

Richard Buchholz
Curriculum Vita

EDUCATION

Ph.D., August 1994. University of Florida, Gainesville, FL. "Adaptive Functions of Fleshy Ornamentation in Wild Turkeys and Related Birds".

Major Professor: H. Jane Brockmann

M.S., August 1989. University of Florida, Gainesville, FL.
"Singing Behavior and Ornamentation in the Yellow-knobbed Curassow (*Crax daubentoni*)".

B.S., May 1986. Harpur College, State University of New York, Binghamton, NY.
Recognized for Outstanding Overall Achievement and Distinguished Independent Study in Biology.

RESEARCH INTERESTS

Sexual selection and host-parasite interactions in birds; Importance of behavior and disease in the conservation of fragmented populations;

AWARDS Distinguished Teaching Award, Biological Sciences, Univ of FL, May 1992

GRANT PROPOSALS FUNDED

National Science Foundation

Research Experience for Undergraduates Supplement, 2009
\$6,000

National Science Foundation

Investigating the Causes of Mate Sampling Changes in Infected Females, 2006-2011.
\$290,000

US Department of Agriculture

Developing a PCR Test to Identify Turkey Coccidia, 2001-2005. \$37,073

College of Liberal Arts Summer Research Grant

DGGE: Developing a more accurate and cost effective means of studying immunogenetics in the Wild Turkey, 2001. \$4,000

University of Mississippi Faculty Small Grant Award

Immunocompetence in the Wild Turkey, 2000. \$3,500

NLU University Development Fund

Reinforcing Our Strengths: Terrestrial Ecology Equipment for Teaching and Research, 1999. \$2,240 (with K. Tolson)

Louisiana Education Quality Support Fund (Research and Development)

Investigation of the Genetic and Parasitological Mechanisms of Ornamentation in the Wild Turkey in Louisiana, 1998-01. \$74,500 (with S. Hecht and A. Findley)

Louisiana Education Quality Support Fund (Education Enhancement)

BIOME: An Interactive Multimedia Center for Introductory Biology Students, 1998-99.
\$81,990 (with A. Findley and F. Groves)

NLU University Development Fund

Scanning Electron Microscopy: Integration into Research and Teaching, 1998. \$10,000 (with S. Hecht and D. Bell).

Upper Ouachita National Wildlife Refuges, US Fish and Wildlife Service

Intraspecific Cross-Fostering as a Means of Enhancing the Genetic Diversity of Small Populations of the Endangered Red-Cockaded Woodpecker, 1997. \$16,987 *in kind* (with M. Wallace)

Entergy Community Partnership Grant

Intraspecific Cross-Fostering as a Means of Enhancing the Genetic Diversity of Small Populations of the Endangered Red-Cockaded Woodpecker, 1997. \$500 (with M. Wallace)

NLU Faculty Development Fund

A Digital Videomicroscopy Workstation for Upper-level Biology Laboratories, 1997. \$4,100. (with W. Stevens, J. Carr, A. Hill, F. Pezold; in-house competitive)

NLU Research Council

Effects of Age on Parasite Load, Condition and Ornamentation in Wild Turkeys, 1995. \$4,000. (in-house competitive)

National Science Foundation,

A Symposium on Conservation and Behavior in the Wild, 1995. \$6,820 (with J. Hailman & J. Clemmons)

ABS Symposium Funding

for "Conservation and Behavior in the Wild" 1994. \$1,000 (with J. Clemmons)

Cracid Breeding and Conservation Center,

Lanaken, Belgium. Grant to review captive breeding and field conservation programs and research in conservation genetics, 1991. \$1,000.

Sigma Xi Grant-in-Aid of Research.

The effects of blood and intestinal parasites on the ornamentation of wild turkeys, 1991. \$600.

Frank M. Chapman Memorial Fund, American Museum of Natural History.

Do turkey snoods signal male parasite load?, 1991. \$575.

Animal Behavior Research Fund, University of Florida Foundation. Ornamentation

and parasitism in the Wild Turkey, 1991. \$3,162.

Wildlife Conservation International and Fundación para la Defensa de la

Naturaleza for a study of reproductive behavior in the Yellow-knobbed Curassow, 1988. \$800.

Sigma Xi Grant-in-Aid of Research. Ornamentation, sexual selection and mate

choice in the Yellow-knobbed Curassow, 1988. \$300.

