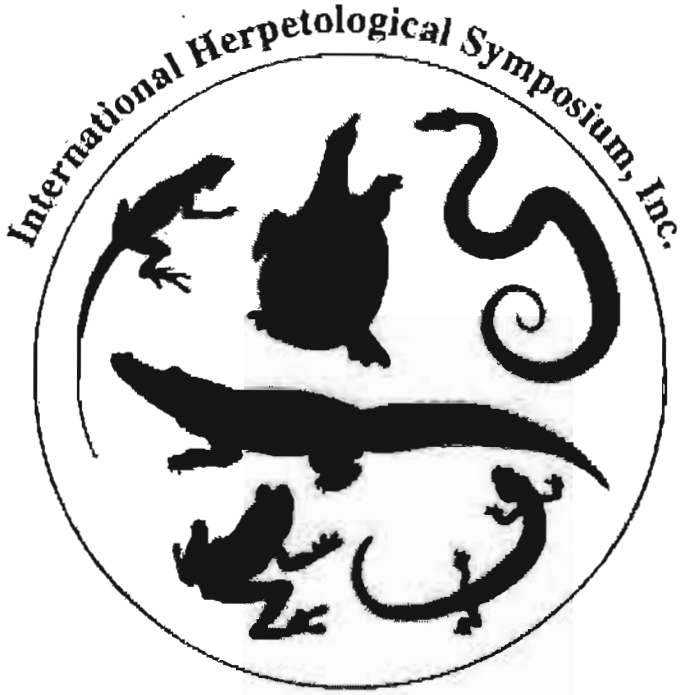
International Herpetological Symposium

30th Annual Meeting



Hosted by

The San Antonio Zoo
San Antonio, Texas USA

June 21 - 25, 2006

Program and Abstracts

Welcome to the 30th Meeting of the International Herpetological Symposium

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INTERNATIONAL HERPETOLOGICAL SYMPOSIUM
30th ANNUAL MEETING

PROGRAM

Wednesday, June 21st

7:00 - 9:00 p.m.	Registration – Holiday Inn Downtown/Market Square
7:00 p.m. - ?	Ice Breaker – Hospitality Suite

Thursday, June 22nd

8:30 a.m. - 3:30 p.m.	Open Registration – Holiday Inn Downtown/Market Square
9:00 - 9:15 a.m.	Opening Remarks and Introductions
9:15 - 10:00 a.m.	**Joseph E. Forks** "Herping in Durango, Mexico - A quest for Southern Ridge-nosed Rattlesnakes"
10:00 - 10:45 a.m.	**Rob L. Coke, DVM** "Novel Wound Therapies in Reptile Medicine"
10:45 - 11:00 a.m.	*Morning Break*
11:00 - 11:45 a.m.	**David G. Barker** "The Recent History of the Blood Python, *Python brongersmai*"
11:45 a.m. - 12:30 p.m.	**Tim Cole** "The Conversion of Two Garages into His and Hers Herp Building and Turtle Room!"
12:30 - 1:45 p.m.	*Lunch Break*
1:45 - 2:30 p.m.	**Colette H. Adams** "Galapagos Tortoises"
2:30 - 3:15 p.m.	**John H. Tashjian** "Western Miniatures"
3:15 – 3:30 p.m.	*Afternoon Break*
3:30 – 4:15 p.m.	**Donal M. Boyer** "Gharial Exhibit at the San Diego Zoo and the Status of the Wild Population"
4:15 – 5:00 p.m.	**Kelly Bradley** "In situ *Cyclura* Project"

