LANDFIRE: A USDA Forest Service and Department of the Interior Partnership for National Fire Fuel Assessment

Problem Statement

Over ninety years of fire exclusion, domestic livestock grazing, logging, and widespread exotic species invasions have altered fire regimes, fuel loadings, and vegetation composition and structure. As the result, the number, size, and intensity of wildfires have significantly changed from the historic conditions, sometimes with catastrophic consequences.

In response to these severe conditions, the federal government has developed a National Fire Plan, and the Department of Agriculture Forest Service and the Department of the Interior are jointly developing a cohesive strategy to implement the Plan. Key priorities and requirements of these documents are:

National Fire Plan
• Firefighting
• Rehabilitation and restoration
• Hazardous fuels reduction
• Community assistance
• Accountability

Cohesive Strategy
• Improve the resilience and sustainability of forests and grasslands at risk
• Conserve priority watersheds, species, and biodiversity
• Reduce wildland fire costs, loses, and damages
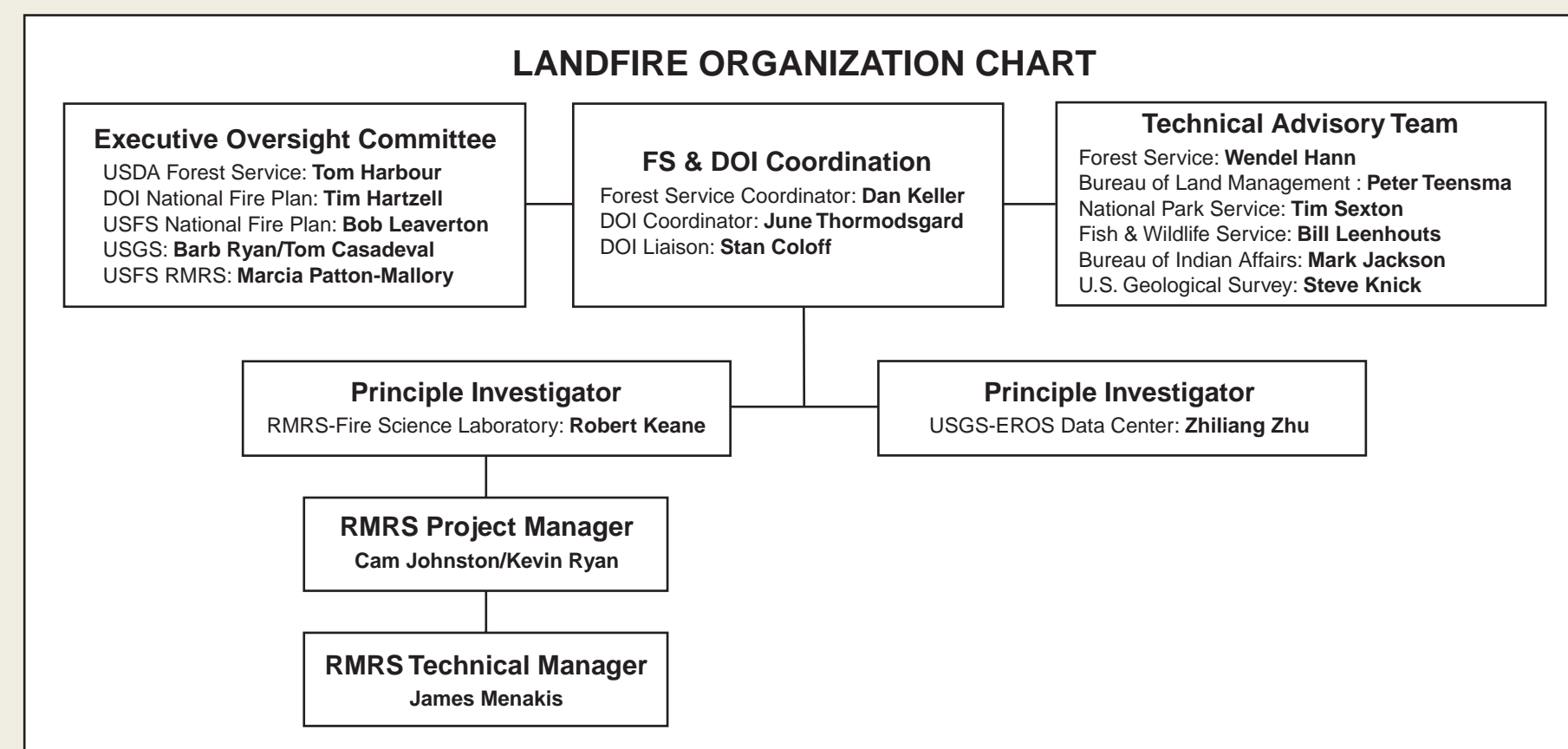• Better ensure public and firefighter safety

