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Cover: New Mexico ridge-nosed rattlesnake, *Crotalus willardi obscurus*, from the Sierra San Luis in Sonora, Mexico. Photograph by David G. Barker

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Notes on the Herpetofauna of Nayarit, Mexico 1: Amphibians and Reptiles of the Municipality of Tecuala

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(all photographs by Jesús Alberto Loc-Barragán)

Abstract

This document is a step forward in our knowledge of the herpetofaunal diversity of Mexico and, in particular, the state of Nayarit. The study is the based on field observations, published literature, and information from national and international preserved collections. Our survey was undertaken during 2014–2017. A total of 51 species of amphibians and reptiles in three orders, 27 families, and 45 genera is reported. The family Colubridae is the most diverse, with eight species. A total of 39 species were found to be present in the Reserva de la Biosfera de Marismas Nacionales (RBMN). This study was conducted to detail the composition of the species present within this protected natural area and outside its borders, which area is part of the municipality of Tecuala, and to help fill in gaps in our knowledge of the distribution of various herpetofaunal species in the municipality.

Resumen

El presente documento forma parte como avance al conocimiento sobre la diversidad biológica del país y del estado de Nayarit. Se realizó el estudio del 2014 al 2017 sobre la base de registros realizados en campo, revisión de literatura e información herpetológica de colecciones nacionales y extrajeras. Se registraron 51 especies de anfibios y reptiles agrupados en tres órdenes; 27 familias y 45 géneros. Colubridae es la familia más diversa que registra ocho especies. 39 especies de herpetozoos presentes en la RBMN (Reserva de la Biosfera de Marismas Nacionales). Dicho estudio con la finalidad de dar a conocer la composición de aquellas especies presentes dentro del ANP (Área Natural Protegida) y fuera, como parte del municipio de Tecuala el cual presentaba un vacío de información en distribución de estos grupos de organismos.

Introduction and Background

Mexico, as a megadiverse country, is known for harboring a large number of wildlife species. The herpetofauna of the country is represented by 376 amphibians (Parra-Olea et al., 2014) and 864 reptiles (Flores-Villela and García-Vazquez, 2014). This herpetofaunal richness and that of other groups of vertebrates have generated an increasing interest in protecting these species by establishing or declaring Areas Naturales Protegidas (ANPs), which at present amount to 182, allocated to different categories, such as national parks, biosphere reserves, and natural monuments (CONANP, 2017). Woolrich-Piña et al. (in press) recognize five physiographic regions for the state (Sierra Madre Occidental; Cinturón Volcanico Transmexicano; Sierra Madre del Sur; Llanura Costera and coastal inlands), with six ANPs (Isla Isabel, declared a national park on 8 December 1980; La Reserva de la Biosfera Archipiélago de Isla Marías, declared on 27 November 2000; Islas Marietas, declared on 25 April 2005; Reserva de la Biosfera Sierra de San Juan, declared on 27 October 1987; Reserva de la Biosfera de Marismas Nacionales, established on 12 May 2010; and La Reserva de la Biosfera Sierra de Vallejo-Río Ameca, declared on 27 November 2012).

The limited knowledge regarding the herpetofauna of the state of Nayarit is widely dispersed. The key documents have been focused mainly on the distribution of the herpetofauna to the south (Martínez and Ceballos, 2010; Loc-Barragán et al., 2013; Fuentes-Castrejon and Maldonado-Gasca, 2015; Loc-Barragán, 2015; Ramírez-Reyes et al., 2015; Caravantes-Estrada et al., 2017), in the center (Lewis and Johnson, 1955; Zweifel, 1959; López-Solís and Luja, 2014; López-Solís, 2016; Molina and Miramontes, 2016; Luja et al., 2017), and for the insular region (Stejneger, 1899; Zweifel, 1960; Castro-Franco and Gaviño, 1990. Casas-Andreu, 1992; Miramontes et al., 2016), with only three studies for the north (Webb et al., 1981; CONANP, 2013; Woolrich-Piña et al., 2016). There have been studies that have updated the diversity of amphibians (Luja et al., 2014) and reptiles (Loc-Barragán et al., 2015; Woolrich-Piña et al., in press) for the state. These studies have documented the distribution and conservation of the herpetofauna of Nayarit, highlighting the composition of 38 species of amphibians and reptiles for the ANP Reserva de Biosfera de Marismas Nacionales (RBMN) (Woolrich-Piña et al., 2016). There are areas of the state, however, for which the herpetofauna is being documented within and surrounding various ANPs. At first such sampling was limited, but now this documentation has intensified, based on more frequent trips to the field. The coastal northern region of the state of Nayarit, where the municipality of Tecuala lies, is no exception; information on the herpetofauna is still insufficient.

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Typical Low Thorn Forest.

Typical Mangrove Forest: black mangrove (*Avicenna germinans*).

The municipalities of northern Nayarit, except for their salt marshes, have lost most of their original vegetation. The region has been transformed into grazing areas for livestock and agri cultural tracts, in which only small patches or portions of original vegetation are still present, including in the coastal plains of the municipality of Tecuala (Hanan-Alipi and González-Flores, 2013).

The objective of the present study was to increase knowledge of the herpetofauna of the northern coastal region of Nayarit, and to understand the distributional patterns of the component species. We generated a systematic list of those species, evaluating their Environmental Vulnerability Score (EVS), status of risk (NOM-ECOL-059-2010, IUCN), and their presence in different types of vegetation, and highlighting those species present inside the RBMN, corresponding to the municipality of Tecuala. Understanding the diversity of vertebrates in the site is of utmost importance for enhancing management and conservation programs for this area.

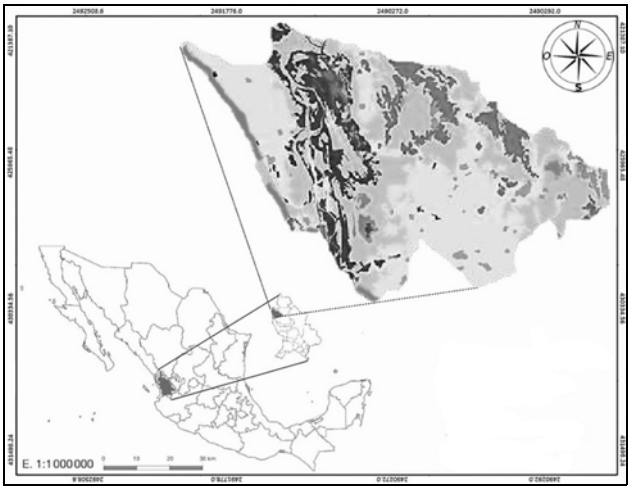
Study site (Biogeography)

This study was conducted in the municipality of Tecuala, Nayarit, located between 22°36' and 22°07' N latitude, and between 105°15' and 105 °45' W longitude. This municipality forms 3.81% of the state's surface area and is bordered to the north by the state of Sinaloa and the municipality of Acaponeta, to the east by the municipalities of Acaponeta and Rosamorada, to the south by the municipalities of Rosamorada, Santiago Ixcuintla, and the Pacific Ocean, and to the west by the municipality of Santiago Ixcuintla, the Pacific Ocean, and the state of Sinaloa (see map below). Tecuala presents a diversity of vegetation communities: Low Deciduous Forest and Low Thorn Forest include species such as *Guazuma ulmifolia* (West Indian elm / *guasima*), *Acacia cymbispina* (boat-thorn acacia / *cúcharo*), *Bauhinia* sp. (orchid tree / *pata de cabra*) and *Cochlospermun vilifolium* (buttercup tree / *tecomasuchil*), and represent around 15% of the municipality's area. Mangrove includes species like *Avecennia germinans* (black mangrove / *mangle negro*), *Conocarpus erectus* (buttonwood / *botoncillo*) and *Laguncularia racemosa* (white mangrove / *mangle blanco*), and covers about 12% of the municipality's area. Other types of vegetation communities are Riparian Forest with species such as *Ficus* sp. (fig trees / *higueras*), Halophyte Vegetation and Coastal Dunes, supporting species such as *Batis maritima* (turtleweed / *vidrillo*), *Mimosa* sp. (cat's claw / *uña de gato*), and *Pithecellobium dulce* (Manila tamarind / *guamuchil*). Those three communities cover about 24% of the municipality. Agricultural areas comprise the largest portion, about 47%, of the municipality. Crops include beans, sorghum, corn and chili peppers. Finally, grasslands make up about 2% of the area, occupied by *Aristida* sp. (needlegrass / *zacate tres barbas*), *Bouteloua* sp. (grama / *navajita*), and *Muhlenbergia* sp. (muhly grass / *zacatón*) (INEGI, 2000).

Methods

In addition to sampling the local herpetofauna, our study included a survey of the published literature, and the limited

Typical Riparian Forest.



The location of the municipality of Tecuala, Nayarit, Mexico.

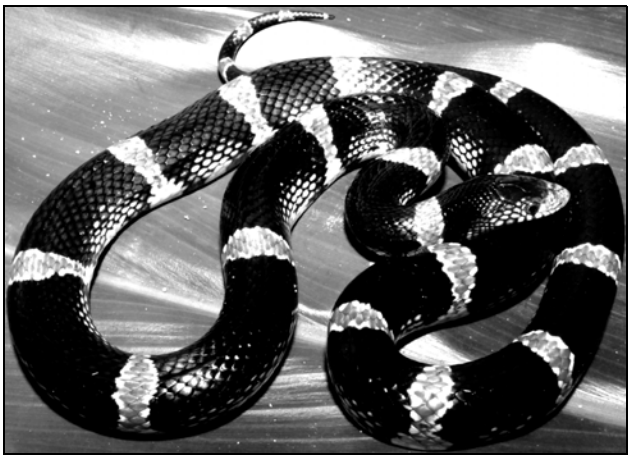
Incilius mazatlanensis, found outside the RBMN in Low Deciduous Forest.

Agalychnis dacnicolor, found outside the RBMN in Low Deciduous Forest.

Gastrophryne mazatlanensis, found inside the RBMN in Low Thorn Forest.

Adult female *Sceloporus clarkii*, found inside the RBMN in Low Thorn Forest.

Drymarchon melanurus, found inside the RBMN in Coastal Dunes.



Rhinocheilus lecontei, found inside the RBMN in Coastal Dunes.

Hydrophis platurus found on the beach of Novillero, inside the RBMN.

Kinosternon integrum found inside the RBMN, in Low Thorn Forest.

information available from online database platforms (Enciclo Vida, 2017; GBIF, 2017), which contain information on scientific collections of amphibians and reptiles in national and international institutions, such as: Los Angeles Museum of Natural History; California Academy of Sciences; Collection of Vertebrates of University of Arizona; Museum of Zoology "Alfonso L. Herrera" of the UNAM.

The taxonomy we follow for amphibians and reptiles is that of Woolrich-Piña et al. (2016). For all species, we included the bibliographic source where it was cited. The ecological affinity of the organisms was detailed in terms of six vegetation communities. Their status according to the official Mexican standard (NOM-059-SERMARNAT-2010) and the red list of the IUCN (2017) identified endemic and non-native species of Mexico and their category of risk. We assessed the Environmental Vulnerability Score (EVS) by use of Wilson et al. (2013a, b) and we detailed records for the herpetofaunal species inside and outside the La Reserva de la Biosfera de Marismas Nacionales.

Results

The herpetofaunal diversity of the municipality of Tecuala is represented by 51 species (17 amphibians and 34 reptiles). The families with the greatest diversity of species were the Hylidae and Bufonidae among amphibians, and the Colubridae and Dipsadidae among reptiles. Amphibians comprise a single order, eight families, and 14 genera. Eight of the amphibian species are endemic to Mexico, and three have been given special protection. Reptiles were grouped into three orders, 18 families, and 30 genera. Of these, 18 species are endemic to Mexico, 10 protected, five threatened, and one endangered (SEMARNAT, 2010). The IUCN rated three species as vulnerable, one as near threatened, two with deficient data, and ten not evaluated. The Environmental Vulnerability Scores show 18 species with low vulnerability, 17 medium vulnerability, and 12 with high vulnerability. The diversity in vegetation was: Low Thorn Forest with 31 species; Low Deciduous Forest with 26 species; Riparian Forest with 17 species; Coastal Dunes with 12 species; Mangrove with 10 species; and Halophyte Vegetation with seven species. Recorded inside the ANP-RBMN in the municipality of Tecuala herpetofauna are 11 amphibians and 28 reptiles, totaling 39 species (Table 1).

Discussion

The herpetofauna of Nayarit comprises 154 species, including 36 amphibians, of which 21 are endemic to Mexico, and 118 species of reptiles, of which 67 are endemic to the country (Woolrich-Piña et al., 2016). Based on our numbers obtained for the municipality, these records represent 47.22% of amphibians and 28.81 % of reptiles, compared to the state richness. The number of species found in this study is an important factor when considering the strategies for conservation for the municipality and the state.

Currently, the municipality of Tecuala is undergoing an increase in anthropogenic activities, as documented by Berlanga-Robles et al. (2010), who refer to the loss of vegetation cover and increased agriculture and urbanization activities. Habitat loss and fragmentation depress population growth and herpetological richness (Santos and Telleria, 2006), as well as increase ambient temperatures due to the elimination of the vegetation cover. One possible consequence of warming would be to reduce the time frame for reproductive behavior (Sinervo et al., 2010). In one specific case for the area, an amphibian malformation has been documented in association with agricultural activities (Loc-Barragán, 2016). The construction of the road that crosses the municipality (Carretera Acaponeta–Playa Novillero) has caused high mortality in amphibians and reptiles (Loc-Barragán et al., 2017). The positive or negative effects of the above-mentioned phenomena on the herpetofauna, however, have not been well studied and evaluated here or elsewhere in Mexico.

Reflection

The principal purpose of this document is to enhance the protection of our dynamic plant communities within the municipality, especially the low deciduous forest, which not is found in the ANP-RBMN, and is home to 25 of the 51 species reported here. The term conservation has been used for decades. It represents the efforts of many organizations and individuals who try to fight the mass extinction of many species that we recognize today as the sixth extinction (Kolbert, 2014). Currently, we are faced with denial of what is happening to Mother Earth, for example, climate change. Mexico is well known for its cultural diversity and megabiodiversty; we cannot continue denying that there is a serious need to pay more attention to our flora and

Table 1. Species of amphibians and reptiles of the municipality of Tecuala. **END** = endemism: EM = endemic to Mexico; NE = not endemic; NN = non-native. **NOM** = protection status under NOM-ECOL-059-2010 (SEMARNAT, 2010): P = En Peligro de Extinción (Endangered); Pr = Protección Especial (Special Protection); A = Amenazada (Threatened). **IUCN** = protection status according to the International Union for Conservation of Nature (IUCN, 2017): LC = least concern; VU = vulnerable; EN = endangered; DD = data deficient. **EVS** = Environmental Vulnerability Score sensu Wilson et al. (2013a, b): L = low risk (3–9); M = medium risk (10–13); H = high risk (14–20). **Vegetation**: LDF= Low Deciduous Forest; LTF = Low Thorn Forest; RF = Riparian Forest; M = Mangrove; HV = Halophyte Vegetation; CD = Coastal Dunes. **In**: X denotes species found inside RBMN. **Out**: X denotes species found outside RBMN. **Source**: A—denotes species observed in the field by the authors; M—denotes species found in databases of museum collections.