Friday, June 23rd

9:00 a.m.- 3:30 p.m.	Open Registration – Holiday Inn Downtown/Market Square
9:00 - 9:45 a.m.	**Randy L. Powell, Ph.D.** "Farming for Venom: Survey of Snake Venom Extraction Facilities Worldwide"
9:45 - 10:30 a.m.	**Michael S. Price** "Geographic Variation in *Crotalus lepidus lepidus* from Texas"
10:30 - 10:45 a.m.	*Morning Break*
10:45 - 11:30 a.m.	**Randal Berry** "Lanceheads 101"
11:30 a.m. - 12:15 p.m.	**Patrick M. Burchfield, Ed. D., M.Sc.** "Ridley Sea Turtle Project"
12:15 - 1:30 p.m.	*Lunch Break*
1:30 - 2:15 p.m.	**Chris Smith** "Field Collecting and Captive Management of *Bothrops caribbaeus*"
2:15 - 3:00 p.m.	**Ron Tremper** "Galapagos: The Future"
3:00 - 3:15 p.m.	*Afternoon Break*
3:15 - 3:45 p.m.	**Kathi Kardon** "I Married a Herpetologist"
3:45 - 4:30 p.m.	**Alan Kardon** "Milk Snakes to Vipers - Thirty Years at the San Antonio Zoo"
5:30 p.m.	Shuttle Buses leave for **Field Trip to the San Antonio Zoo and Hosted Picnic at the San Antonio Zoo**
6:00-9:45 p.m.	**The San Antonio Zoo Reptile Department Open House**
10:00 p.m.	Shuttle Buses Return to Holiday Inn Downtown/Market Square

Saturday, June 24th

9:00 a.m. - 12:00 p.m.	Open Registration – Holiday Inn Downtown/Market Square
9:00 - 9:45 a.m.	**Wayne Hill** "Keeping Turtles in the Sunshine State"
9:45 -10:30 a.m.	**David Lazcano-Villarreal** "Maintaining a Self-sustaining Colony of Endemic Mexican Montane Rattlesnakes"
10:30 – 10:45 a.m.	*Morning Break*
10:45 – 11:30 a.m.	**Paul Crump** "Project Golden Frog"
11:30 a.m. – 12:15 p.m.	**Manny Rubio** "Photographing Reptiles and Amphibians"
12:15 – 1:30 p.m.	*Lunch Break*
1:30 – 2:15 p.m.	**Bob Neal** "Unusual Aggregations of Copperheads *Agkistrodon contortrix* in the Ozarks of Arkansas"
2:15 – 3:00 p.m.	**Jim Harrison** "The Evolution of Venom Production: Past, Present and Future"
3:00 – 3:15 p.m.	*Afternoon Break*
3:15 – 4:00 p.m.	**Gordon B. Henley, Jr.** "Working with Zoo Reptiles, What a Croc!"
4:00 – 4:45 p.m.	**William W. Lamar** "Pit Vipers of Peru"
6:30 p.m. - ?	Banquet Buffet – Holiday Inn Downtown/Market Square
	Announcement of the Photo Contest Winners
	Banquet Speaker – David G. Barker "Hunting the Ridgenose Rattlesnake *Crotalus willardi*," **-or-** "Thirty Years of Mostly Fruitless Searching in Very Pretty Mountains"
	Auction - Proceeds benefit next year's IHS! (Credit Cards Accepted)
	Presentation of the Joseph Laszlo Memorial Award
	Closing Remarks

Abstracts

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Galapagos Tortoises

The Archipelago of Colón is a group of volcanic islands 600 miles off the coast of Ecuador, South America. They were renamed "Galapagos," or "Turtle Islands," by pirates and sea voyagers. These islands are home to many races of giant land tortoises, some of which weigh over 600 pounds and have shells over five feet in length. Beginning in the late 1920s, large groups of live tortoises were brought to North America from the Galapagos and the Ecuadorian mainland; an estimated 75 of these founders are still alive in US collections today. In the 1990's a genetic study was undertaken, using molecular techniques designed to determine the genetic fingerprint of each race of wild tortoise. Dr. Ed Louis, presently the Conservation Geneticist at Henry Doorly Zoo in Omaha, Nebraska, was able to identify six races within the captive population of giant tortoises. As no new giant tortoises are expected to be legally imported into the US from the Galapagos, tortoise conservationists and zoological institutions face the challenges of properly pairing the surviving founders and reproducing them. Whenever possible, every attempt should be made to preserve the unique genetics of morphologically distinct races of tortoises.

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The Recent History of the Blood Python, *Python brongersmai*

Blood pythons are among the most beautiful and variable of all python species. They have many qualities that make them ideally suited for captivity, ranging from pets, to breeding projects, exhibit animals, and even research animals. The history and natural history of the species will be discussed. The requirements necessary to maintain and reproduce the species in captivity will be discussed and illustrated. There will be a review of the natural variation in colors and patterns known to occur in the species.