Why LANDFIRE is necessary

LANDFIRE will develop a mid-scale, comprehensive and consistent package of spatial data layers, models, and tools in support of analyses for prioritization and planning to initiate the implementation of the National Fire Plan, at national, regional, and local scales.

LANDFIRE products can be directly used to address most of the key points in the National Fire Plan and Cohesive Strategy:

• **Firefighting** → The **FARSITE** data layers can be used to model fire spread.
• **Rehabilitation & Restoration** → The **Historic Natural Fire Regimes** and **Fire Regime Condition Class** data layers can help target these areas.
• **Hazardous Fuel Reduction** → The **FIREHARM** model and the **Historic Natural Fire Regimes** and **Fire Regime Condition Class** data layers can help target these areas.
• **Accountability** → The **LANDFIRE** project is being designed with the ability for affordable remeasurement every 10 years.
• **Resilience and Sustainability** → The landscape simulation model **LANDSUM** and the **Potential Vegetation Types, Current Cover Types,** and, **Structural Stages** spatial data layers can be used to understanding these systems.
• **Conserve priority watershed, species, and biodiversity** → Most layers and models developed by **LANDFIRE** can be used by other natural resource disciplines.
• **Reduce wildland fire costs, losses, and damages** → The **Historic Natural Fire Regimes** and **Fire Regime Condition Class** data layers could be used to target watersheds of greatest concern.

LANDFIRE is a midscale project intended to be scalable from a sub-watershed to the national level, and can be used as a safety net for land management agencies that do not have local-scale information. The project is not a substitute for finer scale, local mapping efforts. While LANDFIRE will develop many layers that will be key for mapping the wildland-urban interface, this project will not produce a wildland-urban interface map.

LANDFIRE ORGANIZATION CHART

Executive Oversight Committee
USDA Forest Service: Tom Harbour
DOI National Fire Plan: Tim Hartzell
USFS National Fire Plan: Bob Leaverton
USGS: Barb Ryan/Tom Casadeval
USFS RMRS: Marcia Patton-Mallory

FS & DOI Coordination
Forest Service Coordinator: Dan Keller
DOI Coordinator: June Thormodsgard
DOI Liaison: Stan Coloff

Technical Advisory Team
Forest Service: Wendel Hann
Bureau of Land Management : Peter Teensma
National Park Service: Tim Sexton
Fish & Wildlife Service: Bill Leenhouts
Bureau of Indian Affairs: Mark Jackson
U.S. Geological Survey: Steve Knick