Family / Genus / Species	END	NOM	IUCN	EVS	Vegetation	In	Out	Source
Bufonidae								
Anaxyrus kelloggi	EM	—	LC	H(14)	LTF, RF		X	Woolrich-Piña et al. (2016); A
Incilius marmoreus	EM	—	LC	M(11)	LTF, RF	X	X	Woolrich-Piña et al. (2016); A
Incilius mazatlanensis	EM	—	LC	M(12)	LDF, LTF, RF	X	X	Woolrich-Piña et al. (2016); A; M
Rhinella horribilis	NE	—	LC	L(3)	LDF, LTF, RF	X	X	Woolrich-Piña et al. (2016); A
Craugastoridae								
Craugastor occidentalis	EM	—	DD	M(13)	LDF		X	A
Eleutherodactylidae								
Eleutherodactylus pallidus	EM	Pr	DD	H(17)	LDF		X	Loc-Barragán et al. (2016a)
Hylidae								
Dryophytes eximius	EM	—	LC	M(10)	RF		X	Loc-Barragán et al. (2016d); A
Smilisca baudinii	NE	—	LC	L(3)	LTF	X	X	Loc-Barragán and Woolrich-Piña (2016); A
Smilisca fodiens	NE	—	LC	L(8)	LDF, LTF	X	X	Woolrich-Piña et al. (2016); A
Tlalocohyla smithii	EM	—	LC	M(11)	LDF, RF	X	X	Woolrich-Piña et al. (2016); A
Phyllomedusidae								
Agalychnis dacnicolor	EM	—	LC	M(13)	LDF, LTF, RF	X	X	Woolrich-Piña et al. (2016); A; M
Leptodactylidae								
Leptodactylus melanonotus	NE	—	LC	L(6)	LDF, LTF, RF, HV	X	X	Woolrich-Piña et al. (2016); A
Microhylidae								
Gastrophryne mazatlanensis	NE	—	NE	L(8)	LTF	X	X	Woolrich-Piña et al. (2016); A
Hypopachus ustus	NE	Pr	LC	L(7)	LTF	X		CONANP (2013); Woolrich-Piña et al. (2016)
Hypopachus variolosus	NE	—	LC	L(4)	LDF		X	A
Ranidae								
Lithobates forreri	NE	Pr	LC	L(3)	LDF, LTF, RF	X	X	Woolrich-Piña et al. (2016); A; M
Scaphiopodidae								
Scaphiopus couchii	NE	—	LC	L(3)	LTF		X	Woolrich-Piña et al. (2016c); A
Crocodylidae								
Crocodylus acutus	NE	Pr	VU	H(14)	M, RF, CD	X	X	CONANP (2013); Woolrich-Piña et al. (2016); A
Dactyloidae								
Norops nebulosus	EM	—	LC	M(13)	LDF, LTF, HV	X	X	Woolrich-Piña et al. (2016); A
Gekkonidae								
Gehyra mutilata	NN	—	—	—	—		X	Woolrich-Piña et al. (2016); A
Hemidactylus frenatus	NN	—	—	—	LDF, LTF	X	X	Woolrich-Piña et al. (2016); A
Helodermatidae								
Heloderma horridum	EM	A	LC	H(14)	LDF, LTF, CD, HV	X	X	CONANP (2013); Woolrich-Piña et al. (2016b); A
Iguanidae								
Ctenosaura pectinata	EM	A	NE	H(15)	LDF, LTF, RF, M, CD, HV	X	X	CONANP (2013); Woolrich-Piña et al. (2016); A; M
Iguana iguana	NE	Pr	NE	M(12)	LTF, RF, M	X	X	CONANP (2013); Woolrich-Piña et al. (2016); A; M
Phrynosomatidae								
Sceloporus clarkii	NE	—	LC	M(10)	LTF, HV	X	X	Woolrich-Piña et al. (2016); A; M
Sceloporus nelsoni	EM	—	LC	M(13)	LDF		X	Woolrich-Piña et al. (2016); A
Sceloporus utiformis	EM	—	LC	H(15)	LDF, LTF		X	A; M
Urosaurus bicarinatus	EM	—	LC	M(12)	M	X		A

Table 1 (cont'd)

Family / Genus / Species	END	NOM	IUCN	EVS	Vegetation	In	Out	Source
Teiidae								
Aspidoscelis costata	EM	Pr	LC	M(11)	LDF, LTF, HV, CD	X	X	Woolrich-Piña et al. (2016); A; M
Boidae								
Boa sigma	EM	—	NE	H(15)	LDF, LTF, RF, M, HV, CD	X	X	CONANP (2013); Woolrich-Piña et al. (2016); A
Colubridae								
Drymarchon melanurus	NE	—	LC	L(6)	LDF, CD	X	X	Woolrich-Piña et al. (2016); A
Drymobius margaritiferus	NE	—	NE	L(6)	LDF, LTF	X	X	Woolrich-Piña et al. (2016); A
Lampropeltis polyzona	EM	—	NE	M(11)	LDF, LTF	X	X	CONANP (2013); Woolrich-Piña et al. (2016); A
Leptophis diplotropis	EM	A	LC	H(14)	LDF, LTF	X	X	CONANP (2013); Woolrich-Piña et al. (2016); A
Masticophis mentovarius	NE	A	NE	L(6)	LTF	X	X	CONANP (2013); Woolrich-Piña et al. (2016); A
Oxybelis aeneus	NE	—	NE	L(5)	M	X	X	Woolrich-Piña et al. (2016); A
Rhinocheilus lecontei	NE	—	LC	L(8)	LTF, CD	X	X	Woolrich-Piña et al. (2016); A; M
Trimorphodon paucimaculatus	EM	—	NE	H(15)	LDF		X	A
Dipsadidae								
Hypsiglena torquata	EM	Pr	LC	L(8)	LTF, CD	X	X	CONANP (2013); Woolrich-Piña et al. (2016); A
Leptodeira maculata	NE	Pr	LC	L(7)	LDF, LTF	X	X	CONANP (2013); Woolrich-Piña et al. (2016); A
Leptodeira punctata	EM	—	LC	H(17)	LTF	X	X	Woolrich-Piña et al. (2016); A; M
Tropidodipsas annulifera	EM	Pr	LC	M(13)	LDF		X	A
Elapidae								
Hydrophis platurus	NE	—	LC	—	CD	X		Woolrich-Piña et al. (2016); A
Leptotyphlopidae								
Rena humilis	NE	—	LC	L(8)	LTF, CD	X	X	Woolrich-Piña et al. (2016); A
Natricidae								
Thamnophis validus	EM	—	LC	M(12)	RF, M	X	X	Woolrich-Piña et al. (2016); A
Viperidae								
Agkistrodon bilineatus	NE	Pr	NT	M(11)	RF, M	X	X	CONANP (2013); A
Crotalus basiliscus	EM	Pr	LC	H(16)	LDF, CD, M	X	X	CONANP (2013); A
Cheloniidae								
Lepidochelys olivacea	NE	P	VU	—	CD	X		CONANP (2013); A
Emydidae								
Trachemys ornata	EM	Pr	VU	H(19)	RF, M	X	X	CONANP (2013); Woolrich-Piña et al. (2016); A
Geoemydidae								
Rhinoclemmys pulcherrima	NE	A	NE	L(8)	—		X	Loc-Barragán and López Solís (2016)
Kinosternidae								
Kinosternon integrum	EM	Pr	LC	M(11)	LTF, RF	X	X	CONANP (2013); Woolrich-Piña et al. (2016); A

fauna. Considering the current status of our endemic species, we are facing an immense problem, and there is no prompt solution to it (Johnson et al., 2017). The conservation issue is not only the obligation of government offices to their lowest level, but also of the no-governmental organizations, businesses, and the general public. Conservation of the herpetofauna of Nayarit is of extreme importance for ecosystem health. Conservation is one of the issues where societies invests poorly, but as Hamrick (2016) documents, this investment is growing as we realize the great utility in in conservation. We hope that this article will inspire other naturalists at the state, national, and international levels to work for the conservation of our magnificent habitats and allow sustainable human development, a word that is used extensively but few really understand how it works in nature.

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We Want YOU for the Calling Frog Survey And HerpMapper, Too!

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(Photographs by Lalainya Goldsberry)

Amphibians are experiencing a worldwide decline (Halliday, 2011; Stuart et al., 2003). As members of the Chicago Herpetological Society and readers of the *Bulletin* you are probably already very familiar with and concerned about this decline. It is very troubling that more than 30% of amphibians are threatened with extinction according to the International Union for Conservation of Nature (IUCN, 2017). McCallum (2007) suggests that the extinction rate of amphibians might be as much as 211 times the background extinction rate. This high rate of amphibian population decline is attributed to many factors that include the presence of non native and invasive species, overexploitation of amphibians, land use and land cover change, climate change, and infectious diseases such as chytrid fungus and ranaviruses (Collins and Storfer, 2003). Anurans account for over 6,000 of the more than 7,000 species of amphibians (Wilkinson, 2015). Out of 5,532 species of frogs and toads assessed by the IUCN, 1,749 are threatened or extinct (IUCN, 2017).

This decline matters for many reasons. Amphibians are considered to be indicator species. They are very susceptible to problems in the environment because of their sensitive skin, which is permeable and can absorb many toxic substances (Blaustein and Bancroft, 2007). So a decline in an amphibian population is an indicator there is a problem, which might harm other wildlife and humans as well (Guzy et al., 2012). Frogs are used in studies to determine the level of pollutants and contaminants in the environment that can harm humans (Simon et al., 2010). In addition to being indicator species, frogs and toads are important parts of food chains in their ecosystems. For example they consume disease-carrying pests such as mosquitos and their larvae (Hocking and Babbitt, 2014). They even are being used to find cures for human diseases. For example, frog skin is being used in the treatment of cancer (Wang et al., 2013).

Illinois is certainly not an exception to this amphibian decline. For example, the eastern cricket frog (*Acris crepitans*) (Figure 1), was one of the most common frogs in Illinois until the early 1980s. Once found in almost every Illinois county, they have now practically disappeared from the northern third of the state (Phillips et al., 1999).

Figure 1. Eastern cricket frog (*Acris crepitans*).

YOU can help! YOU can contribute important data that can be used to determine trends in local anuran populations so action can be taken so that other species don't experience decline the way the cricket frog did! One way is to participate in citizen science monitoring programs. Citizen science, where the public participates in organized research efforts (Dickinson and Bonney, 2012), is an excellent way for the general public to provide important data to scientists and researchers by getting involved in real, meaningful scientific investigations (Trautmann et al., 2013).

Right here in the Chicago region you can participate in the Calling Frog Survey, a citizen science frog and toad monitoring program that has been monitoring frogs in the region since 2000. In 2014 the Chicago Academy of Sciences/Peggy Notebaert Nature Museum took over the management of this citizen science project that was previously managed by Chicago Wilderness and Audubon Chicago Region. The goal of the Calling Frog Survey is to set up monitoring routes to collect data on the presence and abundance of frogs in the Chicago region. There are currently volunteers in Cook, Dupage, Kane, Kendall, Lake, Will and Winnebago counties in Illinois and in Lake and Porter counties in Indiana. The data can then be used to find trends in frog populations to inform land owners so that appropriate action can be taken before it is too late (Calling Frog Survey, no date). Your help is needed with this.

The data collected by volunteers can help detect declines and other changes in frog and toad populations, which are of concern to site stewards, ecologists and land managers. Generally, call surveys are used to track populations over time to help understand the diversity and abundance of species (Halliday, 2011). Acoustic sampling by means of call surveys is an efficient way to collect important data that can help future conservation efforts. For this type of survey, a citizen science volunteer learns the frog calls of the species being monitored, follows the guidelines of the land managers and the survey protocol, and collects valuable data for researchers and scientists.

Figure 2 shows the number of observations of those frog species that were observed in Cook County in 2016. Unfortunately this is a very incomplete picture of the frog and toad populations in Cook County. There simply are not enough sites being monitored consistently to be able to provide a more complete picture. I monitored a Cook County Forest Preserve in 2017, and had over five observations of spring peepers (see Figure 3). The last time anyone had monitored the site and entered data was in 2002 (Calling Frog Survey, no date)! It's kind of difficult to determine trends in populations with such gaps.

Unfortunately, over the years many sites have not been monitored regularly, resulting in many gaps in the data. Figure 4

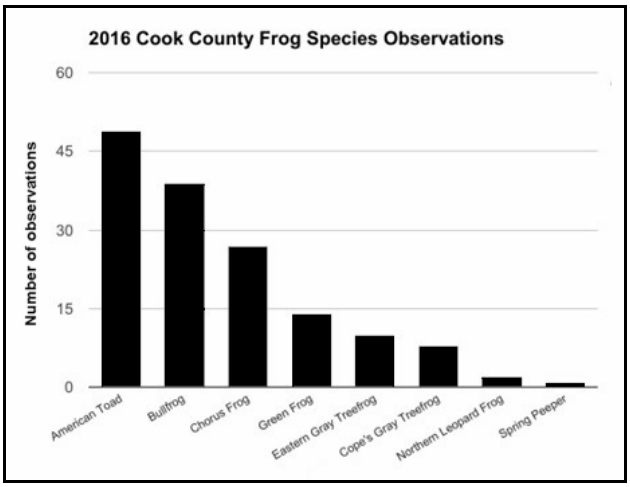

Figure 2. Number of observations of each of eight Cook County frog species by Calling Frog Survey monitors in 2016.
Retrieved 1 November 2016 from <http://frogsurvey.org>.

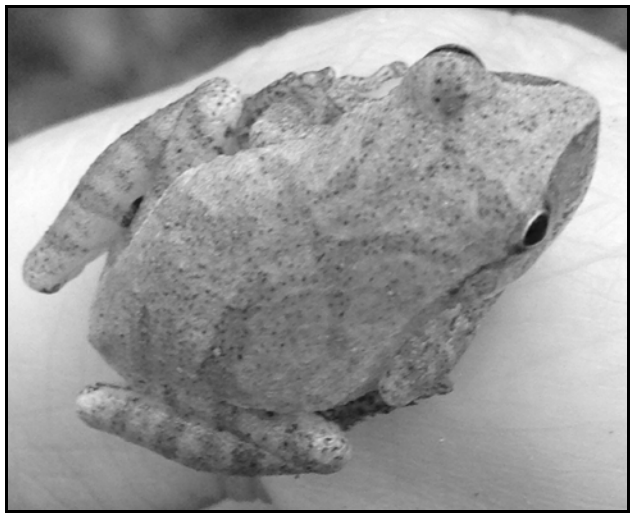

Figure 3. Spring peeper (*Pseudacris crucifer*).

shows the total number of routes monitored in Cook County that had data entered, and the inconsistency is clear. This is how you can help: Become a Calling Frog Survey volunteer and provide data on the presence and relative abundance of frogs! More consistent data can help detect trends in local frog populations as well as distinguish the normal ups and downs of local populations from actual declines in populations. With more data, interesting correlations with temperature, phenology, and other factors can be examined.

How much of a commitment is this? First, you will attend a training workshop at one of the many sites in the Chicago Wilderness Region. These usually happen January through March—check the website frogsurvey.org for these workshop dates in January and to read more about the survey. You will learn proper survey protocol and how to identify the 13 species of Chicagoland frogs by their calls and their physical characteristics. You will choose or be assigned a route to monitor. You will monitor at least three times a season—at least once in each of the three monitoring periods and then submit data on the online database.

Citizen science not only provides important data to help guide decisions on environmental issues, but it is also a significant way to raise environmental awareness and the conservation issues that have negative impacts on nature (Dickinson and Bonney, 2012). You can make a difference by participating in the Calling Frog Survey and collecting important data that will be used to ultimately ensure the survival of local frog species. If you are interested in learning more about volunteering for the Calling Frog Survey, visit frogsurvey.org. Getting out in the forest preserves at night to listen to frogs is loads of fun, too!

Another way you can help is by submitting photos and audio recordings to HerpMapper at herpmapper.org. HerpMapper is a website where you can create records of your herpetofauna observations. This is not restricted to frogs. You can submit data on any species of amphibian and reptile. Amphibians aren't the only animals experiencing a decline! Reptiles are also experiencing declines for many of the same reasons amphibians are, including habitat loss, unsustainable removal, climate change, disease, and environmental contamination (Todd et al., 2010). Records uploaded to HerpMapper are used by HerpMapper partners for research and conservation. It is also a great way for you to keep track of your observations when out herping, get confirmation on the species you observe, and contribute important data. There will soon be a HerpMapper midwest phenology monitoring project that partners with Midwest PARC (Partners in Amphibian and Reptile Conservation) that will help researchers study the phenology of reptile and amphibian species of the Midwest. The resulting data will contribute to long term datasets that will help understand variation of seasonal patterns. This will help those that study and research herpetofauna, as changes in activity patterns will affect the timing of researchers efforts. When this partnership is launched, contributors will be able to see real-time maps of herpetofaunal activity! The project has not started yet, but any observations you submit before then will be included when it does start. Photos of egg masses, nests and nest depredation, hatchlings, neonates/hatchlings, mating aggregations, and breeding migrations, as well as audio clips of anuran calls are all needed (HerpMapper, 2018).

