



## RWU 4201 Wildlife Ecology in Rocky Mountain Landscapes

# Wildlife Genetics in the Wildlife Ecology Unit of the Rocky Mountain Research Station

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### Problem Statement

Molecular genetics is a powerful new tool for wildlife research and management, likened to the advent of radio-telemetry or high-powered microscopy. With new genetic methods we can estimate patterns of dispersal and isolation, census (or sample) individuals without ever having to handle them, delineate species range, discover the presence of detrimental population bottlenecks, and even evaluate historical conditions on the landscape. One of the greatest potentials for genetics may be its use in monitoring programs. Augmenting traditional monitoring with genetic methods provides the opportunity to implement cost-effective and defensible wildlife monitoring.



### Research Approach

Even though the potential benefits of genetic research and monitoring are large, there are currently no federal, state, or private DNA labs in the United States with the necessary expertise, interest, and facilities to support Forest Service monitoring activities. Therefore, the Wildlife Ecology Research Unit in Missoula, Montana initiated a Forest Service genetics laboratory that focuses on the needs of both Forest Service research and management. The laboratory focuses on areas where universities and private facilities cannot traditionally succeed, such as long-term, large-scale sampling efforts and the development of methods to directly meet USFS needs.

### Results

We have been asked to analyze samples, participate in studies, and consult on over 50 projects in the United States. In addition to becoming a national resource, RWU-4201's genetic laboratory has been gaining international stature, collaborating with researchers in Botswana, Canada, France and Italy. This has led to multiple publications, including publications in high profile journals such as *Nature* and *Trends in Ecology and Evolution*. In addition, the work of the laboratory has been reported on by the popular press and national media.

### Partners

Our RD&A genetics laboratory has been successfully working closely with the multiple regions (R1, R4, R6, R5, R10, R2, and R9) and research stations (PNW, PSW, RMRS) as well as other Federal agencies, tribes, private entities, universities and state agencies (See Map above). Recently, we have been working closely with NFGEL at the Institute of Forest Genetics in Placerville California to enhance both programs' abilities.

