

AWI Presents: **Water H.U.B. Talks series**

An opportunity for researchers to come together.

H—Hear broadening perspectives on current and emerging water issues to,
U—Uncover through shared understandings of complex water issues to,
B—Build bridges to foster interdisciplinary research and education opportunities.

Invited Speaker: Dr. Matthew J. Jenny IV
Department of Biological Sciences,
The University of Alabama

Title: Development of Genomic Resources to Expand
Freshwater Mussel Research

Unionid mussels are keystone species in freshwater ecosystems, serving as nutrient cyclers, habitat modifiers, and natural water filters. The southeastern US is the global biodiversity hotspot of freshwater unionid mussels. Unfortunately, the relative immobility, long lifespan, and reproductive characteristics of freshwater mussels make them particularly vulnerable to both climate change and habitat disturbance. The predicted extinction rate of freshwater mussels is ~6% per decade, and numerous studies have documented declines of once widespread, common species. Rapid climate warming is especially detrimental to these critically imperiled mussels as some species already live near their upper thermal limits. A greater understanding of the genetic and physiological traits that may confer differing susceptibility to abiotic change among unionid species is critical for successful conservation and restoration activities.

To improve our eco-forecasting capabilities, we are currently sequencing the genomes and transcriptomes of species pairs from two genera that occupy distinct phylogenetic groups (*Fusconaia* spp., Tribe Pleurobemini; *Villosa* spp., Tribe Lampsilini) and vary in their reproductive strategies. These new genomic and transcriptomic resources will be used to assist in the development of models that can be used to predict the survival success of mussel populations that are threatened by climate change.

This presentation will provide background information on the four mussel species, the current state of the genomic and transcriptomic sequencing efforts, and future application of these new resources.

Wednesday, September 25, 2019 • 12 pm - 1 pm
Bevill Building, Room 1000

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R.S.V.P. by September 20, 5 pm
Boxed lunches will be provided if R.S.V.P. is received by deadline: awi@ua.edu