Even the Chicago Junior Herpetological Society members participated in collecting data for HerpMapper—see the kids having fun in Figure 5 and an observation from that day in Figure 6! It's quite easy. Go to herpmapper.org, create an account, and add the HerpMapper application to your smartphone. You can upload voucher photos and audio clips from your

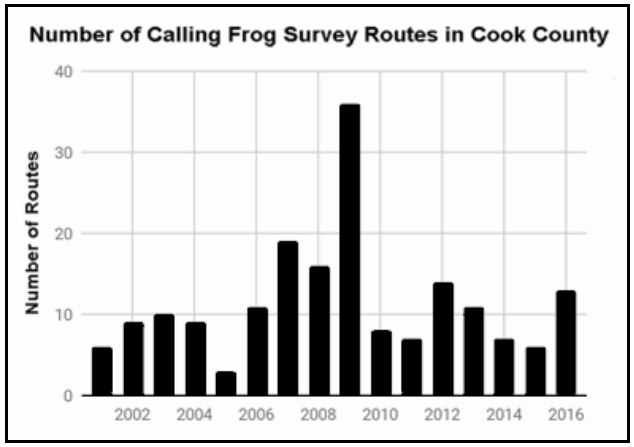

Figure 4. Number of Calling Frog Survey routes in Cook County from 2001 through 2016.
Retrieved 1 November 1 2016, from <http://frogsurvey.org>.

Figure 5. Members of the Chicago Junior Herpetological Society taking voucher photos of painted turtles and bullfrogs around North Pond in Lincoln Park.

phone or on your computer.

If you don't already participate in the Calling Frog Survey, or regularly upload observations to HerpMapper, please consider giving it a try! Visit frogsurvey.org and herpmapper.org for more information.

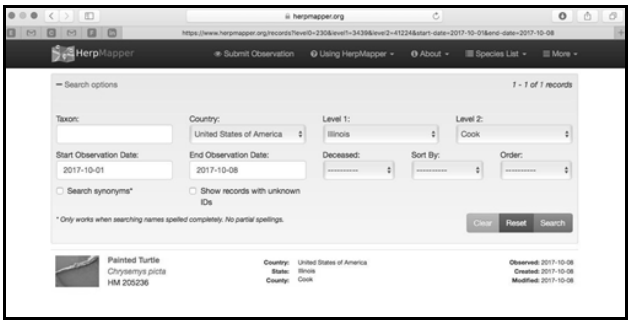

Figure 6. Screenshot of painted turtle observation by one of the Chicago Junior Herpetological Society members on HerpMapper.

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Flipping Pages: Appreciations of Herpetological Literature
The Overloaded Ark (1953) and *The Bafut Beagles* (1954) by Gerald M. Durrell

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The family-owned corner variety store used to be a staple of urban living. The one I frequented when I was growing up in Minneapolis was my candy store, my toy store, my stationery store, my post office (remember stamp collecting?) . . . there were few things an 11-year-old with his weekly allowance couldn't buy at a variety store. But I made one of my great zoological and literary discoveries in my variety store: the books of Gerald Durrell.

The first Durrell book I read, the one that I discovered incongruously among the paperback science fiction, romance and western novels that dominated the store's book rack, was *The Bafut Beagles.* Perhaps it was the cover art that caught my attention: A drawing of a group of African bearers in single file, followed by a white hunter in pith helmet, rifle in one hand and binoculars slung around his neck—a contrast to the garishly colored, cleavage-revealing depictions on the other books. Perhaps it was the phrase "Another animal-collecting romp with the lighthearted young English zoologist" on the back cover. Whatever it was, the book was fifty cents, and since I had been saving my allowance for weeks for such an extravagant purchase, I bought it.

I was surprised recently to learn Durrell (1925–1995) wrote nearly 40 books, including fiction (a big surprise!), nonfiction, and autobiography. Most of his books, including *The Overloaded Ark* and *The Bafut Beagles*, are autobiographical and recount his experiences as an animal collector, first as a boy, then for zoos, and finally for the zoo he established on the Isle of Jersey. It was his accounts of his collecting expeditions, to Africa, Asia, South America and elsewhere that enthralled me. *Ark* and *Beagles* both recount collecting trips he took to western Africa. Both include narratives of catching and keeping a variety of mammals, birds, and (my favorites!) reptiles. But they also include witty, poignant "anthropological" observations on people and human nature, told with wry British humor, understatement, and empathy.

Durrell's descriptions, like those of all good nature writers, reveal a keen observation and appreciation of the natural world. In the "Prelude" to *Ark*, he describes his first glimpse of Africa as the freighter he is on eases into port in Victoria, British Cameroons (today, the northern part of this former colony is part of Nigeria, while the southern section is part of Cameroon): "Over the islands, flocks of grey parrots wheeled in strong, rapid flight, and faintly their clownish screams and whistles came to us. In the glistening wake of the ship two brown kites circled in an anxious search for something edible . . . Over all this, the land and sea seen through the shifting, coiling mist, lay the magic smell . . . stronger, richer, intoxicating with its promise of deep forest, of lush reedy swamps, and wide magical rivers under a canopy of trees."

The immediate appeal of Durrell's books to me as a boy, though, were the accounts of catching and keeping animals. Again, Durrell's naturalist's eye for detail allowed me to vicariously experience the hunts, such as the capture of a Nile monitor, which he gives in *Ark*, on N'Da Ali, a mountain in the northern part of the country. The day before, Durrell and his hunters had caught a large monitor with the help of a pack of dogs. The monitor this time was smaller, and it had secured itself among rocks where it was difficult to approach and from where it could defend itself with its teeth, claws, and tail. The dogs, with one exception, realized how dangerous it was to approach the lizard and kept their distance once it was cornered. The one exception "rushed into the corner and . . . succeeded in fastening her teeth in the loose skin of the monitor's neck [no need to worry about the lizard: it was unscathed!]." The monitor ably defended itself: "lashing at the dog's thin body with its tail, grasp[ing] one of her ears in its sharp-pointed mouth. The dog . . . could not let go . . . " But the monitor was not done with its opponent! "Slowly and carefully . . . [it] rose on its thick legs and gradually edged its way round until first the one and then both of its hind legs were on the unfortunate bitch's back . . . [I]t hunched itself and suddenly kicked out with its hind foot, raking and tearing the skin off the dog's back with its curved claws." I had two take-aways from this episode: first, I learned the denotation of *bitch*; second, to this day I have not kept any monitors.

Durrell sometimes placed himself in danger, usually through his own carelessness (an important life-lesson for me as a boy!). His experience (from *Beagles*) of handling what he thought was a blind snake (*Typhlops*) was one that has stuck with me over the decades. A woman brought him a calabash containing "beef" (the pidgin word for an animal). Durrell took a quick look and decided the eight-inch-long snake was a blind snake. As he picked it up, he remarked that the snake had eyes (which blind snakes essentially do not), at which point the snake turned around and bit him.

What follows is classic Durrell. Although the bite itself was nothing, almost immediately Durrell experienced a burning sensation and realized he had been envenomed. Knowing he had no antivenin among his gear, he slashed himself with a razor and began what was then considered standard first aid for snakebite. Durrell's houseboy, meanwhile, had gone to the local chieftain, the Fon of Bafut (stories about the Fon are one of the major delights of this book) for help. The Fon arrived with his court and copious amounts of alcohol. It was decided that the Fon would have his driver take Durrell to the nearest hospital in the Fon's car. As might be expected, the car wouldn't start, so while Durrell and the Fon finished bottles of adult beverages, the entire community began pushing the car around the village until the motor eventually kicked in. By this time Durrell felt horrible.

After a long ride over broken, rutted roadway, he arrived at the doctor's, only to be told that the doctor had no serum for snakebite! What the doctor did do was inject Durrell with methylated spirits, give him a drink, and have him spend the night.

Durrell felt better the next day, although his arm was swollen, and decided to return to his camp. When he got there, he saw the woman who had brought him the snake, sitting in front of his hut smoking her pipe. She was waiting to be paid for beef. While it was the animals and adventures that attracted me to Durrell's books, what probably had a greater effect on me was his writing style. His audience was adults, not 11-year-old boys, and he used a diction and sentence structure to match. I can't remember if I used a dictionary or osmosis to learn the meaning of *tete-a-tete* and a plethora of other words and phrases, but I did. (I wonder if *plethora* was one of the words I learned?) If a sentence confused me, I reread it. I am convinced that whatever proficiency I enjoy with the English language owes more to Durrell and the other science and nature authors I read as I explored reptiles and nature through books than it does to all the SAT prep work I did in high school or all the lists of vocabulary words I memorized.

Another writing lesson I learned from Durrell is the importance of the vignette, the telling details that reveal much in a few words. The anecdotes he includes in his accounts are not mere embellishments and flourishes, but ways of recreating an event so that his readers experience it, too. While the "tell-your-readers-what-you're-going-to-tell-them-tell-them-then-tell-them-what-you-told-them" approached advocated by some may have its time and place, I can't say I have remembered or enjoyed reading such writing.

Earlier I alluded to Durrell's "anthropological observations." I was already a big Durrell fan when I read *My Family and Other Animals*, his account of his boyhood on Corfu. His widowed mother moved her family to the Greek island during the Depression. The book has its share of animal stories, but it is the depictions of his family (including Durrell's brother, Lawrence, who became a major author) and their neighbors that really stand out. A movie of the same name was released in 1987, and recently a public television series, *The Durrells in Corfu*, based on all of Durrell's writings about his boyhood there, has been aired. Both are highly entertaining, and they, as well as most of Durrell's books, are currently available. If you haven't already discovered this author, do yourself a favor and read one of his books. You may thank me with tens and twenties at your convenience.

Minutes of the CHS Board Meeting, March 16, 2018

Rich Crowley called the meeting to order at 8:30 P.M. Board members attending were John Archer, Dan Bavirsha, Rich Crowley, Mike Dloogatch and Gail Oomens. A quorum was not present. The minutes of the February 16 board meeting were read.

Officers' Reports

Treasurer: John Archer read through the financial reports.

Membership secretary: Mike Dloogatch read the list of expiring memberships.

Sergeant-at-arms: There were 42 in attendance at the February 28 meeting.

Committee Reports

ReptileFest: Frank Sladek reported that we have obtained our permit from Chicago Animal Care and Control. ZooMed will again be a sponsor. T-shirts are in progress

Junior Herpers: Frank Sladek reported that 30+ were present at the March meeting. The topic was feeder insects. The April meeting will focus on how to handle animals safely at 'Fest. The May meeting will feature a Show & Tell.

Grants: The list of recipients was published in the February *Bulletin*.

Old Business

We are still looking for a permanent venue at which to hold the board meetings.

John Archer intends to look into our involvement with Chicago Wilderness

We have been notified that our liability insurance will not be renewed, effective June 1. To aid our agent in finding us a new carrier, Rich Crowley and others will create a new set of written guidelines and protocols for our live animal shows.

The meeting adjourned at 9:58 P.M.

Respectfully submitted by recording secretary Gail Oomens

What You Missed at the March Meeting: Yatin Kalki

John Archer
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Our vice-president, Jessica Wadleigh, works hard at getting speakers who are knowledgeable, communicative and interesting, and she succeeds. We have world-class speakers. She also tries to mix things up by varying the types of presentations. We'll have someone talking about their latest research one month and a travelogue the next. Our motto should be, "No one leaves a Chicago Herpetological Society meeting knowing less than when they entered." I think Jessica does a fine job of getting the speakers. The March speaker was no exception. I was anticipating a fine travelogue but "Herping In Southern India" was so much more than just a travelogue. We were privileged to meet Yatin Kalki. Here's our web site bio of Yatin:

Yatin Kalki. Photograph by Dick Buchholz.

> Yatin grew up in the urban megacity of Bangalore, India, where at the age of 17, he started catching and relocating snakes that found their way into the neighbors' houses. He then went on to assist herpetologists in the Western Ghats, a mountain range in South India which is considered a world biodiversity. He is currently getting his bachelor's degree in Wildlife Conservation at the University of Illinois at Urbana-Champaign and also works in the herpetology collections at the Illinois Natural History Survey. As a part of a study abroad program, last year he traveled to Ecuador and the Galapagos Islands, where he got to assist with herp research. Over the last few years he's spent a lot of time herping in the Midwest and the south-eastern US along with his friends from the U of I.

Obviously, Yatin has done much in the relatively short time (at least to someone my age) he's been interested in herps. His expertise was well demonstrated during his visit. He opened with a colorful and striking shot of a defensive green tree snake (*Ahaetulla nasuta*). We knew right away that we were going to be seeing some great photos.

Yatin said that he knew that the Midwest was not renowned for its great herping, but he, along with many of us in the audience, disagreed. He flashed a map of locations and several very nice photos of some of the herps he's discovered while in Illinois, and then pictures of some of his finds on a recent trip to Florida. Eight days, 27 species of reptiles and 25 species of amphibians is a testament to his and his friends' herping abilities.

But we didn't get to savor many of those pictures before he moved on to the title of his talk. He lives in Bangalore, the third most populous city in India, when he's not at university. Always an animal lover, he didn't discover snakes until his dog found one in his garage. A few weeks after that incident he met Rom Whitaker, who inspired him to really research the herps of India. He quickly became the snake expert in his neighborhood, and then became on call for snake rescue throughout the city. The first few times he went field herping he was skunked. He soon realized that his dog was a lot better herper than he was, and trained his friendly yellow lab to track and find snakes. Yatin showed a short video of his dog performing. Since then, he's found many snakes in the heavily urbanized area where he lives. Over two years he kept records of all the snakes he found or rescued and relocated. Out of about 250, the most common was the Indian or spectacled cobra (*Naja naja*), followed by the Indian rat snake (*Ptyas mucosa*) and Russell's viper (*Daboia russelii*). 41%, 20%, and 18% respectively of the snakes he found. Over half the snakes found in a very developed city were venomous, one of which, the Russell's viper, causes the most deaths from snakebite in India. Yatin assured us that snake bites in the city are relatively infrequent compared to rural areas. I'm pretty sure that half of the audience wanted to move to Bangalore and become snake rescuers.

Yatin followed with some great shots and interesting facts of the top three species. Photographs taken for his records show that each Indian cobra has a distinct spectacle pattern on its hood. The snakes can get seven feet long. Twenty to 30 eggs, laid in the dry season, hatch during the monsoon when there are plenty of amphibians for the young to eat. He had a picture of a newborn downing a frog.

A green tree snake (*Ahaetulla nasuta*) in a defensive pose. They expand their bodies to expose the checkerboard pattern when threatened. Photo by Yatin Kalki.

The site of Yatin's first interaction with a snake in his garage at age 17. Note the density of housing and buildings in this section of Bangalore. Google Earth.

Wow! To find a caecilian with eggs! Photograph by Yatin Kalki.

Nilgiri forest lizard (*Calotes nemoricola*), one of the agamid lizards Yatin found in the Western Ghats. Photograph by Yatin Kalki.

What eyes! Cross-backed bush frogs (*Raorchestes signatus*) contemplating life in the Western Ghats. Photograph by Yatin Kalki.

Russell's viper (*Daboia russelii*) is responsible for most of the deaths from snakebites in India. Photograph by Yatin Kalki.

A Malabar gliding frog (*Rhacophorus malabaricus*) looking ready to take flight. These frogs lay eggs in bubble nests suspended above water. Photograph by Yatin Kalki.

The Indian cobra (*Naja naja*) is the most common snake Yatin finds in Bangalore, India. Photo by Yatin Kalki.

Yatin's grandmother holding a seven-foot Indian rat snake (*Ptyas mucosa*). Feisty when first approached, the snakes calm quickly. His grandmother used to be afraid of snakes! Photograph by Yatin Kalki.

The Indian rat snake gets to an average of ten feet. They are "super smart" habitat and prey generalists that may "growl" and strike when first disturbed but quickly calm down when handled.

Russell's vipers are responsible for the majority of snake bite deaths in India. They give birth to 50–80 babies at a time and many of his calls were to collect babies of this species. Their vivid patterns belie their camouflage abilities, and he had photos demonstrating how hard they can be to see in situ.

While showing us photos of the eight other snakes found in his neighborhood, he gave a brief life histories and characteristics of each. Then he moved on to the Western Ghats.

In the summer of 2015 he did a summer research project at the Kalinga Center for Rainforest Ecology. A photo of two king cobras (*Ophiophagus hannah*) in combat showed two of the denizens in that world biodiversity hotspot, the Western Ghats. Though the living was primitive, the wildlife included tigers and leopards, elephants and gaurs (well worth googling). He had a video of an orphaned Indian civet that he raised and released after training it to hunt. Many "aaaws" floated through the room. A short video of multitudes of leeches crawling up his

A view of the Western Ghats, a world biodiversity hot spot where Yatin did research in the summer of 2015. Photograph by Yatin Kalki.

legs turned most of those "aaaws" to "ughs." The herp richness of the habitat was displayed in many slides with spectacular pictures of snakes, lizards and frogs, including the green tree snake, cat snakes (*Boiga* spp.), a Nilgiri forest lizard (*Calotes nemoricola*), a Malabar gliding frog (*Rhacophorus malabaricus*), and a short video depicting dancing frogs (family Micrixalidae) performing the stylized leg movements they use to communicate in the noisy stream environments where they live.

