod *Armadillidium vulgare*. Ph.D. Dissertation, University of Texas, Austin, Texas, 129 pp.
- Clayton, F.E. (1960) Developmental-genetic study of the effects of X-ray irradiation in *Drosophila virilis* and *Bufo valliceps*. Final Scientific Report, January 1, 1955–December 31, 1960, College of Arts and Sciences, University of Arkansas, Fayetteville, Arkansas, 115 pp.
- Cochran, D.M. (1961) *Living Amphibians of the World*. Doubleday and Company, Garden City, New York, 199 pp.
- Cochran, D.M. & Goin, C.J. (1970) *The New Field Book of Reptiles and Amphibians*. G. P. Putnam's Sons, Garden City, New York, 199 pp.
- Cole, C.J., Lowe, C.H. & Wright, J.W. (1968) Karyotypes of eight species of toads (genus *Bufo*) in North America. *Copeia*, 1968, 96–100.  
<http://dx.doi.org/10.2307/1441555>
- Conant, R. (1958) *A Field Guide to Reptiles and Amphibians of the United States and Canada East of the 100th Meridian*. Houghton Mifflin Company, Boston, Massachusetts, xv + 366 pp.
- Conant, R. (1977) Semiaquatic reptiles and amphibians of the Chihuahuan desert and their relationships to drainage patterns of the region. In: Wauer, R.H. & Riskind, D.H. (Eds.), *Transactions of the Symposium on the Biological Resources of the Chihuahuan Desert Region: United States and Mexico*. United States Department of the Interior National Park Transactions and Proceedings, Series 3, pp. 445–491.
- Conant, R. (1975) *A Field Guide to Reptiles and Amphibians of Eastern and Central North America*. Second edition. Houghton Mifflin Company, Boston, Massachusetts, 429 pp.
- Conant, R. & Collins, J.T. (1998) *A Field Guide to Amphibians and Reptiles: Eastern and Central North America*. Third edition, expanded. Houghton Mifflin Company, Boston, Massachusetts, xviii + 616 pp.
- Cope, E.D. (1863) On *Trachycephalus*, *Scaphiopus* and other Batrachia. *Proceedings of the Academy of Natural Sciences of Philadelphia*, 15, 43–54.
- Cope, E.D. (1888) Catalogue of Batrachia and Reptilia brought by William Taylor from San Diego, Texas. *Proceedings of the United States National Museum*, 11, 395–398.  
<http://dx.doi.org/10.5479/si.00963801.11-728.395>
- Cope, E.D. (1889) The Batrachia of North America. *United States National Museum Bulletin*, 34, 1–525.
- Cotten, T.B. (2009) *The effects of Chinese tallow (Triadica sebifera) on development and survivorship of anuran larvae*. M.S. Thesis, Stephen F. Austin State University, Nacogdoches, Texas, 66 pp.
- Cotten, T.B., Kwiatowski, M.A., Saenz, D. & Collyer, M. (2013) Effects of an invasive plant, Chinese tallow (*Triadica sebifera*), on development and survival of anuran larvae. *Journal of Herpetology*, 46, 186–193.  
<http://dx.doi.org/10.1670/10-311>
- Crother, B.I. (Ed.) (2012) Scientific and Standard English Names of Amphibians and Reptiles of North American North of Mexico, with Comments Regarding Confidence in our understanding, 7<sup>th</sup> Edition. *Society for the Study of Reptiles and Amphibians Herpetological Circular*, 39, 1–92.
- da Silva, H.R. & Mendelson, J.R. III. (1999) A new organ and unique sternal morphology in toads (Anura: Bufonidae): descriptions, taxonomic distribution, and evolution. *Herpetologica*, 55, 114–126.
- Dayton, G.H., Fitzgerald, L.A. & Goldstein, M.I. (2001) Geographic Distribution: *Bufo valliceps*. *Herpetological Review*, 32, 112.
- Dayton, G.H. & Painter, C.W. (2005) Texas toad (*Bufo speciosus*) In: Lannoo, M.J. (Ed.), *Status and Conservation of U.S. Amphibians*. University of California Press, Berkeley, California, pp. 435–436.

- Deichmann, J.L., Boundy, J. & Williamson, G.B. (2009) Anuran artifacts of preservation: 27 years later. *Phyllomedusa*, 8, 51–58.  
<http://dx.doi.org/10.11606/issn.2316-9079.v8i1p51-58>
- Dickerson, M.C. (1969) *The Frog Book: North American Toads and Frogs*. Dover Publications, New York, 253 pp.
- Dixon, J.R. (2000) *Amphibians and Reptiles of Texas*. Texas A & M Press, College Station, Texas, 421 pp.
- Dixon, J.R. & Hibbitts, T.J. (2013) *Amphibians and Reptiles of Texas: With Keys, Taxonomic Synopses, Bibliography, and Distribution Maps. W. L. Moody Natural History Series 45*. Texas A & M University Press, College Station, Texas, 460 pp.
- Dodd, C.K. (2013) *Frogs of the United States and Canada*. Johns Hopkins University Press, Baltimore, Maryland, 1032 pp.
- Dorcas, M. & Gibbons, W. (2008) *Frogs and Toads of the Southeast*. University of Georgia Press, Athens, Georgia, 264 pp.
- Drake, D.L., Altig, R., Grace, J.B. & Walls, S.C. (2007) Occurrence of oral deformities in larval anurans. *Copeia*, 2007, 449–458.  
[http://dx.doi.org/10.1643/0045-8511\(2007\)7\[449:OODIL\]2.0.CO;2](http://dx.doi.org/10.1643/0045-8511(2007)7[449:OODIL]2.0.CO;2)
- Dundee, H.A., Rossman, D.A. & Beckham, E.C. (1989) *The Amphibians and Reptiles of Louisiana*. Louisiana State University Press, Baton Rouge, Louisiana, 316 pp.
- Duran, M.G. (1954) *Spermatogenesis of Bufo valliceps*. M.S. Thesis, Texas Technical College Lubbock, Texas, 24 pp.
- Durio, W.O. (1960) *The phylogenetic relationship of Bufo fowleri and Bufo valliceps as determined by serological studies*. M.S. Thesis, Southwestern Louisiana Institute Lafayette, Louisiana, 23 pp.
- Elliott, L., Gerhardt, C. & Davidson, C. (2009) *The Frogs and Toads of North America*. Houghton Mifflin Harcourt Publishers, New York, 343 pp.
- Emerson, S.B. (1982) Frog postcranial morphology: identification of a functional complex. *Copeia*, 1982, 603–613.  
<http://dx.doi.org/10.2307/1444660>
- Espino de Castillo, A., Castaño-Meneses, G., Dávila-Montes, M.J., Miranda-Ayada, M., Morales-Malacara, J.B. & Paredes-León, R. (2009) Seasonal distribution and circadian activity in the troglophile long-footed robber frog *Eleutherodactylus longipes* (Anura: Brachycephalidae) at Los Riscos cave, Querétaro, Mexico: field and laboratory studies. *Journal of Cave and Karst Studies*, 71, 24–31.
- Farr, W.L., Lazcano, D. & Lavín-Murcio, P.A. (2013) New distributional records for amphibians and reptiles from the State of Tamaulipas, México III. *Herpetological Review*, 44, 631–645
- Fleet, R.R. & Aubrey, B.C. (1997) Geographic Distribution: *Bufo valliceps*. *Herpetological Review*, 28, 48.