Principle Investigator
RMRS-Fire Science Laboratory: Robert Keane

Principle Investigator
USGS-EROS Data Center: Zhiliang Zhu

RMRS Project Manager
Cam Johnston/Kevin Ryan

RMRS Technical Manager
James Menakis

U.S. Department of the Interior
U.S. Geological Survey

U.S. Department of Agriculture
Forest Service

NASA

Prototype Areas

Research and development has begun on the LANDFIRE project for 18,200,000 hectares in two prototype areas: central Utah and northwestern Montana.
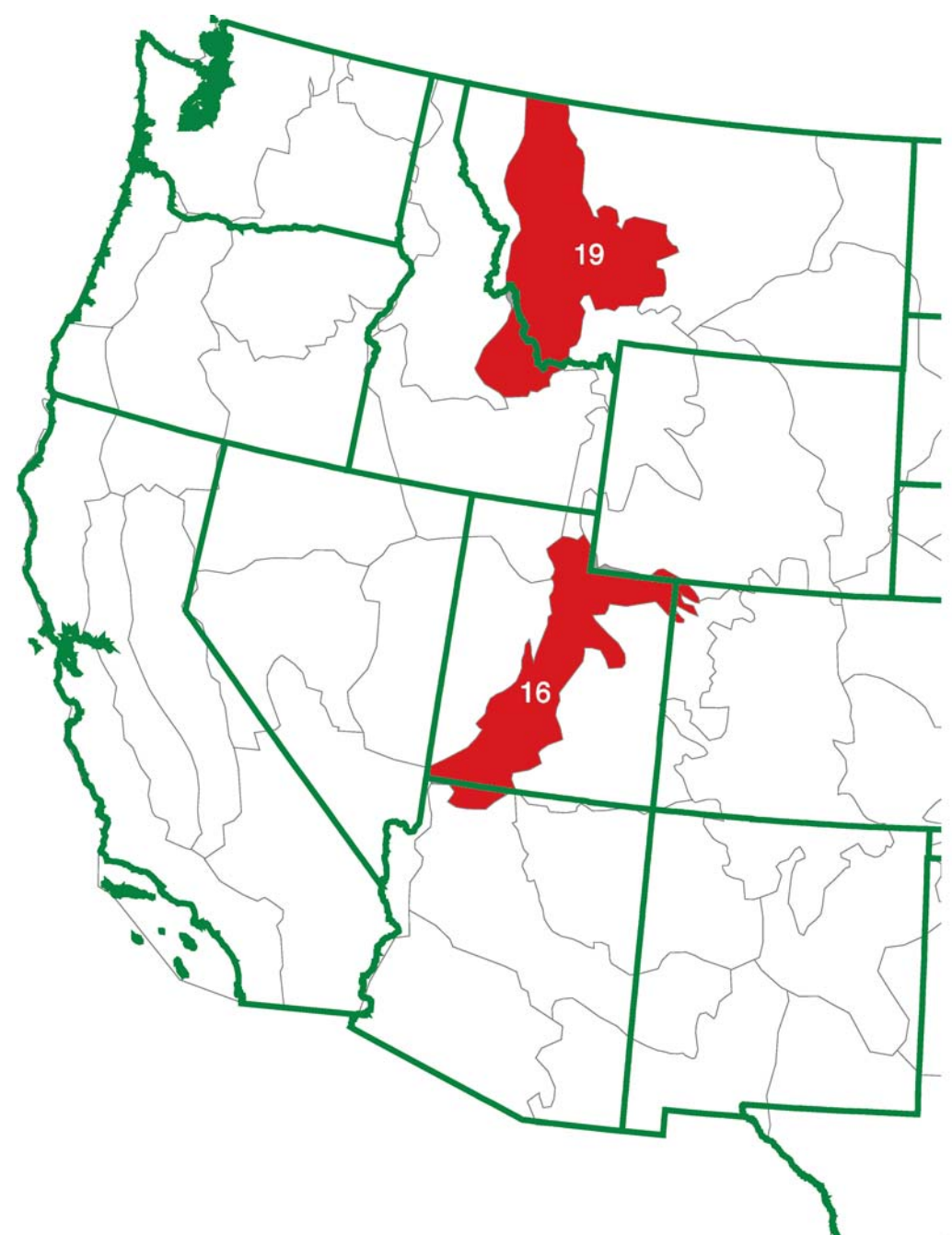
The prototype areas were selected based on ecological diversity, extensive field data, and previous or ongoing work. Special care was taken to include both forested and non-forested ecosystems.