EMPLOYMENT EXPERIENCE

Teaching

Associate Professor, University of Mississippi, Oxford, MS 7/04-present

Assistant Professor, University of Mississippi, Oxford, MS 8/99-6/2004

Human Biology (Non-Majors) (BISC 102)

The Ecology of Food (LIBA 102), Natural History of the Wild Turkey (LIBA 102)

Mammalogy (BISC 350)

Biology of the Wild Turkey (BISC 479)

Animal Behavior (BISC 512)

Behavioral Ecology (BISC 622)

Conservation and Behavior (BISC 677)

Assistant Professor, University of Louisiana , Monroe, LA 8/95-7/99

Ecological Methods (Fall 1997)

Conservation Biology (Spring 1997)

Mammalogy (Spring 1997, 99)

Behavioral Ecology, Graduate level (Fall 1996, 1998)

Ornithology (Spring 1996, 1998)

Introductory Biology for Majors (F-95, Su-97, Sp-98)
Introductory Biology for Non-Majors (1995-99)

Postdoctoral Lecturer, University of Florida, Gainesville, FL
Animal Behavior (Spring 1995)
Independent Study in Marine Mammal Behavior (Spring 1995)
Evolution, Ecology and Behavior (Autumn 1994)

Peer Academic Advisor, Office of Academic Advising
State University of New York, Binghamton, NY (1984-1986)

GRADUATE STUDENTS

Committee Chair, (Master of Science)

Melinda Hutton (Mate choice in Bobwhite quail) (8/2000) Univ LA
Monica Wallace (Intraspecific cross-fostering as a way to increase the genetic heterozygosity of small, isolated populations of the endangered Red-cockaded Woodpecker) (5/2000) Univ LA
Meredith Hunter (Hormonal basis for the unusual molt of male goldfinches) (8/2002) Univ MS (Co-Chair with Dr. Becky Holberton)
Leigh Truong (Kin recognition in Wild Turkeys) (5/2003) Univ MS
Patrick Yamnik (Breeding pond selection in two species of salamander) (8/2008) Univ MS,

Committee Chair, (Doctor of Philosophy)

Jake Marquess, PhD, Acoustic communication in the imported fire ant. (5/2010) Univ MS, (Co-Chair with Dr. Jim Anderson)

Committee Member,

Deborah Shaffer, Master of Science, Univ LA, (05/98)
Linda Lombardi, MSc, Univ MS, Life-history evolution in a shark (12/01)
Eric Hoffmayer, PhD, Univ MS, Seasonal stress in sharks (5/03)
Douglas Hohman, MSc, Univ MS, The effect of fire history on forest bird communities (2005)
Esther Mwangi, MSc, Univ MS, Sound perception by the imported fire ant (2005)
Heather Webb, PhD, Univ MS, (Dept Exercise Science) Stress and cardiac physiology (2006)
Will Bet-Sayad, MSc, Univ MS, Energetic and hematologic adaptations of sharks (2007)
Remi Charge, PhD, Paris Natural History Museum, France (2009)
Caleb Johnson, MSc, Univ. MS, Swimming efficiencies in fish (in progress)

UNDERGRADUATE RESEARCHERS

Honor's College Thesis Advisor

Wilson Boone, Effects of parasitic infection on spleen RNA/DNA ratios in their turkey hosts
Dustin LeBlanc, Circadian patterns of oocyst shedding in two strains of turkey coccidia
Austin Harris, Virulence and antibody responses in turkey poults infected with coccidia (2007)
Laura Jackson, Genetic heterozygosity and coccidia virulence in turkey poults (2007)
J. Griffin Orr, The effects of anti-oxidant vitamins on coccidian resistance in turkey poults (2010)
Katy Fuqua, Correlates of digit ratio variation in wild turkey hens (in progress)

Miles DeBardeleben, Sex, condition and botfly parasitism in squirrels (in progress)

Directed Study Supervisor

McNair Summer Research Scholar

Alfred Robinson, Behavioral changes in turkey poults infected with coccidia

CONTRIBUTED PAPERS AND POSTERS

International Ethological Congress 2009 (Rennes, France; poster)

Parasite effects on mate choice copying in wild turkeys.

International Society for Behavioral Ecology 2008 (Ithaca, NY; poster)

Parasitized females choose multiple mates.

International Society for Behavioral Ecology 2006 (Tours, France; poster)

Innate kin recognition but not inbreeding avoidance in wild turkeys (with L. Truong)

International Society for Behavioral Ecology 2004 (Jyvaskyla, Finland; poster)

Female choice for multiple male ornaments in an artificial lek. Also attended "Coloring signalling in animals" workshop, Konnevesi Field Station, to give paper on Color change as a thermal handicap in wild turkeys .

