

1996

## 80th Annual Meeting, 1996. Program

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**PROGRAM**  
**Arkansas Academy of Science**  
**80th Annual Meeting**  
**April 12-13, 1996**  
**Westark Community College, Fort Smith, Arkansas**

**SCHEDULE OF EVENTS**

**Friday, April 12, 1996**

|                         |                             |   |
|-------------------------|-----------------------------|---|
| 8:00 a.m. - 2:00 p.m.   | Registration                | Math/Science,<br>Building Atrium            |
| 8:30 a.m. - 10:30 a.m.  | Executive Committee Meeting | Boardroom,<br>Fullerton Union               |
| 11:00 a.m. - 12:00 p.m. | First Business Meeting      | Math/Science Building, Room 104             |
| 1:00 p.m. - 5:00 p.m.   | Paper Sessions              | Math/Science Room 100                       |
| 1:00 p.m. - 6:00 p.m.   | Exhibits                    | Math/Science Building Atrium                |
| 2:30 p.m. - 3:15 p.m.   | Refreshments                | Math/Science Bldg. 1st & 2nd Floor Hallways |
| 5:00 p.m. - 6:15 p.m.   | Mixer                       | Math/Science Building Atrium                |
| 6:30 p.m.               | Banquet                     | Fullerton Union Cafeteria                   |

Invited Speaker: Dr. I. Lehr Brisbin, Senior Ecologist, Savannah River Ecology Laboratory  
*Razorback, Bulldogs and Gamecocks: A New Look at Conservation from an SEC Perspective*

**Saturday, April 13, 1996**

|                        |                                    |   |
|------------------------|------------------------------------|---|
| 8:00 a.m. - 10:00 a.m. | Registration                       | Math/Science Building Atrium                |
| 8:00 a.m. - 12:00 p.m. | Paper Sessions                     | Math/Science Bldg.                          |
| 8:30 a.m. - 12:00 p.m. | Exhibits                           | Math/Science Building Atrium                |
| 9:45 a.m. - 10:15 a.m. | Refreshments                       | Math/Science Bldg. 1st & 2nd Floor Hallways |
| 12:00 p.m. - 1:00 p.m. | Second Business Meeting and Awards | Math/Schience Bldg., Room 104               |

**PAPER SESSIONS**

**Friday, April 12, 1996**

|                       |                                   |                             |
|-----------------------|-----------------------------------|-----------------------------|
| 1:30 p.m. - 4:15 p.m. | Chemistry                         | Math/Science Bldg. Room 206 |
| 1:00 p.m. - 2:45 p.m. | Aquatic & Environmental Biology I | Math/Science Bldg. Room 104 |
| 3:00 p.m. - 5:00 p.m. | Botany                            | Math/Science Bldg. Room 104 |
| 1:00 p.m. - 5:00 p.m. | Vertebrate Zoology I              | Math/Science Bldg. Room 101 |
| 1:00 p.m. - 5:00 p.m. | Poster Session                    | Math/Science Bldg. Room 100 |

**Saturday, April 13, 1996**

|                         |  |                                |
|-------------------------|--|--------------------------------|
| 8:30 a.m. - 10:00 a.m.  | Aquatic & Environmental Biology II                         | Math/Science Bldg. Room 104    |
| 10:15 a.m. - 11:15 a.m. | Animal Behavior & Psychology                               | Math/Science Bldg. Room 104    |
| 8:30 a.m. - 9:30 a.m.   | Vertebrate Zoology II                                      | Math/Science Bldg. Room 101    |
| 9:30 a.m. - 12:00 p.m.  | Ark. River Symposium-<br>Ark. River Conservation Committee | Math/Science Bldg. Room 101    |
| 8:30 a.m. - 11:15 a.m.  | Physics, Mathematics & Geology                             | Math/Science Bldg. Room 204    |
| 8:30 a.m. - 11:45 a.m.  | Microbiology & Biomedical Sciences                         | Math/Science Bldg. Room 206    |
|                         | Slide Preview Room   | Math/Science Building Room 208 |
|                         | Computer Room  | Math/Science Building Room 215 |

