

The Newsletter of the Herpetologists' League

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President's Corner

The Herpetologists' League is poised to enter the 21st century in several important ways. All of them will allow us to provide better services to members, provide for better solvency, and allow us to enter the electronic age in ways best suited to our needs. Currently, HL remains in sound financial shape. We are not exactly in the black, however, due to the high cost of producing the journals and a slide in membership. We have taken steps that will alleviate some of this problem in the future, but we have a long way to go to make HL a society that can withstand inflation and the growing cost of services we provide. It is important that HL members understand several of the efforts we have undertaken, as well as to note an important change in the Treasurer's office.

Electronic age

The electronic age is upon us in a big way. There are now on-line journals and many ways of publishing using electronic tools that streamline the process. Our journals are published by Allen Press. Until recently, *Herpetologica* was typeset by Allen Press directly from hard copy manuscripts. Editor Jaeger has been accepting manuscripts recently in final form on disc so that the press's staff can avoid the manual approach. This does not pertain to all manuscripts, however, since several authors still do not provide discs.

Herpetological Monographs

has been using a variety of other shortcuts, including disc copy, to trim costs. The differential cost per page between the two approaches is substantial. But what is the future for our journals in this electronic age? Are we looking eventually at on-line copies instead of or in addition to hard copies? What should we know about this arena so that HL does not fall behind? With these questions in mind, I appointed an ad hoc committee this year to look into the many aspects of electronic publishing for us. Brian Crother is the chair of that committee. He already has several of our colleagues as committee members to help him with this exploration. Brian's contact information is in the new directory of herpetologists that everyone should have by now. An interim report will be provided to the HL Board of Trustees at our 2000 meeting and a final report will be completed some time after that. This is likely to be an ongoing process. I wanted to let members at large know about this important committee and to ask that anyone interested in this issue to provide their comments to Brian if they have valuable information to pass on.

The world herpetological checklist book series

As of late June 1999, HL inaugurated a new series entitled World Herpetological Checklists. The first of a proposed 3-volume, book-length series on snakes has just been released. All members of HL should have received a flyer advertising the publication of the first volume at a reduced price just for members. These checklists are scholarly treatment of all recognized taxa and designed to provide the herpetological, conservation, and scientific communities with an easy access to full synonymies for each recognized name. There is a summary of the worldwide distribution for each species, as well as information on the type specimen and extensive notes on systematic issues. This series is the first major update of all known amphibian and reptile taxa since Boulenger published his treatises in the late 1890s. It provides the modern standards for the scientific community and organizations such as the Convention on International Trade in Endangered Species (CITES) and the World Conservation Union (IUCN), which have officially adopted these checklists. Thus, the World Checklist Series is an important contribution to science and conservation. Everyone who works in herpetology should have a copy of the first volume and should purchase a copy of all subsequent books. Member price is a substantial savings over the retail price. And the postage is included! The second and third volumes on snakes are being assembled and should be published over the next several years. We also own the copyright to the first world checklist on amphibians that was written by Darrel Frost. He has already updated this work and we intend to publish this book in the near future. Volumes on lizards, turtles, crocodylians, and tuataras are in early stages of development. I urge all HL members to purchase the first volume on snakes. Doing so will ensure that the series will continue on track, and it will solidify HL's commitment to systematics, the foundation that allows us to do everything else we do with amphibians and reptiles.

Endowment

The Herpetologists' League began an endowment program several years ago to enhance the services of the society and to ensure that

the society remains solvent. The Endowment Program got off to a shaky start with funds from a couple of successful book sales and donations. It has subsequently increased somewhat from interest dividends. The Endowment Program lacked solid direction and an aggressive program to attract gifts from members and others. At the meeting at Penn State University last month, the Board of Trustees approved a plan for the Endowment Program to reach a first goal of more than \$60,000 that would be invested in aggressive funds that would hopefully build to \$100,000 in a few years. The Board also agreed that the areas targeted by the interest derived from such an investment would be used to support special publication projects when needed, HL operations when absolutely necessary, and a research fund for graduate students. We are now in the process of marketing the Endowment Program. At the 1999 Board of Trustees meeting I challenged all Past Presidents to match my \$500.00 contribution to the Endowment Fund. This sum will serve to kick-start the new endowment drive and to show HL members that the Past Presidents continue to support our efforts to keep the Herpetologists' League in the forefront of the science of herpetology. I have received pledges from two Past Presidents so far. Now I am asking that all members of HL seriously consider donations of smaller amounts (any size donation will help) that will help us reach our goal. All members and especially students will benefit from this program. I sincerely hope that you will be able to donate something and continue your personal support of the society's efforts. Remember, donations are tax-deductible and should be sent to the Treasurer (see below). *Change in Treasurer's office* As of mid-August 1999, the Treasurer's office was transferred from Johnson City, Tennessee, to Emporia, Kansas. Dr. Lynnette Sievert has taken over this important position. So, all members should note that all HL business will henceforth be conducted out of her office. Lynnette's address is Department of Biological Sciences, Emporia State University, Emporia, KS 66801. Other contact information is in the new directory. Dr. Rebecca Pyles had this office for nearly eight years. HL sincerely thanks her for all her time and effort on behalf of the society and wishes her success in future endeavors. *Final comments*

One cannot underestimate the power of teamwork. The elected officers, editors, and committee chairs have always worked well together for one common goal - to ensure that HL provides the best services possible to members and the herpetological community. That is not to say that we have not made mistakes or have not had problems. However, I am proud to have served HL in several capacities over the past several years primarily because all of these people have served unselfishly, without egos and personal agendas. We have worked as a team. All HL members should consider themselves part of the team, as well. We would not have a viable society without your support. So, encourage your students and colleagues who are not members to join HL. This society is going places. Aaron Bauer will take over in January 2000 and I will remain on the Board as all former Presidents, for a period as Past President. I am confident that the society will continue to grow under Aaron's leadership.