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Hunting the Ridgenose Rattlesnake, *Crotalus willardi* or Thirty Years of Mostly Fruitless Searching in Very Pretty Mountains

Dave Barker recounts his most memorable adventures while in the mountains of northwestern Mexico and adjacent New Mexico and Arizona. Not known for either a sharp memory or any particular reverence for the truth, Dave is sure to elaborate and exaggerate many of those tales to the enjoyment of the audience and the possible embarrassment of those involved.

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Lanceheads 101

In this presentation I will attempt to describe a very basic overall synopsis of lance headed snakes and their care in captivity. When discussing lanceheads, we think of mostly medium sized, brownish colored terrestrial snakes found in Latin America. However old world lanceheads found in southeastern Asia and Malaysia can be quite colorful as well. Some species from that side of the world are arboreal as well as ground dwelling. I will discuss some of the differences between Old world and New World lanceheads, plus a revision of the taxa. The definition of the lancehead is the head of the snake is shaped of a lance or the end of a javelin and the snout terminates to a point. The origin of the word fer-de-lance is French *slang* for iron or spear head.

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Gharial Exhibit at the San Diego Zoo and the Status of the Wild Population

The San Diego Zoo obtained a pair of Indian Gharial in the summer of 1990. These 6 foot long youngsters were first displayed in the Tiger River exhibit area. They did very well in the enclosure and grew to become impressive young adults. By the spring of 2001 plans were made to build a new larger exhibit to house and hopefully breed these endangered crocodiles. Details of site preparation and design features will be discussed. Exhibit construction was completed in the fall of 2001. During the next several years this exhibit served the dual purpose of displaying a number of imperiled freshwater turtle species and has matured into a wonderful display. This magnificent crocodilian is endangered in the wild. It occurred in five countries; India, Nepal, Pakistan Bangladesh and Myanmar, the only functional populations are in India and Nepal. By 1974 the wild population teetered on the brink of extinction with a scant 200 wild adults in India and far less in other range countries. India launched a concerted conservation effort and the wild population bounced back. In the late 1970s the Nepal Government followed India's lead and began to recover their population. Recent survey work on the wild populations show once again dramatic decline with probably well under 1000 adults throughout its entire range. The Indian population is the largest but the anthropogenic disturbance in the form of sand mining, other riverside activities, and net fishing is rapidly driving it to extinction. Urgent conservation action is needed if gharial are to remain in the wild.

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In Situ *Cyclura* Project

The Anegada iguana (*Cyclura pinguis*) is a critically endangered iguana from the British Virgin Islands. Biologists estimate there to be fewer than 400 animals remaining in the wild. The species is vulnerable to extinction because of habitat destruction, competition with feral livestock, and the introduction of non-native mammalian predators. In 1997, the IUCN Iguana Specialist Group and the British Virgin Islands National Parks Trust initiated a headstart program focused on bringing wild hatchlings into captivity to be raised in a safe environment on Anegada. The iguanas are released back into the wild when they reach a less critical size. Seventy-two iguanas have been released back into the wild over the last three years. This presentation briefly reviews the on-going monitoring program of released headstarted iguanas.

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Kemp's Ridley Sea Turtle : Past, Present, and Future

In 1947 Andres Herrera filmed a massive nesting aggregation - "arribada" of Kemp?s ridley sea turtles at a remote stretch of beach near the ranching community of Rancho Nuevo, Tamaulipas, Mexico. In 1961 the late Dr. Henry Hildebrand of Corpus Christu College screened the Herrera film for the annual Ichthyologist and Herepetologists meeting thus solving Dr. Archie Carr's "riddle of the ridley" . In 1966 Mexico sent biologists to survey the declining Kemp's ridley population. By 1978 Mexico and the US formed the Binational Kemp's Ridley Recovery Program in a last ditch effort to save this species. In 1985, 702 nests representing ± 270 nesting females was the entire nesting effort of the Kemp's ridley for that year as contrasted with tens of thousands in one "arribada" in the 1940's. In 1986 the IUCN listed the Kemp's ridley as one of the twelve most endangered species of animals in the world. The Binational Program identified several actions in a n effort to save the species: (1) Protect the remaining nesting females and the resulting hatchlings, (2) Develop excluders to save the adult turtles at sea, (3) Develop an experimental imprint-headstart program to establish a second nesting area outside of Mexico as a hedge against disaster. Today we will address each of these objectives, where we are and where we are headed in the Kemp's ridley recovery process.