Yatin graduates at the end of this year and hopes to pursue advanced degrees. He wants to explore northwest and northeast India and the Adaman Islands. Doing some searching on the internet reveals much more of Yatin's contributions to herpetology. It's well worth looking at his blog and his YouTube channel. You can see his dog finding a snake on YouTube. His blog has interesting reads as well as great visuals. The only down side to his visit was his inability to join us for dinner after the meeting. I had many subjects I wanted to explore with him. Unfortunately, he had an exam the next day, and while I'm really happy he was willing to speak to us, I hope he did OK on his exam. We're looking forward to his return sometime soon so we can buy him dinner and annoy him with a multitude of questions. I suspect that one day he'll rival Rom Whitaker in knowledge, if not in fame, but there is no doubt in my mind a time will come that I'll say, "I met him when . . . "

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The First One: The Great Sierra San Luis Ridgenose Saga

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The following account was written nearly 27 years ago, when the events were fresh in the author's mind. It has since gone through many versions, all thoroughly edited by at least ten editors. But until this day, it has never seen the light of publication. One member of the gang of four in the narrative is now dead. The remaining three have all lost data and images from this experience. It is long past the time to put it in print, before everything else is lost forever.

"I was alive and I waited . . . waited, I was alive and I waited for this." (from the song "Right Here, Right Now" as performed by Jesus Jones, written by Michael Edwards)

"In some desperation, on 16 August 1986, the three collectors in camp decided to investigate the canyon to the east of Cañon Diablo" (Barker, 1991).

It may come as a surprise to some readers of these columns to learn that this author was not *always* the Herp King of Southern Arizona. Herp Kings are not born as Herp Kings, they are made. Kings who rule countries, also known as "lesser kings," come out of their mothers' wombs predestined for their titles. In order to be one of *those* kinds of kings, all that one must do is fall out of the right womb. It must suck being them. In order to become a king of any sort of herpetological region or endeavor, one must earn it. And before one can earn such a crown, *one must want it badly enough to strive for it*. As much as this author would *love* to highlight the great deeds he performed to earn his lofty title, it would take a year of columns to do so. And as I have suggested in earlier columns, any talk of personal greatness seems to cause discriminating herpers, Herp Kings included, to simply lapse into comas. I will instead deflect from myself by stating that the Chicago Herpetological Society has at least *two* Kings in their midst. As Chicago is a big city, there is certainly room enough for two Herp Kings. But it appears that Chicago will be forever devoid of a Herp King, as neither of the most qualified people for the title seem to want it. And by the way, there is also a potential Queen in your midst. But I tire of speaking about the greatness of other people. I'm even tired of speaking of my own greatness. The fact is that I should no longer be the Herp King of Southern Arizona. But nobody has risen up to replace me, and *man* do I ever wish that somebody would! But enough with the digression; it is time to move on to the meat of this missive.

Speaking of meat, what is now an aging steak was at one time the palest of veal. We speak of that period from my birth until the point in time when I was almost 32 years old. To be sure, I dabbled in herpetology during this era of my life, but there was still hope for me in the real world. That hope for decency and normalcy crashed and burned as the result of all that follows in this text. Let it be said, let it be done, let it be read, and let it be fun. Amen.

It was the summer of 1986. It all started with a phone call—on a Sunday night no less. I was just sitting down to indulge in my favorite Sunday night treat—a piping hot blackberry cobbler. Then the phone rang. An amazing and unprecedented thing then happened. I answered it! Even more amazing—I was glad that I did. The caller was none other than my high school buddy Dave Barker, a guy I had not heard from in years. These days, Dave is possibly the most famous breeder of designer pythons in the world. But when I first met him, he was cleaning fish tanks at a pet store. It was *me* who got *him* into the herping world. Of course, after that, he left me in his dust herpetologically speaking, but there was a time when the whale was a guppy. Dave is always willing to acknowledge that I knew him when he was "nothing." Yup, Dave "Nothing" Barker is who he was before I came along. Now he is not only a Herp King, but a King of Life.

Getting back to the phone call: After the briefest exchange of cordialities (this was a time when long distance phone calls were expensive, even on Sunday nights), Dave got to the point. He was doing some research on Ridgenose Rattlesnakes in Mexico, and would be spending the next two months in the Sierra San Luis Mountains seeking a population of the New Mexico Ridgenose Rattlesnake (*Crotalus willardi obscurus*) to study. One of his team members would need a ride back to the Tucson Airport from the Mexican field site. Would I be able to join them? Could I do it at such a time to get his crew member to the airport? This was *exactly* the sort of thing that I wanted to do. I had moved to Tucson in 1981, and had tried *everything* in my power to gain access to fellow herpetologists in the area. The results of this all-out effort to find others of my ilk were a complete bust. Five years without a local herp buddy! I played alone a lot. Mr. Barker's phone call was the first of its kind during this five-year lull. Needless to say, my answer to Dave was a resounding "Hell yeah! I'm *so* there."

The final somewhat complex arrangements were made over the phone, and the next time I would see Dave was to be in the middle of nowhere in Mexico. I must confess that the thought of traveling south of the border did not exactly tickle me. The whole process of going to Mexico is a matter of felonious sucking up to get in. Coming back to the U.S. requires three times the amount of sucking prowess that it took to get *into* Mexico. Jeez, do I ever have some stories to tell about that crap! Traveling to Mexico is all an extremely laborious suck and counter-suck proposition that I will *never* do again. When going south through the border gates, mean-looking dudes who appear to be no older than teenagers hold machine guns at the ready. Scary! And pity any fool who tries to reenter the U.S. through some pissant border town when the wrong mongrel of a border guard

is in place! I am *so* glad that I did this thing while I was young enough to take it.

Entering Mexico went fairly smoothly. Some mandatory sucking up, some small monetary gifts, and a "Turista" sticker was eventually in hand. But there was nearly an international incident when I surprised an elderly man urinating on my Datsun while it was parked at the border station. They seemed to have some strange customs down there, but I do believe that some American civility was learned the hard way. The crowd that gathered around the shouting match found it all good fun. It was really no big deal; the piss just wiped right off. But I was spitting mad about it all at the time. Now that I'm older and calmer about such things, I just hope my spit "just wiped right off" him as well. (No, I don't go to Mexico any more. It's better for everybody that way.)

Part of the complicated process of getting to Barker's campsite involved a locked gate. There was a tiny one-room shack of a café at this gate, and I was to go in, introduce myself, and whoever was there would open said locked gate for me. When I entered this café, two young ladies seemed to be minding the place. In a well rehearsed sentence in Spanish, I said that I was a friend of Barker, and wished to go through that gate to meet him. At this announcement, I expected some light of recognition to appear in their eyes. Instead, the pair of identical dumb looks that swept across their visages would have to be seen to be appreciated. To be sure, they were warm, friendly, and they were polite—but they weren't going to be opening that gate for me. They tried speaking to me. I didn't understand. I tried pantomiming my intentions, showing them my keys, pointing to the gate, and twisting an imaginary lock with my keys. Two identical head shakes. They weren't going to open that gate. They apparently didn't get that memo. The exchange grew a little heated from my end, which they found highly amusing, and both began giggling uncontrollably. They obviously thought I was stupid, which is okay, because the feeling was mutual. This was all going slicker than greased owlshit! For fully 15 minutes, I shifted from one foot to another in discomfort, wondering whether I should just go home, or maybe find a way around that gate somehow. If I could relive the moment, I would have more fun with it all. They were two delightful young ladies. Their laughter was infectious, and even in my agitated state, I found myself joining in. But they weren't opening that gate! That part wasn't all that funny to me.

I finally bid them farewell with a shrug, and stepped outside to just go home. Forget it all. Curse Barker, and let it all die there. Good plan! Just as I was climbing back into my Datsun, ready to throw up the white flag, a massive pickup truck came rolling up the highway and turned in alongside me. A man whose face I do not remember rolled down the window and said, in perfect English, "Are you one of those crazy gringos chasing rattlesnakes on my land?" I of course replied in the affirmative. He handed me a key, pointed to the gate, and said "Get that for me, would you?" I unlocked the gate, swung it open, and he pulled through. He gave pause for long enough to collect the key back from me as he did. With a backward jerk of his head, he told me to lock it back up when I was ready. With that, he went barreling down the rutted cowpath, and was out of sight long before I pulled through and locked up. I later learned that this man was Chapo Varela, who was the owner of the spread that Barker was herping. Wherever he was going that day, his plans didn't include escorting me to Barker's camp. Thus far on this day, my vehicle had been pissed on, I had been insulted by a pair of doe-eyed beauties, and left for dead inside a locked gate in the middle of nowhere, Mexico. It had been a harrowing day, but the best was yet to come.

When giving me the directions over the phone, Barker had described the road to his campsite specifically as a "good road." When I let my mind drift to thoughts of good roads, seldom do such thought patterns lead me to think of what was in front of me that day. It was a rutted dirt two-track, resplendent with knee-high undergrowth running down the center. Perhaps if I were piloting a monster chariot like the aptly-named Bigfoot, I would have called it a good road. But I was driving a ground feeder—a 1981 Datsun 210 SL. This was a vehicle meant for good roads—the kind of good roads with flat, hard, black substances under the tires, and flanked with white and yellow longitudinal stripes. Yeah, that kind of good road is where my Datsun belonged. This was *not* a good road. The mighty little warrior carried me as best as it could. Half the time it seemed to be floating over the top of the underbrush between the tracks, the tires barely touching the ground. About every quarter-mile or so, there would be a gash across the road that would force me to get out and gather boulders or logs to fill so that I could get over it all without bottoming out. After one such particularly ambitious bridge project, I lay down alongside the road and seriously contemplated thrombosis. A heart attack was beginning to sound good at this point. But the thought of Ridgenose ahead carried the day, and onward I went. Then came the fork in the road. The crowd went wild when this occurred—as there was nothing in my directions to indicate said fork. A wrong turn here, and I could be endlessly rebuilding a road to nowhere for the rest of my life. I followed the advice of the famed New York Yankee catcher /guru Yogi Berra: When confronted by a fork in the road—take it! And by golly, I made the right choice, for five minutes later, I pulled up to the tent city that could only be the domain of David G. Barker.

With the pressure of arriving alive off me for the first time, I took note of my surroundings. Barker's campsite was set up the way an accomplished camper with an eye for comfort and a thin wallet would establish. Whether he's breeding pythons, writing books, building houses, cooking a meal or setting up a campsite—*everything* Barker does is a work of art. He doesn't do anything half-assed. The camp was nestled strategically in a flat grassland setting, among oak and alligator juniper trees. These in turn threw out ample patches of shade, which directed shadows to the right places during the hot afternoon. There was a massive tarp commanding center stage, under which various chairs, tables, footlockers, tools and cookware resided. Alongside that was an exquisitely designed fire pit, resplendent with a hanging pot and grill inlays of various sizes. The tent was a clothesline with a plastic tarp thrown over top. Both ends were open, allowing for more-than-adequate ventilation. A massive blue Chevy Suburban was parked alongside it (Figure 1). Under the tires of that beast, any road would be a good road!

Figure 1. The Barker campsite in the Sierra San Luis, 1986. Julian Garrett is in the background, preparing a feast for the herpers. Julian was the anchor of this trip. He selflessly performed the camp duties in order to free the rest of us for the field work. Rest in peace, Mr. Garrett, and thank you! You done splendid. All images by David G. Barker unless stated otherwise.

The horizon to the north of camp was dominated by two distant bluish-purple lumps on the horizon. The lump on the left was the Peloncillo Mountains, and to the right, the Animas Mountains. To the east of camp was a gently sloping and fairly wide canyon, the north side of which was carpeted with grasses, stunted oak and junipers, and broken rock battlements. The south side, or north-facing side, of this canyon was heavily forested. In continuing my visual sweep of the area, the view south of the campsite was totally dominated by a massive, densely forested peak that was nearly perfect in its conical symmetry. To the west rippled a vast and undulating grassland, occasionally interrupted by various distant mountain ranges that thrust upward in helter-skelter fashion. It was a seemingly infinite sweeping vista that encompassed both sides of the border for as far as the eye could see. While this was to be my first major herp trip ever in the Southwest, I already knew that I would be walking in tall cotton location-wise.

Soon after my arrival, Barker—the King of Life himself—came wandering into camp. He had just finished a lengthy trek seeking herps, and was returning empty-handed. We shook hands, grabbed a beer and settled into comfortable chairs under the tarp. We spoke of the things that old friends often do—family, mutual friends, who married who, who was alive and who was dead. As we were both rotten to the core with all things ophidian in nature, the talk soon drifted to rattlesnakes, in particular, the little brown ones. At the mere mention of *Crotalus willardi obscurus*, a cloud swept over Barker's countenance. They had been there nearly three weeks, and had yet to find one. Ouch! He went on to explain that not only were they not finding *obscurus*, snakes in general seemed to be scarce. Eventually, the talk drifted toward the purpose of us being where we were in the first place. Why go south of the border to find these things when they could be found in New Mexico? It was at this point that I got my first inkling of the dark side of the Endangered Species Act of 1972 (ESA). A few overzealous wildlife agency folk were pressing landowners (mainly cattle ranchers) to comply with some of the stricter aspects of ESA. The ranchers justifiably did not like snot-nosed college punks coming to their doorsteps to make demands, some of them costly, that *they* must make improvements to *their* land because an endangered species resided there. As *Crotalus willardi obscurus*, hereafter "*obscurus*" or "*willardi*" in this column, is an endangered species, the ranchers of the Animas Mountains (where *obscurus* were known to exist) were in the "shoot, shovel and shut up" mode often brought on by ESA requirements. Not only were they willing to apply bullets, digging tools and silence to any endangered species encountered, there were also bonus points for giving any wildlife biologists on their land the same treatment. That is why Dave Barker wound up working in Mexico for Charlie Painter and New Mexico Game and Fish—on a New Mexico species of rattlesnake. It was flat-out safer for everyone involved. But there was quite the negative snag with the selection of the Sierra San Luis as the new playground for studying *obscurus*. Said snag involved the fact that they had not yet found a single specimen. When I asked Barker how he knew *obscurus* could even be found there, his response had me just about fall out of my chair. One specimen had been reported from Cañon Diablo—back in 1951! That would be 35 years previous to this moment! Talk about having blind faith in a shaky proposition!

Presently, a giant of a man came lumbering into camp. He had roughly a wheelbarrow-sized load of wood cradled in his arms, which he carried effortlessly while maintaining a ramrod straight posture. He added his contribution to the night's fire, and sauntered over to introduce himself. He was Julian Garrett, Dave's father-in-law. While he was not a herper, he had come along for his love of camping. For the most part, when Dave and his buddies headed out for a day of herping, Julian stayed behind and did the lion's share of the camp chores. He was all bone and leather, a grizzled and worldly-wise Texan. Despite the fact that he was easily 35 years my senior, had he told me to shut up and sit down at any point during my visit, I would have immediately done so. As he clamped my hand in his vicelike grip, and locked eyes with me, I knew that this was the sort of man that everybody (literally) looked up to and respected. From beneath his weathered visage peered eyes that were such a deep shade of blue that they were nearly purple. I later learned that he had appeared on the cover of *Life* magazine as a member of the 1941 University of Texas football team. He still looked the part!

