

# USGS Arkansas Cooperative Fish & Wildlife Research Unit



**A quarter of a century in review  
1988-2013**

University of Arkansas  
1 University, SCEN 632  
Fayetteville, AR 72701



## **UNIT STAFF:**

**Dr. David G. Krementz**, Leader (1999-present)

**Dr. Daniel D. Magoulick**, Assistant Leader, Fisheries (2000-present)

**Vacant**, Assistant Leader (2004-present)

**Ms. Diane Moler**, Administrative Analyst (2000-present)

## **UNIT COOPERATORS:**

U.S. Geological Survey

Arkansas Game and Fish Commission

University of Arkansas

Wildlife Management Institute

## **UNIT COORDINATING COMMITTEE:**

**Mr. Mike Knoedl**, Director, Arkansas Game and Fish Commission

**Dr. James Fleming**, Southeastern Coordinator, U.S. Geological Survey

**Dr. Jim Rankin**, Vice Provost for Research & Economic Development, University of Arkansas

**Mr. Steven A. Williams**, President, Wildlife Management Institute

## 1. PAST COOP UNIT STAFF:

**Dr. James E. Johnson**, Leader (1988-1998)  
**Dr. William L. Thompson**, Assistant Leader, Wildlife (2001-2004)  
**Dr. Brad Griffith**, Assistant Leader, Wildlife (1995-1996)  
**Dr. Thomas E. Martin**, Assistant Leader, Wildlife (1989-1994)  
**Dr. Thomas J. Kwak**, Assistant Leader, Fisheries (1994-1998)  
**Dr. Cynthia Annett**, Assistant Leader, Fisheries (1989-1993)  
**Barbara T. Parker**, Administrative Assistant (1996-2000)  
**Cherylann Koldjeski**, Administrative Assistant (1993-1996)  
**Robin L. Kimbrough**, Administrative Assistant (1988-1993)  
**Dr. Scott D. Longing**, Postdoctoral Fellow (2011-2012)  
**Dr. Sarah E. Lehnen**, Postdoctoral Fellow (2008-2010)  
**Dr. Kirsten LeMar**, Postdoctoral Fellow (2003-2004)  
**Glenn L. Piercey**, Research Specialist (2000-2001)  
**Christy L. Kitterman**, Research Technician (2004-2007)  
**Kristofor N. Nault**, Research Technician (2005-2006)  
**Jesse A. Bahm**, Research Technician (2004-2005)  
**Dennis A. Lichtenberg**, Research Technician (1996-1999)  
**Jennifer Thogmartin**, Research Technician (1995-1996)  
**Imes Vaughn**, Research Technician (1994-1995)  
**Lowell G. Aberson**, Research Technician (1990-1994)  
**Joseph C. Neal**, Research Technician (1988-1990)

## 2. COOP UNIT GRADUATE STUDENTS:

**(name, degree, date, advisor, current position, thesis/dissertation title):**

**Prabhakaran, Thoniot** (PhD 1989 University of Arkansas) Dr. James E. Johnson (Fisheries)  
Senior Lecturer, Texas State University, San Marcos, TX  
Comparative evaluation of four methods of age and growth assessment of largemouth bass from Lake Elmdale, Arkansas

**Coody, Christopher** (MS 1991 University of Arkansas) Dr. Thomas E. Martin (Wildlife)  
Unknown  
An improved census technique of the northern bobwhite (*Colinus virginianus*) using recorded calls of the female

**Scott, Michael** (MS 1991 University of Arkansas) Dr. Kimberly G. Smith (Wildlife) (PhD 2000 University of Tennessee)

Associate Professor of Biology, Lincoln University, Jefferson City, MO

Body fat prediction, nutrition and reproduction of black bears in the interior highlands of Arkansas

**Dabbert, Brad** (MS 1991 University of Arkansas) Dr. Thomas E. Martin (Wildlife) (PhD 1995 Oklahoma State University)

Assistant Professor, Texas Tech University, Lubbock, TX

Nutrition and the physiological status of wintering mallards

**Doster, Robert H.** (MS 1991 University of Arkansas) Dr. Douglas A. James (Wildlife)

Wildlife Biologist, U.S. Department of the Interior, U.S. Fish and Wildlife Services, Region 8, Sacramento, CA

Home range and foraging of the Red-cockaded Woodpecker in West-Central Arkansas

**Raulston, Barbara** (MS 1992 University of Arkansas) Dr. Douglas A. James (Wildlife)

Wildlife Biologist, U.S. Bureau of Reclamation, Lower Colorado River Multi-Species Conservation Program, Boulder City, NV

Effects of cavity restrictors on red-cockaded woodpeckers

**Hustead, Lynda** (MS 1992 University of Arkansas) Dr. James E. Johnson (Fisheries)

Unknown

Selection and monitoring of stenothermal algal assemblages in Logan Cave Spring and its associated stream

**Siegwarth, Gary** (MS 1992 University of Arkansas) Dr. James E. Johnson (Fisheries)

Natural Resource Fisheries Biologist, Iowa Department of Natural Resources, Big Springs Fish Hatchery, Elkader, IA

Channel catfish of the Buffalo National River, Arkansas: population abundance, reproductive output, and assessment of stocking catchable size fish

**Pardew (Cole), Mitzi** (MS 1992 University of Arkansas) Dr. James E. Johnson (Fisheries)

Unknown

Dispersal of stocked young of year smallmouth bass (*Micropterus dolomieu*) in Beaver Reservoir, Northwest Arkansas in 1990

