

APPLIED WILDLIFE GENETICS

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Cooperators:

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Graduate Students:

Sara Anderson, FNR, Ph.D.
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Lab Coordinator:

Jenny Fike, M.S., Frostburg State



Goals:

Genetic Consequences of Species Reintroduction - The objective of this line of research is to provide wildlife managers with the conceptual foundations and empirical tools to assess the genetic legacy of past reintroductions as well as to select appropriate sources for future translocations, identify unique gene pools, and optimize reintroduction strategies

Genetic Tools for Wildlife Management - The objectives of this line of research are to develop genetic tools and sampling protocols for use in wildlife species and to conceptually develop the theoretical foundations of population genetics in ways that can be applied to solve wildlife management problems

Recent Publications:

Rhodes Curriculum Vitae

Statement of Problem:

My research in the area of applied wildlife genetics focuses on the elucidation of genetic processes as they impact conservation and management of wildlife populations. The rich theoretical foundations of population genetics may be better developed than any other area of population ecology. This is due to the probabilistic nature of genetic processes and the near certainty that under a given set of biological conditions genetic parameters can be predicted with great accuracy. In the field of population genetics a "given set of biological conditions" represents a series of assumptions. Thus, tests of hypotheses concerning genetic processes of populations are, in reality, tests of assumptions about the biological parameters of interest to population biologists and ecologists. Using modern genetic concepts and DNA-based tools, my students and I are addressing current problems in wildlife conservation and management for a variety of vertebrate species throughout North America. My current research in this area primarily focuses on: 1) genetic consequences of species reintroduction programs and 2) adaptation of population genetics concepts for applied wildlife programs.

Ongoing Projects:

- 1) Population Genetics of the Allegheny Woodrat in Indiana
- 2) Population Genetics of Reintroduced California Bighorn Sheep in Oregon
- 3) Landscape Genetics of *Tamias striatus* and *Peromyscus leucopus* in the Upper Wabash River Basin
- 4) The Population Genetics of Two Tick Species, *Dermacentor Variabilis* and *Ixodes Texanus*, Parasitizing Raccoons (*Procyon Lotor*) Inhabiting a Fragmented Landscape
- 5) Defining Practical Units of Conservation Through Analysis of Genetic Differentiation in Mule and Black-Tailed Deer
- 6) Genetic Analyses of North American Fisher and Otter
- 7) Analysis of Genetic Diversity and the Legacy of Reintroductions in North American Elk
- 8) Reintroduction and Hybridization in North American Wild Turkey Subspecies