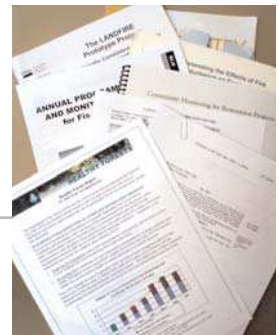


# An Evaluation of Fuel Reduction Projects and the Healthy Forest Initiative

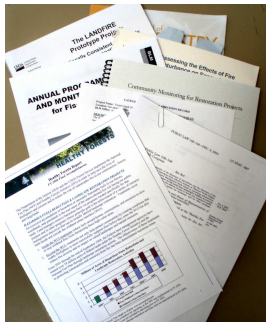
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RESEARCH PAPER

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*Cover photos*

Fire in the forest:

<http://www.fws.gov/mattamuskeet/images/CI%20fire%20activity.JPG>

Reports: Zander Evans

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The Forest Guild promotes ecologically, economically, and socially responsible forestry as a means of sustaining the integrity of forest ecosystems and the human communities dependent upon them. The Guild provides training, policy analysis, and research to foster excellence in stewardship, to support practicing foresters and allied professionals, and to engage a broader community in the challenges of forest conservation and management.

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## **Abstract**

The build up of fuels in fire prone forests and the attendant risk to people and ecosystems is one of the greatest land stewardship challenges in the United States. The federal government has implemented the National Fire Plan, the Healthy Forests Initiative (HFI), and the Healthy Forests Restoration Act (HFRA) to facilitate fuel reduction projects. To date there has been no systematic public review of these federal fuel reduction programs. This report examines the HFI and HFRA through an assessment of projects in southwestern Oregon, specifically the Rogue River - Siskiyou National Forest and the Bureau of Land Management's Medford District.

The results show that, at present, a full assessment of the social and ecological impact of HFI and HFRA is nearly impossible because of limited record keeping by government offices and administrative confusion. In addition, there is insufficient public access to records on fuel reduction treatments and their effects to allow third party assessment.

Based on available data, however, the impact of HFI and HFRA projects on social and ecological systems in southwestern Oregon appears muted. HFI and HFRA did not seem to change the legal environment for federal land management as much as initially predicted. Lack of funding for implementation continues to slow or halt some projects. Funding for environmental analysis has also been a constraining factor. Successful fuel reduction projects include early and substantial public participation. HFI has facilitated small projects that focus on removal of small diameter trees. Increased use of prescribed fire in HFI and HFRA projects could increase both the efficacy of treatment and the number of acres treated.

## **Introduction**

The management of uncharacteristically dense forests and their related fire hazard is one of the most important land stewardship issues in the western United States (Noss et al.



2006). Hundreds of millions acres of federal land may need fuel reduction treatments (US Congress 2003). Disastrous fire seasons and continued forest fuel build up stimulated several major policy initiatives, each of which provides new tools and impetus for hazardous fuels reduction projects on public land. These policy initiatives, the National Fire Plan (NFP), Healthy Forests Initiative (HFI), and most recently the Healthy Forests Restoration Act (HFRA) were created to reduce fuel densities and restore fire to its pre-fire suppression role in millions of acres of forested ecosystems. They have also fueled a public debate about fuel treatments, which is often polarized because of a lack of concrete data (Johnson et al. 2006). While there is often agreement that density of forest fuels should be reduced, there is much less agreement on specific treatments (Brunson and Shindler 2004). There have been no systemic and public reviews of the social or ecological impacts of the array of federal fuel reduction programs (but see McCarthy 2004b, US Congress 2006, USDA Inspector General 2006).

The Forest Guild goal is to promote ecologically, economically, and socially responsible forestry and since fuel reduction has become one of the central forestry activities, we wanted to examine the federal fuel reduction initiatives. We chose to use specific project level information to understand national level programs. Our project takes advantage of publicly available information to evaluate the impact of forest fuel reduction projects on federal lands. The first step in this process is to gauge whether the public's access to funding, treatment, and monitoring data is sufficient to create an accurate evaluation. The next goal is to use the available data to study the effect on social and ecological systems of federal fuel reduction initiatives. Our analysis focuses on northern California and southern Oregon, in the Klamath Siskiyou ecoregion, and builds on Forest Guild research on the NFP and fuels



reduction projects in the southwestern US (Morton 2003, McCarthy 2004b). We worked with the US Department of Agriculture (USDA), Forest Service's (USFS) Rogue River - Siskiyou National Forest and the US Department of Interior (DOI), Bureau of Land Management's (BLM) Medford District. Our process is regional in scale and provides a blueprint for a national scale assessment of federal fuel reduction programs.

### *The National Fire Plan (NFP)*

The NFP was the first step in unifying the federal government response to a wildland fire situation that was increasing seen as dangerous and unnatural (McCarthy 2004b).

Although the NFP's first goal is to maintain or improve fire suppression, it acknowledges the role of fire exclusion in creating fuel densities that are beyond the normal range of variability. The NFP calls for fuel reduction treatments that are "accomplished using prescribed fire, mechanical thinning, herbicides, grazing, or combinations of these and other methods. Treatments are being increasingly focused on the expanding wildland/urban interface areas." (<http://www.fireplan.gov/overview/whatis.html>)

The NFP is a broad rubric and covers a wide variety of programs and activities, which makes evaluating the impact of the program difficult (McCarthy 2004b). The majority of NFP funding has been for fire suppression, while hazardous fuels reduction has been a small part of the plan. From 2001 through budget requests for 2007, hazardous fuels treatment has accounted for less than 20% of the budget (McCarthy 2004b, USDA and DOI 2006). In many years, high fire suppression costs have forced the use of hazardous fuel reduction and community assistance budgets for fire fighting. Additionally, a period of high fire danger can restrict the opportunity to conduct fuel reduction projects. These two factors have worked in



combination to reduce the effective budget and impact of NFP hazardous fuel reduction projects (McCarthy 2004b, p 17).

*The Healthy Forests Initiative (HFI)*

In 2002, the new administration ushered in a change in the approach to hazardous fuel reduction and introduced HFI. HFI included plans to implement the core components of the NFP, took the approach that lawsuits had interfered with reduction of unusually high forest fuel loads and focused on reducing "red tape" (Office of President Bush 2002). For example, supervision of the Endangered Species Act can pass from Fish and Wildlife Service to trained USFS personnel in cases that are "not likely to adversely affect" habitat through an HFI administrative reform (Public Law 93-205, DOI 2003). The administration's emphasis on reducing organizational and legal impediments to fuel reduction projects was not entirely supported by the Government Accounting Office's (GAO) report on appeals and litigation on fuels reduction activities. The GAO report showed that only 3% of the USFS projects in fiscal years 2001 and 2002 were litigated and only 5% of projects were involved in appeals that took longer than 90 days (GAO 2003). However, based on the 2001-2002 GAO data, fuel reduction projects that included commercial logging and harvest of mature trees were 13% more likely to be appealed than other projects (Laband et al. 2006).

Another review of Forest Service litigation from 1989 to 2002 showed that the USFS usually won its court cases, particularly at the federal level (Keele et al. 2006). However, the percent of appeals and litigation varied significantly by region so that some areas experienced a greater impact from appeals than other areas (GAO 2003). USFS Region Six (Washington and Oregon) had a much larger percent of litigated decisions than any other

region between 1989 and 2002 (Keele et al. 2006). From 2001 to 2002, 51% of appealable decisions in USFS region six were appealed (Laband et al. 2006). Also the administrative burden of an appeal project varied because some projects were appealed multiple times (US General Accounting Office 2003). The number of appeals may also understate the effect of court challenges because a court decision based on one appeal may impact many projects (e.g. Bosworth 2005).

