

2004 Annual Accomplishment Report  
Jack H. Berryman Institute  
Utah State University  
Mississippi State University

Education, Outreach, and Research in Wildlife Damage Management

Submitted to  
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Authorized Departmental Office's Designated Representative

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## **OVERVIEW**

### **Executive Summary**

**By Drs. Mike Conover and Bruce Leopold**

The Jack H. Berryman Institute had a busy and productive year thanks, in large part, to a funding increase from USDA/APHIS/WS. Our eastern branch at Mississippi State University continues to expand and be integrated into the “Berryman” mission. We have expanded our outreach and education component by hosting two very successful workshops on professional development and conflict resolution and GIS training and applications. We also announced and interviewed for a Veterinary Pathologist, a jointly funded faculty position by Berryman and the College of Veterinary Medicine at MSU.

The Berryman Institute released its request for research and outreach proposals (RFP), which was open to faculty at other colleges and universities, employees of state and federal wildlife agencies, and individuals with non-governmental agencies. Proposals were accepted in the categories of Research/Outreach Mini-grants, Research/Outreach Maxi-grants, Undergraduate or Postgraduate Internships, Graduate Stipends, Faculty Affiliates, and Educational Enhancement grants. Proposals were evaluated and ranked by the Advisory Panel. This RFP resulted in 72 grant applications and 23 were funded in 17 states, addressing diverse issues such as urban deer, feral swine, coqui frogs, ravens, beaver, raccoon, and black bear. Funded grants are summarized in more detail later in this document. During 2004, seven of our students former students Berryman Institute began careers with USDA/APHIS/WS.

### **Background of the Berryman Institute (BI)**

The Jack H. Berryman Institute evolved from the Program in Wildlife Damage Management at Utah State University. This program was created in 1990, when it received funding from the USDA/APHIS/WS. During 1993, it was expanded, was granted institute status by the university, and became the Jack H. Berryman Institute. The Institute began receiving funding from the state of Utah in 1997, and this amount was augmented in 1999.

During 2002, the Berryman Institute shifted from a one-university to a two-university model, when Mississippi State University was invited to become a full partner with Utah State University. This eastern branch became operational in 2003, after receiving funding from the USDA/APHIS/WS.

### **Clarification of Role of Wildlife Services Research Needs Assessment in Grant Funding**

All research and outreach projects funded by the Berryman Institute are externally reviewed based on criteria which 1) require a linkage with the National Needs Assessment, 2) do not duplicate, but complement, existing projects within USDA/APHIS/WS, and 3) are relevant to the Berryman Institute mission. Such a process significantly minimizes opportunity for research or outreach which conflicts with goals and activities of USDA/APHIS/WS and the NWRC to be funded.

### **Clarification of How Funds Were Distributed**

All uncommitted funds were distributed at both Berryman Institute - East and Berryman Institute - West through an open Request for Proposals (RFP) process. The RFP were circulated widely across the country and open to everyone. All proposals were ranked by an outside panel. The

Berryman Institute -- East used their Scientific Advisory panel to rank the proposals they received, while the Berryman Institute - West had their proposals ranked by all USDA/WS state directors in the Western Region. Proposals were funded in the order of their ranking until funding was exhausted. The RFPs sent out from the Berryman Institute - East and Berryman Institute - West are included as Appendices 1 and 2.

### **Explanation of Eastern Branch (MSU) Grant Headings**

**Faculty Affiliates** - Berryman Institute (Eastern Unit) will provide up to \$6,600 of an individual's salary (not to exceed 10% of total salary), including fringe benefits (not to exceed 25% of salary), for faculty conducting a research or education program in wildlife damage management. These individuals will be listed as Berryman Faculty Affiliates. Faculty affiliates may be employees of a university, or a state, federal, or private conservation organization. Faculty affiliate support is for a one year period, but may be renewed. An annual report of significant findings for research or a detailed summary of the education program including products (videotape, CD, etc.) will be the required deliverable. Fringe benefits are in addition to grant amount, i.e., up to stated amount of grant, plus listed percentage available for fringes. Administrative (overhead) costs will not be paid by the Berryman Institute.

**Graduate Student Fellowships** - Berryman Institute (Eastern Unit) will provide up to \$15,000 towards a graduate stipend for a student who is conducting a research or developing an education program in wildlife damage management. These individuals will be listed as Berryman Graduate Fellows. Graduate Fellow support is awarded for a one year period, but may be renewed. The graduate student must be a currently enrolled student in a wildlife management/wildlife biology/wildlife ecology program and be in good standing with a GPA > 3.00. An annual report of significant findings for research, or a detailed summary of the education program, including products (videotape, CD, etc.), will be the required deliverable. Fringe benefits are in addition to grant amount. Tuition or other fringe benefits exceeding 1% of the stipend may not be requested. Administrative (overhead) costs will not be paid by Berryman Institute.

**Undergraduate or Post-Graduate Internships** - Berryman Institute (Eastern Unit) will provide up to \$10,000 (plus up to 1% fringe benefits) towards the salary of an undergraduate or graduate student to work with an university, or a state, federal, or private conservation agency. The work experience must deal with an approved research or educational program concerning wildlife damage management. These individuals will be listed as a Berryman Institute Undergraduate/Graduate Intern. Internship support is limited to a one-year period. Each intern will be required to submit a report of his/her activities and their relation to achieving Berryman Institute goals as the required deliverable. Fringe benefits are in addition to grant amount. Administrative (overhead) costs will not be paid by Berryman Institute.

