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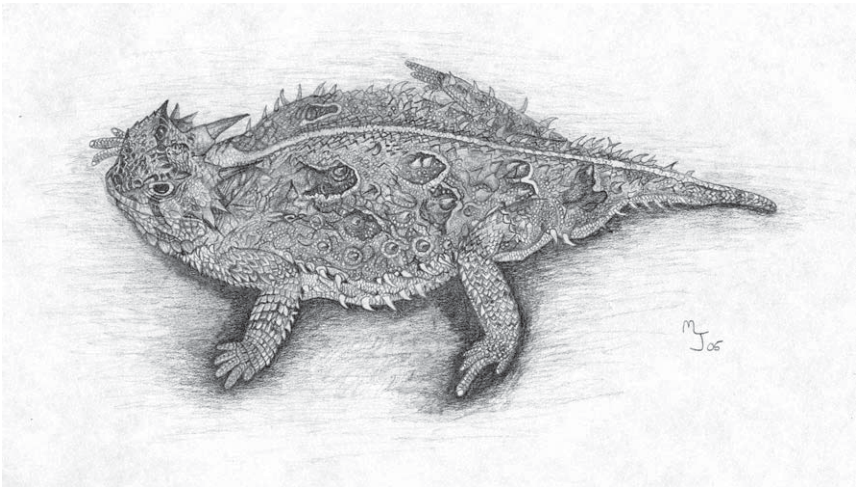

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Front Cover: An pencil illustration of a Texas Horned Lizard (*Phrynosoma cornutum*) by Melissa Johann, Sternberg Museum of Natural History, Hays, Kansas.

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KHS Spring Field Trip to Seward County

The 2007 Spring KHS Field Trip will be held at Arkalon Park (City of Liberal), in Seward County, Kansas. KHS members will gather as early as Friday evening (27 April 2007) at Arkalon Park (ca. 10 miles northeast of Liberal) at the location displaying a large KHS sign.

Arkalon Park is the perfect spot for hiking, fishing, picnicking and camping. The park has ponds, streams, marshes, and three lakes, all of which are stocked with fish. Many species of wildlife, including beavers, deer, turtles, snakes, squirrels, raccoons, and a variety of birds, including Canadian geese, bluebirds and falcons make Arkalon Park their home. Nature trails through the marsh area provide an opportunity to see the wildlife in its natural habitat. Electrical hookups in the campground area, a bathhouse, a RV dump station, and a shelter facility are also provided. Camping fees are $10 per night with electricity, $5 per night without electricity.

A State of Kansas fishing license is required to fish at the Arkalon Park and all State regulations are strictly enforced. General park rules prohibit hunting, fireworks and the discharge of firearms, speeds faster than 30 mph in the park or 5 mph in the campground. Vehicles are limited to graded roads, with right-of-way for cattle and wildlife. There is a leash requirement for pets. Camping is permitted for a maximum of 14 consecutive days. Alcohol is prohibited on park property. There is no swimming, cutting of trees, or littering. The use of ATV and dirt bikes in the Arkalon Park facility is prohibited.

Restaurants, fuel, and motels are available in Liberal, and there is a convenience store/gas station in Kismet. Maps and other information will be available at the campsite each day at 9:00 am.

KHS herpetofaunal counts will officially take place from 9:00 am to 5:00 pm on Saturday, 28 April 2007, and on Sunday morning 29 April 2007 from 9:00 am to noon. Individuals wishing to participate should meet at the KHS sign at Arkalon Park on both dates at 9:00 am.

Biologically significant finds would be any of the as yet unrecorded species, as well as Checkered Garter Snakes and Lesser Earless Lizards. The Seward and Meade county Common Garter Snakes are patterned unlike any other populations in Kansas by having a bright red/orange dorsal stripe (as opposed to yellow/cream elsewhere) and lacking red coloration between the stripes (see list to right).

Any questions about this KHS field trip should be directed to Dan Murrow or Derek Schmidt (contact information on the inside of the front cover). Enquiries may be in the form of email, a telephone call, or U.S. mail.

Submitted by Derek Schmidt and Dan Murrow
KHS Field Trip Co-Chairpersons

The Herpetofauna of Seward County

Bullfrog
Great Plains Narrowmouth Toad*
Great Plains Toad
Northern Cricket Frog*
Plains Leopard Frog
New Mexico Spadefoot**
Plains Spadefoot
Red-spotted Toad*
Spotted Chorus Frog*
Western Chorus Frog*
Woodhouse's Toad

Barred Tiger Salamander

Common Snapping Turtle
Northern Painted Turtle*
Ornate Box Turtle
Slider
Smooth Softshell*
Spiny Softshell
Yellow Mud Turtle

Eastern Collared Lizard
Great Plains Skink
Lesser Earless Lizard
Prairie Lizard
Six-lined Racerunner
Texas Horned Lizard

Brown Snake*
Checkered Garter Snake
Coachwhip
Common Garter Snake
Common Kingsnake*
Diamondback Water Snake*
Eastern Glossy Snake
Eastern Hognose Snake
Eastern Racer
Great Plains Rat Snake
Gopher Snake
Lined Snake*
Longnose Snake
Massasauga*
Milk Snake
New Mexico Blind Snake
Northern Water Snake*
Plainbelly Water Snake
Plains Blackhead Snake*
Plains Garter Snake
Prairie Kingsnake
Prairie Rattlesnake
Ringneck Snake
Western Ribbon Snake
Western Hognose Snake

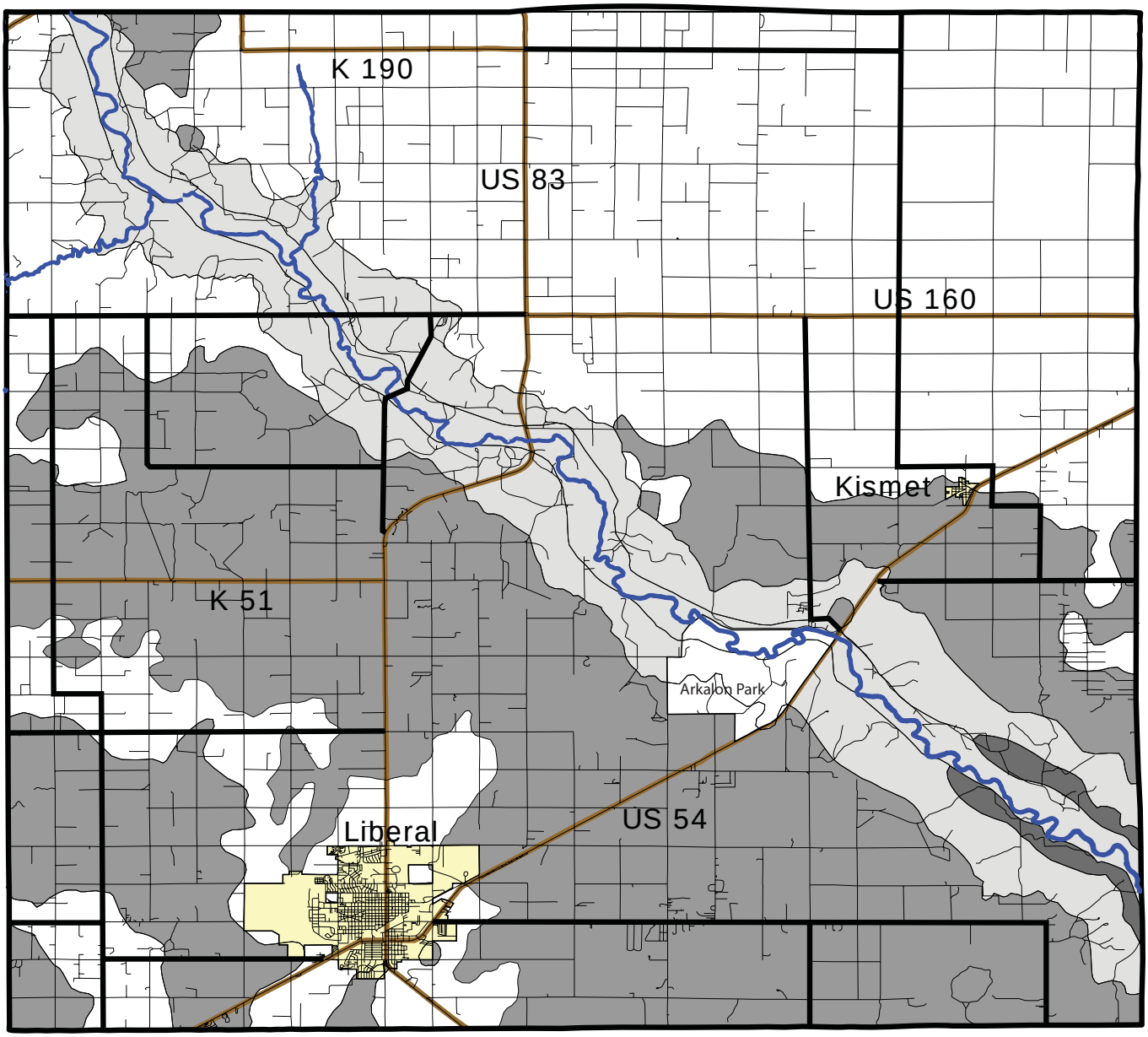
* county record; ** state record

A map of Seward County (below) is illustrated below showing roads, waterways, and landforms. The thin black lines represent county roads, the thicker black lines (except the border) denote highways and otherwise improved roads. The Cimarron River bisects the county from the northwest to the southeast, though it seldom contains surface water through this stretch.