In order to reduce the legal impediments to fuel reduction, HFI introduced new measures that permitted some fuel reduction projects to be categorically excluded from full environmental analysis and documentation. Categorical exclusions (CEs) under HFI are limited to 4,500 acres for prescribed fire and 1,000 acres for fuel treatments. CE projects must be identified through a collaborative framework (USFS and BLM 2004). Although the designation was expanded by HFI, CEs existed before HFI was in place. In fiscal years 2001 and 2002, 59% of USFS decisions (486 decision on 3 million acres) on fuel reduction activities were categorically "excluded from detailed environmental impact analysis because the Forest Service determined that they had little or no significant impact on the land" (GAO 2003).

### *The Healthy Forests Restoration Act (HFRA)*

In 2003, the Healthy Forests Restoration Act (HRFA) brought legislative authority to HFI. HFRA added to the administrative tools introduced by HFI and had the power of law. Title 1 "Hazardous Fuel Reduction on Federal Land", the main element of HFRA, focused on the wildland urban interface (WUI) as at least 50% of funding was targeted for these high threat areas. It changed the traditional environmental review to a "predecisional" process,



which aims to avoid litigation after a federal forest management decision through pre-decision collaboration. HFRA required judges to balance the potential negative effects of HFI projects against the potential negative effects of no action. While HFRA provided expedited evaluation of ecological effects and added to HFI's administrative streamlining, it also had provisions with positive implications for ecological integrity and community participation, including requirements to:

- "Maintain, or contribute toward the restoration of, the structure and composition of old growth stands according to the pre-fire suppression old growth conditions" (Sec. 102)
- Focus "largely on small diameter trees, thinning, strategic fuel breaks, and prescribed fire to modify fire behavior" (Sec. 102)
- Maximize "the retention of large trees, as appropriate for the forest type, to the extent that the trees promote fire-resilient stands" (Sec. 102)
- "Facilitate collaboration among State and local governments and Indian tribes, and participation of interested persons, during the preparation of each authorized fuel reduction project" (Sec. 104)
- "Establish a multiparty monitoring, evaluation, and accountability process in order to assess the positive or negative ecological and social effects of authorized hazardous fuel reduction" (Sec. 102 Public Law 108-148)

In order to facilitate the public's participation in HFRA projects, Title 1 included a provision for the creation of Community Wildfire Protection Plans (CWPPs). The goal was to have communities initiate a planning process to make themselves safer from wildfire threat. HFRA guided federal agencies to collaborate with citizens on CWPPs and to prioritize





treatment areas based on CWPPs (Public Law 108-148, Communities Committee et al. 2004).

The main focus of HFRA is fuel reduction through Title 1, but the law contained five other less controversial elements:

- Title 2 encouraged the use of woody biomass and small diameter wood for economic development.
- Title 3 provided the authority to give technical and financial assistance to state and tribal efforts to improve watershed health on non-federal lands.
- Title 4 extended the HFRA to insect and disease problems in forests through procedural changes and support for research. Under Title 4 the categorical exclusion from environmental analysis included insect or disease treatments under 1,000 acres.
- Title 5 provided cost sharing for private landowners to enter an ecological reserve program.
- Title 6 established an early warning center to detect insect, disease, invasive species, fire, and weather-related risks (Public Law 108-148).

### *Related laws and legal challenges*

The foundation of much of the legal framework for federal land stewardship is based on the National Environmental Policy Act (NEPA) of 1969 (Public Law 91-190). Congress wrote NEPA "to promote efforts which will prevent or eliminate damage to the environment and biosphere" and forces federal agencies to analyze the potential environmental impacts of land management activities. NEPA dictates that federal agencies write environmental impact



statements (EISs) for major projects and those expected to have significant effects on the human environment. Environmental assessments (EAs) cover projects where no significant impact is expected and are a more concise description of environmental consequences. Agencies use decision memos for projects that are categorically excluded (CEs) from more thorough investigation because they fit in a category of projects that are generally free of significant effects (USFS 2004). For the National Forests, the National Forest Management Act of 1976 directs management to include multiple-uses and generate a sustained-yield (Public Law 94-588).

Many more recent laws also have an impact on fuel reduction projects and will affect the future of HFI. For example the Tribal Forest Protection Act expands the focus of the HFI to tribal lands and projects proposed by native nations ( Public Law 108-278). Another important element in HFI is the use of stewardship contracts to implement projects. New authorities were created by congressional appropriation that permitted USFS and BLM to use private contractors to conduct fuel reduction and restoration projects via contracts that included exchanges of goods for services (Public Law 108-7). Stewardship contracts are allowed to use the sale of material created as a by-product of reducing fuels, e.g. small diameter trees, to offset the cost of the project.

In the Pacific Northwest, HFI and HFRA are interwoven with the Northwest Forest Plan (NWFP - [www.reo.gov](http://www.reo.gov)). All projects that disturb habitat - even categorically excluded fuel reduction projects - must abide by the rules of the NWFP and analyze the effect on species designated in the plan as "Survey and Manage species" (BLM and USFS 2004). A recent court decision has halted two BLM timber sales because they ran afoul of the NWFP survey and manage requirements (Ninth Circuit 2006b).



New legislation, such as the Healthy Forests Partnership Act, may expand HFI by increasing the opportunities for federal agencies to work with state and local governments on fuels reduction projects. Similarly, the Watershed Restoration and Enhancement Agreements Act passed by the Senate in 2006 would make permanent the provisions that allow federal agencies to enter into cooperative agreements to protect, restore, and enhance habitat (US Senate 109-2003). Although it includes provisions for fuel reduction projects, this Watershed Restoration Act is much more focused on restoration for the benefit of animals or ecosystem function. Another rule change by the USFS has expanded categorical exclusions to include national forest plans (USFS 2006). Although not part of HFI, this rule change does follow the premise that NEPA documentation and litigation unnecessarily impede land management.

The national effect of HFI and HFRA has been shaped by recent court decisions. In the *Earth Island Institute v. Ruthenbeck* (formally *v. Pengilly*) the Ninth Circuit court decided that CEs can be appealed (Ninth Circuit 2006a). Now categorical exclusion timber sales, prescribed burning projects, and thinnings are all subject to the pre-HFI schedule of notice, comment, and appeal processes (Bosworth 2005). Another decision, *Wilderness Society v. Rey* extended the appeal process to those individuals and groups who had not participated in the original NEPA process (District Court of Montana 2006b). This decision reduces the importance of the predecisional process introduced by HFRA. Other lawsuits are in progress, such as *Native Forest Network v. Bull* on Middle East Fork project in the Bitterroot National Forest (District Court of Montana 2006a), which may dull the HFI tools.



### *Evaluating Healthy Forests Initiative and Healthy Forests Restoration Act*

Many environmental groups were suspicious of the potential positive elements of HFI and criticized it because of the reduced environmental review and limitations on appeals and other mechanisms for public participation (e.g. Wilderness Society 2003). The HFRA law itself, like most tools, is not inherently bad or good; it can be used for either "stealth logging" or "ecosystem restoration." Since HFI reduces opportunity for the public to challenge forest projects, perspectives on HFI's ecological impact are closely related to opinions about the overall ecological impact of federal projects. In other words, those who feel the USFS or BLM generally do a good job protecting the environment are likely to support HFI, while those who feel federal agencies have a negative impact on the land are likely to oppose HFI (Winter et al. 2004, Johnson et al. 2006).

As with the NFP, an evaluation of HFI or the HFRA law is very difficult because the broad range of projects involved and the difficulty of record keeping. For example, while the Healthy Forests Report lists 3.4 million acres under "Hazardous Fuels & Landscape Activities," only 0.4 million are listed as HFI/HFRA acres (DOI and USFS 2006). The overall assessments of HFI that do exist stress the number of acres treated, to the exclusion of other metrics: "From 2001 through the end of August 2006, the Federal land management agencies have treated over 18 million acres of federal lands under the HFI and the NFP through landscape restoration actions. The effectiveness of these treatments in protecting communities and resources from fire has been demonstrated numerous times" (DOI and USFS 2006). Such statements are vague and difficult to verify.