We chatted for about an hour or so, at which point the angle of the sun, as well as the big hand being on the 12, and the little hand pointing at the 5 on our watches, indicated it was time to make another feeble attempt to find a *willardi*. Dave and I hoofed the "good road" that had led me to camp, only now we were heading on past the camp and going deeper into the mountains. Our winding path took us spiraling downhill, where the forest canopy eventually engulfed us, and the roar of flowing, turbulent waters reached our ears. As we made our way down the road to the streambed, we beheld yet another giant coming our way. This guy could really cover ground, as each stride that he took seemed to carry him six feet. When I first observed him, he was about 200 feet downslope of us. It seemed like only seconds later, I was meeting Jack Cover, the third and final member of the Barker party at this point in time. Jack and Dave knew each other through professional association. Dave was lead keeper of herps in the Dallas Zoo, while Jack held the same title at the Fort Worth Zoo. It is here that I will ask the reader to

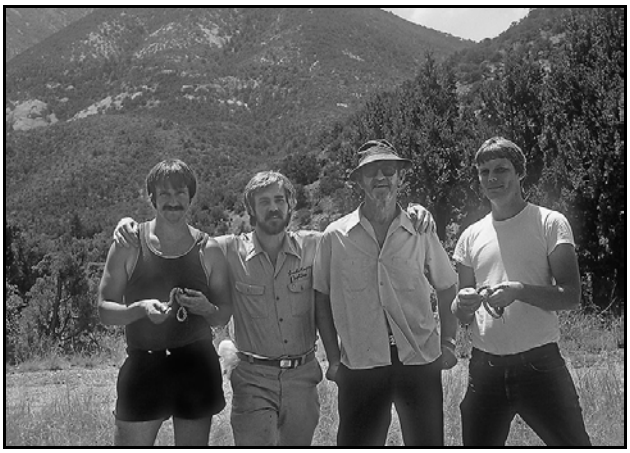

Figure 2. The four participants in the adventure. Left to right: Roger Repp, Dave Barker, Julian Garrett and Jack Cover, 17 August 1986. The pyros in the hands of Repp and Cover are not part of this story. "Aww, that next day!"

Figure 3. A Madrean Alligator Lizard (*Elgaria kingii*) from the vicinity.

refer to Figure 2, to learn exactly what everybody looked like in August of 1986. (And thus save myself the agony of writing physical descriptions of each person.) Jack had been out all day at the point we met up with him, but he didn't have a lot to show for it. He had a few Yarrow's Spiny Lizards (*Sceloporus jarrovii*), which are quite beautiful to behold, but not exactly world class finds to the discriminating herper. What was a *much* more impressive find was the Madrean Alligator Lizard (*Elgaria kingii*) that he had captured. While I am unaware of any photos having been taken of this particular animal, I nonetheless insert an image of a specimen from the vicinity (Figure 3).

"No snakes?" Dave inquired of Jack after admiring his find of the day.

"Humph," Jack snorted in retort. "There are no snakes in this canyon. You ought to know that by now!"

"I was just trying to be polite . . . "

And so a very discouraged and exhausted Jack Cover made his way up the road for a well deserved rest. Barker and I fanned out to cover as much ground as possible. Prior to describing all that followed this first effort, I must make a confession. Droplets of blood are now beginning to form on my forehead, as it is now time to expose the Kingless part of my life for what it was. When it came to finding any of the montane rattlesnakes, I was so green that I could have been Ireland. I had not a clue as to what to do, or how or where to look. I had not yet learned that my ears were not good enough to hear them rattle. That's right, Roger Repp, Herp King of southern Arizona could ***not*** (and *still* can ***not***) audibly perceive the sweet sound of music created by any of the smaller cascabel species. This didn't stop me from emulating Barker by going around and kicking rock piles in hopes of hearing one rattle. The only things being accomplished by that action were stubbing my toe, or maybe driving any would-be surface-active snake deep into the rock pile where *nobody* would ever find it. I basically became a human paint-brush who busied himself by whitewashing the side of the slope adjacent to the stream. I'd go uphill as far as I could stand, shift a little, and come back downhill. While engaged in that invigorating pastime, I was pointlessly kicking rock piles, or flipping the occasional flat rock or downed log. The whole effort could best be summed up as a 4F proposition: **F**umbling **F**eeble **F**utile **F**landickery. All in a place where even people with ears that could actually detect sound, and who knew what they were doing, were not finding anything. It was a pretty hopeless situation.

After an hour or so of this activity, I noted that it was getting dark in the canyon forest. I bellowed about the countryside, but Barker was out of earshot. I made the executive decision that it was time to return to camp. When I neared the top of the rise of the road out of the canyon, I turned for a last look the stream. While admiring the magnificence of this pristine section of the world, my eyes detected a familiar shape subtly sprawled out in the grass beside the road. I focused on the object in question, and almost got enthused when I noted that it was a 60 cm long Black-necked Gartersnake (*Thamnophis cyrtopsis*) (Figure 4). The enthusiasm that I almost felt rapidly waned when the realization struck me that the other guys in camp would probably want to see it. This of course meant that I would have to filth my hands to pick up and bag it. This I did, and received the stink-infested liquefied cloacal baptism that is customary from such creatures. I knotted the bag and suggested to the snake: "Phew-w-w-w-w-i-e, ***you stink***!"

"Didja find anything?" asked all three herpers at once when I

Figure 4. The author's first underwhelming contribution to the effort was this Black-necked Gartersnake (*Thamnophis cyrtopsis*).

Figure 5. Lowland Leopard Frog (*Rana yavapaiensis*).

arrived back at camp with my prize.

"Well, sort of," came my response as I unknotted the bag. "But I want you guys to understand that I ain't real proud of this." I displayed the catch, and much to my surprise, they were delighted with it. Talk about candidates for the easily entertained club!

"Jeez Rog, way to go!" Dave exclaimed, "I didn't see a snake all day."

"I haven't seen a snake in two days," Jack flatly stated, a grim look sweeping across his visage. "It's nice to know that *something* lives here."

Dave beckoned me over to one of the footlockers, cracked it open, and began hauling out some of the specimens that they had been finding for the past several weeks. Resting in peace on a metal tray, wrapped in paper towels soaked with formalin, were two species of Leopard Frog: the Lowland Leopard Frog (*Rana yavapaiensis*) and the Chiricahua Leopard Frog (*Rana chiricahuensis*) (Figures 5 and 6). They had also preserved dozens of lizards, mostly Yarrow's Spiny Lizards and a couple species of whiptails. They had a big jar full of preserved snakes, mostly Sonoran Whipsnakes (*Masticophis bilineatus*) and Gophersnakes (*Pituophis catenifer*). These I observed with a rather sick sensation in my stomach, as I correctly assumed this jar would be the final resting place for my Gartersnake. Let the harsh outcome of this particular capture be a lesson to anyone or anything that would musk the King.

Dave next brought out an opaque plastic gallon-jug that had an oversized screw-on lid. He unscrewed the lid, and allowed me to peek inside. Contained within the confines of this jug were two living Rock Rattlesnakes (*Crotalus lepidus klauberi*), by far the most impressive herps that they had collected thus far into the trip (Figure 7). Both of the diminutive rattlesnakes stared upward through the opening of the jug. Their coppery-gold eyes coupled with the vertical slits for pupils yielded a rather sinister appearance. Both began to rise in unison, ready to fight their way out of confinement. I wasn't about to let that happen, and after a last lingering and loving look, I carefully screwed the lid back on. Jack had found these *klauberi* three

Figure 6. Chiricahua Leopard Frog (*Rana chiricahuensis*).

days previous, and this gave me great hope that we could possibly find more. That would be a nice consolation prize should our real mission fail. Following the tour of the footlocker, which contained not much, my weakened digestive tract informed me of its intentions. I inquired if there was a designated plopping spot, and Dave pointed to a massive manzanita bush roughly 200 meters up the road. I had little trouble locating the place, there being nothing wrong with my olfactory senses. I created my own humble contribution, and there is little reason to get overly descriptive about *that*. But I could not help but notice that these Texans crapped big—which may or may not have been an indictment of what they were full of. The protocol was to leave the feculence on the ground, but burn the toilet paper. By the time I was hoofing my way back to camp, the daylight had failed to the point that a flashlight would have been handy. About midway into my return, what appeared to be a small snake wiggled across the road in front of me. I threw all caution to the wind, and pounced on it, both hands covering the escaping form. I came up with an Alligator Lizard, the second one found this day. I'd been lucky not to break the tail with my bumbling grab, and I returned to camp with a vastly improved disposition. The lizard made its way to the foot locker, and the herpers all made their way to the cooler for a celebratory beer. A fire was started, and a pot of spaghetti was produced and lustily consumed.

The main talk around the fire focused on the complete lack

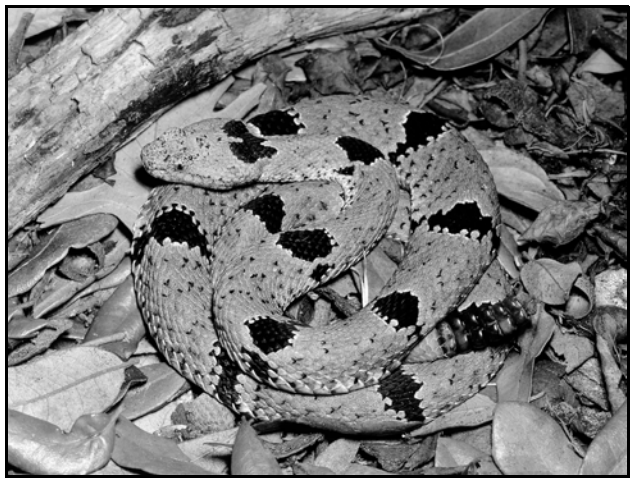

Figure 7. Rock Rattlesnake (*Crotalus lepidus klauberi*). Two of these were found just before the author arrived in camp.

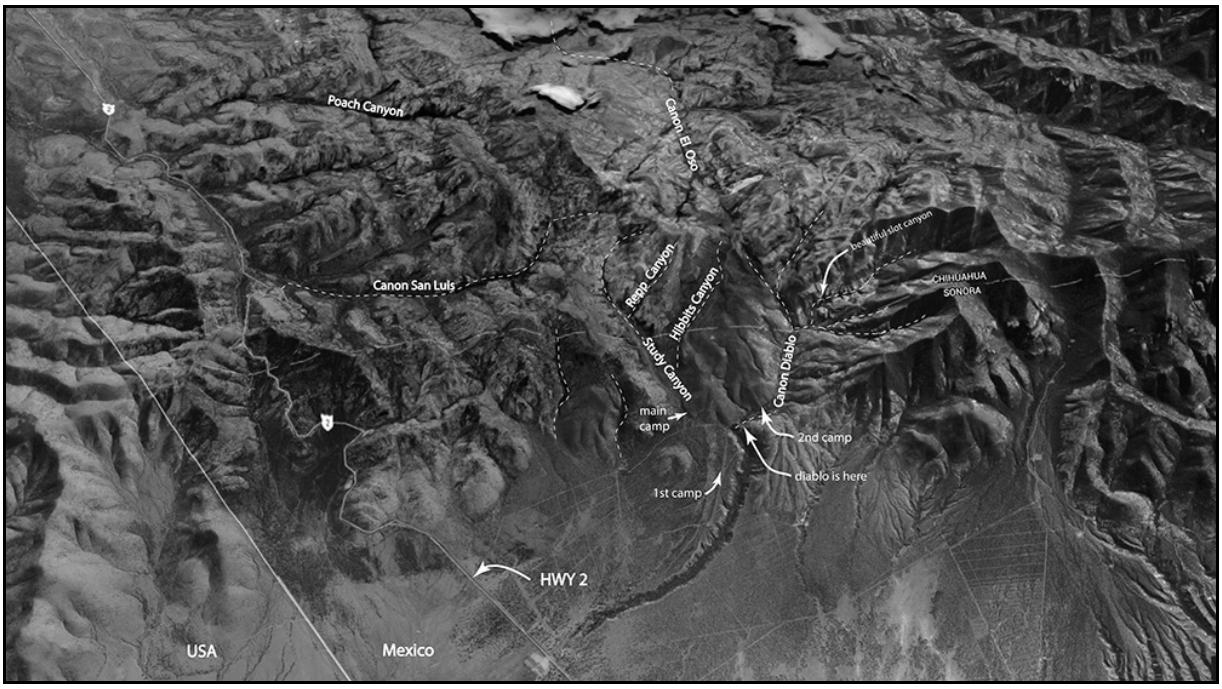

Figure 8. A map of the Sierra San Luis, depicting three of the canyons that were visited during the author's visit. See text for details.

of *willardi* encounters in Cañon Diablo. It was time to try a new location. There were actually two old records of *willardi* in the Sierra San Luis. The first, already discussed, came from Cañon Diablo in 1951. The second and more recent was found in a place called Cañon El Oso, (Bear Canyon), which is located on the east side of the range (see map, Figure 8). Eventually, we decided to give Bear Canyon a shot on the following day. The part of the plan that I found most appealing was that we would dine in the little café at the gate. I was looking forward to the food, as well as maybe razzing those two young ladies a bit about the gate business. About the point in time that the decision to try out Bear Canyon occurred, the clouds were beginning to pile up above us, and some ominous and ground-shaking thunder began rumbling its way across the heavens.

"Looks like it's fixin' to rain" Julian surmised as he twisted his head about to survey the heavens.

"Nah! It's not going to rain," came my totally ridiculous observation. "God promised me that it would not rain on this trip."

"But we need the rain," Barker countered, ignoring any talk of divine guarantees. "If anything, a good rain would help our cause. These montane rattlesnakes only come out after a good soaker."

"Yeah?" I snorted, "well, sorry about that. It isn't going to rain. I'm a pussy about camping in thunderstorms. I *refuse* to camp in the rain. God wouldn't do that to me."

As soon as these words emerged from my gullet, the torrential downpour began. The clouds put the pedal to metal, and an all out, full throttle gully-washer descended upon us. Along with the driving rain came a thrashing wind so fierce that the trees began touching their toes. The corresponding rain began traveling in horizontal, whipping fashion, parallel to the ground.

"God wouldn't do this to you, eh?" Barker hollered over the din of the storm. "Been to Church lately, buddy?"

"I refuse to camp in the rain," came my weak response as I dove into my sleeping bag and cocooned a tarp around myself. "This trip is beginning to bug me."

Dave reached down to clap me on the shoulder, and responded: "You're doing *great*! You've already found a snake and a fairly rare lizard. Now all you need to do is show some backbone through this little pissant storm."

As he finished this statement, a gust of wind from the "little pissant storm" knocked him backward. He flailed his way through the full fury of the storm, and fell into their makeshift tent. I was residing between two footlockers under the main tarp. I wrapped myself tighter in my cocoon, and began breathing silent and fervent prayers to my maker. There are no atheists in foxholes—or howling Mexican thunderstorms. But the best was yet to come. Eventually, the rain subsided enough for me to stick my head out from under my protective covering to survey my surroundings. The rain had let up, but the wind had not. An additional visual treat came as a bonus to the terror of the storm. When I first peeked out of my cover, the world was viewed as though a strobe light was adding its own special effects. The air was full of sizzling lightning bolts snaking their way through the clouds, to the accompaniment of rumbling reverberations of corresponding thunder. Even as I watched, three million volts of simon-pure electricity jetted down from clouds, and tore the limb off a nearby oak tree not 100 feet from us. The roar of the ground-shaking **BOOM**, and the simultaneous visual of the smoldering limb crashing to the ground inspired me to shout: "Whoa! Look at *that* shit! We are going to *die* here!"

The response to my statement came in the form of raucous laughter from my comrades in the tent. Oh yeah, this was a *real* knee slapper, all right! They bellowed in macho mirth about our situation. I knew then that these Texas jackals had all been in the field for too long. How in the hell could *anybody* find this funny? We were all about to ride a shaft of lightning into the

middle of next week, and all they could do is laugh? As I wrapped my plastic cocoon back over my head, and tried to dig a foxhole with my body, I came to the realization that I was no longer dealing with sane people. Perhaps they were sane at one point in their lives, but three weeks in the wilds of Mexico had driven all notions of common sense clean out of their heads. There was one last titillating morsel of entertainment that manifested itself shortly after. A mighty gust of wind tore the corner pole of my shelter right out of its moorings, and my shelter for the night began to earnestly flap about like a one-winged condor plunging from the sky. If I didn't react quickly, I was going to lose my flimsy roof. Lightning continued to ripple through the sky at all angles, the light show allowing ample enough illumination to find the six-foot-long aluminum pole that was now residing about 20 feet from my shelter. I was now holding a six-foot-long lightning rod in the midst of the electrical carnage surrounding me, while fumbling in epic fashion to get it back in place through the corner grommet of my canvas roof. It was Jack who saved the night for me. He came barreling out of the tent in nothing but his underwear, hammer in hand, and we worked together to get it all staked out proper again. What a guy!