The shading on the map distinguishes different types of landforms and is also a measure of land use. The darkest shaded areas that flank the Cimarron River in the southeast is a region of Tertiary Ogallala rock outcrops (the only turnable natural rock in the county) is where New Mexico Blind Snakes can be found. The medium gray shading denotes sand dunes and the lighter shading along the river is alluvial deposits. The dunes support the highest concentrations of amphibians, reptiles, and turtles. These shaded areas are not aggessively farmed and therefore the greatest expanses of native short grass prairies can be found in them. The unshaded area consists of thick loess deposits and is extensively irrigated and farmed.

The KHS campsite (Arkalon Park) is shown in the white area along US 54 between Kismet and Liberal. The Park uplands are sandsage dunes and the lower is riparian Cimarron River Valley.

A Seward County Milk Snake (MHP 11518), collected by Travis W. Taggart and Curtis J. Schmidt under a railroad tie in Arkalon Park during June of 2005.



The KHS Executive Council and KHS Committee Chairpersons met in Lawrence on 4 February 2007. Front row L-R: Mary Kate Baldwin, Eric Kessler, Ginny Weatherman (president), and Joseph T. Collins. Back row L-R: Dan Murrow, Dan Carpenter, Curtis J. Schmidt, and Dan Fogell. Photograph by Suzanne L. Collins.

Kansas Herpetological Society
Annual Financial Report 2006

Beginning Checking Account Bank Statement 1 January 2006 – $ 7,150.25

2006 Income	
Membership Dues	3,110.00
Regular	2,190.00
Contributing	920.00
Annual Meeting	5,691.00
Registration	905.00
Auction	2,412.00
Sponsors	1,350.00
Sale of T-Shirts	370.00
Sale of Logo Mugs	40.00
Sale of Logo License Plates	5.00
BBQ Banquet	609.00
Donations	1,598.62
Total 2006 Income	10,399.62

2006 Expenses	
Office of the Editor	860.00
KHS Journals (4 issues)	1,509.20
Office of the Secretary/Treasurer	183.48
Annual Meeting	3,375.89
KHS Donations	398.62
The Collins Award	1,000.00
The Kamb Grant	274.09
The Gloyd/Taylor Scholarship	290.40
Outstanding Checks	864.00
Total 2006 Expenses	7,891.68

Ending Checking Account Bank Statement 31 December 2006 – $ 10,522.19

Endowed Funds	$ 7,600.00
Alan H. Kamb Grant	$ 4,000.00
Gloyd/Taylor Scholarship	$ 3,600.00
TOTAL ASSETS	*$ 18,122.19*

Respectfully submitted by Mary Kate Baldwin, Secretary and Eric Kessler, Treasurer

VIEWPOINT

The Fallacy of Perceptions

Richard F. Hoyer
2121 NW Mulkey Avenue
Corvallis, Oregon 97330
charinabottae@earthlink.net

INTRODUCTION

Somewhere during my education, I was exposed to the admonition that perceptions are frequently in error and thus not reliable. This point was again stressed by my superior when employed as a biological technician in entomological research with the United States Department of Agriculture. As a field biologist for 40+ years, experience has also demonstrated the veracity of that dictum. In other words, you cannot judge a book by its cover.

Because perceptions are unreliable, there is a standard in science dealing with the use of anecdotal information such as opinions based on perceptions. With respect to scientific endeavors, without supporting evidence, it is unethical to use, or to report opinions as if such were factual. I would hope to impart sufficient information in the following essay so that readers will fully grasp the realities and implications of this standard.

Both as a birder and field biologist, I can cite many examples in which commonly held perceptions have been in error. Last year and again the past couple of months, I have seen a number of individuals voice concerns about the potential (imagined) negative effects of recreational collecting of herpetofauna. From much of what has been mentioned, it appears that such views are based primarily on the perception that snakes and other reptiles occur in rather low numerical abundance.

In the following essay, I will provide three examples that deal with the related subjects of 1) perceptions/opinions, 2) numerical abundance, and 3) the need for wildlife agencies to use science based process rather than opinions, to assess, manage, and list non-game species.

Two of the examples involve species that were listed by state wildlife agencies primarily on the basis of opinions and other forms of anecdotal information. I would hope that these examples will demonstrate why opinions, based on perceptions, are unreliable and thus unacceptable as currently used by wildlife agencies to assess, manage, and list species in some category of concern.

PART 1: THE FALLACY OF PERCEPTIONS

There persists the notion that species of snakes and other herps occur in low or marginal numerical abundance despite much evidence to the contrary. In the present account, I describe a classical example of the 'rarity' mind-set that has been conventional wisdom for decades. I produce data of a numerical nature that demonstrates why perceptions can be grossly unreliable. This example concerns the case of *Charina bottae*, the Rubber Boa. The perception that *C. bottae* is rare persists as during the past three years, biologists from Washington, Idaho, Utah, and Nevada have each voiced that very opinion as if it were fact.

My undergraduate days in wildlife science were from 1951–1955 at Oregon State University. One of my major professors, along with zoology majors and other individuals, all stated that the Rubber Boa was rare. I could be in error but I do not believe I ever heard anyone refer to the species as simply being uncommon. Up to my early 30's, I had encountered all other native snakes except the Rubber Boa. With that experience along with input from authoritative individuals, I also had surmised the species must be rare.

But having been exposed to scientific process and inquiry, I possessed a certain level of skepticism. If one applies the basic principles of wildlife biology, the notion of numerical rarity is not very rational. In 1962, I obtained two Rubber Boas from coworkers and had success maintaining them. By 1965, I made the decision to pursue research of the species in spite of the prevailing wisdom that the species was rare and the fact I had yet to encounter the species in the wild. I was then 32 years of age.

My initial efforts to find the species the first 3–4 years was abysmal but I did manage to find a few specimens. Then by the late 1960s, I began to purposefully set out artificial cover objects in what appeared to be suitable habitat. And by that time, I had also learned that conventional thought as to when to search for snakes did not work for the Rubber Boa. Making searches at midday during warm, sunny conditions is invariably unproductive

The transformation from considering the species to be scarce or rare to the realization that, in fact, it was common, took place in short order. My results and success at finding the species even convinced one of my former major professors at OSU, herpetologist Dr. Robert Storm, that the species was far from rare.

During this time, I also learned that artificial cover (A/C) objects worked for all native species of snakes, some other species of herps, and many other species of vertebrates and invertebrates as well. But let me quickly add that there is far more to the use of A/C then throwing out some roofing tins and plywood boards, and then making periodic checks. There is

considerable knowledge and experience necessary to maximize results.

By mid–1972, I had gathered sufficient information to begin working on a manuscript. In 1974, that information was published in the journal Herpetologica on a sample of 338 boas I had examined up through the end of 1973.

Fast forward to 1990. In the mid–1990s, I received a call from an individual at Stanford University asking if I would present a paper on reproduction in the Rubber Boa at a June 1991 symposium in the Seattle area. Having such short notice, I had to scramble to assemble data and prepare a required draft to be published the following year in the proceedings of the symposium.

After my presentation at the symposium in June 1991, a gentleman from southern California came up to me and introduced himself. It is my recollection that he and a buddy had traveled all the way from near Los Angeles to hear my presentation and view the individual that clearly had fabricated the number of Rubber Boas (338) reported in 1974. Everyone knew that no one could possibly find that many specimens of such a rare species.

By the end of 1990, the number of boas on which I had recorded data had increased to 1,167 and formed the basis of my report on *C. bottae* reproduction. That individual then realized it was unlikely that before a very large audience, I would falsify such information. Thus he introduced himself after my presentation.

It is important to keep in mind that my efforts with this species was generally confined to northwestern Oregon and accomplished in my spare time. I am not a professional herpetologist and was employed full time in other occupations. I retired in November 1991 and except for taking time to complete a four year study of a second species of snake (*Contia tenuis*), I have had more time to devote to my primary species of interest, the Rubber Boa. I have also been able to expand my field research to include other regions within the species' distribution.

Last year, I recorded data on 201 new boas from Idaho, California and Oregon but that was an exceptional year. Without taking time to go through my files, I estimate I have probably averaged somewhere between 60 and 100 new captures per year for the past 16 years. Thus at the present time, the total number of initial captures of the species is estimated to be between 2,200 and 2,800. Locally in northwestern Oregon, I have visited the same study sites for many years. I have recaptured many specimens multiple times and would estimate that recapture events number between 10,000 and 20,000.

Another point to keep in mind is that my efforts have been pursued as an unfunded, but serious, hobby. You can use your own thought processes to picture just how many rare Rubber Boas may have been found had such a project involved a number of funded research efforts by teams of experienced field herpetologists.

Since early 1992, I have now observed the species from southern California into British Columbia and east to Idaho, Nevada, and Utah. Although the species exists in disjunct population in some parts of its distribution, *C. bottae* also has an unbroken distribution from northern Kern County in southern California (due east of Bakersfield) all the way into British Columbia and east to Idaho, Montana, Wyoming and Utah. How could the species possibly be rare?

This is but one glaring example, amongst many I could cite, in which herpetologists, biologists, and others have formed an erroneous opinion based on perceptions. And this is precisely why, in science, opinions cannot be used as fact unless supported by scientifically acceptable evidence. It is my view that individuals have not critically examined the issue of rarity and numerical abundance and have instead, simply relied on their perceptions or the opinions of others.

Besides the data at hand, my point of view about a species' distribution and relative abundance is supported by the following published study that I urge all biologists to read Gibbons et al. [1997, Perceptions of Species Abundance, Distribution, and Diversity: Lessons from Four Decades of Sampling of a Government-Managed Reserve, Environmental Management Vol 21(2): 259-268].