**Research/Outreach Mini-grant** - Berryman Institute (Eastern Unit) will provide up to \$5,500 in support of research or educational activities being conducted by an university, or a state, federal, or private conservation agency concerning approved educational or research programs regarding wildlife damage management. These projects will be listed as Berryman Institute Research Grants - Level I. The principal investigator(s) will be required to submit a report of his/her activities and their relation to achieving Berryman Institute goals as the required deliverable. Administrative (overhead) costs will not be paid by Berryman Institute, but up to 1% fringe benefits will be allowed for salaries of workers. For these grants, principal investigator salaries and equipment costs will not be funded.

**Research/Outreach Maxi-grant** - Berryman Institute (Eastern Unit) will provide up to \$24,000 in support of research or educational activities being conducted by an university, or a state, federal, or private conservation agency concerning approved educational or research programs regarding wildlife damage issues. Maxi-grant support is for a one year period, but may be renewed for one additional year. These projects will be listed as Berryman Institute Research Grants - Level II. The principal investigator(s) will be required to submit a report of his/her activities and their relation to achieving Berryman Institute goals as the required deliverable. Administrative (overhead) costs will not be paid by Berryman Institute, but up to 1% fringe benefits will be allowed for salaries of workers. For these grants, principal investigator salaries and equipment costs will not be funded.

**Educational enhancement grants** - Berryman Institute (Eastern Unit) will provide up to \$1,000 towards university/college (4-year) tuition costs, course fees, and books/course materials for individuals desiring to enhance their educational backgrounds as part of their professional development.

\* Descriptions are available on our website <https://hdclel.cfr.msstate.edu/berryman/grants.html> and will be approved by the Advisory Board. Additionally, MSU and USU are moving toward a combined RFP process for funding year 2006. The process and website submission will be brought before the Advisory Board for approval in January 2005.

## **Research Funding by Category**

### **Faculty Funded by WS**

**USU (\$157,254) and MSU (\$22,914) (amount and % of time) Total Faculty = \$180,168**

#### **USU**

Michael R. Conover, \$75,447

Frederick Provenza, \$8,553

Robert H. Schmidt, \$73,254

#### **MSU**

Bruce D. Leopold, \$12,000, 10%

\*Lora R. Ballweber, College of Veterinary Medicine, Mississippi State University, Mississippi, \$6,694, 11%, *Investigations of Zoonotic Diseases of Feral Hogs*.

\*Richard B. Minnis, Department of Wildlife and Fisheries, Mississippi State University, Mississippi, \$4,220, 11%, *Survey of Feral Hog Distribution*.

\*MSU faculty funded as part of competitive grants. Full information and total amount (salary and fringe) provided under Undergraduate & Graduate Research Supported at MSU.

### **Staff Funded by WS**

**USU (\$3,216) and MSU (\$59,600) (amount and % of time) Total Staff = \$62,816**

#### **USU**

Zoe Anne Marlowe (USU), \$602

Gaye Griffeth (USU), \$2,614

#### **MSU**

Laura Andrews (MSU, Assistant to Directors of BI), \$31,000, 81%

Robert Griffin (MSU, Outreach Associate), \$6,000, 100% (intermittent appointment)

Catherine Sewall (MSU, Student Service Technician), \$6,300 (100%, wages)

Catherine Sewall (MSU, Grad Service Asst), \$3,300 (100%, 2 mos. stipend and 1 semester tuition)

Benjamin West (MSU, Outreach Coordinator), \$13,000, 21%

### **Students funded by WS**

**USU (\$126,813) and MSU (\$103,937) Total Students = \$230,750**

#### **USU**

Rebekah Andrus (USU) \$3,860

Are R. Berentsen (USU) \$23,300

Jeremy T. Bruskotter (USU) \$ 6,760

Peter S. Coates (Idaho State Univ.) \$1,200

Patrick Darrow (USU) \$10,000

Anna Derrick (Alabama State Univ.) \$1,700

Erika Empey (Idaho State Univ.) \$1,000

S. Nicole Frey (USU) \$3,750

Kimberly M. Frye (USU) \$4,400

Dixon Grant (USU) \$1,789

Justin L. Harrington (USU) \$11,253

Jenny L. Henning (USU) \$1,800  
Gregg Kraus (USU) \$4,238  
Joel Martin (USU) \$1,250  
Alene S. Nelson (USU) \$1,800  
Emily Olson (USU) \$1,137  
Annie Raddatz (Idaho State Univ.) \$870  
Echo Rexroad (USU) \$10,000  
Stephanie Anne Rohan (USU) \$4,250  
Carol Anne Rowe (USU) \$8,963  
Ashlee N. Shafer (USU) \$4,015  
Ryan A. Shaw (USU) \$6,270  
Chris Simms (Univ. of NV, Reno) \$940  
Scott Swanson (Univ. of Idaho), \$1,350  
Jessica L. Tegt (USU), \$3,795  
Ron Troy (Idaho State Univ.) \$2,023  
Joey Warwick (Idaho State Univ.) \$2,900  
Sarah Woods (Idaho State Univ.) \$2,200

#### **MSU**

Jeremy Coleman (PhD, Cornell University) \$15,150  
Adam E. Duerr (PhD, University of Vermont) \$15,000  
Daniel J. Gammons (MS, University of Georgia) \$15,150  
Emily Germano (MS, Cornell University) \$15,150  
Christen Johnson (BS, MSU) \$3,924  
Joseph Paulin (PhD, Rutgers University) \$15,150  
\*Aaron Pearse (PhD, MSU) \$15,000  
Leif Stephens (MS, University of Georgia) \$9,413

\*MSU student funded as part of competitive grants. Full information and total amount (salary and fringe) provided under Undergraduate & Graduate Research Supported at MSU.