- Flickinger, E.L. (1981) Wildlife mortality at petroleum pits in Texas. *The Journal of Wildlife Management*, 45, 560–564.  
<http://dx.doi.org/10.2307/3807949>
- Foley, D.H. III. (1994) *Short-term response of herpetofauna to timber harvesting in conjunction with streamside-management zones in seasonally flooded bottomland-hardwood forests of southeast Texas*. M.S. Thesis, Texas A & M University, College Station, Texas, 93 pp.
- Fouquette, M.J. & Dubois, A. (2014) *A Checklist of North American Amphibians and Reptiles, Seventh Edition. Vol. 1. Amphibians*. Privately published via Xlibris.com Publishersa, 586 pp.
- Fox, W., Dessauer, H.C. & Maumus, L.T. (1961) Electrophoretic studies of blood proteins of two species of toads and their natural hybrid. *Comparative Biochemistry and Physiology*, 3, 52–63.  
[http://dx.doi.org/10.1016/0010-406X\(61\)90193-1](http://dx.doi.org/10.1016/0010-406X(61)90193-1)
- Franklin, C.J. & Killpack, D.C. (2005) *Eurycea neotenes* (Texas salamander) (Texas Salamander): Habitat Utilization. *Herpetological Review*, 36, 428.
- Freed, P. (1992) An anomalous Gulf Coast Toad, *Bufo valliceps*. *Bulletin of the Chicago Herpetological Society*, 27, 149.
- Frías-Alvarez, P., Zúñiga, J.J. & Flores-Villela, O. (2010) A general assessment of the conservation status and decline trends of Mexican amphibians. *Biodiversity Conservation*, 19, 3699–3742.  
<http://dx.doi.org/10.1007/s10531-010-9923-9>
- Frost, D.R., Grant, T., Faivovich, J., Bain, R.H., Haas, A., Haddad, C.F.B., de Sá, R.O., Channing, A., Wilkinson, M., Donnellan, S.C., Raxworthy, C.J., Campbell, J.A., Blotto, B.L., Moler, P.E., Drewes, R.C., Nussbaum, R.A., Lynch, J.D., Green, D.M. & Wheeler, W.C. (2006a) The amphibian tree of life. *Bulletin of the American Museum of Natural History*, 297, 1–370.  
[http://dx.doi.org/10.1206/0003-0090\(2006\)297\[0001:TATOL\]2.0.CO;2](http://dx.doi.org/10.1206/0003-0090(2006)297[0001:TATOL]2.0.CO;2)
- Frost, D.R., Grant, T. & Mendelson, J.R. III. (2006b) *Ollotis* Cope, 1875 is the oldest name for the genus currently referred to as *Cranopsis* Cope, 1875. *Copeia*, 2006, 558.  
[http://dx.doi.org/10.1643/0045-8511\(2006\)2006\[558:OCITON\]2.0.CO;2](http://dx.doi.org/10.1643/0045-8511(2006)2006[558:OCITON]2.0.CO;2)
- Frost, D.R., Mendelson III, J.R., Pramuk, J.B. (2009) Further notes on the nomenclature of Middle American toads (Bufonidae). *Copeia*, 2009, 418.  
<http://dx.doi.org/10.1643/CH-08-204>
- Gadow, H. (1905) The distribution of Mexican amphibians and reptiles. *Proceedings of the Zoological Society of London*, 1905, Part 2, 191–244.  
<http://dx.doi.org/10.1111/j.1469-7998.1905.tb08388.x>
- Gaertner, J.P., McHenry, D., Forstner, M.R.J. & Hahn, D. (2010) Annual variation of *Batrachochytrium dendrobatidis* in the Houston toad (*Bufo houstonensis*) and a sympatric congener (*Bufo nebulifer*) *Herpetological Review*, 41, 456–459.
- Gambs, R.D. & Littlejohn, M.J. (1979) Acoustic behavior of males of the Rio Grande leopard frog (*Rana berlandieri*): an

- experimental analysis through field playback trials. *Copeia*, 1979, 643–650.  
<http://dx.doi.org/10.2307/1443872>
- Gans, C. (1973) Sound production in the Salientia: mechanisms and evolution of the emitter. *American Zoologist*, 13, 1179–1194.  
<http://dx.doi.org/10.1093/icb/13.4.1179>
- Gardiner, C.H. (1972) *The identification of and immunologic studies on the helminths of Bufo fowleri (Hinckley, 1882) and Bufo valliceps (Wiegmann, 1833) in South Louisiana*. Ph.D. dissertation, University of Southwestern Louisiana, Lafayette, Louisiana, Lafayette, Louisiana, 46 pp.
- Garman, S. (1887) Reptiles and batrachians from Texas and Mexico. *Bulletin of the Essex Institution*, 19, 119–138.
- Garrett, J.M. & Barker, D.G. (1987) *A Field Guide to Reptiles and Amphibians of Texas*. Texas Monthly Press, Austin, Texas, 225 pp.
- Gehlbach, F.R. (2010) Suburbanization of a central Texas herpetofauna. *International Reptile Conservation Fund Reptiles and Amphibians*, 17, 87–93.
- Gifford, M.E. & Fontenot, B.E. (2003) Geographic Distribution: *Bufo nebulifer* *Herpetological Review*, 34, 257.
- Girard, C. (1854) A list of North American bufonids, with diagnoses of new species. *Proceedings of the Academy of Natural Sciences Philadelphia*, 7, 87.
- Glass, B.P. (1946) A new *Hyla* from Texas. *Herpetologica*, 3, 101–103.
- Goebel, A.M. (2005) Conservation systematics: the *Bufo boreas* species group. In: Lannoo, M.J. (Ed.), *Status and Conservation of U.S. Amphibians*. University of California Press, Berkeley, California, pp. 210–221.
- Gorham, S.W. (1974) *Checklist of World Amphibians. Liste des Amphibiens du Monde*. The New Brunswick Museum, Saint John, New Brunswick, Canada, 172 pp.
- Gosner, K.L. (1960) A simplified table for staging anuran embryos and larvae with notes on identification. *Herpetologica*, 16, 183–190.
- Gosner, K.L. & Black, I.H. (1958) Notes on larval toads in the eastern United States with special reference to natural hybridization. *Herpetologica*, 14, 133–140.
- Greeding, E.J. Jr. (1971) Comparative rates of learning in frogs (Ranidae) and toads (Bufonidae) *Caribbean Journal of Science*, 11, 204–208.
- Grubb, J.C. (1968) *Homing behavior in post-reproductive Bufo valliceps: the importance of certain sensory mechanisms*. M.S. Thesis, University of Texas, Austin, Texas, 54 pp.
- Grubb, J.C. (1970) Orientation in post-reproductive Mexican toads, *Bufo valliceps*. *Copeia*, 1970, 674–680.  
<http://dx.doi.org/10.2307/1442309>
- Grubb, J.C. (1972) Differential predation by *Gambusia affinis* on the eggs of seven species of anuran amphibians. *American Midland Naturalist*, 88, 102–108.  
<http://dx.doi.org/10.2307/2424491>
- Grubb, J.C. (1973a) Olfactory orientation in breeding Mexican toads, *Bufo valliceps*. *Copeia*, 1973, 490–497.  
<http://dx.doi.org/10.2307/1443114>
- Grubb, J.C. (1973b) Orientation in newly metamorphosed Mexican toads, *Bufo valliceps*. *Herpetologica*, 29, 95–100.
- Grubb, J.C. (1976) Maze orientation by Mexican toads, *Bufo valliceps* (Amphibia, Anura, Bufonidae), using olfactory and configurational cues. *Journal of Herpetology*, 10, 97–104.  
