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NWRC Research Scientists: Dr. Antoinette (Toni) J. Piaggio, PhD

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Dr Antoinette (Toni) J. Piaggio is a Supervisory Research Biologist and Project Leader employed by the USDA APHIS Wildlife Services, National Wildlife Research Center (NWRC) in Fort Collins, CO. Her research studies focus on developing genetic approaches to inform wildlife damage management efforts.

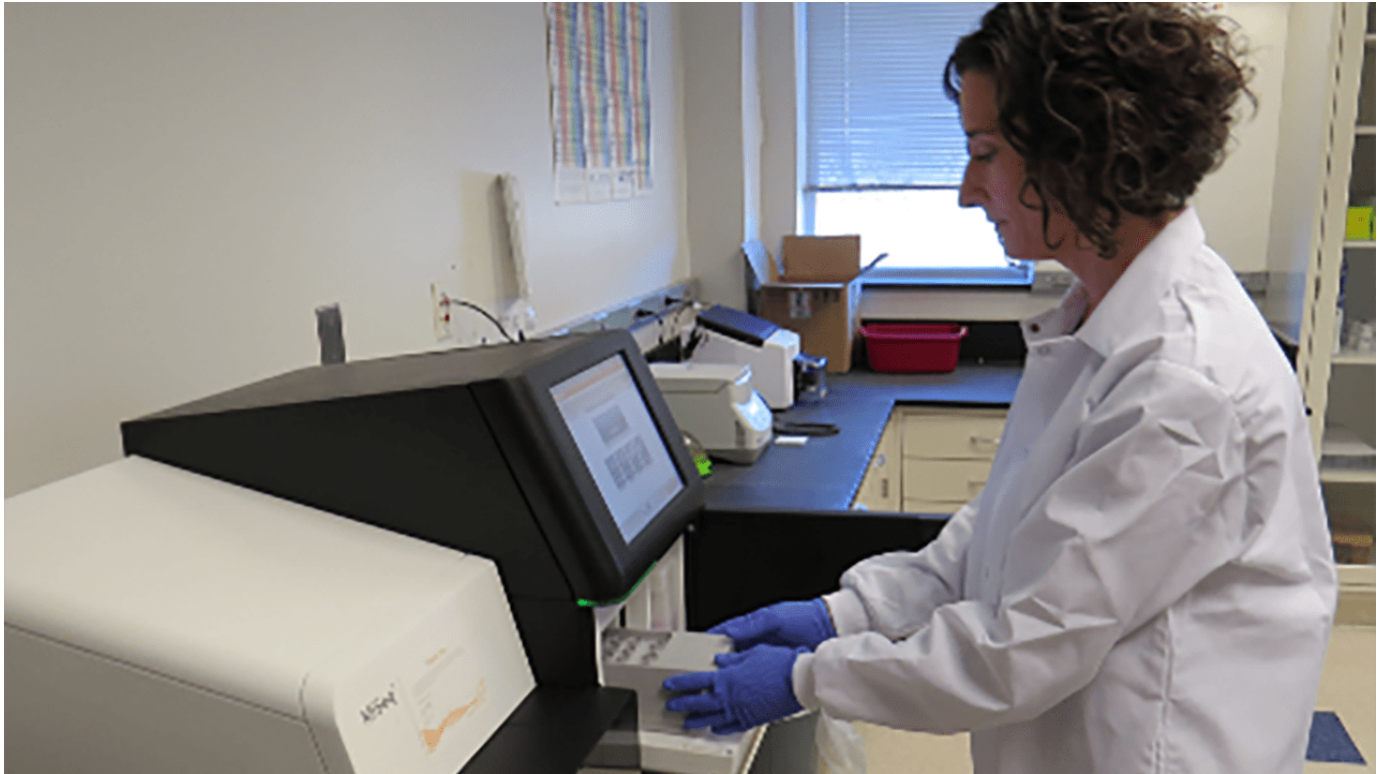
Population-level investigations can determine geographical boundaries of populations, gene flow between populations (population connectivity), and genetic diversity within populations. Phylogenetic studies can test hypotheses of taxonomic definitions and evolutionary relationships. Genomic data gathered in any of these areas can enhance effectiveness of management efforts. Because wildlife genetics data can elucidate population dynamics in host populations, they are also useful in the management of wildlife diseases.

Through her work, continuing education, and professional contacts, Dr. Piaggio stays current with the latest developments in her field, ensuring that the NWRC wildlife genetics lab will always be a leader in the use of exciting, cutting-edge tools and techniques and the application of robust scientific methods for the investigation of wildlife-human conflicts. Lab results will allow wildlife managers not only to use the best genetic tools available but also to maintain genetic diversity and evolutionary potential of the wildlife species under investigation.

[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

- Using genomic data to identify population specific alleles that could be used to make gene drive approaches population-specific
- Developing environmental DNA assays to detect invasive species, specifically terrestrial species
- Investigating population connectivity of endangered Columbia white-tailed deer in Oregon and Washington and helping inform translocation efforts
- Various forensic studies to identify predators involved in depredation events
- Examining population genomics of raccoons in areas of rabies outbreaks to identify management units
- Whole genome sequencing of avian influenza samples and using molecular techniques to identify samples from archive (>20,000 samples) that are good

candidates for whole genome sequencing

- Conducting genetic analyses of rats, mice, and mongoose that invade islands to identify sources
- Conducting genetic analyses of wildlife species involved in human-wildlife conflict
- Identifying vulture species composition at mixed-species roosts and helping to identify vulture populations for management purposes in areas where the birds cause damage or are potential hazards for aviation
- Genomic diet analyses of invasive species and predators
- Metagenomics to reduce efforts and costs of vector-borne pathogen surveillance

Products/Techniques Developed or Tested

- Environmental DNA assays to detect terrestrial species from water and swabbed soil and plant samples - single species assays and metabarcoding
- Metabarcoding for diet analysis
- Metagenomic of bulk insect traps to identify pathogen, insect species, and blood meal origins
- Forensic investigations
- SNP marker development
- Species identification from fecal, hair, saliva, etc.
- Individual animal identification from fecal, hair, saliva, etc.
- Microsatellite and single-nucleotide polymorphism (SNP) panel development for multiple species
- Population genetics/genomics studies
- Phylogenetic studies

Publications

- [View Dr. Toni Piaggio's publications](#)

International Experience

- Mexico (Vampire bats)
- China (Avian Influenza)

- Belize (Vampire bats)

Education

- Ph.D., University of Colorado Boulder, CO
- M.S., San Francisco State University SF, CA
- B.A., Mills College, Oakland CA

Contact

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