Santa Fe National Forest Travel Management Planning
Wildfire Report
Draft

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Summary

The causes of unplanned ignitions can be broken down into two broad categories, those caused by lightning and those that are a result of humans and their technology. 77% of all unplanned ignitions on the Santa Fe National Forest are caused by lightning. Therefore, the effects of Travel Management Planning on the number of unplanned ignitions on the Santa Fe National Forest would be slight. All action alternatives could result in a slight decrease in human caused wildfires across the forest. The biggest factor that would influence this change would be the elimination of motorized cross country travel. Motorized dispersed camping corridors in all the action alternatives would continue contributing to the number of human caused wildfire starts. Dispersed camping is not expected to change in areas outside of motorized dispersed camping corridors with the exception that motorized vehicles would be parked along road ways and campers would pack in their gear. Motorized big game retrieval in all action alternatives would have no effect to the number of wildfires started due to the limited number of trips taken to collect a downed animal.

Introduction and Background

Catastrophic wildfire has been identified as a major threat to national forest lands. The causes of fire are numerous and a number of those causes can be linked to motor vehicles in direct or indirect ways. OHVs have been documented to directly cause fires when fuels remain in contact with hot exhaust systems, exhaust, and hot manifolds for an extended period of time (Baxter 2002). Although the risk of wildfire starts from OHVs exist, the conditions that have been studied up to date have been limited and the conditions required for fuels to ignite are very specific, thus limiting the amount of unplanned ignitions caused by OHVs directly.

Unplanned ignitions indirectly associated with motor vehicle use are a much larger probability. Most forest users access national forest lands by using a motor vehicle. Most drive to their destinations on the forest and engage in their activities. Motorized access is important for all forest users as the means of accessing the places they have selected to recreate or utilize. Motor vehicle access also creates the possibility of unplanned ignitions.

Methods

The temporal and spatial bounds for this analysis are:

For direct and indirect effects the Santa Fe National Forest boundary was used as the spatial bounds because the Travel Management planning decision will only affect motorized use within the forest boundary. Effects of the Travel Management decision would only apply to those fires started within the boundary. The temporal timeframe starts during implementation of the decision and ends in ten years.

For cumulative effects the forest boundary serves as the spatial bounds. Temporal bounds for analysis begin in 1987 with the implementation of the Forest Plan and ends in 2025. These dates were determined by the Travel Management Interdisciplinary Team.

The GIS fire points layer was used to determine the number and locations of unplanned ignitions between 1998 and 2007. Then the GIS fire points layer and the current management area layer were used to determine the number of human caused wildfires that occurred in areas where motorized cross country use was allowed.

Assumptions

For the purposes of this analysis, the amount of motorized travel on roads and motorized trails is held constant among alternatives.

Discussion: The Travel Management Rule and the Recreation Specialist Report document an increase in motorized use on forests nationwide and the Santa Fe National Forest, respectively. Indeed the increase in motorized use gave rise to the Rule. Economic conditions, population increase or decrease, and the public's recreational preferences could increase or decrease the overall amount of motorized travel on the forest. The effect of these factors, however, would be impossible to predict or accurately quantify for this analysis. By holding the amount of motorized use constant among alternatives, the interdisciplinary team could better display the effects.

The effects of motorized trails are the same as the effects of roads.

Discussion: Though the tread width of a trail is less than a road, the incremental difference in effects at the forest scale is assumed to be negligible. The effects of roads and trails may vary greatly at specific locations; however, across the forest, it would not be possible to separate and identify these effects.

The estimated number of motorized trips to retrieve a downed big game animal would not change between alternatives, except for Alternative 3, which does not allow it.

Discussion: The Forest has estimated the average number of downed big game animals at 438 per year (No Action Description, project record). This is likely to be a low estimate. Because the Forest does not have data on the locations of where big game is retrieved, we assumed that it occurred in the same places identified as having motorized cross-country travel, approximately 443,000 acres.

For the purposes of this analysis, the amount of motorized dispersed camping is assumed constant among alternatives.

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Discussion: Assuming a constant use will display the potential effects of concentration, a concern of the public's. Though it is reasonable to assume that publication of fixed distance corridors on a map will draw more visitors to them, the exact amount of the increase cannot be accurately determined.

In Alternative 3, should dispersed camping along routes continue, it is assumed to occur in the same places as Alternative 1 since these sites are already established.

Discussion: Alternative 3 would not designate fixed distance corridors for motorized dispersed camping. People would be allowed, however, to park next to the road and camp, either next to their vehicles or by carrying gear in further by non-motorized means. Experience on the Forest shows it is reasonable to assume that people would continue camping in places they already know and enjoy. For instance, people continue to camp along the Guadalupe River even though the buck-and-pole fencing prevents them from bringing their vehicles to the campsite.

Limitations

Information contained within the GIS layer was gathered from a number of sources including but not limited to fire reports, satellite imaging, GPS data, and infrared imaging. Information taken from fire reports did not always include the exact location of the wildfire's origin. The minimum requirement for these reports only requires that the township, range and subsection be recorded. The GIS layer records the origins of fires without exact locations in the center of the subsection. Data from 2009 and 2010 was not included in the GIS layer.