<http://dx.doi.org/10.2307/1562789>
- Greuter, K.L. (2004) *Early juvenile ecology of the endangered Houston toad, Bufo houstonensis (Anura: Bufonidae)*. M.S. Thesis, Texas State University, San Marcos, Texas, 103 pp.
- Guttman, S.I. (1972) Blood proteins. In: Blair, W.F. (Ed.), *Evolution in the Genus Bufo*. University of Texas Press, Austin, Texas, pp. 265–278.
- Guttman, S.I. (1974) Anoxia tolerance in two species of toads, *Bufo valliceps* and *Bufo woodhousei*. *Comparative Biochemistry and Physiology A Comparative Physiology*, 47, 867–870.  
[http://dx.doi.org/10.1016/0300-9629\(74\)90461-7](http://dx.doi.org/10.1016/0300-9629(74)90461-7)
- Hailman, J.P. & Jaeger, R.G. (1974) Phototactic responses to spectrally dominant stimuli and use of color vision by adult anuran amphibians: a comparative survey. *Animal Behaviour*, 22, 757–795.  
[http://dx.doi.org/10.1016/0003-3472\(74\)90002-5](http://dx.doi.org/10.1016/0003-3472(74)90002-5)
- Hallowell, E. (1856) Notes on the collection of reptiles from the neighborhood of San Antonio, Texas, recently presented to the Academy of Natural Sciences by Dr. A. Heermann. *Proceedings of the Academy of Natural Sciences of Philadelphia*, 8, 306–310.
- Hammerson, G. & Canseco-Márquez, L. (2004) *Incilius nebulifer*. The IUCN Red List of Threatened Species. Version 2014.2. Available from: <http://www.iucnredlist.org> (accessed 4 October 2014)
- Harwood, P.D. (1930) A new species of *Oxysomatium* (Nematoda) with some remarks on the genera *Oxysomatium* and *Aplectana*, and observations on the life history. *The Journal of Parasitology*, 17, 61–73.  
<http://dx.doi.org/10.2307/3271435>
- Hernández-Salinas, U. & Ramírez-Bautista, A. (2012) Diversity of amphibian communities in four vegetation types of Hidalgo State, Mexico. *The Open Conservation Biology Journal*, 6, 1–11.  
<http://dx.doi.org/10.2174/1874839201206010001>

- Hibbitts, T.J., Saenz, D., Adams, C. & Pierce, J. (2008) Geographic Distribution: *Ollotis* (= *Bufo*) *nebulifer* (Gulf Coast Toad). *Herpetological Review*, 39, 480.
- Hillis, D.M., Hillis A.M. & Martin, R.F. (1984) Reproductive ecology and hybridization of the endangered Houston Toad (*Bufo houstonensis*). *Journal of Herpetology*, 18, 56–72.  
<http://dx.doi.org/10.2307/1563672>
- Holman, J.A. (2003) *Fossil frogs and Toads of North America*. Indiana University Press, Bloomington, Indiana, 246 pp.
- Hoffpauir, C. & Morrison, E.O. (1966) *Rhabdias ranae* from *Bufo valliceps*. *Southwestern Naturalist*, 11, 302.  
<http://dx.doi.org/10.2307/3669657>
- Hua, J. & Pierce, B.A. (2013) Lethal and sublethal effects of salinity on three common Texas amphibians. *Copeia*, 2013, 562–566.  
<http://dx.doi.org/10.1643/OT-12-126>
- Hubbs, C. & Martin, F.D. (1967) *Bufo valliceps* breeding in artificial pools. *Southwestern Naturalist*, 12, 105–106.  
<http://dx.doi.org/10.2307/3669153>
- Hubbs, C., Wright, T. & Cuellar, O. (1963) Developmental temperature tolerance of central Texas populations of two anuran amphibians *Bufo valliceps* and *Pseudacris streckeri*. *Southwestern Naturalist*, 8, 142–149.  
<http://dx.doi.org/10.2307/3669206>
- Hutchinson, D.A. & Savitzky, A.H. (2004) Vasculature of the parotoid glands of four species of toads (Bufonidae: *Bufo*). *Journal of Morphology*, 260, 247–254.  
<http://dx.doi.org/10.1002/jmor.10219>
- Irwin, K.J. (1997) *Herpetofaunal community response to timber harvest practices in an east Texas bottomland hardwood forest*. M.S. Thesis, Texas A & M University, College Station, Texas, 93 pp.
- James, P. (1966) The Mexican burrowing toad, *Rhinophrynus dorsalis*, an addition to the vertebrate fauna of the United States. *Texas Journal of Science*, 18, 272–276.
- Jaeger, R.G. & Hailman, J.P. (1973) Effects of intensity on the phototactic responses of adult anuran amphibians: a comparative survey. *Zeitschrift für Tierpsychologie*, 33, 352–407.  
<http://dx.doi.org/10.1111/j.1439-0310.1973.tb02103.x>
- Johnson, J.A. (2002) *Bufo valliceps* (Gulf Coast Toad): Geographic Distribution: *Herpetological Review*, 33, 219.
- Jones, D.L. & Ratnam, R. (2009) Blind location and separation of callers in a natural chorus using a microphone array. *Journal of the Acoustic Society of America*, 126, 895–910.  
<http://dx.doi.org/10.1121/1.3158924>
- Kellogg, R. (1932) Mexican tailless amphibians in the United States National Museum. *Bulletin of the United States National Museum*, 160, 1–224.  
<http://dx.doi.org/10.5479/si.03629236.160.i>
- Kennedy, J.P. (1962) Spawning season and experimental hybridization of the Houston toad, *Bufo houstonensis*. *Herpetologica*, 17, 239–245.
- Lannoo, M.J., Gallant, A.L., Nanjappa, P., Blackburn, L. & Hendricks, R. (2005) Species accounts: introduction. In: Lannoo, M.J. (Ed.), *Status and Conservation of U.S. Amphibians*. University of California Press, Berkeley, California, pp. 351–380.  
<http://dx.doi.org/10.1525/california/9780520235922.003.0053>
- Lazcano, D., Contreras-Lozano, J., Narváez-Torrez, S. & Chávez-Cisneros, J. (2012) Notes on Mexican herpetofauna 18: herpetofauna of Cerro El Topo Chica Natural Protected Area, Nuevo León, Mexico. *Bulletin of the Chicago Herpetological Society*, 47, 149–155.
- Lemos-Espinal, J.A. & Dixon, J.R. (2013) *Amphibians and Reptiles of San Luis Potosí*. Eagle Mountain Publishing, Eagle Mountain, Utah, 300 pp.
- Lemos-Espinal, J.A., Smith, H.M. & Chiszar, D. (2004) *Anfibios y Reptiles del Estado de Chihuahua, México*. Universidad Nacional Autónoma de México-Comisión Nacional para el Conocimiento y Uso de la Biodiversidad, Mexico City, 128 pp.
- Lemos-Espinal, J.A. & Smith, H.M. (2007) *Anfibios y Reptiles del Estado de Coahuila, México*. Universidad Nacional Autónoma de México-Comisión Nacional para el Conocimiento y Uso de la Biodiversidad, Mexico City, 550 pp.
- Lewis, M.R. (1974) Recent county records and range extensions in south central Texas. *Herpetological Review*, 5, 21.
- Licht, L.E. (1967) Growth inhibition in crowded tadpoles: intraspecific and interspecific effects. *Ecology*, 48, 736–745.  