I would also urge those interested in snake density figures, numerical abundance, and snake biomass information to review the recent published account by Fitch and Echelle [2006, Abundance and Biomass of Twelve Species of Snakes Native to Northeastern Kansas, Herpetological Review 37(2): 161-165].

PART 2: NUMERICAL ABUNDANCE

In 1971, the California Department of Fish and Game officially listed the subspecies *Charina bottae umbratica* (Southern Rubber Boa) as "Rare" and placed it in a hands-off, protected status. In the 1980s, the designation was changed from 'Rare' to 'Threatened', I believe, to conform to federal designations.

In 1973, Glenn Stewart of Cal Polytechnic Pomona sent me data on 19 preserved Southern Rubber Boas. Without looking up our correspondence, I recall that the total lengths of those specimens ranged from slightly under 300 mm to about 495 mm; that is, from slightly less than 12 inches to somewhat over 19 inches. In my reply, I openly pondered if the Southern Rubber Boa could be a dwarf form of the species as a random series of 19 *C. bottae* from northwestern Oregon would likely contain specimens in excess of 24–26 inches.

As noted in Part 1, sufficient data was on hand by the mid 1970's to indicate that the perceived rarity of the Rubber Boa in northwestern Oregon was in error. That information, plus a void of factual evidence in support of the California Department Fish and Game listing, suggested the proclaimed rarity of the Southern Rubber Boa was suspect. I later found that the Southern Rubber Boa listing by the California Department Fish and Game was based on anecdotal input from a number of herpetologists along with low numbers of locality records and sightings.

It wasn't until 1981 and 1982 that some hard evidence surfaced concerning the relative abundance of the Southern Rubber Boa. Under the direction of Stewart, a number of graduate students headed by

Gary Keasler, conducted searches in attempts to better understand the distribution of the Southern Rubber Boa. Keasler then wrote two reports to the U.S. Forest Service in 1981 and 1982 that contained the results of those surveys. The combined data from the two reports are as follows:

Southern Rubber Boa – 35
San Bernardino Mountain Kingsnake – 42
Southern Pacific Rattlesnake – 36
Total for 6 other species of snakes – 20

Please note the near 1:1:1 ratio of the three most commonly observed species.

After retiring in late 1991, in early 1992 I wrote Stewart and proposed a 4–5 year field and laboratory study on the SRB population in the San Bernardino Mountains. My goals at the time were to obtain information on the biology of the Southern Rubber Boa, to determine if it was indeed a dwarf form of *C. bottae*, to acquire information of a taxonomic nature, and try to gain some understanding of its relative abundance. At the time, I was not aware of the data contained in the two Forest Service reports by Keasler.

In earlier years, I twice visited an aunt that had a cabin in the San Bernardino Mountains. From those visits and one with Glenn Stewart in 1983, it was evident that boa habitat in that mountain range was extensive. If you understand and accept the relationship of a species and habitat, then it was likely the Southern Rubber Boa should occur at normal densities in suitable habitat similar to what occurs elsewhere within the species' distribution.

In May of 1993, I embarked on a five year study of the Southern Rubber Boa. In my contacts with Stewart, forest service biologists, one California Department of Fish and Game biologist, some interested community citizens, and the one Southern Rubber Boa 'expert' in that region, a retired secondary science teacher like myself, all believed the snake was rare or at least very scarce. In eight days during May 1993, I became acquainted with the region, made searches, and began setting up plots with artificial cover objects. No Southern Rubber Boas were found. In April of 1994, in three weeks of setting up more plots with artificial cover objects and making searches, I found one Southern Rubber Boa.

In 1995, I arrived at the Arrowhead Forest Service Ranger Station on March 31st. I learned that others had been joking that the hot-shot boa 'expert' from Oregon had found but a single Southern Rubber Boa after two seasons. This was more evidence that confirmed the rarity of the species.

My training in wildlife science has really served me well. After experiencing failure during the collecting seasons of 1993 and 1994, in both years I wrote Dr. Stewart indicating I was still very much enthused about the project. I expressed the view that the species had to be abundant in the region due to the presence of a numerous prey base and extensive, suitable habitat in the region.

During the first part of April, 1995, in short order I came up with 26 Southern Rubber Boas. That number equaled or exceeded all Southern Rubber Boas in preserved collections at the time. Glenn was one that had considered the snake to be scarce and threatened. But to his credit, he scheduled a meeting of the Southern Rubber Boa Advisory Council for that September in order to review the status of the Southern Rubber Boa. I returned in September to release specimens and attend the meeting.

At the meeting, Glenn first reviewed the history of the Southern Rubber Boa. When he finally came around to announcing my collecting results that spring, I recall there being an initial, prolonged silence. There was a look of disbelief of one particular individual that had emphatically expressed the view that the Southern Rubber Boa was rare.

During the three years of 1995–1997, I spent an average of about 14 days per year making searches. I personally made 77 initial captures of Southern Rubber Boas and 21 recaptures. The total sample included a DOR on a bike trail, a specimen found by Gary Keasler in 1983 on which I had recorded data that year, and four specimens found by Gary Keasler and a friend in 1994. As a standard procedure during the study, I recorded all other species of snakes encountered. Thus, when we published our findings, the report contained a record of all species of snakes that had been encountered. Not counting the 1983 specimen, there were 82 initial Southern Rubber Boa captures. In contrast, there were 56 encounters of all other species of snakes as follows:

San Bernardino Mountain Kingsnake – 31
Gopher Snake – 7
Ringneck Snake – 7
Striped Racer – 4
Night Snake – 3
Western Terrestrial Garter Snake – 2
Southern Pacific Rattlesnake – 2

Please keep in mind that this study was unfunded and conducted by one person during very brief intervals in each of 5 years. One can only guess as to the number of Southern Rubber Boas that might have been found had a funded study involved a team of experienced researchers.

With the above two sets of data, clearly the original assessment of 'Rare' by the California Department of Fish and Game was incorrect. That assessment was not accomplished by acceptable scientific methods but was based on personal opinions and other anecdotal input. The only evidence at the time was the low number of locality records and sightings for the species. Apparently not understood is that low numbers of locality records and sightings are not an indication of rarity. There are a number of explanations for such low numbers with the rarity of a species being at the bottom of the list of explanations.

As a footnote, I might mention that individuals with extensive experience in field herpetology should know that timing is critical. Search at the wrong time and/or under less than ideal conditions can lead to poor results or even failure to find target species. My lack of success during 1993 and 1994 was primarily the result of unsuitable collecting conditions,

although my unfamiliarity with the region and lack of inexperience with the Southern Rubber Boa were contributing factors. Traveling 1,000 miles from Oregon to the San Bernardino Mountains was always chancy as to whether or not I would find suitable conditions in which to conduct searches for the Southern Rubber Boa.

A perfect example of this factor of 'timing' occurred on 29 April 29 2001. I was then concentrating my efforts on the species further north in the southern Sierra Nevada Mountains but returned to the San Bernardino Mountains that one day to assist two other individuals in efforts to collect a pair of San Bernardino Mountain Kingsnakes for a research project. We began our searches at about 10:45 am that April morning and concluded our searches at around 6:00 pm. We were successful in finding the two Mountain Kingsnakes. In the process, we also encountered two Gopher Snakes, one Western Terrestrial Garter Snake, one Ringneck Snake, and *nineteen* Southern Rubber Boas. Compare that one day total with what transpired during the 29 days in which I made searches in 1993 and 1994.

From the information of Gary Keasler and our published account, from the application of biological principles, and from a number of other clues, it is my view that the Southern Rubber Boa is likely to be the most numerically abundant species of snake in the San Bernardino Mountains from an elevation of about 5,500 feet and above. It is also my view that it is improper for wildlife agencies to list species in some category of concern based on anecdotal information that lacks supporting evidence.

PART 3: MANAGEMENT

In 1971, the Oregon Department of Fish and Wildlife indicated that the Sharptail Snake (*Contia tenuis*) in Oregon was in trouble. The species was placed in a protected status and ended up on the state's Sensitive Species list. Since the species had never been studied in Oregon, I knew the listing was not based on factual evidence.

Twenty six years later, in mid 1997 I read the Oregon Department of Fish and Wildlife official status account of the Sharptail Snake. To justify the listing of *Contia*, the author made a number of assertions that were untrue. I was so incensed that my state's wildlife agency would use incorrect information, that I made the decision to undertake a study of the species in Oregon. Starting in late December 1997, I began updating all locality records and sightings of the species in Oregon. A second part of the study was a mark and recapture effort. And a third part was to obtain data from captive specimens.

In February 1998, before I had captured my first Sharptail Snake, I had a lengthy discussion with colleague John Applegarth, who at the time worked for the Bureau of Land Management in Eugene, Oregon. He sided with the Oregon Department of Fish and Wildlife's view that the species was scarce to rare and was potentially in trouble. In all of his years in the field, John had observed very few *Contia* in relation to other common species. My experience with observing *Contia* had been pretty much the same. During my ongoing field efforts with the Rubber Boa, in 'good' years I might encounter 4–6 Sharptail Snakes, while at the same time recording data on 100 or more 'rare' Rubber Boas. In other years, I observed from zero to one or two Sharptail Snakes.