**Neal, Joseph** (MS 1992 University of Arkansas) Drs. Douglas A. James & James E. Johnson (Wildlife)

Retired Wildlife Biologist, U.S. Forest Service, AR (2008)

Factors affecting breeding success of red-cockaded woodpeckers in the Ouachita National Forest, Arkansas

**Timmerman, Cindy** (MS 1992 University of Arkansas) Dr. Claudia F. Bailey (Fisheries) (PhD 2001 University of Florida)

Unknown

The morphometrics of the feeding apparatus in relation to the behavior of larval and juvenile (*Micropterus salmoides*) as related to their transition in diet

**Barber, David** (MS 1993 University of Arkansas) Dr. Thomas E. Martin (Wildlife)

Research Biologist, Hawk Mountain Sanctuary, Kempton, PA

Effects of alternate host densities on brown-headed cowbird parasitism rates in black-capped vireos

**Walters, Jody P.** (MS 1993 University of Arkansas) Dr. Cynthia Annett (Fisheries)

Fish Biologist, National Marine Fisheries Service, Lacey, WA

Intraspecific habitat segregation of smallmouth bass in the Buffalo River, Arkansas

**Bowman, Darrell** (MS 1993 University of Arkansas) Dr. James E. Johnson (Fisheries)

Lake Ecologist and Fisheries Manager, Property Owners Association, Bella Vista, AR

Black bass in Beaver Reservoir and its tributaries: distribution and abundance in relation to water quality

**Lyttle, Madeline** (MS 1993 University of Arkansas) Dr. Arthur V. Brown (Fisheries)

Fish Passage Coordinator, Lake Champlain, U.S. Fish and Wildlife Services, Essex Junction, VT

Impacts of gravel mining on fish communities in three Ozark streams

**Dibble, Eric** (MS 1989 University of Wisconsin) (PhD 1993 University of Arkansas) Dr. Cynthia Annett (Fisheries)

Professor, Aquatic Sciences, Coordinator of Graduate Studies, Department of Wildlife, Fisheries & Aquaculture, Mississippi State University, Mississippi State, MS

A patch-dynamics study of habitat use by juvenile Centrarchids in an Ozark reservoir: factors affecting habitat availability and an experimental test of the predator avoidance hypothesis

**Means, Myron** (MS 1993 University of Arkansas) Dr. James E. Johnson (Fisheries)

Statewide Bear Program Coordinator, Arkansas Game and Fish Commission, Barling, AR

Population dynamics and movements of Ozark cavefish in Logan Cave NWR, Benton County, Arkansas with additional baseline water quality information

**Heckathorn, Jr., W. Dean** (MS 1993 University of Arkansas) Dr. James E. Johnson (Fisheries)

U.S. Fish and Wildlife Service, AL

Polychlorinateddibenzo-para-dioxins and pesticides in Bayou Meto and the ecology of a contaminated stream in east-central Arkansas

**Zyskowski, Krzysztof** (MS 1993 University of Arkansas) Drs. William J. Etges & Thomas E. Martin (Wildlife) (PhD 2000 University of Kansas)

Collections Manager: Ornithology & Mammalogy, Yale Peabody Museum of Natural History, New Haven, CT

Nest-site selection in orange-crowned and Virginia's warblers in high-elevation forests of the Mogollon Rim (Arizona): variation in nest placement, phenology, and microclimate

**Shull, Scott D.** (MS 1994 University of Arkansas) Dr. Kimberly G. Smith (Wildlife)

Deceased October 8, 1994

Management of nuisance black bears (*Ursus americanus*) in the interior highlands of Arkansas

**Thompson, Andrew** (MS 1994 University of Arkansas) Dr. James E. Johnson (Fisheries)

Assistant Area Fisheries Supervisor, Bemidji Fisheries Management Area, Minnesota

Department of Natural Resources, Bemidji, MN

Environmental assessment of the benthic macroinvertebrate community of Bayou Meto, Arkansas

**Badyaev, Alexander** (MS 1994 University of Arkansas) Dr. William J. Etges (Wildlife) (PhD 1999 University of Montana)

Professor, University of Arizona, Ecology and Evolutionary Biology, Tucson, AZ

Spring and breeding dispersal in an Arkansas Ozark population of wild turkeys; causes of and consequences for reproductive performance

**Li, Pingjun** (PhD 1994 University of Arkansas) Dr. Thomas E. Martin (Wildlife)

Unknown

Breeding productivity, microhabitat requirements, and parental care of neotropical migrant birds in the Ozarks of Arkansas

**Herbert (Garner), Kristine** (MS 1994 University of Arkansas) Dr. James E. Johnson (Fisheries) (EdD 2012 University of Arkansas)

Assistant Professor of Biology, University of Arkansas-Fort Smith, Fort Smith, AR

Drift of aquatic macrofauna in Logan Cave stream, Benton County, Arkansas

**Burnley, Tim** (MS 1994 University of Arkansas) Dr. Claudia F. Bailey (Fisheries)

Trout Habitat Manager, Arkansas Game and Fish Commission, Mountain Home, AR

Wild and hatchery reared largemouth bass, *Micropterus salmoides*: condition factor in four small Arkansas lakes and habitat selection comparisons

