

THIS MONTH'S GUEST SPEAKER

Wade C. Sherbrooke
**Horned Lizards (*Phrynosoma*): Life
as Predator and Prey**

7:15 PM

Tuesday, 15th May

Arizona Game and Fish Department Office
555 North Greasewood Road

(between Speedway and Anklam, west of Pima Community College)



Wade C. Sherbrooke, speaker at the May membership meeting.

Wade C. Sherbrooke grew up on Staten Island before the Verrazano-Narrows Bridge connected it to the other New York City (1940's and 50's). Here, as places to play, he found hardwood deciduous woodlands with red-backed salamanders, ponds containing painted and snapping turtles, blackberry thickets visited by box turtles, and marshes filled with birds and mammals. Today the area is covered by houses, and filled with the accoutrements of modern society and city parks. While in grammar school, raising and racing pigeons gave his early interest in animals a focus. By high school he became a summer volunteer under Carl Kauffeld at the Staten Island Zoo, which opened his vistas to a life in biology. Four undergraduate years as a vertebrate zoology major at Cornell University (B.S. degree), with a summer fighting fires in Oregon for the Forest Service, prepared him to go west to Tucson for graduate work with reptiles. The rich research environment and graduate students (like Bob Bezy and Jay Cole) of Chuck Lowe's field-oriented ecology program at the University of Arizona molded and shaped his growing passion to engage the natural world in more intellectual ways, and led to herpetology studies in the Grand Canyon (M.S. degree).

Then, breaking for tropical and cross-cultural adventures, he spent two years as a Peace Corps volunteer in Amazonian Peru, teaching at the Universidad Agraria de la Selva, Tingo Maria, and studying reproduction in tropical semi-aquatic lizards, before returning to the U.S. While working at the Office of Arid Lands Studies (UA) for the San Carlos Apache tribe on the Sonoran Desert shrub jojoba, he launched (1976) an interest in horned lizard biology that led to his popular book, *Horned Lizards: Unique Reptiles of Western North America* (1981), and a return to UA to study horned lizards. He received his Ph.D. (with Joe Bagnara as major professor) and also worked in Mac Hadley's laboratory, minoring in entomology. He finally escaped city life by moving to the Chiricahua Mountains (1985) to become Director of the Southwestern Research Station of the American Museum of Natural History. In 2003 a 2nd edition of his book was published by the University of California Press as *Introduction to Horned Lizards of North America*. He retired to spend 2004 at James Cook University in Queensland, Australia, and then returned to Arizona with his wife and two sons to live in Tucson. Wade continues his wide-ranging research interests in the biology of horned lizards.

NEXT MONTH'S GUEST SPEAKER

Mike Wall

Legless Lizards, Snake Foraging Strategies, and Herpetofauna of Australia

Tuesday, 19th June

Tucson Herpetological Society meetings are open to the public and are held on the third Tuesday of each month starting at 7:15 PM

The Bolson Tortoise (*Gopherus flavomarginatus*): King of the (Re-) Wild Frontier

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Figure 1. Bolson Tortoise (*Gopherus flavomarginatus*). Photo by Cecil R. Schwalbe.



While most of us in the Sonoran desert are familiar with the Desert Tortoise (*Gopherus agassizii*), relatively few of us may know much about its close relative in Mexico, the Bolson Tortoise (*Gopherus flavomarginatus*). The current range of the Bolson Tortoise is restricted to a small area in Mexico at the junction of Chihuahua, Coahuila, and Durango. However, a few Bolson Tortoises have been living in Arizona and more recently New Mexico since the mid-1970's. Thanks to Ariel Appleton and others at the Research Ranch in Elgin, a small reproducing population of tortoises has been studied for more than three decades in large enclosures on the ranch.

Recently, amidst discussion of new and radical conservation strategies, tortoises from the Research Ranch in Elgin were moved to large-scale enclosures on ranches owned by Ted Turner in New Mexico. While some may view the translocated tortoises simply as captive breeding populations, others have viewed this as a small step towards a long-term goal of reintroducing Bolson Tortoises into areas occupied by the species more than 13,000 years ago. The concept

of "Pleistocene rewilding" has become a popular topic of discussion, but few people are proponents of actually enacting these proposals, especially when the reintroduced species are top-level predators that have been absent in North America for thousands of years. However, large tortoises present fewer potential threats and impacts to human populations, and for this reason we may eventually see Bolson Tortoises released in New Mexico or parts of Texas.