#### **Fringe**

**USU = \$63,947 (Faculty & Staff = 40%, Students and Intermittent = 1%)**

**MSU = \$22,837 (Faculty & Staff = 23.25%, Students and Intermittent = 1%) Total Fringe = \$86,784**

#### **Cooperating Professionals**

**WS personnel functioning as [official] cooperating faculty (e.g., on advisory committees, faculty status, student degree committee)**

#### **USU**

Mr. Michael Bodenchuk  
Dr. Frederick Knowlton  
Dr. Mike Jaeger  
Dr. Dale Nolte  
Dr. John Shivik

#### **MSU**

Dr. Scott Barras, NWRC  
Ms. Kris Godwin, WS

## **Grants Awarded to Other Universities/Agencies (Including Funding)**

### **Utah State University**

Scott Craven, University of Wisconsin, \$10,000 over 1 year, *Quantification of Landowner Attitudes and Behaviors Under an Intense Management Program to Control Deer Numbers and Chronic Wasting Disease in Wisconsin.*

David Delehanty, Idaho State University, \$56,000 over 2 years, *Sage Grouse Response to USDA/WS Raven Damage Management.*

### **Mississippi State University**

#### **Faculty Affiliate Grants:**

James B. Armstrong, School of Forestry and Wildlife, Auburn University, Alabama, \$8,151, *Analysis of Deer-Vehicle Crashes.*

David Capen, Rubenstein School of Environment and Natural Resources, University of Vermont, Vermont, \$6,480, *Decision-Analysis Modeling and Management of Double-Crested Cormorant.*

Mike Mengak, Warnell School of Forest Resources, University of Georgia, Georgia, \$8,250, *Wildlife Damage Management Training Program.*

#### **Graduate Fellowships\*:**

Adam E. Duerr, David Capen - PI, Rubenstein School of Environment and Natural Resources, University of Vermont, Vermont, \$15,000, *Decision-Analysis Modeling and Management of Double-Crested Cormorant.*

Jeremy Coleman, New York Cooperative Fish and Wildlife Research Unit and Dept. of Natural Resources, Cornell University, New York, \$15,150, *Response of Fish Populations to Management of Double-crested Cormorant.*

Emily Germano, Department of Natural Resources and Cornell Lab of Ornithology, Cornell University, New York, \$15,150, *Evaluation of Suburban Woodpecker Damage and Deterrents.*

Daniel J. Gammons, Mike Mengak - PI, Warnell School of Forest Resources, University of Georgia, Georgia, \$15,150, *Food Habits, Bait Acceptance, and Natural History of Armadillo.*

Joseph Paulin, Cooperative Extension Service, Rutgers University, New Jersey, \$15,150, *Factors that Lead to Human Conflict with Black Bear/White-tailed Deer.*

\*Fellowship refers to term used for 2004 graduate awards and does not designate student appointed as Berryman Institute Fellow

#### **Undergraduate/Post-graduate Internships:**

John Archer, Nagaraj Chatakondi - PI, Harvest Select Farms, Inverness, Mississippi, \$10,000, *Study to Assess the Effects of Black-crowned Night Heron on Channel Catfish.*

Leif Stephens, Mike Mengak - PI, Warnell School of Forest Resources, University of Georgia, Georgia, \$9,413 *Undergraduate/Postgraduate Internship with WSFR or WS.*

**Mini-Grants:**

Eric Block, Department of Chemistry, State University of New York, New York, \$5,500, *Evaluation of a Non-lethal Bird Repellent for Use at Airports.*

Jacob Bowman, Department of Entomology and Wildlife Ecology, University of Delaware, Delaware, \$5,500, *Relationships of Deer Movement Patterns.*

Nagaraj Chatakondi, Harvest Select Farms, Inverness, Mississippi, \$5,500, *Study to Assess the Effects of Black-crowned Night Heron on Channel Catfish.*

Bradley Potter, Department of Biology, Central Michigan University, Michigan, \$4,000, *Developing Predictive Models for Wildlife Crossing Sites Along Highways.*

Timothy Reutiman, United States Department of the Air Force, Langley Air Force Base, Virginia, \$5,500, *An Experimental Approach to Reduce Avian Safety Hazards.*

Patrick J. Weatherhead, Department of Natural Resources and Environmental Sciences, University of Illinois at Urbana-Champaign, Illinois, \$4,979, *Economic and Ecological Consequences of Human-Wildlife Conflict.*

**EDUCATION****Undergraduate and Graduate Courses Taught Related to WS Needs****USU**

Michael Conover:

FRWS 3300 Wildlife Behavior

FRWS 4250 4250 Advanced Internships with USDA/WS

FRWS 5300/7400 Principles of Wildlife Damage Management

Michael Conover and Michael Bodenchuk:

FRWS 4810 Readings in Wildlife Damage Management

Robert Schmidt

ENVS 3600 Living with Wildlife

**MSU**

Kris Godwin:

WF 4213, Wildlife Damage Management

**On-Line and Independent Study Courses****USU**

FRWS 2200, Ecology of our Changing Planet

FRWS 4810, Directed Readings in Wildlife Damage Management

FRWS 4950, Current Topics in Wildlife Management

FRWS 4950a, Directed Readings in Wildlife Biology

FRWS 4950b, Directed Readings in Vegetation and Landscapes in Relation to Wildlife  
ENVS 4950, Wildlife Services Practicum