Joseph C. Mitchell President

VIST HL ON THE WEB!

<http://www.inhs.uiuc.edu/cbd/HL/HL.html>

1999 Winners: HL's graduate competition

Ten students participated in HL's Graduate Student Competition at this year's annual meeting at Penn State. Awards were based on short written papers and on oral presentations made at the meeting. Six of the participants were chosen as finalists and these students received monetary awards to fund travel to the meeting. An Overall Winner and Honorable Mention was selected. Below are short bio's of the six finalists and a brief description of their research in their own words.

Overall Winner:

Travis Ryan

Degrees: BS (Biology, Magna cum Laude), Western Carolina University (1993)

MS (Biology), Western Carolina University (1995); Advisor: Richard C. Bruce

Current: Ph.D. Candidate at the University of Missouri, and Graduate Research Fellow, University of Georgia's Savannah River Ecology Laboratory; Advisors: Raymond D. Semlitsch and J. Whitfield Gibbons

Hometown: Pine Knoll Shores, North Carolina

My interest is in understanding the evolution of life cycles, and in particular how complex life cycles (CLC) give rise to simple life cycles (SLC). I use the mole salamander *Ambystoma talpoideum* as a model organism because it may express both the primitive CLC and the derived SLC (paedomorphosis) contemporaneously within a single breeding population. In this experiment, I was interested in determining the effect of larval growth rate in the expression of alternative life cycles. I reared larvae individually on different food regimes that directly influenced growth rates. I found that larval growth rate only in the later portions of the larval period (after about 3 months post-hatching) significantly affects life cycle expression. Declines in growth rate during this phase were tied to SLCs (the expression of maturation and the abandonment of metamorphosis), whereas increases or otherwise high growth rates during this period more likely resulted in metamorphosis. Among those expressing CLCs, those reared initially at high growth rates all metamorphosed at the same age, although body size varied depending on the growth rates in the latter portions of the larval period. Individuals originally reared under poor growth conditions metamorphosed at the same size as those under the best conditions, but at a later age. The results of this experiment demonstrate that relative growth rates during a key part of the larval period are important in determining the initiation of not only metamorphosis, but also maturation, and that the induction of the latter most likely results in the indefinite delay of the former. These results are not easily reconciled by existing ecological models for metamorphosis or by that proposed for facultative paedomorphosis.

Honorable mention:

Allison Welch

Degrees: **BS**, Northeast Missouri State University, (1993); Advisor, Tom Bultman

Current: **Ph.D. student**, the University of Missouri- Columbia; Advisors: Raymond D. Semlitsch and Carl Gerhardt

Hometown: Excelsior Springs, Missouri

The good genes model of sexual selection proposes that mating preferences help females identify genetically superior males to sire their offspring. The good genes model therefore predicts that offspring of preferred males will be more successful than offspring of non-preferred males. I tested this prediction by studying activity levels and predator avoidance responses of gray tree frog (*Hyla versicolor*) tadpoles sired by males with long versus short calls. Female gray tree frogs have a distinct preference for long calls and previous experiments showed that offspring of long callers have higher growth rates. I found no difference between offspring of long- versus short-callers in the degree of activity reduction in response to a predator (crayfish), indicating that a stronger predator avoidance response is not a good genes benefit of the female preference for long calls. However, tadpoles sired by long-callers had lower baseline activity levels than offspring of short-callers, and should therefore be less vulnerable to predation. Tadpoles' activity levels were negatively correlated with growth rates of siblings subjected to a low food regime, but were not correlated with growth rates of siblings reared under a high food regime. I hypothesize that under long-term food-limited conditions, energy conservation via low activity may be beneficial. Thus, low activity levels may have contributed to the growth advantage realized by offspring of long-callers under the low food regime but not the growth advantage under the high food regime.

Travel Awards:

Michelle D. Boone

Degrees: **BS** , Furman University (1994)Current: **Ph.D. student**

at the University of Missouri- Columbia; Advisor: Raymond D. Semlitsch Hometown: Goose Creek, South Carolina

This study examined the effects of a chemical, carbaryl, on amphibian communities experiencing natural stresses of pond drying, predation and competition. Tadpoles of three species -- *Rana sphenocphala*, *Rana blairi*, and *Bufo woodhousii* -- were added to ponds containing two newts and four overwintered green frog tadpoles. The effect of overall density (low/high), hydroperiod (constant/drying over 72 days), and chemical exposure (0, 3.5, 5.0, 7.5 mg/L carbaryl) was determined on endpoints at metamorphosis. Anurans in the community were impacted by the chemical directly with exposure leading to reduced mass and longer larval periods than individuals in controls. Chemical exposure also led to greater survival, mainly due to effects on *Bufo* who had little survival in control ponds; survival increased with increasing exposure, so the bufonid was facilitated by the chemical. Hydroperiod interacted with the chemical through effects on survival. Under no and low exposure, drying ponds had greater survival; however with increasing chemical, survival in constant ponds increased to levels of drying ponds. This study demonstrates that contaminant exposure, even at sublethal levels, can alter communities in ways that may not be predicted for simple and acute laboratory studies. -- *Note: I was not able to contact Michelle, so the research summary is a reprint of her abstract from the meeting. -- Ed.*