Background

The Bolson Tortoise was first described as a distinct species by Legler (1959) and later modified by Legler and Webb (1961). However, the most detailed species account was completed more than two decades later by Morafka (1982). The species name *G. flavomarginatus* was given because of the yellow coloration on the lateral marginals and plastron observed in many of the specimens (Legler and Webb, 1961).

The Bolson Tortoise is the heaviest terrestrial reptile in North America. It is common for individuals to attain carapace lengths of more than 340 mm, which is considerably greater than other extant *Gopherus* species

(Morafka, 1982). Maximum length or weight is unknown; however, both Legler and Webb (1961) and Morafka (1982) noted that local Mexicans spoke of tortoises reaching substantially larger sizes than the specimens they observed. Locals estimated tortoises reaching lengths of one meter and weights of 35 to 50 kg (75-110 lbs.; Legler and Webb, 1961). While anecdotal evidence is inherently less dependable than scientific observations, these accounts are to some extent supported by fossil records, which provide evidence that *Gopherus flavomarginatus* predecessors might have been twice the length and up to eight times the mass of the extant Bolson Tortoise (Morafka, 1988).

Natural History

Relatively little is known about life history traits of the Bolson Tortoise, primarily due to its late description (Germano and Bury, 1994). Most of the estimates that will follow are based on small sample sizes and captive individuals. Obviously, there is a need for additional research.

First reproduction in females typically occurs at a minimum of 14 years of age or a minimum carapace length of 285 mm (11.2 in; Germano, 1994). Females have 0 – 3 clutches per year, with a mean of 1.4 clutches per year. Observed clutches contained 3 – 9 eggs, with an average of approximately 6 eggs per clutch (Germano, 1994; Aguirre et al., 1997). Scientists estimate hatchling and juvenile survival in the wild to be low; however, field studies have been limited and detection of young animals during surveys is known to be very difficult (Germano, 1994; Aguirre et al., 1997). Currently, there are no estimates of adult survival rates or longevity, but it is generally assumed that these estimates are similar to other extant *Gopherus* species, with adult survival relatively high (greater than 75%) and maximum age greater than 50 years (Germano, 1994).

Habitat

Bolson Tortoises have rather restricted habitat requirements, most of which were described by Dr. David Morafka in his 1982 report of field studies conducted in the Bolson de Mapimi region of Mexico in the 1970's. Climate in this region is highly seasonal, characterized by dry winters with no appreciable precipitation, and hot summers with significant monsoon rainfall. Greatest tortoise densities occur between 1,000 m and 3,000 m (3280-9842 ft.) elevations, along slopes (1 – 3%) lining closed-drainage basins often referred to as bolsons. Soil in these areas is generally alkaline and compacted, with high sand content. Bolson Tortoise populations are associated with high densities of their major foods such as creosote bush (*Larrea tridentata*) and tobosa grass (*Hilaria mutica*).

Burrows

Bolson Tortoises dig extensive burrows that may reach lengths greater than seven meters (75 ft.) and

depths greater than two meters (6.6 ft; Morafka, 1982). Active burrows usually have a mound of soil at the entrance, which may serve as a perch for basking and also may prevent flooding of the burrow. While most burrows are located on slopes that naturally prevent severe flooding, some occupied burrows are found in the bottom of bolsons and occasionally flood without apparent detriment to the occupant (Morafka, 1982). Burrows are thought to serve two purposes. Extensive burrows provide a refuge from predators and also provide a mechanism for the tortoise to regulate its body temperature. Surface temperatures may vary more than 15° C (59° F) from temperatures deep inside a burrow, providing cooler temperatures in the summer and warmer temperatures during cool winter months (Morafka, 1982).

