RECOVER's Impact on Post-Fire Management: The 2016 Henry's Creek Fire

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Abstract

Longer fire seasons with larger areas burned have pushed state and federal land management agencies to devote increasingly larger portions of their budget to wildfire management. In 2015, the US Forest Service spent 48% of its budget on wildfire, up from 16% 20 years before.[1] As fire costs continue to rise, timely and comprehensive fire information becomes increasingly critical to response and rehabilitation efforts. The NASA Rehabilitation Capability Convergence for Ecosystem Recovery (RECOVER) post-fire decision support system is a server-based application designed to provide land managers with the information they need to develop a rehabilitation plan for a fire in less than five minutes. RECOVER combines several sources of remotely sensed data and derived time series data to present users with maps integrating burn severity, slope, pre- and post-fire vegetation, and other GIS layers to enable faster and better-informed rehabilitation plans. Although the benefit of better-informed decisions is difficult to quantify, early case studies suggest RECOVER is a powerful tool that quickly provides information necessary to contextualize field observations and develop appropriate rehabilitation plans. In the case of the 2016 Henry's Creek Fire, RECOVER's maps indicated a planned $500,000 treatment effort was not needed, allowing land managers to avoid an unnecessary and costly expense. RECOVER maps of this fire are reproduced here to demonstrate the indicators RECOVER identified that traditional data collection methods may have missed.

[1]USDA Forest Service. 2015. *The Rising Cost of Wildfire Operations: Effects on the Forest Service's Non-Fire Work.* Pp. 2-16.