## SECTION PROGRAMS

\* Undergraduate \*\*Graduate

### PAPER SESSION

Friday, April 12, 1996

CHEMISTRY

Math/Science Building Room 206

Chairperson: Dr. Lynda Nelson, Westark Community College,  
Fort Smith, Arkansas

- | TIME | TOPIC  |
|------|--|
| 1:30 | Henry Rinne, Department of Comparative Arts, Westark Community College, Fort Smith, Arkansas, 72903. <b>ARTS AND CHAOS: THE PROCESS OF BECOMING</b>  |
| 1:45 | * <u>Wasim Aleem</u> , Robert Engelken, Imran Khan, Brandon Kemp, Arif Raza, and Chris Barber, Arkansas State University, Optoelectronic Materials Research Laboratory, P.O. Box 1740, State University (Jonesboro) AR 72467; and Tom Jakobs, InvoTek Inc., Alma, AR. <b>CHEMICAL PRECIPITATION DEPOSITION, PROCESSING, AND DOPING OF SILBER SULFIDE PHOTOCONDUCTIVE CELLS</b> |
| 2:00 | * <u>Arif Raza</u> , Robert D. Engelken, Brandon Kemp, Imran Khan, Wasim Aleem, and Chris Barber, Arkansas State University, State University (Jonesboro), AR 72467. <b>ELECTRODEPOSITION OF <math>CuInS_2</math> FILMS FROM ORGANIC SOLUTIONS</b>   |
| 2:15 | * <u>Chris Barber</u> , Robert D. Engelken, Bruce Johnson, Wasim Aleem, Brandon Kemp, Arif Raza, Imran Khan, Joe Parker, Bryan Latham, and Hollis Jones, Arkansas State University, P.O. Box 1740, State University (Jonesboro), AR 72467. <b>PREPARATION DOPING, AND PHOTOCONDUCTIVE PROPERTIES OF VACUUM EVAPORATED TIN (III) SULFIDE POWDERS</b>                            |
| 2:30 | * <u>N.H. Le</u> <sup>1</sup> , D.V. Greathouse <sup>1</sup> , R.E. Koepf <sup>1</sup> , G. Saberwal <sup>2</sup> , L.L. Providence <sup>2</sup> , and O.S. Andersen <sup>2</sup> <sup>1</sup> Univ. Arkansas, Fayetteville, AR, <sup>2</sup> Cornell Univ. Med. Coll., N.Y., NY. <b>RESIDUE 5 OF GRAMICIDIN LW AS A CONFORMATIONAL "SWITCH"</b>                               |
| 2:45 | Break  |
| 3:00 | * <u>Imran Khan</u> , Robert Engelken, Wasim Aleem, Brandon Kemp, Arif Raza, and Chris Barber, Arkansas State University, Optoelectronic Materials Research Laboratory, State University (Jonesboro), AR 72467. <b>CHEMICAL BATH DEPOSITION OF CADMIUM SULFIDE FILMS FROM HIGH TEMPERATURE TRIETHYLENE GLYCOL-BASED ORGANIC BATHS</b>  |
| 3:15 | * <u>Brandon Kemp</u> , Robert Engelken, Arif Raza, Wasim Aleem, Imran Khan, and Chris Barber, Arkansas State University, State University (Jonesboro), AR 72467. <b>IMPROVED METHODS FOR ELECTRODEPOSITING CADMIUM SULFIDE FILMS</b>  |
| 3:30 | <u>Karen Brasfield</u> , Lawrence D. Fitz, and Richard B. Walker, Department of Chemistry, University of Arkansas at Pine Bluff, Pine Bluff, AR 71601. <b>DETERMINATION OF THE BINDING CONSTANT FOR AN EPHEDRINE PRODRUG WITH BETA-CYCLODEXTRIN</b>  |
| 3:45 | <u>John R. Reed</u> , Vipul Dhlakia, Karen Brasfield, Timothy A. Carter, Lawrence D. Fitz, K. Andre Rogers, L. Blayne Love, Danita Ewing,  |

Ray Bakhtiar, Valentino Stella, and Richard B. Walker, Department of Chemistry, University of Arkansas at Pine Bluff, Pine Bluff, AR 71601. **INTERACTION OF AN OXAZOLIDINE PRODRUG OF EPHEDRINE WITH BETA-CYCLODEXTRIN**

- 4:00 Elsie Williams<sup>1</sup>, Hugh Simmons<sup>1</sup>, Henry J. Irving<sup>2</sup>, Mark A. Wear<sup>2</sup>, William M. Willingham<sup>1</sup>, and John R.J. Sorenson<sup>2</sup>, <sup>1</sup>Research Center, University of Arkansas at Pine Bluff, Pine Bluff, AR 71601. <sup>2</sup>Department of Medicinal Chemistry, College of Pharmacy, UAMS, Little Rock, AR 72205. **5-DIETHYLSUFONAMOYLSALICYLATO COPPER (II), A LOW MASS, SUPEROXIDE DISMUTASE MIMETIC, ESSENTIAL METALLOELEMENT COMPLEX IS A POTENT RADIOPROTECTANT OF GAMMA IRRADIATED MICE**

### PAPER SESSION

Friday, April 12, 1996

AQUATIC AND ENVIRONMENTAL BIOLOGY I

Math/Science Building Room 104

Chairperson: Dr. James H. Peck, Department of Biology, University of Arkansas at Little Rock, Little Rock, Arkansas