"Acres treated" is a poor measure of effectiveness because of the vast differences in treatments and lack of clarity in how acres are tallied. The USDA Inspector General's report

on HFI and HFRA was critical of the USFS's use of acres treated as the main metric of success (USDA Inspector General 2006). The USDA Inspector General also highlights the difficulty of assessing the ecological impact of treatments because "hazardous fuels accomplishment reports do not provide detailed information to evaluate the overall progress of the program; details such as the location of treatments, changes in condition class, and initial or maintenance treatments are not reported," (USDA Inspector General 2006).

Congressional testimony in July 2006 illustrates both the lack of a coherent assessment of HFI as well as the prevalence of case studies used to support or condemn HFI. This congressional review was meant to evaluate the implementation of HFRA, but the testimony provided number of treatments and number of acres treated along with case studies without any consistent analysis of the effect of HFI projects. For example, Nina Rose Hatfield, Deputy Assistant Secretary, DOI, states: "In close coordination with State, local, and Tribal interests, Interior's agencies have treated 7 million acres since Fiscal Year 2002, which includes approximately 5.9 million acres through the hazardous fuels reduction program and approximately 1.1 million acres of landscape restoration accomplished through other land management activities" (Hatfield 2006). She then goes on to provide details on a few projects such as: "In the Castle Rock area near Vale, Oregon ... a total of 850 acres of Ponderosa pine stands are being treated using a combination of under-story thinning, hand piling, and prescribed fire" (Hatfield 2006). Neither the Deputy Secretary's numbers for acres treated nor her description of the Castle Rock project shed much light on the social or ecological impact of HFI.

## **Methods for Evaluating Healthy Forests Initiative Projects**

The first difficulty in evaluating the impact of HFI is identifying projects and processes driven by HFI or HFRA. HFI spans many agencies and a wide variety of funding, administrative, regulatory, and programmatic tools. There is no comprehensive and publicly accessible list of HFI or HFRA projects. The National Fire Plan Operations and Reporting System (NFPORS, [www.nfpors.gov](http://www.nfpors.gov)) may have fuel reduction projects coded by their inclusion in HFI and HFRA, but it is not accessible outside the federal government. NFPORS has a potential flaw as a reporting tool for fuel reduction projects. Since financial accounting is a main focus of NFPORS, multiple treatments to the same acre can be reported separately (BLM, Medford District Office, personal communication). For example, if an acre is thinned and then burned it could have two entries in NFPORS and hence be counted twice in a summary of acres treated. Because NFPORS is not public, it is impossible to tell how pervasive the potential is for double or triple counting of acres.

HFI includes projects that are funded through NFP or HFRA, added to tallies of acres treated to meet HFI goals, implemented through a stewardship contract, facilitated by administrative streamlining of the Endangered Species Act, or helped in some other way by one of the many elements of HFI. The simplest definition of an HFI project is any project that included an objective to reduce fire fuels and was implemented after the passage of HFRA in December of 2003. Using this simple definition we set out to evaluate HFI projects at the regional scale.

Our goal was to determine if, with the current level of publicly available information, the ecological impact of HFI projects could be evaluated. A detailed evaluation at the project level could provide some concrete data for what is often a polarized debate about HFI

projects. We chose to focus initially on southwestern Oregon and the Klamath-Siskiyou ecoregion (Olson et al. 1999), specifically the Rogue River - Siskiyou National Forest and the Bureau of Land Management's Medford District. In order to identify HFI projects we took two complimentary approaches, one focused on USFS used published reports and the other approach was based on interviews and collaboration with BLM staff.

The HFI program publishes a myriad of reports, many of which are easily available on the internet ([www.healthyforests.gov](http://www.healthyforests.gov)). Wading through the various reports to locate sufficient information at the project scale to evaluate social and ecological impact is an entirely different matter. Such analysis is usually limited by the lack of detail and paucity of ecological data. The main public sources for information on HFI projects were the NFP list of funded projects, the USFS Schedules of Proposed Actions (SOPAs), and the Healthy Forests website. From these sources, we created a database of USFS HFI projects.

The USFS SOPA and funding lists did not provide sufficient information to build even a rudimentary assessment of ecological impact. We retrieved more detail for each project from EIS, EA or CE decision memos available on USFS websites. We worked with staff of the BLM from the Medford District office to build a database of HFI projects. The staff provided descriptions of projects, which we included in our database, as well as explanations of project planning, implementation, and impact. With the help of the BLM staff, we were able to combine the quantitative data from the project descriptions with their qualitative insight into the implementation and impact of HFI projects.

In our evaluation of fuel reduction projects we focused on each project's relationship to the WUI, use of prescribed fire, public participation, new road construction, restoration treatments beyond removal of trees, and litigation or opposition to the project. The top

priorities for both the NFP and HFRA are treatments in the WUI areas because they have the most direct effect on protection of life and property. Prescribed fire is a key element in ensuring that fuel treatments reduce the probability of crown fire (Carey and Schumann 2003, Skinner et al. 2005, Robbins 2006). We examined public participation because building trust in federal forest management decisions is crucial to the success of fuel reduction projects (Winter et al. 2004). In 2000, a Council on Environmental Quality (CEQ) report to the President stated "Working with local communities is a critical element in restoring damaged landscapes and reducing fire hazards proximate to homes and communities". New road construction is an easily identified source of potential ecological damage (Forman and Alexander 1998, Frost 1999). We included restoration treatments focused on resources other than trees because they are a potential metric for federal commitment to restoration over and above simple fuel reduction. We also included litigation since opposition to federal projects was one of the main drivers for creating HFI and HFRA.

## **Results**

Throughout our investigation there was uncertainty between administrative offices about which projects were HFI or HFRA projects. This uncertainty can be seen at the national level where agency summaries of acres treated do not equal HFI program totals. Although the USFS estimates they treated approximately 100,000 acres (Bosworth 2006) and the DOI estimates they treated approximately 190,000 acres using HFI authorities in fiscal year 2005 (Hatfield 2006), the total number of acres treated reported for all HFI projects was only 270,000 acres (DOI and USFS 2006), a difference of 20,000 acres.



Confusion continues to reign at the regional level in the determination of which projects should be counted as HFI/HFRA. Some projects, such as the USFS's Table Crumbs (Siskiyou NF), were labeled as restoration projects and included fuel reduction as a goal, but USFS employees told us that they were not HFI/HFRA projects. Similarly, Foggy Eden (Siskiyou NF) is listed on the Healthy Forests website as a HFI stewardship project, but the USFS contact for the project stated it was not an HFI project. Why projects like Table Crumbs and Foggy Eden were not considered HFI is unclear. Other projects listed on the HFI website for the Rogue River - Siskiyou National Forest were not listed in the national forest specific project schedules (SOPAs), making them much more difficult to track. Projects cataloged in the NFP list of funded projects are listed only by name and state, which again makes them very difficult to locate. The Rogue River - Siskiyou National Forest projects were not listed as NFP projects and the NFP projects did not seem to be located on the Rogue River - Siskiyou National Forest. Similarly, the NFP funded projects were not in the lists of projects from the BLM.