<http://dx.doi.org/10.2307/1933731>
- Licht, L.E. (1968) Unpalatability and toxicity of toad eggs. *Herpetologica*, 24, 93–98.
- Limbaugh, B.A. (1956) The early development of *Bufo valliceps* Wiegmann. M.S. Thesis, Tulane University, New Orleans, Louisiana, 29 pp.
- Limbaugh, B.A. & Volpe, E.P. (1957) Early development of the Gulf Coast Toad, *Bufo valliceps* Wiegmann. *American Museum Novitates*, 1842, 1–32.
- Liner, E.A. (1954) The herpetofauna of Lafayette, Terrebonne and Vermillion parishes, Louisiana. *Proceedings of the Louisiana Academy of Sciences*, 17, 65–85.
- Liner, E.A. & Casas-Andreu, G. (2008) Scientific, English and Scientific Names of the Amphibians and Reptiles of Mexico, Second Edition. *Society for the Study of Amphibians and Reptiles Herpetological Circular*, 38, 1–162.
- Malone, J. H. & Fontenot, B.E. (2008) Patterns of reproductive isolation in toads. *Public Library of Science One*, 3, e3900.  
<http://dx.doi.org/10.1371/journal.pone.0003900>

- Martin, D.S. & Dresser, S.S. (1991) Infectivity of cultured *Trypanosoma fallisi* (Kinetoplastida) to various anuran species and its evolutionary implications. *Journal of Parasitology*, 77, 498–500.  
<http://dx.doi.org/10.2307/3283146>
- Martin, P.S. (1958) A biogeography of reptiles and amphibians in the Gomez Farias Region, Tamaulipas, Mexico. *Miscellaneous Publications of the Museum of Zoology, University of Michigan*, 101, 1–102.
- Martin, R.F. (1972a) Arciferal dextrality and sinistrality in anuran pectoral girdles. *Copeia*, 1972, 376–381.  
<http://dx.doi.org/10.2307/1442507>
- Martin, R.F. (1972b) Evidence from osteology. *Bufo* of North and Central America. In: Blair, W.F. (Ed.), *Evolution in the Genus Bufo*. University of Texas Press, Austin, Texas, pp. 37–70.
- Martin, R.F. (1973) Osteology of North American *Bufo*: the *americanus*, *cognatus*, and *boreas* species groups. *Herpetologica*, 29, 375–387.
- Martin, W.F. (1967) The mechanism and evolution of sound production in the toad genus *Bufo*. M.S.Thesis, University of Texas, Austin, Texas, 131 pp.
- Martin, W.F. (1971) Mechanics of sound production in the genus *Bufo*: passive elements. *Journal of Experimental Zoology*, 176, 273–294.  
<http://dx.doi.org/10.1002/jez.1401760304>
- Martin, W.F. (1972) Evolution of vocalization in the genus *Bufo*. In: Blair, W.F. (Ed.), *Evolution in the Genus Bufo*, University of Texas Press, Austin, Texas, pp. 279–309.
- Martin, W.F. & Gans, C. (1972) Muscular control of the vocal tract during release signaling in the toad *Bufo valliceps*. *Journal of Morphology*, 137, 1–28.  
<http://dx.doi.org/10.1002/jmor.1051370102>
- Mattison, C. (2007) *300 Frogs. A Visual Reference to Frogs and Toads from Around the World*. Windmill Books, London, 528 pp.
- Maxson, L.R. (1984) Molecular probes of phylogeny and biogeography in toads of the widespread genus *Bufo*. *Molecular Biology and Evolution*, 1, 345–356.
- Maxson, L.R., Song, A. & Lopata, R. (1981) Phylogenetic relationships among North American toads, genus *Bufo*. *Biochemical Systematics and Ecology*, 9, 347–350.  
[http://dx.doi.org/10.1016/0305-1978\(81\)90021-1](http://dx.doi.org/10.1016/0305-1978(81)90021-1)
- Maxwell, T.C. (2013) *Wildlife of the Concho Valley. W. L. Moody Natural History Series 48*. Texas A & M University Press, College Station, Texas, 292 pp.
- McAlister, W.H. (1954) Natural history notes on the barking frog. *Herpetologica*, 10, 197–199.
- McAlister, W.H. (1961) Mechanics of sound production in North American *Bufo*. *Copeia*, 1961, 86–95.  
<http://dx.doi.org/10.2307/1440179>
- McAllister, C.T., Upton, S.J. & Conn, D.B. (1989) A comparative study of endoparasites in three species of sympatric *Bufo* (Anura: Bufonidae), from Texas. *Proceedings of the Helminthological Society of Washington*, 56, 162–167.
- McAllister, C.T. & Conn, D.B. (1990) Occurrence of tetrathyridia of *Mestocestoides* sp. (Cestoidea: Cyclophyllidea) in North American anurans (Amphibia). *Journal of Wildlife Diseases*, 26, 540–543.  
<http://dx.doi.org/10.7589/0090-3558-26.4.540>
- McAllister, C.T. & Ward, R. (1986) New distributional records of Texas herpetofauna. *Texas Journal of Science*, 38, 65–69.
- McCarron, K. & Volpe, E.P. (1973) Serological relationships of frogs (Ranidae) and toads (Bufonidae) *Cellular and Molecular Life Sciences*, 29, 626–628.  
<http://dx.doi.org/10.1007/BF01926709>
- McGehee, R.T., Reams, R. & Brown, M.E. (2002) Natural History Notes: *Bufo valliceps* (Gulf Coast Toad): Diet. *Herpetological Review*, 32, 101–102.
- Means, D.B. (2005) Pine silviculture. In: Lannoo, M.J. (Ed.), *Status and Conservation of U.S. Amphibians*. University of California Press, Berkeley, California, pp. 139–145.
- Mendelson, J.R., III (1998) Geographic variation in *Bufo valliceps* (Anura: Bufonidae), a widespread toad in the United States and Middle America. *Scientific Papers of the Natural History Museum, University of Kansas*, 9, 1–12.
- Mendelson, J.R., III (2005) Coastal-plain toad (*Bufo nebulifer*). In: Lannoo, M.J. (Ed.), *Status and Conservation of U.S. Amphibians*. University of California Press, Berkeley, California, pp. 424–427.
- Mendelson, J.R., III, Ustach, P.C. & Nieto-Montes de Oca, A. (1999) Description of the tadpole of *Bufo tutelarius*, natural history notes on the *Bufo valliceps* group, and a key to the tadpoles of the group. *Journal of Herpetology*, 33, 324–328.  
<http://dx.doi.org/10.2307/1565734>
- Mendelson, J.R., III, Mulcahy, D.G., Williams, T.S. & Sites, J.W. Jr. (2011) A phylogeny and evolutionary natural history of mesoamerican toads (Anura: Bufonidae: *Incilius*) based on morphology, life history, and molecular data. *Zootaxa*, 3138, 1–34.
- Milko, L.V. (2012) Integrating museum and GIS data to identify changes in species distributions driven by a disturbance-induced invasion. *Copeia*, 2012, 307–320.  
<http://dx.doi.org/10.1643/CE-10-159>
- Milstead, W.W. (1960) Relict species of the Chihuahuan Desert. *Southwestern Naturalist*, 5, 75–88.  
<http://dx.doi.org/10.2307/3669459>



- Milstead, W.W., Meham, J.S. & McClintock, H. (1950). The amphibians and reptiles of the Stockton Plateau in northern Terrell County, Texas. *Texas Journal of Science*, 2, 543–562.