Animal Behavior Society 2004 (Oaxaca, Mexico, paper)

Female choice for multiple male ornaments in an artificial lek

Animal Behavior Society 2003 (Boise, ID; paper)

Effects of parasitic infection on female mate sampling: Should infected females be more or less choosy?

International Society for Behavioral Ecology 2002 (Montreal, Canada; paper)

Immunogenetic markers of good genes in wild turkeys. (with M. Jones, S. Hecht and A. Findley)

Animal Behavior Society 2001 (Corvallis, OR; poster)

Evidence of an immunogenetic basis for variation in a sexually-selected ornament. (with M. Jones, S. Hecht and A. Findley)

Animal Behavior Society 2000 (Atlanta, GA; paper)

Are snoods condition-dependent? Endocrine and nutritional correlates of male ornamentation in wild turkeys. (with R. L. Holberton)

American Ornithologists Union 1999 (Ithaca, NY; poster)

Helminthological Correlates of Ornamentation in Male Wild Turkeys

International Society for Behavioral Ecology 1998 (Asilomar, CA; poster)

Effects of anthropogenic stress on the mating preferences of Japanese quail

Association of Southeastern Biologists 1998 (NLU; paper) Cross-fostering of red-cockaded woodpecker nestlings: preliminary results. (with M. Wallace)

Animal Behavior Society 1996 (Lincoln, NE; poster)

Ornamentation determines dominance in male wild turkeys.

Conference of the SE Association of Fish and Wildlife Agencies 1996 (Hot Springs, AR; paper)

Rodent damage to direct seeded willow oak on a cleared bottomland site in Louisiana. (with L. Savage and J. Anthony)

International Ethological Congress 1995 (Honolulu, HI; poster)

Effects of nematode infection on the predator avoidance behavior of mosquito fish

International Ornithology Congress 1994 (Vienna; poster)

Adaptive functions of fleshy ornaments in galliforms: sexual selection or thermoregulation?

Animal Behavior Society 1994 (Seattle, WA; paper)

Adaptive female choice for "good genes" in the Wild Turkey.

- Society for Conservation Biology**, 1994 (Mexico City; poster)
Has Conservation Biology ignored Ethology? (with M. Marquez)
- International Behavioral Ecology Congress** 1992 (Princeton, NJ; poster)
The adaptive significance of fleshy structures in birds.
- American Ornithologists' Union** 1989 (Pittsburgh, PA; paper)
Sexual selection in the Yellow-knobbed Curassow.
- American Ornithologists' Union** 1988 (Fayetteville, AR; paper)
The effect of microbial infection on fruit choice by Cedar Waxwings (with D.J. Levey).

INVITED PAPERS & SEMINAR PRESENTATIONS

- National Museum of Natural History** Paris, France 2009
Sexual Selection in the Wild Turkey
- International Ethological Congress** Rennes, France 2009
Is Pre-Copulatory Assessment of Genetic Compatibility Possible in Birds? Invited talk in Symposium on “Sexual Selection, Polyandry and Compatibility”
- Wildlife Society, Mississippi Chapter**, Starkville, MS 2002
Wildlife research at the University of Mississippi.
- Animal Behavior Society**, Corvallis, OR 2001
Organizer and presenter of the Behavior and Conservation Workshop to evaluate the behavioral content of USFWS Endangered Species Recovery Plans. 200 attendees.
- University of Mali**, West Africa, 2001
Avian ecology and behavior in fragmented and disturbed habitats
NSF funded “Workshop on Conservation of Vertebrate Diversity in the Inner Niger Delta”
- Auburn University**, Auburn, AL 2001.
Behavior, Endocrinology and Immunogenetics of the Wild Turkey
- University of Memphis**, Memphis, TN 2000.
Sexual selection in the Wild Turkey.
- US Air Force Academy**, Colorado Springs, CO 1998.
Reproductive behavior of the Wild Turkey: a search for ‘good genes’.
- Animal Behavior Society**, College Park, MD 1997.
Playing lifeguard at the conservation gene pool: are behavioral adaptations left to drown?
- Northeast Louisiana Bird Club**, Monroe, LA 1996. Conservation and biology of pheasants, quail, grouse and other fowl-like birds.
- Florida Ornithological Society**, Gainesville, FL 1995. Female choice, male ornamentation and parasites in the Wild Turkey.
- American Association for Laboratory Animal Science**, Florida Branch 1991
Wearing your fitness on your face: parasites, ornaments and mate choice in Wild Turkeys.
- Second International Symposium on the Biology and Conservation of the Family Cracidae** Caracas, Venezuela 1988. Seasonal movements, flocking behavior and an apparently polygynous mating system in the Yellow-knobbed Curassow (with S.D. Strahl and J.L. Silva).