Central Utah – located through the central Rockies of Utah, over seven million hectares composed of 55 percent forests and 45 percent non-forested lands.

Northwestern Montana – located in the north-central Rockies of Montana and Idaho. Ten and half million hectares composed of 65 percent forested lands and 35 percent non-forested lands.
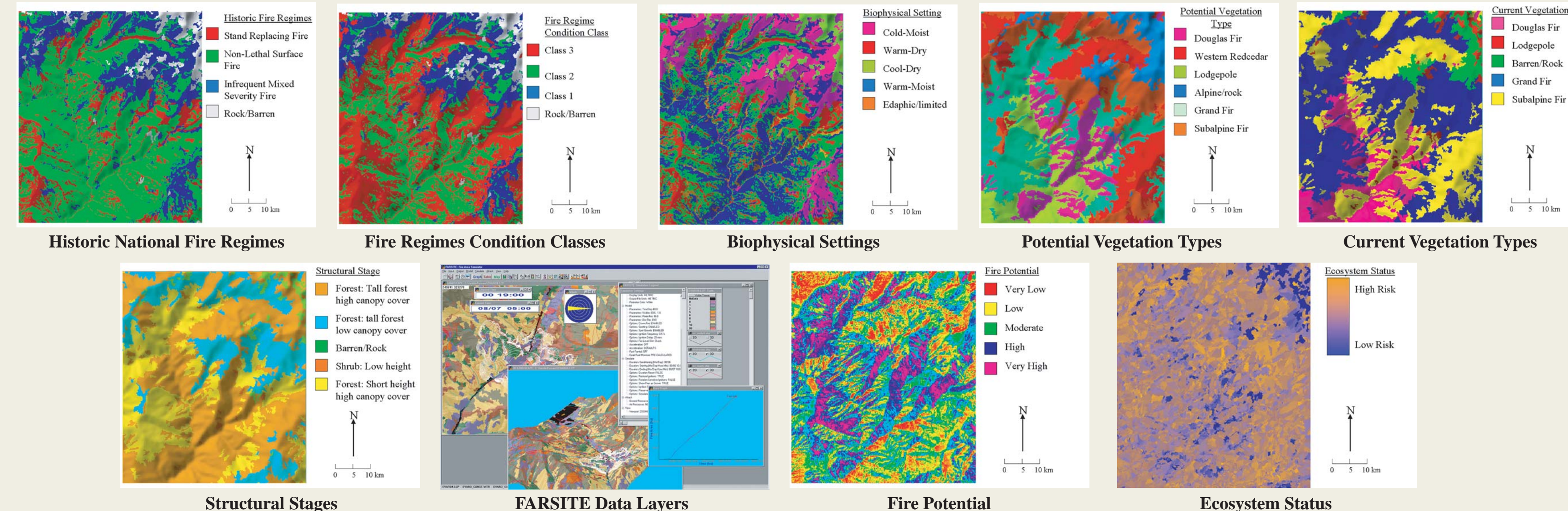
Budget

LANDFIRE Prototype will cost two million dollars a year for three years. Funding for LANDFIRE comes 60% from the Forest Service and 40% from the Interior Department.

Schedule

LANDFIRE Prototype is a three-year project starting in February 2002 with the prototype effort scheduled for completion in March of 2005. Intermediate components/products will be available starting in the summer 2002.