- | TIME | TOPIC  |
|------|--|
| 1:00 | <u>James Anderson</u> and Renn Tumlison, Department of Biology, Henderson State University, Arkadelphia, AR 71999-0001. <b>EFFECTS OF AQUATIC VEGETATION ON SUBSTRATE DEVELOPMENT AND BIOTA OF THE CADDO RIVER BELOW DEGRAY LAKE, CLARK COUNTY, ARKANSAS</b>   |
| 1:15 | <u>Allan G. Jaster</u> , Department of Geology, University of Arkansas, Fayetteville, Arkansas, David N. Mott, Buffalo National River, Harrison, Arkansas and Kenneth F. Steele, Arkansas Water Resources Center, University of Arkansas, Fayetteville, Arkansas. <b>STORM EVENT WATER QUALITY OF THREE MIDDLE BUFFALO RIVER TRIBUTARIES</b>   |
| 1:30 | <u>S.W. Chordas III</u> <sup>1</sup> , G.L. Harp <sup>2</sup> and G.W. Wolfey <sup>3</sup> , <sup>1</sup> Environmental Science Program, The Ohio State University, 1735 Neil Avenue, Columbus, Ohio 43210. <sup>2</sup> Department of Biological Sciences, Arkansas State University, P.O. Box 599, State University, Arkansas 72467. <sup>3</sup> Reinhardt College, P.O. Box 128, Waleska, Georgia 30183. <b>THE AQUATIC MACROINVERTEBRATES OF THE WHITE RIVER NATIONAL WILDLIFE REFUGE, ARKANSAS</b> |
| 1:45 | <u>Julie Crawford</u> <sup>1</sup> , John R. Sorenson <sup>2</sup> , and James J. Daly <sup>1</sup> , <sup>1</sup> Department of Pharmacology and Toxicology, College of Medicine, UAMS; <sup>2</sup> Department of Biopharmaceutical Sciences, College of Pharmacy, UAMS, 4301 W. Markham, Little Rock, Arkansas 72205. <b>THE EFFECT OF COPPER ON THE IN VITRO SURVIVAL OF YELLOW GRUB AND BASS TAPEWORM LARVAE</b>  |
| 2:00 | * <u>Sharon M. Medlock</u> and Charles J. Gagen, Fisheries and Wildlife Biology Program, Arkansas Tech University, Russellville, Arkansas 72801. <b>WATER QUALITY AND STREAMFLOW MONITORING ON TWO OZARK STREAMS</b>   |

2:15 \*\*Kenda S. Flores, Cooperative Research Unit, University of Arkansas Biological Sciences SCEN 512 Fayetteville, Arkansas 72701. **TECHNIQUES FOR RADIOTRACKING AND BIOTELEMETRY OF COOLWATER SPORT FISHES IN NORFORK RESERVOIR, ARKANSAS**

2:30 Renn Tumilson and Sharon Clark, Department of Biology, Henderson State University, Arkadelphia, Arkansas 71999-0001. **MICRO-ORGANISMS ASSOCIATED WITH THE CARAPACE AND PLASTRON OF AQUATIC TURTLES**

2:45 Break

**BOTANY**

Math/Science Building Room 104

Chairperson: Dr. Gary Tucker, FTN Associates, Ltd., Little Rock, Arkansas

**TIME TOPIC**

3:00 \*\*Jennifer Akin and Richard L. Meyer, University of Arkansas at Fayetteville, Department of Biological Sciences, Fayetteville, Arkansas 72701. **EXAMINATION OF THE CELL WALL OF MICRASTERIAS RADIOSA VAR. RADIOSA (CONJUGATOPHYCEAE) BY TRANSMISSION AND SCANNING ELECTRON MICROSCOPY**

3:15 Staria S. Vanderpool, Department of Biological Sciences, Arkansas State University, State University, Arkansas 72467. **DEMOGRAPHY AND REPRODUCTIVE BIOLOGY OF THE FEDERALLY LISTED ERIOGONUM VISHERI (POLYGONACEAE) IN NORTH DAKOTA**

3:30 G.W. Buck, W.E. Elbersen, and C.P. West, Department of Agronomy, University of Arkansas. **ACREMONIUM ENDOPHYTE REDUCES WATER LOSS DURING SEVERE DROUGHT IN FESTUCA GRASSES**

3:45 James H. Peck, Department of Biology, University of Arkansas at Little Rock, 2801 S. University Ave., Little Rock, Arkansas 72204. **REPORTED HARVESTS OF AMERICAN GINSENG (PANAX QUINQUEFOLIUM L.) IN ARKANSAS, 1987-1995**

4:00 Vernon Bates, Research Botanist, Ouachita Mountains Biological Station, P.O. Box 1473 or 281 Polk 615 Mena, Arkansas 71953. **A PRELIMINARY INDICATION OF THE IMPACTS OF PRESCRIBED BURNING ON THE OUACHITA NATIONAL FOREST**

4:15 Martin J. Huss, Department of Biological Sciences, Arkansas State University, State University, Arkansas 72467-0599. **A NOVEL TECHNIQUE FOR STAINING NUCLEI OF VEGETATIVE HYPHAE OF THE PUFFBALL, LYCOPERDON PYRIFORME**

4:30 Daniel L. Marsh and Timothy A. Golden, Department of Biology, Henderson State University, Arkadelphia, Arkansas 71999. **OCCURRENCES OF PLANTAIN SUNFLOWER (HELIANTHUS OCCIDENTALIS SUBSP. PLANTAGINEUS) IN ARKANSAS**

4:45 \*\*Jennifer Akin and Richard L. Meyer, University of Arkansas at Fayetteville, Department of Biological Sciences, Fayetteville, Arkansas 72701. **METAPHYTIC DESMIDS (CONJUGATOPHYCEAE) AND VASCULAR PLANT ASSOCIATIONS**

**VERTEBRATE ZOOLOGY I**

Math/Science Building Room 101

Chairperson: Dr. Henry W. Robison, Southern Arkansas University, Magnolia, Arkansas

**TIME TOPIC**

1:00 \*Tommie Majors, Daphne Brock, and Gary Heidt, Dept. of Biology, University of Arkansas at Little Rock, Little Rock, Arkansas 72204. **STATUS OF SELECTED MAMMALS IN ARKANSAS AS DETERMINED BY A MAIL SURVEY**