There were no other incidents that night, and sleep finally blessed me with a welcome cameo appearance. When I de-cocooned myself the following morning, there was no indication whatsoever that the storm had happened. Of course, the tall grass was wet, and the road muddy, but the skies were clear blue, and the tweety birds were busily chirping away in the trees above. I was first to rise, and used the time to hoof down to the stream to wash up. When I returned, Julian had a cup of coffee in hand, and the pot was boiling merrily. I joined him for the coffee, and I swapped stories with this gruff but kindly Texas gentleman until such time as the other two joined us. While Jack and Dave may have been a little slow getting started, once on their feet, they wasted little daylight in making preparations to embark on the journey. Everything needed was packed and ready to go in less than half an hour. I was a little mystified when I saw them both start walking down the road to the manzanita bush with toilet paper in hand.

"Hey!" I yelled to them. "Where you going?"

"We're taking this crapper wrapper for a walk," came Barker's sarcastic reply. "Where do you *think* we're going?"

"I thought we were going to the café."

"We are."

"Why don't you just crap there?"

"Why don't you?"

"I plan on it!"

The two of them exchanged amused glances, and Dave inquired "Do you mean to tell me that you are turning down the chance for a nice, pristine communion with nature to plop in a Mexican bathroom?"

"You bet!"

Once again, my comrades exchanged wondering glances, and then they both stared at me as if I had lost my mind. Without any further dialogue, they turned and continued down the road, but both kept turning toward me with incredulous expressions on their visages. They would look at each other again, shake their heads some, and continue onward. I now knew beyond a shadow of doubt that these guys had been spending too much time in the hills. If they would rather squat in the weeds like an animal than sit on a throne like a human being, there could be little hope for them to ever return to civilization. I pitied them as they rounded the corner to do their thing.

About ten minutes later, we all piled in Julian's Suburban. With Dave at the helm, we barreled down Barker's "good road." Said good road—which had seemed nearly insurmountable in my Datsun—was not a problem for the Suburban. I swore to myself that one fine day, I would own a badass four-wheel-drive truck like this one. We arrived at the locked gate that had given me such fits the previous day. Jack nimbly hopped over the gate, entered the café, and returned in jig time to get it open for us. Dave drove through, parked, and we headed inside and gathered around a table. While I remember very little of the interior, calling it "quaint" would not be a disservice. One of the young ladies I had seen the day before greeted us, and some rapid-fire Spanish occurred between Dave and her. My mastery of the Spanish language was so poor that I didn't understand that breakfast had just been ordered. When I asked Dave about menus, he just laughed and informed me there were three meals a day served there. They were called breakfast, lunch, and dinner. He had logically just ordered breakfast. All food was cooked over a wood stove, and our young waitress helped an older woman do the cooking by feeding the stove, beating eggs, chopping up whatever required chopping, and other miscellaneous kitchen chores. The younger woman did not seem to recognize me from the day before, and I decided to just lay low—no doubt keeping the spit out of our food in the process. My innards reminded me that my morning constitutional had been skipped, and would not be ignored for much longer. I excused myself from the table, wondering why these Texans were trying so hard to hide their smirks as I did. The café was small enough to note that the restroom was *not* inside. I sauntered out the door and observed a small adobe building on the opposite side of the road to Barker's campsite. The door faced toward the mountains, and away from the main road. As the door was ajar, I paused at the opening for long enough to allow my eyes to adjust. That moment would have been an ideal time to be struck blind.

A description of the anal carnage inside would cause the reader's stomach to turn, and the pages to *stop* turning. In order to justify how things could go so terribly awry, I suggest that perhaps the people south of the border must have a fear of catching disease from a toilet seat lid? Or perhaps they make a game of trying to hit the hole from the doorway, like a form of basketball free throws? If that is the case, there were lots of misses—but a few "rim shots." I never actually made it to the hole to see what may have been inside. At my first glance, I lost all desire to defecate here, or any place else for the remainder of the trip. It takes a *lot* to stop my inner workings, but what was learned here is that under times of extreme distress, the human digestive system seems to be able to physiologically generate its own powerful form of Imodium® A-D. Our manzanita bush back

at camp looked like a slice of paradise by comparison. All eyes were upon me as I entered the café—including those of the staff. "How did it go?" Dave inquired, a devious gleam in his eyes. "Words can't describe it," came my response. I should have been in Vegas with a royal flush in front of me, so good was my poker face. The two women both visibly relaxed, and my comrades just grinned and switched the subject. It wasn't until *after* we were back in the truck that the Arizona contingent of the trip lit into those Texans. They kept saying, "Hey, we tried to warn you." I'm here to say that they did *not* try hard enough!

Breakfast was served. It was hot, brown food served with flour tortillas. Despite the similarities to what had just been viewed, it was quite delicious. Dave paid for the meal with about a million pesos, which at the time was about a buck-fifty, and off we drove to find Bear Canyon. The canyon itself was obvious. It was a wide open affair that narrowed as it drew close to the mountains. We correctly assumed that this was Bear Canyon, although there were no bears frolicking about to confirm our suspicions. We spent the next hour pointlessly driving around, seeking a way in to the place. Several backroads seemed to be heading the direction that we wanted to go, but all roads terminated with a locked gate. It was an extremely frustrating experience to see the wide open maw of the massive canyon dead ahead, and not be able to access it. We eventually bumped into some vaqueros on horseback, who directed us to the ranch of the people who basically owned Bear Canyon. We soon found ourselves in the center of the ranch courtyard, and a meet and greet ensued. Barker is a man of many talents, and we can easily add "international diplomat extraordinaire" to his repertoire. A gentleman by the name of Jose agreed to come with us, and became our guide for the day.

Simply getting to the end of the road in was an adventure in and of itself. There were several stream crossings, each progressively more challenging. For the last crossing, Jack and I had to wade through the stream at the approximate trajectory the tires would approach. Any large boulders encountered—and there were many—had to be physically rolled aside. It was here that there was a bit of snarling between the driver and the road crew, when it was felt that one of us missed a massive boulder (weighing perhaps two tons) that the driver felt should be moved. The road crew suggested that he steer around it. Soon this labor-intensive effort was behind us, and so was the stream. But the road dead-ended less than 200 feet after our little road improvement project, making the effort all for naught. We had gone as far as we could. It was the end of the line for Bear Canyon—where half the fun is getting there. As the mighty Suburban regurgitated its contents, some surly exchanges were still occurring. After a cooling off period, a brief discussion determined our plan of attack for the area. Julian would cover whatever ground he could around the vehicle. Dave and Jose would head up a side drainage, while Jack and I would head up the main streambed as far upstream as we could manage. After the usual gathering of backpacks and other essential equipment, we split up to assail the canyon.

Per the ordained plan, Jack and I put our backs to the Suburban, and were out of their sight quicker than it takes to write down. We covered opposite sides of the watercourse. Jack was on the left, or south side, where there was a dense canopy of forest. I was covering the right, or north side of the stream, which was mainly oak-chaparral, and somewhat rockier. The creek itself was intermittent. In some places, it was bone dry, in others, it was a slow moving wide and shallow affair, and in a few spots, the water gathered in deep, swimming-hole-type tinajas. The whole streambed was strewn with jumbles of boulders anywhere from hand-sized to the size of a Volkswagen Beetle. The conversation flowed freely between us as we searched for our cryptic quarry, the main topic of discussion being what type of dream herps we would like to see the most. Besides an *obscurus*, which was beginning to seem out of the question, we both hungered for a Mountain Kingsnake (*Lampropeltis pyromelana*). Neither of us had ever found one of these highly sought red, black and white ringed jewels of the higher elevations. (Besides a newspaper, or a nun tumbling down the stairs, what's black and white and red all over? A pyro!). To hope for one in this location was not an impossible dream. One herp that we were seeing in prolific numbers were the Yarrow's Spiny Lizards. Every sizeable boulder in the canyon had one or more of the spiky, gaudy gray- and lavender-colored lizards perched on top. They did the best they could to entertain us with their head-bobs and vigorous push-ups, but we were sick of them. Every once in a while a whiptail would come twitching by to add a little variety, but they weren't exactly floating our boats either. We were snake people—and we wanted snakes!

About two hours into the hike, Jack rolled a flat rock and uncovered a Chihuahuan Black-headed Snake (*Tantilla wilcoxi*). This specimen was a large adult, the term "large" being somewhat misleading. It was under a foot in length, and roughly half the diameter of a pencil. The coloration was uniformly glossy tan on the dorsum from the tip of its tail to the back of its tiny neck. The neck had a single narrow white ring, which was ringed by an even thinner black band on either side. Its tiny head was all black—as the name implies (Figure 9). Its belly was a solid light orange in coloration. While this was the first Black-headed Snake of any species that I had ever seen, I found it most unimpressive. But it *was* a snake after all, and Jack took the time to bag it to add to our slow growing collection back at camp. I should have savored the capture of this tiny creature more than I did, as we did not see another snake for over three hours.

As suggested earlier in this narrative, I was quite the neo-

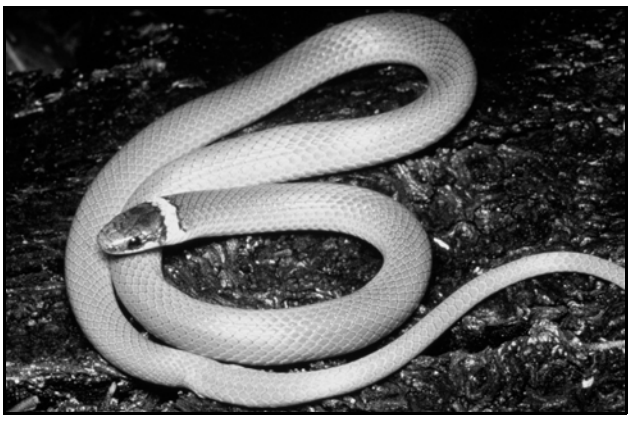

Figure 9. The Chihuahuan Black-headed Snake (*Tantilla wilcoxi*) that Jack found in Bear Canyon.

phyte when it came to herping in the Southwest. Downright green would be a more succinct and accurate way of putting it. There is a Zen to field herping, and I had not quite caught on to the most important rule of all. Rule number one is a rule of attitude. What I had not yet learned was to enjoy and savor every moment in the field. If one is not finding one's quarry, one must learn to take pleasure in what *is* being found. The worst day of herping is better than best day of most everything else. Even though I had only been in the field for 24 hours at this point in the trip, I had been on a mission to find a Ridge-nose of *any* type for over five years. Finding one in the wild had been one of the biggest incentives for moving to Arizona. I followed the advice of everything that was in the literature at the time—which was not much. All those who went before me advised searching for them in leaf litter and pine needles. The first five years of pathetic efforts of trying to find one had me skulking among leaf litter and pine needles—which are *everywhere* on any given forest floor. I was doing this very thing that afternoon, searching vast areas of leaf litter and pine needles This is all offered to try to justify what came next. In total frustration, I bellowed into the depths of the forest the five baddest words to ever emanate from my gullet. Said words were: "***Willardi* sucks a big one**." The words echoed all over the bottom of Bear Canyon, breaking the somber silence and serenity of the peaceful world that surrounded me. Jack was out of my line of vision, but not out of hearing range, when I lost my cool.

"Wait a minute," Jack hollered out of the depths of the forest. His words carried the inflection of somebody experiencing a great deal of excitement. "I'll be there as quick as I can!" The silence of the forest was next broken by the sound of felonious brush crashing as he plowed his way toward me. I thought he was coming to hand me my head for cursing our quarry in such an undignified manner. He arrived on the scene by tumbling through a manzanita, his blue eyes were wide open and alert, he was poised like a spring under tension, ready to leap into action.

"Where is it?" He inquired, his head on a swivel, his eyes sweeping the ground all around my feet.

"Where is what?"

"The *willardi*."

"What *willardi*?"

"The big *willardi* you just saw."

"I didn't just see any big *willardi* . . . "

"Well then, why did you yell out that you did?"

"I said nothing of the sort!" This conversation was going nowhere fast. Jack took a deep breath, and his quiet and reserved patience in getting to the bottom things was obviously strained as he asked his next question:

"I thought I heard you yell '*Willardi*! It's a big one.' Is that or is that *not* what you yelled?"

"O-h-h-h-h! I get it now," came my sheepish reply. "No, I didn't say '*Willardi*! It's a big one.' What I said was '*Willardi* sucks a big one.'"

Jack hesitated for a few seconds to digest this new information. Without another word, he turned away to continue the hunt. For the next half-hour, he muttered to himself a lot, and took every opportunity to send me sullen, stink-eyed glances. I felt like a complete imbecile. Had there been a sword handy, I would have thrown myself on it in disgrace. But Jack is a forgiving soul, and after an hour of the silent treatment that I deserved, we were soon herping side by side again. We eventually decided that enough was enough, and we had best return to the Suburban. We had tarried too long in this fabulous, albeit nearly herpless, canyon for much longer than our time allotment. With his incredible ability to take six-foot strides, Jack set the dangerous, willy-nilly pace for our descent. Some complaints from the rear guard got him to slow down to four-minute miles. After a dizzying hour of this breakneck pace, we came across a Black-necked Gartersnake swimming in a tinaja. The story of the capture of this snake will be saved for a special future column reserved for the truly incredible efforts that I have witnessed involving gartersnake captures. Suffice it to say that as captures go, it was a wet one!

Our party was awaiting us when we arrived at back at the vehicle. Their worried expressions indicated that were just minutes shy of calling in the choppers. When they saw Jack pull two bags out of his backpack, their hopes were high. Once the contents were revealed, they were somewhat disappointed. They had not found any snakes, and our tardiness gave them hope that we had done better. On the other hand, the Black-headed Snake was the first voucher specimen ever to be collected for the Sierra San Luis Mountains. Hence, our mixed bags were a mixed bag of good and bad. We sprawled under the canopy of some lofty pines and began exchanging anecdotes of our experiences during our separation. In between fits of laughter from all of us, I recounted the story of the capture of the gartersnake. Even though Jose didn't understand a word of the dialogue, one look at Jack and the snake told all, and he laughed along with us. Jack was still trying to shed the coating of moss and duckweed that was still draped all over him.

We tarried a short while longer, and then it was time to roll. With much expressed gratitude and fond farewells, we dropped Jose off at the ranch. It would be a hoot to know the stories he told about the crazy, snake-loving gringos when he returned. We jetted back to camp in far less time than it took to get to Bear Canyon. The events of the morning, coupled with the afternoon heat, mandated that we just lazy about camp for the rest of the afternoon and into the early evening. I took advantage of the down time to try to impress Jack and Julian by mentioning the fact that I knew Dave when he was "nothing." Dave's response to this was to point to his khaki Dallas Zoo duds (which he wore for the entire trip), and with a sweeping arm gesture of the camp around him, followed by a mocking bow in my direction, he said with no small measure of sarcasm: "Yeah! I owe *all this* to my buddy Rog." This was good for a couple of yuks. Once darkness descended upon us, we grabbed our flashlights and plunged into the depths of Cañon Diablo. Nocturnal herping had not yet been attempted. Maybe the *obscurus* only came out at night? The effort was indicative of how hopeless things were becoming.

The arrangement was that we were to stay together, but with the first few sweeps of the flashlights on the forest floor, we

separated. We drifted so far apart that we lost voice contact with each other. Herping a forest at night alone is an eerie experience. It didn't take long for me to get a case of the heebie jeebies. I began to feel that I was being watched, which in turn caused me to spend more time looking over my shoulder than at the ground in front of me. Suddenly, there was a commotion in the bushes just to the left of me.

"Barker? Is that you?" I hissed into the darkness. "C'mon you dink, answer me! Quit screwing around!"

But there was no response. I gathered my courage enough to investigate the source of the noise, and found a pile of bear scat that was so fresh that it was steaming. Feet don't fail me now! In other words, there was nothing in my contract that suggested that I herp at night with a bear skulking about. There was no manly compulsion to continue the hunt. The future Herp King of Southern Arizona morphed into Captain Tuna—the Chicken of the Sea. I pulled myself out of the game, and headed back out of the canyon. I found a defensible position on top of a boulder pile, that in turn allowed a full 360-degree view of everything below me, and fearfully waited for my companions to return. While the thought of bears lurking about was terrifying to this city slicker, the experience taught me one of life's most important lessons. When I was much younger, and firmly entrenched in the thick of life in the suburbs of Chicago, I had asked my older brother Bob a yes or no type of question. While I don't remember the question, I *do* remember his answer. His response to the question was: "Does a bear shit in the woods?" Said response mystified me at the time. I had asked Bob a simple question, and was left pondering the riddle of bears, and where they chose to defecate. Now I knew! The answer to my question of yore—whatever it was—was "yes." I had just proven this to myself, and I am proud to pass this priceless information on to the reader to wear as armor against ignorance of such matters.

