

# Canadian Wildland Fire Management Glossary

CIFFC Glossary Task Team and Training Working Group

October 16, 2017



*CANADIAN INTERAGENCY FOREST FIRE CENTRE INC.  
CENTRE INTERSERVICES DES FEUX DE FORÊT DU CANADA INC.*

## Preface

Much has changed in the Canadian wildland fire management community since the last edition of this glossary, published in 2002. In order to reflect the changing nature of fire management and the acknowledgement that fire is not restricted to only our forested lands, the title of this document, previously the *Glossary of Forest Fire Management Terms*, has been changed to the *Canadian Wildland Fire Management Glossary*. The Incident Command System, ICS, previously in the process of being introduced in Canada in the early part of the previous decade, is now firmly established both in wildfire management and numerous other emergency management agencies. Parallel to this effort of increased interagency coordination, in 2014 the Canadian Council of Forest Ministers Wildland Fire Management Working Group (CCFM WFMWG) tasked Grahame Gordon to produce the report *Developing More Common Language, Terminology and Data Standards for Wildland Fire Management in Canada*. The report was endorsed by the CCFM WFMWG and is fully implemented here.

Moreover, this glossary reflects the increasing attention on the human dimension of wildland fire management with an enlarged section on fire mitigation activities such as FireSmart.

As technology has advanced, so has this document. In addition to references to modern technology used in wildfire management in Canada, the format and source data behind this document reflects a transition to a modern database format that will allow more frequent revisions, as well as the seamless updating of both this pdf format alongside a web version that is under development. We are designing the web version of the glossary to allow for a more interactive revision process including the ability of agency staff to suggest revisions. As this glossary renewal is part of a larger CIFFC Information Management and Technology strategy, we encourage the reader to stay up to date on the larger strategy for details on the rollout of the interactive version of this glossary. In the interim, please contact your agency training representative to pass along revision suggestions.

## Glossary

**Aboriginal** In Canada, the term flows from Canada's Constitution of 1982, which includes North American First Nations, Inuit, and Metis peoples of Canada.

**Abort** To cancel an intended manoeuvre.

**AC** [Area Command](#).

**Aerial Detection** A system for or the act of discovering, locating, and reporting wildfires from aircraft. May be planned or unplanned. See [Detection Aircraft](#).

**Aerial Detection Observer** A person assigned to discover, locate and report wildfires from a detection aircraft and to observe and describe conditions concerning detected fires. Also known as air observer.

**Aerial Ignition** The ignition of fuels by dropping incendiary devices or materials from an aircraft.

**Aerial Ignition Device** Any device used for the purpose of aerial ignition. Acronym: [Aerial Ignition Device \(AID\)](#). See [Delayed Aerial Ignition Device](#), [Helitorch](#).

**After Action Review** A structured review or de-brief process of an event, focused on performance standards, that enables participants to discover for themselves what happened, why it happened, and how to sustain strengths and improve on weaknesses. After action reviews, informal or formal, follow the same general format, involve the exchange of ideas and observations, and focus on improving performance.

**Agency** A division of government with a specific function offering a particular kind of assistance. In the Incident Command System, agencies are defined either as jurisdictional (having statutory responsibility for incident management) or as assisting or cooperating (providing resources or other assistance). Governmental organizations are most often in charge of an incident, though in certain circumstances private-sector organizations may be included. Additionally, nongovernmental organizations may be included to provide support.

**Agency Dispatch** The agency or jurisdictional facility from which resources are sent to incidents.

**Agency Executive or Administrator** The official responsible for administering policy for an agency or jurisdiction. An Agency Executive or Administrator (or other public official with jurisdictional responsibility for the incident) usually makes the decision to establish an Area Command.

**Agency Representative** A person assigned by a primary, assisting, or cooperating agency to an incident who has been delegated authority to make decisions affecting that agency's participation at the incident.

**AID** [Aerial Ignition Device](#).

**Air Attack** A fire suppression operation involving the use of aircraft to deliver suppressants or retardants to a wildfire.

**Air Attack Officer** The person responsible for directing, coordinating, and supervising a fire suppression operation involving the use of aircraft to deliver retardants or suppressants on a fire.

