

# UNDERSTANDING CONDITION CLASS

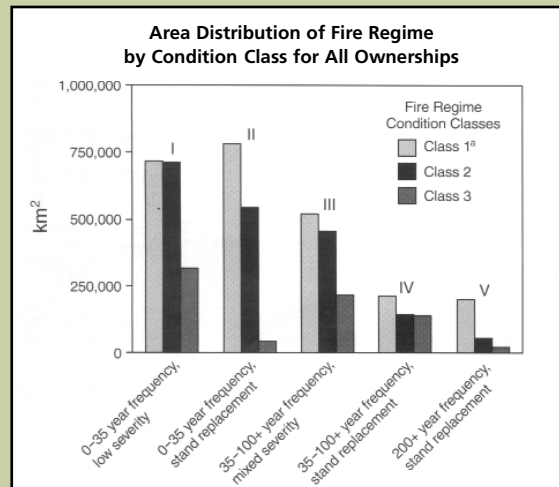
## An Evaluation of its Application at the National Forest Level

Fire regime condition class is a coarse-scale, national classification system and map that indicates the degree of departure of forests from historic fire regimes and the associated risks of losing key ecosystem components. Fire regime refers to the frequency and intensity of natural fires occurring in various ecosystem types. The three classes of condition class (low-, medium-, and high-risk) are categorized by five fire regimes (I, II, III, IV, V) according to the historical pattern of fire in forests. The condition classes indicate the departure from normal fire return intervals, and the greater the departure the greater the level of risk.

Policymakers are considering whether condition class can be used to set priorities for wildfire risk reduction activities and to determine areas where hazardous fuel treatments should be expedited. The purpose of this publication is to explain the condition class concept and to illustrate the application of the coarse scale condition class map to real-life planning situations at the level of a single national forest.

**NATIONAL SCALE.** The classification system and map were developed by the USDA Forest Service, Rocky Mountain Research Station for the purpose of “providing national-level data on the current condition of fuel and vegetation.”<sup>3</sup> Applications of the national data include description of trends in current conditions and assessment of the total U.S. acres at risk. The chart below is one example of a national-level application. The chart shows that 260,000 km<sup>2</sup> of forest in fire regime 1 have missed two or more fire cycles, are in condition class 3, and are therefore presumed to have an unusually high fuel load.

“These coarse-scale data were developed for national level planning...”<sup>2</sup>



Source: Schmidt et al, 2002

**PROJECT SCALE.** Finer scale applications of condition class being considered include locating areas with the highest wildfire risk in a national forest, park, or state and identifying projects of 100 to 10,000 acres for fuel reduction treatment. In these applications, seven categories are used (see map on the next page) to rate condition class for the different fire regimes. The fire regimes add complexity to the condition class of by specifying the frequency and intensity at which fire historically occurred.

# ACCURACY

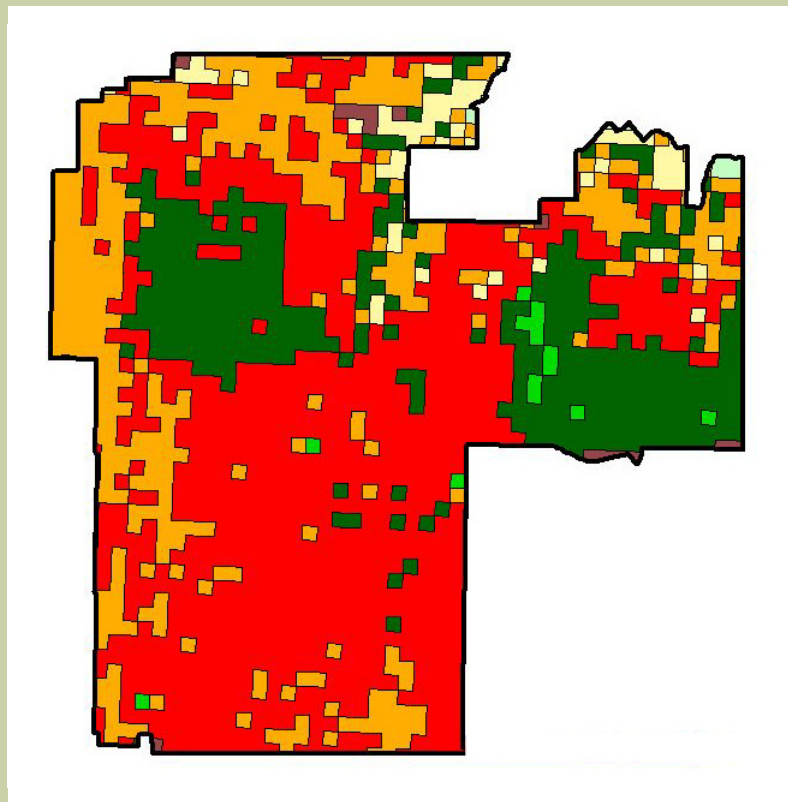
“The data was not intended to be used at finer scales.”<sup>2</sup>