Activity

Similar to *Gopherus agassizii* in the Sonoran Desert, Bolson Tortoises are usually dormant during the cool, dry winters, from approximately November through April (Morafka, 1982). If the area receives significant spring rains, tortoises may emerge to take advantage of available food supplies in May and June. However, most surface activity takes place during the summer months, July through September, when food is plentiful and mates can be found (Morafka, 1982). During the summer, tortoises generally exhibit a bimodal activity pattern, retreating into the burrow at midday for several hours when surface temperatures are highest. Mating and egg deposition usually occur in May, June, or early summer, while hatchlings frequently emerge later in the summer (Morafka, 1982)

Historical Distribution

Fossil records indicate that the genus *Gopherus* reached its maximum distribution during the Pliocene (5.3 to 1.8 million years ago; Morafka, 1988). At that time, *Gopherus* ranged from Aguascalientes, Mexico, to Kansas, and from Arizona in the west to Florida in the east. However, as the climate cooled, regional uplifts occurred, and glaciopluvial lakes formed in the early Pleistocene (1.8 million years to 10,000 years ago), the range of gopher tortoises was reduced and fragmented. Paleontologists believe that during the Pleistocene, *Gopherus flavomarginatus* was restricted to the Trans-Pecos and Mapimi subprovinces of the Chihuahuan Desert (Morafka, 1988), areas characterized by bolsons. It is thought that during this time, most of the bolsons contained major lakes (Van Devender, 1978), which separated and isolated small tortoise populations along shorelines.

Similar to many species of North America megafauna, the Bolson Tortoise underwent a severe and rapid extirpation from most of its range (80 – 90%) late in the Pleistocene (Morafka, 1988). In Dr. Morafka's 1988 synopsis of the historical biogeography

Thanks to Ariel Appleton and others at the Research Ranch in Elgin, a small reproducing population of tortoises has been studied for more than three decades.

Figure 2. Habitat of the Bolson Tortoise, Bolson de Malpimi, Mexico. Photo by Cecil R. Schwalbe.



of the Bolson Tortoise, he asserts that “human induced extinction” is the most credible explanation for tortoise population crashes at the end of the Pleistocene, based on chronological, geographical, and ecological arguments. Morafka’s conclusions support the “overkill hypothesis,” earlier proposed by Martin (1967).

The range of the Bolson Tortoise continued to diminish in post-Columbian times, with increases in human populations, agricultural development, urbanization, and livestock grazing (Morafka, 1988). Human predation, primarily for food, has had a devastating effect on Bolson Tortoise populations, as demonstrated by the complete extirpation of tortoises within 10 km (6.2 mi) of paved roads and railroads (Morafka, 1982). Such discriminate extirpation has further fragmented and isolated remaining populations into small colonies that may or may not be viable (Aguirre et al., 1997).

Current Distribution and Status

It is difficult to delineate the current range of the Bolson Tortoise, due to the fragmented nature of the distribution; however, it is generally centered in the Bolson de Mapimi (Morafka, 1982). This area consists of interconnected closed drainage basins in southeastern Chihuahua, northeastern Durango, and western Coahuila, Mexico. Bury et al. (1988) divided the range of the Bolson Tortoise into six districts, estimating the total area of tortoise occurrence within the districts to be just over 6000 km² (2316 mi²). Bury and his colleagues also conducted multiple field surveys of Bolson Tortoise habitat in the 1970’s and estimated the area actually occupied by tortoises to be approximately 700 km² (270 mi²) which

could support a maximum of 10,000 adults (Bury et al., 1988).

Little is known about the current status of the Bolson Tortoise. There is substantial evidence that few isolated populations or colonies of tortoises contain sufficient numbers of individuals to allow long-term persistence (Bury et al., 1988). If humans continue to have a deleterious effect on tortoise populations, either directly through collection or indirectly through habitat degradation, the only remaining bolson tortoise populations will reside in protected areas such as the Mapimi Biosphere Reserve and Rancho Sombreretillo (Bury et al., 1988; Trevino et al., 1997).

Protection of the Species

In 1979, the Bolson Tortoise was listed as endangered under the United States Endangered Species Act (USFWS, 2006). Despite the fact that it was listed more than twenty-five years ago, the Fish and Wildlife Service has neither published critical habitat nor formed a recovery team to initiate the writing of a recovery plan and establish recovery criteria. Given that the Bolson Tortoise was listed as endangered only within Mexico, it is not surprising that few benefits from the USFWS, other than publicizing its plight, have come to the species as a result of its listing.