**Air Cargo** All items for transport and delivery by aircraft.

**Air Mass** A meteorological term referring to an extensive body of air within which the conditions of temperature and moisture in a horizontal plane are essentially uniform.

**Air Operations Branch Director** The person primarily responsible for managing the resources within the air operations branch, as well as preparing and implementing the air operations portion of the Incident Action Plan. Also responsible for providing logistical support to helicopters operating on the incident.

**Air Tactical Group Supervisor** The person primarily responsible for the coordination of all tactical missions of fixed and/or rotary-wing aircraft operating in incident airspace.

**Airtanker** A fixed-wing aircraft fitted with tanks and equipment for dropping suppressants or retardants on fires. See [Helitanker](#).

**Airtanker Base** An operational base, either permanent or temporary, at which air tankers are held in readiness for action on fires. Includes dispatch facilities, crew day quarters, limited equipment storage, and administrative facilities. May also be equipped to provide fire retardant. See [Retardant Base](#).

**Air Temperature** See [Dry-bulb Temperature](#).

- Alert** A period when fire fighters, fire control equipment, and aircraft are kept ready for deployment on short notice, usually when the fire danger reaches a predetermined degree of severity. May also involve an increase in fire prevention activities and often precedes a forest closure.
- All-hazard** Any incident, natural or human caused, which warrants action to protect life, property, environment, and public health or safety, and minimize disruption of government, social, and economic activities.
- Allocated Resources** Resources dispatched to an incident.
- Allowable Burned Area** A standard or objective of protection effort set for an area of managed forest or other land. The maximum average annual area burned by wildfire over a given period of years that can be tolerated and sustained for a given area without disrupting overall forest management and other land use objectives.
- Anchor Point** An advantageous location, usually a barrier to fire spread, from which to start or finish construction of a control line. Used to minimize the chance of being flanked (or outflanked) by the fire while the line is being constructed. See [LACES](#).
- Anemometer** A general name for instruments designed to measure wind speed.
- Area Command** An organization established to oversee the management of (1) multiple incidents that are each being handled by a separate Incident Command System organization, or (2) to oversee the management of a very large or evolving multiple incidents to which several Incident Management Teams have been assigned. An Agency Executive or Administrator or other public official with jurisdictional responsibility for the incident usually makes the decision to establish an Area Command. An Area Command is activated only if necessary, depending on the complexity of the incident and span-of-control considerations. Area Command (AC) has the responsibility to set overall strategy and priorities, allocate critical resources according to priorities, ensure that incidents are properly managed, and ensure that objectives are met and strategies followed. Area Command may become Unified Area Command when incidents are multi-jurisdictional. Acronym: [Area Command \(AC\)](#).
- Aspect** The direction a slope is facing.
- Aspirate** To draw in air by suction. The aspirating nozzle draws air into the nozzle to mix with foam solution.
- Aspirating Nozzle** A foam generating device that mixes air at atmospheric pressure with foam solution in a nozzle chamber.
- Assigned Resources** Resources checked in and assigned work tasks on an incident.
- Assignments** Tasks given to resources to perform within a given operational period, based upon tactical objectives in the Incident Action Plan.
- Assistant** Title for subordinates of the Command Staff positions. The title indicates a level of technical capability, qualifications, and responsibility subordinate to the primary positions. Assistants may also be used to supervise unit activities at camps assigned to unit leaders.
- Assisting Agency** An agency directly contributing tactical or service resources to another agency.
- Atmospheric Pressure** The gravitational force exerted by a column of air extending from the point of concern to the outer limits of the atmosphere. Recommended unit is the kilopascal (kPa), although millibar (mb) has been the most common unit of measurement.
- Atmospheric Stability** A meteorological term referring to the resistance of the atmosphere to turbulence and vertical motion (upward). With reference to fire management activities the atmosphere is usually described as neutral, stable, or unstable with respect to the dry adiabatic lapse rate. See [Dry Adiabatic Lapse Rate](#).
- Attack** The actual physical fire fighting operation. See [Fire Suppression](#).
- Available Fuel** The quantity of fuel in a particular fuel type that would actually be consumed under specified burning conditions.
- Available Resources** Resources assigned to an incident that are checked in and available for a mission assignment; resources are normally located in a Staging Area.
- Back** That portion of the fire perimeter opposite the head; the slowest spreading part of the fire. Synonym: [Rear of a Fire](#).
- Backfire** A fire spreading, or set to spread, into or against the wind. See [Head Fire](#), [Flank Fire](#).