The fire regime condition class system and map were developed from ten existing data sets with information about ecoregions, potential natural vegetation, historical fire regimes, current vegetation cover, and forest density/canopy. The map was developed without specific information about forest structure, tree density, or the amount and nature of combustible fuels, which are the primary determinants of wildfire risk. Instead, the authors used forest density data, which represents the percent area that is forested, and not the number of trees. This type of data is adequate for coarse-scale applications, as the authors intended. Finer scale applications are compromised because there are no specific data about forest fuels.

“...data were sometimes inadequate to reliably determine what condition class to assign.”<sup>3</sup>

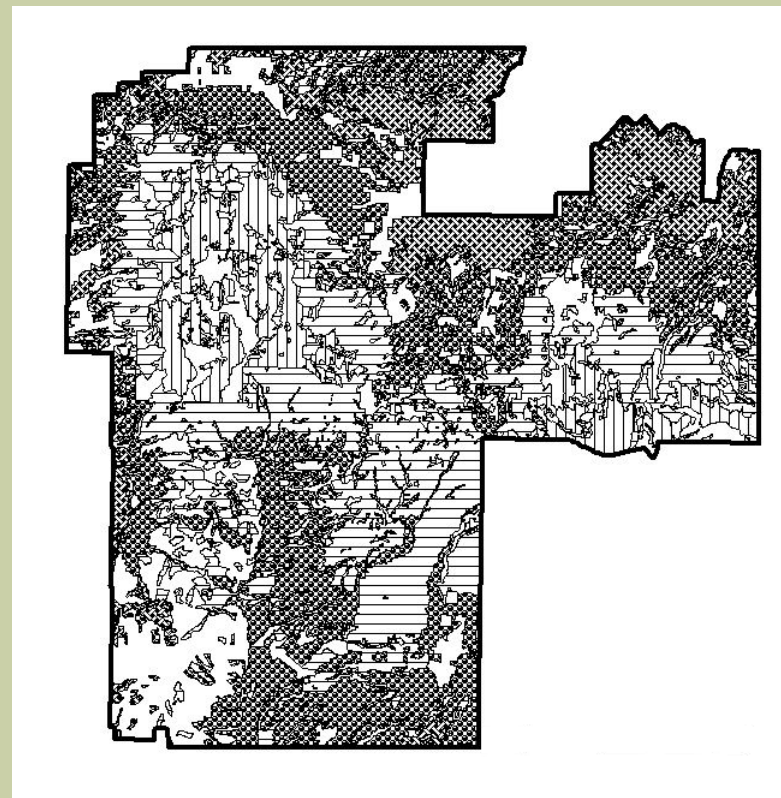
The national condition class map is unreliable when cross-checked against actual ground conditions at the scale of a federal land management unit. The authors warn against using the data in this way, yet the proposed legislative uses of condition class would require land managers to apply the condition class map to finer scales. The problems of fine-scale accuracy are illustrated by taking the coarse-scale condition class map and overlaying a map of current vegetation. The areas of questionable accuracy are then apparent.