1:15 \*Jobi A. Brown and Charles J. Gagen, Department of Biology, Arkansas Tech University, Russellville, Arkansas 72801. **COMPUTERIZED ACCESS TO NATURAL HISTORY COLLECTIONS**

1:30 Renn Tumilson and Creed Tumilson, Department of Biology, Henderson State University, Arkadelphia, Arkansas 71999-0001. **A SURVEY OF THE FISHES IN STREAMS DRAINING THE JACK MOUNTAIN AREA, HOT SPRING AND GARLAND COUNTIES, ARKANSAS**

1:45 J.D. Wilhide<sup>1</sup>, Michael E. Cartwright<sup>2</sup> and V.R. McDaniel<sup>1</sup>, <sup>1</sup>Dept. of Biological Sciences, Arkansas State University, State University, Arkansas 72467 <sup>2</sup>Arkansas Game and Fish Comm., P.O. Box 720, Calico Rock, Arkansas 72519-0720. **A TEN YEAR ANALYSIS OF ARKANSAS WHITE-TAILED DEER: 1984-1993**

2:00 David H. Jamieson and Stanley E. Trauth, Department of Biological Sciences, Arkansas State University-Beebe (Newport Campus), 7648 Victory Blvd., Newport, Arkansas 72112 and Department of Biological Sciences, Arkansas State University, State University, Arkansas 72467-0599. **DIETARY DIVERSITY AND OVERLAP BETWEEN TWO SUBSPECIES OF SPADE-FOOT TOADS (SCAPHIOPUS HOLBROOKII HOLBROOKII AND S.H. HURTERII) IN ARKANSAS**

2:15 Mark A. Paulissen, Dept. Biological & Environmental Sciences, McNeese State University, Lake Charles, Louisiana 70609. **COMPARATIVE PREDATOR ESCAPE BEHAVIOR OF ASEXUAL AND SEXUAL WHIPTAIL LIZARDS (GENUS CNEMIDOPHORUS)**

2:30 Break

3:00 James C. Petersen<sup>1</sup>, Faron D. Usrey<sup>1</sup>, W.E. Keith<sup>2</sup> and James A. Wise, <sup>1</sup>U.S. Geological Survey, 401 Hardin Road Little Rock, Arkansas 72211. <sup>2</sup>Arkansas Department of Pollution Control and Ecology, P.O. Box 8913 Little Rock, Arkansas 72219. **A RECENT RECORD OF THE WHITE SUCKER, CATOSTOMUS COMMERSONI, IN THE WHITE RIVER SYSTEM, ARKANSAS**

3:15 Thomas M. Buchanan and Chad Hargrave, Department of Biology, Westark Community College, Fort Smith, Arkansas 72913, Drew Wilson and L.G. Claybrook, Arkansas Game & Fish Commission, 2 Natural Resources Drive, Little Rock, Arkansas 72205, and Phillip W. Penny, Jr., Department of Biological Sciences, Arkansas Tech University, Russellville, Arkansas 72801. **FIRST ARKANSAS RECORDS FOR BIGSCALE LOGPERCH, PERCINA MACROLEPIDA STEVENSON (PISCES: PERCIDAE), WITH COMMENTS ON HABITAT PREFERENCE AND DISTINCTIVE CHARACTERS**

3:30 \*Douglas A. Elrod, Gary A. Heidt, Mark B. Ingraham, and Earl G. Zimmerman Department of Biological Sciences, University of North Texas, P.O. Box 5218, Denton, Texas 76203 and Department of Biology, University of Arkansas at Little Rock, 2801 S. University, Little Rock, Arkansas 72203. **DISTRIBUTION OF BAIRD'S POCKET GOPHER (GEOMYS BREVICEPS) IN ARKANSAS WITH ADDITIONAL COUNTY RECORDS**

3:45 Stanley E. Trauth, Department of Biological Sciences, Arkansas State University, State University, Arkansas 72467-0599. **SUBSPE-**

**CIFIC RECOGNITION IN ARKANSAS RINGNECK SNAKES**

- 4:00 M. Gwen Harris and John D. Rickett, Biology Department, University of Arkansas at Little Rock, Little Rock, Arkansas 72204. **A SURVEY OF THE FISHES OF CAMP ROBINSON**
- 4:15 \*Joseph R. Penor, Alvan A. Karlin, Gary A. Heidt, University of Arkansas at Little Rock, **BIODIVERSITY OF CAMP J.T. ROBINSON MILITARY INSTALLATION NORTH LITTLE ROCK, ARKANSAS 1994-1996**
- 4:30 J.D. Wilhite<sup>1</sup>, V.R. McDaniel<sup>1</sup>, Michael J. Harvey<sup>2</sup> and Daniel R. White<sup>1</sup>. <sup>1</sup>Dept. of Biological Sciences, Arkansas State University, State University, Arkansas 72467. <sup>2</sup>Department of Biology, Tennessee Technological University, Cookeville, Tennessee 38505. **TELEMETRIC OBSERVATIONS OF FORAGING ACTIVITY OF OZARK BIG-EARED BATS (*CORYNORHINUS TOWNSENDII* INGENS)**
- 4:45 Gary A. Heidt, Douglas A. Elrod, and V.R. McDaniel, Dept. of Biology, UALR, Little Rock, Arkansas 72204; Dept. of Biology, Univ. of North Texas, Denton, Texas 76203; Dept. of Biological Sciences, Arkansas State University, State University, Arkansas 72467. **BIOGEOGRAPHY OF ARKANSAS MAMMALS WITH NOTES ON SPECIES OF UNKNOWN STATUS**