- Mitchell, J.C. & Lannoo, M.J. (2005a) Squirrel treefrog (*Hyla squirrela*). In: Lannoo, M.J. (Ed.), *Status and Conservation of U.S. Amphibians*. University of California Press, Berkeley, California, pp. 456–458.
- Mitchell, J.C. & Lannoo, M.J. (2005b) Eastern narrow-mouthed toad (*Gastrophryne carolinensis*). In: Lannoo, M.J. (Ed.), *Status and Conservation of U.S. Amphibians*. University of California Press, Berkeley, California, pp. 501–503.
- Mohr, C.E. (1948) Unique animals inhabit subterranean Texas. *Bulletin of the National Speleological Society*, 10, 15–21.
- Moore, C.D. (1997) A histochemical and physiological analysis of performance in the planaris longus muscle of the frog (*Rana pipiens*) and the toad (*Bufo valliceps*). *Bios*, 68, 234–242.
- Moore, D.J., Halliday, D.C.T., Rowell, D.M., Robinson, A.J. & Keogh, J.S. (2009) Positive Darwinian selection results in resistance to cardioactive toxins in true toads (Anura: Bufonidae). *Biology Letters*, 5 (4), 513–516.  
<http://dx.doi.org/10.1098/rsbl.2009.0281>
- Moore, J.A. (1955) Abnormal combinations of nuclear and cytoplasmic systems in frogs and toads. *Advances in Genetics*, 7, 139–182.  
[http://dx.doi.org/10.1016/s0065-2660\(08\)60095-4](http://dx.doi.org/10.1016/s0065-2660(08)60095-4)
- Moore, R.H. (1976) Reproductive habits and growth of *Bufo speciosus* on Mustang Island, Texas, with notes on the ecology and reproduction of other anurans. *Texas Journal of Science*, 17, 173–178.
- Morgan, A.H. & Stokes, M. (1936) Seasonal and temperature induced changes in the thyroid of *Bufo valliceps*. *Anatomical Record*, 64, 86
- Mueller, A.J. (1985) Vertebrate use of nontidal wetlands on Galveston Island, Texas. *Texas Journal of Science*, 37, 215–225.
- Mulcahy, D.G. & Mendelson, J.R. III. (2000) Phylogeography and speciation of the morphologically variable, widespread species *Bufo valliceps*, based on molecular evidence from mtDNA. *Molecular Phylogenetics and Evolution*, 17, 173–189.  
<http://dx.doi.org/10.1006/mpev.2000.0827>
- Mulcahy, D.G., Morrill, B.H. & Mendelson, J.R. III. (2006) Historical biogeography of lowland species of toads (*Bufo*) across the Trans-Mexican Neovolcanic Belt and the Isthmus of Tehuantepec. *Journal of Biogeography*, 33, 1889–1904.  
<http://dx.doi.org/10.1111/j.1365-2699.2006.01546.x>
- Neill, W.T. (1958) The occurrence of amphibians and reptiles in saltwater areas, and a bibliography. *Bulletin of Marine Science of the Gulf and Caribbean*, 8, 1–97.
- Neill, W.E. (1968a) Predation on tadpoles of *Bufo valliceps* Wiegmann by *Acilius semisulcatus* (Coleoptera: Dytiscidae). M.S. Thesis, University of Texas, Austin, Texas, 42 pp.
- Neill, W.E. (1968b) Predation on *Bufo valliceps* tadpoles by the predaceous diving beetle *Acilius semisulcatus*. *Bulletin of the Ecological Society of America*, 49, 169.
- Neill, W.E. & Grubb, J.C. (1971) Arboreal habits of *Bufo valliceps* in central Texas. *Copeia*, 1971, 347–348.  
<http://dx.doi.org/10.2307/1442852>
- Nelson, L.A. (1993) *The relationship between growth and heterozygosity in the Gulf Coast Toad, Bufo valliceps*. M.S. Thesis, Baylor University, Waco, Texas, 48 pp.
- Oliver-López, L., Woolrich-Piña, G.A. & Lemos-Espinal, J.A. (2009) *La Familia Bufonidae en México*. Universidad Nacional Autónoma de México-Comisión Nacional para el Conocimiento y Uso de la Biodiversidad, Mexico City, 139 pp.
- Orton, G.L. (1951) An example of interspecific mating in toads. *Copeia*, 1951, 78.  
<http://dx.doi.org/10.2307/1438064>
- Oyervides, M. & Zaidan, F. III. (2013) Natural History Notes: *Incilius nebulifer* (Gulf Coast Toad) Necrophilia. *Herpetological Review*, 44, 655–656.
- Peters, W. C. H. 1863. Peters, W.C.H. 1863. *Bemerkungen über verschiedene Batrachier; namentlich über die Original-exemplare der von Schneider und Wiegmann beschriebenen Arten des zoologischen Museums zu Berlin*. Monatsberichte der Königlich Preussische Akademie des Wissenschaften zu Berlin 1863:76–82
- Peterson, R.L. (1950) Amphibians and reptiles of Brazos County, Texas. *American Midland Naturalist*, 43, 157–164.  
<http://dx.doi.org/10.2307/2421886>
- Pierce, B.A. & Montgomery, J. (1989) Effects of short-term acidification on growth rates of tadpoles. *Journal of Herpetology*, 23, 97–102.  
<http://dx.doi.org/10.2307/1564014>
- Pierce, B.A. & Hall, A.S. (2012) Call latency as a measure of calling intensity in anuran auditory surveys. *Herpetological Conservation and Biology*, 8, 199–206.
- Platt, S.G. & Fontenot, L.W. (1993) Bullfrog (*Rana catesbeiana*) predation on Gulf Coast Toads (*Bufo valliceps*) in Louisiana. *Bulletin of the Chicago Herpetological Society*, 28, 189–190.
- Pope, P.H. (1919) Some notes on the amphibians of Houston, Texas. *Copeia*, 1919, 93–98.  
<http://dx.doi.org/10.2307/1435632>
- Porter, K.R. (1962) *Evolutionary relationships of the Bufo valliceps group in Mexico*. Ph.D. Dissertation, University of Texas, Austin, Texas, 149 pp.
- Porter, K.R. (1964a) Morphological and mating call comparisons in the *Bufo valliceps* complex. *The American Midland Naturalist*, 71, 232–245.  
<http://dx.doi.org/10.2307/2422697>

- Porter, K.R. (1964b) Distribution and taxonomic status of seven species of Mexican *Bufo*. *Herpetologica*, 19, 229–247.
- Porter, K.R. (1964c) Chromatographic comparisons of the parotoid secretions of six species in the *Bufo valliceps* group. In: Leone, C.A. (Ed.), *Taxonomic Biochemistry and Serology*. Ronald Press Company, New York, pp. 451–456
- Porter, K.R. (1970) Chapter 94. *Bufo valliceps*. *Catalogue of American Amphibians and Reptiles*. Society for the Study of Amphibians and Reptiles, St. Louis, Missouri, 1–4.
- Prasad, C., Edwards, R.M., Pegues, J., Mori, M., Wilber, J.F., Thomas, R.A. & Pierson, W. (1984) Distribution and characterization of cyclo (His-Pro)-like immunoreactivity in anuran (frog) skins. *Peptides*, 5, 133–136.  