Christine M. Bridges

Degrees: **BS**, Harding University (1989); Mentor, Michael Plummer**MS**, University of Memphis (1991), Advisor, William Gutzke**PHD**, University of Missouri (1999), Advisor, Raymond SemlitschCurrent: **Post-doctoral**

Associate, USGS Columbia Environmental Research Center; Advisor, Ed Little

Hometown: Flint, Michigan

----- My research interests focus on the effects that environmental contaminants have on amphibian larvae. Because concentrations of toxicants generally are not in concentrations high enough to elicit direct mortality, I have focused on the effects of sublethal exposure and, thus, how contaminants can indirectly lead to mortality or how they can alter population structure and lead to population declines. Because the fitness of adult frogs is partially determined by larval traits such as the length of the larval period and the mass at metamorphosis, I designed an experiment to determine how sublethal concentrations of the insecticide carbaryl can disrupt developmental processes. Additionally, by exposing tadpoles during various stages of

development, I was able to isolate the point in development at which detrimental effects of carbaryl are manifested. When tadpoles were exposed to low, environmentally realistic concentrations of carbaryl, I noted significant mortality and an 18% overall deformity rate (including individuals with missing and extra limbs). While I found no effect of carbaryl on the length of the larval period, I did find that when individuals were exposed during the egg stage, either alone or in combination with any other developmental stage, that the resulting metamorphs were smaller than individuals that were not exposed during the egg stage. My experiment has shown that sublethal concentrations of carbaryl have the potential, via increased mortality, alteration in growth and development, and possible increased predation rates due frog deformities, to disrupt amphibian population regulatory processes, which may ultimately lead to population declines.

Anne Maglia

Degrees: **BS** (Pre-Vet), Ohio University (1992)

MS (Biological Sciences), East Tennessee State University (1994); Advisor Rebecca Pyles

PHD (Ecology and Evolutionary Biology), University of Kansas (1999), Advisor, Linda Trueb

Current: **Post-doctoral Associate**, University of Kansas

Hometown: Norwood, Massachusetts

The research I presented was a subset of my dissertation project on the evolutionary relationships of pelobatoid frogs. Most phylogenetic analyses using morphology concentrate only on adult osteology. In this portion of my study, I used characters from adult morphology, larval skeletons, and sequence of developmental events. By doing this, I derived a robust hypothesis of relationship for this group and was able to compare the utility of the different data sets. I found that not only does larval morphology provide new and informative phylogenetic characters, but it is more conservative across taxa than adult morphology. Therefore, it can be useful in understanding relationships among higher taxa. Because the different kinds of morphological characters vary differently among taxa, using only one kind of data (e.g., adult skeletons) may not provide an accurate view of phylogeny. Therefore, strong efforts should be made to include many different kinds of morphological characters in analyses of anuran relationships.

Jennifer Barry Pramuk

Degrees: **BA**, University of California at Santa Cruz (1994)

MA, University of Kansas (1990); Advisors Linda Trueb and Walter Dimmick

Current: **PhD Student**, University of Kansas

Hometown: Akron, Ohio

For my research project, I investigated the systematics of the West Indian toads, more commonly known as the *Bufo peltocephalus* group (*Peltophryne*). This group of toads is comprised of 10 species that range from Cuba to the Virgin Islands. To perform the study I analyzed 1444 base pairs of mitochondrial DNA data and 50 morphological characters in separate and combined analyses to arrive at a hypothesis of evolutionary relationships. The results indicate that the West Indian toads are a monophyletic lineage (bootstrap = 100). The topology of the ingroup clade is identical in all analyses and supports a derived Cuban clade with *Bufo guentheri* from Hispaniola as the intermediate taxon and *Bufo lemur* from Puerto Rico as the most basal species. This topology supports a hypothesis of dispersal of an ancestral taxon from the mainland to Puerto Rico and subsequent jump dispersal from Puerto Rico to Hispaniola and from Hispaniola to Cuba. To investigate further hypotheses of Caribbean biogeography, I performed a Brooks Parsimony Analysis of this data set in combination with five previously published phylogenies of West Indian squamates. The resulting BPA tree is congruous with Buskirk's hypothesis of Caribbean area relationships. The congruence between the BPA tree and hypothesized area relationships may indicate an overall pattern of vicariance for modern distributions of Caribbean reptiles and amphibians

Herpetotrivia: Campbell and Brodie offer this poetical etymology for a new species of lizard, *Abronia meledona*: "The species name is derived from the Greek '*meledonos*', meaning caretaker or guardian, in allusion to this arboreal, diurnal lizard holding vigilance over the remnant of its isolated mountain-top habitat which is known locally as Miramundo -- a place from which one can see the world." -- Campbell, JA and ED Brodie, Jr. 1999. *Herpetologica* 55:161-174. Graduate Students in Herpetology!

2000 Annual Meeting

14-20 June

La Paz, Baja California Sur, Mexico

Guidelines for the HL Student Award Competition

If you are a Master's or Ph.D. student with research results, you should seriously consider participating in the annual competition for the Herpetologists' League Award for Graduate Research. There are six prizes to be won so think about giving a paper at the 2000 annual meetings in La Paz, Mexico! To participate, you must (1) be a member of the Herpetologists' League in good standing, (2) be either a registered graduate student or have completed your graduate degree within 12 months of the Award presentations at the annual meeting, (3) submit a single-authored abstract by the "call for papers" 15 February 2000 deadline for the 2000 annual meeting, noting on your abstract your intention to compete, (4) submit a single-authored extended abstract to the Chair of the HL Award Committee (4 pages of text double-spaced, minimum 11 point or 12 pitch type, 1 inch margins, with additional literature cited, tables, and figures for a maximum of 10 pages in total) written in format for *Herpetologica*, due April 2000 (two months before the first day of the annual meeting), and (5) give the oral presentation at the annual meeting. Note that

noncompliance with any of these requirements will result in disqualification. The judges will review the extended abstracts and pick up to six finalists for the rest of the competition. Their names will be announced at the meeting after the presentations (all presentations will be in a single session). If you are a finalist, you are already a winner and you will receive a travel award of \$200. In addition, the Herpetologists' League will host a dinner for the finalists on the evening of the Award Session. The winner will be announced later at the HL Business meeting, and the award shall consist of (1) \$300 (for a total of \$500), (2) 10 years of back issues of *Herpetologica*, and (3) an invitation to submit an expanded full-length manuscript to *Herpetologica/Herpetological Monographs*