Confusion extended to BLM projects, where the one project listed on the Healthy Forest website, Penny Stew (Medford district), was not included in the list of HFI projects provided by the BLM or any other publicly available list of projects. The official list of HFI projects supplied by the BLM included 60 projects covering nearly 25,870 acres, however the 13 other projects that included hazardous fuel reduction as a goal covered more than 39,000 acres. While these projects are not officially NFP, HFI, or HFRA related and many of their acres are not scheduled for fuels treatments, they are clearly an important element in understanding the impact of federal hazardous fuel reduction efforts. Even a comparison between the BLM fuel reduction projects for 2004 and the annual report for acres of

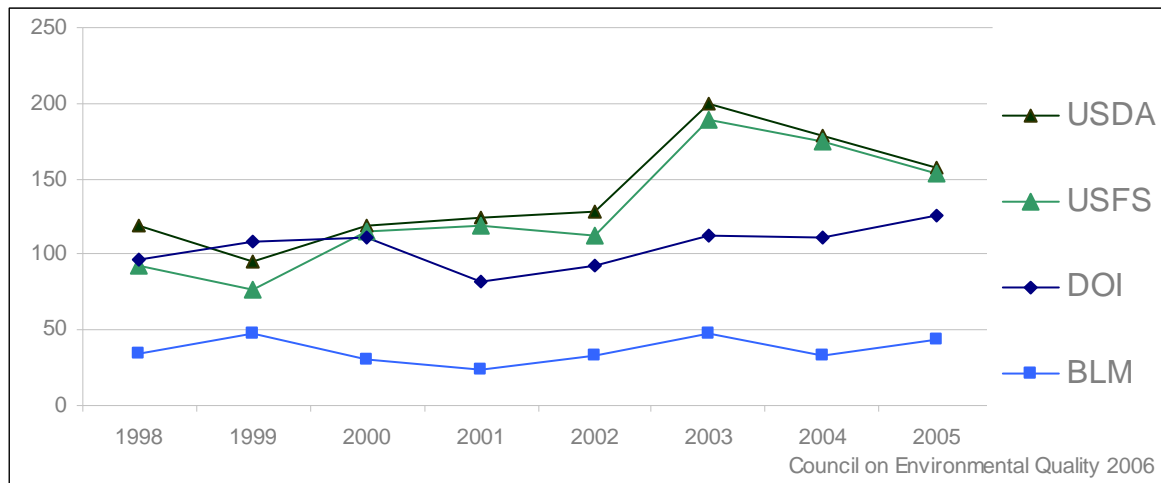
hazardous fuels reveals a discrepancy of nearly 14,000 acres (BLM District Medford 2004).

While the lag time between project funding and implementation may explain some of the discrepancy, there should be a transparent way for the public to connect individual projects to totals of acres treated.

### *National scale results*

In fiscal year 2006, the USFS and DOI reported that they treated a total of 461,000 acres using HFI and HFRA authorities, although they conducted hazardous fuels reductions and landscape restoration activities on 4 million acres (US DOI and USFS 2006). The USFS increased the annual number of NEPA EISs filed after 2002 (Chart 1). In 2005, the USFS filed 29% more EISs than they did in 2001 (CEQ1998 to 2006).

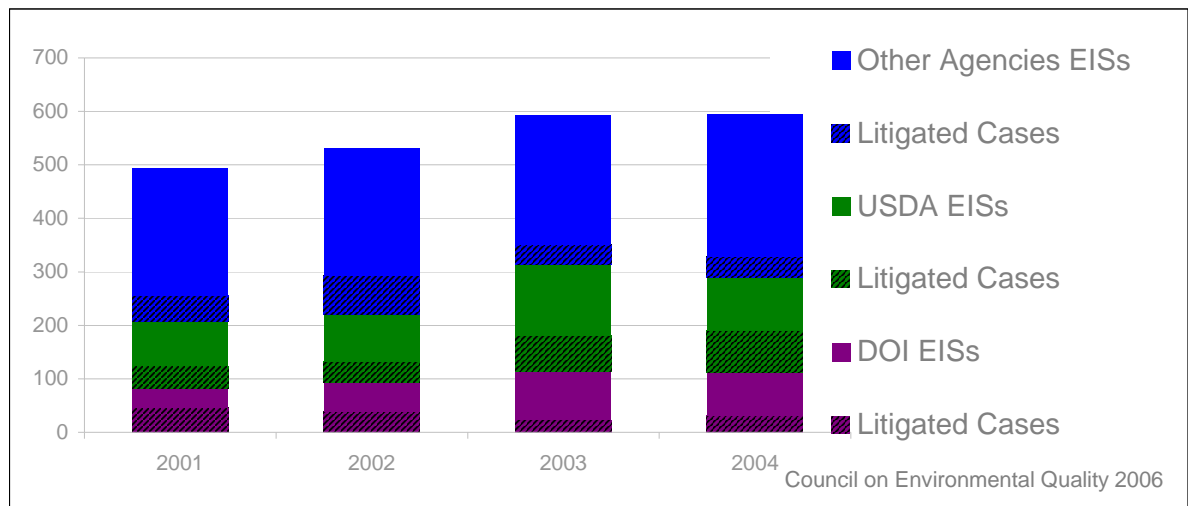
**Chart 1. NEPA Documents Filed from 1998 to 2005**



In addition, the percent of USDA EISs that were litigated was higher in 2004 (45%) than it had been in 2001 (28% Chart 2). Since USFS accounted for more than 95% of USDA EISs during this period, this translates into a high rate of USFS EISs in court. In fact, the rate of cases filed against USDA EISs was higher than the rate for other federal agencies in each

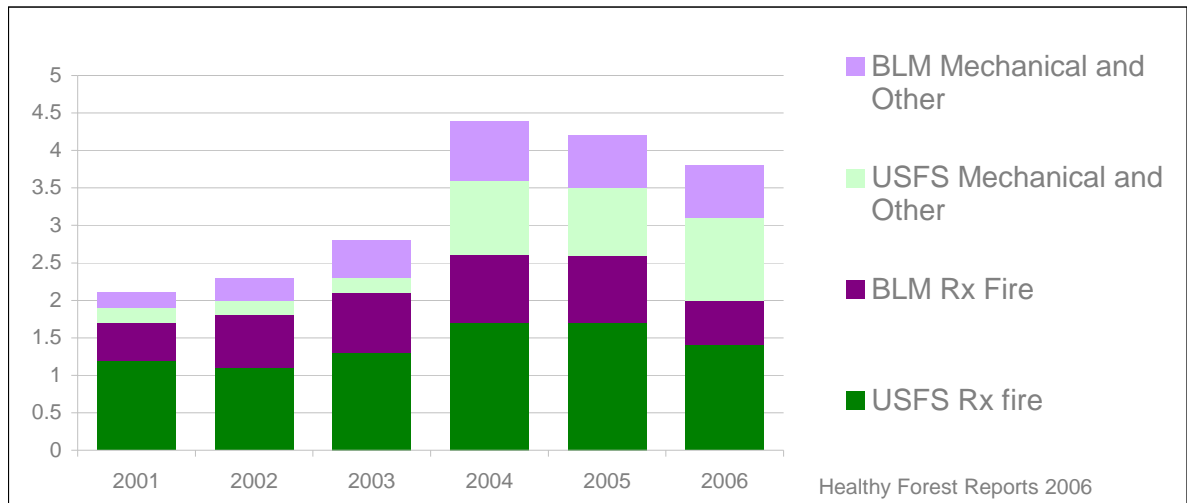
year from 2001 to 2004. In 2001, 34% of USDA EISs were litigated and 26% of all other federal EISs combined were litigated. By 2004, the difference had increased and 45% of USDA EISs were litigated compared to only 17% of all other federal EISs. The BLM filed consistently fewer NEPA documents and had a lower percent of litigation than the USFS (CEQ 1998 to 2006, Chart 2).