[http://dx.doi.org/10.1016/0196-9781\(84\)90064-0](http://dx.doi.org/10.1016/0196-9781(84)90064-0)
- Powell, R., Collins, J.T. & Hooper, E.D. Jr. (1998) *A key to amphibians and reptiles of the continental United States and Canada*. University of Kansas Press, Lawrence, Kansas, 131 pp.
- Preston, D.B. & Forstner, M.R.J. (2014) Houston toad (*Bufo (Anaxyrus) houstonensis*) tadpoles decrease their activity in response to chemical cues produced from the predation of conspecifics and congeneric (*Bufo (Incilius) nebulifer*) tadpoles. *Journal of Herpetology*. [online ahead of print]. Available from: <http://journalofherpetology.org/doi/abs/10.1670/13-059?journalCode=hpet> (accessed 9 June 2015)
- Price, M.S. (2009) Geographic Distribution: *Ollotis nebulifer* (Gulf Coast Toad) *Herpetological Review*, 40, 109.
- Pyron, R.A. & Wiens, J.J. (2011) A large-scale phylogeny of Amphibia including over 2800 species, and a revised classification of extant frogs, salamanders, and caecilians. *Molecular Phylogenetics and Evolution*, 61, 543–583.  
<http://dx.doi.org/10.1016/j.ympev.2011.06.012>
- Quinn, H.R. & Mengden, G. (1984) Reproduction and growth of *Bufo houstonensis*. *Southwestern Naturalist*, 29, 189–195.  
<http://dx.doi.org/10.2307/3671025>
- Rakowitz, V.A., Fleet, R.R. & Rainwater, F.L. (1983) New distributional records of Texas amphibians and reptiles. *Herpetological Review*, 14, 85–89.
- Ramírez-Bautista, A. (1999) *Herpetofauna de la región El Huizache, San Luis Potosí. Informe Final del Proyecto R045*. Comisión Nacional para el Conocimiento y Uso de la Biodiversidad, Mexico City, Mexico, 150 pp.
- Raun, G.G. (1959) Terrestrial and aquatic vertebrates of a moist, relict area in central Texas. *Texas Journal of Science*, 11, 158–171.
- Ray, J.E., Preston, D. & McCallum, M.L. (2006) Life History Notes: *Bufo nebulifer* (Coastal plains toad): Urban Road Mortality. *Herpetological Review*, 37, 443.
- Reddell, J.R. (1970) A checklist of the cave fauna of Texas. VI. Additional records of Vertebrata. *Texas Journal of Science*, 22, 139–158.
- Reddell, J.R. & Finch, R. (1963) The caves of Williamson County, Texas. *Texas Speleological Society*, 2, 1–61.
- Reddell, J.R. & Knox, O. (1962) The caves of Bexar County, Part 1. *Texas Speleological Society*, 1, 1–38.
- Reese, R.W. & Firschein, I.L. (1950) Herpetological results of the University of Illinois field expedition, spring 1949. II. Amphibia. *Transactions of the Kansas Academy of Sciences*, 53, 44–54.  
<http://dx.doi.org/10.2307/3625676>
- Reid, J.A. & Whiting, M. (1994) Herpetofauna of pitcher plant bogs and adjacent forests in eastern Texas. *Proceedings of the Annual Conference of the Southeastern Association of Fish and Wildlife Agencies*, October 23–26, 411–421.
- Rommel, R.E. (2012) Toad trackers: amphibians as gateway species to biodiversity stewardship. *Herpetological Review*, 43, 417–421.
- Rosenberg, E.U. (1990) *Effect of low pH on individual tadpole growth in Pseudacris clarkii and Bufo valliceps*. M.S.Thesis, Baylor University, Waco, Texas, 38 pp.
- Rosenberg, E.U. & Pierce, B.A. (1995) Effect of initial mass on growth and mortality at low pH in tadpoles of *Pseudacris clarkii* and *Bufo valliceps*. *Journal of Herpetology*, 29, 181–185.  
<http://dx.doi.org/10.2307/1564555>
- Rossman, D.A. (1991) Geographic Distribution: *Bufo valliceps*. *Herpetological Review*, 22, 64.
- Rowson, A.D., Obringer, A.R. & Roth, T.L. (2001) Non-invasive treatments of luteinizing hormone-releasing hormone for inducing spermiation in American (*Bufo americanus*) and Gulf Coast (*Bufo valliceps*) toads. *Zoo Biology*, 20, 63–74.  
<http://dx.doi.org/10.1002/zoo.1007>
- Ryan, M.J. & Sullivan, B.K. (1989) Transmission effects on temporal structure in the advertisement call of two toads, *Bufo woodhouseii* and *Bufo valliceps*. *Ethology*, 80, 182–189.  
<http://dx.doi.org/10.1111/j.1439-0310.1989.tb00738.x>
- Saenz, D., Kavanagh, B.T. & Kwiatkowski, M.A. (2010) *Batrachochytrium dendrobatidis* detected in amphibians from national forests in eastern Texas, USA. *Herpetological Review*, 41, 47–49.
- Salinas, C. (2009) The influence of environmental factors on the activity and movement of *Bufo nebulifer* (Coastal Plain Toad) in a disturbed area. M.S.Thesis, University of Texas-Pan American, Edinburg, Texas, 78 pp.
- Sanders, J.D. (1962) Studies on a slime-producing bacterium from a sugar refinery and studies relating to the breakdown of chitin in the digestive tract of *Bufo valliceps*. M.S.Thesis, Southwest Texas State University, San Marcos, San Marcos, Texas, 96 pp.
- Sanders, O. (1978) *Bufo woodhouseii* in central Texas. *Bulletin of the Maryland Herpetological Society*, 14, 55–66.
- Sanders, O. (1985) *Evolutionary hybridization and speciation in North American indigenous bufonids*. Privately published, Dallas, Texas, viii + 110 pp.

- Sanders, O. (1986) The heritage of *Bufo woodhousei* Girard in Texas (Salientia: Bufonidae). *Occasional Papers of the Strecker Museum*, 1, 1–28.
- Sanders, O. & Cross, J.C. (1964) Relationships between certain North American toads as shown by cytological study. *Herpetologica*, 19, 248–255.
- Schmidt, K.P. (1953) *A Check List of North American Amphibians and Reptiles, Sixth Edition*. American Society of Ichthyologists and Herpetologists, University of Chicago Press, Chicago, Illinois, 280 pp.
- Schmidt, K.P. & Owens, D.W. (1944) Amphibians and reptiles of northern Coahuila, Mexico. *Zoological Series of Field Museum of Natural History*, 6, 97–115.
- Schwalbe, C.R. & Goldberg, C.S. (2005) Barking frog (*Eleutherodactylus augusti*). In: Lannoo, M.J. (Ed.), *Status and Conservation of U.S. Amphibians*. University of California Press, Berkeley, California, pp. 1491–492.
- Shaw, W.H.R. & Grushkin, B. (1957) The toxicity of metal ions to aquatic organisms. *Archives of Biochemistry and Biophysics*, 67, 447–452.  
[http://dx.doi.org/10.1016/0003-9861\(57\)90299-0](http://dx.doi.org/10.1016/0003-9861(57)90299-0)
- Smith, H.M. (1948) An annotated checklist and key to the amphibia of Mexico. *United States National Museum Bulletin*, 194, 1–118.  
<http://dx.doi.org/10.5479/si.03629236.194>
- Smith, H.M. (1978) *A Guide to Field Identification: Amphibians of North America*. Golden Press, New York, 160 pp.