- Backfiring** A form of indirect attack where extensive fire is set along the inner edge of a control line or natural barrier, usually some distance from the wildfire and taking advantage of indrafts, to consume fuels in the path of the fire, and thereby halt or retard the progress of the fire front.
- Back-pack Pump** A portable water container equipped with a hand pump and back-pack straps carried on the back of fire fighters; used for applying water in suppression and mop-up operations. Synonyms: [Back Tank](#), [Pack Pump](#).
- Back Tank** See [Back-pack Pump](#).
- Base** The location at which primary Logistics functions for an incident are coordinated and administered. There is only one Base per incident. (Incident name or other designator will be added to the term Base.) The Incident Command Post may be co-located with the Incident Base.
- Batch Mix** Manually adding one suppressant ingredient to another to develop the final product. Batching can involve a powder and a liquid or two liquids. For foams it is the process of manually pouring foam concentrate into water to make a foam solution. Foam is produced when the solution is pumped down a hose and out an aspirating nozzle. For fire retardants it is the process of adding powder to a measured amount of water and mechanically agitating it to produce fire retardant.
- Batch Mixer** The container in which batching is done. In retardant mixing operations, it is a tank, usually 1,000 gallons, in which powdered retardant and water are mixed together by mechanical means to produce the final product.
- Beaufort Wind Scale** A method for estimating wind speed based on observation of visual indicators of wind effects (e.g. smoke drift, flag and tree movement). Suggested for use when an anemometer is lacking or is not in operating condition.
- Birddog Aircraft** An aircraft carrying the person directing aerial operations on a fire. Also known as the Birddog.
- Blowdown** See [Windfall](#).
- Blowup** A somewhat sudden, and sometimes unexpected, major increase in rate of spread and Head Fire Intensity sufficient to upset overall fire suppression action or plans. Blowups can result from small or large fire situations. See [Fire Run](#), [Flareup](#).
- Branch** The organizational level having functional or geographic responsibility for major parts of the Operations or Logistics functions. The Branch level is organizationally between Section and Division/Group in the Operations Section, and between Section and Units in the Logistics Section. Branches are identified by the use of Roman numerals or by functional name (e.g., medical, security, etc.).
- Broadcast Burning** Intentional burning of debris on a designated unit of land, where the fuel has not been piled or windrowed, by allowing fire to spread freely over the entire area.
- Bucker** An individual who is certified to operate a chainsaw on trees already on the ground.
- BUI** [Buildup Index](#).
- Buildup** The hourly increase in cumulous cloud cover over the course of a day; also can refer to the increase in resources on a given fire.
- Buildup Index** A numerical rating of the total amount of fuel available for combustion that combines the Duff Moisture Code and Drought Code. Acronym: [Buildup Index \(BUI\)](#). See [Drought Code](#), [Duff Moisture Code](#).
- Burning Conditions** The state of the combined components of the fire environment that influence fire behaviour and fire impacting a given fuel type. Usually specified in terms of such factors as fire weather elements, fire danger indexes, fuel load, and slope. See [Fire Danger](#), [Wildfire Risk](#).
- Burning Off** A fire suppression operation where fire is set to consume islands of unburned fuel inside the fire perimeter usually during mop-up operations.
- Burning Out** A fire suppression operation where fire is set along the inside edge of a control line or natural barrier to consume unburned fuel between the line and the fire perimeter, thereby reinforcing the existing line and speeding up the control effort. Generally a limited, small-scale routine operation as opposed to backfiring.
- Burning Period** That part of each 24-hour day when fires are generally the most active. Typically, this is from mid -morning to sundown, although it varies with latitude and the time of year.

**Burning Prescription** A written statement and/or list defining the objectives to be attained from prescribed burning, as well as the burning conditions under which fire will be allowed to burn, generally expressed as acceptable ranges of the various parameters, and the limit of the geographic area to be covered.

**Burn-P3** Short for probability, prediction, and planning, Burn-P3 is a spatial fire simulation model that is used for land-management planning and wildland fire research. It uses the Canadian Wildland Fire Simulation Model to determine the ignition and spread of a very large number of fires in order to determine fire likelihood. See [Canadian Wildland Fire Simulation Model](#).