The Bolson Tortoise is additionally protected under Mexican wildlife laws issued by the Ministry of Social Development (Secretaría de Desarrollo Social [SEDESOL]) and listed in Appendix I of the Convention of International Trade in Endangered Species of Wild Fauna and Flora (CITES). In all probability, the best form of local protection for the tortoise was the

establishment of the Mapimi Biosphere Reserve in Durango, Mexico in 1977 (Aguirre et al., 1997). Despite limited resources to enforce protections granted the tortoise, the reserve has successfully initiated many essential research projects encompassing many aspects of Bolson Tortoise ecology (Morafka, 1982; Aguirre et al., 1997).

Employed Conservation Efforts

As part of the many-faceted conservation program at Mapimi Biosphere Reserve, scientists successfully established a captive-breeding program and reintroduced juvenile tortoises into wild populations. In association with the captive-breeding program, scientists studied the survival and behavior of hatching and juvenile tortoises (Aguirre et al., 1997).

In an effort to diversify their conservation strategy, tortoise ecologists moved 16 adult tortoises from the Mapimi Biosphere Reserve to an enclosure on the Appleton Research Ranch in Elgin, Arizona between 1971 and 1976 (Appleton, 1978). The tortoises were monitored to assess how well they adapted to the area that was a part of

their range thousands of years ago. The translocation was deemed successful when the tortoises utilized the supplied artificial burrows but did not require supplemental food, as they were able to subsist on the native grasses and forbs in the enclosures (Truett et al., 2006). Since the translocation, a captive-breeding program and several research projects have been initiated.

Several years ago, ecologists and others with a vested interest in the Appleton Research Ranch tortoises discussed the idea of moving some of the tortoises to additional sites where captive breeding programs could be established (Truett et al., 2006). They believed it would be beneficial to have more than one captive-breeding population under different political jurisdictions. In September 2006, 37 tortoises (30 adults and 7 hatchlings) were moved from the Appleton Research Ranch to 3 locations in New Mexico (Traphagen et al., 2007). Four adult tortoises that had tested positive or suspect for exposure to *Mycoplasma* sp. were moved from Elgin to the Living Desert Zoo and Gardens State Park in Carlsbad. Twenty-six adult tortoises that tested negative for exposure to *Mycoplasma* sp. were translo-

cated to the Armendaris Ranch, near Truth or Consequences. Additionally, seven hatching Bolson Tortoises were moved to a large indoor terrarium at the Ladder Ranch, southwest of Truth or Consequences.

Proposed Conservation Efforts

In 1991, two Bolson Tortoise biologists submitted a proposal to Big Bend National Park (BBNP) to reintroduce the tortoise (Donlan et al., 2006). Surveys conducted in BBNP indicated that the habitat requirements of the Bolson Tortoise, in terms of climate, substrate, and vegetation, could be met in the park despite the fact that tortoises last inhabited the area during the late Pleistocene (Aguirre et al., 1997). However, BBNP rejected the proposal, stating that

Gopherus flavomarginatus was an alien species (Houston

and Schreiner, 1995). This decision by the National Park Service is particularly interesting when it is noted that in 1996, Grand Canyon National Park reintroduced the California condor (*Gymnogyps californianus*) in spite of the fact that it last occupied the Grand Canyon 10,000 years ago (Donlan et al.,

2006). Obviously, there are inconsistencies in the National Park Service's policy regarding reintroductions and the nature of native or non-native species. Given that the existence and range of many North American species were dramatically altered at the end of the Pleistocene, it will probably become necessary for the National Park Service to delineate on which temporal scale their definitions of native or alien species will be based.

Arguments pertaining to the reintroduction of Bolson Tortoises into the southwestern United States have recently resurfaced as a result of a controversial proposal calling for conservation in the form of "Pleistocene rewilding" (Donlan et al., 2005). According to Drs. Harry Greene and Paul Martin, two of rewilding's strongest proponents, it is more appropriate to consider the moment when humans first arrived in North America (approximately 13,000 years ago) than 1492 as the benchmark for ecological restoration. The loss of North America's megafauna has had a profound impact on most ecosystems, and the reintroduction of these species (or their proxies) would facilitate the restoration of these



Figure 3. Juvenile Bolson Tortoise. Photo by Cecil R. Schwalbe.

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ecosystems (Donlan et al., 2006). Donlan and his colleagues suggest that the reintroduction of the Bolson Tortoise should be one of the first steps in rewilding because the associated costs would be low, while potential conservation and economic benefits could be significant. Although current political climates prevent any such reintroduction in the near future, it certainly does provide some food for thought.

