

Glossary

Air Quality - the characteristics of the ambient air (all locations accessible to the general public) as indicated by concentrations of the six air pollutants for which national standards have been established (e.g., particulate matter, sulfur dioxide, nitrogen dioxide, ozone, carbon monoxide, and lead), and by visibility in mandatory Federal Class I areas. For the purposes of this Smoke Management Plan, concentrations of particulate matter are taken as the primary indicators of ambient air quality.

Available Fuel – The total mass of ground, surface and canopy fuel per unit area consumed by a fire, including fuels consumed in postfrontal combustion of duff, organic soils, and large woody fuels.

Canopy base height – the lowest height above the ground at which there is a sufficient amount of **canopy fuel** to propagate fire vertically into the canopy. Canopy base height is an effective value that incorporates ladder fuels such as shrubs and understory trees.

Canopy Fuels – The live and dead foliage, live and dead branches, and lichen of trees and tall shrubs that lie above the **surface fuels**.

Class I Areas - an area set aside under 42 U.S.C. 7491 to receive the most stringent protection from air quality degradation. Mandatory Class I Federal areas are: 1) international parks, 2) national wilderness areas which exceed 5,000 acres in size, 3) national memorial parks which exceed 5,000 acres in size, and 4) national parks which exceed 6,000 acres and were in existence on August 7, 1977. The extent of a mandatory Class I Federal area includes subsequent changes in boundaries, such as park expansions. The five Class I Areas in Utah include: 1) Zion National Park, Bryce National Park, Capitol Reef National Park, Arches National Park, Canyonlands National Park

Clearing Index - An indicator of the predicted rate of clearance of ground level pollutants from a given area. The number is calculated by the National Weather Service from daily measurements of temperature lapse rates and wind speeds from ground level to 10,000 feet.

Condition Class - Condition classes are a function of the degree of departure from historical **fire regimes** resulting in alterations of key **ecosystem** components such as species composition, structural stage, stand age, and canopy closure. One or more of the following activities may have caused this departure: fire exclusion, timber harvesting, grazing, introduction and establishment of exotic plant species, insects and disease (introduced or native), or other past management activities (Schmidt et al, 2002). Condition classes are divided into 3 categories: condition class 1, 2 and 3. In condition class 1 fire

regimes are within or near an historical range and fire frequencies have departed from historical frequencies by no more than one fire return interval. Species composition and structure are intact and functioning within an historical range. In condition class 3 fire regimes have been significantly altered from their historical range. This risk of losing key ecosystem components is high. Fire frequencies have departed from historical frequencies by multiple return intervals. This results in dramatic changes to one or more of the following: fire size, frequency, intensity, and severity or landscape patterns.

Crown Fire – any fire that burns in **canopy fuels**. A fire that spreads across the tops of trees or shrubs more or less independently of a surface fire.

Duff – Partially decomposed organic matter lying beneath the litter layer and above the mineral soil. It includes the fermentation and humus layers of the forest floor.

Ecosystem – The complex of a community of organisms and its environment functioning as an ecological unit in nature (Webster's dictionary).

Fire Adapted Ecosystem – An ecosystem with the ability to survive and regenerate in a fire-prone environment.

Fire Behavior – The manner in which a fire reacts to the influences of fuel, weather and topography.

Fire Behavior Prediction System – a quantitative basis for rating fire danger and predicting fire behavior using mathematical fire behavior models.

Fire Frequency – Average number of years between fires.

Fire Management Plan (FMP) – A strategic plan that defines a program to manage wildland and prescribed fires and documents the Fire Management Program in the approved land use plan. The plan is supplemented by operational plans, such as preparedness plans, preplanned dispatch plans, prescribed fire plans, wilderness fire plans, and prevention plans.

Fire Management Unit or Zone (FMU, FMZ) – Any land management area definable by objectives, topographic features, access, values to be protected, political boundaries, fuel types, major fire regimes, or some other factor that set it apart from the management characteristics of an adjacent unit or zone. FMUs and FMZs are delineated in Fire Management Plans. These units may have dominant management objectives and preselected strategies assigned to accomplish these objectives.

