

DEPARTMENT OF BIOLOGY

FACULTY RESEARCH INTERESTS AND CURRENT RESEARCH PROJECTS

BECK, DAVID L. Assistant Professor (Ph.D., University of Virginia, 2005)

RESEARCH INTEREST: Infectious diseases of humans.

CURRENT RESEARCH PROJECTS: Currently finishing a project on tickborne diseases in Texas. We are developing a project on small colony variant *Staphylococcus aureus* which is commonly found in Cystic Fibrosis patients and other chronically infected patients.

BROWN, CHRISTOPHER A. Associate Professor (Ph.D., University of Texas at Arlington, 1998)

RESEARCH INTEREST: Ecology, life history evolution, and behavior of terrestrial arthropods, primarily scorpions and spiders; understanding the effects of autotomy (limb loss) on ecology and behavior; arthropod food webs in riparian zones.

CURRENT RESEARCH PROJECTS: Ecology of a riparian wolf spider community in southeastern Arizona; submersion tolerance in riparian wolf spiders; effects of leg loss on behavior and ecology in Arizona wolf spiders; life history evolution in the Sky Island species of *Vaejovis* scorpions from Arizona; behavioral ecology of the native Tennessee scorpion *Vaejovis carolinianus*.

CARVER, BRIAN D. Associate Professor (Ph.D., University of Memphis, 2009)

RESEARCH INTEREST: Mammalian community dynamics, conservation of rare mammals, bat biology management.

CURRENT RESEARCH PROJECTS: Effect of acoustic detector type and microphone directionality on the detection of bats; impact of eastern hemlock stands on small mammal community composition; status and ecology of eastern spotted skunks (*Spilogale putorius*) in Tennessee.

COHEN, BRADLEY S. Associate Professor (Ph.D., University of Georgia, 2014)

RESEARCH INTEREST: Wildlife Ecology and management; animal physiology and behavior; predator-prey interactions; ecology and management of game animals.

CURRENT RESEARCH PROJECTS: Delineation of white-tailed deer management units in Tennessee; reproductive ecology of eastern wild turkeys; direct and indirect effects of prescribed fire on wild turkeys; male wild turkey mating systems; effects of hunters, natural predators, and harvest management strategies on wild turkey gobbling activity, behavior, and population growth; the effect of baiting on harvest susceptibility of white-tailed deer; population estimation and range expansion of black-bellied whistling ducks; translocation ecology of eastern wild turkeys in Texas; movements, space use, and behavior of brooding eastern wild turkeys.

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COMBS, DANIEL L. Professor (Ph.D., University of Missouri, 1987)

RESEARCH INTEREST: Ecology and behavior of avian wildlife species, especially waterfowl; habitat use and natural history of reptiles and amphibians.

CURRENT RESEARCH PROJECTS: Movement patterns, intra-flock associations, and social biology of Canada Geese

COOK, BRADFORD S. Professor (Ph.D., Southern Illinois University, 1994)

RESEARCH INTEREST: Ecology of freshwater invertebrates; fish propagation; fish parasitology; feeding ecology and bioenergetics of freshwater fishes; and biotic indices.

CURRENT RESEARCH PROJECTS: Culture and performance of introduced southern Appalachian Brook Trout in Tennessee; colonization of aquatic macroinvertebrates following piscicide treatment.

GUNDERSON, JOHN H. Associate Professor (Ph.D., University of California at Berkeley, 1981)

RESEARCH INTEREST: Microbial ecology and evolution; symbiosis.

CURRENT RESEARCH PROJECTS: Legionella-like amoebal pathogens; life cycles of marine cestodes

HALL, JOSHUA M. Assistant Professor (Ph.D., Auburn University, 2020)

RESEARCH INTEREST: Ecological developmental biology, life-history evolution, and global change ecology of reptiles and amphibians.