MSU - None

**BI Students Who Completed Degrees at USU and MSU and Their Current Employers**

**USU**

Are Berentsen (MS, USU)--Employed at Utah State University  
Jennifer Borgo (MS, USU) PhD student at Utah State University  
Jeremy Bruskotter (MS, USU)--PhD student at the University of Minnesota  
Renee Chi (MS, USU)--US Fish and Wildlife Service  
Patrick Darrow (BS, USU)--USDA/WS/NWRC and MS student at Utah State University  
Andrea Davis (BS, USU)--MS student at Utah State University  
S. Nicole Frey (PhD, USU)--Professor at Southern Utah University  
Trevor Fox (BS, USU)--MS student at the University of Idaho  
Dax Mangus (BS, USU)--Employed by Deseret Land and Livestock Company and MS Student at Utah State University  
Lee Rindlesbacher (BS, USU)--USDA/WS and TAMU at Kingsville  
Stacey Coggins (MS, USU)--USDA/WS, Maryland  
Mark Woolbrink (BS, USU)--USDA/WS

MSU - None

**BI Graduates Hired by USDA/APHIS/Wildlife Services:**

None

**Student Travel and Education Grants**

USU = \$18,300 MSU = \$3,423 Total = \$21,723

The BI encourages its students to attend professional meetings by providing travel grants to them.

**MSU**

BI student internship with NWRC in Denver, CO: Christen Johnson

**USU**

BI students attending the WCC-95 meeting in Reno, NV:  
Are Berentsen, Jake Bonham, Bill Bower, Lee Rindlisbacher, Garrett Savory  
BI students attending the 21<sup>st</sup> Vertebrate Pest Conference in Visalia, CA:  
Are Berentsen, Blake Bell, Bill Bower, Matt Christensen, Dwayne Elmore, Ron Greer,  
Nevelyn Headick, Dax Mangus, Heather Phillips, Lee Rindlisbacher, Garrett Savory,  
Tanya Stephenson, Brandon Taro, Tanya Stephenson, Garrett Savory.

BI students attending the 16<sup>th</sup> Annual North American Interagency Wolf Conference in Pray, MT:  
Jeremy Bruskotter

BI students attending the Wildlife Society Annual Conference in Edmonton, Canada:  
S. Nicole Frey, Heather Keough, Joel, Martin, Josh Vest

## **OUTREACH EFFORTS**

### **Workshops and Short Courses for USDA/WS Employees**

Dr. Ben West conducted a “Leadership and Administration for Wildlife Damage Professionals” workshop in Starkville during June. The workshop was attended by 13 WS employees representing 4 different states. Eighty-five percent of participants rated the overall quality of the workshop as “excellent.”

Dr. Ben West coordinated a “GIS for Wildlife Damage Professionals” workshop in Starkville during November. This workshop was attended by 20 WS employees representing 10 different states. One hundred percent of attendees reported they would benefit from the workshop; 65% indicated they would “benefit greatly.” Participants estimated that the overall worth of the workshop, in terms of value to Wildlife Services, increased productivity, safety, efficiency, and legal implications, exceeded \$600,000.

Dr. Ben West coordinated with Judy Loven, Chair of WS Chemical Immobilization Committee, to develop a proposal for a Berryman-sponsored workshop intended to fulfill the “hands-on” requirement for agency certification to use chemical immobilization techniques.

### **Presentations at USDA/WS State/Regional Meetings**

#### **USU**

Coates, Peter

Peter Coates attended the USDA/APHIS/Wildlife Service Annual State Meeting in Idaho and presented *Effects of raven removal on sage grouse nest success in NE Nevada*.

Conover, Michael

Michael Conover attended the USDA/WS meeting of the Mid-Atlantic States and presented a seminar on the philosophy of wildlife damage management. He also participated in the USDA/WS/NWRC Predator Ecology Center program review.

Mike served as President of the National Animal Damage Control Association

Messmer, Terry

Terry Messmer attended the Nebraska state meeting of USDA/WS

#### **MSU**

West, Ben

Conducted a needs assessment of USDA APHIS Wildlife Services State Directors regarding professional development needs for WS employees. In summary, 25 individuals, representing 36 states, responded to the survey. State Directors consistently ranked people-related topics as

most needed (i.e., communication skills, leadership skills), followed by topics such as chemical immobilization, GIS, human dimensions, and wildlife diseases.

**Media contacts**

**USU:**

Conover, Michael

News media contacts: Newsday (NY), Oakland Tribune, Detroit Free Press, Salt Lake City Weekly, Wall Street Journal, Chicago Tribune, Utah Public Radio, Salem News (MA), Nature PBS, Reader's Digest, People Magazine, USA Today.

Schmidt, Robert

News media contacts: Channel 2 (Salt Lake City, UT), Salt Lake Tribune, Daily

Robert worked with and advised 76 individual WS employees, mostly on career-related issues (transcript evaluation, course evaluation, letters of reference, and TWS certification). WS contacts (letters, e-mails, phone calls, and personal visits), primarily with specialists, between December 15, 2003, and September 30, 2004, numbered 295.

Robert circulated letters regarding the advising services of USU via e-mail and through the *Trapline*, the newsletter of the Texas WS program.

**MSU:**

Block, Eric

*Evaluation of a nonlethal bird repellent for use at airports.* Associated Press article and an article in "Beyond Pesticides" appeared on our research.

Capen, David

*Decision-Analysis Modeling and Management of Double-Crested Cormorant.* Numerous articles in local papers and newsletters. Two local television stations featured cormorant management activities on Lake Champlain. Capen and Duerr led a field trip to Four Brothers Island cormorant colony, sponsored by the Boquet River Association.

Coleman, Jeremy

*Response of Fish Populations to Management of Double-crested Cormorant.* Presentation to Annual Board Meeting of the Oneida Lake Association, August 2004, Brewerton, NY.

