

## 20. Fire & Fuels

Within this chapter the topics of Fuels Reduction and Wildland Fires are discussed.

Fuels Reduction entails tracking the number of acres that are treated for hazardous fuels reduction through fire, mechanical treatment and timber harvest activities during FY2010, and to disclose how effective these treatments are in meeting resource objectives. The Wildland Fire sub-section tracks the number of unwanted wildfires by causal category and acreage.

### Key Points

- The Forest is meeting hazardous fuel reduction objectives for wet meadow and upland burning. Wet meadow treatments have been successful in reducing the number and size of person caused fires within the Forest. The upland burning program is being successful in reducing the fuel loading that contributes to increased fir behavior in wildland fire situations. In addition, these burns accomplish objectives of wildlife habitat improvement and restoring fire to a fire dependant pine ecosystem.
- The Forest Plan does not allow for the management of wildland fire for resource benefit, and thus all wildland fire is deemed to be unwanted wildland fire and actively suppressed to protect life and natural resources.
- Based on a review of fire statistics, person caused fires are the main cause of wildland fires on the forest. These fires result in the most acres burned.

## A. Fuels Reduction

### Monitoring Question

How, where, and to what extent will prescribed fire be used to maintain desired fuels levels, and/or mimic natural processes, and/or maintain/improve vegetation conditions, and/or restore natural processes and functions to ecosystems?

### Background

Based on reviewing the Forest Service Activities Tracking System (FACTS) database (2007-2010), along with corporate records (2006) the forest accomplished 33,952 acres of fuels reduction projects from 2006 through 2010. Of the total acres treated for fuels, 14,229 acres were accomplished as primary fuels projects, and 19,722 acres were accomplished as integrated projects with other disciplines.

The forest accomplished 11,097 acres of prescribed burning during that timeframe. The remainders of the acres were accomplished by mechanical means such as timber harvest

(19,216 acres) and other means such as chipping, crushing, and piling of fuels (3,639 acres). The prescribed burning is comprised of three different types of burning, they are pile burning, wet meadow burning, and upland burning.

### **Pile Burning**

The primary objectives of this type of burning is to reduce fuels that result from some type of mechanical treatment, with the majority of this burning focusing on fuels created during timber harvest activities. This type of burning activity accounts for roughly 4,263 acres during the 2006-2010 timeframe. The objectives include:

1. Consume at least 70% of the 1-hour and 10-hour fuels.
2. Consume at least 50% of the 100-hour and 1000-hour fuels.

### **Wet Meadow Burning**

From a hazardous fuels standpoint the objectives of the burns are related to fuels reduction, and moderating the potential fire behavior of the light flashy fuels to aid in suppression of a fire should one start in these areas. This burning accounts for 5,824 acres from six projects. The objectives included:

1. Remove 50% or more of the 10-hour fuels across 50 – 100% of the burn area.
2. Remove 50% or more of the 10-hour fuels across 75 – 100% of the burn area.
3. Top Kill 25% or more of encroaching brush on 50 – 100% of the burn perimeter.

Secondary objectives from this type of fire use it the reduction of shrubs species that encroach upon these meadows with the lack of fire, and also improvement of wildlife habitat.



### **Upland Burning**

The objectives for these burns may vary based on the overall objectives of each burn unit. These objectives may include removing understory vegetation such as balsam fir to decrease the ability of a surface fire to transition to a crown fire that may cause a stand

replacing fire, or they may mimic a high frequency/low severity fire that would have been common in the pines stands common to the forest. The forest burnt 1,010 acres of upland burns during implementing 46 burn units. Generally the objectives for hazardous fuels reduction are:

1. Remove 75% or more of the 1-hour fuels.
2. Remove 50% or more of the 10-hour fuels.
3. On average, limit Crown Scorch on over-story pine to <50%.

Secondary objectives of these burns include stimulation of native plants such as blueberries, and improvement of browse for wildlife.



## Results

### Wet Meadow Burning

Based upon the monitoring of the wet meadow burning that has been conducted during the burns that were completed from 2006-2010, the forest is meeting the hazardous fuels reduction objectives for the burn. While the objectives are being met, the benefits from a fuels standpoint are short lived due to the fact that a new crop of fuel (meadow grass) will regenerate during the growing season. While the benefits of accomplishing the burning are short lived, they do aid in the reduction of hazardous fuels and also the occurrence of human caused fires within the burn area until a new crop of grass has regenerated and also cured out. These treatments have been successful in reducing the number and size of person caused fires within the forest. In addition to fuels reduction, it is also important to remember that the benefits of burning are also not centered on fuels reduction alone, but have other resource benefits that are enhanced by accomplishing the burning such as maintaining a meadow ecosystem and improving wildlife habitat.

### Upland Burning

Based upon the monitoring results of the upland burning, the forest has been successful in meeting the hazardous fuels objectives of the upland burn units. Generally the results of the 1 hour fuels reduction are exceeding the objective of removing 75% of the 1 hour fuels within the units being burnt. The reduction of the 10 hour fuels are exceeding the objective of 50% removal of the fuels. Crown scorch of the overstory pine is typically within the 20-25% range for all units being burnt.