But in spite of the paucity of observations, I argued that, based on biological principles, the species simply could not be rare. The Sharptail Snake and Gopher Snake occur in identical habitats throughout much of their distributions in western Oregon. No one had expressed concerns about the Gopher Snake population. And with the Sharptail Snake being substantially smaller and likely to have much smaller home territories, how could it possibly be less abundant than the Gopher Snake? In addition, if you apply concepts dealing with prey resources, the prey base of the Sharptail Snake is far more abundant than the prey base of the Gopher Snake. The latter consumes small mammal, nestling birds, lizards, etc. which can be numerous but nowhere as numerous and the known primarily prey of the Sharptail Snake, which is slugs. I have since documented that *Contia* includes small salamanders and small earthworms as prey with the latter being even more abundant than slugs.

To backtrack, up until about 1983, the Sharptail Snake had been officially recorded in just three western Oregon counties; Jackson, Douglas, and Benton. There were about 35 locality records for those three counties, as represented by about 40 preserved specimens in the collection of the species at Oregon State University. At that time, Oregon Department of Fish and Wildlife contracted with field herpetologist Al St. John to conduct surveys of reptiles in western Oregon during the 1980s. St. John increased the number of counties in which *Contia* had been observed from three to eight, and increased the locality records and sightings from the approximate 35 to about 67. With such a sizeable increase in data, it is worth noting that the species continued to be included on the Sensitive Species list for an additional 15+ years despite Oregon Department of Fish and Wildlife conducting periodic reviews of species on their Sensitive Species lists.

I completed my efforts to document locality records and sightings by the end of January 1999. I increased the number of counties in which the species had been documented from eight to 11 and increased the number of locality records and sightings from 67 to over 600. I obtained a large share of the locality data sitting at home, writing letters and contacting governmental agencies, their biologists, universties, museums, herpetologists, etc. that might possess reports and files on *Contia*.

During the field portion of the study, my first Sharptail Snake was captured on 6 March 1998. By the end of that year, I had 151 captures that were comprised of 122 initial captures and 29 recaptures. The results of the locality records and sightings data and the 1998 field season appear in Hoyer et al. [2006, Current distribution and status of Sharptail Snakes (*Contia tenuis*) in Oregon, Northwestern Naturalist,

87(3)].

I continued with the field study until the end of February 2002, making the duration of the study about an even four years. For the first three years, all specimens were taken to the Mason lab at Oregon State Univerity where graduate students scale-clipped specimens for the mark and recapture part of the study. The specimens found during the fourth year were not marked as my primary goal that year was to acquire data on the recapture of previously tagged specimens.

Because the Sharptail Snake was a listed species, it was necessary for me to obtain a Scientific Taking Permit with the condition that annual reports were required. The report for 1998 was for 151 specimens as ODFW counted recaptures in the total I was allowed to collect. Counting both initial and recapture events, I reported over 500 captures in 1999, over 800 in 2000, and over 400 in 2001. I captured a number of specimens before the end of February 2002 so that the total number of captures for the four years was over 2000, slightly over 1,700 initial captures and slightly over 300 recaptures.

This is for a species that had been perceived to be rare, perceived to be having problems, and was listed by the Oregon Department of Fish and Wildlife. Despite the evidence I submitted in my annual reports, the species continued to be listed in the state's Sensitive Species list. In speaking to biologists in Oregon Department of Fish and Wildlife and in federal agencies, none of the data I had submitted had been conveyed to anyone. And thus, in talking with some of those biologists, they still considered the species to be rare and in trouble in Oregon. In other words, they had accepted as fact that the Oregon Department of Fish and Wildlife listing and status account for the species was legitimate and valid.

As with my research on the Rubber Boa, the study of the Sharptail Snake in Oregon was an unfunded, solo effort. Again, one can only imagine the sample size that might have been produced had this study been funded and accomplished by a team of two or more experienced field herpetologists.

As mentioned, the Oregon Department of Fish and Wildlife performs periodic reviews of the species on their Sensitive Species lists. I had learned that in some years, they sent out questionnaires to selected individuals seeking input on listed species. In more recent times, panels of individuals have been convened to review and assess the status of listed species. From fragmentary input, I had surmised that the information gathered by these two processes was mostly anecdotal in nature. In other words, there was little or no science involved. The last such review of herps on the Sensitive Species list occurred in December 2003. Since I was amongst the dozen or so participants, I confirmed my prior understanding that species were being listed and reviewed based mostly from opinions.

In advance of that December meeting, I had requested that the individual with Oregon Natural Heritage who was to chair the panel, and the Oregon Department of Fish and Wildlife biologist in charge of the non-game (Wildlife Diversity) section, bring with them the supporting evidence they had for the four listed species of snakes on the Oregon Department of Fish and Wildlife Sensitive Species list.

Neither individual brought information pertaining to the listed snakes. As a matter of fact, during that meeting I discovered that the Oregon Department of Fish and Wildlife Wildlife Diversity section no longer maintained folders on each listed species because two years earlier, they had turned over their files to Oregon Natural Heritage. I then found out that the Oregon Natural Heritage files mostly, or solely, contain locality information. As far as I could determine, no valid evidence exists in support of any species of herps listed in Oregon's Sensitive Species list.

That afternoon, just before the review began on the four species of snakes, I first asked everyone if they knew of any evidence that would support the initial listing of any of the four species of snakes. There was complete silence. It was noteworthy that the ODFW biologist in charge of the Wildlife Diversity section offered no evidence. I then asked if anyone was aware of any evidence that had emerged since these species were listed that would support the continued listing of the four species. Again, silence. I then suggested the panel recommend that all four species be removed from the state's Sensitive Species list.

During the discussion that ensued, I discovered how the two species of kingsnakes in Oregon became included on the Sensitive Species list. One herpetologist in attendance sitting next to me, in the 1980s had expressed concerns to the Oregon Department of Fish and Wildlife about the possibilities that collecting could harm those two species. Apparently that is all that was needed in order to have the two species added to the Sensitive Species list.

At any rate, the panel recommended that the California Mountain Kingsnake and Sharptail Snake be dropped form the list. For a variety of reasons, none of which were supported by data or analysis, they recommended that the Common Kingsnake and Ground Snake be retained but downgraded to a lesser category of concern. Just this year I learned that he Sharptail Snake has apparently been removed from the list but the California Mountain Kingsnake remains on the list.

PART 3: POSTSCRIPT

I now have completed studies on two species of snakes listed in some category of concern by state wildlife agencies. In both instances, these two species were listed on the basis of personal opinion and other anecdotal information. I have no answer as to why wildlife agencies that hire biologists with university degrees have not assessed and managed non-game species via science-based processes. So, if your state wildlife agency lists species in some category of concern without having support from valid evidence, you make the judgment as to whether you believe they are operating in a proper manner.

I wish to make comment on one more issue. There have been a number of individuals that have urged the use of science and the need for data. A com-

mon response to this is that it is up to those wishing to collect specimens from the wild to provide proof, data, and evidence to indicate that such collecting would not harm species. I would ask those individuals if they also believe it is up to institutions that routinely collect vouchers that they too provide wildlife agencies with similar data that would demonstrate the collecting of voucher specimens as having no negative effects on populations of herps. Would they also insist that researchers provide evidence that before they conduct field research, they provide proof that any collecting activities will not harm their target species?

To have a species considered for removal from a listed status requires a complex process of conducting extensive research and gathering evidence. Yet many of those listed species, such as the Southern Rubber Boa in California and Sharptail Snake in Oregon, were listed without any valid data or evidence whatsoever. In other word, a state wildlife agency is not required to have evidence in order to list species but evidence is required to de-list species.

Suggestions have been made that to possibly effect change, one should present information to either one's wildlife agency or to the state's wildlife commission. I have done both. And those efforts turned out to be a waste of time. Before 2002, a number of times I had contacted the Oregon Department of Fish and Wildlife biologist in charge of non-game species. Then in 2002, before our state's wildlife commission, I related the circumstances surrounding the Sharptail Snake listing. At the direction of the commission's chair, I met with the biologist in charge of the Wildlife Diversity (non-game species) section. We eventually agreed to have me review the list of herps on the Sensitive Species list to see which listings were warranted and which weren't. Despite numerous attempts to arrange for the review process, it did not occur.

During my review of wildlife agency policies, I found that Oregon Department of Fish and Wildlife has Administrative Rules that detail how species are to be listed in various categories of concern. The process for listing species on the Sensitive Species list are identical to the steps for listing species in a Threatened or Endangered category. And, of course, the agency has apparently not been following their own rules. In contacting the Oregon Attorney General's office, I found that there is no avenue available for the average citizen to force a state agency in Oregon to follow their own administrative rules.

Let me end by saying how easy it is to criticize. I don't doubt that the individual panel members that volunteer their time, information, and opinions are well-meaning. And wildlife agencies have been strapped for funds and short of personnel to carry out unfunded mandates by state legislators to manage non-game species. This may be the reason why the current quick fix policy was originally implemented.

But now that this problem has been identified, it is well past time that wildlife agencies discard the improper processes, and incorporate science-based processes involving non-game species. Only when such changes are made will there be the chance of restoring a sense of professionalism, integrity, and credibility. I would argue that a similar science-based approach be applied to the formation of regulations on recreational collecting of snakes and other herps.

State wildlife agencies commonly establish lists of species (of concern) that have been placed in a 'protected' status. Such lists are nothing more than 'feel good' measures giving the false impression that something of value has been accomplished. In reality, such lists of 'protected' species are virtually worthless unless a species' habitat is also protected.

For those that truly wish to promote wildlife protection, the emphasis should be on habitat preservation, protection, and restoration. Promoting legislation aimed at habitat conservation and donating funds to various land trusts are two ways that can result in the conservation of wildlife, including herps.