Germano, Emily.

*Evaluation of Suburban Woodpecker Damage and Deterrents.* Provided flyers explaining goals, objectives, and required participation of homeowners in experiment to participants. Also created webpage explaining damage to homes, homes likely to be afflicted, and types of available deterrents.

Mengak, M. T. 2004. Wildlife management practices and animal tolerant plants. Class 4- Lesson 4 in Home Depot Nursery Certification Program CD. Produced and distributed by Home Depot, Inc., Atlanta, GA.

January 2004. Verbal presentation to UGA CES Winter School (21 participants).

April 2004. Verbal presentation to McDuffie County landowners meeting (30 participants).

Paulin, Joseph. November 2003. Invited lecturer on Human/Wildlife Conflicts and Black Bear Ecology and Management for 2 undergraduate human dimensions of natural resource management classes at Rutgers University.

November 2003. Presentation on Reducing Black Bear Conflicts for faculty, students, and general public at Rutgers University.

March 2004. Invited by Director of NJ Division of Fish and Wildlife to lecture on Human/Black Bear Conflicts, Black Bear Management and Public Influence in Wildlife Policy Decisions for undergraduate natural resource policy class at Rutgers University.

May 2004. Invited lecturer on Black Bear Ecology and Management for 6 high school science classes.

June 2004. Invited lecturer on Black Bear Ecology and How to Act When Hiking and Camping in Bear Country for local boy scouts.

July 2004. Invited lecturer on Black Bear Ecology and How to Act When Hiking and Camping in Bear Country for two groups of children at local summer camp.

September 2004. Presented on Wildlife Damage Management Prevention and Control to two groups of groundskeepers from various areas of the United States at Rutgers University.

October 2004. Invited lecturer on Human/Wildlife Conflicts and Black Bear Ecology and Management for local conservation group in area of southern New Jersey where black bear have only recently been sighted.

### **Presentations at Professional Meetings**

#### **MSU**

Block, Eric. 2004. *Evaluation of a nonlethal bird repellent for use at airports*. April 2004, 4<sup>th</sup> International Symposium on Edible Alliaceae (Alliums 2004), Beijing (Keynote oral address). An Block,

Coleman, Jeremy T. H., Milo E. Richmond, Lars G. Rudstam, James R. Jackson, Anthony J. VanDeValk, Connie M. Adams, and Richard B. Chipman. August, 2004. *The Behavioral and Ecological Effects of the Management of Double-crested Cormorants on Oneida Lake, New York*. Symposium on the Biology and Management of Double-crested Cormorants. Quebec City, Quebec. – oral presentation

Duerr, A.E., D. E. Capen, and T. M. Donovan. 2004. Decision Analysis Modeling to Evaluate Management Options for Double-crested Cormorants on Lake Champlain. Symposium on the Biology and Management of Double-Crested Cormorants. August 15-16. University of Laval, Quebec City, Quebec, Canada. (Verbal presentation)

Gammons, D. J., M. T. Mengak, and L. M. Conner. In review. Evaluation of Attractants for Live-trapping Nine-banded Armadillos (poster submitted to 11<sup>th</sup> Wildlife Damage Management Conference, Traverse City, MI).

Paulin, Joseph. March 2004. *Ursus Americanus*: Can New Jersey Bear It? Oral presentation and abstract at 2<sup>nd</sup> Annual Northeastern Ecology and Evolution Conference. University of Connecticut.

Paulin, Joseph. August 2004. Wildlife Species Expansions in New Jersey: The Suburban Niche. Oral presentation and abstract at 18<sup>th</sup> Annual Meeting of the Society for Conservation Biology. Columbia University.

West, Ben. September 2004. The Future of Extension and Conservation Education. The Wildlife Society Annual Conference. Calgary, Alberta, Canada.

West, Ben. September 2004. The Future of Hunting in America. The Wildlife Society Annual Conference. Calgary, Alberta, Canada.

### **BI Outreach Grants Awarded to Universities/Agencies (Including Funding)**

None

## **RESEARCH**

### **Undergraduate & Graduate Research Supported at Home Institution**

**USU (\$194,770) MSU (\$52,600) Total (\$247,370)**

#### **USU**

Dr. Karen Beard, Utah State University, \$16,409 (States affected: Hawaii), *Ecological Consequences of the Coqui Frog Invasion into Hawaii*.

Dr. Karen Beard, Utah State University (States affected: Washington), \$10,000, *Quantifying Deer Grazing Effects on Plant Community Structure and Function in Washington State*.

Dr. Michael Conover, Utah State University, \$25,000 (States affected: Colorado, Utah, Wyoming), *Increasing Wildlife Populations: An Unrecognized Benefit of Predator Control for Livestock Protection*.

Dr. Raymond Dueser, Utah State University, \$19,000 (States affected: Utah and Virginia), *Review of Food Aversion to Reduce Egg Depredation by Raccoon*.

Dr. Jennifer Gervais, Utah State University, \$20,000, *Modeling the Relative Effectiveness of Fertility Control and Lethal Control for Vertebrate Pests of Agricultural Crops*.

Dr. Karen Mock, Utah State University, \$31,625 (States affected: Colorado, Utah, and Wyoming), *Genetic Assessment of Relatedness among Chronic Wasting Disease Cases in Mule Deer*.

Dr. Fred Provenza, Utah State University, \$12,236 (States affected: California and Utah), *Understanding Robin Depredation on Grapes*.

Dr. Robert Schmidt, Utah State University, \$31,000 (States affected: California and Utah), *Field evaluation of the Coyote Lure Operative Device (CLOD)*.