- Smith, H.M. & Buechner, H.K. (1947) The influence of the Balcones Escarpment on the distribution of amphibians and reptiles in Texas. *Bulletin of the Chicago Academy of Sciences*, 8, 1–16.
- Smith, H.M. & Langebartel, D.A. (1949) The toad *Bufo valliceps* in Arkansas. *Copeia*, 1949, 230.  
<http://dx.doi.org/10.2307/1439003>
- Smith, H.M. & Sanders, O. (1952) Distributional data on Texas amphibians and reptiles. *Texas Journal of Science*, 4, 204–219.
- Smith, H.M. & Taylor, E.H. (1948) An annotated checklist and key to the amphibia of Mexico. *Bulletin of the United States National Museum*, 194, 1–118.  
<http://dx.doi.org/10.5479/si.03629236.194>
- Smith, H.M. & Taylor, E.H. (1950) Type localities of Mexican reptiles and amphibians. *University of Kansas Science Bulletin*, 33, 313–380.
- Spix, J.B. (1824) *Animalia nove sive species novae Testudinum et Ranarum quas in itinere per Brasiliam annis MDCCCXVII–MCCCXX jussu et auspiciis Maximiliani Josephi I. Bavariae Regis*. F. S. Hübschmann, München, xxxix + 53 pp.
- Sredl, M.J. (2005) Spotted chorus frog (*Pseudacris clarkii*). In: Lannoo, M.J. (Ed.), *Status and Conservation of U.S. Amphibians*. University of California Press, Berkeley, California, pp. 470–472.
- Sredl, M.J. & Field, K.J. (2005) Western narrow-mouthed toad (*Gastrophryne olivacea*). In: Lannoo, M.J. (Ed.), *Status and Conservation of U.S. Amphibians*. University of California Press, Berkeley, California, pp. 503–506.
- Stone, W. (1903) A collection of reptiles and batrachians from Arkansas, Indian Territory, and western Texas. *Proceedings of the Academy of Natural Sciences of Philadelphia*, 55, 538–542.
- Strecker, J.K. (1902) Reptiles and batrachians of McLennan County, Texas. *Transactions of the Texas Academy of Sciences*, 4, 95–101.
- Strecker, J.K. (1908a) The reptiles and batrachians of Victoria and Refugio counties, Texas. *Proceedings of the Biological Society of Washington*, 21, 47–52.
- Strecker, J.K. (1908b) A preliminary annotated list of the Batrachia of Texas. *Proceedings of the Biological Society of Washington*, 21, 53–62.
- Strecker, J.K. (1909) Notes on the herpetology of Burnet County, Texas. *Baylor University Bulletin*, 12, 1–9.
- Strecker, J.K. (1926a) Notes on the herpetology of the east Texas timber belt. 1. Liberty County amphibians and reptiles. *Contributions Baylor University Museum*, 3, 1–3.
- Strecker, J.K. (1926b) A list of reptiles and amphibians collected by Louis Garni in the vicinity of Boerne, Texas. *Contributions Baylor University Museum*, 6, 3–9.
- Strecker, J.K. (1926c) Notes on the herpetology of the east Texas timber belt. 2. Henderson County amphibians and reptiles. *Contributions Baylor University Museum*, 7, 3–7.
- Strecker, J.K. (1927a) Chapters from the life-histories of Texas amphibians and reptiles. Part 2. *Contributions from Baylor University Museum*, 14, 1–14.
- Strecker, J.K. (1927b) Observations on the food habits of Texas amphibians and reptiles. *Copeia*, 162, 6–9.  
<http://dx.doi.org/10.2307/1436213>
- Strecker, J.K. (1928) Occurrence of the spotted night snake (*Hypsiglena ochrorhynchus* Cope) in central Texas with other Bosque County herpetological notes. *Contributions from Baylor University Museum*, 15, 2–6.
- Strecker, J.K. (1930) A catalogue of the amphibians and reptiles of Travis County, Texas. *Contributions from Baylor University Museum*, 23, 1–16.
- Strecker, J.K. & Johnson, J.E. Jr. (1935) Notes on the herpetology of Wilson County, Texas. *Baylor University Bulletin*, 38, 17–23.
- Strecker, J.K. & Williams, W.J. (1927) *Herpetological records from the vicinity of San Marcos, Texas, with distributional data on the amphibians and reptiles of the Edwards Plateau region and central Texas*. *Contributions Baylor University Museum*, 12, 1–16.

- Sullivan, B.K. (2005) Woodhouse's Toad (*Bufo woodhousei*). In: Lannoo, M.J. (Ed.), *Status and Conservation of U.S. Amphibians*. University of California Press, Berkeley, California, pp. 438–440.
- Sullivan, B.K. & Wagner, W.E. Jr. (1988) Variation in advertisement and release calls, and social influences on the calling behavior in the Gulf Coast Toad (*Bufo valliceps*) *Copeia*, 1988, 1014–1020.  
<http://dx.doi.org/10.2307/1445726>
- Svedberg, T. & Hedenius, A. (1934) The sedimentation constants of the respiratory proteins. *Biological Bulletin*, 66, 191–223.  
<http://dx.doi.org/10.2307/1537332>
- Taylor, A.N. (1942) A cytological study of the germinal vesicle of the toad, *Bufo valliceps*. M.S. Thesis, University of Texas, Austin, Texas, 30 pp.
- Thornton, W.A. (1954) *Population relations and isolation mechanisms in Bufo woodhousei and Bufo valliceps*. Ph.D. dissertation. University of Texas, Austin, Texas, 118 pp.
- Thornton, W.A. (1955) Interspecific hybridization in *Bufo woodhousei* and *Bufo valliceps*. *Evolution*, 9, 455–468.  
<http://dx.doi.org/10.2307/2405480>
- Thornton, W.A. (1960) Population dynamics in *Bufo woodhousei* and *Bufo valliceps*. *Texas Journal of Science*, 12, 176–200.
- Thornton, O.W. & Smith, J.R. (1993) New county records for amphibians and reptiles from west-central Texas. *Herpetological Review*, 24, 35–36.
- Tipton, B.L., Hibbitts, T.L., Hibbitts, T.D., Hibbitts, T.J. & LaDuc, T.J. (2012) *Texas Amphibians: A Field Guide*. University of Texas Press, Austin, Texas, 330 pp.
- Trauth, S.E., Robinson, H.W. & Plummer, M.V. (2004) *The Amphibians and Reptiles of Arkansas*. University of Arkansas Press, Fayetteville, Arkansas, 421 pp.
- Tucker, J.K. (1994) A comment on bullfrog (*Rana catesbeiana*) predation on Gulf Coast Toads (*Bufo valliceps*) as reported by Platt and Fontenot. *Bulletin of the Chicago Herpetological Society*, 29, 73.
- Turner, F.B. (1960) Post metamorphic growth in anurans. *American Midland Naturalist*, 64, 327–338.  
<http://dx.doi.org/10.2307/2422665>
- Turner, F.B. (1962) The demography of frogs and toads. *Quarterly Review of Biology*, 37, 303–314.  
<http://dx.doi.org/10.1086/403692>
- Van Bocxlaer, I., Loader, S.P., Roelants, K., Biju, S.D., Menegon, M. & Bossuyt, F. (2010) Gradual adaptation toward a range-expansion phenotype initiated the global radiation of toads. *Science*, 327, 679–682.  
<http://dx.doi.org/10.1126/science.1181707>
- Verma, N. & Pierce, B.A. (1994) Body mass, developmental stage, and interspecific differences in acid tolerance of larval anurans. *Texas Journal of Science*, 46, 319–327.