**POSTER SESSION**

Math/Science Building Room 100

- | TIME                 | TOPIC   |
|----------------------|---|
| 1:00 pm -<br>5:00 pm | <u>Michael Knox</u> <sup>1</sup> , Herbert M. Matthews <sup>1</sup> and Mark Clark <sup>2</sup> , Biology Department, Henderson State University <sup>1</sup> , and Ross Foundation, <sup>2</sup> Arkadelphia, Arkansas. <b>INTESTINAL HELMINTHS OF BEAVERS FROM SOUTHWEST ARKANSAS</b>   |
| 1:00 pm -<br>5:00 pm | ** <u>M.E. Moss</u> <sup>1</sup> , M.E. Soulsby <sup>1</sup> and J.J. Daly <sup>2</sup> . Departments of <sup>1</sup> Physiology/Biophysics and <sup>2</sup> Microbiology/Immunology, University Arkansas for Medical Sciences, Little Rock. <b>GERMICIDAL EFFECTIVENESS OF THE ONE-STEP AND THE TWO-STEP SURGICAL SCRUB TECHNIQUES</b> |
| 1:00 pm -<br>5:00 pm | * <u>Bradley J. Phillips</u> , Rose McConnell, J. Morris Bramlett, and Walter Godwin. Division of Mathematics & Sciences, University of Arkansas at Monticello, Monticello, Arkansas 71656. <b>A MOLECULAR MODELING AND SYNTHETIC STUDY OF POLYFURAN</b>  |
| 1:00 pm -<br>5:00 pm | * <u>Brant Stanley</u> , Rose McConnell, J. Morris Bramlett, Walter Godwin. Division of Mathematics & Sciences, University of Arkansas at Monticello, Monticello, Arkansas 71656. <b>A pH COMPARISON OF DEUTERATED AND NON-DEUTERATED SOLUTIONS</b>   |

**PAPER SESSIONS**

Math/Science Building Room 104

Chairperson: Dr. John L. Harris, Arkansas Highway and Transportation Department, Little Rock, Arkansas

- 8:30 William R. Posey II, John L. Harris, and George L. Harp, Department of Biological Sciences, Arkansas State University, State University, Arkansas 72467. **NEW DISTRIBUTIONAL RECORDS FOR FRESHWATER MUSSELS IN THE OUACHITA RIVER, ARKANSAS**
- 8:45 Henry W. Robison and Gene Leeds, Southern Arkansas University, Department of Biological Science, Magnolia, Arkansas

71753 and U.S. Forest Service, Pleasant Hills Ranger District, Clarksville, Arkansas 72830. **DISTRIBUTION, HABITAT, AND STATUS OF THE ENDEMIC CRAYFISH, *CAMBARUS CAUSEYI* (REIMER)**

- 9:00 Kristine A. Herbert, Westark Community College, P.O. Box 3649, Fort Smith, Arkansas 72913; and Joseph C. Neal, USDA Forest Service, Waldron, Arkansas 72958. **A SURVEY AND COMPARISON OF AQUATIC INSECT COMMUNITIES IN 1, 5, AND 10 YEAR-OLD PONDS IN THE OUACHITA NATIONAL FOREST, ARKANSAS**
- 9:15 \*\* M.T. Moore, C.D. Milam, J.L. Farris, Ecotoxicology Research Facility, Arkansas State University, P.O. Box 599 State University, Arkansas 72467. **REFERENCE SEDIMENT SELECTION IN THE LOWER MISSISSIPPI DELTA**
- 9:30 \* Patricia M. Anslow, C. Molly DeBusk, Kevin W. Davis, Christopher H. Kinslow, J. Kyle Michael, Andrew D. Nelson, Joseph R. Penor, Alvan A. Karlin, and James H. Peck. Department of Biology, Environmental Data Analysis Laboratory, University of Arkansas - Little Rock, Little Rock, Arkansas. **MAPPING OF THERMAL HEAT ISLANDS AND TREE CANOPY COVER IN AN URBAN ENVIRONMENT - LITTLE ROCK, ARKANSAS**
- 9:45 Sophia J. Torrez and R.D. Evans. Department of Biological Science, University of Arkansas, Fayetteville, Arkansas 72701. **DIFFERENCES IN WATER-USE PATTERNS BETWEEN JUVENILES AND ADULTS OF THREE OZARK TREE SPECIES**

