

CAN WILDLAND FIRE USE RESTORE HISTORICAL FIRE REGIMES IN WILDERNESS?

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<http://leopold.wilderness.net/research/fprojects/F002.htm>

OF COURSE NOT!

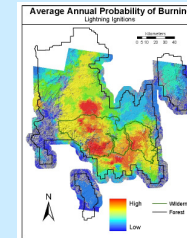
Even in large wilderness areas, the potential risks to natural resource and social values often preclude allowing fires to burn. In some areas, WFU may never be feasible. Furthermore, suppression on adjacent lands eliminates fires that otherwise would spread into a wilderness.

BUT...

We can evaluate the ability of fire management plans to achieve restoration objectives in wilderness. We can also ask where, and to what degree, suppression on adjacent lands affects our ability to achieve restoration objectives inside wilderness.

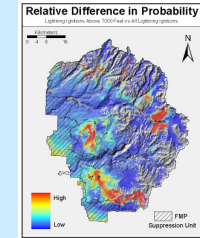
ACCOMPLISHMENTS

- Identified where restoration objectives are—or are not—likely to be met solely through the use of natural ignitions.



Gila National Forest

High probabilities indicate where the greatest WFU opportunities are. Note that some of these are outside wilderness.



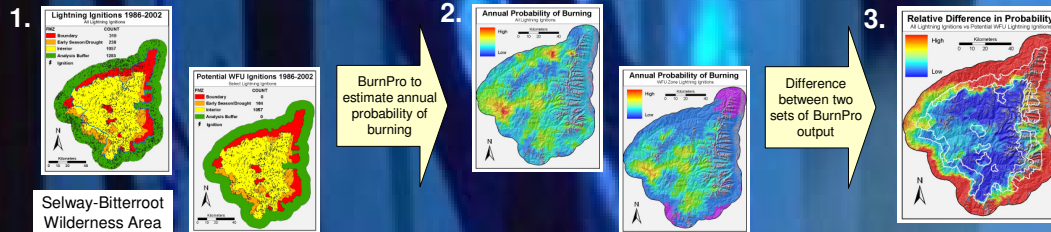
Yosemite National Park

Analyses help identify where management-ignited prescribed fire may be necessary.

APPROACH

We investigated how well WFU, as outlined in the fire management plan (FMP), could be expected to meet restoration objectives in 5 wilderness areas and national parks.

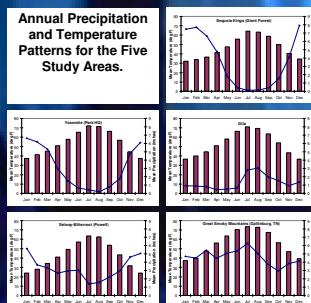
- We identified two ignition “scenarios”: one including all lightning-caused ignitions, and the other including only those ignitions inside WFU zones delineated by the FMP.
- The GIS model BurnPro was used to estimate the probability of burning using each of the two ignition scenarios.



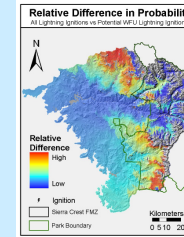
Selway-Bitterroot Wilderness Area

- The difference between the two sets of BurnPro output was used to evaluate how suppression of lightning-caused ignitions that occur *outside* WFU zones might affect the ability to achieve the restoration of fire *inside* the WFU zones. Areas with a large difference indicate where managers will face more difficult challenges in restoring fire regimes solely through the use of natural ignitions.

We tested and demonstrated this approach on multiple study areas with very different summer precipitation, season length, and topographic patterns.



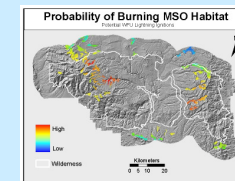
- Developed methods to evaluate cross-boundary effects of fire management decisions.



Sequoia-Kings Canyon National Park

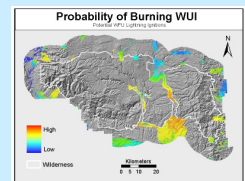
Impacts of fire management activities do not stop at boundaries and are not uniform across a landscape.

- Generated useful spatial data for planning.



Gila & Aldo Leopold Wilderness Areas

Probability estimates were overlaid with values affected by fire (Mexican Spotted Owl habitat and Wildland Urban Interface) to improve risk / benefit assessments and prioritize fuels treatments.



Gila & Aldo Leopold Wilderness Areas

- Created step-by-step guidebook for running BurnPro and repeating the analyses with new input data.

About the GIS model BurnPro

BurnPro estimates the annual probability of burning for every cell on a raster landscape. It uses topography, historic weather, current fuels, and historic ignition locations to estimate the likelihood of burning given the speed and direction a fire might travel from any ignition point, the length of the fire season, and the frequency of fire-stopping rain events during the fire season. *BurnPro still needs to be thoroughly evaluated and tested, and is currently available for experimental use only.*