

COMMUNITY WILDFIRE PROTECTION PLANS

Enhancing Collaboration & Building Community Capacity

Quick-Guide #19: Conducting Risk Assessments

The Healthy Forest Restoration Act requires that CWPPs identify and prioritize areas for hazardous fuel reduction treatments based on their determined level of risk. Risk assessments lay the foundation for decisions regarding the types and methods of treatment that will protect at-risk communities and infrastructure; they identify the community's highest priorities for fuels reduction, such as creating defensible space around homes, building strategic fire-breaks, or restoring forest structure, typically through thinning. They can also inform the definition of WUI boundaries. Because wildfire and mitigation cross land ownership boundaries and require input, technical knowledge and resources from many participants, they are best accomplished collaboratively.

The CWPP processes we studied adopted a variety of **strategies for assessing risks** to forests and communities. Some groups relied upon consultants, or state or federal agencies to use models and criteria developed outside the CWPP collaborative process; others used a more qualitative process which gathered local concerns and knowledge, and marked them on maps. CWPPs associated with, or hoping to gain acceptance by, the Firewise Communities USA network, adopted their assessment requirements. Some individual property or sub-division assessments were nested in larger-scale county risk assessments. For many CWPP processes, the first step was creating GIS layers to identify cumulative risks occurring in the landscape. Factors considered include:

- ◇ Risk: past fire occurrences as a predictor of potential wildfire ignitions
- ◇ Ecological conditions: fuels, slope, aspect, elevation and weather
- ◇ Values: people, property, natural and built resources threatened by a wildfire event
- ◇ Protection capability: wildland firefighter response times, structural fire suppression capacity, roads, water sources, access
- ◇ Structural vulnerability: existence of defensible space around structure, roof type and building materials. (more)



Web Site: <http://JFSP.fortlewis.edu>

There is no one proper method of assessment as the following descriptions from our cases demonstrate:

Lake County CWPP participants used as their template a risk assessment originally created by a USFS fuels specialist that included three main components: *Hazard and Risk*, *Values*, and *Protection Capability*, each of which had several subtopics within them. The group walked through these factors, ranking each WUI area previously identified with its identified risk data (access, topography, fire occurrence, jurisdiction, community values, local preparedness capability, etc.) on a numerical scale. Weights were given to each factor and a total number of points awarded to each WUI area, for each of the three components; these were then summed to get the final hazard rating. The rankings assigned to each WUI area, and each part of the risk assessment, were discussed as a group and reflect common agreement.

The Barnes and Drummond CWPP used a technical GIS based modeling approach provided by a third party planning group, the Northwest Regional Planning Commission (NWRPC) which provided facilitation services and GIS experience to the planning process. Their risk assessment followed the methods outlined in “Preparing a Community Wildfire Protection Plan: A Handbook for Wildland-Urban Interface Communities” (SAF, 2004) and included models for five difference components: *Fuel Hazards*, *Risk of Wildfire Occurrence*, *Essential Infrastructure at Risk*, *Other Community Values at Risk*, and *Local Preparedness and Firefighting Capabilities*. Each of these model inputs included different “themes” based on current GIS layers (e.g., trails, roads, parcel data), and in some cases the facilitator created new data layers of items based on local knowledge and group discussion.

The Taylor CWPP planning area was considerably smaller than many of cases as it encompassed only the actual community, around 1600 acres; therefore, CWPP planning participants could use an on-the-ground risk assessment to determine the hazards and risks in Taylor. The facilitator used a template with six sections: *Access*, *Vegetation*, *Building Construction*, *Fire Protection*, *Utilities*, and *Additional Rating Factor*; participants from the Florida Department of Forestry, the US Forest Service, and the Baker County Fire Department used maps and local knowledge to conduct the first part of the risk assessment, and then broke up into three different teams in order to cover the entire community. The group then compared notes and discussed their findings.

The Josephine County Wildfire Hazard and Risk Assessment, created by a CWPP subcommittee of local, state, and federal agency representatives, used the National Association of State Foresters methodology that included *wildfire risk*, *hazards*, *values*, *protection capability* and *structural vulnerability*. In gathering the hazard data, the committee addressed many technical issues; for instance, vegetation data was derived from remote sensing sources but this source has no information about the under story, ground fuels, or stand structure. Extensive consultation with biologists and fire scientists provided additional data on slopes, aspects, and elevation. A series of community meetings gathered local knowledge about community values (economic, environmental, social and cultural), but the community information was not included in the quantitative risk assessment because it was considered uneven and not “ground truth-ed.” Ultimately, the five components were weighted (e.g., structural vulnerability was two times the protection capability), and over 20 layers of GIS information were condensed into one risk assessment value.

The El Dorado County Wildfire Protection Plan divides the County into regions using market areas developed for the County's 2004 General Plan. The fire service carried out a hazard assessment for each market area based on *potential fire behavior*, *fire suppression capacity and effectiveness*, *structural survivability in a wildfire situation*, *firefighter and resident safety*, and other variables deemed appropriate. Communities are then ranked using three criteria: whether they are in a threat zone, the magnitude of the threat, and the defensibility of the community. The County Fire Safe Council (FSC) has a number of community-based FSCs with their own CWPPs; one is Auburn Lake Trails, whose residents have assumed responsibility for a program developed in 1989 by California Department of Forestry, Volunteers in Prevention (VIP). Fifty VIPs are trained in assessment methods and are often joined by property owners as they conduct annual assessment in order to learn more about reducing wildfire risk. Property owners can be fined if the work deemed necessary is not completed in a timely manner, although inspectors prefer to work with owners to find a way to complete the projects. (more)

Despite their different approaches, these risk assessments increased knowledge about fire risk among both private residents and local government officials. They provided a chance for participants to share their local knowledge about a particular area, and learn about other parts of the county and the relative risk in those areas. Those who conducted one-on-one assessments in the community gained not only a better understanding of the wildfire risk, but became more familiar with the community in general. Those who collected quantitative data for the GIS layers found it contributed to common standards and practices for other data collection; some have taken the opportunity to integrate their risk assessment data into national data bases such as LANDFIRE (<http://www.landfire.gov/documents/LF%20fact%20sheet.pdf>). GIS layers also provided some “aha!” moments for planners and residents, such as when roads or structures were layered on the hazard layer.

These assessments helped draw or adjust WUI boundaries and provided a foundation for future decisions about priorities for hazardous fuel reduction projects on private and public land. Collaboration on these assessments built strong partnerships between counties, State Departments of Forestry, Federal Land Management agencies and fire departments.

Federal land planners can consider how the high hazard and risk areas identified by the assessment can be related to overall management in the area. This provides an opportunity to develop strategies resulting in landscape level changes in the environment as projects are planned that will have the most benefit and to coordinate existing fuels reduction projects on county, state, federal or private land.

See the 2008 Community Guide to Preparing and Implementing a Community Wildfire Protection Plan for more discussion of risk assessment.

http://www.forestsandrangelands.gov/communities/documents/CWPP_Report_Aug2008.pdf.