10:00 Break

**ANIMAL BEHAVIOR AND PSYCHOLOGY**

Math/Science Building Room 104

Chairperson: Dr. Todd Wiebers, Henderson State University, Arkadelphia, Arkansas

- | TIME  | TOPIC   |
|-------|---|
| 10:15 | * <u>B. Rush Simpson</u> , Joe Lombardi and Joyce M. Hardin, Department of Biology, Hendrix College, Conway, Arkansas 72032. <b>HAMSTER MATE CHOICE: DO FEMALES AVOID MATING WITH PREVIOUSLY NON-VIABLE MALES?</b>  |
| 10:30 | * <u>Susan E. Bailey</u> and Todd Wiebers, Department of Psychology/Education, Henderson State University, P.O. Box 7753, Arkadelphia, Arkansas 71999-0001. <b>ATTITUDES ABOUT DEER MANAGEMENT IN ARKANSAS: AN INDEPENDENT STUDY FOR THE ARKANSAS WILDLIFE AGENCIES</b> |
| 10:45 | * <u>Robert J. Fisher</u> and Todd Wiebers Department of Psychology, Henderson State University, P.O. Box 7753, Arkadelphia, Arkansas 71999-0001. <b>PROJECT X: ENVIRONMENTAL ENRICHMENT OF CAPTIVE PRIMATES AT THE LITTLE ROCK ZOO</b>                                 |
| 11:00 | * <u>Amy Scott</u> and Todd Wiebers Department of Psychology, Henderson State University, P.O. box 7753, Arkadelphia, Arkansas 71999-0001. <b>OBSERVATIONAL LEARNING IN SABLE FERRETS (<i>MUSTELA PUTORIUS FURO</i>)</b>  |

**VERTEBRATE ZOOLOGY I I**

Math/Science Building Room 101

Chairperson: Dr. Daniel R. England, Southern Arkansas University, Magnolia, Arkansas

- | TIME | TOPIC   |
|------|---|
| 8:30 | <u>David A. Saugey</u> and Daniel R. England. United States Forest Service, Jessierville, Arkansas 71949 and Department of Biology, Southern Arkansas University, Magnolia, Arkansas 71753. <b>POST</b> |