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Partners in Amphibian and Reptile Conservation: An Introduction

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If you visit the web site of Partners in Amphibian and Reptile Conservation (www.parcplace.org; PARC), the first thing you'll see is an image of a treefrog, snake, horned lizard or other species with a question: When was the last time you heard a frog in the forest? Is this rainbow snake hiding or disappearing? PARC describes itself as the "most comprehensive herpetofaunal conservation effort in the United States," and its goals are very similar to those of the Tucson Herpetological Society – to use education, research and conservation to preserve reptiles and amphibians and their habitats. The major difference is that PARC, which has grown by leaps and bounds since it was created in 1998, is involved on both the local and national scale.

Most importantly, PARC is a partnership – members include herpetologists from state and federal agencies, universities, conservation organizations and museums. But it also includes individuals from less traditional groups such as the pet trade industry, herpetological organizations, research laboratories, farm and forest industries, and environmental consultants. The organization takes pains to point out that it's not competing with any other group, just helping all groups who have an interest in conservation of reptiles and amphibians. Membership is free, and there are regional branches of the organization throughout the United States, including here in the Southwest and Arizona.

What does PARC do?

PARC is a decidedly decentralized organization, run mainly by folks who have other (that is, real) jobs. However, there are two full-time employees, a federal agencies coordinator (Ernie Garcia) and a state agencies coordinator (Priya Nanjappa-Mitchell). The organization advocates for reptiles, amphibians, and their habitats, and provides resources to the public. If you go to the main website (www.parcplace.org), you can find links to fact sheets on many different species (and their habitats) for kids, teacher's guides, and a poster on turtles. You'll also find information on snakebites, PIT tags, snake myths, a brochure (from Arizona Game and Fish) on why you should not release your pet into the wild, and many other publications. You can even read commentaries on herpetology and the public by Whit Gibbons, the beloved University of Georgia herpetologist who was a major player in the formation of the PARC.

In addition to being an educational resource, one of PARC's main contributions thus far has been to develop management guidelines for reptiles and amphibians in different parts of the country. The Southeastern and

Northeastern US guidelines have already been completed and distributed; the Northwestern guidelines are nearly complete, as are a revision of the Midwestern guidelines. The Southwestern US guidelines are in progress and hope to be completed in 2008. The guidelines are a series of regionally specific best management practices to provide proactive guidance for improving the compatibility of land management practices with these animals. They are not regulations, but suggestions directed towards resource managers and private landowners who have a desire to help protect amphibians and reptiles with the goals of keeping common species common, stemming the decline of imperiled species, and reduce the likelihood of species becoming listed as threatened or endangered.

In addition, PARC also provides, through its website, job postings, grant opportunities, and links to many other herpetological resources ranging from listserves to lists of consultants. PARC holds also regional meetings throughout the country from time to time. The next one in our area will be in Albuquerque later this month – more on that below.

PARC in the Southwest

Arizona's PARC chapter was started in 2003 with a meeting, attended by many in THS, at The Arizona-Sonora Desert Museum. There was another meeting in 2004, and some of the subcommittees developed during that meeting have continued to work on subjects important to conservation in our state, such as education, research, management, and policies.

In addition, Arizona PARC has an awesome website (www.reptilesfarizona.com), largely thanks to Tom Brennan, co-author of the recent field guide to Arizona's herpetofauna. If you want to learn about Arizona's reptiles and amphibians, the PARC website is a great place to start. Like the THS website, there are very good photographs of species, but there are also distribution maps and species descriptions that include habitat, distribution, behavior, and other information. The Arizona PARC website also has a very interesting conservation forum where you can discuss herpetological topics and go on virtual field trips (no specific locality information allowed!) with very good herpetologists who care a lot about conservation.

Arizona PARC is part of the larger Southwest PARC, which is holding a major meeting at the end of this month (May 31-June 3, 2007) in Albuquerque, New Mexico – see the announcement in last month's *Sonoran Herpetologist*, or check out the Southwest PARC website at <http://chelydra.unm.edu/swparc>. The

title of the meeting is “From Incubation to Infancy: the (Re) Birth of a Region,” and topics range from the effects of off-highway vehicles, mining, and water development on herpetofauna to management related areas such as habitat management guidelines. In addition, there are field trips to variety of interesting places, such as the Armendaris Ranch, owned by Ted Turner.