Fire prescription - the measurable criteria that define conditions under which a prescribed fire may be ignited, guide selection of appropriate management

responses, and indicate other required actions. Prescription criteria may include safety, economic, public health, environmental, geographic, administrative, social, or legal considerations.

Fire Regime – A generalized description of the role fire plays in an ecosystem. It is characterized by fire frequency, seasonality, intensity, duration and scale.

Fire Return Interval – Number of years between fires at a given location.

Fire Risk – Applies to the probability of an ignition occurring as determined from historical fire record data.

Fire Severity – Effect of fire on the dominant overstory vegetation. A qualitative measure of the immediate effects of fire on the ecosystem. Relates to the extent of mortality and survival of plant and animal life both above and below ground and to loss of organic matter.

Fireline Intensity – The rate of heat release in the flaming front per unit length of fire front.

FLAME LENGTH

Flaming Front – The zone at a fire's edge where solid flame is maintained.

Fuel Characteristics – Factors that make up fuels such as compactness, loading, horizontal continuity, vertical arrangement, chemical content, size and shape, and moisture content.

Fuel Complex – The combination of ground, surface, and canopy fuels.

Fuel Loading - The amount of fuel present expressed quantitatively in terms of weight of fuel per unit area. This may be available fuel or (consumable fuel) total fuel and is usually dry weight.

Fuel Model – A set of surface fuel bed characteristics (load, surface area to volume ratio by size class, heat content, and depth) organized for input into a fire model. Standard fuel models (Anderson, 1982) have been stylized to represent specific fuel conditions.

Fuel Treatment – any manipulation or removal of wildland fuels to reduce the likelihood of ignition or to lessen potential damage and resistance to control, e.g., lopping, chipping, crushing, piling, and burning – *synonym* fuel modification, hazard reduction

Fuelbreak – A natural or manmade change in fuel characteristics which affects fire behavior so that fires burning into them can be more readily controlled.

Ladder Fuels – Shrubs, young trees, low limbs and branches that provide continuous fine material from the forest floor into tree crowns.

Litter – The top layer of the forest floor. Includes freshly fallen leaves, needles, fine twigs, bark flakes, fruits, matted dead grass, and a variety of miscellaneous vegetative parts that are little altered by decomposition. Litter also accumulates beneath rangeland shrubs.

Mechanical Fuels Treatments - Methods of modifying the fuels profile mechanically including biomass removal, biomass thinning, rearrangement, chipping, piling, felling and piling, crush and mastication.

Mixed Severity Fire Regime - Regime in which fires either cause selective mortality in dominant vegetation, depending on different species susceptibility to fire, or vary between understory and stand replacement.

National Ambient Air Quality Standards (NAAQS) - The standards for maximum acceptable concentrations of air pollutants in the ambient air to protect human health with an adequate margin of safety and to protect public welfare from any known or anticipated adverse effects of such pollutants (e.g. visibility impairment, soiling, materials damage, etc.) in the ambient air. National standards have been established for particulate matter, sulfur dioxide, nitrogen dioxide, ozone, carbon monoxide, and lead, and are specified in 40 CFR Part 50.

Nonattainment Area - An area which is shown by monitored data or which is calculated by air quality modeling (or other methods determined by the Environmental Protection Agency Administrator to be reliable) to exceed the National Ambient Air Quality Standards for such pollutants and includes any area designated as nonattainment under 42 USC 7407.

Nuisance Smoke - Amounts of smoke in the ambient air that interfere with a right or privilege common to members of the public, including use or enjoyment of public or private resources.

Particulate matter - the liquid or solid particles such as dust, smoke, mist, or smog found in air emissions.

Prescribed fire/Prescribed burn - any fire ignited by management actions to meet specific objectives (i.e., managed to achieve resource benefits).