- NATAL GROWTH AND DEVELOPMENT OF *CORYNORHINUS RAFINESQUII* IN SOUTHERN ARKANSAS**
- 8:45 Chris T. McAllister and Stanley E. Trauth, Dept. of Biology, Texas Wesleyan Univ., Fort Worth, Texas 76105, and Dept. of Biol. Sci., Arkansas State Univ., State Univ., Arkansas 72467. **FOOD HABITS OF PAEDOMORPHIC MOLE SALAMANDERS, *AMBYSTOMA TALPOIDEUM* (CAUDATA: AMBYSTOMATIDAE), FROM ARKANSAS**
- 9:00 Chris T. McAllister and Stanley E. Trauth, Dept. of Biology, Texas Wesleyan Univ., Fort Worth, Texas 76105, and Dept. of Biol. Sciences, Arkansas State Univ., State Univ., Arkansas 72467. **ULTRASTRUCTURE OF *CEPEDIETTA VIRGINIENSIS* (PROTOZOA: HAPTOPHYRIDAE), FROM THE GALL BLADDER OF THE PICKEREL FROG, *RANA PALUSTRIS* IN ARKANSAS**
- 9:15 Vincent A. Cobb and Jeff Summerhill, Department of Biology, Ouachita Baptist University, Arkadelphia, Arkansas 71998; (JS) 390 N.E. 98th Street, Miami Shores, Florida. **A ONE-YEAR STUDY OF THE SPECIES DIVERSITY AND RELATIVE ABUNDANCE OF REPTILES IN THE JACK MOUNTAIN REGION OF HOT SPRING COUNTY, ARKANSAS**
- PHYSICS, MATHEMATICS AND GEOLOGY**  
Math/Science Building Room 204  
*Chairperson:* Dr. W.J. Braithwaite, University of Arkansas at Little Rock, Little Rock, Arkansas
- TIME TOPIC**
- 8:30 Mostafa Hemmati and Steven Young, Physical Science Department, Arkansas Tech University, Russellville, Arkansas 72801. **WAVE PROFILE FOR PROFORCE CURRENT BEARING WAVES**
- 8:45 \* Christopher P. Sheesley, and Rahul Mehta, Department of Physics and Astronomy, University of Central Arkansas, Conway, Arkansas 72035. **THE STUDY OF METEORITES USING X-RAY FLUORESCENCE**
- 9:00 Edwin S. Braithwaite, Science and Mathematics, Cedarville College, Cedarville, Ohio 45314, and Wilfred J. Braithwaite, Department of Physics and Astronomy, University of Arkansas Little Rock, 2801 South University Avenue, Little Rock, Arkansas 72204. **ELIMINATION OF SYSTEMATIC SUMMING ERRORS FOUND IN LINEAR AND NON-LINEAR OPTIMIZATION OF BINOMIAL & POISSON DISTRIBUTED DATA**
- 9:15 \* Sue Ellen McCloskey, Jeffery E. Clayton and W.J. Braithwaite, Department of Physics and Astronomy, University of Arkansas, 2801 So. Univ. Ave., Little Rock, Arkansas 72204. **ESTIMATING MILKY-WAY DARK MATTER: ITS AMOUNT AND DISTRIBUTION**
- 9:30 \* Michael LaCour, Trevis A. Crane, and Donald C. Wold, Department of Physics and Astronomy, University of Arkansas at Little Rock, Little Rock, Arkansas 72204. **SURVEY OF GAMMA-RAY ASTRONOMY TELESCOPES**
- 9:45 Break
- 10:00 \* Danny R. Crawford, G. Douglas Mauldin, Charles W. Ford, Jr. and W.J. Braithwaite, University of Arkansas at Little Rock, 2801 S. University Ave., Little Rock, Arkansas 72204. **INSTALLATION & ADMINISTRATION OF A LINUX NETWORK FOR SCIENTIFIC COMPUTING NEEDS AT THE UNIVERSITY OF ARKANSAS AT LITTLE ROCK**
- 10:15 \* A. Kevin Nance, Dept. of Earth Sciences, Univ. of Arkansas at Little Rock, Little Rock, Arkansas; Ian Richards, Dept. of Geological Sciences, Southern Methodist Univ., Dallas, Texas; Jeffrey B. Connelly, Dept. of Earth Sciences, Univ. of Arkansas at Little Rock, Little Rock, Arkansas. **OXYGEN ISOTOPIC COMPOSITION OF UNUSUAL QUARTZ VEINS: IMPLICATIONS FOR ORIGIN OF THE MINERALIZING FLUIDS**
- 10:30 \* Trevis A. Crane and Donald C. Wold, Department of Physics and Astronomy, University of Arkansas at Little Rock, 2801 S. University Ave., Little Rock, Arkansas 72204. **SURVEY OF HIGH ENERGY COSMIC-RAY OBSERVATORIES**
- 10:45 \* Amber D. Climer, Univ. of Arkansas at Little Rock and Lawrence Berkeley National Laboratory, Iwona M. Sakrejda, Lawrence Berkeley National Laboratory, MATH/SCIENCE BUILDING ROOM 70A-3307, Berkeley, California 94720 and W.J. Braithwaite, Univ. of Arkansas, Little Rock, Arkansas 72204. **AN ACCEPTANCE AND EFFICIENCY STUDY FOR DETECTION OF K+ AND K- WITHIN THE TIME PROJECTION CHAMBER OF THE SOLENOIDAL TRACKING INSTRUMENT, FOR USE AT THE REALATIVISTIC HEAVY ION COLLIDER**
- 11:00 \* Christine A. Byrd and W.J. Braithwaite, Department of Physics and Astronomy, University of Arkansas at Little Rock, 2801 S. University Ave., Little Rock, Arkansas 72204. **MEASURING STRANGENESS PRODUCTION FROM RELATIVISTIC COLLISIONS BETWEEN PAIRS OF NUCLEI USING A VERTEX TIME PROJECTION CHAMBER**
- MICROBIOLOGY AND BIOMEDICAL SCIENCES**  
Math/Science Building Room 206  
*Chairperson:* Dr. Wayne L. Gray, University of Arkansas for Medical Sciences, Little Rock, Arkansas
- TIME TOPIC**
- 8:30 \*\*Charles V. Ashburn, Nanette J. Gusick, and Wayne L. Gray, Dept. of Microbiology and Immunology, University of Arkansas for Medical Sciences, Little Rock, Arkansas 72205. **DNA SEQUENCE ANALYSIS OF THE SIMIAN VARICELLA VIRUS URACIL GLYCOSYLASE GENE**
- 8:45 \* Sidney Wayne Collins and Rose McConnell, Division of Mathematics & Sciences, University of Arkansas at Monticello, Monticello, Arkansas 71656. **THE POTENTIAL USE OF SMALL PROTEINASE INHIBITORS IN THE REGULATION OF BLOOD PRESSURE**
- 9:00 \* Scott M. Minor<sup>1</sup>, Chad Paschall<sup>2</sup>, Russell Nordeen<sup>1</sup>, <sup>1</sup>Division of Math and Sciences, University of Arkansas at Monticello, Monticello, Arkansas 71655. <sup>2</sup>University of Arkansas for Medical Sciences, Little Rock, Arkansas. **PARTIAL CHARACTERIZATION OF BACTERIOPHAGES OF *PSEUDOMONAS SYRINGAE* PV. TOMATO**
- 9:15 Nanette J. Gusick<sup>1</sup>, Bill R. Griffin<sup>2</sup> and Wayne L. Gray<sup>1</sup>. <sup>1</sup>Dept. of Microbiol. and Immunol. Univ. of Arkansas for Med. Sciences, Little Rock, Arkansas 72205 and the <sup>2</sup>Fish Farming Experimental Laboratory, Stuttgart, Arkansas 72160. **CHANNEL CATFISH VIRUS PATHOGENESIS AND LATENCY**
- 9:30 James J. Daly<sup>1</sup>, James N. Pasley<sup>2</sup>, Dennis A. Berry<sup>3</sup>, and Allen Dye<sup>1</sup>. <sup>1</sup>Departments of Pharmacology and Interdisciplinary Toxicology, <sup>2</sup>Physiology and Biophysics, USMA, Little Rock 72205; <sup>3</sup>Arkansas State Department of Health, Little Rock 72205. **GIARDIASIS IN ARKANSAS: AND UPDATE**
- 9:45 Break