**Chart 2. NEPA Cases Filed and Litigated 2001 - 2004**

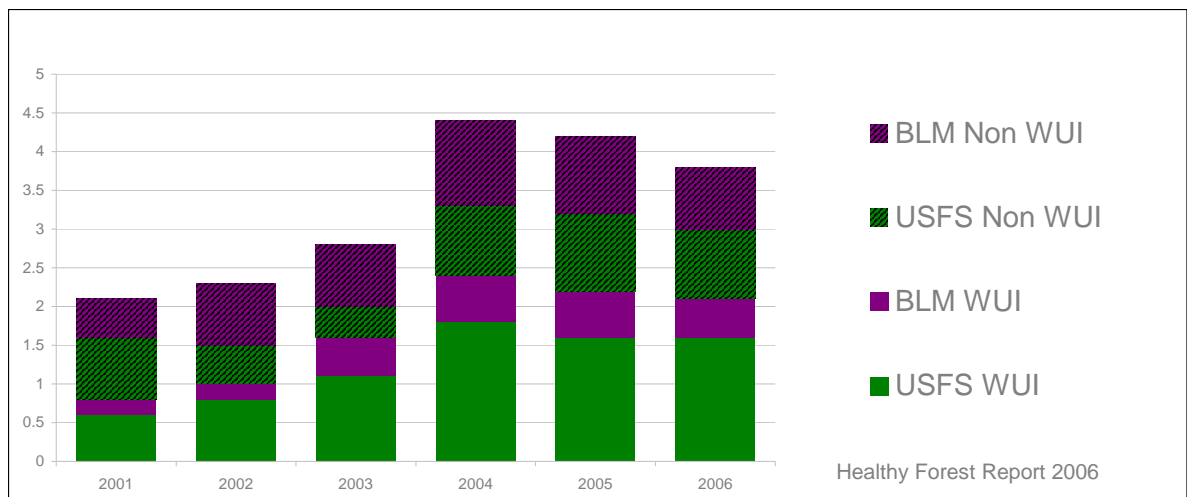


Although litigation of federal land management has been constant or increased since HFI was introduced, the number of acres of fuel reduction treatments has increased. The percent of acres treated with prescribed fire has fallen from 81% in 2001 to 53% in 2006 (DOI and USFS 2006, Chart 3) and the percent of acres in the WUI has risen from 38% in 2001 to 55% in 2006 (DOI and USFS 2006, Chart 4). However, both the number of acres treated with prescribed fire and acres in the WUI has declined since 2004. There were 600,000 fewer acres of prescribed fire and 300,000 fewer acres treated in the WUI between 2004 and 2006.

**Chart 3. Acres of Federal Hazardous Fuel Reduction by Method**

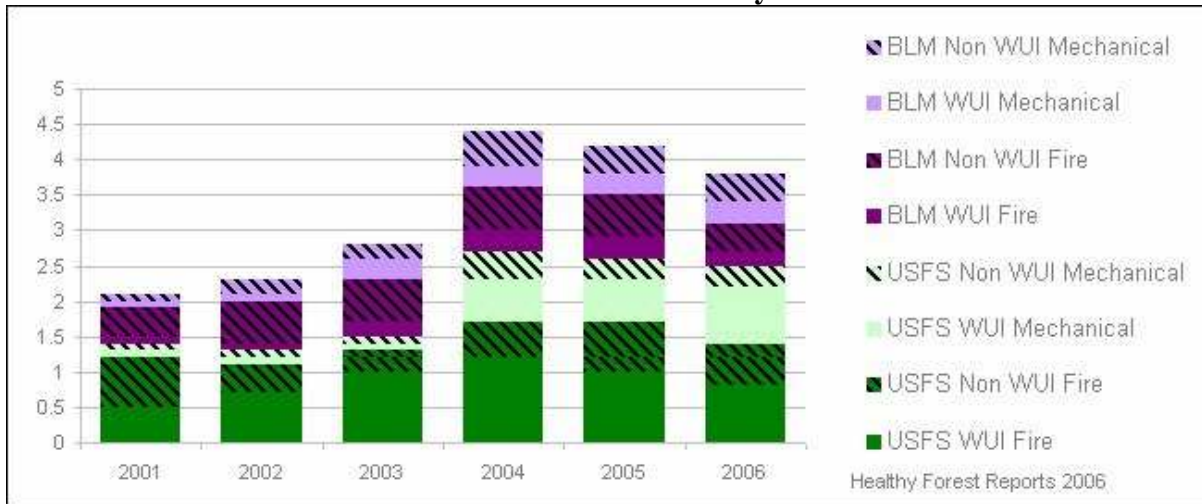


**Chart 4. Acres of Federal Hazardous Fuel Reduction by Location**



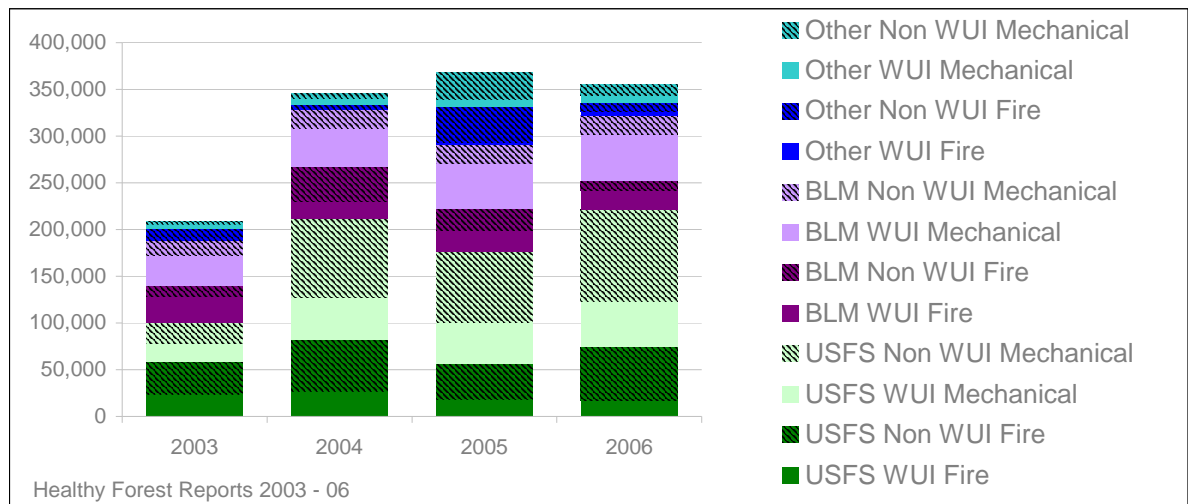
The percent of prescribed fire in the WUI averaged 30% of the acres treated while the percent of mechanical treatments outside of the WUI averaged 19% of the acres treated in the period 2004-2006 (DOI and USFS 2006, Chart 5). The largest increase in acres treated between 2001 and 2006 has been mechanical treatments in the WUI, which has increased from 200,000 acres in 2001 to 1.1 million acres treated in 2006.

**Chart 5. Acres of Federal Hazardous Fuel Reduction by Method and Location**



In Oregon, the number of acres of HFI fuel reduction treatments has grown from nearly 209,000 acres in 2003 to nearly 356,000 acres in 2006 ([www.healthyforest.gov](http://www.healthyforest.gov), Chart 6). More than half of that increase was in USFS mechanical treatments outside the WUI. In 2006, 42% of the acres treated were in the WUI and 33% used prescribed fire.

**Chart 6. Acres of HFI Fuel Treatments in Oregon 2003 - 2006**



*Results for projects in the Klamath-Siskiyou region*

At the regional scale, our review included all fuel reduction projects on the Rogue River - Siskiyou National Forest listed in the SOPAs between April 2005 and October 2006. There were 18 projects that included "Fuel Reduction" as one of the goals. Two of the 18 projects had EIS documentation, four had EAs, and the remaining 12 used CEs. Six of the projects were canceled (five of which used CEs), in most cases due to lack of funding (USFS, personal communication). Funding has been a limitation for implementation of the project or completing the necessary environmental documentation. The three completed projects included two EISs and an EA project. Two of the completed projects included restoration treatments not focused on trees and none included new road construction. The three completed USFS projects we studied emphasized community participation either through CWPPs or other community planning processes such as the Applegate Fire Plan ([grayback.com/applegate-valley/fireplan/](http://grayback.com/applegate-valley/fireplan/)). Three other projects included diameter caps that limited the maximum size of tree that could be harvested. Only 7 of the 18 USFS projects included prescribed fire as part of their management plan.

The BLM's Medford District office provided a list of 60 hazardous fuel reduction projects. In addition, we looked at all the NEPA documentation publicly available from the BLM Medford District and reviewed 25 other projects that fit our simple definition of any fuel reduction project implemented after the passage of HFRA in 2003. Most of the official HFI projects used CEs and hence were categorically excluded from in depth NEPA analysis. Only four official HFI projects were documented with EAs. The average size for the CEs was 300 acres while EAs covered over 2,000 acres on average. In total, the official HFI projects covered 25,870 acres. More than half of these official projects were in the proposal or

planning stages so full descriptions of the projects were not available yet. Of the official BLM HFI projects all but one was in the WUI, all included some sort of prescribed burning, none included new road construction, and 80% were built on public participation.