Based upon the monitoring results, we can see that the upland burning program is being successful in reducing the fuel loading that can contribute to increased fire behavior should a wildland fire occur within the burn units. By decreasing the fire behavior within these units, the overstory pines have an increased ability to survive a wildland fire should one occur within the units. Additionally, these burns may become effective areas for suppression activities to occur due to the decreased fuels loading and fire behavior.

In addition to the removal of fuel loading these burns are also accomplishing secondary objectives of wildlife habitat improvement and also restoring fire to a fire dependent pine ecosystem.

Looking back over the 2006-2010 timeframe, the forest has shown that its prescribed fire program has been and continues to be successful in meeting the respective burn objectives. While it has been successful, with limited burning windows there is potential for increased success in the future, especially in the upland burning program, through different ways of doing business. An example includes utilizing larger burn units instead of many small units, which increases efficiency, reduces cost, and allows for better use of the limited burn opportunities. Another example is integrating fuels needs with other programs such as wildlife or outside partners to increase funds and personnel that may be available to implement high priority burns. Many of these changes are already being implemented and success is being realized.

## **B. Wildland Fires**

The presence of fire on the landscape is appropriate and desirable, but unwanted wildland fire is actively suppressed where necessary to protect life, investments, and natural resources (D-ID-6, FP p. 2-18).

### **Monitoring Question**

What level of wildland fire on the landscape is appropriate and desirable and to what extent is unwanted wildland fire on the landscape suppressed?

### **Results**

The monitoring question was developed to track trends in the number of wildland fires and the causal agents that are occurring on the forest. With these trends, fire managers can use the information to determine future needs within the fire program such as changes to prevention needs, and changes in needs for hazardous fuels treatments, etc.

Based on fire reports completed for each wildland fire that occurred within the protection area of the Chippewa National Forest, there were 49 wildfires which burnt a total of 232 acres during FY 2010. These figures were short of the 20 year average of 53 fires and 283 acres for the forest. The smallest fire was 0.1 acres, the largest 75 acres, and the average wildfire acreage burned was 4.7 acre. All wildland fires on the forest were contained and/or controlled during initial attack operations.

For the years from 2006 through 2010, the forest has averaged 47 fires a year with an average of 127 acres a year.

Table 20-1. displays fire name, acres burned, and year burnt for fires five acres or larger occurring between 2006 and 2010. Table 20-2 shows wildfire acres burnt during the past 5 years and also the 20 year average for each statistical cause. Table 20-3 show the number of wildfires by statistical cause during the past 5 years and also the 20 year average.

**Table 20-1. 2006-2010 Wildfires 5 Acres or Larger**

<b>Fire</b>	<b>Acres Burned</b>	<b>Year</b>
Big Fish	16.7	2006
Oak Point	12.5	2006
Pug Hole	14.2	2006
Six Mile	22.6	2007
Highway 2 Complex	12.6	2008
Prom	29.5	2009
Federal Dam 1	64.5	2009
Goose	108	2009
Lucille	33	2009
Airport Road	7	2010
172	21	2010
Cedar	10	2010
Royale	11.5	2010
Cut Bank	67	2010
Mississippi	75	2010
Federal Ditch	5.6	2010

**Table 20-2. Wildfire Acres During Past 5 Years and Fire Cause**

<b>Cause</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>20 Year Average</b>
Lightning	1	0	0	0	0	3
Equipment	1	2	5	0	1	2
Smoking	2	0	0	0	0	2
Campfire	3	1	1	30	3	10
Debris Burning	21	2	2	7	59	37
Railroad	1	1	0	0	0	0
Arson	40	25	3	176	78	178
Children	16	3	2	4	0	5
Misc.	3	13	16	34	91	45
<b>TOTALS</b>	<b>88</b>	<b>47</b>	<b>29</b>	<b>251</b>	<b>232</b>	<b>283</b>

**Table 20-3. Number of Wildfire by Statistical Cause During Past 5 Years**

<b>Cause</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>20 Year Average</b>
Lightning	4	0	0	0	1	1
Equipment	2	3	2	0	4	2
Smoking	1	0	0	0	2	1
Campfire	3	2	3	3	2	3
Debris Burning	32	11	9	7	11	17
Railroad	1	1	0	0	0	1
Arson	21	7	5	4	8	15
Children	4	3	3	4	0	4
Misc.	5	15	10	6	21	9
<b>TOTALS</b>	<b>73</b>	<b>42</b>	<b>32</b>	<b>24</b>	<b>49</b>	<b>53</b>

Looking at the statistics for wildland fires in FY2010 and over a twenty year average on the Chippewa National Forest, it becomes obvious that person caused fires are the main cause of wildland fires on the forest. These fires are also the fires that result in the most acres burnt. The majority of the fires listed under the miscellaneous category are suspected to be person caused, but a definitive cause for the fire is not identified. The Forest Plan does not allow for the management of wildland fire for resource benefit, and thus all wildland fire is deemed to be unwanted wildland fire and actively suppressed to protect life and natural resources.

A more detailed report is in the project file and is available upon request.