For no short time duration, I remained atop my lofty perch, awaiting the return of my companions. Eventually, I saw the beam of a lone flashlight sweeping its way toward me, and I beckoned a discouraged Dave Barker to join me. He too had found nothing, and was willing to spend some quality time with his high school buddy while we awaited the return of Jack. And so, with a myriad of twinkling stars as our canopy, the murmur of the stream and chirping crickets as our soft symphony, we talked. When informed of my recent epiphany regarding bears and where they plopped, the know-it-all informed me that he was already aware of the fact. As we chatted, we could occasionally see Jack's flashlight winking erratically through the trees, and were able to thusly track his location. He had moved over a mile upstream, and was working his way up a slot canyon to the west. The guy was a herping machine!

"This guy is a herping machine!" Dave suggested, verifying the end of my previous paragraph.

"What an understatement," I agreed. "I laughed at him a lot today, but the grab he made on that gartersnake was phenomenal. But he seems so serious. Does he ever lighten up, and joke around some?"

At this question, Dave laughed aloud. He recounted a long story, which will be mercifully cut short here, about one of Jack's many zookeeper practical jokes. A clutch of larger-sized lizards of one sort or another had just hatched, with the misfortune of one of the hatchlings emerging from the egg paralyzed from the waist down. Jack worked with a keeper who nobody liked—because he was a jerk, and decided to have some fun with him. He brought in an accomplice to distract the jerk for long enough for Jack to tape the rear half of the lizard to the mouthpiece of said jerk's telephone. Jack then called the jerk, who promptly rushed to the phone to retrieve the call.

"Hello—mumph," said the jerk, as the lizard plopped into his mouth and muffled his speech patterns.

"How do you like the taste of lizard, asssss-***HOLE***?"

Well, I laughed out loud at this story. This proved to be my undoing, as it encouraged Barker to launch into a long series of anecdotes about some wicked zookeeper practical jokes. On and on the stories came, they were a relentless soliloquy. To be sure, the stories had a beginning—but there was no hope for a caboose on his train of thought. The hot air began to rise, and the first vestiges of global warming ensued. Glaciers from both arctic circles began plunging into the oceans, causing heavy flooding in Bangladesh. The Great Plains were launched into the worst drought in over a century, and rain storms howled over the Sahara Desert. During the lengthy course of this verbal eruption, I tried to get a word or two in—to no avail. Being somewhat of a bullshitter myself, I finally decided that my best course was to remain quiet, and listen to a *real* professional. An eternity later, a snake-less Jack arrived, putting an end to it. I sopped the blood coming out of my ears with some toilet paper, and we made our way back to camp to rest, feast and crash.

The following morning, Julian and Dave had to make a crack of dawn run to town in order to pick up some supplies. This left Jack and me alone to choke down our instant oatmeal, after which we plunged into Cañon Diablo for another futile round of foolishness. At first, I tried to hang with Jack, but he was back into his strider mode. He was either trying to lose me, or had just decided that *obscurus* must be further up canyon than we had been going. As I saw his blonde head bobbing off into the distance, I said to myself "Good! Now I can do whatever I want!" And whatever I wanted was *not* to be in Cañon DeNada! I had had *enough* of *that* herpetological wasteland.

I headed back to camp, just to get my bearings, turned eastward, and began bushwhacking my way toward the broad, sweeping canyon that I had viewed on the first day. I eventually smashed my way through the brush to the point where I found a faint, two-track jeep trail. As it turned out, this jeep trail was the left fork of the road that led to camp—the road *not* taken when I made my guess at where Barker's camp resided. It is somewhat comical to think that had I veered left, instead of right, my little Datsun would have taken me right into the thick of perhaps the densest population of *obscurus* ever discovered by man. And I would have been lost, cursing Barker, and doing a 200-point turnaround to try the other fork in order to get back to the place where *willardi* ain't! I began to walk the jeep trail, unaware that I was entering what would one day be Barker's somewhat famous "Study Canyon." In short order, the jeep trail that I was following crossed an intermittent streambed. It was heavily

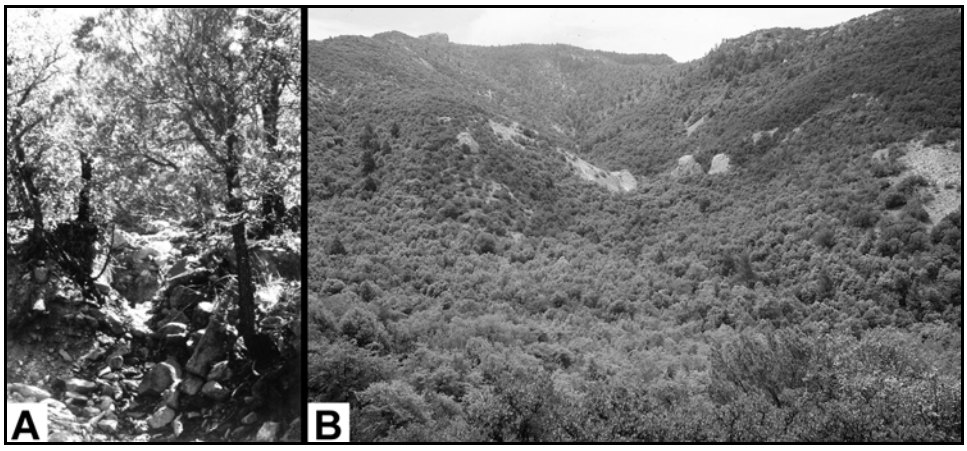

Figure 10. **A**. The entrance to Repp Canyon (image by Dennis Caldwell). **B**. Repp Canyon as viewed looking south from the north side of Study Canyon. While the first *obscurus* was not found in this canyon, many others were during later field trips. These images are shown to give the reader a brief glimpse of the habitat in Study Canyon, as well as to engage in shameless self-promotion. (The author's one real shot at fame was lost when this photo was listed as "Rapp Canyon" in a rather famous herp book. It crushed me at the time, but now I find it amusing. R-e-p-p seems to be too complicated for herpers to handle).

shaded, rocky, and looked good to eyes that had no clue as to what was good and what was not. I turned right, and headed upstream. A short distance later, a side canyon entered the streambed to my right, and led upward into the depths of the slot canyon that would one day carry my name (see Figure 10). I headed up this, and my eyes beheld terrain that was at least ten times better than anything I had seen in Cañon DeNada. But again, this was with eyes that had no clue as to what was good, and what was not. I stayed in the bottom of this canyon, to the point where a steep waterfall blocked any further penetration. Just prior to the waterfall, had I turned left and headed for an unseen talus slide, I would doubtless have returned to camp with several squirming bags full of *willardi*. But alas, my chance to be the hero came and went without reaching fruition. I was too busy searching leaf litter on the canyon bottom to know where the little brown rattlesnakes *really* made their living. By this point in time, my hunger alarm, as well as the rising temperatures, told me it was time to head back to camp. I went back down this canyon, giving pause for long enough to build a hefty rock cairn at its mouth. It was my hope to talk Jack and Dave into giving this place a try that evening.

I was first to arrive back at camp, and a very discouraged Jack arrived soon after. We compared notes, and decided to await the arrival of Barker before doing anything else. When Dave and Julian arrived a couple hours later, we discussed options. To his credit, Dave was all for trying the new place out. Had he said "No way," they would probably *still* be looking for their first *obscurus*. Three desperate herpers then gathered their equipment and began the short bushwhack to the road I had discovered earlier that afternoon. With the sound of distant thunder rumbling from the depths of our new canyon, we chugged the road up over a gentle hill and began our descent to the intermittent stream I had followed earlier. Upon arriving at this streambed, I informed my comrades that here is where I had turned to go up the canyon. A brief huddle then ensued; the result of the said brief meeting was that we elected to remain on the road.

Without further farewells or adieus to my spot, we continued up the road. The ominous sound of thunder was beginning to increase its tempo, and we continued at a Texas trot right into the teeth of the potential storm. The sun, however, shone warmly at our backs, the buildup of clouds to the east conflicting with the warm, sunny conditions of the day's beginning. The atmosphere about us changed according to which way the wind blew. One moment, cool, wet smelling air was smacking us in the face, the next, hot breezes from behind smote our backsides.

As Dave led the hell-bent-for-leather charge up the road, Jack was right on his heels. I began to lag behind, taking the time to search the leaf litter under every oak along the way. Whenever my comrades were about to disappear from sight, I sprinted up the road behind them and played catch-up. While barreling up the road in this fashion, I nearly collided with Jack, whose eyes were focused on something contained on a small patch of grassy real estate to his left. He began to display great enthusiasm with whatever this patch of ground contained, pointing and bouncing straight up and down while mouthing words that just wouldn't come. He finally found his voice:

"*Willardi*! *Willardi*! *Willardi*!" He hollered.

"Huh?" Barker snorted as he stopped dead in his tracks and turned to view Jack's histrionics.

"*Willardi*! *Willardi*! *Willardi*!" Jack repeated, seemingly stuck on the three-syllable nomenclature.

"Where . . . " I started to ask, and then I saw what Jack was pointing at.

"*Willardi*! *Willardi*! *Willardi*!" I chimed in with Jack. It seemed to be contagious.

Laid out in an open rocky area, just five feet to our left, was the object of so many frustrated attempts. The little grayish-brown rattlesnake was stretched out as if it had been moving directly towards us, and becoming alert to our presence, had frozen. Its chunky, triangular head was cocked alertly upward, and its minute black tongue wavered in and out with great rapidity. The diminutive snake was lying out so straight that any curves were nearly imperceptible along its 18-inch body.

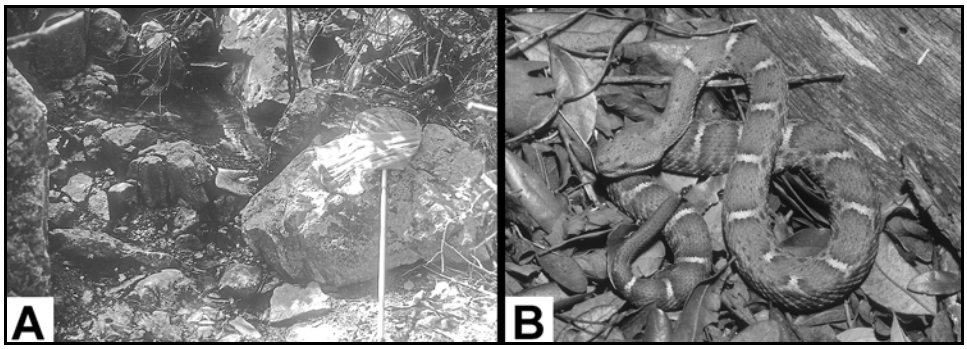

Figure 11. **A**. The first Ridgenose to be found in the Barker study did not remain still for long enough for an in situ photograph. Jack Cover placed his glove on the hallowed spot, and took this image. **B**. The first one! Posed image of the New Mexico Ridgenose Rattlesnake (*Crotalus willardi obscurus*) that Jack found on 16 August 1987.

Barker began to amble towards the scene of this unfolding drama, at which point the snake made a hasty U-turn and began to blaze away from us.

"He's getting away!" I hollered, and swung my four-foot-long pistol-grip snake tongs into play. I made a clumsy stab at the retreating snake, which (fortunately for the snake) missed. Dave and Jack quickly whipped out their small forceps tongs, which were more suited to the little retreating rattlesnake. Two large men next blocked my access to the retreating snake. The excited fumbling that followed was noteworthy, but in the end, the retreating reptile was cornered, captured, and bagged by combined effort of my comrades. I stood to one side with my worthless Kodak instamatic camera and tried to capture the sequence on film, the results of this effort being a series of blurs and one splendid picture of my eyeball.

Once the snake was bagged, I was able to get my counterparts to stand still long enough for a victory photo. The results of this effort were worthy. Jack stood proudly erect; his chest thrust outward, his biceps rippling, a look of all out rapture spread across his countenance. At this point in his life, he could have whipped Tarzan! Barker stands beside him, a toothy grin flashing through graying beard. He held the snake bag, resplendent with the *willardi* inside, upward in his left hand, and his right index finger pointed to the contents of said bag. It was actually a great photo that appears to be irretrievably lost. This author has turned his house upside down thrice looking for it. No more of that! It's burned into my brain, as is that first look of the *obscurus* (*Willardi*! *Willardi*! *Willardi*!) that Jack found.

The photo appears to be gone, but no photo could ever capture the electric well-being that ripples through an event such as this. We can view the smug expression on Jack Cover's face, and the carnival-like antics of an ecstatic Dave Barker, but nothing could ever document the spirit of a dream fulfilled. For both Jack and me, this was to be our last day full day there, and we both had been trying so hard. For Dave, it had been three weeks of steady disappointment, and only someone with his fortitude and blind faith in information nearly two generations old could have endured. And then, when all seemed hopeless, the magic moment arrived, and the sweet, sweet payoff enveloped our bodies, minds and spirits as one. The very odds that we would all be together when it was found were heavily against us. But we did it, and we did it together! It was game over, and the good guys win again!

Epilogue

Images of the exact place that this first *obscurus* was found, as well as a posed image of the snake taken later, can be found in Figure 11. Figure 12 provides a comparison between *willardi*

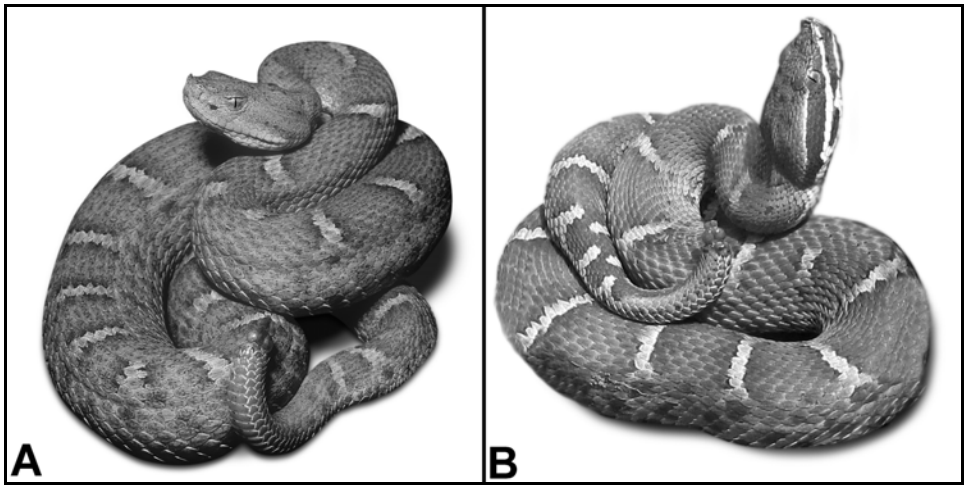

Figure 12. A comparison of the two taxa of Ridgenose that can be found in the U.S. Note the absence of facial stripes on the head of *willardi obscurus* (left, image by D. G. Barker) as opposed to the obvious facial stripes on *willardi willardi* (right, image by R. A. Repp).

obscurus from the San Luis and *willardi willardi* from Arizona.

Wow! Take me back! I want to go back—not now, but then. I want to go back to that place and time, and start reliving it *all* again. Though many big herpetological moments have since passed before my eyes, there will *never* be anything like this. And the next day—aww, that next day! Wow! A glimmer of what happened that day can be seen in the hands of two of the people in Figure 2. As is often the case with hard luck snake capture stories, once that first one is found, the dam breaks, and all herpetological manna pours down. By May of 1989, a total of 46 *obscurus* had been encountered—not to mention enough other species of snakes and cool lizards to make Mother Nature take notice. The pace would have doubtlessly careened upward to impossible-sounding numbers. But in June of 1989, a lightning strike (I'm told that they happen here) burned the place right down to the nub.

That last day (aww, that last day) I asked Jack if he felt that this study would ever amount to anything. With deadly seriousness, he looked right me right in the eye and said "Yes, it will. If you ever tell people you were on the trip where the first *obscurus* in Barker's San Luis study was found, they *will* be impressed." But it really doesn't matter to me if other people are impressed. It is my sincere hope that these words, both now and 27 years ago, have informed the reader that this trip impressed *me*.

