Breadcrumb

1. Home
2. Print
3. Pdf
4. Node
5. Entity Print

NWRC Research Scientists: Dr. Timothy J. Smyser

Last Modified:

Dr. Timothy Smyser (PhD) is a supervisory biologist with the Wildlife Genetics Project at the National Wildlife Research Center in Fort Collins, CO – a research group led by Dr. Antoinette (Toni) Piaggio focused on developing and applying novel genetic approaches to mitigate human wildlife conflicts.

Dr. Smyser serves as the team lead for the Feral Swine Genetic Archive. The Archive team works in close coordination with the Wildlife Services' National Feral

Swine Damage Management Program to provide genetic analyses in support of Wildlife Services' efforts to control invasive feral swine populations.

Beyond the management of an extensive physical archive and associated high-density SNP database, the Archive team works on a diversity of research questions that contribute to Wildlife Services' objectives of mitigating the damage caused by this feral swine; such topics include:

- Delineation of biologically informed management units with the use of population genetic approaches,
- Genetically differentiating invasive feral swine from domestic pigs to support enforcement of prohibitions on the possession or transport of feral swine,
- Description of evolutionary processes that are contributing to emergent invasiveness as an outcome of natural selective pressures, and
- Elucidation of disease transmission dynamics within vs between social groups and characterizing genetic factors that influence differences in disease susceptibility.

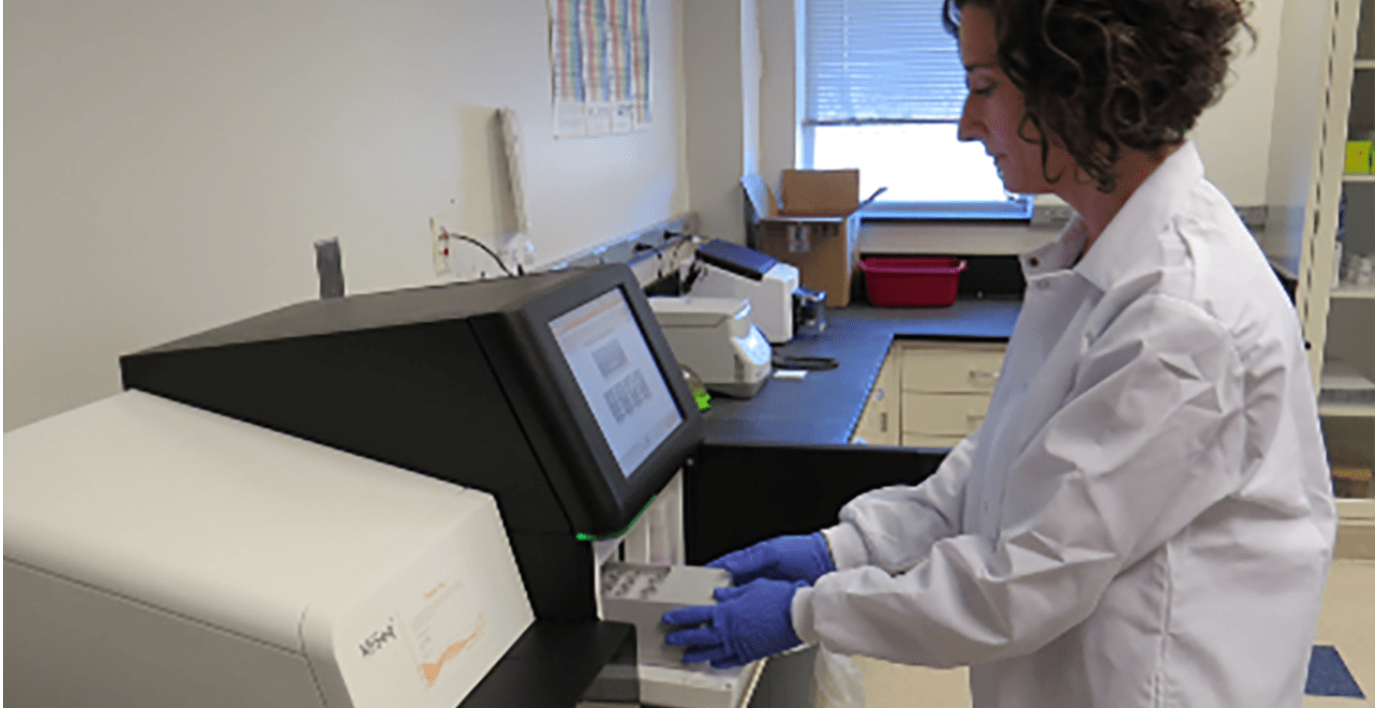
Collectively, the research products produced by the Archive team have broad applications to feral swine management efforts, helping guide, inform, or support the allocation of population control resources, disease preparedness efforts, and law enforcement.

Research Project

Wildlife Genetics

The goal of this project is to develop and implement genetic methods to detect, monitor, and inform management of wildlife species (including invasive species, species associated with human/wildlife conflict, and endangered species) and wildlife pathogens.

Learn More



Current Research

- Mapping patterns of natural and anthropogenic movement of feral swine
- Estimation of relatedness across populations in the presence of extensive genetic structure
- Utilizing genomics analyses to help inform disease preparedness efforts and disease transmission dynamics
- Evolutionary response of wild boar and feral swine to African Swine Fever outbreaks
- Development of novel simulation approaches to help inform the interpretation of empirical datasets
- Evolution of invasiveness

Publications

- View Dr. Tim Smyser’s publications

Products/Techniques Developed or Tested

- Source population identification for translocated animals

- Genetic differentiation of invasive feral swine from domestic pigs
- Description of ancestral origins of invasive feral swine across the US
- Population genetics/genomics studies

International Experience

- Europe (Leveraging genomics resources to understand response of wild boar to African Swine Fever)
- Uganda (Genetic underpinning associated with differential disease progression among domestic pigs naturally exposed to African Swine Fever virus)
- Australia (Oral vaccine bait delivery systems for Tasmanian Devils)

Education

- Ph.D., Purdue University, West Lafayette, IN
- M.S., University of Idaho, Moscow, ID
- B.S., University of Wyoming, Laramie, WY

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