Dr. Robert Schmidt, Utah State University, \$9,500 (States affected: Utah), *Utah Wolf Project and other outreach projects.*

Jessica Tegt, Utah State University, \$20,000, *Creation of Public Service Announcements for Television on Wildlife Damage.*

#### **MSU**

Dr. Lara Ballweber, College of Veterinary Medicine, Mississippi State University, Mississippi, \$8,250, *Faculty Affiliate – Investigations of Zoonotic Diseases in Feral Hogs.*

Richard B. Minnis, Department of Wildlife and Fisheries, Mississippi State University, Mississippi, \$5,200, *Faculty Affiliate - Survey of Feral Hog Distribution.*

Richard B. Minnis, Department of Wildlife and Fisheries, Mississippi State University, Mississippi, \$24,000, *Maxi-grant - Survey of Feral Hog Distribution.*

Aaron Pearse, Department of Wildlife and Fisheries, Mississippi State University, Mississippi, \$15,150, *Graduate Fellowship – Comparison of Sampling Methods for Cormorant.*

### **OTHER RELEVANT ACTIVITIES**

#### **Cooperative Research with WS Employees (With Brief Summaries)**

#### **MSU**

**Dr. Scott Barras** was project leader on Mr. Nagaraj Chatakondi's research on the effects of night heron on channel catfish.

**Dr. Richard Bruggers** was project leader for Christen Johnson's NWRC internship.

#### **USU**

**Mr. Mike Bodenchuk** participates in Dr. Mike Conover's research examining what impact predator removal on the Bear River Migratory Bird Refuge is having on nesting birds. Mr Bodenchuk also plays a key role in Dr. Conover's study on whether predator removal for livestock protection has an added benefit of increasing mule deer populations.

**Mr. Newell Frederickson**, USDA/WS, Utah, and **Mr. Gary Johnson**, USDA/WS, California, have provided valuable advice and assistance with the CLOD project.

**Mr. Martin Lowney and Dr. Raymond Dueser** have developed a close working relationship in their mutual research efforts aimed at protecting the shorebirds nesting of Virginia barrier islands from mammalian predators.

**Mr. Mike Pitzler** USDA/WS and **Dr. William Pitt** USDA/WS/NWRC both help Dr. Karen Beard with her coqui frog research in Hawaii.

**Mr. Jack Spencer**, USDA/WS is a cooperator with the study on "*Sage Grouse Response to USDA/WS Raven Damage Management.*" This project is a collaborative effort between Idaho State University, USDA/APHIS/WS in Nevada, and Nevada Division of Wildlife. The WS in Nevada removed ravens from a designated area in NE Nevada. The raven removal protocol by WS was established to conform with the experimental design to understand if raven removal influenced nest success.

**WS Personnel Who Took BI Courses and Their Courses or became 486-qualified**

None

**Diversity Efforts Within WS**

**USU**

Eleven of twenty-four graduate students are women. Eight of thirty-eight undergraduate students are women. One student is African-American.

**MSU**

Two undergraduate interns are African-American women. One post-undergraduate intern is an African-American woman. Two graduate fellowship recipients are female. One graduate student working on a funded mini-grant is female. Two graduate students working on a funded mini-grant are of Asian descent.

**Publications**

**Books or Book Chapters**

USU - none

**MSU**

“Fish and Wildlife Management: A Handbook for Mississippi Landowners” is a joint venture between the Mississippi Fish and Wildlife Foundation and Mississippi State University Extension Service. The purpose of the book is to provide private landowners with a single source able to guide them as they make decisions about the management of their property, with an emphasis on fish and wildlife conservation. The book will focus on habitat management, and thereby allow readers to better understand management strategies for individual wildlife species. Each individual chapter will be authored by individuals with particular expertise in that subject matter. Dr. Ben West is coordinating the handbook

Chapter Number	Chapter
1	Introduction
2	History
3	Planning
4	Soils
5	Cropland Management
6	Grassland Management
7	Woodland Management
8	Wetland Management
9.1	<i>Species Mgt: Deer</i>
9.2	<i>Species Mgt: Turkey</i>
9.3	<i>Species Mgt: Small Game</i>
9.4	<i>Species Mgt: Waterfowl</i>
10	Backyard Wildlife
11	Supplemental Plantings
12	Animal Damage Control
13	Invasive Species
14	Fisheries

15	Artificial Structures
16	Assistance
17	Economics
18	Leasing and Outfitting
19	Regulatory Concerns

Mengak, M. T. 2004. Nuisance wildlife in the garden and home landscape. Pages xxx-xxx *in* Georgia Master Gardeners Handbook, Georgia Cooperative Extension Service, Publication Number xxx.

Mengak, M. T. 2004. Dealing with Nuisance Wildlife. Extension Bulletin Number 1248. Georgia Cooperative Extension Service, Athens, GA.

### **Theses and Dissertations**

#### **USU**

Berentsen, Are R. 2004. Behavioral Responses of Coyotes to the Coyote Lure Operative Device. Thesis. Utah State University.

Borgo, Jennifer S. 2004. Reducing Southern Flying Squirrel Use of Red-Cockaded Woodpecker Cavities. Thesis. Utah State University.

Bruskotter, Jeremy T. 2004. Utah Residents' Attitudes Toward Wolves: 1994-2003. Thesis. Utah State University.

Coggins, Stacey Trevor. 2004. Effects of Pocket Gophers on Aspen Regeneration and Herbaceous Vegetation in Utah. Thesis. Utah State University.

Frey, S. Nicole. 2004. Habitat Use and Movements of Predators on a Managed Waterfowl Refuge. Dissertation. Utah State University.