Herpetological Collecting in Kansas: The Law and the Herpetologist

Everyone has heard the old saying that ignorance of the law is no excuse, and that old saying is the reason for this short article. Kansas has a number of wildlife laws that directly affect the animals that people such as those involved with the Kansas Herpetological Society enjoy observing, photographing, pursuing, and sometimes actually collecting. Following is a very brief summary of some of the laws that many herpetologists may not be aware.

First, all native amphibians, reptiles, and turtles in Kansas are protected by one or more Kansas statutes. Non-native animals such as Italian Wall lizards and Western Diamondback Rattlesnakes are another issue. The laws do not seem to be clear as to their protection.

The collecting, handling, and keeping of native amphibians, reptiles, and turtles in Kansas requires one or more of the following types of permits depending on the species in question: valid Kansas hunting license for residents 16 years of age or older, valid Kansas fishing license for residents 16 years of age or older, and/or a Kansas scientific collecting permit. Residents 65 years of age or older do not need either a Kansas hunting or fishing license, but do need a scientific collecting permit for some of the species found in Kansas. All non-residents, regardless of age, must have the proper license.

These are general guidelines taken from information at the Kansas Department of Wildlife and Parks website. Anyone with specific questions should contact the Kansas Department of Wildlife and Parks with those questions.

Larry L. Miller
Kansas Heritage Photography
840 SW 97th Street
Wakarusa, Kansas 66546

ARTICLES

New Records of Amphibians, Turtles, and Reptiles in Kansas for 2006

Joseph T. Collins

Herpetologist
Kansas Biological Survey
University of Kansas
2021 Constant Avenue
Lawrence, Kansas 66047
and
Adjunct Curator of Herpetology
Sternberg Museum of Natural History
Fort Hays State University
Hays, Kansas 67601

The seven new county records and two maximum size record listed below are those accumulated or brought to my attention since the publication of records for 2005 (Collins, 2006). Publication of these new records permits me to give credit and express my appreciation to the many individuals who collected or obtained specimens and donated them to me for deposition in an institutional collection. Further, recipients of this list are permitted an opportunity to update the range maps and size maxima sections in Amphibians and Reptiles in Kansas Third Edition (Collins, 1993). Finally, these new records represent information that greatly increases our knowledge of the distribution and physical proportions of these creatures in Kansas, and thus gives us a better understanding of their biology. This report is my 32nd in a series that has appeared annually since 1976, and the data contained herein eventually will be incorporated into my new forthcoming book, Amphibians, Turtles, and Reptiles in Kansas.

The Kansas specimens listed below represent the first records for the given county based on a preserved, cataloged voucher specimen in an institutional collection, or represent size maxima larger than those listed in Collins (1993). Any information of this nature not backed by a voucher specimen is an unverifiable observation. All new records listed here are presented in the following standardized format: standard common and current scientific name, county, specific locality, date of collection, collector(s), and place of deposition and catalog number. New size maxima are presented with the size limits expressed in both metric and English units. Common names are those now standardized for North America, as compiled by Collins and Taggart (2002), and are given at the species level only.

The records listed below are deposited in the herpetological collection of the Sternberg Museum of Natural History, Fort Hays State University, Hays, Kansas (MHP) and the Museum of Natural History, University of Kansas (KU). I am most grateful to the members of the Kansas Herpetological Society, and to the staff of the Kansas Department of Wildlife and Parks and the Kansas Biological Survey, who spent many hours in search of some of the specimens reported herein. Some of the records contained herein resulted from field studies sponsored by funds from the Kansas Department of Wildlife and Parks' Chickadee Checkoff Program. Travis W. Taggart and Curtis Schmidt, Sternberg Museum of Natural History, Fort Hays State University, diligently assigned catalog numbers to most of the specimens listed below, and to them I am most indebted.

NEW COUNTY RECORDS

BULLFROG (*Lithobates catesbeianus*)
OSBORNE CO: N39.24951°, W98.87107°. 13 August 2006. Collectors: Curtis J. Schmidt. MHP 12485. Verified by Travis W. Taggart.

OUACHITA MAP TURTLE (*Graptemys ouachitensis*)
KINGMAN CO: N37.34660°, W°97.49813°. 15 October 2004. Collectors: Shawn W. Casley. KU Color Slide 11936. Verified by Lynnette Sievert. Recorded by Casley and Sievert (2006).

SLIDER (*Trachemys scripta*)
POTTAWATOMIE CO: N39.22786°, W96.52864°. 7 October 2006. Jeremiah Teller. MHP . Verified by Travis W. Taggart. Shell only of a partially melanistic adult.

MEDITERRANEAN GECKO (*Hemidactylus turcicus*)
JOHNSON CO: Lenexa, near 87th Street and Quivira Road. 26 May 2006. Collectors: Andrew Hare and Brad Hare. MHP 12369. Verified by Walter E. Meshaka, Jr. Recorded by Hare (2006).

EASTERN GLOSSY SNAKE (*Arizona elegans*)
CHASE CO: Chase County Fishing Lake, N38.22052°, W96.35417°. 7 September 2005. Collectors: Michelle Gilkerson, Peter Tuttle, Victor Tuttle and Greg Sievert. MHP 12140. Verified by Lynnette Sievert. Recorded by Sievert et al. (2006).

MILK SNAKE (*Lampropeltis triangulum*)
KIOWA CO: N37.38818°, W99.47304°. 21 April 2006. Collectors: Derek Schmidt and Brett Schmidt. MHP 12867. Verified by Curtis J. Schmidt. Recorded

by Derek Schmidt (2006).

BROWN SNAKE (*Storeria dekayi*)
BARTON CO: Cheyenne Bottoms Wildlife Area, N38.48597°, W98.65534°. 3 September 2006. Collectors: Curtis J. Schmidt. MHP 13233. Verified by Travis W. Taggart. Recorded by Schmidt (2006).

NEW MAXIMUM SIZE RECORDS

CRAWFISH FROG (*Lithobates areolatus*)
BOURBON CO: N37.90553°, W94.73175°. 31 March 2005. Collectors: Derek Welch and Curtis J. Schmidt. MHP 10447. Total length = 122 mm (4 13/16 inches). Female.

COMMON SNAPPING TURTLE (*Chelydra serpentina*)
RENO CO: Just SE of Haven. 16 October 2006. Collectors: Jay E. Mattison and Allen Andresen. MHP 13387. Total length = 406.4mm (16 inches); Total weight = 20.46 kilograms (45 lbs). Male.

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Recent Major Nomenclatural Name Changes in the Amphibian Fauna of México

Ernest A. Liner

310 Malibou Boulevard
Houma, Louisiana 70364-2598
Eliner@Mobiletel.com

INTRODUCTION

Recently three major papers have appeared which has affected the nomenclature of amphibians worldwide. They are 1) Faivovich et al. (2005), 2) Frost et al. (2006a), and 3) Grant et al. (2006). The first covers the frogs of the family Hylidae, the second all amphibians except the Hylidae and the third Athesphatanura and Dendrobatidae which affects México very little.

The changes in the nomenclature of these amphibians that pertain to the fauna of México is presented here. Collins and Taggart, 2006 presented the changes in the United States taxa from the second publication. Whether all these changes will be accepted by the herpetological community is yet to be determined.

In the first publication the Hylidae is split up into several new and resurrected genera as well as some species being placed into other known genera. Also shown is new higher classification above the family level represented with some new names being proposed or resurrected.

Bromeliohyla –– *New genus.*
B. bromeliacia (Schmidt, 1933)
B. dendroscarta (Taylor, 1940)

Charadrahyla –– *New genus.*
C. altipotens (Duellman, 1968)
C. chaneque (Duellman, 1961)
C. nephila (Mendelson, III and Campbell, 1999)
C. taeniopus (Günther, 1901 [1885-1902])
C. trux (Adler and Dennis, 1972)

Dendropsophus Fitzinger, 1843 –– *Resurrected.*
D. ebraccatus (Cope, 1874)
D. microcephalus (Cope, 1894)
D. robertmertensi (Taylor, 1937)
D. sartori (Smith, 1951)

Economiohyla –– *New genus.*
E. echinata (Duellman, 1962)
E. miotympanum (Cope, 1863)
E. valencifer (Firschein and Smith, 1956)

Exerodonta Brocchi, 1879 –– *Resurrected.*
E. abdivita (Campbell and Duellman, 2000)
E. bivocata (Duellman and Hoyt, 1961)
E. chimalapa (Mendelson, III and Campbell, 1994)
E. juanitae (Snyder, 1972)
E. melanomma (Taylor, 1940)
E. pinorum (Taylor, 1932)
E. smaragdina (Taylor, 1940)
E. xera (Mendelson, III and Campbell, 1994)

Megastomatohyla –– *New genus.*
M. mixe (Duellman, 1965)
M. mixomaculata (Taylor, 1950)
M. nubicola (Duellman, 1964)
M. pellita (Duellman, 1968)

Plectrohyla Brocchi, 1827 –– *Species added to this genus.*
P. ameibothalame Canesco-Màrquez, Mendelson, III and Guitérrez-Mayén, 2002)
P. arborescandens (Taylor, 1938)
P. bistincta (Cope, 1877)
P. calthula Ustach, Mendelson, III, McDiarmid and Campbell, 2000)
P. calvicollina (Toal, III, 1994)
P. celeta (Toal, III and Mendelson, III, 1995)
P. cembra (Caldwell, 1974)
P. charadricola (Duellman, 1964)
P. chryses (Adler, 1965)
P. crassa (Brocchi, 1877)
P. cyanomma (Caldwell, 1974)
P. cyclada (Campbell and Duellman, 2000)
P. hazelae ITaylor, 1940)
P. labedactyla (Mendelson, III and Toal, III, 1996)
P. mykter (Adler and Dennis, 1972)
P. pachyderma (Taylor, 1942)
P. pentheter (Adler, 1965)
P. psarosema (Campbell and Duellman, 2000)
P. robertsorum (Taylor, 1940)
P. sabrita Caldwell, 1974)
P. siopela (Duellman, 1968)
P. thorectes (Adler, 1965)

Pternohyla Boulenger, 1892 –– *Put into the synomnomy of* Smilisca.

