

Appendix A: Glossary

These definitions were derived from chapters 1 through 4 of this volume, the Fire Effects Information System (FEIS), and the following sources: Agee (1993), Allaby (1992), Brown and others (1982), Brown and Smith (2000), Burke and Grime (1996), Helms (1998), Johnson (1992), Lincoln and others (1998), McPherson and others (1990), Neary and others (2005a), Romme (1980), Ryan and Noste (1985), Sakai and others (2001), Scott and Reinhardt (2007), Smith (2000), Sutton and Tinus (1983).

abundance: The number of individuals of a species in a given area; often used synonymously with “density”

adventitious: Structures or organs developing in an unusual position, such as roots originating on the stem

back fire: Fire set against an advancing fire to consume fuels and, as a consequence, prevent further fire

backing fire: A fire that is burning against the slope or wind, that is, moving down the slope or into the wind. This type of fire typically has the lowest fireline intensity on the fire’s perimeter but may have long flame duration.

baseline fire regime: The fire regime needed to meet a specific goal, without necessarily requiring replication of past conditions

bud: A dormancy structure in shoots that consists of external protective scales and an internal embryonic shoot possessing meristem tissue

bulb: A short, solid, vertical underground stem with thin papery leaves

cambium: A layer of living, meristematic cells between the wood and the bark of a tree

caudex: The persistent and often woody base of an herbaceous perennial

condensation: The process by which water changes from gaseous to liquid phase and releases heat

controlled burn, controlled burning: See “prescribed fire”

corn: A short, solid, vertical underground stem with thin papery leaves

cover: The area of ground covered by a particular plant species, often expressed as a percent

crown fire: Fire that burns in the crowns of trees and shrubs, usually ignited by surface fire. Crown fires are common in coniferous forests and chaparral shrublands.

density: The number of individuals within a given area

depth of burn: Depth of ground fuels consumed by fire

dominance: The extent to which a given species predominates in a community because of its size, density, or cover

duff: Partially decomposed organic matter lying beneath the litter layer and above the mineral soil. It includes the humus and fermentation layers of the forest floor (Oa and Oe horizons, respectively).

duration of fire: The length of time that combustion occurs at a given point. Relates to downward heating and fire effects below the surface.

establishment (of a nonnative species): The process in which a species is able to grow and reproduce successfully in a new area

evapotranspiration: Evaporation from soils, plant surfaces, and water bodies, together with water losses from transpiring plants

fine fuels: Fast-drying, dead fuels, characterized by a high surface area to volume ratio, less than 1 cm in diameter. These fuels (for example, grasses, leaves, and needles) respond rapidly to changes in weather conditions. When dry, they ignite readily and are consumed rapidly.

fire-dependent ecosystems: Ecosystems where fire plays a vital role in determining the composition, structure, and landscape patterns

fire ecology: The study of relationships among fire, the environment, and living organisms

fire effects: The physical, chemical, and biological impacts of fire on the environment and ecosystem resources

fire exclusion: The policy and practice of excluding fire from wildlands. See also “fire suppression.”

fire frequency: The recurrence of fire in a given area over time, often stated as number of fires per unit time

fire intensity: See “fireline intensity”

fire regime: Characteristic pattern of burning over large expanses of space and long periods of time. Fire regimes are described for a specific geographic area or vegetation type by the characteristic fire type (ground, surface, or crown fire), frequency, intensity, severity, size, spatial complexity, and seasonality.

fire-return interval: Number of years between fires at a given location; average number of years before fire returns a given area

fire severity: The degree to which a site has been altered by fire; the effect of a fire on ecosystem properties, sometimes described by the degree of soil heating or mortality of vegetation

fire suppression: All work and activities connected with fire-extinguishing operations, beginning with discovery and continuing until the fire is completely extinguished. See also “fire exclusion.”

fire type: Ground, surface, or crown

fireline intensity: Rate of heat release in the flaming front

flame length: The length of flames in the propagating fire front measured along the slant of the flame from the midpoint of its base to its tip

flame depth, flaming zone depth: Depth of the flaming front

flaming front: The zone in a spreading fire where combustion is primarily flaming. Behind this zone, combustion is primarily glowing or involves the burning out of large fuels.

fuel: Living and dead vegetation that can be ignited. For descriptions of kinds of fuels and fuel classification, see Brown and Smith (2000).

fuel continuity: A qualitative description of the distribution of fuel both horizontally and vertically. Continuous fuels support fire spread better than discontinuous fuels.

fuel load, fuel loading: Weight of fuel per unit area. For descriptions of kinds of fuels and fuel classification, see Brown and Smith (2000).

grass/fire cycle: See “invasive plant/fire regime”

ground fire: Fire that burns in the organic material below the litter layer, mostly by smoldering combustion. Fires in duff, peat, dead moss and lichens, and partly decomposed wood are typically ground fires.