**Burn Severity** Organic matter consumption from flaming and smouldering combustion, and the resulting ecosystem impacts. Can be assessed in the field or using satellite remote sensing techniques. See [Fire Severity](#).

**Burn Window** A time period within a short-term planning horizon in which the forecasted fire weather is within the previously determined range in order to proceed with a prescribed burn. Typically incorporating aspects of both atmospheric conditions such as the Initial Spread Index, as well as fuel dryness, such as the Buildup Index.

**Bust** See [Multiple Fire Situation](#).

**Byram's Fireline Intensity** See [Head Fire Intensity](#).

**Cache** A pre-determined complement of tools, equipment, and/or supplies stored in a designated location, available for incident use.

**Camp** A geographical site within the general incident area, separate from the Incident Base, equipped and staffed to provide sleeping, food, water, and sanitary services to incident personnel. Camps can be collocated at the incident base, or on and around the incident.

**Campaign Fire** A fire of such size, complexity and/or priority that its extinction requires a large organization, high resource commitment, significant expenditure, and prolonged suppression activity. Synonym: [Project Fire](#).

#### **Canadian Forest Fire Behaviour Prediction System**

A subsystem of the Canadian Forest Fire Danger Rating System. The FBP System provides quantitative outputs of fire behaviour characteristics

for certain major Canadian fuel types and topographic situations. Acronym: [Canadian Forest Fire Behaviour Prediction System \(FBP\)](#).

#### **Canadian Forest Fire Danger Rating System**

The national system of rating fire danger in Canada. The CFFDRS includes all guides to the evaluation of fire danger and the prediction of fire behaviour such as the Canadian Forest Fire Weather Index System and Canadian Forest Fire Behaviour Prediction System. Acronym: [Canadian Forest Fire Danger Rating System \(CFFDRS\)](#).

#### **Canadian Forest Fire Weather Index System**

A subsystem of the Canadian Forest Fire Danger Rating System. The components of the FWI System provide numerical ratings of relative fire potential in a standard fuel type (i.e. a mature pine stand) on level terrain, based solely on consecutive observations of four fire weather elements measured daily at noon standard time or 1300h daylight time, even if it is raining.

#### **Canadian Interagency Forest Fire Centre**

Founded in 1982, CIFFC has a mandate to provide operational wildland fire management services to member agencies that will, by agreement, gather, analyse, and disseminate fire management information to ensure a cost effective sharing of resources; and actively promote, develop, refine, standardise, and provide services to member agencies that will improve wildland fire management in Canada. Acronym: [Canadian Interagency Forest Fire Centre \(CIFFC\)](#).

#### **Canadian Wildland Fire Simulation Model**

A deterministic wildland fire growth simulation model based on the Canadian Forest Fire Danger Rating System. The model computes spatially-explicit fire behaviour and spread outputs given fuel, topography and weather inputs. See [Burn-P3](#).

**Cargo Dropping** The dropping of equipment or supplies from an aircraft in flight, with or without a parachute.

**Cargo Net** A special net, approved by the Ministry of Transport, attached by a lanyard to a helicopter cargo hook and used to haul supplies. See [Sling](#).

**Centrifugal Pump** A pump that expels water by centrifugal force through the ports of a circular impeller rotating at high speed. This type of pump

allows the discharge line to be shut off while the pump is running.

**Certification** A formal process by which a recognized individual or body (government or non-government) assess and recognizes that an individual has demonstrated competence in a specific position or role.

**CFB** [Crown Fraction Burned](#).

**CFDRS** [Canadian Forest Fire Danger Rating System](#).

**Chain of Command** A series of command, control executive or management positions in hierarchical order of authority.

**Charcoal Phase of Combustion** See [Combustion](#).

**Charged Line** A line of fire hose filled with water under pressure.

**Check-in** The process whereby resources first report to an incident. Check-in locations can include: Incident Command Post (Resources Unit), Incident Base, Camps, Staging Areas, Helibases, Helispots, and Division/Group Supervisors (for direct line assignments).

**Chicot** See [Snag](#).

**Chief** The ICS title for individuals responsible for management of functional sections: Operations, Planning, Logistics, Finance/Administration, and Intelligence/Investigations (if established as a separate section).