**Moore (Barnhill), Laurel** (MS 1995 University of Arkansas) Dr. William J. Etges (Wildlife)  
Branch Chief, Inventory and Monitoring, Southeast Region, U.S. Fish and Wildlife Services,  
Southeast Region-National Wildlife Refuge System, Athens, GA  
Factors influencing reproductive success of wild turkeys (*Meleagris gallopavo*) in the  
Ouachita Mountains in Arkansas

**Hargis, April** (MS 1995 University of Arkansas) Dr. James E. Johnson (Fisheries)  
U.S. Forest Service, NE  
A comparative study of the flora, fauna, and water quality of springs in the Ozark  
National Forest, Arkansas

**Kupriyanova, Elena** (MS 1995 University of Arkansas) Dr. Claudia F. Bailey (Fisheries) (PhD 2004  
Flinders University, Australia)  
Research Scientist, Marine Research, Research & Collections, Australian Museum, Sydney,  
Australia  
Biotic interactions between benthic macroinvertebrates and largemouth bass  
(*Micropterus salmoides*) during the fish reproductive period in Lake Wedington,  
Arkansas, U.S.A.

**Brown, J. Zack** (MS 1996 University of Arkansas) Dr. James E. Johnson (Fisheries)  
Unknown  
Population dynamics and growth of Ozark cavefish in Logan Cave National Wildlife  
Refuge, Benton County, Arkansas

**Allee, Rebecca** (PhD 1997 University of Arkansas) Dr. James E. Johnson (Fisheries)  
Senior Scientist, National Oceanic and Atmospheric Administration's (NOAA), Gulf Coast Service  
Center, c/o EPA Gulf of Mexico Program, Stennis Space Center, MS  
Use of satellite imagery to monitor various parameters of Bull Shoals Reservoir,  
Arkansas USA

**Boyd (Adams), Ginny** (MS 1997 University of Arkansas) Dr. James E. Johnson (Fisheries) (PhD  
2005 Southern Illinois University)  
Associate Professor and Environmental Science Program Coordinator, Department of Biology,  
University of Central Arkansas  
Metabolic rates and life history of aquatic organisms inhabiting Logan Cave stream in  
Northwest Arkansas

**Quinn, Jeff** (MS 1998 University of Arkansas) Dr. Thomas J. Kwak (Fisheries)  
Statewide Stream Management Biologist, Arkansas Game and Fish Commission, Mayflower, AR  
Fish populations and trout microhabitat use of rehabilitated habitat in an Ozark  
tailwater river



**Thogmartin, Wayne** (MS 1998 University of Arkansas) Dr. James E. Johnson (Fisheries) (PhD 2002 Southern Illinois University)

Quantitative Ecologist (Research Statistician Biology) USGS Upper Midwest Environmental Sciences Center, Onalaska, WI

Factors influencing the decline of an eastern wild turkey (*Meleagris gallopavo silvestris*) population in the Ouachita Mountains of Arkansas

**Rambo, R. Dwayne** (MS 1998 University of Arkansas) Dr. Thomas J. Kwak (Fisheries)

Fisheries Biologist, U.S. Forest Services, Big Piney Ranger District of the Ozark-St. Francis National Forest

Ozark stream fish assemblages and black bass population dynamics associated with watersheds of varying land use

**Painter-Pender, Danielle** (MS 1998 University of Arkansas) Dr. Thomas J. Kwak (Fisheries)

Shad in the Classroom Program Specialist, (Part-time), North Carolina State Museum of Natural Sciences, Raleigh, NC

Factors influencing brown trout reproductive success in Ozark tailwater rivers

**Herner-Thogmartin, Jennifer** (MS 1999 University of Arkansas) Dr. Kimberly G. Smith (Wildlife)

Wildlife Biologist, Independent Contractor for USGS and US Fish and Wildlife Services, La Crosse, WI

Ecology of an introduced Rocky Mountain elk (*Cervus elaphus nelsoni*) herd in Arkansas

**Radwell, Andrea** (MS 2000 University of Arkansas) Dr. Thomas J. Kwak (Fisheries) (PhD 2005 University of Arkansas-Biology)

Research Assistant Professor, Department of Biological Sciences, University of Arkansas, Fayetteville, AR

Ecological integrity assessment of Ozark rivers to determine suitability for protective status

**Schaffer, Bradley** (MS 2002 University of Arkansas) Dr. R. Dave Evans (Wildlife)

Project Manager and Senior Environmental Scientist, Tetra Tech, Complex World Clear Solutions, Buffalo, NY

Ouachita wild turkey biology

**Loncarich, Frankie** (MS 2003 University of Arkansas) Dr. David G. Kremetz (Wildlife)

Wildlife Biologist, Missouri Department of Natural Resources, Russell, MO

Survival and movements of greater prairie-chickens in the Flint Hills of Kansas

**Clifton, Amy** (MS 2003 University of Arkansas) Dr. David G. Krementz (Wildlife)  
District Biologist, Florida Fish and Wildlife Conservation Commission, Southwest Regional Office,  
Lakeland, FL

Greater prairie-chicken populations in Chase County, Kansas

**Thatcher, Benjamin** (MS 2003 University of Arkansas) Dr. David G. Krementz (Wildlife) (PhD  
2007 University of Tennessee)

Wildlife Biologist, U.S. Fish and Wildlife Service, Lafayette, LA

Impacts of prescribed burns on Henslow's sparrows (*Ammodramus henslowii*) winter  
home range and survival in coastal pine savanna habitats