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Novel Wound Therapies in Reptile Medicine

The current field of biomedical research has been expanding rapidly over the past couple of decades. New pharmaceuticals and therapeutics are being created daily to combat diseases that were once considered incurable. This increase in knowledge in the human medicine has crossed lines into veterinary medicine. Some of these new therapeutics have made in-roads to reptile medicine as well. The impetus in human medicine for efficiency in wound healing is to decrease medical costs. In reptile medicine, the increase in therapeutic healing rates translates into wounds that heal in weeks to months instead of months to years. Some of the new methods of wound management will be discussed. The first method is the Vacuum Assisted Closure™ system (V.A.C.®, Kinetic Concepts, Inc (KCI), San Antonio, Texas 78211 USA) which stimulates wound healing by applying negative pressure to the wound bed thus increasing capillary blood flow and exudate removal. The V.A.C.® bandage consists of sterile, polyurethane open cell foam that is applied directly to the wound bed and sealed with a clear plastic adhesive film. The bandage is connected to the pump via a patented suction hose. The second method discussed is the active wound debriding and disinfecting agents such as Accuzyme®, and Panafil®, and Iodosorb® Ointments (Healthpoint®, San Antonio, TX 78215, USA). Accuzyme® and Panafil® work through a proteolytic activity that removes non-viable protein that may impede wound healing, thus these compounds are harmless to the healthy tissue and debrides all types of necrotic tissue. Iodosorb® Gel is a Cadexomer Iodine (0.9% elemental iodine) that cleanses draining and/or infected wounds but does not harm granulation tissue or impair healing.

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The Conversion of Two Garages into His and Hers Herp Building and Turtle Room!

This presentation will show the process of turning a storage area into a workable Herp Building and Turtle Room. Pictures taken before, during, and after will be used to illustrate the steps taken and the end results. Special features include photocells operating overhead lights matching natural daylight cycles, timered outlets operating additional lighting and heat sources, space and energy saving tankless water heater, drop down ceiling outlets, thermostatically controlled exhaust fan for airflow or brumation cooling, override switches, Security, double door entry system, remote temperature sensors with alarm, air-conditioner specs, hot room, labeling system, thermostats controlling rack systems, misting system, shelving system for Neodesha cages, generator back-up, inexpensive tubs for housing land and water Chelonians, affordable UV light fixtures, rack system for Chelonians, and drain access for turtle tanks.

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Project Golden Frog

The global amphibian biodiversity decline is real and well underway. Recent work that has occurred in Panama adds to our understanding of some specific decline processes. The pathogenic fungus *Batrachochytrium dendrobatidis* (Chytrid or *Bd*), has been documented in Panama and is progressively causing mass upland amphibian extinctions.

In an attempt to prevent the extinction of amphibian communities, several independent but complementary and collaborating programs have been initiated. Project Golden Frog (PGF) began in 1999 to address and prevent the impending extinction of the Panamanian Golden Frog (*Atelopus zeteki*). The Amphibian Recovery and Conservation Coalition (ARCC) formed in 2004. The ARCC tested the hypothesis that it is possible establish captive colonies of threatened amphibian species from a site where a decline was underway. This was then compared to a pre-emptive replicate project at another site yet uninfected by the fungus. The establishment of the El Valle Amphibian Conservation Center (EVACC) began in 2005 with the purpose of serving as an in-country ark for the threatened amphibians of El Valle de Anton in Panama.

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Herping in Durango, Mexico - A quest for Southern Ridge-nosed Rattlesnakes

A slide show which chronicles several trips to the plateau region west of Durango city, Durango, Mexico by the Universidad Autonoma de Nuevo Leon and San Antonio Zoological Society Herpetocultural Staff. The talk will highlight the beautiful landscape, an abundance of herpetofauna, and our ultimate success in seeking Southern Ridge-nosed Rattlesnakes.