**CIFFC** [Canadian Interagency Forest Fire Centre](#).

**Closed Area** An area in which specified activities or entry are temporarily restricted by agency legislation to reduce risk of human-caused fire. In some jurisdictions a closed area is called a restricted travel zone or a restricted fire zone. See [Forest Closure](#).

**Cold Trailing** A method of determining whether or not a fire is still burning, involving careful inspection and feeling with the hand, or by use of a hand-held infrared scanner, to detect any heat source. See [Hot Spot](#).

**Combination Nozzle** Also called an adjustable fog nozzle. Used for applying water, wet water, or foam solution as either a solid stream or a fixed spray pattern.

**Combustion** A chemical oxidation-type process in which heat is produced (i.e. a substance is combined with oxygen). In the case of forest fires, living and dead fuels are converted to mainly carbon dioxide and water vapour, and heat energy is released very rapidly. Flaming combustion is characterized by the movement of a visible flame through the fuel bed. On the other hand, smouldering or glowing combustion is generally associated with the residual burning of forest fuels following flaming combustion.

**Command** The act of directing, ordering, or controlling by virtue of explicit legal, agency, or delegated authority.

**Command Staff** The Command Staff consists of the Information Officer, Safety Officer, and Liaison Officer. They report directly to the Incident Commander. They may have an Assistant or Assistants, as needed.

**Communications Unit** An organizational Unit in the Logistics Section responsible for providing communication services to an incident.

**Compensation Unit/Claims Unit** Functional unit within the Finance/Administration Section responsible for financial concerns resulting from property damage, injuries, or fatalities at the incident.

**Complex** Two or more individual incidents located in the same general area which are assigned to a single Incident Commander or to Unified Command.

**Compressed Air Foam System** A foam system which combines air under pressure with foam solution to create foam in the hose.

**Conduction** Transfer of heat through solid matter.

**Conflagration** A popular term for a large, fast-moving wildfire exhibiting many or all of the features associated with extreme fire behaviour. See [Blowup](#), [Fire Storm](#).

**Consequence** Outcome of an event affecting objectives.

**Constant Flow Tank System** A single compartment tank with a computer-controlled door system. Capable of single or multiple even-flow releases for designated coverage levels.

- Containment** Showing the percent of fireline contained or being held. For example 40 percent of the line is contained with the use of mechanical, hose line or natural barriers. On Type 1 and Type 2 wildfires, the incident management team will submit the ICS209 form showing the percent of the fireline contained or being held. For example, 40 percent means that 40 percent of the line is contained with the use of mechanical, hose line or natural barriers.
- Continuous Crown Fire** A high-intensity crown fire with a crown fraction burned greater than 90 percent.
- Control Line** A comprehensive term for all constructed or natural fire barriers and treated fire perimeter used to control a fire. See [Fireguard](#), [Fuelbreak](#). Synonym: [Fire Control Line](#).
- Control Time** The periods from initial attack until the fire is considered Under Control. See [Initial Attack](#), [Fire Status - Under Control](#).
- Convection** Transfer of heat by the movement of masses of hot air; the natural direction is upwards in the absence of any appreciable wind speed and/or slope. See [Subsidence](#).
- Convection Column** The definable plume of hot gases, smoke, firebrands, and other combustion by-products produced by and rising above a fire. See [Smoke Column](#).
- Cooperating Agency** An agency supplying assistance other than direct operational or support functions or resources to the incident control effort.
- Cost Sharing Agreements** Agreements between agencies or jurisdictions to share designated costs related to incidents. Cost sharing agreements are normally written but may also be oral between authorized agency or jurisdictional representatives at the incident.
- Cost Unit** Functional unit within the Finance/Administration Section responsible for tracking costs, analysing cost data, making cost estimates, and recommending cost-saving measures.
- Coupling, quick-connect, external-lug** A cast or forged metal hose coupling that incorporates a universal coupling system with two external fitting lugs.
- Coverage Level** The volume per unit area of fire suppression chemical or water dispersed on a forest fuel described in US gallons per 100 square feet or litres per square metre.
- Cover Type** The designation of a vegetation complex according to its dominant species, age, and/or form.
- Creeping** A fire spreading slowly over the ground, generally with a low flame.
- Crew Leader - Type 1** A wildfire crew leader is the primary supervisor in command of usually 2 to 20 crew members and responsible for their performance, safety, and welfare while maintaining the span of control. The CRWL may be responsible for overall management of the incident and reports to the Agency Administrator.
- Crew Leader - Type 2** A wildfire crew leader is the primary supervisor in command of usually 2-20 Type 2 crew members and responsible for their performance, safety and welfare, while maintaining span of control.
- Crew Leader - Type 3** A wildfire crew leader is the primary supervisor in command of usually 2-20 Type 3 crew members and responsible for their performance, safety and welfare, while maintaining span of control.
- Crew Member - Type 1** A wildfire crewmember is used in the control or suppression of a wildfire and works as a member of a Type 1 wildfire crew.
- Crew Member - Type 2** A wildfire crewmember is used in the control or suppression of a wildfire and works as a member of a Type 2 wildfire crew.
- Crew Member - Type 3** A wildfire crewmember is used in the control or suppression of a wildfire and works as a member of a Type 3 wildfire crew.
- Crew - Type 1** Are the primary fire response force consisting of 3 to 21 persons and meet all requirements of the Interagency Exchange Standards.
- Crew - Type 2** Crews intended for utilization on low to moderate complexity sustained action operations and meet all requirements of the Interagency Exchange Standards.
- Crew - Type 3** Generally made up of temporary firefighter forces used for mop-up situations that have received some type of basic agency firefighting training.