The statistics were different for the 25 other projects in the BLM's Medford district that were not officially HFI, but nonetheless included fuel reduction components. Of these projects one had an EIS, 22 were documented with EAs and two were in planning stages without NEPA documentation. Of the 12 projects we could analyze, 58% included WUI treatments, 92% involved some sort of prescription for fire, 55% had substantial public involvement such as a CWPP, and 25% included the construction of new roads. Three projects included a cap of 10 inches or below on the maximum diameter of trees cut in the treatment. Four of these fuel reduction projects included a restoration treatment not connected to trees, usually fish habitat improvement.

Although many of the BLM HFI projects used CEs, a much larger percent (80%) than USFS included substantial public participation. Many of the BLM projects, both official HFI projects and other fuel reduction projects, garnered public support by focusing on CWPPs. For example, the Seven Basins CWPP and the Jackson County Integrated Fire Plan originally identified the areas treated in the Galls Foot Forest Management fuel reduction project. On the other hand, the Willy Slide timber sale did not build on a community process and was stopped by court injunction (Ninth Circuit 2006b). Litigation or public opposition affected five of the fuel reduction projects but none of the official HFI projects. Of the five projects opposed by environmental groups, three were in the WUI, four included prescribed fire, two had public participation and two included new road construction.

Based on conversations with the BLM, it became clear that, in many cases, EAs were used for project planning at the landscape scale and CEs were often used for specific treatments (by definition smaller than 1,000 acres and functionally about 300 acres). The Rogue River Hazardous Fuel Reduction project was covered by an EA, but 11 subsidiary CEs were used to expedite the implementation of small area (average 103 acres) projects. The BLM also used CEs to treat areas on the edges of recent fires because they could be implemented rapidly. The Little Applegate Restoration project focused on areas surrounding the Quartz Fire while the Squires Peak project treated areas around the Squires Peak Fire with a broadcast burn.

## **Discussion**

HFI appears to have a muted effect on ecological and social systems. Neither the original administrative initiative nor the subsequent law has changed the basic implementation of forest management on public lands. Our most glaring finding is that accounting and documentation of HFI and HFRA projects is confused and insufficient. Funding to implement fuel reduction projects and to document their potential environmental impacts is inadequate. We also found that projects that involve the public and respond to communities' needs are more easily implemented and more successful than projects that do not. HFI and HFRA made no drastic change to the legal landscape in which federal land managers make decisions. However, HFI has enabled federal agencies to implement small projects that focus on non-controversial treatments more rapidly. Finally, prescribed fire is an under utilized tool in the federal fuel reduction program.



### *Accounting confusion and weak documentation*

Currently, there is insufficient information on HFI projects available to the public. The most important information is a complete list of HFI and HFRA projects. The NFPORS database may present an opportunity for a future, national scale evaluation of HFI. If the NFPORS can generate a comprehensive list of HFI projects then an impartial review of the projects could provide an honest national program evaluation. Such an impartial review will require access to ecological monitoring data that does not currently exist.

Another key element in future evaluations of HFI and HFRA is an accounting system that can total treated acres without double counting acres treated multiple times.

### *Insufficient funding for hazardous fuel treatments*

The lack of funding for implementation or NEPA documentation led to the cancellation of many of the fuel reduction projects. Overlapping legal requirements such as the NWFP species surveys may add an unanticipated cost to HFI projects. Congressional testimony echoes the continuing impact of NEPA requirements and lack of funding on fuel reduction projects (DeIaco 2006). The small number of HFI acres treated in comparison to the tens or even hundreds of millions of acres in need of treatment is another sign that funding or use of funds is inadequate.

### *Community participation*

Perhaps the most successful part of HFRA are the CWPPs because they focus federal attention on areas important to communities and thereby increase public support for agency land management plans. Similarly, USFS fuel reduction projects in 2001-2002 were 10% less

likely to be litigated if they occurred in the WUI (Laband et al. 2006). Some of the USFS projects we studied were canceled (or postponed) because the areas they sought to treat did not have CWPPs yet. Many of the BLM projects included areas designated by CWPPs or areas prioritize by local landowners and fire districts to cross-jurisdictional projects.

Congressional testimony highlights the effect of a lack of public participation on the failure of the Middle East Fork project on the Bitterroot National Forest versus an engaged public on the success of DeBaugan Project on the Lolo National Forest (Koehler 2006) and the White Mountains Stewardship Contract in Arizona (Bosworth 2006). Survey of opinions on fuel reduction found "Trust in agency personnel is the most significant predictor of agency effectiveness for managing fire and fire risk" (Shindler and Brunson 2005).

Another way to generate public involvement and build trust in fuel reduction projects is multiparty monitoring. Multiparty monitoring can increase the public's knowledge and understanding of fuel reduction treatments, which in turn increases their support for such treatments (Shindler and Brunson 2005). Unfortunately, of all the projects we reviewed, only one, the USFS's Ashland Forest Resiliency project, had a plan for multiparty monitoring. Currently, the Interim Field Guide for HFI and HFRA states that multiparty monitoring must be funded in part by stakeholder contributions, which severely limits the opportunities for multiparty monitoring (McCarthy 2004a, US Forest Service and Bureau of Land Management 2004). Because of the importance of community trust and knowledge about treatment methods, multiparty monitoring should be better funded.

### *Little change in the legal landscape*

Contrary to initial predictions (e.g. Office of President Bush 2002, Wilderness Society 2003), HFI has not restructured the legal framework for federal land management. At the national scale, USFS and BLM are filing NEPA documentation at the same or higher rates as before HFI and, as of 2004, NEPA documents continue to be challenged in court at a high rate (45% of USDA EISs litigated). The public and environmental groups have maintained their ability to use legal action to halt fuel reduction projects even though some of the elements of HFI restrict their legal avenues. Acreage limits on CEs and limited funding for HFI or HFRA projects mean agencies continue to rely on projects covered by EIS or EA documentation, which increase opportunity for legal challenge. In addition, the implementation of notice, comment and appeal procedures for CEs in the *Earth Island Institute v. Ruthenbeck* decision re-opened this opportunity for litigation to alter federal land management decisions.

### *Small, successful Categorical Exclusions (CEs)*

In some cases, federal managers have been able to use CEs to speed up less controversial treatments on small areas, often within a large, landscape framework provided by an EA. Managers used diameter caps and integration with community supported fire plans to reduce the potential for controversy on these projects. Because these projects cover a small area (300 acres on average for the Medford District BLM) the landscape impact of these projects is relatively small.

### *Insufficient use of prescribed fire*

More energy needs to be focused on ensuring that forests experience low intensity fire where they are adapted to it. Nationally only about half of the acres treated are burned. Moreover the number of acres burned has declined in recent years and many of these acres are confined to the southeastern US (US Congress 2006). While nearly all of the BLM projects in the regional study included some prescribed burning, only 38% of the USFS projects did. Even in those projects that included fire, it was often relegated to a follow up selection of management plans, listed as a "potential" option, or included on a small percent of the project acreage. An increase in the number of projects that include prescribed fire as a central element may increase the effectiveness of fuel reduction efforts (Carey and Schumann 2003, Skinner et al. 2005, Robbins 2006).

### **Conclusion**

We hope this evaluation of HFI and HFRA encourages federal agencies to increase the amount, clarity, and accessibility of information on fuel reduction projects, regardless of project status as HFI, HFRA or NFP. Opening the NFPORS database to public appraisal could be an easy first step. Our review reinforces previous studies that show early and substantial public participation is a much more effective tool for facilitating fuel reduction projects than are administrative attempts to curtail litigation.