**James, R. Andrew** (MS 2003 University of Arkansas) Dr. David G. Krementz (Wildlife)  
National Wetlands Reserve Program Specialist, Natural Resources Conservation Service,  
Monroe, LA

Population status and distribution of resident Canada geese in the Western Arkansas  
River Valley, Arkansas

**Lehnen, Sarah** (MS 2003 University of Arkansas) Dr. David G. Krementz (Wildlife) (PhD 2008  
Ohio State University)

Consultant, Biological Sciences/Cooperative Fish & Wildlife Research Unit, University of  
Arkansas, Fayetteville, AR

Turnover rates of pectoral and least sandpipers during fall migration in the Lower  
Mississippi Alluvial Valley

**Myatt, Nicholas** (MS 2004 University of Arkansas) Dr. David G. Krementz (Wildlife)  
Acting Deputy Director, Oregon Department of Fish and Wildlife, Salem, OR

Fall migration ecology of American Woodcock in the Central Region of the United States

**Rabalais, Michael R.** (MS 2004 University of Arkansas) Dr. Daniel D. Magoulick (Fisheries)  
Biologist, CH2M Hill, Consulting Firm, Baton Rouge, LA

The effects of the invasive crayfish *Orconectes Neglectus Chaenodactylus* on the native  
crayfish *Orconectes Eupunctus* in the Spring River Drainage on Arkansas and Missouri

**Dekar, Matthew P.** (MS 2004 University of Arkansas) Dr. Daniel D. Magoulick (Fisheries)  
Program Manager, Delta Juvenile Fish Monitoring Program, U.S. Fish and Wildlife Service, Lodi,  
CA

Factors affecting fish assemblage structure and growth during seasonal stream drying

**Luscier, Jason D.** (MS 2004 University of Arkansas) Dr. William L. Thompson (Wildlife) (PhD 2009 University of Arkansas-Biology)

Assistant Professor of Vertebrate Biology, Truman State University, Kirksville, MO

Short-term responses of grassland bird populations to timing of haying in Northwest Arkansas

**Collier, Bret A.** (PhD 2004 University of Arkansas) Dr. David G. Krementz (Wildlife)

Director, Science Program, Institute of Renewable Natural Resources, Texas A & M University, College Station, TX

Evaluating impact of selective harvest management on age structure and sex ration of White-Tailed Deer (*Odocoileus virginianus*) in Arkansas

**Bare, Christopher M.** (MS 2005 University of Arkansas) Dr. Daniel D. Magoulick (Fisheries)

Fish Research Biologist, Oregon Department of Fish and Wildlife, John Day, OR

Movement and habitat use of smallmouth bass (*Micropterus dolomieu*) in the Buffalo National River drainage of Arkansas

**Coulter (McLean), Sarah C.** (MS 2005 University of Arkansas) Dr. David G. Krementz (Wildlife)

Environmental Impact Assessment Specialist, Wildlife, Alberta Environment and Sustainable Resource Development, Canada

The effects of forest management on Wood Thrush in the bottomland hardwood forests of Louisiana

**Doster, Robert H.** (PhD 2005 University of Arkansas) Drs. Douglas A. James & David G. Krementz (Wildlife)

Wildlife Biologist, U.S. Department of the Interior, U.S. Fish and Wildlife Services, Region 8, Sacramento, CA

The importance of Lower Mississippi River Alluvial Valley reforestation and wetland restoration sites to wintering migratory birds

**Scott, Mandy K.** (MS 2005 University of Arkansas) Dr. Daniel D. Magoulick (Fisheries)

District Fisheries Leader, Texas Parks and Wildlife Department, San Angelo, TX

Effects of land use, stream flow and habitat complexity of fish assemblage structure of Arkansas Ozark streams

**Green, Adam W.** (MS 2006 University of Arkansas) Dr. David G. Krementz (Wildlife)

PhD student at Colorado State University

Harvest and winter distributions of mallards in the Mississippi and Central Flyways

**Hodges, Shawn W.** (MS 2007 University of Arkansas) Dr. Daniel D. Magoulick (Fisheries)  
Hydrologic Technician, National Park Service, Buffalo National River, Harrison, AR  
Movement, survival and refuge use of three minnow species during seasonal drying in  
an intermittent Ozark Mountain Stream

**Budd, Michael J.** (MS 2007 University of Arkansas) Dr. David G. Krementz (Wildlife)  
Wildlife Biologist, U.S. Fish and Wildlife Service, Crossett, AR  
Status, distribution, and habitat selection of secretive marsh birds in the Delta of  
Arkansas

**Larson, Eric R.** (MS 2007 University of Arkansas) Dr. Daniel D. Magoulick (Fisheries) (PhD 2011  
University of Washington)  
Post-Doctoral Researcher, University of Tennessee, Department of Ecology Evolutionary Biology,  
Knoxville, TN  
Effects of an introduced crayfish on a native crayfish in an Ozark stream: the role of life  
history and Juvenile completion

**Cushing, Aaron W.** (MS 2007 University of Arkansas) Dr. Daniel D. Magoulick (Fisheries)  
Fisheries Biologist, Solitude Lake Management, Pacific Northwest National Laboratory,  
Fredericksburg, VA  
Effects of catch-and-release areas on movement and survival of rainbow trout in  
Arkansas tail waters

