



# Rocky Mountain Research Station

## Genetic Monitoring of Wildlife and Fish

FY 2011 President's Budget

### ISSUE

Climate change, fire, fuels treatments, invasive species, urbanization, and other activities are affecting valued fish and wildlife populations. Monitoring these populations is a critical, but difficult task for managers. Molecular genetics is rapidly becoming the most reliable, defensible, and cost-effective way to monitor these natural resources.

### IMPORTANCE

One of the most important tasks of a natural resource manager is to understand how management actions affect the abundance, survival, and dispersal of various wildlife species. Many legal challenges against natural resource agencies occur because inadequate attention has been paid to monitoring economically and socially important species. Part of the problem is that these population metrics are difficult and expensive to obtain for wildlife species. The field of genetic monitoring has much to offer wildlife managers, as genetic indices are relatively simple to obtain and have been shown to robustly reflect population change. The benefits of genetic monitoring are partially due to the fact that forensic type genetic samples can be collected without ever having to see or handle an animal. Thus, it is now possible to obtain precise estimates of wildlife abundance, population trend, and other commonly used wildlife metrics. These can be applied to species that had been difficult to study in the past. With genetic monitoring managers can now monitor cost-effectively to maintain healthy fish and wildlife stocks.



### EXPECTED OUTCOMES

We expect the need for genetic monitoring tools to increase rapidly over the next decade. In response, the RMRS has taken the following steps as the leader in wildlife genetics to ensure that our partners, collaborators, and clients all have access to state-of-the-art information:

- Established a world-class genetics program with a molecular genetics facility at its core.
- Taken the lead in assembling world leaders in genetic monitoring to further development in the field and to make these technologies more accessible to managers worldwide.
- Disseminated our research and monitoring tools through peer review publications, workshops, and symposia worldwide.

### PARTNERS AND COLLABORATORS

- Universities of Montana, Maryland
- Stockholm University (Sweden)
- University of Aarhus (Denmark)
- U.S. Forest Service Region 1, 2, 5, 6
- National Parks Service
- Oregon State University
- National Marine Fisheries Service
- University of Montpellier (France)
- State Fish and Wildlife Agencies of CA, CO, ID, ME, MN, MT, ND, SD, WI, WY