USGS
science for a changing world

The Fort Collins Science Center

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It takes interdisciplinary, well-integrated science teams to fully address the complex natural resource issues that managers face today.

At the Fort Collins Science Center,

this is what we do.

We build these teams.

The Interdisciplinary Science Place

Here at the USGS Fort Collins Science Center, we focus on integrated, collaborative work. Our scientists apply a systems approach to ecological problems across the Nation, engaging scientists from many disciplines. We stand ready to help managers understand and address complex ecosystem issues by means of research and monitoring, modeling, technology development, technical assistance, and information transfer that is robust, innovative, and timely.

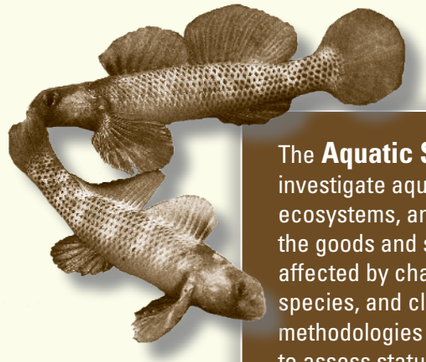
Our science center is located on the Natural Resources Research Center campus in Fort Collins, Colorado. Of 150 scientific and technical staff, more than 20 are physically located at universities and other Federal agencies. Cooperators from other agencies also work at FORT. We build partnerships and conduct collaborative studies with these and additional partners in government, academia, and the private sector.

As part of a Federal agency, we conduct short-term research for immediate management needs as well as long-term studies that reveal biological trends and responses over time. We also draw upon science expertise from across the USGS to address clients' needs.

As a biological science center, we possess demonstrated capabilities in natural resource sciences, including freshwater and terrestrial ecology, ecosystem dynamics, invasive species science, social science, wildlife biology, and conservation genetics. Our proficiency in technology applications—such as decision support, information management, Web application development, and ecological forecasting—is equally robust. Study results are used to solve resource management problems and predict the outcomes of different scenarios, whether of dam operations, climate change, energy development, invasive species spread, or a host of other influences. Our science helps managers anticipate and plan for change.

Water for Life

Competing demands for water can result in alteration or loss of critical riverine, riparian, and wetland habitats. As stewards of our Nation's natural resources, land and water management agencies are responsible for balancing use and conservation of water resources. Managers need quantitative, objective, science-based information that helps them manage, conserve, and plan for the Nation's water resources and the species and habitats they support.



The **Aquatic Systems** scientists at FORT investigate aquatic populations, communities, ecosystems, and landscapes, particularly how the goods and services these systems provide are affected by changes in flow, sediment, invasive species, and climate. We develop tools and methodologies that managers and scientists can use to assess status and understand the interplays of physical, biogeochemical, and biological processes; the possible outcomes of management actions; and likely ecological responses.

Water for Life

The Dynamics of Change

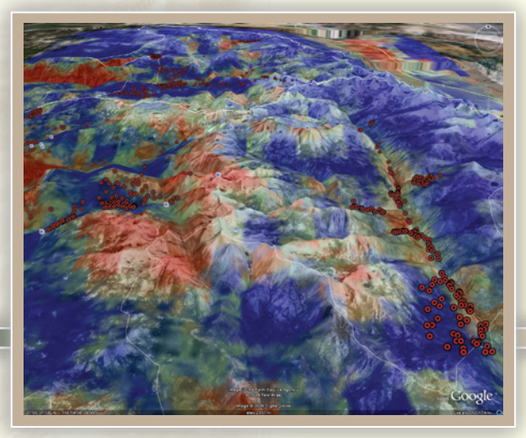
Environmental disturbances, such as climate change, energy and residential development, invasive species, and many others, can result in ecosystem-level changes. Therefore, natural resource managers need to consider the dynamic web of interactions among ecosystem components. The complexity of ecosystem responses over space and time demands an interdisciplinary approach that integrates both biotic and abiotic processes.

The Dynamics of Change

Focusing on the U.S. West, FORT's **Ecosystem Dynamics** scientists specialize in quantifying ecosystem patterns and processes from local to landscape scales. We provide research and technical assistance to understand and forecast biological responses to natural and human-induced changes affecting terrestrial systems.

Information Overload, Reloaded

Data are everywhere. Aggregating information in a way that it is easily accessed, managed, used, and understood, however, is a significant challenge. Natural resource agencies need information systems and services to help managers integrate and analyze data, visualize outcomes, and apply scientific data and information to natural resource issues.



Information Overload

FORT's **Information Science** specialists make up a large pool of experienced and innovative technical staff that produces Web and geospatial applications, tools, analyses, and other products. Scientists and managers use these products to assemble, analyze, and share critical information and to inform resource management decisions.

Reloaded

Here Today, Where Tomorrow?

Invasive plants, animals, and diseases are a top concern for public and private land managers. Invasive nonnative species are present in every ecosystem in the United States, including urban and agricultural areas. They drastically alter environments by changing the frequency and severity of fires (as do tamarisk and cheatgrass), decimating native species (invasive brown treesnake, deadly white-nose syndrome in bats), and posing risks to human health and safety (plague, Burmese python).

Here Today, Where Tomorrow?

FORT researchers conduct **Invasive Species Science** to understand the ecological consequences and social costs of invasive species and assist land managers with prevention and control methods. We also map current and forecast potential distributions of invasive species at local, regional, and global scales to help with early detection and rapid response.

Making Science Relevant to People

Social and economic research provides public land and resource managers with information to make scientifically sound, socially supported decisions. Many conservation planning documents and environmental impact statements require data on the socioeconomic effects of management actions. These actions affect recreational and commercial users, surrounding communities, and the Nation as a whole.

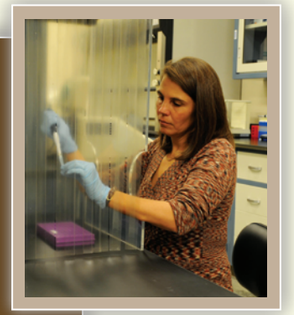
FORT's **Policy Analysis and Science Assistance** experts conduct social science and economic research at local and national scales to support decisionmaking. We inform land management actions by scientifically analyzing stakeholder knowledge and preferences, social and economic effects, and institutional policies and processes.

Making Science Relevant to People

Their Future Depends, in Part, on Us

Recovery of imperiled species requires a scientific understanding of their life histories, habitat requirements, distribution and abundance, and factors limiting their success. Some of the biggest challenges to species recovery and conservation involve changes to their environment, including land-use change, disease, climate change, energy development, and invasive species.

Trust Species and Habitats are the focus of FORT scientists who investigate why certain species are declining and what can be done to improve their status. This work directly supports development of species management and recovery plans. We conduct research and provide information to natural resource managers through inventory and monitoring, population studies, genetic and stable isotope analyses, disease ecology investigations, and development of novel statistical and field methods.



Their Future Depends, in Part, on Us

Engage with Us

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