

Glossary

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Brown, R.J.E., and Kupsch, W.O. (1974) *Permafrost Terminology*, Can. Nat. Res. Council, Assoc. Comm. Geotech. Res., Tech. Mem. No. 111.

National Research Council of Canada (1976) *Glossary of Forest Fire Control Terms*, 3rd edn, NRCC No. 15520.

active layer

the top layer of ground above the permafrost table that thaws each summer and refreezes each autumn.

aerial fuels

the standing and supported forest combustibles not in direct contact with the ground.

aerial ignition

a technique whereby forest fuels are ignited by dropping ignition agents from aircraft.

backfire

a fire burning, or set to burn, against the wind.

Canadian Forest Fire Danger Rating System

the national system of rating fire danger in Canada, replacing the Canadian Forest Fire Behavior System.

Canadian Forest Fire Weather Index Tables

tables of codes and indices for rating fuel moisture content, relative rate of spread, and relative fire intensity in a standard fuel complex, thereby providing a uniform assessment of fire weather severity across Canada.

depth of thaw

the distance from the ground surface downwards to frozen ground at any time during the thawing season.

depth of zero annual amplitude

the distance from the ground surface downwards to the point beneath which there is virtually no annual fluctuation in ground temperature.

drunken forest

a group of trees leaning in a random orientation.

duff

a mat of partially decomposed organic matter immediately above the mineral soil, consisting primarily of fallen foliage, herbaceous vegetation, and decaying wood.

fire behaviour

the manner in which fuel ignites, flame develops, and fire spreads and exhibits other phenomena. Common terms used to describe fire behaviour include the following:

smouldering: making no appreciable spread and burning without flame.

creeping: spreading slowly, usually with low flame.

running: a rapidly spreading surface fire.

spotting: spreading rapidly with sparks and embers falling outside the fire area and starting spot fires.

crowning: a fire ascending into the crowns of trees and/or spreading from crown to crown.

fire break

an existing barrier, natural or constructed, that will stop or retard the rate of spread of a fire. Considered when planning fire suppression tactics.

Synonym: *fireguard*.

fire control

all activities concerned with the protection of people, property, and forest areas from wildfire; includes prevention, detection, presuppression, and suppression.

fire damage

the loss, expressed in monetary or other terms, caused by fire.

fire detection

a system for or the act of discovering, locating, and reporting forest fires.

fire ecology

the relationships between fire, the environment, and living organisms.

fire environment

the surrounding conditions, influences, and modifying forces of topography, fuel, and air mass that determine fire behaviour.

fire front

the strip of burning fuel at the fire perimeter together with the accompanying flames. May apply to any part of the perimeter as distinct from the different regions of the fire perimeter.

fire hazard

a fuel complex defined by kind, arrangement, volume, condition, and location that forms a special threat of ignition or of suppression difficulty.

fire intensity

the rate of energy release, or rate of heat release, per unit time per unit length of fire front. Numerically, it is equal to the product of the available fuel energy and the forward rate of spread.

fire management

an extension of the concept of fire control which takes into account resource values, role of fire in the environment, the level of protection required, opportunities for prescribed use of fire, consideration of fire effects, and the efficiency of the fire control operation.

fire occurrence

the number of fires started in a given area over a given period of time.

Synonym: *fire incidence*.

fire retardant

a substance that by chemical or physical action reduces flammability of combustibles.

fire scar

- (i) an injury or wound on a tree caused or accentuated by fire.
- (ii) a scar on the landscape made by fire.

fire season

the period or periods of the year during which fires are likely to occur, spread, and do sufficient damage to warrant organized fire control; a period of the year set out and commonly referred to in fire control legislation.

fire suppression

all the work of extinguishing a fire following its detection. Methods of suppression are:
direct: a method whereby work is done on the burning edge of a fire.
indirect: a method whereby the control line is located along favourable topography in advance of the fire edge and the intervening strip is usually burned out.

Fire Weather Index (FWI)

a numerical rating, based on meteorological measurements, of fire-intensity in a standard fuel type. The FWI is comprised of three fuel moisture codes, covering classes of forest fuel of different drying rates, and two indices that represent rate of spread and the amount of available fuel, which collectively provide a uniform scale for rating fire weather severity.

Component codes and indices of the FWI are:

Fine Fuel Moisture Code (FFMC): a numerical rating of the moisture content of litter and other cured fine fuels.

Duff Moisture Code (DMC): a numerical rating of the average moisture content of loosely compacted organic layers of moderate depth.

Drought Code: a numerical rating of the average moisture content of deep, compact, organic layers.

Initial Spread Index (ISI): a numerical rating of the relative spread of a fire that can be expected soon after ignition. It is the combined effect of wind and FFMC on rate of spread, without the influence of variable quantities of fuel.

Buildup Index (BUI): a numerical rating of the total amount of fuel available for combustion.

flammability

the relative ease with which a substance ignites and sustains combustion.

forest fire

any fire which is burning forest vegetation and which is not being used as a tool in forest protection or management in accordance with an authorized plan.

forest fire types: ground fire

a fire that burns in the organic material under the surface litter (e.g., peat fire)

forest fire types: surface fire

a fire burning primarily the litter on the forest floor, together with young trees, shrubs, etc., and spreading through these surface fuels, rather than from crown to crown.

forest fire types: crown fire

a fire that advances through the tops of trees, more or less in conjunction with the surface fire.

fuel break

a wide strip or block of land on which the native vegetation has been permanently modified so that fires burning into it can be more readily extinguished. It may or may not have fire lines constructed in it prior to the occurrence of fires.

palsa

a Fennoscandian term for a round or elongated hillock or mound, maximum height of about 10m, composed of a peat layer overlying mineral soil. It has a perennially frozen core which extends from within the covering peat layer downwards into or toward the underlying mineral soil

peat

an unconsolidated, compressible soil consisting of partially decomposed, semi-carbonized remains of plants such as mosses, sedges, and trees, some animal residues and commonly some mineral soil.

peatland

any terrain covered by a layer of peat.

permafrost

the thermal condition in soil or rock having temperature below 0°C persist over at least two consecutive winters and the intervening summer.

continuous permafrost permafrost occurring everywhere beneath the exposed land surface throughout a geographic regional zone with the exception of widely scattered sites, such as newly deposited unconsolidated sediments, where the climate has just begun to impose its influence on the ground thermal regime and will cause the formation of continuous permafrost.

discontinuous permafrost permafrost occurring in some areas beneath the ground surface throughout a geographic regional zone where other areas are free of permafrost.

prescribed burning

the burning of forest fuels on a specific area under predetermined conditions so that the fire is confined to that area to fulfil silvicultural, wildlife management, sanitary, or hazard-reduction requirements.

rate of spread

the rate at which a fire extends its horizontal dimensions. It is expressed as rate of increase of the fire perimeter, as rate of increase in areas, or as rate of advance of the fire head, depending on the intended use of the information.

smoke

a visible airborne cloud of fine particles, the product of incomplete combustion.

smoke jumpers

fire fighters trained and equipped to parachute to fires in remote areas for initial attack.

solifluction

the process of slow, gravitational, downslope movement of saturated, non-frozen earth material behaving apparently as a viscous mass over a surface of frozen material.

thermokarst

the irregular topography resulting from the process of differential thaw settlement or caving of the ground because of the melting of ground ice in thaw unstable permafrost.

tundra

a treeless, generally level to undulating, region of lichens, mosses, sedges, grasses, and some low shrubs, including dwarf willows and birches, which is characteristic of both the Arctic and higher alpine regions outside of the Arctic.