Further information

Contact: Forest Service Coordinator: Dan Keller (dkeller@fs.fed.us)
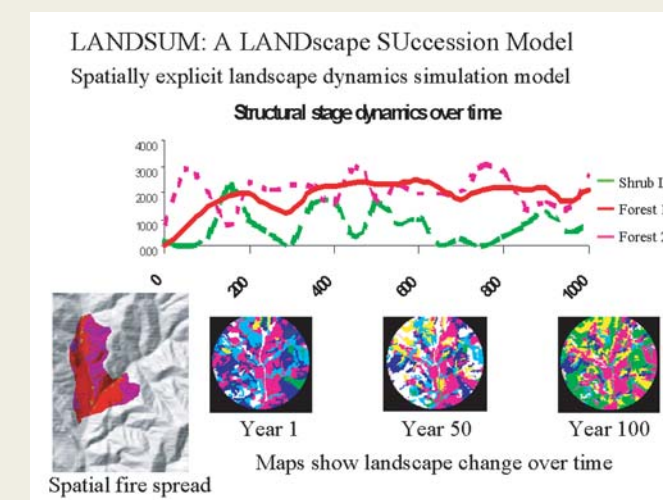DOI Coordinator: June Thormodsgard (thor@usgs.gov)
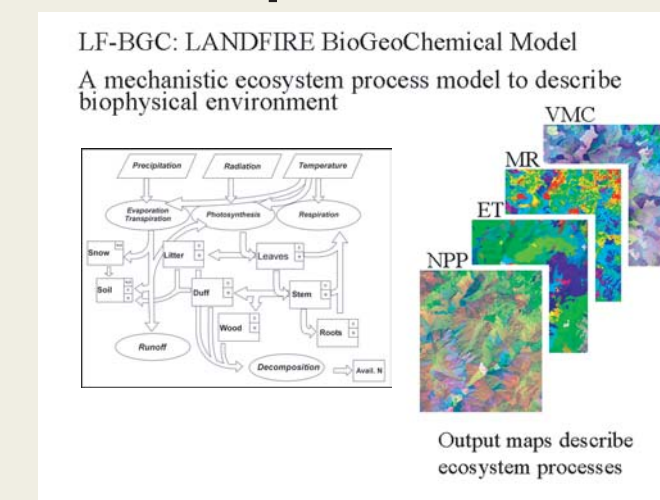
Visit: www.landfire.gov (coming soon)
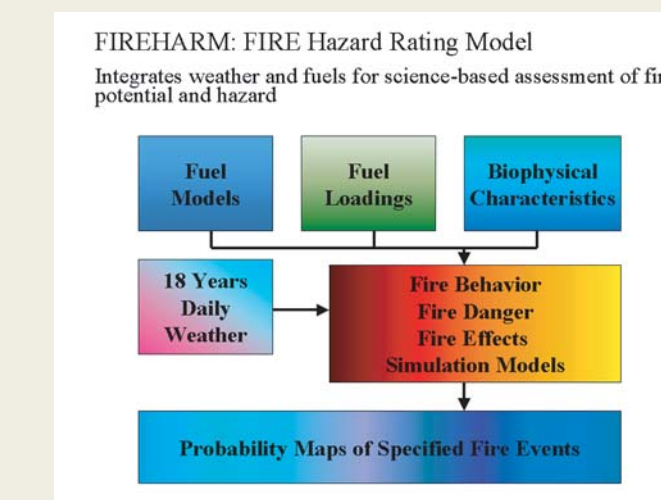
DELIVERABLES

Spatial Data Layers:

Historic National Fire Regimes | Fire Regimes Condition Classes | Biophysical Settings | Potential Vegetation Types | Current Vegetation Types

Structural Stages | FARSITE Data Layers | Fire Potential | Ecosystem Status

Computer Models:

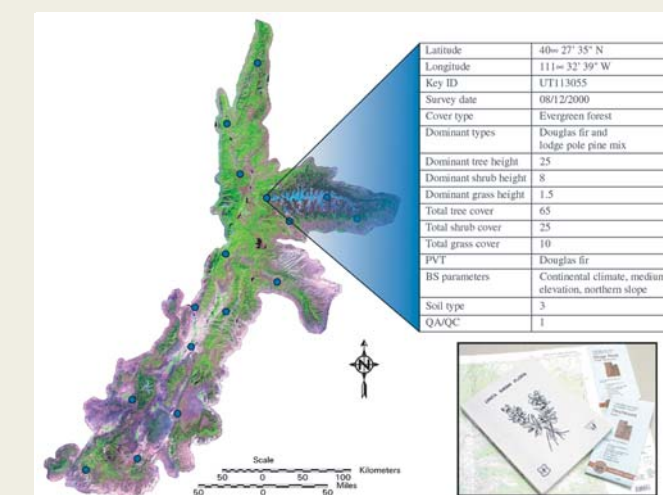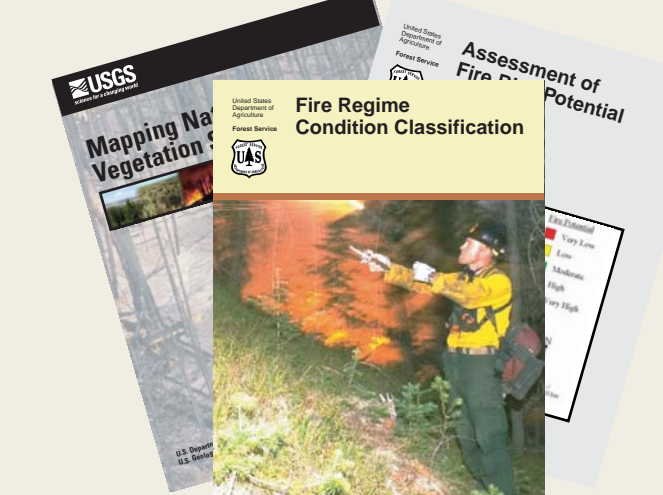**LANDSUM** (Landscape Simulation Model) | **LF-BGC** (Biogeochemical Model) | **FIREHARM** (fire Potential Model)
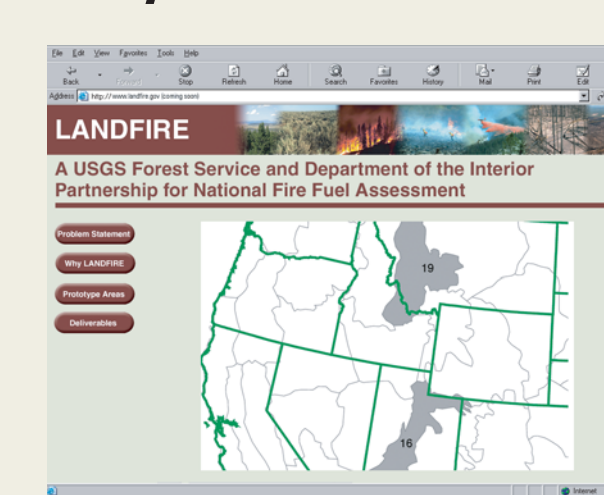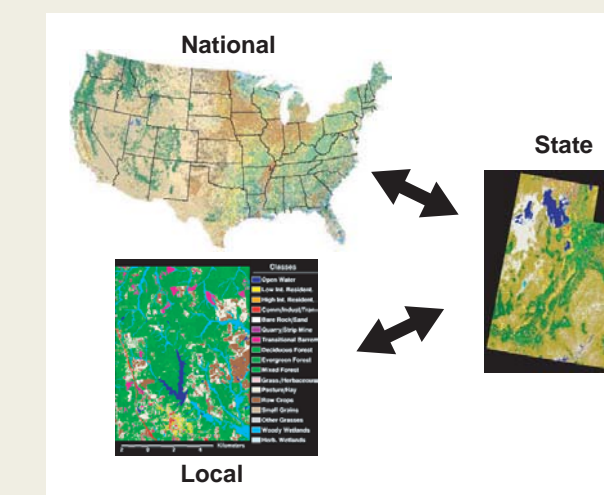
Ancillary Utilities and Products:

Comprehensive field reference database | Series of publications | Interactive WEBPAGE | Manager tools used to scale data | Tech transfer