**Darrah, Abigail J.** (MS 2008 University of Arkansas) Dr. David G. Krementz (Wildlife)  
PhD University of Arkansas Department of Biological Sciences  
Distribution, habitat use, and reproductive ecology of the King Rail in the Illinois and  
Upper Mississippi River Valleys

**Ludlam III, John P.** (PhD 2009 University of Arkansas) Dr. Daniel D. Magoulick (Fisheries)  
Assistant Professor, Fitchburg State University, Fitchburg, MA  
Effects of fish and crayfish on ecosystem structure and function during stream drying

**Dekar, Matthew P.** (PhD 2009 University of Arkansas) Dr. Daniel D. Magoulick (Fisheries)  
Program Manager, Delta Juvenile Fish Monitoring Program, U.S. Fish and Wildlife Service, Lodi,  
CA  
Spatial and temporal variation in the structure of stream food webs: Investigating the  
effects of shifting basal resources and predation from a top predator, the River Otter  
(*Lontra Canadensis*)

**Bolenbaugh, Jason R.** (MS 2010 University of Arkansas) Dr. David G. Krementz (Wildlife)  
Inspection Branch Manager, Arkansas Department of Environmental Quality, Little Rock, AR  
Status, distribution, and habitat use of the king rail and other secretive marsh birds in  
the Upper Mississippi River/Great Lakes Joint Venture

**Scott, Leah A.** (MS 2010 University of Arkansas) Dr. David G. Krementz (Wildlife)  
Biological Scientist II, Florida Fish and Wildlife Conservation Commission, Tallahassee, FL  
Species richness and habitat use of secretive marsh birds in managed wetlands in the  
Arkansas River Valley of Western Arkansas

**Carroll, James (Matt)** (MS 2011 University of Arkansas) Dr. David G. Krementz (Wildlife)  
PhD Oklahoma State University  
The development of a winter survey for Wilson's Snipe in the Mississippi flyway

**Flinders, Jon M.** (PhD 2012 University of Arkansas) Dr. Daniel D. Magoulick (Fisheries)  
Regional Fishery Biologist, Idaho Department of Fish and Game, Salmon, ID  
Stable isotope analysis ( $\delta^{15}\text{N}$  and  $\delta^{13}\text{C}$ ) and bioenergetics modeling of spatial-temporal  
foraging patterns and consumption dynamics in brown and rainbow trout populations  
within catch-and-release areas of Arkansas tail waters

**Nolen, Matthew S.** (MS 2012 University of Arkansas) Dr. Daniel D. Magoulick (Fisheries)  
Para-Profession, Union Public Schools, Tulsa, OK  
Habitat modeling of three endemic crayfish species in the Black River drainage of  
Missouri and Arkansas: factors affecting distribution and abundance

3. **Current Graduate Students (name, degree, likely date of graduation, advisor, research)**

**Costello, Phillip H.** (M.S. 2014) Advisor: Dr. Daniel D. Magoulick (Fisheries)

**Fournier, Auriel M.** (Ph.D. 2016) Advisor: Dr. David G. Krementz (Wildlife)  
Effects of wetland management strategies on habitat use of autumn migrating rails  
on intensively-managed wetland complexes in Missouri

**Leasure, Doug R.** (Ph.D. 2013) Advisor: Dr. Daniel D. Magoulick (Fisheries)  
Classification of Arkansas flow regimes, regional ecological-flow response  
relationships and environmental flows assessment for the Ozark region

**Lynch, Dustin D.** (Ph.D. 2014) Advisor: Dr. Daniel D. Magoulick (Fisheries)  
Classification of Arkansas flow regimes, regional ecological-flow response  
relationships and environmental flows assessment for the Ozark region  
Distribution and abundance of the Yellowcheek Darter in the Little Red River  
drainage of Arkansas

**Pittman, H. Tyler** (Ph.D. 2014) Advisor: Dr. David G. Krementz (Wildlife)  
The effects of prescribed fire on the nesting ecology of the Eastern Wild Turkey in the  
White Rock Wildlife Management Area, Arkansas

**Reddin, Christopher J.** (M.S. 2014) Advisor: Dr. David G. Krementz (Wildlife)  
 Small mammal baseline inventory survey of Pea Ridge National Military Park, Benton  
 County, Arkansas

**Ronke, M. Eliese** (M.S. 2014) Advisor: Dr. David G. Krementz (Wildlife)  
 Survival, abundance, and distribution of temperate-nesting Canada geese in  
 Arkansas

Graduate Student Summary:

|               | <u>Completed</u> | <u>Ongoing</u> | <u>Totals</u> |
|---------------|------------------|----------------|---------------|
| MS            | 56               | 3              | 59            |
| PhD           | <u>9</u>         | <u>4</u>       | <u>13</u>     |
| <u>Totals</u> | 65               | 7              | 72            |

Coop Unit Students are presently employed by:

|                               |    |
|-------------------------------|----|
| a. Federal Agencies           | 17 |
| b. State Agencies             | 13 |
| c. Colleges/Universities      | 15 |
| d. Continuing their education | 11 |
| e. Other                      | 10 |
| f. Deceased                   | 1  |
| g. Retired                    | 1  |
| h. Unknown                    | 4  |

#### 4. Publications:

(Coop Unit Leaders and students in bold):

Williams, J.E., D.W. Sada, C.D. Williams, J.R. Bennett, **J.E. Johnson**, E.P. Pister, P.C. Marsh, J.N. Rinne,  
 M.D. Stone, L. Ulmer, and D.L. Withers. 1988. American Fisheries Society guidelines for  
 introductions of threatened and endangered fishes. Fisheries 13(5):5-11.

