

U.S. Federal Fuel Management Programs: Reducing Risk to Communities and Increasing Ecosystem Resilience and Sustainability

Tim Sexton¹

There is no doubt that wildland fuel conditions on large portions of federal wildlands in the United States have changed significantly over the last 100 years. The changes include:

- Increased density of woody species
- Artificial fragmentation of fuel mosaics
- Exotic species invasions
- Structural changes which reduce ecosystem resilience to fire

Fire suppression, especially in plant communities which evolved with frequent fire, has allowed fuel to accumulate to levels far above what would have existed without fire suppression. The fire suppression era also contributed to forest densification. Many more stems of living shrubs and trees occupy landscapes today than would have existed without fire suppression. Forest densification tends to predispose areas to insect and disease mortality, further loading up the dead fuel mass.

Roads, farms, cities and other human developments have broken up fuel mosaics. Fragmented fuels inhibit fire spread and contribute to fuel accumulation.

Exotic species such as cheat grass, phragmites, salt cedar (tamarisk), and others have added to live fuel mosaics or even completely replaced previous plant communities. Many exotics (such as those listed above) are much more flammable than the native species that would otherwise occupy sites. The increased flammability has resulted in larger and more damaging wildfires in these invaded areas.

Logging, grazing and other human activities have altered plant community structure and composition. In many cases the new structure is more susceptible to fire damage and/or more flammable. Small trees are fire-killed more readily than large trees and provide a more effective “ladder” for a surface fire to climb into the crowns.

Last, but not least, social changes in the United States have caused a huge change in the potential *consequences* of wildfires. Homes, infrastructure, and public use have become embedded in these altered, volatile fuel mosaics.

The last twenty years have witnessed a significant increase in large, costly wildfires which have damaged natural resources and improvements on public and private lands. A great deal of scientific research points to increases in wildland urban interface, fuel accumulations, alteration of species composition, and changes in plant community structure as principal reasons for these costly, damaging wildfires.

The National Fire Plan and associated initiatives have provided a framework for managing fuels to reduce impacts from wildfire. The primary five federal agencies with wildland fire management responsibilities (US Forest Service,

In: Andrews, Patricia L.; Butler, Bret W., comps. 2006. Fuels Management—How to Measure Success: Conference Proceedings. 28-30 March 2006; Portland, OR. Proceedings RMRS-P-41. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.

¹ Program Manager, USDA Forest Service. timsexton@fs.fed.us

Bureau of Land Management, National Park Service, Bureau of Indian Affairs, and US Fish and Wildlife Service) are coordinating efforts to manage fuels. The National Interagency Fuels Coordination Group (NIFCG) with representatives from these five federal agencies has been tasked to coordinate federal strategies for mitigating wildfire hazards through fuel treatments. NIFCG is currently composed of Dennis Dupuis (BIA), Erik Christiansen (BLM), Dick Bahr (NPS), John Segar (USF&W), and Tim Sexton (USFS).

I encourage you to engage these agency representatives when you have issues with national policy rather than simply complain to your counterparts. We need to know how our efforts are working. You need to tell us. We have a website which can be accessed through the National Interagency Fire Center home page. This website is intended to be a resource for keeping the field informed on our actions and proposed changes to our business.

The primary goal of federal wildland fuel management is to reduce the unwanted impacts from wildfire, including threats to public safety, suppression costs, damage to natural and cultural resources, and damage to public and private improvements. It must be clear that we are not trying to reduce the number of acres burned by wildfire. In fact, we will likely facilitate an increase in acres burned by unplanned ignitions. Wildland Fire Use and less aggressive attack on many suppression-objective wildfires present opportunities for suppression cost savings, reduced exposure of firefighters to hazards, and reductions in hazardous fuel.

The federal wildland fire agencies have agreed on several key action areas in support of the goal to reduce impacts from wildfires. These action areas include:

- aligning federal fuels management policies, practices, and procedures
- prioritizing fuel treatments which:
 - have been identified as key components of Community Wildfire Protection Plans,
 - provide by-products for local economies and energy production,
 - reduce hazard on a landscape scale, and
 - are cost-effective
- expanding wildland fire use as a means of treating fuels
- providing support for development and deployment of technologies (such as LANDFIRE and associated planning tools) for facilitating planning and implementation of fuel reduction projects
- managing ecosystems so that they are resilient to disturbance and sustainable in the goods and services which they provide to the American Public
- development of a work force which has the capacity and the capabilities to strategically manage fuels to obtain the greatest reduction in impacts from wildfire

Successes

In fiscal year 2005 more than 4 million acres of hazardous fuel were treated on USDA and USDI lands. We recognize that gross area treated is not a particularly good indicator of progress toward the goal of reducing unwanted impacts from wildfire. However, it *is* a good indicator of our increasing capability to implement treatments. We believe that LANDFIRE will enable us to develop metrics which will correlate more closely with progress toward our goal.

