RISK AND RESILIENCE ON A CHANGING LANDSCAPE:
POPULATION CONNECTIVITY AND PERSISTENCE OF
AMPHIBIANS IN FUTURE FRESH WATERS

SPEAKER: Meryl C. Mims, Virginia Tech University

DATE: Wednesday, March 27th, 2019
TIME: 3:00-4:00 pm
LOCATION: ENR2, S107

ABSTRACT: The ways in which populations and communities of organisms, their traits, and the environment interact to influence the risk and resilience of species to environmental change is a core theme at the heart of basic and applied ecological research. Species vulnerability to a changing climate depends upon many factors, both intrinsic and extrinsic. Understanding vulnerability to declines or extinction helps define processes from population dynamics to species turnover to large-scale patterns of biodiversity. Vulnerability assessments are also critical for efficient management and prioritization of conservation resources, and the rate, pace, and magnitude of contemporary environmental change underscore the need for vulnerability assessments of many taxa. My talk will highlight a range of efforts and ongoing projects aimed to help understand what drives vulnerability of amphibians in a changing world. Amphibians often persist in metapopulations, with extinction and colonization dynamics occurring on a backdrop of landscape variability and heterogeneity. Thus, management of amphibians is often complex and must consider processes from the local to regional scale. My talk will explore three key questions: 1) How do interactions between amphibian traits and the environment affect population and genetic structure across species? 3) Can genetic, demographic, and landscape data be combined in a simulation framework to help inform risk and resilience of species on a changing landscape? And 2) Can opportunistic occurrence data be combined with trait data to inform multispecies vulnerability at a regional, management-relevant scale, particularly for understudied species? I will present case studies from throughout the United States, with a focus on species of the Southwest. My talk will include examples from landscape genetics, individual-based simulations, multi-species traits-based inference, and open-access data supported by stakeholders from citizens to agencies. I will conclude by highlighting recent exciting advances, as well as key knowledge gaps, that point to the promise and potential of future traits-based research supporting amphibian conservation.