**Johnson, J.E.**, and C. Hubbs. 1989. Status and conservation of poeciliid fishes. Pp. 299-317. Evolution  
 and Ecology of Live-Bearing Fishes, G. Meffe and F. Snelson, editors. Prentice-Hall, NY.

- Williams, J.E., **J.E. Johnson**, D.A. Hendrickson, S. Contreras-Balderas, J.D. Williams, M. Navarro-Mendoza, D.E. McAllister, and J.E. Decon. 1989. Fishes of North America Endangered, Threatened or of Special Concern. *Fisheries* 14:2-20.
- Martin, T.E.**, and J.R. Karr. 1990. Behavioral plasticity of foraging maneuvers of migratory warblers: multiple selection periods for niches? *Studies in Avian Biology* 13:353-359.
- Pierotti, R.J., and **C.A. Annett**. 1990. Diet and reproductive output in seabirds. *Bioscience* 40:568-574.
- Simons, L.S., and **T.E. Martin**. 1990. Food limitation of avian reproduction: an experiment with Cactus Wren. *Ecology* 71:868-876.
- Young, B.E., M. Kaspari, and **T.E. Martin**. 1990. Characteristics of nest sites in a community of ant-Acacia nesting birds in Costa Rica. *Biotropica* 22:310-315.
- Annett, C.A.** 1991. Behavior and microhabitat use patterns of bass (*Micropterus*) in natural and man-modified rivers. *Ecological Society of America Bulletin*, Supplement 72.
- Johnson, J.E.** 1991. Management concerns for endangered and threatened species of fish in western warmwater springs and streams. Pp. 160-168, *In* (J.L. Cooper and R.H. Hamre, editors.) *Warmwater Fisheries Symposium I* (1991). U.S. Forest Services General Technical Report RM-207. Ft. Collins, CO. pp. 407.
- Johnson, J.E.** and B.L. Jensen. 1991. Hatcheries for endangered freshwater fishes. Chapter 13 (pp. 199-217), in W.L. Minckley and J.E. Deacon, editors. *Battle Against Extinction; native fish management in the American West*. Univ. of Arizona Press, Tucson.
- Dibble, E.D.** 1991. A comparison of diving and rotenone methods for determining relative abundance of fish. *Transactions of the American Fisheries Society* 120:663-666.
- Li, P.**, and **T.E. Martin**. 1991. Nest site selection and nesting success of cavity-nesting birds in high elevation forest drainages. *Auk* 108:405-418.
- Martin, T.E.** 1991. Food limitation in terrestrial breeding birds; is that all there is? *Proceedings of the International Ornithological Congress* 20:1595-1602.
- Minckley, W.L., P.C. Marsh, J.E. Brooks, **J.E. Johnson**, and B.L. Jensen. 1991. Management toward recovery of the razorback sucker. Chapter 17 (Pp. 303-357) *In* (W.L. Minckley and J.E. Deacon, editors.) *Battle Against Extinction; native fish management in the American West*. University of Arizona Press, Tuscon.
- Pierotti, R.J., and **C.A. Annett**. 1991. Diet choice in the herring gull; Constraints imposed by reproductive and ecological factors. *Ecology* 72:319-328.
- Smith, K.G., **J.C. Neal**, and Michael A. Mlodinow. 1991. Shorebirds migration at artificial ponds in the prairie-forest ecotone of northwestern Arkansas. *The Southwestern Naturalist* 36(1):107-113.

- Stewart, D.W., and **C.A. Annett**. 1991. Dynamic modeling in behavioral ecology. *Condor* 93:789-790.
- Martin, T.E.**, and P. Li. 1992. Life history traits of open- versus cavity-nesting birds. *Ecology* 73:579-592.
- Martin, T.E.** 1992. Interaction of nest predation and food limitation in reproductive strategies. *Current Ornithology* 9:163-197.
- Johnson, J.E.** 1992. A review of selected endangered fishes in the United States and their relation to aquaculture. Proceedings of the National Extension Aquaculture Workshop. Pp 1-8. Ferndale, AR.
- Martin, T.E.** 1992. Breeding productivity considerations: what are the appropriate habitat features for management? Pages 455-473 *In* (J.M. Hagan and D.W. Johnston, editors.) *Ecology and Conservation of Neotropical Migrants*, Smithsonian Institution Press.
- Martin, T.E.** 1992. Landscape considerations for viable populations and biological diversity. *Transactions of the N.A. Wildlife and Natural Resources Conference* 57:283-291.
- Promislow, D.E.L., R.D. Montgomerie, and **T.E. Martin**. 1992. Mortal costs of sexual dimorphism in birds. *Proceedings of the Royal Society of London, Series B* 250:143-150.
- Conway, C.J., and **T.E. Martin**. 1993. Habitat suitability for Williamson's Sapsuckers in mixed conifer forests. *Journal of Wildlife Management* 57:322-328.
- Heckathorn, W.D., Jr.** 1993. Fishes of Bayou Meto and Wattensaw Bayou, two lowland streams in east central Arkansas. *Proceeding of the Arkansas Academy of Science* 47:44-53.
- Johnson, J.E., M.G. Pardew, and M.A. Lyttle**. 1993. Predator recognition and avoidance by larval razorback sucker (*Xyrauchen texanus*) and northern hog sucker (*Hypentelium nigricans*). *Transactions of the American Fisheries Society* 122:271-277.
- Martin, T.E.** 1993. Nest predation, nest sites, and birds: New perspectives on old patterns. *BioScience* 43:523-532.
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Publication Summary:

|                                 |           |
|---------------------------------|-----------|
| National/International Journals | 106       |
| Regional Journals               | 11        |
| State Journals                  | 12        |
| Non-peer reviewed Journals      | 5         |
| Books/Book Chapters             | <u>13</u> |
| Totals                          | 147       |