(which will be subject to normal review) as a lead article identifying the author as a winner of the Award. All participants will receive collated comments from the judges on their talk and extended abstract. Admittedly, the Herpetologists' League's student award competition is more demanding than those of the other herpetological societies, but the chances of winning something are higher, and we submit that you'll get a lot out of the experience whether you win the first prize or not. For assistance on giving oral presentations and writing the extended abstract, we recommend that you refer to the June 1998 Supplement of *Herpetologica* (Volume 54:S42-S54 and S67-S75).

For further information on how to become a candidate for the Herpetologists' League Award, contact: Linda S. Ford, Chair of the HL Award Committee, Department of Herpetology, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024-5192, USA. Phone: 212-769-5857; FAX :212-769-5031. E-mail: lford@amnh.org

Joint Resolution of Support for PARTNERS IN AMPHIBIAN AND REPTILE CONSERVATION (PARC), a New Multi-Sector Conservation Initiative

Note: The following resolution was approved at the 1999 annual meeting

WHEREAS, the mission of Partners in Amphibian and Reptile Conservation (PARC) is to conserve reptiles, amphibians and their habitats as integral parts of our ecosystem and culture through proactive and coordinated public/private partnerships; and

WHEREAS, PARC and its members from both public and private sectors, seek to form a coordinated and cooperative conservation partnership in this endeavor; and

WHEREAS, the comprehensive national conservation strategy for reptiles and amphibians to be developed by PARC will incorporate issues in research, management, monitoring, policy/regulation/trade, and education outreach;

THEREFORE BE IT RESOLVED, that the members of the Herpetologists' League join with their colleagues of the American Society of Ichthyologists and Herpetologists and Society for the Study of Amphibians and Reptiles in expressing their support to the Partners in Amphibian and Reptile Conservation for their vision and commitment to the long-term conservation of reptiles, amphibians, and their habitats.

Grad School News

The department of zoology at OREGON STATE UNIVERSITY has a strong program for those interested in herpetology

Steve Arnold's lab focuses on evolutionary processes and pattern in natural populations. He works mainly on snakes and salamanders. The over-arching concept in the snake work is to establish a bridge between evolutionary process (inheritance, migration, selection) and pattern (geographic variation and species differences). Recent work with snakes has emphasized the quantitative inheritance of meristic traits (scale and vertebral counts). In collaboration with PATRICK C. PHILLIPS (U. Texas, Arlington) and RUTH and FRANK SHAW (Univ. Minnesota), Arnold has been comparing the patterns of multivariate inheritance among populations and species of garter snakes. Arnold has been searching - with some success - for regularities in the evolution of inheritance and environmental matrices that describe multivariate inheritance. The significance of those regularities is that they can be used to reconstruct historical patterns of selection and to test the neutral model for population differentiation -- two important bridges between process and pattern. The snake work is increasingly going in the direction of comparing inheritance matrices on a phylogenetic tree for garter snakes and their relatives, natricine snakes. Arnold has established a molecular lab at OSU to work on the phylogeny of natricines at the population and species levels. MICHAEL PFRENDER (post-doc) is responsible for the day-to-day operation of this laboratory. A primary focus is to deduce the population and species phylogeny of those taxa for which we have estimates of inheritance matrices (*Thamnophis couchii* complex, *T. elegans*, *T. radix*

and their close relatives) using mitochondrial gene sequences and microsatellite loci. Aside from clarifying the relationships of these taxa, a well-resolved molecular phylogeny will allow us to test models for the evolution of inheritance matrices. Arnold is also collaborating with MICHAEL ALFARO (Univ. Chicago) and ANNE BRONIKOWSKI (Univ. Calif., Irvine) on two molecular systematic projects with natricine snakes. Other active directions of work on snakes include studies of: the role of vertebral numbers in locomotion, the functional significance of scale size and arrangement, the role of coloration in background matching and crypsis, the expression of HOX genes during development and their effects on vertebral numbers, and microgeographic differences in life history and their causes. In related work, MOLLIE MANIER (grad student) is using molecular methods to study metapopulation structure in garter snakes and their prey. The goal of the salamander work is to understand the connection between sexual selection and reproductive isolation. This work is being done in collaboration with LYNNE HOUCK (Zoology, OSU), RICK and PAM FELDHOFF (Univ. Louisville) and STEPHANIE ROLLMANN (Univ. Chicago grad student). Building on past work on the *Desmognathus ochrophaeus* complex and *Plethodon jordani*