Ptychohyla Taylor, 1944 –– *Added to this genus.*
P. dendrophasma –– Campbell, Smith and Acevedo, 2000.

Smilisca Cope, 1865 –– *Added to this genus.*
S. dentata (Smith, 1957)
S. fodiens (Boulenger, 1882)

Tlalocohyla –– New genus.
T. godmani (Günther, 1901)
T. loquax (Gaige and Stuart, 1934)
T. picta (Günther, 1901 {1885-1902])
T. smithi (Boulenger, 1901)

Trachycephalus Tschudi, 1838 –– *Resurrected.*
T. venulosus (Laurenti, 1768)

The second publication has the following changes.

Ambystomatidae Gray, 1850 –– *Now composed only of* Ambystoma.

Amphibia Gray, 1825 –– *New author and date.*

Anura Fischer von Waldheim, 1813 –– *New author and date.*

Batrachia Latreille, 1800 –– *Replaces Salientia Laurenti, 1768.*

Brachycephalidae Günther, 1858 –– *Resurrected.*

Caudata Fischer von Waldheim, 1813 –– *New author and date.*

Leptodactylidae Werner, 1896 (1838) –– *Change in authorship, date and composition.*

Microhylidae Günther, 1857 (1843) –– *Change in authorship and date.*

Ranidae Rafinesque, 1814 –– *Change in authorship and date.*

Salamandridae Goldfuss, 1820 –– *Change in author and year.*

Genera *Ixalatriton* and *Lineatriton* –– *Placed in the synonomy of* Pseudoeurycea.

Pseudoeurycea Taylor, 1944
P. niger (Wake and Johnson, 1989)
P. parva Lynch and Wake, 1989
P. lineola (Cope, 1865)
P. orchileucus (Brodie, Mendelson, III and Campbell, 2002)
P. orchimelus (Brodie, Mendelson, III and Campbell, 2002)

From *Bufo* to *Anaxyrus* Tschudi, 1845 –– *Resurrected.*
A. boreas halophilus (Baird and Girard, 1853)
A. californicus (Camp, 1915)
A, cognatus (Say, in James, 1823)
A. compactilis (Wiegmann, 1833)
A. debilis debilis (Girard, 1854)
A. d. insidior (Girard, 1854)
A. kellogi (Taylor, 1938)
A. mexicanus (Brocchi, 1879)
A. microscaphus (Cope, 1867)
A. punctatus (Baird and Girard, 1852)
A. retiformis Sanders and Smith, 1951)
A. speciosus (Girard, 1854)
A. woodhousii australis (Shannon and Lowe, 1955)

Chaunus Wagler, 1828 –– *Resurrected*.
C. marinus (Linnaeus, 1758)

Ollotis Cope, 1875 (1876) –– *Resurrected*. The use of this name instead of *Cranopsis* is according to Frost et al. (2006b), which was used in error.
O. alvaria (Girard, in Baird, 1849)
O. bocourti (Brocchi, 1872)
O. campbelli (Mendelson, III, 1977)
O. canalifera (Cope, 1877)
O. cavifrons (Firschein, 1950)
O. coccifer (Cope, 1866)
O. cristata (Wiegmann, 1833)
O. cycladen Lynch and Smith, 1966)
O. gemmifer (Taylor, 1940)
O. macrocristata Firschein and Smith, 1957)
O. marmorea (Wiegmann, 1833)
O. mazatlanensis (Taylor, 1940)
O. nebulifer (Girard, 1854)
O. occidentalis (Camerano, 1879)
O. perplexa (Taylor, 1943)
O. pisinna (Mendelson, III, Williams, Sheil and Mulcahy, 2005)
O. spiculata (Mendelson, III, 1997)
O. tacannensis Smith, 1952)
O. tutelaria Mendelson, III, 1997)
O. valliceps (Wiegmann, 1833)

From Leptodactylidae to Brachycephalidae

Craugastor Cope, 1862.
C. amniscola (Campbell and Savage, 2000)
C. galacticorhinus (Canesco-Márquez and Smith, 2004)
C. pelorus (Campbell and Savage, 2000)
C. rupinius (Campbell and Savage, 2000)
C. vulcani (Shannon and Werler, 1955)

Euhyas Fitzinger, 1843 –– *Resurrected.*
E. planirostris planirostris (Cope, 1862) (Introduced)

Syrrhophus Cope, 1878 –– *Resurrected*.
S. albolabris (Taylor, 1943)
S. angustiditorum (Taylor, 1940)
S. cystignathoides campi (Stejneger, 1915)
S. c. cystignathoides (Cope, 1877)
S. dennisi Lynch, 1970
S. dilatus (Davis and Dixon, 1955)
S. fuscus (Davis and Dixon, 1955)
S. grandis (Dixon, 1957)
S. guttilatus (Cope, 1879)
S. interorbitalis Langebartel and Shannon, 1956
S. leprus Cope, 1879
S. longipes Baird, 1859)
S. marnocki Cope, 1878
S. maurus (Hedges, 1989)
S. modestus Taylor, 1942
S. nitidus nitidus (Peters, 1870)
S. n. orarius (Dixon, 1957) ????
S. n. petersi (Duelllman, 1954) ????
S. nivicolimae Dixon and Webb, 1966
S. pallidus Duellman, 1958
S. pipilans nebulosus Taylor, 1943
S. p. pipilans Taylor, 1940
S. rubrimaculatus Taylor and Smith, 1945
S. rufescens (Duellman and Dixon, 1959)
S. saxatilis (Webb, 1962)
S. suristes (Hoyt, 1965)
S. teristes Duellman, 1958
S. verrucipes Cope, 1885
S. verruculatus (Peters, 1870)

From *Rana* to *Lithobates* Fitzinger, 1843 –– *Resurrected.*
L. berlandieri (Baird, 1854)
L. brownorum (Sanders, 1973)
L. catesbeianus (Shaw, 1802)
L. chichicuahutla (Cuellar, Méndez de la Cruz and Villegran Santa Cruz, 1996)
L. chiricahuensis (Platz and Mecham, 1979)
L. dunni (Zweifel, 1957)
L. forreri (Boulenger, 1883)
L. johni (Blair, 1965)
L. lemosespinali Smith and Chiszar, 2003)
L. maculata (Brocchi, 1877)
L. magnaocularis (Frost and Bagnara, 1976)
L. megapoda (Taylor, 1942)
L. montezumae (Baird, 1854)
L. neovolcanica (Hillis and Frost, 1985)
L. omiltemana (Günther, 1900 [1885-1902])
L. psilonota (Webb, 2001)
L. pueblae (Zweifel, 1955)
L. pustulosa (Boulenger, 1883)
L. sierramadrensis (Taylor, 1938 [1939])
L. spectabilis (Hillis and Frost, 1985)
L. tarahumarae (Boulenger, 1917)
L. tlaloci (Hillis and Frost, 1985)
L. vaillanti (Brocchi, 1877)
L. yavapaiensis (Platz and Frost, 1984)
L. zweifeli (Hillis, Frost and Webb, 1989)

New taxon group names above the family level pertaining to Mexico.
Agastorophrynia
Allodapanura
Athesphatanura
Diadactosalamandroidei
Diphyabatrachia
Hydatinosalamandroidei
Lalagobatrachia
Leptodactyliformes
Meridianura
Plethosalamdroidei
Ranoides
Sokolanura
Trepptobranchia
Xenosalamandroidea

The third publication has the following changes or additions.

Split from Leptodactylidae is the family Leiuperidae Bonaparte, 1850 –– *Resurrected*.

Some *Physalaemus* to *Engystomops*.

Engystomops Jiménez de la Espada, 1872 –– *Resurrected*.
E. pustulosus (Cope, 1864)

New taxon group names of a higher level pertaining to Mexico.
Calamitophrynia
Cruciabatrachia

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Frost, Darrel R., Taran Grant, Juliàn Faivovich, Raoul H. Bain, Alexander Haas, Célio F. B. Haddad, Rafael O. De Sà, Alan Channing, Mark Wilkinson, Stephen C. Donnellan, Christopher J. Raxworthy, Jonathan A.Campbell, Boris L. Blotto, Paul Moler, Robert C. Drewes, Ronald A. Nussbaum, John D. Lynch, David M. Green and Ward C. Wheeler. 2006a. The amphibian tree of life. Bull. Am. Mus. Nat. Hist. (297):1-370, 71 figs., 5 tables, 7 appendices.

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Grant, Taran, Darrel R. Frost, Janalee P. Caldwell, Ron Gagliardo, Célio F. B. Haddad, Philippe J. R. Kok, D. Bruce Means, Brice P. Noonan, Walter E. Schargel and Ward C. Wheeler. 2006. Phylogenetic systematics of dart-poison frogs and their relatives (Amphibia: Athesphatanura: Dendrobatidae). Bull. Am. Mus. Nat. Hist. (299):1-262, 79 figs, 37 tables, 8 appendices.