- 10:00 \* Susan Forberg<sup>1</sup>, Candace Haigler<sup>2</sup> and Joyce M. Hardin<sup>1</sup>  
 Department of Biology, Hendrix College, Conway, Arkansas  
 72032. <sup>2</sup>Department of Biology, Texas Tech University, Lubbock,  
 Texas 79406. **LOCALIZATION OF PLASMA MEMBRANE  
 INTRINSIC PROTEIN**
- 10:15 \* Michael D. Thames<sup>1</sup>, John S. Penn<sup>2</sup> and J. Keith Sutton<sup>1</sup>,  
<sup>1</sup>Department of Biology, Hendrix College, Conway, Arkansas and  
<sup>2</sup>Department of Anatomy, University of Arkansas for Medical  
 Sciences at Little Rock, Arkansas 72211. **GROWTH INHIBITORY  
 EFFECTS OF FLUOROPYRIMIDINES IN THE TREATMENT  
 OF RETINOPATHY OF PREMATURITY**
- 10:30 \* Wesley A. Tate<sup>1</sup>, Bruce W. Newton<sup>2</sup> and J. Keith Sutton<sup>1</sup>,  
<sup>1</sup>Hendrix College, Conway, Arkansas 72032, <sup>2</sup>Department of  
 Anatomy, University of Arkansas for Medical Sciences, Little  
 Rock, Arkansas 72205. **SEXUAL DIFFERENCES IN THE DISTRI-  
 BUTION OF ENKEPHALIN-CONTAINING FIBERS SUR-  
 ROUNDING NEURONS THAT INNERVATE REPRODUC-  
 TIVE ORGANS**
- 10:45 Michael A. Preston, Stacey M. Johnson, Mattie M. Glover and  
 Clifton Orr, Department of Biology, University of Arkansas at Pine  
 Bluff, Pine Bluff, Arkansas 71601. **INCREASED SENSITIVITY OF  
 HUMAN BLADDER CANCER CELLS TO CISPLATIN BY  
 ANGIUDINE**
- 11:00 \* Paul A. Nony<sup>1</sup>, Andrew C. Scalle<sup>2</sup>, and Joyce M. Hardin<sup>1</sup>  
<sup>1</sup>Hendrix College, Conway, Arkansas; <sup>2</sup>Department of  
 Neurotoxicology, National Center for Toxicological Research,  
 Jefferson, Arkansas. **DETERMINING THE NEUROTOXICITY  
 OF IBOGAINE IN THE RAT FOREBRAIN**
- 11:15 \* Amit R. Patel<sup>1</sup>, Nell I. Mock<sup>2</sup>, Gudrun Clausing<sup>2</sup>, Donald M.  
 Mock<sup>2</sup>, and Bruce Haggard<sup>1</sup>, <sup>1</sup>Department of Biology, Hendrix  
 College, Conway, Arkansas; <sup>2</sup>Department of Gastroenterology,  
 Arkansas Children's Hospital, Little Rock, Arkansas. **PRELIMI-  
 NARY EVIDENCE REFUTING THE CURRENT BELIEF THAT  
 BIOTIN IS  $\beta$ -OXIDIZED IN THE SAME MANNER AS  
 STRAIGHT CHAIN FATTY ACIDS**
- 11:30 Joseph U. Igietseme, Ijindah M. Uriri and Roger Rank, University  
 of Arkansas for Medical Sciences, Little Rock, Arkansas 72205.  
**INHIBITION OF HUMAN STRAINS OF CHLAMYDIA BY  
 INDUCIBLE NITRIC OXIDE SYNTHASE PATHWAY IN  
 EPITHELIAL CELLS**

**ARKANSAS RIVER SYMPOSIUM - ARKANSAS RIVER  
 CONSERVATION COMMITTEE**  
 Math/Science Building Room 101

9:30 -9:40 Welcome - Dr. Thomas Buchanan, Westark Community College,  
 Fort Smith, Arkansas and Dr. Charles J. Gagen, Arkansas Tech  
 University, Russellville, Arkansas

*Chairperson:* Dr. Charles J. Gagen, Arkansas Tech University,  
 Russellville, Arkansas

**TIME TOPIC**

9:40 John D. Rickett, Biology Dept., Univ. of Arkansas at Little Rock,  
 Little Rock, Arkansas 72204. **THE ARKANSAS RIVER: AN  
 AMERICAN TREASURE**

10:00 \* Coburn S. Howell III, Charles J. Gagen, Joseph N. Stoeckell,  
 Arkansas Tech University, Russellville, Arkansas 72801. **ZEBRA  
 MUSSEL PROLIFERATION IN LAKE DARDANELLE ON THE  
 ARKANSAS RIVER**

10:20 Jim Petersen, US Geological Survey, Little Rock, Arkansas  
**TRENDS IN ARKANSAS RIVER WATER QUALITY**

10:40 Jimmie Pigg, Oklahoma Department of Environmental Quality,  
 Oklahoma City, Oklahoma 73117-1212. **A TWENTY YEAR SUR-  
 VEY OF THE TEMPORAL AND SPATIAL TRENDS IN THE  
 FISH COMMUNITIES OF THE ARKANSAS RIVER IN OKLA-  
 HOMA FROM 1976 TO 1996**

11:00 Craig Paukert and William Fisher, Oklahoma Cooperative Fish  
 and Wildlife Research Unit, Oklahoma State University, 404 Life  
 Sciences West, Stillwater, Oklahoma 74078. **DISTRIBUTION,  
 ABUNDANCE, AND REPRODUCTIVE ACTIVITY OF PAD-  
 DLEFISH (*POLYODON SPATHULA*) IN THE KEYSTONE  
 RESERVOIR SYSTEM, OKLAHOMA**

11:20 Bob Limbird, Arkansas Game and Fish Commission. **FISH SAM-  
 PLING IN THE ARKANSAS RIVER BY THE ARKANSAS  
 GAME AND FISH COMMISSION**

11:40 Jim Wise, Arkansas Department of Pollution Control and Ecology  
 and Lower Mississippi River Conservation Commission

12:00 Brief Business Meeting - Arkansas River Conservation Committee