complex of the Appalachian Mtns., the goal is to characterize the courtship pheromones of multiple populations in each complex to assess the role that they play in sexual isolation. The courtship pheromones of these salamanders are glycoproteins that are either "vaccinated" into the female's circulatory system by the enlarged premaxillary teeth of the courting male (*Desmognathus*) or delivered into the female's vomeronasal organ (*Plethodon*). Lynne and her co-workers have shown that these pheromones speed up the process of insemination. Arnold's other research interests with salamanders include sexual isolation in the genus *Rhyacotriton* and the evolution of amplexus in newts and their relatives. In related projects, JEROD SAPP (grad student) is working on courtship behavior in the salamander genus *Aneides*, and ADAM JONES (post-doc) is using microsatellites to assay paternity and measure sexual selection in newts (*Taricha*). ANDREW BLAUSTEIN's research focuses on behavior and ecology. Much of the behavioral research in the lab deals with social and reproductive behavior, kinship, chemical ecology and predator-prey relationships. Ph. D. candidate ERICA WILDY is investigating the dynamics of cannibalism in salamanders. LESLIE DYAL, also a Ph. D. student, is studying the mating systems of anurans, with particular emphasis on western toads. Recent studies by former postdocs DOUG CHIVERS and ADOLFO MARCO concentrated on the chemical ecology of predator-prey dynamics and in mate choice in salamanders and anurans. Blaustein's lab is also studying the dynamics of amphibian population declines. The lab is monitoring populations on a long-term basis, investigating specific causes for the declines and synthesizing data from various projects. Specifically, the lab has investigated how introduced exotic species, diseases, and ultraviolet radiation affects amphibians. Doctoral candidates LISA BELDEN and AUDREY HATCH are studying the effects of UV radiation on amphibians in the laboratory and in the field. JOE KIESECKER received his Ph.D. in Blaustein's lab in 1997 where one aspect of his dissertation research focused on the role of pathogens in amphibian population declines. Along with Hatch and Marco, former postdoc DAVE CASH investigated the interaction between pesticides and UV radiation and how this affects amphibian larvae. MIKE BLOUIN's lab is focused on use of molecular methods for describing population structure in natural populations of various taxa. One particular interest is the use of microsatellites for measuring rates of inbreeding and outcrossing, for estimating relatedness among individuals of unknown parentage, and for reconstructing pedigrees in natural populations. These approaches are being used to compare demographic vs. molecular estimates of effective size in

frog populations. Mike is also continuing his work on the environmental and genetic control of variation in growth, development and morphology of frogs. Other herp projects in the lab include studies of gene flow and population structure in ranid species of the Pacific Northwest (PhD student KIRSTEN MONSEN), on the inheritance and selective maintenance of anuran color polymorphisms (PhD student ERIC HOFFMAN), on systematics and genetic structure in sharp-tailed snakes, and on natal homing vs. scent trailing as a cause of gene flow among overwintering dens of Manitoba garter snakes (with PhD student MIKE LEMASTER in BOB MASON's lab). Non-herp collaborations include systematics of endangered Klamath Basin suckers (Catastomid fishes), mtDNA evolution in nematodes, and pedigree verification for a selective breeding program on oysters. LYNNE HOUCK's research interests encompass many aspects of reproduction in amphibians, particularly in salamanders. A main focus is on male courtship pheromones, which are chemical signals that affect female receptivity. Working with colleagues and students on behavioral experiments with terrestrial salamanders, Houck has documented reduced courtship time for pairs in which the female received these pheromones. Houck's lab is working on identifying the individual components of the whole pheromone extract, and on testing these individual components for effects on female responsiveness. Other areas of interest include the evolutionary history of pheromone-producing glands, and the evolution of delivery behaviors. At a more proximal level, plans include examination of the female's neurophysiological response to courtship pheromone stimulation. Until recently, Houck has been working mainly on Eastern species of terrestrial plethodontid salamanders (mostly in North Carolina). Having moved to Oregon in Fall 1997, she is now developing a research program with a focus on the reproductive biology of salamanders in the Pacific Northwest. Dr. BOB MASON, Associate Professor in Zoology, joined the department in 1991. His work has focused on pheromonal communication in snakes primarily red-sided garter snakes in Manitoba, Canada and the brown tree snake both on Guam and in Australia in its native range. His current interests involve how chemical communication systems evolved in snakes by examining both the diversity of chemical signals and the underlying physiological and endocrinological mechanisms involved in their production and expression. He is also actively involved in attempting to utilize pheromones as a means of biological control. Specifically, he is attempting to isolate and synthesize pheromones in order to induce brown tree snakes into traps. Mason currently has two graduate students and a post-doc in his laboratory. He has also mentored over 35 undergraduates and high school students who undertake independent research projects in his laboratory. MIKE GREENE received his Ph.D. in Mason's laboratory in 1998. He stayed on to pursue a post-doc in the lab and continue his thesis work. Mike has been studying the chemical ecology and behavior of brown tree snakes. He described the courtship and combat behaviors as well isolated the pheromones controlling these behaviors. He is currently involved in identifying the chemical structures of these pheromones in the hope that they may be useful in biocontrol of this dangerous pest species on Guam. IGNACIO MOORE is a fifth year Ph.D. candidate who will soon be defending his thesis. He studies the seasonal and ecological adaptations of the stress response. He has found that garter snakes in Manitoba, with limited reproductive opportunities, will suppress their behavioral and hormonal stress responses during the breeding season in order to avoid its deleterious effects on reproduction. In contrast, garter snakes in Oregon with an extended breeding season, maintain their stress response throughout the year. MIKE LEMASTER is a fourth year Ph.D. candidate interested in vertebrate chemical ecology. Working with two distinct populations of red-sided garter snakes in Manitoba, Canada, he has found that pheromonally-mediated sexual isolation exists between populations and is currently determining whether the observed isolation is due to populational variation in a female reproductive pheromone. He also fills his spare time investigating the genetic relatedness among multiple populations of garter snakes in Manitoba and determining to what extent these snakes utilize pheromone trails to locate hibernacula. FRANK MOORE's research program focuses on understanding how hormones regulate brain functions and behaviors. He is especially interested in discovering where and how hormones act in the brain to control animal behaviors. Many of these studies have used a locally common amphibian, the roughskin newt (*Taricha granulosa*). One NSF-funded project is answering specific questions about how hormones regulate female-specific and male-specific behaviors. These studies have identified sites in the brain where sex steroid hormones (such as estradiol and testosterone) cause morphological and neurochemical differences between males and females. The most interesting neurochemical differences show up as differences in the concentrations of peptides that regulate reproductive behaviors and differences in the abundance of receptors for these peptides. Another NSF-funded research project uses the same amphibian model to study the actions of stress hormones on brain functions. Research into the mechanisms whereby corticosterone exerts rapid behavioral effects led to the discovery of a new type of steroid receptor. These corticosteroid receptors, unlike the traditional textbook models for steroid receptors, are associated with the plasma membrane and fit the model for G-protein coupled receptors.