I took a number of great lessons home with me from this adventure. The thing that really stuck in my brain is that there is *far* more to field herpetology than catching a snake and keeping it in a cage as a trophy. Up until that point in time, that was herpetology in a nutshell for me. Catch 'em and keep 'em. Or buy 'em, breed 'em and sell 'em. I had no idea of the scientific opportunities that existed in the herpetological realms. Roughly a year and a half after this adventure, the Tucson Herpetological Society (THS) was formed. It was Barker who called me to inform me of this fact. In so doing, he returned the favor that I did for him in our high school days by introducing him to the Chicago Herpetological Society. The San Luis adventure was still fresh on my resumé and burned in my brain as I stepped into that first THS meeting. The die was cast, my fate was sealed, and my destiny lay ahead.

The San Luis experience was the bait. The THS was the hook, line and sinker. The future Herp King of Southern Arizona took that bait and ran with it. And I have my buddy David G. Barker to thank for it all. After all, he knew me back when I was "nothing."

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Other Relevant Reading

Barker, D. G. 2016. Ridgenose Rattlesnake (*Crotalus willardi*) (Meek 1906). Pp. 655-700. *In*: G. W. Schuett, M. J. Feldner, C. E. Smith and R. S. Reiserer, editors, Rattlesnakes of Arizona. Volume 1: Species accounts and natural history. Rodeo, New Mexico: ECO Publishing.

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Herpetology 2018

In this column the editorial staff presents short abstracts of herpetological articles we have found of interest. This is not an attempt to summarize all of the research papers being published; it is an attempt to increase the reader's awareness of what herpetologists have been doing and publishing. The editor assumes full responsibility for any errors or misleading statements.

CRAWFISH FROGS IN SOUTHERNMOST ILLINOIS

J. G. Palis [2018, Transactions of the Illinois State Academy of Science 111(1):1-4] notes that crawfish frogs (*Rana areolata* [*Lithobates areolatus*]), secretive, fossorial anurans that inhabit crawfish burrows in grass-dominated habitats are of conservation concern throughout their range, especially east of the Mississippi River. Crawfish frogs occur throughout much of the southern half of Illinois where many county occurrence records are decades old and where their current conservation status requires confirmation. The author surveyed for the presence of crawfish frogs from 2006 to 2017 to estimate their current distribution in the 11 southernmost counties of Illinois. He detected crawfish frogs at 187 locations in 10 counties. Despite extensive habitat loss, crawfish frogs are currently widely distributed across southernmost Illinois and appear to be secure at this time. However, ongoing habitat alterations threaten the future of crawfish frog populations in the region; therefore, the author encourages prompt, proactive conservation efforts while crawfish frogs are still relatively common. A grant from the Chicago Herpetological Society helped to fund this research.

BOX TURTLE HIBERNATION ECOLOGY

T. P. Boucher et al. [2017, The Herpetological Bulletin 142:1-5] studied thermal ecology of the eastern box turtle (*Terrapene carolina carolina*) during the cooler months of the year (September to April) at the Mason Neck National Wildlife Refuge, Fairfax County, Virginia. The research enlisted individual male and female turtles tracked by radio telemetry. Observations were made on behavior and thermoregulation in relation to their effect as the turtles entered into hibernacula, moved during the winter, and emerged in the spring. The authors found extensive above ground movements were common through mid- to late December and ground movements among hibernacula were more frequent than expected. Turtles emerged in late March and early April and, depending on the spring warm-up, the turtles remained close to hibernacula before undertaking characteristic spring movement and activity. The observed thermal characteristics of microhabitats appeared to affect, and could predict. varied behaviors and movements. While turtles in geographic areas where temperatures fall below freezing enter hibernacula during the winter, this study found this to be a generalization. The temperature profiles of specific microhabitats suggest a relationship between amount, type and degree of activity. In northern Virginia, the authors found turtles to be significantly more active than expected at temperatures that would otherwise suggest less movement. They entered hibernacula late, moved (relocated) dependent on environmental ambient temperatures, seemed to be subject to freezing during the winter and emerged early.

ECOLOGY OF THE EASTERN KINGSNAKE

J. S. Godley et al. [2017, Herpetological Monographs 31:47-68] note that eastern kingsnakes (*Lampropeltis getula*) are an important component and predator in herpetofaunal communities, but many eastern kingsnake populations have declined precipitously in the last few decades, particularly in the southeastern U.S. The authors describe an intensive capture–mark–recapture study of *L. getula* conducted during 1974–1978 in a canal bank–water hyacinth (*Eichhornia crassipes*) community at Rainey Slough in southern Florida, where annual capture probabilities of adults ranged from 0.662 to 0.787. Population size and structure, seasonal activity, movements, microhabitat use, behavior, thermal ecology, and predator–prey relationships are described. At this site kingsnakes were susceptible to capture mostly in winter and spring, were diurnal, used rodent (*Sigmodon hispidus*) burrows on canal banks as nocturnal retreats, and emerged from burrows on 13–26% of the sampling days. Overlap of burrow use by both sexes was extensive with no evidence of territoriality. Kingsnakes readily entered the water hyacinths to bask, pursue mates, and forage. At Rainey Slough only snakes were detected in the diet of kingsnakes. Concurrent sampling of potential snake prey in the hyacinths and on canal banks revealed 10 species that varied in use of the two sampled habitats and in body size. A rangewide analysis confirmed that in descending order snakes, reptile eggs, and lizards dominate the diet of *L. getula* in Florida (94.8%) and remain important prey types elsewhere (80.2%). At Rainey Slough the density of six species of semiaquatic snakes in water hyacinths averaged 3534 individuals/ha with a mean annual biomass of 135.8 kg/ha, and kingsnake biomass was only 2.2–3.9% of prey snake biomass. The authors estimated that the kingsnake population consumed 36.82–63.58 kg/yr, or about 10.0–17.2% of the standing crop of snakes in the water hyacinth community. Adult male *L. getula* lost on average 39.3% of their body mass associated with the spring reproductive season, whereas females lost only 3.4% in the same period. Body condition indices for both sexes improved substantially thereafter. In follow-up surveys at Rainey Slough during 2006–2010 no kingsnakes were found. Semiaquatic snake densities in the water hyacinths were 77.2% lower (807.4/ha) than in the 1970s and consisted of only three species. Compared to the enigmatic declines and extirpation of *L. getula* populations elsewhere, at Rainey Slough the primary cause likely was unsustainable mortality from road reconstruction and paving in the winter–spring of 1979 and subsequent roadkill. Other potentially causative agents of extirpation of *L. getula* in this system are discussed.

STOPPED DEAD IN THEIR TRACKS

R. M. Rautsaw et al. [2018, Copeia 106(1):135-143] note that habitat fragmentation is one of the leading causes of biodiversity decline and most commonly results from urbanization and construction of transportation infrastructure. Roads are known to negatively impact species, but railways can often cause similar effects. Certain taxa, such as turtles and tortoises, are more vulnerable to railways than others due to limitations in mobility. The authors studied the impact of rails on the movement and behavior of gopher tortoises (*Gopherus polyphemus*), a threatened, highly terrestrial species likely in frequent contact with railways. First, they used radio-telemetry to determine the frequency of railway crossings and compared this to correlated random walk simulations to assess if tortoises were crossing the rails less frequently than is expected by unconstrained movement. Second, they placed tortoises into the railway and measured behavior for one hour to assess crossing ability. Lastly, they tested whether trenches dug underneath the rails could allow safe passage for tortoises. The study revealed that railways impacted the movement of gopher tortoises. The tortoises crossed the railway less often than what would be expected by unhindered movement for five of the ten tortoises tracked. During behavioral trials, 0 of 24 tortoises placed within the railways were capable of escaping from the rails. Game cameras detected tortoises using trenches dug underneath the rails and between the ties 68 times over the course of a single summer. For minimal financial cost, the trenches facilitated tortoise movement across the railway, maintained full rail functionality, and created an escape route for individuals that were trapped between the rails, and thus should be implemented as a mitigation strategy. Given the thousands of kilometers of railways around the world, the authors recommend future studies focus on the new field of rail ecology.

CLIMATE VARIATION EFFECTS ON CRAWFISH FROGS

M. J. Lannoo and R. M. Stiles [2017, Copeia 105(4):726-733] assessed the effects of short-term, naturally oscillating, climate variation on crawfish frogs (*Lithobates areolatus*), a long-lived member of the family Ranidae. The data demonstrate 1) no relationship between drought conditions (high temperatures, low precipitation) and either breeding onset (phenological shifts) or breeding peaks; 2) no relationship between drought and adult survivorship (although there were trends; both females and males experienced their lowest survivorship estimates during the wettest years, a contrary finding related to crayfish burrow occupancy); 3) a strong relationship between drought and breeding duration; 4) a strong, inverse correlation between drought and body condition in both females and males; and as a result, 5) a relationship between drought and fecundity with potentially serious demographic consequences. Assuming that the mass of an individual egg remains constant under various climate conditions—i.e., that a reduction in egg mass equals a reduction in egg number not egg size—the effects of drought may be severe. The estimated average difference of 2,647 eggs produced by individual females between wet and dry years translates into an estimated loss of 137 breeding adults recruited into this population following droughts, compared with wet year recruitment.

GOPHER TORTOISES IN SUBOPTIMAL HABITATS

T. D. Castellón et al. [2018, Herpetologica 74(1):8-21] note that in southern Florida gopher tortoises (*Gopherus polyphemus*) primarily occupy habitats that are considered suboptimal or unsuitable in other parts of the range. The dominant habitat is mesic flatwoods, which has abundant forage but has high water tables that might hinder burrowing and nesting. In contrast, Florida scrub assemblages on inland ridges have suitable soils but scarce forage. The authors used radio telemetry to monitor 22 male and 23 female gopher tortoises in mesic flatwoods and scrub habitats of southern Florida. Compared to mesic flatwoods, they predicted larger home ranges and more frequent movement among burrows in scrub because of the scarcity of forage, and they predicted possible shifts in home ranges (e.g., from wetter to drier habitats) in response to seasonal rainfall. Home ranges in the study area were larger than is typical for higher-quality habitats (e.g., sandhill) in other parts of the range, but little movement was observed between habitats. Male home ranges and burrow use patterns were similar in flatwoods and scrub, with males making frequent excursions to court females. Females in scrub were sedentary, contradicting the prediction of frequent movement attributable to scarce forage, and the authors did not observe feeding forays by either sex to adjacent foodrich habitats. Compared to females in scrub, females in flatwoods had larger home ranges, used more burrows, and moved more frequently among them. High levels of movement in flatwoods might have been influenced by the high water table and frequent burrow flooding. Nonetheless, no evidence was seen of large-scale shifts to drier habitats for nesting or during peak rains. Further research is needed to investigate mechanisms that enable persistence of gopher tortoises under apparently suboptimal conditions.

AMPHIBIANS OF ALGERIA

J. Ben Hassine and D. Escoriza [2017, The Herpetological Bulletin 142:6-18] note that Algeria is a country with a little known batrachofauna. To improve knowledge of the distribution of amphibians in this country the authors carried out several surveys in northern Algeria between 2010 and 2017. Maps with original data on the distribution ranges and niche model for every species have been made for the first time. This includes original data on breeding phenology, breeding habitat and terrestrial habitat features of the observed species. The data indicated that several species could be more widespread in Algeria than previously suggested. The apparent discontinuity of their ranges and the supposed rarity of some species such as *Pleurodeles nebulosus, Salamandra algira algira* and *Bufo spinosus* is likely due to a lack of previous survey effort. Some species, such as *Discoglossus pictus*, *Pelophylax saharicus*, *Hyla meridionalis* and *Sclerophrys mauritanica* are widely distributed and abundant in the studied region. Results confirmed the presence of several species in historical sites, but also the presence of numerous new populations. Some historical records of *P. nebulosus*, *S. algira algira* and *H. meridionalis* were not confirmed. This could be due to a possible recent extinction of marginal populations, but also to errors in the classical literature, since some of these localities are likely to be outside the limits of the environmental tolerance of these species.

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For sale: **highest quality frozen rodents**. I have been raising rodents for over 30 years and can supply you with the highest quality mice available in the U.S. These are always exceptionally clean and healthy with no urine odor or mixed in bedding. I feed these to my own reptile collection exclusively and so make sure they are the best available. All rodents are produced from my personal breeding colony and are fed exceptional high protein, low fat rodent diets; no dog food is ever used. Additionally, all mice are flash frozen and are separate in the bag, not frozen together. I also have ultra low shipping prices to most areas of the U.S. and can beat others shipping prices considerably. I specialize in the smaller mice sizes and currently have the following four sizes available: Small pink mice (1 day old—1 gm) , $25 /100; Large pink mice (4 to 5 days old—2 to 3 gm), $27.50 /100; Small fuzzy mice (7 to 8 days old—5 to 6 gm) , $30/100; Large fuzzy mice / hoppers (10 to 12 days old—8 to 10 gm), $35/100 Contact Kelly Haller at 785-234-3358 or by e-mail at kelhal56@hotmail.com

For sale or trade: Probable pair of albino Harquahala rosy boas. They were born in my home in late 2016 and are feeding on f/t peach fuzz mice. Pure locality animals exhibiting a recessive gene. Viewing is possible, parents on site. I can drive to meet a reasonable distance, or ship if you are not local. Discount if you pick them up from my home. Cash, credit card or PayPal. Call or text 510-318-1715, or email elenabmoss@gmail.com.

Herp tours: **Costa Rica herping adventures**. Join a small group of fellow herpers for 7 herp-filled days. We find all types of herps, mammals, birds and insects, but our target is snakes. We average 52 per trip, and this is our 10th year doing it. If you would like to enjoy finding herps in the wild and sleep in a bed at night with air-conditioning, hot water and only unpack your suitcase once, instead of daily, then this is the place to do it. Go to our web-site http://hiss-n-things.com and read the highlights of our trips. Read the statistics of each trip and visit the link showing photos of the 40 different species we have found along the way. E-mail at jim.kavney@gmail.com or call Jim Kavney, 305-664-2881.

Line ads in this publication are run free for CHS members—$2 per line for nonmembers. Any ad may be refused at the discretion of the Editor. Submit ads to mdloogatch@chicagoherp.org.

NEW CHS MEMBERS THIS MONTH

Jake Ballasch
Matthew Campbell
Emma Darden
Casey De La Cruz
Emily & Roger Fong
Robert France
Ryan Gilbert
Herman Goodman
David Greenspan
John Hilliard
Yatin Kalki
Jay Laski
Liza Moreno
Jon Peterson
Missy Pietrowiak
Jim Sikorski
Daniel Sniderman
Cindy Steinle
Crystal Stevens
Lara Sviatko
Jessica and Myles Van Camp
Douglas Weidner
Elise Ziemann

UPCOMING MEETINGS

The next meeting of the Chicago Herpetological Society will be held at 7:30 P.M., Wednesday, March 28, at the Peggy Notebaert Nature Museum, Cannon Drive and Fullerton Parkway, in Chicago. **Dr. Tony Colbert**, a veterinarian who practices at the Ness Exotic Wellness Center in Lisle, Illinois, will speak about "UVB Lighting: A Comprehensive Summary." Dr. Colbert will outline the commonly available types and brands of UVB bulbs. And he will provide guidelines by which to choose a UVB source suitable to the needs of specific captive reptile species.

Speaking at the May 30 meeting will be **Rob Lovich**, herpetologist for the Department of Defense and Senior Natural Resource Specialist for the U.S. Navy in San Diego, California. Rob is co-author with Larry Jones of *Lizards of the American Southwest*.

The regular monthly meetings of the Chicago Herpetological Society take place at Chicago's newest museum—the **Peggy Notebaert Nature Museum**. This beautiful building is at Fullerton Parkway and Cannon Drive, directly across Fullerton from the Lincoln Park Zoo. Meetings are held the last Wednesday of each month, from 7:30 P.M. through 9:30 P.M. Parking is free on Cannon Drive. A plethora of CTA buses stop nearby.

Board of Directors Meeting

Are you interested in how the decisions are made that determine how the Chicago Herpetological Society runs? And would you like to have input into those decisions? If so, mark your calendar for the next board meeting, to take place on May 18, 2018. The venue is as yet uncertain, so if you wish to attend please email mdloogatch@chicagoherp.org.

The Chicago Turtle Club

The monthly meetings of the Chicago Turtle Club are informal; questions, children and animals are welcome. Meetings normally take place at the North Park Village Nature Center, 5801 N. Pulaski, in Chicago. Parking is free. For more info visit the group's Facebook page.

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