National Park Service
U.S. Department of the Interior

Division of Fire & Aviation

3833 S. Development Ave.
Boise, ID 83705

208-387-5200 phone
208-387-5250 fax
www.nps.gov/fire

Fire Management Program Center

Monitoring Trends in Burn Severity: NPS Providing Leadership and Support for Interagency Burn Severity Mapping

Recently the Wildland Fire Leadership Council (WFLC) adopted a strategy to monitor the effectiveness of the National Fire Plan (NFP) and the Healthy Forests Restoration Act (HFRA). One component of this strategy is to assess the environmental impacts of large wildland fires and identify the trends in burn severity across the United States.

Over the past several years, United States Geological Survey – Earth Resources Observation & Science (USGS/EROS), United States Geological Survey – Biological Resources Division (USGS/BRD) and the National Park Service (NPS) have cooperated to produce and deliver burn severity mapping products for national parks and other land management agencies. Because of the strength of this working relationship, these groups took on the leadership role to develop Monitoring Trends in Burn Severity (MTBS) with USDA Forest Service - Remote Sensing Applications Center (USFS RSAC) to support the WFLC monitoring strategy.

This project will map and assess burn severity for all historical and current large fires using Landsat satellite imagery and the differenced Normalize Burn Ratio algorithm. EROS and RSAC will assess burn severity for all fires greater than 500 acres in the eastern United States, and greater than 1000 acres in the West that have occurred since 1984.

Glacier National Park.

Examples of Field Use of NBR Burn Severity Assessments:

1. Used to update fuels layers at Grand Teton, Glacier, Grand Canyon, Yosemite, Lassen Volcano, Jewel Cave, and national parks of Alaska.
2. Used to identify potential areas where fire has impacted culture resources.
3. Used to help Grand Canyon National Park natural resources staff understand the impact and the mosaic of their recent wildland fire use fires in relation to spotted owl habitat.
4. Used in Grand Teton National Park and Bridger-Teton National Forest for lynx habitat analysis.
5. Used to develop "crown fire risk trends and mapping zones" for the application of improving firefighter safety through increasing "situational awareness of crown fire potential" in the Salmon River country of Idaho.
6. Used in national parks of Alaska to refine and improve final fire perimeters and provide baseline information to assess the effects of climate change over time.
7. Used as part of a NASA project to predict locations of invasive species in national parks.

Contact: Nate Benson, NPS Fire Ecology Program Lead
Phone: (208) 387-5219

Fire Effects Monitoring Tools

Building on the National Park Service's FEAT software and Joint Fire Science Program's FIREMON application, NPS and their business partners, Systems for Environmental Management, Commonthread Inc., and Spatial Dynamics are developing the FFI (FEAT/FIREMON integration) tool. FFI is designed to be a single-source tool that all agencies can use for modeling, assessment, and reporting of fire effects.

- *FFI (FEAT/FIREMON Integration)*
- *FEAT (Fire Ecology Assessment Tool)*
- *FIREMON (Fire Effects Monitoring and Inventory Tool)*
- *Protocol Manager*

FFI

FEAT-FIREMON Integration

Contact: Nate Benson at nate_benson@nps.gov

A multi-agency development project, FFI integrates FEAT and FIREMON into a single software tool. The integration of each system's unique functions will create an enhanced monitoring tool to accommodate data collection and support cooperative, interagency data management and information sharing. The FFI project is led by the National Park Service.

- Supports monitoring for federal land management agencies at the field and research level.
- Fully scalable from the site level to the landscape level.
- Exchanges data with LANDFIRE, FRCC, and the Burn Severity (dNBR) Atlas.
- Supports other natural resource applications, such as satellite imagery classification, vegetation, aquatic habitat, fisheries, and wildlife monitoring.

FEAT

FIREMON

For more information, visit forum.spatialdynamics.com/ and www.fire.org/firemon
In the near future, the FFI site will be available at frames.nbii.gov