Call for Symposium Proposals for the 2001 HL Meeting

The Herpetologists' League sponsors thematic symposia for its annual meetings. Any League member may submit a proposal for a symposium for the upcoming meeting by sending a proposal application to the chair of the Symposium Committee. Official sponsorship by the Herpetologists' League allows for the scheduling and announcement of the symposium in the meeting program and registration materials. In addition, a small amount of money (a maximum of \$2000) is available to support sponsored symposia.

Applicants should provide the following information: 1) a statement outlining the name/topic of the symposium, the scope of the planned presentations, the relevance of the topic to herpetology and, if appropriate, to the particular meeting (e.g., timeliness or geographic appropriateness), and the goal of the symposium (not to exceed one single-spaced page of text); 2) a tentative outline of speakers (including presentation of titles and institutional affiliations) indicating the time to be allocated for each presentation and the total length of the symposium (e.g., half-day, full-day). Only speakers that have indicated their willingness to participate should be listed. This should be accompanied by a short (one paragraph) statement explaining how the particular slate of speakers and presentations meets the goals of the symposium as a whole. Note that two or more individuals should be involved with organizing each symposium and that the application should include the addresses, telephone and fax numbers, and e-mail addresses of these organizers. 3) a budget (not to exceed \$2000) detailing the proposed use of funds requested from the Herpetologists' League. Appropriate expenses include full or partial support of travel, housing and/or registration expenses for symposium participants.

Sponsorship by the Herpetologists' League does not guarantee financial support and symposia may be sponsored and funded at a level lower than that requested by the applicants.

Interested persons should submit their proposals no later than 15 April 2000 to: Joe Mitchell, HL Symposium Committee, Department of Biology, University of Richmond, Richmond, Virginia 23173.

Effort to Establish a National Institute for the Environment (NIE) Builds Momentum

Efforts to establish a National Institute for the Environment (NIE) have gained substantial momentum in recent months. The proposed NIE will be a non-regulatory environmental science institute that will serve as the nation's leading provider of substantive information on the environment. It will identify, prioritize, and fund research in the natural and social science, engineering, economics, and other disciplines as needed to resolve environmental problems. The NIE will not operate its own laboratories, but will competitively award grants for peer-reviewed research at universities, government labs, non-profit organizations and private companies. The NIE would include a National Library for the Environment, a prototype of which is already available on the internet (www.cnie.org). The NIE would be created under the National Science Foundation (NSF).

Recent progress includes:

- By the end of the 105th Congress, bipartisan support for creating the NIE reached 92 cosponsors of H.R. 2914, The Sound Science for the Environment Act.
- The House Appropriations Committee, in its FY 1998 report, directed the National Science Foundation to study "how to establish and operate a NIE".
- NSF has recently created a Task Force on the Environment to chart its future course.
- The US Chamber of Commerce along with 20 state chambers of commerce have endorsed the NIE proposal.
- House Rep. Vern Ehlers authored *Unlocking Our Future: Towards a New National Science Policy*, the NSF study report released by the House Science Committee (see WWW.house.gov/science/science_policy_report.htm). This report calls for science related to decision making, especially environmental, to be elevated as rationale for federal

support of science.

The prototype for the electronic National Library for the Environment (www.cnie.org) has also had increased success. It is currently linked to more than 2,000 sites on the internet and received the Computerworld Smithsonian Award for web sites. It contains more than 400 nonpartisan environmental reports produced by the Congressional Research Service, in addition to environmental news that is updated daily from 10 different sources and is linked to more than 300 environmental newspapers and magazines. The library holds over 100 State of the Environment reports from both the US and around the world. Visitors can also access the full texts of environmental laws from local domestic to international regulations, as well as briefing books on global climate change, ocean and coastal resources and electric utilities. The site is both a great referencing tool and way of disseminating information such as environmental career opportunities and a directory of almost 200 degree-granting programs. At the most basic research level, the library can serve as the perfect starting point because it offers both an Environmental Yellow Pages and Reference Desk.

This year the CNIE plans to build upon these recent successes by continuing to engage in constructive dialogue with leaders in Congress, the Administration, the scientific community and environmental stakeholders on institutional mechanisms needed to achieve the basic principles of the NIE, which are:

- Non-regulatory environmental science initiative;
- Key involvement of users as well as scientists in identifying priorities;
- Open competitive peer-review of proposals from academia, business, government and non-governmental scientists;
- Problem focused science integrating diverse disciplines and perspectives;
- Long-term focus complementing and adding value to existing institutions and funding sources, and,
- Integration of knowledge assessments, research, information and education.