A Modern Checklist of the Amphibians, Reptiles, and Turtles of Utah

Ryan M. Shofner
McMindes Hall
Fort Hays State University
Hays, Kansas 67601

INTRODUCTION

This publication aims to provide an updated, modern list of the amphibians, and turtles, and reptiles that are known to occur, or have occurred in the recent past, in Utah. Recent taxonomic revisions of a number of genera and species groups has created a need to clarify and organize the taxa that occur in Utah. Based on all published evidence to date, Utah currently has 73 species of amphibians, turtles, and reptiles, (1 salamander, 16 frogs and toads, 4 turtles, 23 lizards, and 29 snakes), making it one of the more diverse herpetofaunas in the United States. A baseline list is available at http://dwrcdc.nr.utah.gov/rsgis2/Search/SearchVerts.asp, however many of the taxonomic changes recognized herein are not used at that website.

Symbols next to the standard common names are denoted as follows: CA = protected under a conservation agreement, T = threatened both state and federally, SC = species of concern in the state of Utah, X = extirpated, * = introduced.

I would like to thank Joseph Collins for the encouragement, advice, and knowledge he gave to me to help with this work. Without his help and guidance, this project would have never have been completed.

CLASS AMPHIBIA
Amphibians

ORDER ANURA
Frogs and Toads

True Toads, Family Bufonidae

Boreal Toad (SC) ..... *Bufo boreas*
Great Plains Toad..... *Bufo cognatus*
Arizona Toad (SC)..... *Bufo microscaphus*
Red-spotted Toad ..... *Bufo punctatus*
Woodhouse's Toad ..... *Bufo woodhousii*

Chorus Frogs, Cricket Frogs and Treefrogs, Family Hylidae

Canyon Treefrog ..... *Hyla arenicolor*
Pacific Chorus Frog ..... *Pseudacris regilla*
Boreal Chorus Frog ..... *Pseudacris maculata*

True Frogs, Family Ranidae

Bullfrog* ..... *Lithobates catesbeianus*
Green Frog* ..... *Lithobates clamitans*
Relict Leopard Frog (X) ..... *Lithobates onca*
Northern Leopard Frog ..... *Lithobates pipiens*
Columbia Spotted Frog (CA) ..... *Rana luteiventris*

North American Spadefoots, Family Scaphiopodidae

Plains Spadefoot ..... *Spea bombifrons*
Great Basin Spadefoot ..... *Spea intermontana*
New Mexico Spadefoot ..... *Spea multiplicata*

ORDER CAUDATA
Salamanders

Mole Salamanders, Family Ambystomatidae

Barred Tiger Salamander ..... *Ambystoma mavortium*

CLASS CHELONIA
Turtles

ORDER CRYPTODIRA
Straightneck Turtles

Snapping Turtles, Family Chelydridae

Common Snapping Turtle* ..... *Chelydra serpentina*

Box and Water Turtles, Family Emydidae

Northern Painted Turtle* ..... *Chrysemys picta*

Tortoises, Family Testudinidae

Desert Tortoise (T) ..... *Gopherus agassizii*

Softshells, Family Trionychidae

Spiny Softshell† ..... *Apalone spinifera*

CLASS REPTILIA
Reptiles

ORDER SQUAMATA
Lizards and Snakes

Boas, Family Boidae

Northern Rubber Boa ..... *Charina bottae*

Harmless Egg-laying Snakes, Family Colubridae

Eastern Glossy Snake ..... *Arizona elegans*
Western Glossy Snake ..... *Arizona occidentalis*
Western Racer ..... *Coluber mormon*
Great Plains Rat Snake (SC) ..... *Pantherophis emoryi*
Common Kingsnake ..... *Lampropeltis getula*
Sonoran Mountain Kingsnake ..... *Lampropeltis pyromelana*
Milk Snake ..... *Lampropeltis triangulum*
Smooth Green Snake (SC) ..... *Liochlorophis vernalis*
Coachwhip ..... *Masticophis flagellum*
Striped Whipsnake ..... *Masticophis taeniatus*
Spotted Leafnose Snake ..... *Phyllorhynchus decurtatus*
Gopher Snake ..... *Pituophis catenifer*

Longnose Snake ..... *Rhinocheilus lecontei*
Western Patchnose Snake ..... *Salvadora hexalepis*
Ground Snake ..... *Sonora semiannulata*
Southwestern Blackhead Snake ..... *Tantilla hobartsmithi*
Lyre Snake ..... *Trimorphodon biscutatus*

Pitvipers, Family Crotalidae

Sidewinder (SC) ..... *Crotalus cerastes*
Speckled Rattlesnake (SC) ..... *Crotalus mitchellii*
Western Rattlesnake ..... *Crotalus oreganus*
Mojave Rattlesnake (SC) ..... *Crotalus scutulatus*
Prairie Rattlesnake ..... *Crotalus viridis*

Collared and Leopard Lizards, Family Crotaphytidae

Great Basin Collared Lizard ..... *Crotaphytus bicinctores*
Eastern Collared Lizard ..... *Crotaphytus collaris*
Longnose Leopard Lizard ..... *Gambelia wislizenii*

Slender Rear-fanged Snakes, Family Dipsadidae

Ringneck Snake ..... *Diadophis punctatus*
Night Snake ..... *Hypsiglena torquata*

Geckoes, Family Gekkonidae

Western Banded Gecko (SC) ..... *Coleonyx variegatus*

Gila Monsters, Family Helodermatidae

Gila Monster (SC) ..... *Heloderma suspectum*

Iguanas, Family Iguanidae

Desert Iguana (SC) ..... *Dipsosaurus dorsalis*
Chuckwalla (SC) ..... *Sauromalus ater*

Slender Blind Snakes, Family Leptotyphlopidae

Western Blind Snake (SC) ..... *Leptotyphlops humilis*

Harmless Live-bearing Snakes, Family Natricidae

Blackneck Garter Snake ..... *Thamnophis cyrtopsis*
Western Terrestrial Garter Snake ..... *Thamnophis elegans*
Common Garter Snake ..... *Thamnophis sirtalis*

Spiny Lizards, Family Phrynosomatidae

Zebratail Lizard (SC) ..... *Callisaurus draconoides*
Lesser Earless Lizard ..... *Holbrookia maculata*
Mountain Short-horned Lizard ..... *Phrynosoma hernandesi*
Desert Horned Lizard ..... *Phrynosoma platyrhinos*
Sagebrush Lizard ..... *Sceloporus graciosus*
Desert Spiny Lizard ..... *Sceloporus magister*
Western Fence Lizard ..... *Sceloporus occidentalis*
Northern Plateau Lizard ..... *Sceloporus tristichus*
Tree Lizard ..... *Urosaurus ornatus*
Side-blotched Lizard ..... *Uta stansburiana*

Skinks, Family Scincidae

Many-lined Skink ..... *Plestiodon mulitvirgatus*
Western Skink ..... *Plestiodon skiltonianus*

Whiptails and Racerunners, Family Teiidae

New Mexico Whiptail ..... *Aspidoscelis neomexicanus*
Western Whiptail ..... *Aspidoscelis tigris*
Plateau Striped Whiptail ..... *Aspidoscelis velox*

Night Lizards, Family Xantusiidae

Desert Night Lizard (SC) ..... *Xantusia vigilis*

Population Density Estimates for a Green Iguana (*Iguana iguana*) Colony in a Florida State Park

Henry T. Smith[1], Elizabeth Golden[2], and Walter E. Meshaka, Jr.[3*]

[1] Florida Department of Environmental Protection, Florida Park Service, 13798 S.E. Federal Highway, Hobe Sound, Florida 33455, USA.
[2] Florida Department of Environmental Protection, Bill Baggs Cape Florida State Park, 1200 S. Crandon Boulevard, Key Biscayne, Florida, 33149, USA.
[3] Section of Zoology and Botany, The State Museum of Pennsylvania, 300 North Street, Harrisburg, Pennsylvania, 17120-0024, USA. wmeshaka@state.pa.us

• Author to whom correspondence should be addressed.

INTRODUCTION

The Green Iguana (*Iguana iguana*) is a widely distributed, well established, exotic reptile species in southern Florida (Townsend et al. 2003; Meshaka et al. 2004a,b), where it is expanding its geographic range (Meshaka et al. 2004b). Well-established colonies exist in several state parks (Meshaka et al. 2004b, Smith et al. 2006), and in urban areas (Meshaka et al. 2004a, McKie et al. 2005) of this region. With its successful colonization of the region comes a need for natural history data to help explain its success and to evaluate possible management options. Using six years of removal data from a state park, we provide the first density estimates of this large primarily herbivorous exotic lizard in southern Florida.

STUDY AREA AND METHODS

Bill Baggs Cape Florida State Park (CFSP) is a small, urban park located in Miami-Dade County, Florida, USA, on Key Biscayne approximately seven miles southeast of metropolitan Miami. The park consists of 131.5 ha of uplands and 42.9 ha of tidal and freshwater wetlands for a combined total of 174.4 ha (FDEP 2001). CFSP is completely encapsulated by urban high-rise infrastructure to the North, the Atlantic Ocean to the South and East, and Biscayne Bay to the West. Terrestrial access is only at the Northern interface.

As of 2007, the park consisted of 10 distinct natural communities in various stages of succession (FDEP 2001). Principal upland habitat communities include 2.4 ha of beach dune, 61.5 ha of coastal strand, 35.6 ha of maritime hammock, and 4.4 ha of coastal grassland (FDEP 2001). During the wet season, CFSP contains about 4.0 ha of freshwater in five interdunal swale ponds (FDEP 2001). There are 4.4 ha of ruderal habitat, and 21.8 developed hectares (FDEP 2001).