POPULARIZED ACCOUNTS

of my work have appeared in Discover magazine, Scientific American, American Airlines inflight magazine, the Boston Globe, the London Times, and interviews with the Canadian cable program “Discovery Today” on the Discovery Channel, and Mid-South Outdoors.

PUBLICATIONS

Peer-reviewed, in preparation or submitted

- Yamnik, P. & Buchholz, R. submitted. An experimental study of pond characteristics associated with oviposition by salamanders. (Wetlands)
- Buchholz, R. in prep. Can sexual selection enable more rapid adaptation to climate change? A case study of the avian order Galliformes (Global Change Biology)
- Buchholz, R., Williams, J. & A. Panayiatou. in prep. The effects of parasitism on separation anxiety in turkey hens. (J. Applied Anim. Welfare)
- Buchholz, R. in prep. Digit ratio and mating behavior in wild turkeys.
- Buchholz, R. & Hanlon, E. in prep. When is anthropogenic change in animal behavior harmful to population viability? Chapter 20 in Behavioural Responses to a Changing World: mechanisms and consequences. Bob Wong & Ulrika Candolin (Editors), Oxford University Press.

Peer-reviewed, published or in press

- Buchholz, R., Yamnik, P., Pulaski, C. & Campbell, C. 2008. Conservation and Behaviour, In: Encyclopedia of Life Sciences. John Wiley & Sons, Ltd: Chichester.
<http://www.els.net/> [DOI: 10.1002/9780470015902.a0021217]
- Buchholz, R. 2007. Behavioural biology: an effective and relevant conservation tool. Trends in Ecology and Evolution 22(8): 401-407
- Buchholz, R. and Bertsch, C. 2006. Yellow-knobbed Curassow (*Crax daubentoni*). Pp. 91-94 In: Conserving Cracids: the most Threatened Family of Birds in the Americas (D.M. Brooks, Ed.). Misc. Publ. Houston Mus. Nat. Sci., No. 6, Houston, TX.
- Buchholz, R. 2004. Effects of parasitic infection on mate sampling by female wild turkeys (*Meleagris gallopavo*): Should infected females be more or less choosy? Behavioral Ecology 15(4): 687-694.
- Buchholz, R., Jones Dukes, M.D., Hecht, S.J. & Findley, A.M. 2004. Investigating the turkey's "snood" as a morphological marker of heritable disease resistance. Journal of Animal Breeding and Genetics 121: 176-185.
- Hill, G., Doucet, S., & Buchholz, R. 2005. The effect of coccidial infection on iridescent plumage coloration in wild turkeys. Animal Behaviour 69: 387-394
- Jones Dukes, M. D., Locklear, C.C., Buchholz, R., Hecht, S.J. & Findley, A.M. 2003. Production of an MHC Class II B molecular probe in the turkey, *Meleagris gallopavo*. Journal of Applied Genetics 44(3): 369-373.
- Wallace, M.T. and R. Buchholz. 2001. Translocation of red-cockaded woodpeckers by reciprocal fostering of nestlings. Journal of Wildlife Management 65(2): 327-333.
- Buchholz, R. 1997. Male dominance and variation in fleshy head ornamentation in Wild Turkeys. Journal of Avian Biology 28: 223-230
- Strahl, S.D., J.L. Silva, & R. Buchholz. 1997. Variacion estacional en el uso del habitat, comportamiento de grupo, y un sistema aparentemente poligamo en el pauji copete de plumas, *Crax daubentoni*, pgs 79-80 in The Cracidae: Their Biology and Conservation (S.D. Strahl et al. editors), Hancock House, WA.
- Savage, L., J. Anthony & R. Buchholz. 1997. Rodent damage to direct seeded willow oak in Louisiana. Proc. Ann. Conf. SE Assoc. Fish Wildl. Agencies. 50:340-349
- Clemmons, J. R. & Buchholz, R. 1997. Linking conservation and behavior, pages 3-22 in (Clemmons, J. & Buchholz, R., eds) Behavioral Approaches to Conservation in the Wild. Cambridge University Press, Cambridge.
- Buchholz, R. & Clemmons, J. R. 1997. Behavioral variation: A valuable but neglected biodiversity, pages 181-208 in (Clemmons, J. & Buchholz, R., eds) Behavioral

Approaches to Conservation in the Wild. Cambridge University Press, Cambridge.