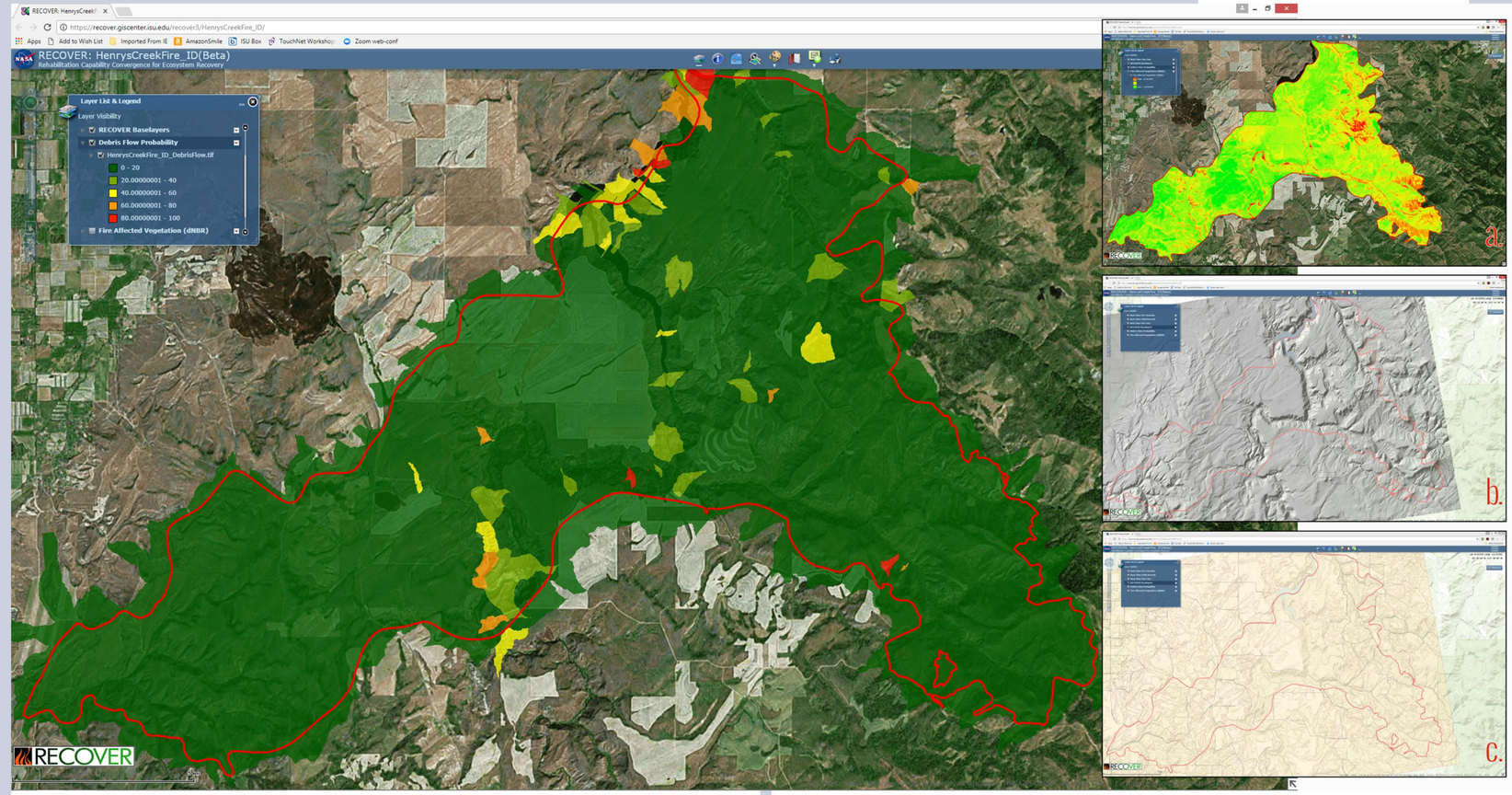
From Data to Actionable Information

Once a request for RECOVER resources has been made, the RECOVER decision support system (DSS) rapidly assembles 25 GIS layers within 5 minutes and presents the user with an integrated map ready for spatial analysis. After a fire has been contained, additional data (long-term NDVI trend, dNBR, and debris flow layers) becomes available for post-fire decision support. RECOVER enables better ES&R and BAER wildfire rehabilitation planning, allowing land managers to quickly and intelligently allocate agencies' limited resources where they are most needed.

2016 Henry's Creek Fire

The Henry's Creek Fire burned over 52,000 acres near Idaho Falls from August 21, through its containment September 1, 2016. The fire was human-caused and 462 incident responders were required to suppress the blaze.

Partners



Decision Making With RECOVER

Post-fire planning for the 2016 Henry's Creek fire was supported by the NASA RECOVER DSS. The figure above depicts the resulting debris flow probability layer, suggesting a very low likelihood of any debris flow based upon a 5-year rainfall event. These findings were further supported by field observations and an overall low fire severity (inset a), even in places with steep slopes (inset b). Complete soils data further validated this decision (inset c).

Workers at the Bureau of Land Management, Idaho Fish and Game, and Bureau of Reclamation used RECOVER to assess the Henry's Creek Fire and plan for rehabilitation. Interviews with users from each agency revealed

- RECOVER was estimated to have saved at least 40 hours of work at BLM and IDFG.
- RECOVER's integrated layers and reporting showed a planned $500K wood mulch aerial treatment by BLM was not needed.
- RECOVER generated a reliable fire perimeter in minutes that may have taken weeks for BOR to obtain externally.
- RECOVER provided cross-organizational data sharing and data access.

Description	Estimated Savings
Work hours saved	$4,247
Wood mulch aerial application	$500,000
Total	$504,247

Decision Making Without RECOVER

Although most of the data RECOVER presents users is public, pulling and compiling it for analysis is typically a cumbersome manual process. Time spent on data collection cuts into time that could be spent on analysis.

- Land and fire managers must compile data themselves for analysis.
- Due to stringent deadlines for ES&R and BAER plans, rehabilitation strategies may be developed without access to all available information.
- Certain historical trend data may be inaccessible (e.g., historic fires database 1950-present, long-term NDVI trend dataset 2001-present).

The Future of RECOVER

As fire seasons grow increasingly costly, RECOVER stands to provide land and fire managers with a powerful tool to improve rehabilitation plan outcomes and provide a record of accountable decision making. Although demonstrably effective and currently in use by several fire and land management agencies across the western U.S., RECOVER is at risk of being retired without funding necessary to continue supporting its client agencies.