## 5. Coop Unit Research Projects (1988-2013):

| Year | Title                    | Investigator | Funding Source | Amount    |
|------|--------------------------|--------------|----------------|-----------|
| 1989 | Nest Predation           | Martin       | NSF            | \$27,500  |
| 1989 | Beaver Nursery Pond      | Johnson      | AGFC           | \$47,000  |
| 1989 | Effect of Gravel Removal | Brown        | AGFC           | \$42,500  |
| 1989 | Bobwhite Quail Census    | Martin       | ARCLA          | \$50,000  |
| 1989 | Red-cockaded Woodpecker  | Johnson      | USFS           | \$29,000  |
| 1989 | Shiloh Museum            | Johnson      | SHILOH         | \$3,000   |
|      |                          |              |                |           |
| 1990 | Red Wolf Introduction    | Pierotti     | USFWS          | \$5,000   |
| 1990 | Largemouth Bass Stocking | Annett       | AGFC           | \$160,000 |

| <b>Year</b> | <b>Title</b>                 | <b>Investigator</b> | <b>Funding Source</b> | <b>Amount</b> |
|-------------|------------------------------|---------------------|-----------------------|---------------|
| 1990        | Black-capped Vireo           | Martin              | DOD                   | \$96,000      |
| 1990        | Red-cockaded Woodpecker II   | Johnson             | USFS                  | \$27,500      |
| 1990        | Buffalo River Catfish        | Johnson             | NPS                   | \$64,000      |
| 1990        | Buffalo River Creel          | Johnson             | AGFC                  | \$20,000      |
| 1990        | Migratory Bird Habitat       | Martin              | USFWS                 | \$60,000      |
|             |                              |                     |                       |               |
| 1991        | Predator/Prey of Nests       | Martin              | NSF                   | \$103,000     |
| 1991        | Dioxins in Bayou Meto        | Johnson             | USFWS                 | \$75,000      |
| 1991        | Neotropical Migrants         | Martin              | USFWS                 | \$22,000      |
| 1991        | Logan Cave Ozark Cavefish I  | Johnson             | USFWS                 | \$52,000      |
| 1991        | Breeding Bird Survey         | Martin              | USFS                  | \$25,500      |
| 1991        | Ozark Wild Turkey            | Etges               | AGFC*                 | \$243,000     |
| 1991        | EMAP                         | Martin              | USEPA                 | \$85,000      |
| 1991        | Bird Biodiversity            | Martin              | USFWS                 | \$305,000     |
| 1991        | Idaho Migratory Birds        | Martin              | USFS                  | \$100,000     |
| 1991        | Birds and Forest Management  | Martin              | USFS*                 | \$425,000     |
| 1991        | Global Climate Change        | Annett              | NPS                   | \$5,000       |
|             |                              |                     |                       |               |
| 1992        | GIS Wetlands                 | Martin              | USFWS                 | \$34,000      |
| 1992        | Biota of Ozark Springs       | Johnson             | USFS                  | \$30,000      |
| 1992        | Idaho Birds                  | Martin              | USBLM                 | \$30,000      |
| 1992        | GAP                          | Smith               | USFWS                 | \$450,000     |
| 1992        | Ouachita Wild Turkey I       | Johnson             | AGFC*                 | \$164,000     |
| 1992        | Limnology/Sports Fishes      | Johnson             | AGFC/USFWS            | \$120,000     |
| 1992        | Endangered Fishes            | Johnson             | USBR                  | \$68,000      |
|             |                              |                     |                       |               |
| 1993        | Logan Cave Ozark Cavefish II | Johnson             | AGFC                  | \$68,000      |
|             |                              |                     |                       |               |
| 1994        | Chlorophyll Mapping          | Johnson             | DOE                   | \$44,000      |
|             |                              |                     |                       |               |
| 1995        | Smallmouth Bass Production   | Kwak                | USFS                  | \$22,000      |
| 1995        | Beaver Tailwater Trout       | Kwak                | AGFC/TU               | \$50,000      |
| 1995        | Agricultural Nutrients       | Kwak                | AGFC                  | \$13,500      |
|             |                              |                     |                       |               |
| 1996        | Tailwater Trout Reproduction | Kwak                | USFWS                 | \$50,000      |
|             |                              |                     |                       |               |
| 1997        | Nuisance Elk                 | Smith               | AGFC*                 | \$21,000      |
| 1997        | Ouachita Wild Turkey II      | Smith               | AGFC*                 | \$267,000     |
|             |                              |                     |                       |               |
| 1999        | Wintering Birds              | Krementz            | USFWS/USGS            | \$60,000      |
| 1999        | Nitrogen Deposition          | Evans               | USGS                  | \$103,717     |
|             |                              |                     |                       |               |
| 2000        | White Tailed Deer            | Krementz            | AGFC                  | \$95,289      |