harm, ecological: In natural areas, occurs when an undesired species is abundant enough to cause significant, undesired changes in ecosystem composition, structure, or function

high-severity fire: Fire that alters soil properties and/or kills substantial amounts of underground plant tissue

invasibility: Susceptibility of a plant community to invasion

invasive: Species that can establish, persist, and spread in an area, and also cause—or have potential to cause—negative impacts or harm to native ecosystems, habitats, or species

invasive plant/fire regime: Occurs when a plant invasion alters fuelbed characteristics that alter the spatial and/or temporal distribution of fire on the landscape. These changes in fire regime, in turn, promote dominance of the invasive species.

ladder fuels: Shrubs, vines, forbs, young trees, and low branches on larger trees that provide continuous fine fuels from the surface into the crowns of dominant trees or shrubs

litter: Recently fallen plant material that is not decomposed or only partly decomposed; particles are still discernible

low-severity fire: Fire that causes little alteration to the soil and little mortality to underground plant parts or seed banks

meristem: Undifferentiated plant tissue with cells that can differentiate to form new tissues or organs

mesic: Pertaining to conditions of moderate moisture or water supply

mixed-severity fire regime: Pattern in which most fires either cause selective mortality of the overstory vegetation, depending on different species' susceptibility to fire, or sequential fires vary in severity. Applies only to forests, woodlands, and shrublands.

moderate-severity fire: Fire that causes moderate soil heating. Occurs where litter is consumed and duff is charred or consumed, but the underlying mineral soil is not visibly altered.

nonnative: A species that has evolved outside a particular area (for example, the United States) and has been transported to and disseminated in that area by human activities

organic soil: Soils with deep layers of organic matter that develop in poorly drained areas such as bogs, swamps, and marshes; and soils having more than 20 percent organic matter by weight

perennating tissues: See “meristem”

persistence (of a nonnative species): Establishment of a viable, self-sustaining population that maintains itself over time

prescribed fire: Fire burning with prescription, resulting from planned ignition, that meets management objectives; controlled application of fire to fuels in specified environmental conditions that allow the fire to be confined to a predetermined area and, at the same time, to produce fire behavior that will attain the planned management objectives

presettlement fire regime: Describes fire regimes before extensive settlement by European Americans, extensive conversion of wildlands for agriculture, and effective fire suppression. See also “baseline fire regime” and “reference fire regime.”

propagule pressure: The availability, abundance, and mobility of propagules entering the plant community

reaction intensity: Rate of heat release per unit area of the flaming front

reference fire regime: See “baseline fire regime”

residence time: Time required for the flaming front of a fire to pass a stationary point at the surface of the fuel. The length of time that the flaming front occupies one point

rhizome: A horizontal underground stem with of a series of nodes that commonly produce roots

root crown: The point at which the root and stem of a plant meet and the vascular anatomy changes from that of a stem to that of a root; transition point between stem and root

seed bank: The community of viable seeds present in the soil and held in vegetation aboveground

species richness: The number of species present in a given area

spread (of a nonnative species): Increase in the size of existing populations and establishment of new, self-sustaining populations

stand-replacement fire regime: Pattern in which fire kills or top-kills the aboveground parts of the dominant vegetation. Using this definition, forests that routinely experience crown fire or severe surface fire have a stand-replacement fire regime; grasslands and many shrublands also have stand-replacement fire regimes because fire usually kills or top-kills the dominant vegetation layer.

stolon: A horizontal stem that creeps above ground and roots at the nodes or tips, giving rise to a new plant

succession: The gradual, somewhat predictable process of community change and replacement; the process of continuous establishment and extinction of populations at a particular site

surface fire: Fire that spreads in litter, woody material on or near the soil surface, herbs, shrubs, and small trees

tolerance: The capacity of an organism to subsist under a given set of environmental conditions

top-kill: Mortality of aboveground tissues of a plant without mortality of underground parts from which the plant can produce new stems and leaves

total fuel: The amount of biomass that potentially could burn

total heat release: The heat produced in the flaming front plus that released behind the flaming front through glowing and smoldering combustion

underburn: See “Understory fire”

understory fire: Fire that is not generally lethal to the dominant vegetation and does not substantially change the structure of the dominant vegetation. Applies only to forests, woodlands, and shrublands.

understory fire regime: Pattern in which most fires do not kill or top-kill the overstory vegetation and thus do not substantially change the plant community structure. Applies only to forests, woodlands, and shrublands.

vaporization: The process of adding heat to water until it changes from liquid to gaseous phase

wetlands: Areas that are saturated by surface water, groundwater, or a combination at a frequency and duration sufficient to support a prevalence of vegetation adapted to saturated soil conditions

wildfire: Fire that is not meeting management objectives and, therefore, requires a suppression response

wildland fire: Any nonstructural fire, other than prescribed fire, that occurs in a wildland setting

wildland fire use: Application of the appropriate management response to naturally ignited wildland fires to accomplish specific resource management objectives

xeric: Having very little moisture; tolerating or adapted to dry conditions