#### **MSU**

Coleman, J. T. December 2005 (anticipated). Understanding the Foraging Impact of Double-crested Cormorants on a Sport Fishery: An Analysis of Diving Behavior, Resource Exploitation, and Responses to Management of an Avian Fish Predator. Dissertation. Cornell University.

Germano, E. May 2005 (anticipated). Woodpecker Damage to Suburban Homes. Thesis, Cornell University.

### **Publications in Conference Proceedings**

#### **USU**

Berentsen, A. R., R. H. Schmidt, and R. M. Timm. 2004. Behavioral responses of coyotes to the CLOD in familiar and unfamiliar environments. Proceedings of the Vertebrate Pest Conference 21:58-63.

Coates, P. S., and D. J. Delehanty. 2004. Effects of raven removal on sage grouse reproduction. Proceedings of the 21<sup>st</sup> Annual Vertebrate Pest Conference, Visalia, CA.

Conover, M. R., and D. O. Conover. 2003. Tremors from the urban-wildlife fault line. Transactions of the North American Wildlife and Natural Resource Conference. In press.

Frey, Shandra N., and Michael R. Conover. 2003. Integration of Wildlife Damage Management into

the College Curriculum. Wildlife Damage Management Conference 10: 170–173.

Robinson, Jason D. 2004. Human-Wildlife Conflicts in India. *The Probe*, January/February 2004.

Thurlow, Andrea, M.R. Conover, Art Smith, and Pamela J. Tinnin. 2003. Human-Wildlife Conflicts in Mexico. *The Probe*, September/October 2003.

#### **MSU**

Gammons, D. J., M. T. Mengak, and L. M. Conner. In review. Evaluation of Attractants for Live-trapping Nine-banded Armadillos (abstract submitted to 11<sup>th</sup> Wildlife Damage Management Conference, Traverse City, MI).

#### **Publications in Peer-reviewed Journals**

##### **USU:**

Conover, M. R., and D. O. Conover. 2003. Unrecognized values of wildlife and the consequences of ignoring them. *Wildlife Society Bulletin* 31: 843–848.

Sullivan, Todd L., Allan F. Williams, Terry A. Messmer, Laurie A. Hellinga, and Sergey Y. Kyrychenko. 2004. Effectiveness of temporary warning signs in reducing deer-vehicle collisions during mule deer migrations. *Wildlife Society Bulletin* 32: 907–915.

West, Ben C., and Terry Messmer. 2004. Impacts and management of duck-nest predation: the managers' view. *Wildlife Society Bulletin* 32: 772–781.

##### **MSU**

Arla G. Hile, Zhixing Shan, Shao-Zhong Zhang, and Eric Block, "Aversion of European Starlings (*Sturnus vulgaris*) to Garlic Oil Treated Granules: Garlic Oil as an Avian Repellent. Garlic Oil Analysis by Nuclear Magnetic Resonance Spectroscopy", *J. Agric. Food Chem.*, **2004**, 52, 2192-2196. <http://dx.doi.org/10.1021/jf035181d>.

Eric Block. "Biological Activity of Allium Compounds: Recent Results", *Acta Horticulturae*, **2004**, in press.

Da Yu Lin, Shao-Zhong Zhang, Eric Block, and Lawrence C. Katz, "Encoding Social Signals in the Mouse Main Olfactory Bulb", *Nature*, **2004**, under review.

## Appendix 1

### **Request for Research and Outreach Proposals –FY2004 Jack H. Berryman Institute -- West**

The Berryman Institute (BI) is a nationally recognized institute whose mission is to support and conduct effective, science-based research and outreach programs aimed at addressing issues pertaining to wildlife damage management and human-wildlife conflicts. To achieve this goal, the BI has developed a program to support research and outreach programs at other universities. The grants program is open to all university or college faculty in the U.S. Students may not apply. No individual can submit more than two proposals.

Proposals will be reviewed and ranked by an outside panel. The BI directors, however, reserve the right to reject any proposal which is outside of the mission of the BI or the USDA/Wildlife Service's National Needs Assessment, are not science-based, or engages in advocacy.

All BI grants are awarded on a federal fiscal year and must be spent by September 30, 2004. There can be no extensions and no exceptions. The BI will not cover administrative (overhead) costs or equipment costs. The BI will cover 1-2 months of summer salary for faculty on 9-month appointments, but not salaries during the academic year. The BI and the USDA Wildlife Services must be acknowledged on any products or publications which result from the work. When the BI has contributed to a person's salary or stipend, that person should list the BI as part of their address, as well as his/her host institution.

**Multi-year Grants.** All BI grants are normally for a one-year period, but applicants who have projects which cannot be completed in a single year because they involve graduate education can request up to an additional three years of funding (through September 30, 2007) in order for a graduate student to complete his or her degree. Funding in years 2, 3, and 4 will be contingent upon the grantee making satisfactory progress in prior years and upon the BI receiving adequate funding from the USDA to continue the grants program.

**How to Apply.--** All proposals must be submitted by January 16, 2004 to Dr. Michael Conover, Director, Jack Berryman Institute, Department of Forest, Range and Wildlife Sciences, Utah State University, Logan, UT 84322-5270. Proposals should be submitted both in writing to the above address and by email to [conover@cc.usu.edu](mailto:conover@cc.usu.edu).

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### Research Program

All research proposals must address one of the needs listed in the USDA/Wildlife Service's National Needs Assessment (contact [conover@cc.usu.edu](mailto:conover@cc.usu.edu) for a copy). The BI especially encourages research proposals aimed at reducing the frequency of deer-vehicle collisions, human-wildlife conflicts in urban areas, deer damage to agricultural crops, and beaver-related problems. Another priority topic is the economics of wildlife damage management.