## CONDITION CLASS



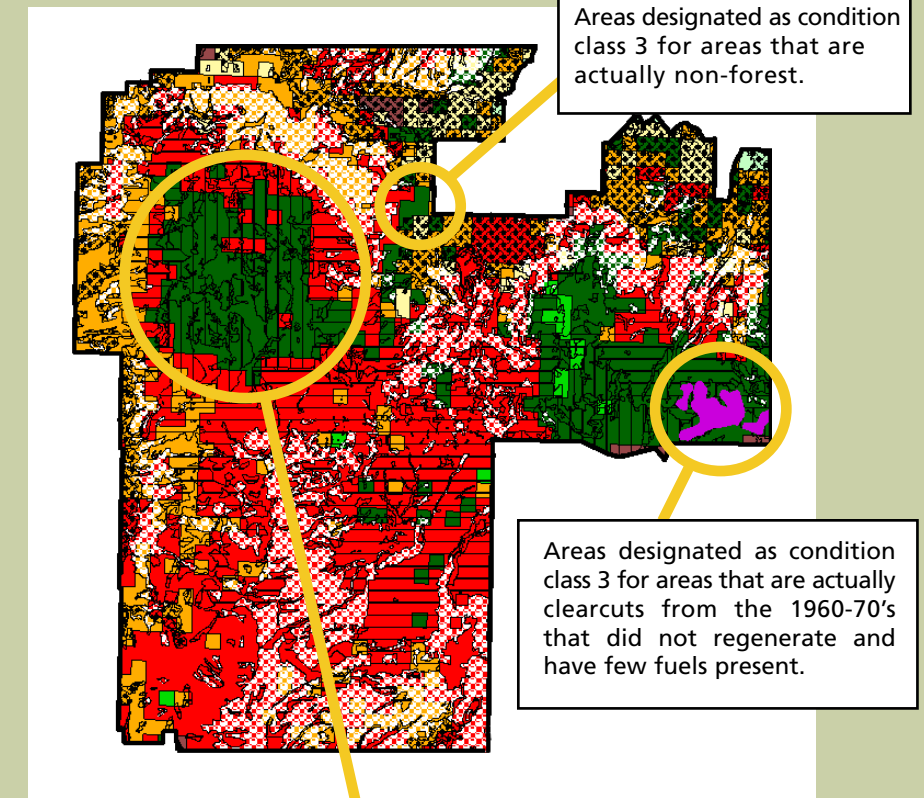
Source: Schmidt et al, 2002  
Area: Approximately 360,000

## CURRENT VEGETATION



Source: Santa Fe National Forest

## CONDITION CLASS & VEGETATION



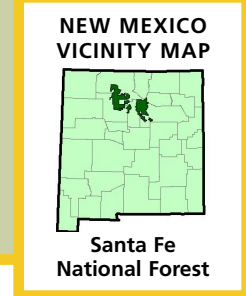
Areas designated as condition class 3 for areas that are actually non-forest.

Areas designated as condition class 3 for areas that are actually clearcuts from the 1960-70's that did not regenerate and have few fuels present.

Areas designated as condition class 3 in fire regimes I and II that are actually spruce fir and aspen that should be fire regime V and condition class 1.

- Condition Class 1, fire regimes I and II
- Condition Class 2, fire regime I and II
- Condition Class 3, fire regimes I and II
- Condition Class 1, fire regime III and IV
- Condition Class 2, fire regime III and IV
- Condition Class 3, fire regime III and IV
- Condition Class 1, fire regime V

- Piñon-Juniper
- Ponderosa Pine
- Mixed Conifer
- High Altitude Spruce Fir
- Non Forest or No Data



# USING CONDITION CLASS

## To Set Priorities at the National Forest Level

The coarse-scale nature of the condition class map and the unreliability of data at the scale of a national forest, mean that significant errors could result if condition class is used to set project priorities. For example, on the previous page of fine scale maps, approximately 60,000 acres of the 360,000 acres shown are not in the correct fire regime or condition class. Setting priorities for either hazardous fuels or forest restoration projects must be done with data that is reliable at the scale of project analysis. The USDA Forest Service Landfire Program is developing fine scale condition class data.<sup>5</sup>

Communities at risk may be overlooked if condition class is used to determine where the environmental review process for hazardous fuel reduction projects should be expedited. The coarse scale condition class map is not accurate enough to set project-level priorities and as a result, some high-priority areas could be mis-classified as low-priority condition class.

### Endnotes

<sup>1</sup> Schmidt, K.M., J.P. Menakis, C.C. Hardy, W.J. Hann, and D.L. Bunnell. 2002. Development of coarse-scale spatial data for wildland fire and fuel management. RMRS-GTR-87. USDA Forest Service, Rocky Mountain Research Station, Fort Collins, CO.

<sup>2</sup> Ibid.

<sup>3</sup> USDA Forest Service, Region 3. 2003. Website GIS Fire Regime and Condition Class Data, Santa Fe National Forest, [http://www.fs.fed.us/r3/wui/maps/map\\_index.html](http://www.fs.fed.us/r3/wui/maps/map_index.html)

<sup>4</sup> Schmidt, et al. 2002.

<sup>5</sup> <http://www.landfire.gov>

### For More Information:

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