| <b>Year</b> | <b>Title</b>                      | <b>Investigator</b> | <b>Funding Source</b> | <b>Amount</b> |
|-------------|-----------------------------------|---------------------|-----------------------|---------------|
| 2000        | Resident Giant Canada Geese       | Krementz            | AGFC/USGS             | \$57,700      |
| 2000        | Subterranean Habitats             | Brown/Van Brahana   | USFWS                 | \$21,421      |
| 2000        | Exotic Grasses                    | Evans               | USGS                  | \$148,500     |
| 2000        | Greater Prairie Chicken           | Krementz/Powell     | USGS                  | \$91,487      |
|             |                                   |                     |                       |               |
| 2001        | Henslow's Sparrow                 | Krementz            | USFWS*                | \$19,750      |
| 2001        | Shorebird Turnover Rates          | Krementz            | Ducks Unlimited*      | \$60,000      |
| 2001        | Woodcock Migration I              | Krementz            | USGS                  | \$58,145      |
| 2001        | Barriers to Fish Migration        | Magoulick           | NPS                   | \$165,180     |
| 2001        | Fish Assemblages and Land Use     | Magoulick           | NPS                   | \$35,160      |
| 2001        | Grassland Birds                   | Thompson            | AGFC/USGS             | \$60,660      |
|             |                                   |                     |                       |               |
| 2002        | Woodcock Migration II             | Krementz            | USFWS                 | \$27,000      |
| 2002        | Bull Elk Ecology                  | Thompson            | AGFC*                 | \$112,000     |
| 2002        | Deer Survey Design                | Thompson            | AGFC                  | \$71,534      |
|             |                                   |                     |                       |               |
| 2003        | Forest Bird Communities           | Krementz/Powell     | LA Wildlife & Fish    | \$89,098      |
|             |                                   |                     |                       |               |
| 2004        | Catch and Release Trout           | Magoulick           | AGFC*                 | \$228,413     |
| 2004        | Trout Production & Forage Base    | Magoulick           | AGFC*                 | \$285,473     |
|             |                                   |                     |                       |               |
| 2005        | Introduced Crayfish               | Magoulick           | AGFC*                 | \$86,880      |
| 2005        | Mallard                           | Krementz            | AGFC*                 | \$61,731      |
| 2005        | Marsh Birds                       | Krementz            | AGFC*                 | \$106,564     |
| 2005        | Internship Owens                  | Krementz            | AGFC                  | \$3,800       |
| 2005        | Internship Markway                | Krementz            | AGFC                  | \$3,800       |
|             |                                   |                     |                       |               |
| 2006        | Woodpecker Habitat                | Krementz            | USFWS                 | \$60,300      |
| 2006        | King Rails Lower MS Flyway        | Krementz            | USFWS*                | \$71,485      |
|             |                                   |                     |                       |               |
| 2008        | Otter                             | Magoulick           | AGFC                  | \$3,000       |
| 2008        | King Rails Upper MS & Great Lakes | Krementz            | USFWS*                | \$125,740     |
| 2008        | Radio-marked Mallards in AR       | Krementz            | AGFC                  | \$7,700       |
| 2008        | Migrating Shorebirds              | Krementz            | USFWS                 | \$81,802      |
|             |                                   |                     |                       |               |
| 2009        | Wilson's Snipe                    | Krementz            | USFWS*                | \$83,962      |
| 2009        | Mallard Satellite                 | Krementz            | AGFC                  | \$21,000      |
|             |                                   |                     |                       |               |
| 2010        | Internship Swain                  | Krementz            | AGFC                  | \$3,800       |
| 2010        | Imperiled Coldwater Crayfish I    | Magoulick           | MODC*                 | \$44,876      |
| 2010        | Environmental Flow Assessment     | Magoulick           | AGFC*                 | \$221,511     |
| 2010        | American Woodcock Night Habitat   | Krementz            | USFWS                 | \$10,980      |
|             |                                   |                     |                       |               |

| <b>Year</b> | <b>Title</b>                       | <b>Investigator</b> | <b>Funding Source</b> | <b>Amount</b> |
|-------------|------------------------------------|---------------------|-----------------------|---------------|
| 2011        | Female Wild Turkeys                | Krementz            | AGFC*                 | \$124,421     |
| 2011        | King Rail Breeding & Brood Ecology | Krementz            | USFWS*                | \$152,357     |
| 2011        | Yellowcheek Darter                 | Magoulick           | USFWS                 | \$12,500      |
| 2011        | Imperiled Coldwater Crayfish II    | Magoulick           | MODC*                 | \$37,519      |
| 2011        | Waterfowl Abundance                | Krementz            | USFWS                 | \$56,000      |
|             |                                    |                     |                       |               |
| 2012        | Missouri Rails                     | Krementz            | USFWS*                | \$86,119      |
| 2012        | Small Mammals                      | Krementz            | NPS*                  | \$28,400      |
| 2012        | Imperiled Coldwater Crayfish III   | Magoulick           | MODC                  | \$31,861      |
|             |                                    |                     |                       |               |
|             | Total Research Funding             |                     |                       | \$6,822,135   |
|             |                                    |                     |                       |               |
|             | Operational Funding                |                     | AGFC                  | \$2,145,000   |
|             | Operational Funding                |                     | USGS                  | \$6,572,101   |
|             | Operational Funding or In-Kind     |                     | UA                    | \$2,208,453   |
|             |                                    |                     |                       |               |
|             | Grand Total                        |                     |                       | \$17,747,689  |