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The Evolution of Venom Production: Past, Present and Future

Throughout the history of man, snake venom has been used for medical purposes and occasionally as a weapon. However, with the development of antivenom for snakebite in 1894, a need arose for large scale production of venom. Originally, the method preferred was to decapitate the snake and grind up the glands. Even when they were actually 'milked,' snakes were brought out of the wild en masse and were kept in inhumane conditions. Many methods of extraction and housing have been tested throughout the last 112 years, and unfortunately many of these consisted of cruel or damaging technique which resulted in a high mortality rate for the snakes being used. Additionally, even though the venom was primarily being used for medicinal purposes, little attention was paid to cleanliness of the animals or the venom. In the present day, husbandry knowledge has increased significantly, allowing snakes used for venom production to be bred in captivity and maintained for long periods of time. Current techniques involve stress management for the snakes, non-intrusive extractions, and large scale captive breeding projects, as well as clean extraction and laboratory technique. Future directions include increasing venom yield, increased knowledge of venom variability, as well as increased quality of husbandry of the animals. Currently, legislation involving both animal welfare and the capture of wild animals, and regulation regarding materials for medical use demand an open mind and progressive thinking for venom producers.

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Working with Zoo Reptiles, What a Croc!

Working with reptiles and amphibians in the environment of the Zoological Park has been an inspirational, educational, and personally rewarding experience. Over the course of my career, I have had the opportunity to be around an astounding variety of snakes, lizards, turtles, frogs, salamanders and, of course, Crocs (20 different species)! I have had the opportunity to meet and be inspired by many of the great zoo herpetologists who set the stage for all of the wonderful current reptile keeping activities. In addition to the effects zoo reptiles have had on me, these spectacular animals educate the public about the great variety and diversity of amphibians and reptiles. Often, a visit to the zoo reptile house will inspire youngsters to become zookeepers themselves. Zoo reptiles can be used in conservation efforts through direct breeding programs such as the Association of Zoos and Aquariums (AZA) Species Survival Plans (SSPs) and by providing a reservoir of genes for the future. Furthermore, zoo amphibian and reptile specimens can offer scientists a wealth of material not otherwise available to them for research purposes. In summary, zoo reptiles offer recreation and education to the public; allow the zoo to participate in conservation efforts and gives opportunities for research. And, it's a "blast!" for those of us lucky enough to work with zoo reptiles!

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Keeping Turtles in the Sunshine State

This turtle and tortoise breeding facility was established in two areas in Central Florida. One facility houses most of the aquatic and semi-aquatic collection and another houses a large colony of Galapagos Tortoises and the larger aquatic species such as *Callagur borneoensis*, the Painted Terrapin of Southeast Asia.

Over 500 specimens of more than 36 species are maintained in a variety of outdoor and indoor enclosures. They are offered access to natural sunlight, the best foods, and their individual needs are met with as much accuracy as possible. These turtles and tortoises include seven species from North America, eight from Central and South America, ten from Asia and Southeast Asia, two from Africa and Madagascar, and nine from New Guinea and Australia.

Of the 36 species maintained, regular reproduction is seen in *Staurotypus triporcatus, Clemmys guttata, Clemmys insculpta, Podocnemis unifilis, Platemys platycephala, Chinemys nigricans*, and the beautiful *Geoclemys hamiltoni*.

Some of the most interesting aspects of my work will be presented. This includes the keeping of soft-shelled species long-term, the use of above-ground swimming pools and above-enclosure laying areas, the creation of a variety of indoor and outdoor enclosures (including the construction of "the maze", a long, meandering track for turtles which nest far from their water source. This maze will hopefully provide captive reproduction in a few species that have so far been very difficult to get them to nest properly in captivity).

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Milk Snakes to Vipers - Thirty Years at the San Antonio Zoo

The San Antonio Zoo's department of herpetology has a rich history in captive breeding firsts, creating naturalistic exhibits, and developing innovative husbandry techniques. The mid to late seventies saw an explosion of captive reproductive events in Texas zoos' herp collections. During the Joe Laszlo era 1970 – 1987, the San Antonio Zoo carved out a unique niche in the herp world by concentrating on milk snakes and vipers. The first captive breeding of the spur-thigh tortoise, *Geochelone sulcata*, took place at the San Antonio Zoo in 1979. After Joe's untimely passing in 1987, the collection shifted focus to Madagascan fauna under the direction of John McClain, 1988 -1999. Some notable births during this time include: Madagascan ground boas, Mexican sunbeam snakes, and Malayan leaf frogs. After John's departure in 1999, the collection shifted its focus back to vipers and Mexican endemics. Some notable births in this current period include: Exiled garter snakes, Rowley's palm pitvipers, speckled palm pitvipers, Dunn's hognose pitvipers, Mexican alligator lizards, dusky rattlesnakes, and lance-headed rattlesnakes. This presentation will focus on the past, present, and future of the San Antonio Zoo's department of herpetology.