For active removal of the Green Iguana during 2001 - 2006, road edges, picnic areas and other locations where trees and grasses occurred together were surveyed on sunny days by foot or by vehicle. More effort was made on suitable days following cool and/or rainy weather. Most Green Iguanas were taken by means of a monofilament noose attached to the end of a fishing pole. The noose was placed over the head of the animal and used to keep it from fleeing until the animal could be picked up by hand. Iguanas that were at first beyond reach in tall vegetation were pulled to the ground and then collected. This method worked very well initially on nearly all size-classes. Over time, however, some captures became more difficult as animals repeatedly exposed to failed collection efforts became more wary. Other captures were made by staking nets or placing heavy monofilament snares over the mouth of actively used burrows and waiting for entering or exiting iguanas to be caught.

An opportunistic road-kill survey was also con-

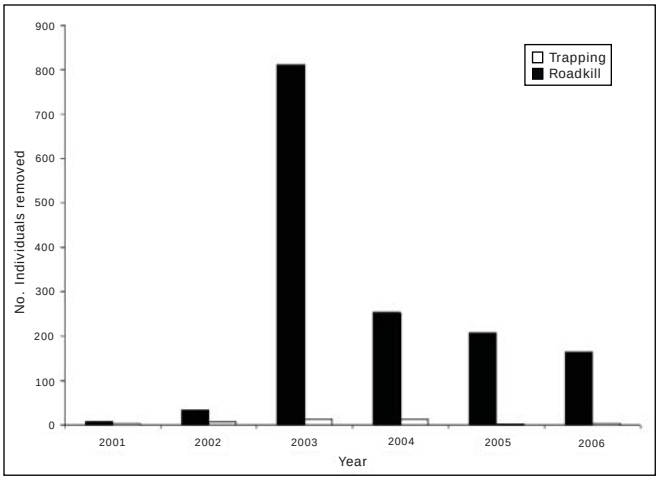

Figure 1. Numbers of Green Iguanas (*Iguana iguana*) removed from Bill Baggs Cape Florida State Park in Miami-Dade Co., Florida, during 2001 - 2006.

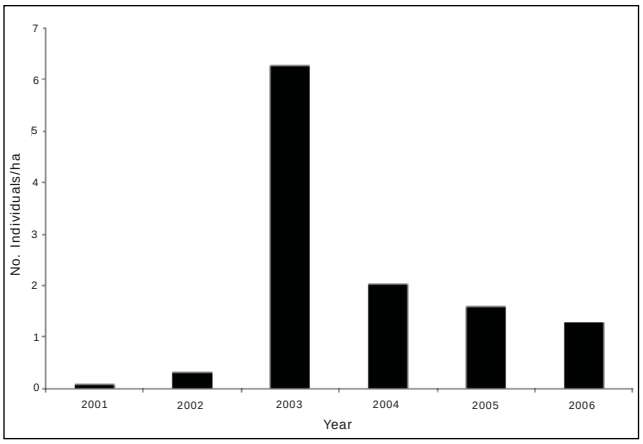

Figure 2. Population density estimates of the Green Iguana (*Iguana iguana*) from Bill Baggs Cape Florida State Park in Miami-Dade Co., Florida, during 2001 - 2006.

ducted during 1996 – 2006 at CFSP along ca. 2 km of paved, two-lane road (with variable speed limits of 24.1 – 40.2 km/hr) by park rangers and other staff. However, this survey was not as rigidly standardized as reported for other Florida state parks (see reviews in Smith et al. 1994, Bard et al. 2002, Smith et al. 2003); more data were opportunistically collected during various staff activities involving transit on roadways.

RESULTS AND DISCUSSION

Green Iguanas were first documented in CFSP on 30 September 1997. The date of their initial introduction to the park is unknown. The Green Iguana population in CFSP grew very slowly at first until a biotic burst occurred in the early 2000s at which time the species suddenly became prevalent in the park (HTS pers. obs.). Under both Florida Park Service policy, and the Florida Wildlife Code (39 F.A.C.), trapping and removal of Green Iguanas was initiated in 2001 to greatly reduce the population size. A combination of trapping and incidental road-kill removal resulted in a peak of 824 individuals removed during 2003, 811 of which were trapped (Figure 1). In 2006, 165 individuals were trapped out of 169 individuals removed from the park (Figure 1).

Based on the totals presented in Figure 1 by year, the absolute minimum densities of Green Iguanas for available terrestrial habitat (131.5 ha) in CFSP during 2001 - 2006 peaked at 6.27 individuals / ha in 2003 (Figure 2). These population density estimates, although high, are also conservative in light of the fact that they do not include any individuals remaining in the park by year-end, nor those removed by predators and/or scavengers. We also note that many of the individuals that were removed were hatchlings or very young individuals whose future survivorship was presumably much less than that of larger, older individuals. Nonetheless, the 2003 high population density estimate totaling 626.6 iguanas / km2 at CFSP may not be an endpoint for populations lacking various controls (see Smith et al. 2006).

Concerns relate to the Green Iguana in Florida, such as potentially negative interactions with the Florida Burrowing Owl (*Athene cunicularia floridana*) (McKie et al. 2005), seed dispersal through ingested fruit of the exotic Surinam Cherry (*Eugenia uniflora*) in Florida state parks (HTS pers. obs., S. Sekscienski unpubl. data), potential airplane collision hazards on Florida runways as noted on those in Puerto Rico (Engeman et al. 2005), its growing ubiquity in southern Florida (Townsend et al. 2003, Meshaka et al. 2004a,b), and its ability to colonize managed lands such as CFSP. In light of these concerns, our findings underscore the importance of control of what we quantified here as a potentially abundant exotic species in a restored park of an otherwise increasingly degraded Florida landscape.

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About the Kansas Herpetological Society

The KHS is a non-profit organization established in 1974 and designed to encourage education and dissemination of scientific information through the facilities of the Society; to encourage conservation of wildlife in general and of the herpetofauna of Kansas in particular; and to achieve closer cooperation and understanding between herpetologists, so that they may work together in common cause. All interested persons are invited to become members in the Society. Membership dues per calendar year are $15.00 (U.S., Regular), $20.00 (outside North America, Regular), and $20.00 (Contributing) payable to the KHS. Send all dues to: KHS Secretary, 5438 SW 12th Terrace Apt. 4, Topeka, Kansas 66604, USA.

KHS Meetings

The KHS holds an annual meeting in the fall of each year. The meeting is, minimally, a two day event with lectures and presentations by herpetologists. All interested individuals are invited to make presentations. The annual meeting is also the time of the Saturday night social and fund-raising auction.

Field Trips

The KHS hosts two or more field trips each year, one in the spring and one in the fall. Field trips are an enjoyable educational experience for everyone, and also serve to broaden our collective understanding of the distribution and abundance the amphibians, reptiles, and turtles in Kansas. All interested persons are invited to attend.

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The Journal of Kansas Herpetology, issued quarterly (March, June, September, and December), publishes all society business.

Submission of Manuscripts

As space allows, *JKH* publishes all manner of news, notes, and articles. Priority of publishing is given to submissions of Kansas herpetological subjects and by KHS members, however all submissions are welcome. The ultimate decision concerning the publication of a manuscript is at the discretion of the Editor. Manuscripts should be submitted to the Editor in an electronic format whenever possible. Those manuscripts submitted in hard copy may be delayed in date of publication. Manuscripts should be submitted to the Editor no later than the 10th of the month prior to the month of issuance. All manuscripts become the sole possession of the Society, and will not be returned unless arrangements are made with the Editor. In the interest of consistency and clarity the common names used in *JKH* will follow the latest edition of standardized common names as organized by CNAH (www.cnah.org), which are also used in the prior, current and subsequent editions of *Amphibians and Reptiles in Kansas* (currently Collins and Collins, 1993).

Submission of Original Artwork.

Pen and ink illustrations and photographs are also welcomed. Illustrations and photographs will be returned to the author only upon request.

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Individuals selected as Distinguished Life Members are chosen by the KHS Executive Council based on their distinguished research publications on Kansas herpetology.

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Established in 1987, this Award is presented to those individuals whose efforts and dedication to the Kansas Herpetological Society go far beyond the normal bounds. The recipients of this Award have given exemplary service to the KHS, and are presented with an elegant bronze sculpture of a Barred Tiger Salamander.

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The Gloyd-Taylor Scholarship is present annually by the Kansas Herpetological Society to an outstanding herpetology student. The scholarship is $100.00 and is awarded on the basis of potential for contributing to the science of herpetology. Students from grade school through university are eligible.

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KHS members only are eligible to apply for The Alan H. Kamb Grant for Research on Kansas Snakes. The recipient of the grant will be selected by the KHS Awards Committee. The award of $100 is given annually.

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The Award is established in recognition of the scientific and photographic achievements of Suzanne L. Collins and Joseph T. Collins, whose life-long study and conservation of the native amphibians, reptiles, and turtles of Kansas is amply demonstrated in their extensive and excellent writings and photography, both academic and popular, about these animals. The Collins Award shall be presented no more than once each year. In even-numbered years, the Award is bestowed upon an individual who, in the preceding two calendar years, had published a paper of academic excellence on the native species of Kansas amphibian, reptile, and/or turtle and in odd-numbered years, the Award is bestowed upon an individual who was chosen the best in a juried competition featuring the art of photography in portraying amphibians, reptiles, and/or turtles. The Collins Award is minimally $1,000.00, and is neither a grant nor a scholarship. No nominations or applications can be made for it.

Kansas Herpetological Society
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