Buchholz, R. 1996. Thermoregulatory role of the unfeathered head and neck in male Wild Turkeys. *Auk* 113: 310-318

Buchholz, R. 1995. Female choice, parasite load and male ornamentation in Wild Turkeys. *Animal Behaviour* 50: 929-943

Buchholz, R. 1995. Descending whistle display and female visitation rates in the Yellow-knobbed Curassow in Venezuela. *Ornitologia Neotropical* 6: 27-36

Buchholz, R. 1992. Confusing models with tests in studies of sexual selection. *Auk* 109: 199-201.

Buchholz, R. 1991. Older males have bigger knobs: correlates of ornamentation in two species of curassow. *Auk* 108: 153-160.

Buchholz, R. & Levey, D.J. 1990. The evolutionary triad of microbes, fruits and seed dispersers: An experiment in fruit choice by Cedar Waxwings (*Bombycilla cedrorum*). *Oikos* 59: 200-204.

Other Publications

Buchholz, R. 2008. Yes, specialized graduate training is necessary to become a conservation behaviorist. *The Conservation Behaviorist*, 6(2):7-9

Buchholz, R. 2006. Should animal behaviorists teach conservation? *The Conservation Behaviorist*, 4(1):3

Buchholz, R. 2003. Invited review of "The Importance of Species: Perspectives on Expendability and Triage," P. Kareiva & S. A. Levin. Princeton University Press. *Ethology* 109(1-2):

Buchholz, R. 2003. Mating ornaments and color changes of the wild turkey. *Interpretive Birding* 4(5):

Buchholz, R. & ABS Conservation Committee. 2002. Thirteen things a behavioral biologist can do for conservation. *Animal Behavior Society Newsletter* 47 (3) 5-6.

Buchholz, R. 2000. Invited review of "The Handicap Principle", A. Zahavi *Auk*, 117: 269

Buchholz, R. 1998. Invited book review of "Principles of Animal Communication," J.W. Bradbury & S.L. Vehrencamp. Sinauer Assoc. *ASB Bulletin*, 45:205

Buchholz, R. 1996. Invited book review of "Conservation of Endangered Species in Captivity," E.F. Gibbons, Jr. B.S. Durrant & J. Demarest (eds). SUNY Press. *Animal Behaviour*, 52: 430-431.

EDITORSHIPS

Scientific Journal

Review Editor, *The Condor*, 2008-2011

Peer-reviewed Volume

Clemmons, J. & Buchholz, R. 1997. *Behavioral Approaches to Conservation in the Wild*. Cambridge University Press, Cambridge.

Conservation Newsletter

Co-Editor, *The Cracid Newsletter! / El Boletín de Crácidos!*

A Publication of the IUCN Specialist Group for the Cracidae, 1991-1994

SERVICE

Taylor Medal Committee, Liberal Arts, Univ. MS 2010

Sabbatical Review Committee, Univ. MS 2008-2010

Neuroethologist Search Committee, Univ. MS 2005-2006

President, Ole Miss Sigma Xi Chapter, 2003-2004
Cell & Molecular Biologist Search Committee, 2003
Student Research Grants Committee, Animal Behavior Society, 2003
Department Chair Search Committee, 2002-2003
Allee Award Judge, Animal Behavior Society, 2001, 2004
University Grounds, Buildings and Renovations, Univ MS 2001
Institutional Animal Care and Use Committee, Univ. MS 2000-2007
Graduate Studies Committee, Dept of Biology, Univ MS 2000-2002
University Veterinarian Search Committee, Univ MS 2002
IUCN Specialist Group for the Megapodidae, 1995-present
IUCN Specialist Group for the Cracidae, 1989-present
Chair, Animal Behavior Society Conservation Committee 1998-2002
Conservation Committee, Animal Behavioral Society, 2003-present

SOCIETIES

American Ornithologists' Union
Animal Behavior Society
Cooper Ornithological Society
International Society for Behavioral Ecology
Sigma Xi, The Scientific Research Society
Society for Conservation Biology