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I Married a Herpetologist

"I Married a Herpetologist" is Kathi Kardon's humorous take on her almost 25 years of wedded blisssss to herpetologist extraordinaire, Alan. This one is for the spouses of herpetologists primarily and for any reptile/amphibian person who finds him/herself wondering what it's like to be on the other side of the collector's road. From neonate naivcté, to disbelief, to understanding (sorta), Kathi details her uncommon life with a reptile lover.

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Pit Vipers of Peru

Eighteen species of pitvipers are known from Peru, and their distributions collectively occupy three principal zones: the coast, the mountains, and the eastern forests. There are six genera as follows: *Bothrops* (8 species); *Bothrocophias* (2 species); *Bothriopsis* (5 species); *Bothriechis* (1 species); *Crotalus* (1 species); and *Lachesis* (1 species). The situation is complicated at the northern and southern extremes of the country owing to the presence of species barely entering Peruvian territory. In the north the species *Bothriechis schlegelii* and *Bothrops asper*, both well known from Central America southward, reach their extreme southern limits in the region of El Caucho, Tumbes. Additionally, the species *Bothrops lojanus* and *B. osborni* apparently enter Peru from adjacent Ecuador, where they were previously considered to be endemic. To the south in the region of Sandia, Puno, *Crotalus durissus* and *Bothrops mattogrossensis* enter Peruvian territory. Distributional phenomena affect the snakebite situation in Peru and at the same time offer useful information with regard to biogeographic investigations. With the recent discoveries in the north, the total number of pitviper species known to inhabit Peru increases to twenty.

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Maintaining a Self-sustaining Colony of Endemic Mexican Montane Rattlesnakes

Establishing a captive self-sustaining colony is one of many critical steps in determining the conservation biology needs of Mexican endemic montane rattlesnakes. Captive husbandry and reproductive programs should not be limited to zoos, or private hobbyists. Education centers and Universities can play a significant role in the study of reptile and amphibian reproductive strategies and species specific husbandry needs.

Mexico is second only to Brazil in the highest count of herpetofauna species. Mexico currently lists over 1,300 species- Brazil lists over 1,400 species. With an ever growing human population and destructive anthropogenic activities that follow, emphasis on captive reproductive programs can only aid in the survival of many threatened montane rattlesnake species and their sympatric species.

The rock rattlesnake, *Crotalus lepidus*, is a montane rattlesnake living in areas that are currently suffering from heavy urbanization and farm expansion. This is also the case of many of the other montane rattlesnakes that live throughout the mountain ranges of Mexico- the Sierra Madre Oriental, Occidental, Transmexicana volcanic

belt and the Sierras of the south. The initiation of a captive reproductive program at UANL for *Crotalus lepidus* is one example of our commitment to the survival of threatened montane rattlesnakes.

Our goal at UANL is to properly maintain and propagate Mexican endemic montane rattlesnake species over the course of many years. This information will be applied to the maintenance and propagation of other endemic montane species.

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Unusual Aggregations of Copperheads *Agkistrodon contortrix* in the Ozarks of Arkansas

In late July of 2005, we received a phone call regarding a large number of copperheads on property on a hillside near Yellville, Arkansas. We immediately followed up to investigate the claim and upon arrival were greeted with over 40 individual copperheads collected in a very small area over the previous few days. Radio transmitters were placed in a total of three animals and activity records were recorded. In addition, 2 animals were implanted with temperature logging devices. For these animals, we have data suggesting thermoregulation patterns over a 2 week period.

We are currently gearing up this season to better document this event and obtain answers to many of the questions that have been left unanswered. In addition we are investigating other suspected areas where we have evidence of similar activities occurring during the same time period.