Additionally, the CNIE will work to demonstrate scientific issues related to the environment that are not effectively addressed by existing government institutions and will work with congress, the Administration and environmental stakeholders on initiatives to institutionalize the principles and address the problems. For more information about CNIE or the effort to establish the NIE, please contact : cnie@cnie.org, or <www.cnie.org>. -- *Committee for the National Institute for the Environment*

Special Thanks to Dr. Wilmer Tanner, former President of HL and retired professor of Brigham Young University, more than met current President Joe Mitchell's challenge to kick-start the Endowment by donating a check for \$2500. HL is grateful to Dr. Tanner for his generosity.

Louisiana Prohibits the Commercial Harvest of its Box Turtles

Act 81 of the 1999 Session of the Louisiana Legislature prohibits the commercial harvest of Louisiana's native box turtle populations. This law which is effective August 15, 1999 was unanimously passed by the Louisiana Senate and the House of Representatives. This is an outstanding victory for one of Louisiana's turtles and will have far reaching impact on box turtles in other states.

Any box turtles native to the state of Louisiana will be considered as originating from Louisiana. Therefore it will no longer be possible to smuggle box turtles out of other states where harvest is also illegal and claim they originated in Louisiana. Recreational possession is limited to four box turtles.

Since January of 1995, a total of 29,896 box turtles were collected for the pet trade and shipped from Louisiana. This law will help to insure that future generations of Louisiana adults and children will be able to take a walk in the woods and view box turtles in their native habitat.

Request for Donations: Herpetological books, periodicals, articles, etc.

I'm a science teacher in Guadalajara, Jalisco. As you may know, federal schools in Mexico are very restricted in their supplies, books, and funds. I have several students from these federal schools who are very interested in pursuing careers in Herpetology. Herpetology here is a field which is largely ignored because of culture and lack of information. A lot of people here believe that all snakes are dangerous, poisonous, and even evil, and therefore they try to kill them on site. I'm trying to encourage these kids by buying books and magazines whenever I go to the US. All of the books and magazines I buy, I have to pay for with my own money, and most of these books are expensive. **This letter is to ask you to send us any books, periodicals, bulletins, articles, or other information that you have to spare. Anything you are willing to send will be immensely appreciated.** My address is: Miguel C. Guevara, Av. Patria 172 A8, Col. Prados Guadalupe, Zapopan, Jalisco 45030, Mexico.

MONEY, MONEY, MONEY

Southwestern Research Station Student Support Fund

The American Museum of Natural History awards several grants each year of approximately \$400-\$800 to graduate students or postdoctoral students pursuing research at its Southwestern Research Station in the Chiricahua Mountains, Portal, Arizona. Information and application forms for this program and other Museum grant programs can be obtained by writing: Office of Grants and Fellowships, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024-5192. For application dates and other questions, contact: Dr. Wade C. Sherbrooke, Director, Southwestern Research Station, American museum of natural History, P.O. Box 16553, portal, AZ 85632 USA; phone/fax: (520)558-2396; e-mail: swrs@amnh.org.

Carnegie Museum of Natural History -- Collection Study Grants in Herpetology

The Carnegie museum of Natural History is pleased to announce a grant to support herpetological research by graduate students and foreign scientists. The grant is intended to defray costs of transportation and lodging associated with visiting and using the collection. The Carnegie's herpetological collection contains more than 194,000 preserved specimens, including one of the largest collections of turtles and extensive holdings from the West Indies, Mexico, South America, Spain, Africa, India, and the Philippines. Applicants should send the following, in duplicate: (1) a description of the proposed research (including its significance and the justification for visiting the Carnegie), not to exceed two pages, (2) literature cited, (3) budget, and (4) CV. Students should also arrange for two letters of recommendation to be sent. Awards will be made twice a year. Deadlines for application materials are 15 April and 15 November. Send applications to Collection Study Grants in Herpetology, Section of Amphibians and Reptiles, Carnegie museum of natural History, Pittsburgh, PA 15213-4080, and for more information, contact John J. Wiens (e-mail@clpgh.org; phone 412-622-5520; FAX 412-622-8837).

Announcements

Volunteers

Approximately 30 volunteer positions are open at the American Museum of natural History's Southwestern Research Station in Portal, Arizona. The volunteer program is run annually and offers students in biological sciences outstanding opportunities to observe and become involved with scientists doing field research. **Food and lodging are provided to volunteers** in exchange for 24 hours per week of routine chores, with the remaining time available for research activities.

The program is open to both undergraduate and graduate students; the latter may pursue their own research projects. Faculty knowing of promising students should alert them to this opportunity for professional experience toward, development of, and evaluation of their career goals.

Volunteers are needed between March 14 and November 1. Appointments are for part of this period, with a minimum appointment of six weeks. Applicants for Spring positions (March-May) should submit applications by February 15, summer volunteers (June-August) by April 1, and fall volunteers (September- November) may apply any time.

For applications write: Dr. Wade C. Sherbrooke, Director, Southwestern Research Station, American museum of natural History, P.O. Box 16553, portal, AZ 85632 USA; phone/fax: (520)558-2396; e-mail: swrs@amnh.org.

New HL Treasurer!

Dr. Lynnette Sievert

Dept. of Biological Sciences

Emporia State University

Emporia, KS 66801

sievertl@esumail.emporia.edu

Herpetotrivia: The oldest squamate yet known from the West Indies is a lizard (Iguanian?) identified from dentary fragments recovered from Jamaica. Other squamates from this period (mid-Tertiary) are limited to isolated snake and lizard vertebrae from Puerto Rico and two lizards preserved in Dominican Amber. -- Pregill, G. K. 1999. Eocene lizard from Jamaica. *Herpetologica* 55:157-161.