CURRENT RESEARCH PROJECTS: Determining the effects of heat stress on embryo development and egg survival of reptiles; Characterizing maternal nesting behavior and its effects on offspring survival in salamanders; Integrating embryonic chronic and acute heat tolerance to predict species' vulnerabilities to climate warming using Takydromus lizards (in collaboration with the Key Laboratory of Animal Ecology and Conservation Biology, Chinese National Academy of Sciences).

HAYSLETTE, STEVEN E. Professor (Ph.D., Auburn University, 2001)

RESEARCH INTEREST: Wildlife ecology and management; avian ecology, behavior, and nutrition; ecology and management of upland game birds.

CURRENT RESEARCH PROJECTS: Physiological indices of habitat quality in northern bobwhites; mechanism of diet selection in avian granivores; seed selection and agonistic behavior of non-targets at bird feeders.

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HURT, CARLA R. Professor (Ph.D., Arizona State University, 2005)

RESEARCH INTEREST: The processes of speciation and diversification in marine invertebrates and implications that these processes have on conservation of biodiversity. Specifically, I use a diversity of molecular tools to 1) identify taxonomic lineages and cryptic diversity, 2) reconstruct phylogenetic histories and the geographic context of species radiations, 3) examine ecological and developmental factors that promote and sustain species reef diversity and 4) assess the geographic structure of genetic variation within and marine symbiotic communities

KINMONTH-SCHULTZ, HANNAH A. Assistant Professor (Ph.D., University of Washington Seattle, 2016)

RESEARCH INTEREST: Plant responses in complex, changing environments; flowering time; interactive effects of atmospheric carbon dioxide change on plant environmental perception; strategies to improve student confidence and resiliency; strategies to improve student content and skill retention

CURRENT RESEARCH PROJECTS: Mechanisms through which changes in atmospheric carbon dioxide levels influence flowering time; historic climate variables that have led to differences in environmental perception across plant populations; methods of instructional feedback to improve content and skill retention in STEM

KROSNICK, SHAWN E. Professor (Ph.D., Ohio State University, 2006)

RESEARCH INTEREST: Plant taxonomy, molecular systematics, floral development, plant morphology and anatomy, and evolutionary developmental biology.

CURRENT RESEARCH PROJECTS: Evolution of CRC gene expression in Passiflora nectaries, developmental changes leading to dioecy in Old World Passiflora, evolution of self-compatibility in Australian Passiflora taxonomic revision of the Passiflora bilobate clade; monograph of Passiflora supersection Disemma

RAHNAMA, MOSTAFA Assistant Professor (Ph.D., University of Auckland, 2018)

RESEARCH INTEREST: Fungal genome evolution, chromosomal structures and dynamics, molecular mechanisms involved in the emergence and distribution of new diseases, use of fungi as natural pesticide

CURRENT RESEARCH PROJECTS:

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ROGERS, MARK W. Professor (Ph.D., University of Florida, 2007)

RESEARCH INTEREST: Fisheries ecology and management, aquatic food webs, invasive species, population dynamics and modeling

CURRENT RESEARCH PROJECTS: Evaluation of Tennessee sport fisheries; Genetic evaluation of stocking success in Tennessee; Movement and lock and dam passage of Asian Carp; Relative densities of Asian Carp in the Tennessee and Cumberland river drainages; Evaluation of the effects of climate change and land use on fisheries harvests in lakes.

ROSENBERGER, AMANDA F. Professor (Ph.D., Virginia Polytechnic Institute and State University, 2003)

RESEARCH INTEREST: Ecology and conservation of freshwater biota, including fish, mussels, and crayfish, with an emphasis on the role of ecological processes in shaping aquatic organisms' distributions, population characteristics, and community structure.

WHEELER, CHRISTOPHER (KIT) C. Associate Professor (Ph.D., Utah State University, 2014)

RESEARCH INTEREST: stream fish ecology, freshwater biodiversity conservation, flow ecology, quantitative population and community modeling

CURRENT RESEARCH PROJECTS: Aquatic resource survey of Arnold Air Force Base; dynamic multistate models for stream fishes; quantifying nutrient inputs from migratory freshwater fishes; native fish conservation and ecology.