Prescribed fire plan/burn plan - the plan required for each fire application ignited by managers. It must be prepared by qualified personnel and approved by the appropriate agency administrator prior to implementation. Each plan follows specific agency direction and must include critical elements described in agency manuals.

Prescription – Measurable criteria that define conditions under which a prescribed fire may be ignited, guide selection of appropriate management responses, and indicate other required actions. Prescription criteria may include safety, economic, public health, environmental, geographic, administrative, social, or legal considerations.

Shaded Fuelbreak - Fuelbreaks built in vegetated areas where trees or brush on the break are thinned and pruned to reduce the fire potential yet retain enough crown canopy to make it possible to control surface fires more easily.

Smoke management - Includes but is not limited to techniques to reduce emissions and smoke impacts, to identify and avoid smoke sensitive receptors, to monitor and evaluate the smoke impacts of each burn, and to coordinate among land management agencies to minimize cumulative impacts.

Smoke Sensitive Area - Population centers such as towns and villages, campgrounds, and trails; hospitals, nursing homes, schools, roads, airports, mandatory Class 1 areas, nonattainment areas, areas whose air quality monitoring data indicate pollutant levels that are close to health standards, etc. where smoke and air pollutants can adversely affect public health, safety, and welfare.

Smoke Management Program (SMP) - Establishes a basic framework of procedures and requirements for managing smoke from fires that are managed for resource benefits. The purposes of SMPs are to mitigate the nuisance and public safety hazards (e.g. on roadways and at airports) posed by smoke intrusions into populated areas; to prevent deterioration of air quality and NAAQS violations; and to address visibility impacts in mandatory Class I Federal areas in accordance with regional haze rules.

Stand Replacement Fire Regime – Regime in which fires kill or top-kill above ground parts of the dominant vegetation, changing the above ground structure substantially. Approximately 80 percent or more of the aboveground dominant vegetation is either consumed or dies as a result of the fire. Applies to forests, shrublands, and grasslands.

Surface Fuels – Needles, leaves, grass, forbs, dead and down branches and boles, stumps, shrubs, and short trees.

Values At Risk – Include property, structures, physical improvements, natural and cultural resources, community infrastructure, and economic, environmental, and social values. They may be on or off site values.

Wildfire – An unwanted wildland fire. This is not a separate type of fire, but a term in widespread and common use in historic fire prevention products.

Wildland Fire – Any nonstructural fire, other than prescribed fire, that occurs on undeveloped land. This term encompasses fires previously called both ‘wildfires’ and ‘prescribed natural fires’.

Wildland Fire Situation Analysis – A decision-making process that evaluates alternative management strategies against selected safety, environmental, social, economic, political, and resource management objectives.

Wildland Fire Suppression – An appropriate management response to a wildland fire that results in curtailment of fire spread and eliminates all identified threats from the particular fire. Day-to-day operational management is described in the Incident Management Plan.

Wildland Fire Use – The management of naturally ignited wildland fires to accomplish specific prestated resource management objectives in predefined geographic areas outlined in FMPs. Operational management is described in the Wildland Fire Implementation Plan. These fires are called resource benefit fires as a shorthand through the environmental assessment.

Wildland Urban Interface – The line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.

Definitions taken from:

Helms, John A, ed. 1988. The Dictionary of Forestry. The Society of American Foresters, Bethesda, MD. 210 p.

The Utah Smoke Management Plan, <http://www.utahsmp.net/>,

The National Interagency Fire Center Glossary of Wildland Fire Terminology, <http://www.nifc.gov/fireinfo/glossary.html>,

USDA Forest Service Fuel Management website, (Schmidt et al, 2002), <http://www.fs.fed.us/fire/fuelman/>

Smith, Jane Kapler, ed. 2000. **Wildland fire in ecosystems: effects of fire on fauna. Gen. Tech. Rep. RMRS-GTR-42-vol. 1.** Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 83 p. http://www.fs.fed.us/rm/pubs/rmrs_gtr42_1.html