Southwest and Arizona PARC are not officially connected to the Tucson Herpetological Society, but we share both interests and people. THS President Roger Repp will be one of the keynote speakers at the upcoming meeting, and a number of THS members have been involved in organizing it. The current co-chairs of Southwest PARC, Matt Goode and Craig Ivanyi, are both long-time THS members.

PARC has not achieved a high profile since it was founded because it is a mostly volunteer organization focused on partnerships. But the organization matters mainly because it is the only national organization dedicated solely to herpetological conservation, and because its members know and care so much about reptiles and amphibians. Conserving charismatic wildlife such as pandas and bighorn sheep in the face of our rapidly expanding population and technological advances is hard enough; reptiles and amphibians need an extra effort. Whether PARC can mobilize public interest to truly become effective on the national and local scenes remains to be seen – but it’s an important start, and one that we should all hope will grow in future years.



NATURAL HISTORY NOTE

Arboreal Behavior in the Tiger Rattlesnake (*Crotalus tigris*)

Steve Pavlik

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On 11 June, 2000 at 0800 I was hiking in Sabino Canyon, near Tucson, when suddenly I was startled by the sight and sound of a lizard falling seemingly out of the sky. The lizard landed at my feet. After both the lizard and I regained our composure, I identified it as either a Desert Spiny Lizard (*Sceloporus magister*) or a Clark’s Spiny Lizard (*S. clarkii*). The lizard ran uphill into rocks, while I looked up into the tree branches from where it had fallen or jumped. As I scanned the tree, a mesquite, I was amazed to see a Tiger Rattlesnake

(*Crotalus tigris*) coiled on a branch. I took a number of photos, and left after about 30 minutes.

I returned the next day with a measuring tape. Although it is purely speculative, I surmised that the snake must have either climbed the tree straight up from the ground or crawled into the tree along branches that extended out to a nearby boulder. Either way required a seven-foot climb. I also measured the height of the branches from where the lizard came, and the lowest branch was 11 feet (3.4 m) from the ground, but it could have fallen or jumped as much as 15 feet (4.6 m).

The tree was located on an east-facing hillside covered with rocks and thick vegetation. The temperature was 75°F (23.9°C). Interestingly, later that same evening, the Tucson area, including Sabino Canyon, experienced its first monsoon storm of the season, a very heavy downpour. Might the snake’s unusual behavior have been triggered by the pending change in weather? Or, perhaps the entire observation was purely coincidence - a quirk of nature. It seems like the most likely explanation is that the snake pursued the lizard into the tree, and the lizard, in order to escape, continued out until it reached a branch that could no longer support its weight.

Although many snakes that are not normally arboreal, have been recorded climbing trees, this is the first such observation for *C. tigris* of which I am aware. In a long-term study of Tiger Rattlesnakes near Tucson, comprised of over 9,000 locations of over 90 snakes outfitted with transmitters, researchers have only observed a few individuals more than a foot or so off the ground (M. Goode, personal communication). Arboreal behavior has been recorded for several other rattlesnake species, including Timber Rattlesnakes (*Crotalus horridus*), which have been found basking over 40 feet high in the canopy of large broadleaf trees in Arkansas.



Sonoran Herpetologist Natural History Observations

The Tucson Herpetological Society invites your contributions to our regular Natural History Notes Section. We are particularly interested in photographs and descriptions of amphibians and reptiles involved in noteworthy or unusual behaviors in the field. Notes can feature information such as diet, predation, community structure, interspecific behavior, or unusual locations or habitat use. Please submit your observations to Dale Turner (dturner@theriver.com), who is editor for this section. Submissions should be brief, double-spaced, and in electronic form.

Arizona Game and Fish Department Seeks Comments on Management Plans

The Arizona Game and Fish Department is seeking public comments on draft plans that will guide how the agency manages wildlife, outdoor recreation opportunities, and its own detailed operations for the next eight years.

The draft operational plans identify the approaches AGFD will take to implement key management programs including game, non-game, fishing, off-highway vehicles, education, law enforcement, research, and many other important topics relevant to herpetologists. The operational plans are the middle tier in a three-art planning process that bridges the department's six-year visionary strategic plan, Wildlife 2012, with annual work unit plans.