Affected Environment and Existing Condition

The Santa Fe National Forest is located in a unique area. Due to high desert conditions and tendency of drought, the Santa Fe National Forest has a high number of unplanned ignitions started by lightning. These unplanned ignitions account for 77% of all wildfires documented on the forest. The other 23% have been attributed to a wide variety of human activity as shown below in Table 1 with unplanned ignitions caused by campfires being the most documented followed by wildfires attributed to arson. Unplanned ignitions directly caused by motor vehicles would be recorded as an "equipment use" start. To date, no wildfires have been attributed directly to motor vehicle use on the forest. The fires documented under this heading are usually attributed to handheld equipment lacking appropriate Spark Arrestors. The number of unplanned ignitions between 1998 and 2007 are broken down by cause in Table 1 below. The ten year average for each category is also displayed.

Wildfires started within 300 feet of all existing roads number 133. 94 of those fires were started by campfires. Wildfires started by campfires that occurred in the areas where motorized dispersed camping has been identified number 13. 207 wildfires have been started within areas where cross country travel is permitted. According to the Santa Fe National staff, 5,457 miles of routes are currently being driven on (see Travel Management Alternative Comparison Table).

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Table 1: Wildfire Causes 10 Year Average

Cause of Wildfire	Total Number of Fires between 1998 - 2007	10 Year Average*	Percentage of the Total Number of Fires between 1998-2007*	Percentage of Human Caused Fires*
Natural:				--
Lightning	**1085**	**109**	**77%**	--
Human Caused Sorted by Category:				--
Campfire	**212**	**21**	**15%**	**66%**
Equipment	**10**	**1**	**< 1%**	**3%**
Smoking	**11**	**1**	**< 1%**	**3%**
Debris burning	**7**	**1**	**< 1%**	**2%**
Railroad	**1**	**0**	**< 1%**	**< 1%**
Arson	**44**	**4**	**3%**	**14%**
Child	**1**	**0**	**< 1%**	**< 1%**
Power lines and other	**35**	**4**	**2%**	**11%**
Total Number of Human Caused	**321**	**32**	**23%**	--
Total Number of Fires	**1406**	**141**		

* Averages and percentages are rounded to the nearest whole number. Totals may vary slightly due to rounding.

Direct and Indirect Effects

Effects of Alternative 1:

Under the existing condition motorized vehicle use would continue on all routes currently identified as having motorized use. Motorized cross country travel would continue in areas currently identified as having motorized use. It would be expected that the yearly average of human caused fires would remain the same. The number of wildfires started in areas where motorized dispersed camping and motorized big game retrieval currently occur would remain the same.

Effects Common to all Action Alternatives:

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The elimination of cross country travel could result in a small decrease in the number of human caused wildfires occurring more than 300 feet from open routes. Although the Santa Fe National Forest Travel Management decision will drastically reduce the number of miles open to motorized use, the change between alternatives would not result in a large difference in effects because most of the popular roads and trails will be designated in all the action alternatives. Routes leading to points of interest, developed recreation sites, and trail heads will continue to be open to motorized use. All level 3 and 4 roads would continue to remain open to motorized use.

Wildfires started indirectly by motorized use exempted by the Travel Management Rule would still be possible in any areas where the exempted use occurs. Wildfires started by non-motorized recreation/ access would remain about the same.

The number of unplanned ignitions indirectly caused by motorized big game retrieval would not change. The number of trips to collect a downed animal where a motor vehicle was used is so small that the possibility of unplanned ignitions is similarly small. The possibility of unplanned ignitions caused by hunters not directly associated with motorized big game retrieval is considered in the motorized dispersed camping analysis below.

The number of wildfires started in designated motorized dispersed camping corridors would not change between the no action and all action alternatives. Since the corridors within all the alternatives are a combination of areas currently utilized for motorized dispersed camping, the use in these areas would not change. It is assumed that dispersed camping currently occurring along designated routes without motorized camping would continue although campers would have to park alongside the road and pack in their gear. A slight decrease in unplanned ignitions might occur along routes where dispersed camping, motorized and non-motorized, was previously taking place depending on the accessibility of the area after the Travel Management Plan is implemented.

Effects on the response time of fire fighters to reported fires are hard to estimate. Any change would be situation specific. If routes closed to motorized use revegetate or severely erode due to lack of maintenance response times could slightly increase. At the same time, the number of roads on the Santa Fe National Forest would provide multiple routes of access for firefighters. Firefighters are exempt from the Travel Management Designations by the Travel Management Rule. In addition, firefighters have a number of tools at their disposal and other ways of accessing wildfires that would see little effect from the Travel Management decision. Finally, since the reduction of routes would mean that maintenance would be focused on those routes open, combined with the fact that forest users would be most likely recreating along open routes, response times to fires in close proximity to open routes might actually decrease.

Cumulative Effects

Past, present and foreseeable future actions that would have cumulative effects on the possibility of wildfires are thinning, prescribed burn, managing unplanned ignitions for resource benefit, and wildfire education awareness, and signing programs. Thinning, prescribed burning, and managing unplanned ignitions to burn for resource benefit help to reduce the amount of fuels accumulation and help to restore forest health. Wildfire education efforts such as the Smokey the Bear program, outreach to community schools and organizations, fire conditions signs, and other signing efforts are all focused on preventing human caused wildfires by raising awareness and

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reminding forest users that human caused wildfires are preventable. When the effects resulting from the Travel Management Decision are combined with the effects of these actions the general trend shows there could be a slight decrease in human caused wildfires.

Forest Plan Amendments:

None of the Forest Plan amendments for any of the alternatives would have an effect on wildfire and unplanned ignition.

Forest Plan Consistency:

All alternatives are consistent with wildfire management in the Forest Plan.

Work Cited

Baxter, Greg. 2002. All terrain vehicles as a cause of fire ignition in Alberta forests. *Advantage.* Forest Engineering Research Institute of Canada. Pointe-Claire, QC. 3(44)

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