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Farming for Venom: Survey of Snake Venom Extraction Facilities Worldwide

Facilities that maintain and extract venom from venomous snakes were located worldwide. Information concerning numbers, distribution, years in operation, ownership (private or government), facilities open to the public for display of animals or educational programs, number of snakes and species maintained, prevalence of captive breeding programs, venom extraction frequency, and occupational hazards was collected. A total of 34 facilities in 21 countries were located. Information (all or in part) was obtained on 32 of these facilities. Forty-four percent of the facilities existed in countries as the sole venom extraction enterprise. The length of time they have been in operation ranged from 1 to over 90 years and were both private (56%) and government owned. Thirty-five percent of the facilities are open to the public for display of animals or educational purposes. Most maintained animal totals between 50 and 1500 however, the number of species maintained at these facilities varied greatly and ranged from 1 to 70. The majority of facilities have some type of captive breeding program with some reporting as high as 80% of their total animals as captive born. While some maintain both exotic and native species most (68%) house native species only. The majority reported that venom was collected or "extracted" from snakes on 14 to 30 day intervals. Occupational hazards of employees regarding accidental envenomation or "snakebite" varied. Envenomation frequencies at facilities ranged from zero to as high as one accident every eight months. Only one death was reported due to envenomation accidents.

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Geographic Variation in *Crotalus lepidus lepidus* from Texas

Populations of *Crotalus lepidus lepidus*, the Mottled Rock Rattlesnake, from Texas are known for being geographically separated and distinctly colored and patterned. Specimens from the eastern portion of the range typically have a light-colored background with anterior body blotches that are faded, while specimens from the western portion of the range are distinctly different by having a much darker background color with heavier mottling in between the much darker dorsal blotches. These two populations are separated geographically by large expanses of the Chihuahuan desert, with very few individuals having been observed from that area. The purpose of the poster presentation is to effectively show the geographic differences in color and pattern of *Crotalus lepidus lepidus* from the separate populations.

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Photographing Reptiles and Amphibians

Generally, capturing quality images of herps is a time consuming pursuit undertaken by a few photographers who have invested in costly equipment and who are willing to spend the time and energy to achieve their goal. Digital photography has changed that. It no longer costs thousands of dollars; rather a $500 or $600 camera is more than sufficient to produce excellent photographs. Small, compact, and easily carried they work as simply as the "point-and-shoot" cameras that were the rage of snap shooters a few years ago. They are true 21st century marvels, and important tools to augment for research.

Understanding a few basics of photography and some concepts of lighting and composition will enable capturing valuable photographs with a myriad of uses. You will "see" the world around you differently and have tangible images to support your observations. There is no reason for missing that special natural moment because you are unprepared. Your new found ability will not only be extremely satisfying, it will be fun!

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Field Collecting and Captive Management of *Bothrops caribbaeus*

Bothrops caribbaeus is a large terrestrial pit viper attaining lengths up to 7 feet. Restricted to the earlier Caribbean island of St. Lucia. This animal has a wide geographical range, but is only readily found in isolated populations such as Grande Anse, Anse La Raye, Roseau and Dennery. Once a major factor in snake bite statistics, now bites still occur, but in much less frequency. Data on the St. Lucian lanceheaded pitviper is very limited. Since the early 60's these snakes have been maintained in captivity in small numbers with staggering success, along with a couple of capture breeding programs. This impressive animal is all but gone in captivity. To assure future populations for the St. Lucian pitviper and other numerous endemic species found on these islands capture breeding groups should be considered before they are gone.

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Western Miniatures

Is there a herper worth his salt who has never had the impossible dream of keeping a *T. rex* for a "pet"? Or a salt water croc? How about a reticulated python? It would take a super shoehorn to squeeze one of these into your hole-in-the-wall apartment ---if you could slip it past your nosey neighbors after midnight. Let's be practical. Sometimes even a corn snake or a king snake requires more space than is convenient for small quarters. But an addicted herper has to have his (or her) scaly fix no matter what! As luck would have it, here in the west (as well as some other parts of the world) there are some very accommodating species of snakes that never exceed a meter in length. Many are from the desert. They have been kept successfully in gallon jars or other small enclosures for fairly long periods of time and can live quite happily on a diet of meal worms, crickets, spiders, scorpions or other small invertebrates. When observed closely they are quite beautiful and some, even spectacularly so. Some of the local species will be illustrated.

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Galapagos: The Future

The results of our 2005 trip to Galapagos commemorating the 100th anniversary of the California Academy of Sciences 1905 voyage are reviewed with an emphasis on the herpetology of the islands and the current state of affairs from a political, biological and financial point of view.

Compiled and Edited by William Becker and Adam Marfisi
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