The draft documents are posted for review on the agency's web site (azgfd.gov). The public meeting in Tucson was May 3, but the public can comment until May 31 by sending an email to wildlifeplan@azgfd.gov, or by mail to Wildlife Plan, c/o Funds and Planning, Arizona Game and Fish Department, 2221 W. Greenway Road, Phoenix, AZ, 85023-4399.



Sonoran Herpetologist Local Research News

The Sonoran Herpetologist welcomes short reports for our Local Research News, an occasional feature in our journal. We are interested in articles that can update our readers on research about amphibians and reptiles in the Sonoran Desert region. These articles need only be a few paragraphs long and do not need to include data, specific localities, or other details. The emphasis should be on how science is being applied to herpetological questions. The style and format are informal (see the Sonoran Herpetologist July or September 2006 issues for examples). We will be happy to help with editing, or if you already have a brief description or summary, we can assist in formatting it. Contact Roy Averill-Murray (averill-murray@sbcglobal.net) for more information.



24 April 2007
Robert L. Bezy, Secretary

Directors Present: Robert Bezy, Kevin Bonine, Dennis Caldwell, Paul Condon, Kent Jacobs, Roger Repp, Erin Zylstra

Directors Absent: Young Cage, Elissa Ostergaard, Robert Villa, Brian Wooldridge

Members Present: Ed Moll

Treasurer's Report – Kent Jacobs

21 April 2007	
Beginning Balance	\$12,277.67
Deposits	\$6,931.80
Expenses	\$578.00
Ending Balance	\$18,631.47
Speaker's Bureau	\$1,135.70
Jarchow Award	\$175.00
FTHL Fund	\$521.00
C.H.Lowe fund	\$2,537.50
General Fund	\$7,169.47
CRHSD CD	\$9,103.88
PARC	\$7,092.80
<u>Itemized Deposits:</u> Membership	\$300.00, PARC
	\$6,492.80
<u>Itemized Expenses:</u> C. H. Lowe grant	\$500.00,
	Postage \$78.00

Committee Reports

Conservation – Dennis Caldwell. A cattle tank near the headwaters of Cienega Creek contains crayfish and other aquatic invasive species that pose a threat to the native fauna of the Cienega. Plans are underway to drain the tank, and THS support and volunteers will be needed.

Speakers Bureau – Robert Villa and Ed Moll.

3 April - Roger Repp gave a presentation entitled, "Importance of Field Notes" to the Natural History Class at Pima College East. Approximately 35 young adult students.

4 April – Ed Moll made a presentation using live reptiles for children attending after school programs at Catalina Community Center.

10 April – Ed Moll gave a lecture on reptiles using slides and live animals to a class of 25 students at Pima College East.

11 April – Ed Moll gave a presentation using live reptiles for children attending after school programs at Rillito Community Center.

19 April – Lee Oler and Robert Villa gave a talk to 6 classes at Rio Vista Elementary School using a menagerie of turtles and two snakes.

20 April – Bill Savary and Robert Villa gave presentations to 6 classes of elementary students from various schools with a menagerie of snakes and two turtles.

24 April – Ed Moll discussed the THS mission and programs on radio FM 92.9, "The Mountain."

25 April – Ed Moll presented a talk using live reptiles for children attending after school programs at Robles Ranch Community Center.

5 May – Ed Moll will be representing the THS at the Ironwood Festival and volunteers are solicited to help staff the table.

The board authorized the expenditure of up to \$250 to reproduce the coloring book in English and Spanish..

Sonoran Herpetologist – Roger Repp for Don Swann. There continues to be a critical need for articles.

Program – Roger Repp for Elissa Ostergaard.

The lineup of speakers includes:

15 May – Wade Sherbrooke

19 June – Mike Wall

U of A Student Chapter – Kevin Bonine. The chapter applied for and received funds from the Agriculture College Alumni to purchase a table, banner, and shade umbrella which was set up on the mall for Earth Day.

Old Business

Current Research of the Herpetofauna of the Sonoran Desert – Roger Repp. Members of the committed to date include **Marty Tuegel** (webpage), **Dennis Caldwell** (artwork, logo, etc.), and **Kent Jacobs** (finances). The tentative date for the conference is the weekend of 11 April 2008. A list of potential keynote speakers has been compiled and venues are being explored. It is anticipated that these issues will be finalized by 1 June 2007.