Publication Notices

Goannas: The Biology of Varanid Lizards

Australian Natural History Series

By Dennis King and Brian Green (2nd Edition). Univ. of New South Wales Press, LTD. 116 pp. RRP \$29.95 (pb). ISBN: 0 86840 456 X. This edition includes information in areas as diverse as taxonomy, diet, breeding, behavior, thermal biology, and energetics. Other major changes to this second edition include a new chapter on the parasites of varanids and new material on foraging strategy. The volume also now contains 12 pages of color photographs. Visit the UNSW Press website: www.unswpress.com.au.

Monitors

The Biology of Varanid Lizards

By Dennis King and Brian Green. 1999 (2nd Edition). Krieger publishing Co. 134 pp with 21 color plates. \$22.50 (paper). ISBN: 1-57524-112-9. To order contact: Krieger Publishing Company, P.O. Box 9542, Melbourne, FL 32902-9542; Phone 1-800-724-0025 or 407-724-9542; Fax 407-951-3671; E-mail: info@krieger-pub.com; www.web4u.com/krieger-publishing/

Sea Snakes

Australian Natural History Series

By Harold Heatwole. 1999. Univ. of New South Wales Press, LTD. 167 pages (12 pages with color plates). RRP \$29.95 (pb). ISBN: 0 86840 776 3. This book includes the varieties and distributions of sea snakes, their predators and prey, reproduction, growth and the nature of their venom. It also discusses how sea snakes cope with excess salt and the scarcity of fresh water, and how they adjust to diving at depth and enduring long periods without breathing. Visit the UNSW Press website: www.unswpress.com.au.

Sea Snakes

By Harold Heatwole. 1999 (2nd Edition). Krieger Publishing Co. 166 pages (35 color plates). \$27.50 (paper). ISBN: 1-57524-116-1. To order contact: Krieger Publishing Company, P.O. Box 9542, Melbourne, FL 32902-9542; Phone 1-800-724-0025 or 407-724-9542; Fax 407-951-3671; E-mail: info@krieger-pub.com; www.web4u.com/krieger-publishing/

A Guide to Lizards -- CD ROM

By Michael Waters, Michael Voyce, Peer Zwart, and Frederic Frye. 1999. Krieger Publishing Company. CD ROM \$55.00. ISBN 1-57524-117-X. This program provides veterinarians and technicians with a comprehensive guide to the care and treatment of lizards. The CD ROM gives clear and practical advice through the use of text, graphics, photographs, video, and interactive case challenges. There is a section with an introduction to lizard identification, anatomy, and husbandry, and sections on procedures, diseases, and resources. To order contact: Krieger Publishing Company, P.O. Box 9542, Melbourne, FL 32902-9542; Phone 1-800-724-0025 or 407-724-9542; Fax 407-951-3671; E-mail: info@krieger-pub.com; www.web4u.com/krieger-publishing/

The Origin and Evolution of Larval Forms

Edited by Brian K. Hall and Marvalee H. Wake. 1999. Academic Press. 425 pages. \$79.95 (hard cover).

Erpetologica del Piemonte e della Valle d'Aosta: Altante degli Anfibi e dei Reptili.

Ed. By Franco Andreone and Roberto Sindaco. 1998. Monografia XXVI from Regionale di Scienze Naturali. 283 pp. 100 lira + postage. Can be purchased from Museo Regionale di Scienze naturali, Via Giolitti 36, 10123 Torino, Italy.

A Comparative Methods Approach to the Study of Oocytes and Embryos

Edited by Joel D. Richter. 1999. Oxford University Press. \$65.00 (cloth). ISBN 0-19-511594-5

Policy for Advertisement of New Books As a service to our readers, *Communications* is pleased to publish announcements of new books of interest to HL members. However, we do not accept formal "advertisements". We will include the "standard" information (title; author; publisher; price (HB/PB); no. of pages, maps, illustrations), plus, optionally, a very brief 1-2 sentence description of the book and an address for orders. This information should be sent to the editor of *Communications*. Announcements will be included as space allows and content may be edited.

Herpetologica Ranks High

in Reader Impact!

The 1996 ISI Impact Ratings in zoology (exclusive of ornithology) rates *Hepetologica* as tied for 17th out of 96

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***A new publication from HL:
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A comprehensive catalogue of the snakes of the world, this series of three printed volumes will provide an inclusive treatment of some 18 families, 464 genera, and more than 2700 species of living snakes.

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www.nearctica.com/nathist/reptile/list.htm.

Stay tuned! Volume 2, including most of the species in the family Colubridae, is scheduled for publication in 2001. Volume 3, including the remaining species of Colubridae, plus Atractaspididae and Elapidae, is scheduled for publication in 2003.

Communiqués to *Communications*

Target dates for distribution of *Communications* are March and September. Herpetologically-relevant announcements are included as space allows. Send submissions/questions/comments to: Dr. Alicia Mathis, Dept. of Biology, Southwest Missouri State University, Springfield, MO 65804-0095. Phone: 417-836-5699; FAX: 417-836-4204; **e-mail: sam477f@mail.smsu.edu**.

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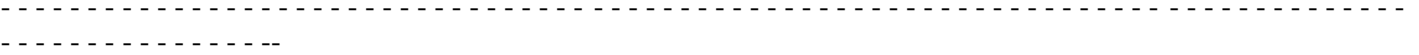
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NOTICE!! The following are out of print: *Herpetologica* 1(3), 2(4,6,7,8), 3(7-8), 4 (all), 5 (1,3,4,6), 6 (3,8), 7 (2), 11 (4), 18 (3-4), 19 (all), 23 (1,2,3), and *Herpetological Monograph* #1



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