We have many accounts of wildfires which were contained or where communities were prevented from burning by the fuels treatments accomplished since the National Fire Plan was developed.

In July 2004, the Waterfall Fire, near Carson City, Nevada burned over 8,700 acres. Fifteen homes were destroyed. However, many times that number were saved due to reduced fire behavior in fuel treatment areas on BLM lands adjacent to subdivisions.

Recently, the February Fire on the Tonto National Forest in Arizona was contained at about 4,200 acres due, in part, to a recently completed fuel treatment area. Post fire review indicated that the containment opportunity afforded by the fuel treatment area contributed to protecting many homes in the fire area including one owned by Mike Johns, US Attorney and frequent defender of us in fire-related litigation.

In October 2004 on the Eldorado National Forest, the Fred and Power Fires burned over 20,000 acres near the communities of Kyburz and Silver Fork, California. Fuel treatment areas in the wildland urban interface enabled firefighters to protect all homes in these communities.

One of the best examples of successful fuel treatment is the Cone Fire which burned on the Blacks Mountain Experimental Forest in northern California in 2002. This fire burned through several well documented fuel treatment areas, enabling comparisons of burn severity related to treatment type and intensity.

While these are impressive accomplishments we need to do more. We continue to see many examples of urban interface and intermix in extremely vulnerable fuel conditions. Beyond the WUI, we see extensive areas of overly dense forests; cheat grass-invaded rangelands, and watersheds which have been left to develop multi-story flammable conditions. Historically, an average of over 25 million acres burned annually from wildfire on lands that are now managed by these agencies in the coterminous United States. Some national analyses have suggested that we need to double our efforts in order to make significant progress in reducing the impacts of wildfire. Other analyses indicate that strategic placement of treatments might achieve that same significant progress with much less area treated.

We have had a few failures along the way. In early 2006 the US Forest Service has experienced two large, damaging escaped prescribed fires. In January, on the Cleveland National Forest, the Sierra Prescribed Fire escaped eventually burning about 12,000 acres and costing over 7 million dollars to suppress. In February on the Shasta-Trinity National Forest the Hot Lum Prescribed Fire escaped burning 3,000 acres and a residence.

We are working hard to determine the reasons for the escapes and any unit-level or programmatic actions which would prevent additional escapes. We are using Learning Organization concepts so that we, as an organization, can benefit from the losses.

Future

What do we need to do to become more effective in managing fuels and unwanted impacts from wildfire? The NIFCG is working to improve our organizations and business practices so that we have:

- Increased capacity
 - Utilize our agency and partners workforces

- Increased capabilities
 - Skills in using new technology and recently developed science
- Internally integrated Fuel and Other Resource management programs
- Logic-based allocation process for prioritizing funds from National to Regional/State and then to local unit levels
- Improved Collaboration with all stakeholders
- Interagency Fuels Training Strategy
- Enhanced planning skills
 - SPOT
 - LANDFIRE has great promise for increasing our abilities to develop strategic fuel treatment plans
 - Treatment longevity
 - Treatment effectiveness
 - Treatment cost efficiency
 - Trade-off analysis
 - Smoke management
- Focused science needs and delivery
 - Risk quantification
 - Treatment effectiveness longevity
- Streamlined, “enabling” policies such as might be developed through a doctrinal approach
- Programs at National, Regional, and local levels which are “opportunistic”

What can you do? Keep current on national initiatives such as LANDFIRE, FPA, FRCC, the revised ten year implementation plan, and others. Most of what is initially put forth has room for improvement and thoughtful critiques are welcome. The most effective improvements will come from field-level folks who are being asked to implement these initiatives.

In summary, the US federal fuel management policies provide guidance and support to manage fuels to reduce the unwanted impacts from wildland fire and to manage plant communities so that they are resilient to disturbance and can continue to provide the socially-desired goods and services in the long run.