- Viosca, P. (1926) Distributional problems of the cold blooded vertebrates of the Gulf Coastal Plain. *Ecology*, 7, 307–314.  
<http://dx.doi.org/10.2307/1929313>
- Vogel, L.S. (2007) *The decline of Fowler's Toad (Bufo fowleri) in southern Louisiana: molecular genetics, field experiments and landscape studies*. Ph.D. dissertation, University of New Orleans, New Orleans, Louisiana, ix + 114 pp.
- Vogel, L.S. & Johnson, S.G. (2008) Estimation of hybridization and introgression frequency in toads (genus: *Bufo*) using DNA sequence variation at mitochondrial and nuclear loci. *Journal of Herpetology*, 42, 61–75.  
<http://dx.doi.org/10.1670/07-059.1>
- Vogel, L.S. & Pechmann, J.H.K. (2010) Response of Fowler's toads (*Anaxyrus fowleri*) to competition and hyperperiod in the presence of the invasive Coastal plain toad (*Incilius nebulifer*) *Journal of Herpetology*, 44, 382–389.  
<http://dx.doi.org/10.1670/08-300.1>
- Volpe, E.P. (1956) Experimental F1 hybrids between *Bufo valliceps* and *Bufo fowleri*. *Tulane Studies in Zoology*, 4, 61–75.
- Volpe, E.P. (1957) Embryonic temperature tolerance and rate of development in *Bufo valliceps*. *Physiological Zoology*, 30, 164–176.
- Volpe, E.P. (1959) Hybridization of *Bufo valliceps* with *Bufo americanus* and *Bufo terrestris*. *Texas Journal of Science*, 11, 335–342.
- Volpe, E.P. (1960) Evolutionary consequences of hybrid sterility and vigor in toads. *Evolution*, 14, 181–193.  
<http://dx.doi.org/10.2307/2405825>
- Wagner, W.E. Jr. & Sullivan, B.K. (1992) Chorus organization in the Gulf Coast Toad (*Bufo valliceps*): male and female behavior and the opportunity for sexual selection. *Copeia*, 1992, 647–658.  
<http://dx.doi.org/10.2307/1446140>
- Wagner, W.E. Jr. & Sullivan, B.K. (1995) Sexual selection in the Gulf Coast Toad, *Bufo valliceps*: female choice based on variable characters. *Animal Behaviour*, 49, 305–319.  
<http://dx.doi.org/10.1006/anbe.1995.0044>
- Wallace, J.E. (2005) Cliff Chirping Frog (*Eleutherodactylus* [= *Syrhophus*] *marnocki*). In: Lannoo, M.J. (Ed.), *Status and Conservation of U.S. Amphibians*. University of California Press, Berkeley, California, pp. 496–499.
- Walls, S.C., Waddle, J.H. & Dorazio, R.M. (2011) Estimating occupancy dynamics in an anuran assemblage from Louisiana, USA. *Journal of Wildlife Management*, 75, 751–761.  
<http://dx.doi.org/10.1002/jwmg.97>
- Waddle, H. (2011) Amphibian monitoring in the Atchafalaya Basin. *United States Geological Survey Fact Sheet*, 2011 (3056), 1–4.

- Walton, A.C. (1929) Studies on some nematodes of North American frogs I. *Journal of Parasitology*, 15, 227–240.  
<http://dx.doi.org/10.2307/3271977>
- Walton, J.L. (2012) *The effects of mine land reclamation on herpetofaunal communities*. M.S.Thesis, University of Texas at Arlington, Arlington, Texas, 75 pp.
- Walsh, G.E., Weber, D.E., Esry, L.K., Nguyen, M.T., Noles, J. & Albrecht, B. (1992) Synthetic substrata for propagation and testing of soil and sediment organisms. *Pedobiologia*, 36, 1–10.
- Watson, C.M. (2007) Natural History Notes: *Thamnophis proximus* (Western ribbon snake): Foraging Biology. *Herpetological Review*, 38, 346.
- Webb, R.G. & Packard, R.L. (1961) Notes of some amphibians and reptiles from eastern Texas. *Southwestern Naturalist*, 6, 105–107.  
<http://dx.doi.org/10.2307/3669599>
- Whiting, M.R., Fleet, R.R. & Rakowitz, V.A. (1987) Herpetofauna in loblolly-shortleaf pine stands of east Texas. *United States Forest Service General Technical Report, State Office*, 68, 39–48.
- Wiest, J.A. Jr. (1982) Anuran succession at temporary ponds in a post oak-savanna region of Texas. In: Scott, N.J. (Ed.), *Herpetological Communities. U.S. Fish and Wildlife Service Wildlife Research Report*, 13, 39–47.
- Wilks, B.J. (1963) Some aspects of the ecology and population dynamics of the pocket gopher (*Geomys bursarius*) in southern Texas. *Texas Journal of Science*, 15, 241–283.
- Williams, A.A. (1992) *Behavioral thermoregulation of the Gulf Coast Toad, Bufo valliceps Wiegmann: effects of dehydration*. M.S.Thesis, McNeese State University, Lake Charles, Louisiana, 41 pp.
- Williams, A.A. & Wygoda, M.L. (1993) Dehydration stimulates behavioral hypothermia in the Gulf Coast Toad, *Bufo valliceps*. *Journal of Thermal Biology*, 18, 223–227.  
[http://dx.doi.org/10.1016/0306-4565\(93\)90006-F](http://dx.doi.org/10.1016/0306-4565(93)90006-F)
- Withers, P.C. (1978) Acid-base regulation as a function of body temperature in ectothermic toads, a heliothermic lizard, and a heterothermic mammal. *Journal of Thermal Biology*, 3, 163–171.  
[http://dx.doi.org/10.1016/0306-4565\(78\)90013-X](http://dx.doi.org/10.1016/0306-4565(78)90013-X)
- Wittliff, J.L. (1964) Venom constituents of *Bufo fowleri*, *Bufo valliceps* and their natural hybrids analysed by electrophoresis and chromatography. In: Leone, C.A. (Ed.), *Taxonomic Biochemistry and Serology*. Ronald Press, New York, pp. 457–464.
- Wright, A.H. (1929) Synopsis and description of North American tadpoles. *Proceedings of the United States National Museum*, 74, 1–70.  
<http://dx.doi.org/10.5479/si.00963801.74-2756.1>
- Wright, A.H. & Wright, A.A. (1938) Amphibians of Texas. *Transactions of the Texas Academy of Science*, 21, 1–36.
- Wright, A.H. & Wright, A.A. (1949) *Handbook of Frogs and Toads of the United States and Canada, Third edition*. Comstock Publishing Associates, Ithaca, New York, 640 pp.
- Wygoda, M.L. (1989) Body temperature in arboreal and nonarboreal anuran amphibians: Differential effects of a small change in water vapor density. *Journal of Thermal Biology*, 14, 239–242.  
[http://dx.doi.org/10.1016/0306-4565\(89\)90011-9](http://dx.doi.org/10.1016/0306-4565(89)90011-9)
- Yew, M.L. (1966) Electron microscopic studies on the origin and formation of yolk platelets in the Gulf Coast Toad, *Bufo valliceps* Wiegmann. Ph.D. Dissertation, University of Texas, Austin, Texas University of Texas, Austin, Texas, 54 pp.
- Yew, M.L. (1969) A cytological study of oogenesis and yolk formation in the Gulf Coast Toad, *Bufo valliceps* Wiegmann. *La Cellule*, 67, 330–339.