## **List of Abbreviations**

Bureau of Land Management – BLM

Categorical exclusion – CE

Center for Environmental Quality – CEQ

Community Wildfire Protection Plan – CWPP

Decision memo – DM

Environmental assessment – EA

Environmental impact statement – EIS

Government Accounting Office – GAO

Healthy Forests Initiative – HFI, 2002

Healthy Forests Restoration Act – HFRA, 2003

National Environmental Policy Act – NEPA, 1969

National Fire Plan – NFP, 2001

National Fire Plan Operations and Reporting System - NFPORS

Northwest Forest Plan – NWFP

Schedule of Proposed Actions - SOPA

United States Department of Agriculture – USDA

United States Forest Service – USFS

United States Department of the Interior – DOI

Wildland urban interface - WUI

## References

- Bosworth, D. 2005. Earth Island Institute v. Ruthenbeck Ruling of October 19, 2005. US Forest Service, Washington, DC.  
[http://www.fs.fed.us/emc/applit/includes/chiefs\\_letter\\_102005.pdf](http://www.fs.fed.us/emc/applit/includes/chiefs_letter_102005.pdf)
- Bosworth, D. 2006. Oversight Hearing on “Implementation of the Healthy Forests Restoration Act”. Committee on Energy and Natural Resources, Subcommittee on Public Lands and Forests, Washington, DC.  
[http://energy.senate.gov/public/index.cfm?FuseAction=Hearings.Testimony&Hearing\\_ID=1574&Witness\\_ID=1426](http://energy.senate.gov/public/index.cfm?FuseAction=Hearings.Testimony&Hearing_ID=1574&Witness_ID=1426)
- Brunson, M. W., and B. Shindler. 2004. Geographic variation in social acceptability of wildlandfuels management in the western United States. *Society of Natural Resources* 17(8):661-678.  
<http://www.ingentaconnect.com/content/routledg/usnr/2004/00000017/00000008/art0002>
- Bureau of Land Management, and US Forest Service. 2004. Supplemental Environmental Impact Statement to Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines. Portland, OR. <http://www.reo.gov/s-m2006/>
- Bureau of Land Management Medford District. 2004. Annual Program Summary And Monitoring Report For Fiscal Year 2004. Bureau of Land Management, Medford, OR.  
[http://www.blm.gov/or/districts/medford/plans/files/medford\\_aps\\_fy2004\\_acc.pdf](http://www.blm.gov/or/districts/medford/plans/files/medford_aps_fy2004_acc.pdf)
- Carey, H., and M. Schumann. 2003. Modifying Wildfire Behavior - The Effectiveness of Fuel Treatments. National Community Forestry Center, Working Paper 2, Forest Guild, Santa Fe, NM.  
<http://www.forestguild.org/images/swcenter/pdf/WorkingPaper2.pdf>
- Communities Committee, National Association of Counties, National Association of State Foresters, Society of American Foresters, and Western Governors’ Association. 2004. Preparing a Community Wildfire Protection Plan. Society of American Foresters, Bethesda, MD. <http://www.safnet.org/policyandpress/cwpp.cfm>
- Council on Environmental Quality. 1998 to 2006. NEPA Litigation Surveys. Washington, DC. <http://www.nepa.gov>
- Council on Environmental Quality. 2000. Managing the Impact of Wildfires on Communities and the Environment: A Report to the President in Response to the Wildfires of 2000. Washington, DC. <http://www.fireplan.gov/reports/8-20-en.pdf>
- DeIaco, R. 2006. Oversight Hearing on “Implementation of the Healthy Forests Restoration Act”. Committee on Energy and Natural Resources, Subcommittee on Public Lands and Forests, Washington, DC.  
[http://energy.senate.gov/public/index.cfm?FuseAction=Hearings.Hearing&Hearing\\_ID=1574](http://energy.senate.gov/public/index.cfm?FuseAction=Hearings.Hearing&Hearing_ID=1574)
- District Court of Montana. 2006a. Native Forest Network v. Bull. Missoula, MT.  
[http://www.nativeforest.org/pdf/MEF\\_Complaint.pdf](http://www.nativeforest.org/pdf/MEF_Complaint.pdf)
- District Court of Montana. 2006b. Wilderness Society v. Rey, No. CV-03-119-M. Missoula, MT. <http://www.findlaw.com/news.findlaw.com/hdocs/docs/environment/wsrey10702ord.pdf>
- Forman, R. T. T., and L. E. Alexander. 1998. Roads and Their Major Ecological Effects. *Annual Review of Ecology and Systematics and Geography of Plants* 29:207-231.

- <http://links.jstor.org/sici?sici=0066-4162%281998%2929%3C207%3ARATMEE%3E2.0.CO%3B2-9>
- Frost, E. 1999. The scientific basis for managing fire and fuels in national-forest roadless areas. World Wildlife Fund. CFR 64 No 201, Ashland, OR.  
[http://www.worldwildlife.org/wildplaces/kla/pubs/fires\\_summary.pdf](http://www.worldwildlife.org/wildplaces/kla/pubs/fires_summary.pdf)
- Hatfield, N. R. 2006. Oversight Hearing on "Implementation of the Healthy Forests Restoration Act". Committee on Energy and Natural Resources, Subcommittee on Public Lands and Forests, Washington, DC.  
[http://energy.senate.gov/public/index.cfm?FuseAction=Hearings.Hearing&Hearing\\_ID=1574](http://energy.senate.gov/public/index.cfm?FuseAction=Hearings.Hearing&Hearing_ID=1574)
- Johnson, J. F., D. N. Bengston, D. P. Fan, and K. C. Nelson. 2006. U.S. Policy Response to the Fuels Management Problem: An Analysis of the Public Debate About the Healthy Forests Initiative and the Healthy Forests Restoration Act. *in* P. L. Andrews and B. W. Butler, editors. Fuels Management-How to Measure Success. RMRS-P-41. US Forest Service, Portland, OR. [http://www.fs.fed.us/rm/pubs/rmrs\\_p041.html](http://www.fs.fed.us/rm/pubs/rmrs_p041.html)
- Keele, D. M., R. W. Malmshemer, D. W. Floyd, and J. E. Perez. 2006. Forest Service Land Management Litigation 1989-2002. *Journal of Forestry* **104**(4):196-202.  
<http://www.ingentaconnect.com/content/saf/jof/2006/00000104/00000004/art00007>
- Koehler, M. 2006. Oversight Hearing on "Implementation of the Healthy Forests Restoration Act". Committee on Energy and Natural Resources, Subcommittee on Public Lands and Forests, Washington, DC. <http://energy.senate.gov/public/files/Koehler.pdf>
- Laband, D. N., A. González-Cabán, and A. Hussain. 2006. Factors that Influence Administrative Appeals of Proposed USDA Forest Service Fuels Reduction Actions. *Forest Science* **52**(5):477-488.  
<http://www.ingentaconnect.com/content/saf/fs/2006/00000052/00000005/art00001>
- McCarthy, L. 2004a. Oversight Hearing on "Implementation of the Healthy Forests Restoration Act and Community Wildfire Protection Plans". Subcommittee on Forestry, Conservation, and Rural Revitalization, Senate Committee on Agriculture, Nutrition and Forestry, Washington, DC.  
<http://www.foreststewardsguild.org/images/forestprotection/ForestGuildstate18A766.pdf>
- McCarthy, L. F. 2004b. State of the National Fire Plan. Forest Guild, Santa Fe, NM.  
<http://www.foreststewardsguild.org/images/forestprotection/Snapshot-Master.pdf>
- Medford District BLM, and Rogue River - Siskiyou National Forest. 2006. Southwest Oregon Interagency Biomass Utilization Strategy. Bureau of Land Management, Medford, OR. <http://www.blm.gov/or/districts/medford/files/Biomass.pdf>
- Morton, J. 2003. An Evaluation of Fuel Reduction Projects in the Eastern Cibola National Forest. National Community Forestry Center, Working Paper 8, Forest Guild, Santa Fe, NM. <http://theforestrust.org/images/swcenter/pdf/WorkingPaper8.pdf>
- Ninth Circuit. 2006a. *Earth Island Institute v. Ruthenbeck*, No. 05-16975. United States Court of Appeals For The Ninth Circuit.  
[http://www.ca9.uscourts.gov/ca9/newopinions.nsf/597156B35555B768882571C600522C7A/\\$file/0516975.pdf?openelement](http://www.ca9.uscourts.gov/ca9/newopinions.nsf/597156B35555B768882571C600522C7A/$file/0516975.pdf?openelement)
- Ninth Circuit. 2006b. *Klamath-Siskiyou Wildlands Center v. Bureau of Land Management*, No. 06-35214. United States Court of Appeals For The Ninth Circuit, Seattle, WA.  
[http://www.lclark.edu/org/peac/objects/RTV\\_opinion.pdf](http://www.lclark.edu/org/peac/objects/RTV_opinion.pdf)