Scoring Criteria (Highest score represents best ranking).

All research proposals will be scored using the following criteria.

1. Does the proposed research address a priority identified by USDA/WS in their National Needs Assessment? (Score from 0-10).
2. What is the overall quality of the proposal? (Score 0-10).
3. Is the research likely to be successful based both on the methods, the qualifications of the applicant, and an applicant's prior record of achievement when funded by the BI? (Score 0-10).
4. Does the research have the potential to help resolve a human-wildlife conflict or wildlife damage problem? (Score 0-10).
5. Is the proposed research program worth what it will cost the BI? (Score 0-10).

**Bonus points.**

Three bonus points will be awarded for proposals which involve the training of undergraduate students who are seeking careers in the field of wildlife damage management.

Five bonus points will be awarded for proposals which will produce theses or dissertations from graduate students who are seeking careers in the field of wildlife damage management.

Five bonus points will be awarded for proposals which already have funding partners who are contributing hard cash to help defray the cost of the research (in-kind or salary support does not count).

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**Outreach Program**

The BI will fund outreach/extension proposals that are designed to 1) help foster an appreciation of the scope and role of wildlife damage management throughout the wildlife profession and 2) create a public understanding of the way in which wildlife damage management meets the needs and promotes the values of the American people. The BI especially encourages research proposals aimed at reducing the frequency of deer-vehicle collisions, human-wildlife conflicts in urban areas, deer damage to agricultural crops, beaver-related problems. Studies on the economics of wildlife damage management are also encouraged.

**Scoring Criteria (Highest score represents best ranking)**

The scoring criteria for outreach proposals are still being developed at this time but will be somewhat similar to those used to judge research proposals. Bonus points will also be awarded for outreach projects which involve the training of undergraduate and graduate students or have other funding partners.

**Bonus points.**

Three bonus points will be awarded for proposals which involve the training of undergraduate students who are seeking careers in the field of wildlife damage management.

Five bonus points will be awarded for proposals which will produce theses or dissertations from graduate students who are seeking careers in the field of wildlife damage management.

Five bonus points will be awarded for proposals which already have funding partners who are contributing hard cash to help defray the cost of the research (in-kind or salary support does not count).

## Appendix 2

### **Request for Research and Outreach Proposals –FY2004 Jack H. Berryman Institute -- East**

The request for proposals is issued via e-mail (see below) sent to a list serve of U.S. colleges and universities with natural resources programs, APHIS contacts, the BI board, previous grant recipients, and other individuals who have requested notification of the RFP. All recipients are encouraged to forward the RFP to any other interested parties. It is also available to anyone conducting funding searches on the web.

#### **E-Mail:**

The Berryman Institute (housed at Utah State University and Mississippi State University) is a nationally recognized institute whose mission is to support and conduct effective, science-based research and outreach programs aimed at addressing issues pertaining to wildlife damage management and human-wildlife conflicts. To achieve this goal, Berryman Institute (Eastern Unit), housed at Mississippi State University, has developed a program to financially support research and education programs conducted by institutions in the eastern United States that address these issues. Similar opportunities may exist at Berryman Institute (Western Unit), housed at Utah State University.

All Berryman grants are awarded on the federal fiscal year and must be spent by September 30, 2004. There can be no extensions or exceptions, so please do not apply if your institution cannot invoice the Berryman Institute for the full amount of the grant by September 30, 2004. All grant awards are conditional upon availability of funds.

There are six programs, ranging in funding from \$6,600 to \$24,000, available to individuals or groups to support research and education in the field of human-wildlife interactions. These are faculty affiliates, graduate student fellowships, undergraduate or postgraduate internships, research mini-grants, research maxi-grants, and educational enhancement grants.

Please visit the Berryman Institute website, listed below, to learn more about our organization, these funding opportunities, and how to submit proposals. Due to constrictions in meeting the timeline for federal funds, proposals must be submitted electronically by 12:00 midnight CST, October 28, 2003, to be considered for funding.

<https://hdclcl.cfr.msstate.edu/berryman/grants.html>

#### **Website:**

Once on the website, details regarding the institute, funding opportunities, and instructions for requesting funding are available, as shown below.

#### **Research and Education Programs:**

All Berryman grants are awarded on the federal fiscal year and must be spent by September 30, 2004. There can be no extensions or exceptions, so please do not apply if your institution cannot invoice the Berryman Institute (Eastern Unit) for the full amount of the grant by September 30, 2004. All grants are awarded in one-year increments. Funded researchers may request additional funding for one additional year by reapplying. No proposal will be funded for more than two consecutive years. No proposal will be funded in more than one category, i.e., only one type of funding will be awarded for each individual proposal, so the most critical type of funding for a project should be considered and the application submitted accordingly. All grant awards are conditional upon availability of funds. All grants are cost

reimbursable, i.e., organizations receiving grants will be reimbursed for allowable costs once the funds are expended and the Berryman Institute is invoiced. Invoices may be submitted monthly for up to 75% of the grant amount. The final 25% of the grant will not be reimbursed until all deliverables (e.g., reports, photos, etc.) are submitted.

**Submitting a Proposal:**

Proposals may be submitted electronically via this website. The deadline for submitting proposals for 2004 is midnight, Oct. 28, 2003, CST. Proposals will be reviewed and ranked by a scientific panel. Inquiries may be made to:

Laura Andrews  
Assistant to the Director  
Berryman Institute (Eastern Unit)  
Phone: 662-325-6694  
E - mail: [landrews@cfr.msstate.edu](mailto:landrews@cfr.msstate.edu)