Membership Information

Individual	\$20	Sustaining	\$30
Family	\$25	Contributing	\$50
Student	\$14	Life	\$500

To receive a membership form and recent issue of *Sonoran Herpetologist* call (520) 624-8879 or write: Tucson Herpetological Society, P. O. Box 709, Tucson AZ 85702-0709.

Time to Renew Your THS Membership?

I hope this is a helpful reminder to those of you whose membership renewal is due this month. Please call or email with corrections and errors. 624-8879 or dhardysr@theriver.com

Dave Hardy Sr., Membership Secretary

Due in May

Héctor Avila-Villegas	John Craig
Pat Lopez	Brent Martin
Erik, Lisa and Noah Rakestraw	Harry Rovner
Christopher & Elizabeth Warren	

Membership Update - 30 April 2007

Sustaining Members

Norma & Abe Lackow	Tucson
Jefferson Stensrud	Tucson

Contributing Members

Marlis & Michael Douglas	Fort Collins, CO
Kent Jacobs & Cyndy Wicker	Tucson
Jeff Moorbeck & Jennifer O'Leary	Milwaukee, WI

Horned Lizard Fund

Marlis & Michael Douglas	Fort Collins, CO
--------------------------	------------------

C. H. Lowe Research Fund

Marlis & Michael Douglas	Fort Collins, CO
--------------------------	------------------

New Members

Gene Foltz	Marana, AZ
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Speakers Bureau

Marlis & Michael Douglas	Fort Collins, CO
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Jarchow Award Fund

Marlis & Michael Douglas	Fort Collins, CO
Norma & Abe Lackow	Tucson





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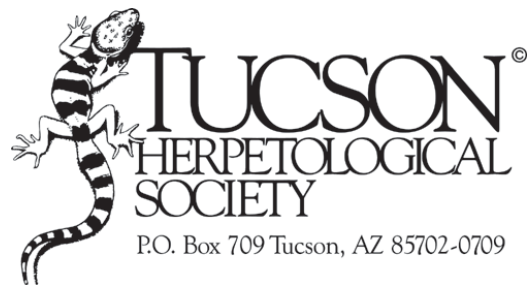
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Information for Contributors

Authors should submit original articles, notes, book reviews to the Editor, either via email using an attached word processed manuscript or by mail to the Society's address. The manuscript style should follow that of *Journal of Herpetology* and other publications of the Society for the Study of Amphibians and Reptiles. For further information, please contact the editor.

**Deadline for Sonoran
Herpetologist 20(6): May 20**



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Society Activities

Monthly Members Meeting

Elissa Ostergaard, Program Chair
3rd Tuesday, 7:15 PM

Board of Directors Meeting

Last Tuesday of each month (except December), 7:00 PM
Arizona Game and Fish Department Office
555 North Greasewood Road

Speakers Bureau (scheduled presentations)

Robert Villa, Director
Ed Moll, Director

Conservation Committee

Dennis Caldwell, Director

Herpetological Information Hotline

Bob Brandner 760-0574

Jarchow Conservation Award

Taylor Edwards, Chairperson

Publications:

Sonoran Herpetologist, *Backyard Ponds brochure*,
Living with Venomous Reptiles brochure,
THS Herp Coloring Book, *THS Collected Papers, 1988-1991*

THS Internet World Wide Webpage

<http://tucsonherpsociety.org>
Marty Tuegel, Webmaster, mtuegel@ycox.net

*The Tucson
Herpetological
Society is
dedicated to
conservation,
education, and
research
concerning the
amphibians and
reptiles of
Arizona and
Mexico.*

Tucson Herpetological Society
is a registered non-profit
organization.

For more information about the THS and the reptiles and amphibians of the Tucson area visit **tucsonherpsociety.org**

Your membership has expired.
This is your only reminder.
Please renew!



SONORAN HERPETOLOGIST

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LEAD ARTICLE

50 The Bolson Tortoise (*Gopherus flavomarginatus*): King of the (Re-) Wild Frontier

SHORT ARTICLE

55 Partners in Amphibian and Reptile Conservation: An Introduction

NATURAL HISTORY NOTE

56 Arboreal Behavior in the Tiger Rattlesnake (*Crotalus tigris*)