- Noss, R. F., J. F. Franklin, W. L. Baker, T. Schoennagel, and P. B. Moyle. 2006. Managing fire-prone forests in the western United States. *Frontiers in Ecology* 4(9):481–487. <http://www.frontiersinecology.org/>
- Office of President Bush. 2002. Healthy Forests: An Initiative for Wildfire Prevention and Stronger Communities. The White House, Washington, DC. [http://www.whitehouse.gov/infocus/healthyforests/Healthy\\_Forests\\_v2.pdf](http://www.whitehouse.gov/infocus/healthyforests/Healthy_Forests_v2.pdf)
- Olson, D., R. Noss, G. Orians, J. Stritholt, C. Williams, and J. Sawyer. 1999. Klamath-Siskiyou forests. *in* T. H. Ricketts, K. Carney, R. Abell, and S. Walters, editors. *Terrestrial Ecoregions Of North America: A Conservation Assessment Ecoregions Assessments*. Island Press, Washington, DC. [http://www.worldwildlife.org/wildworld/profiles/terrestrial/na/na0516\\_full.html](http://www.worldwildlife.org/wildworld/profiles/terrestrial/na/na0516_full.html)
- Public Law 91-190. 1969. National Environmental Policy Act. 91st Congress, 1st Session, Washington, DC. <http://www.nepa.gov>
- Public Law 93-205. 1973. Endangered Species Act. 93rd Congress, 1st Session, Washington, DC. <http://www.fws.gov/endangered/esaall.pdf>
- Public Law 94-588. 1976. National Forest Management Act. 94th Congress, 2nd Session, Washington, DC. <http://www.fs.fed.us/emc/nfma/includes/NFMA1976.pdf>
- Public Law 108-7. Sec 323. Consolidated Appropriations Resolution. 108th Congress, 1st Session, Washington, DC. <http://www.govtrack.us/congress/bill.xpd?bill=hj108-2>
- Public Law 108-148. Healthy Forests Restoration Act. 108th Congress, 1st Session. [http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=108\\_cong\\_public\\_laws&docid=f:publ148.108.pdf](http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=108_cong_public_laws&docid=f:publ148.108.pdf)
- Public Law 108-278. Tribal Forest Protection Act. 108th Congress, 2nd Session, Washington, DC. <http://www.govtrack.us/congress/bill.xpd?bill=h108-3846>
- Robbins, J. 2006. Studies Find Danger to Forests in Thinning Without Burning. November 14, 2006, New York Times. <http://www.nytimes.com/2006/11/14/science/earth/14fire.html?ex=157680000&en=b661e03c4fc85afd&ei=5124&partner=permlink&exprod=permlink>
- Sexton, G. 2005. Letter regarding: Mt. Ashland Late-Successional Reserve Habitat Restoration and Fuel Reduction Project Scoping. Klamath Siskiyou Wildlands Center, Ashland, OR. <http://www.klamathforestalliance.org/Documents/kfascmtashlandlsr.pdf>
- Shindler, B., and M. W. Brunson. 2005. Evaluating Public Responses to Wildland Fuels Management: Factors that Influence Acceptance of Practices and Decisions. Joint Fire Sciences Program. 99-1-2-08. [http://oregonstate.edu/~shindleb/jfsp/Executive\\_Summary.pdf](http://oregonstate.edu/~shindleb/jfsp/Executive_Summary.pdf)
- Skinner, C. N., M.W.Ritchie, T. Hamilton, and J. Symons. 2005. Effects of prescribed fire and thinning on wildfire severity: the Cone Fire, Blacks Mountain Experimental Forest. *in* S. Cooper, editor. 25th Annual Forest Vegetation Management Conference. University of California Cooperative Extension, Redding, CA. [http://www.fs.fed.us/psw/programs/ecology\\_of\\_western\\_forests/publications/publications/ConeFire-Skinneretal.pdf](http://www.fs.fed.us/psw/programs/ecology_of_western_forests/publications/publications/ConeFire-Skinneretal.pdf)
- US Congress. 2003. Conference Report to Accompany H.R. 1904, the Healthy Forests Restoration Act of 2003. Washington, DC. <http://rpc.senate.gov/files/CRev112103.pdf>



- US Congress. 2006. Oversight Hearing on “Implementation of the Healthy Forests Restoration Act”. Committee on Energy and Natural Resources, Subcommittee on Public Lands and Forests, Washington, DC.  
[http://energy.senate.gov/public/index.cfm?FuseAction=Hearings.Hearing&Hearing\\_ID=1574](http://energy.senate.gov/public/index.cfm?FuseAction=Hearings.Hearing&Hearing_ID=1574)
- US Dept of Agriculture and US Dept. of Interior. 2006. FY 2007 Budget Justification. Washington, DC.  
[http://www.fireplan.gov/resources/documents/NFP2007\\_budget\\_justification.pdf](http://www.fireplan.gov/resources/documents/NFP2007_budget_justification.pdf)
- US Dept. of Interior. 2003. Joint Counterpart Endangered Species Act Section 7 Consultation Regulations. Federal Register **68**(235):68254-68254.  
<http://policy.fws.gov/library/03-30393.pdf>
- US Dept. of Interior, and US Forest Service. 2006. Healthy Forest Report. Washington, DC.  
[http://www.healthyforests.gov/projects/2006\\_year\\_end\\_report.pdf](http://www.healthyforests.gov/projects/2006_year_end_report.pdf)
- US Forest Service. 2004. Categorical Exclusion From Documentation, Section 1909.15. *in* Forest Service Handbook, Washington, DC.  
[http://www.fs.fed.us/im/directives/fsh/1909.15/1909.15\\_30.doc](http://www.fs.fed.us/im/directives/fsh/1909.15/1909.15_30.doc)
- US Forest Service. 2006. National Environmental Policy Act Documentation Needed for Developing, Revising, or Amending Land Management Plans; Categorical Exclusion. Federal Register **71**(241):75481–75495.  
[http://www.access.gpo.gov/su\\_docs/fedreg/a061215c.html#Forest%20Service](http://www.access.gpo.gov/su_docs/fedreg/a061215c.html#Forest%20Service)
- US Forest Service, and Bureau of Land Management. 2004. The Healthy Forests Initiative and Healthy Forests Restoration Act Interim Field Guide. FS–799. Washington, DC.  
<http://www.fs.fed.us/projects/hfi/field-guide/>
- US General Accounting Office. 2003. Forest Service: Information on Appeals and Litigation Involving Fuels Reduction Activities. Report to Congressional Requesters. GAO-04-52, Washington, DC. <http://www.gao.gov/new.items/d0452.pdf>
- US Senate. 2006. S.109-2003. Watershed Restoration and Enhancement Agreements Act. 109th Congress, 2nd Session, Washington, DC.  
<http://www.govtrack.us/congress/bill.xpd?bill=s109-2003>
- USDA Inspector General. 2006. Implementation of the Healthy Forests Initiative. 08601-6-AT, US Dept of Agriculture Office of the Inspector General, Southeast Region, Washington, DC. <http://www.usda.gov/oig/webdocs/08601-6-AT.pdf>
- Wilderness Society. 2003. Analysis of Healthy Forests Restoration Act of 2003. Washington, DC.  
<http://www.wilderness.org/Library/Documents/McInnis-WaldenBillAnalysis.cfm>
- Winter, G., C. A. Vogt, and S. McCaffrey. 2004. Examining social in fuels management strategies. *Journal of Forestry* **102**(6):8-15.  
<http://www.ingentaconnect.com/content/saf/jof/2004/00000102/00000006/art00003>