**Crossover** The point at which the relative humidity is less than, or equal to, the ambient air temperature. May be used as an indicator of extreme burning conditions.

**Crown Base Height** The height, above ground, where the live crown of coniferous trees begins.

**Crown Fire** A fire that advances through the crown fuel layer, usually in conjunction with a surface fire.

**Crown Fraction Burned** The proportion of tree crowns involved in the fire in a given area. Between 10 and 89 percent CFB is considered an intermittent crown fire, while over 90 percent is a continuous crown fire. Acronym: [Crown Fraction Burned \(CFB\)](#).

**Crown Fuels** The standing and supported forest combustibles not in direct contact with the ground that are generally only consumed in crown fires (e.g. foliage, twigs, branches, cones). See [Surface Fuels](#), [Ladder Fuels](#).

**Crowning** A fire ascending into the crowns of trees and spreading from crown to crown.

**Crown Scorch** Browning of the needles or leaves in the crown of a tree or shrub caused by the heat rising above a surface fire as a result of convection.

**DAID** [Delayed Aerial Ignition Device](#).

**Daily Severity Rating** A numerical measure, based on the Fire Weather Index (FWI), specifically designed for averaging, either for any desired period of time (e.g. week, month, year) at a single fire weather station or spatially over a number of stations. Acronym: [Daily Severity Rating \(DSR\)](#).

**Damage Appraisal** A method of determining financial or other losses resulting from a wildfire. See [Fire Effects Value Appraisal](#).

**Danger Tree** A tree that is hazardous because of location or lean, physical damage, overhead hazards, deterioration of the limbs, stem or root system, or any combination. See [Snag](#), [Chicot](#).

**DC** [Drought Code](#).

**Degree of Curing** The proportion of cured and/or dead plant material in a grassland fuel complex.

**Delayed Aerial Ignition Device** An incendiary device producing a chemical reaction which, when dropped from a flying aircraft, will ignite after a

predetermined elapsed time. Acronym: [Delayed Aerial Ignition Device \(DAID\)](#). See [Aerial Ignition Device](#), [Helitorch](#).

**Delegation of Authority** A statement provided to the Incident Commander by the Agency Executive delegating authority and assigning responsibility. The Delegation of Authority can include objectives, priorities, expectations, constraints, and other considerations or guidelines as needed. Many agencies require written Delegation of Authority to be given to Incident Commanders prior to their assuming command on larger incidents.

**Demobilization Unit** Functional unit within the Planning Section responsible for assuring orderly, safe and efficient demobilization of an incident resources to the original location and status.

**Density Altitude** Altitude as determined by pressure altitude and existing air temperature. Density altitude is used as an index to aircraft performance characteristics such as take-off distance and rate of climb.

**Depth of Burn** The reduction in forest floor thickness due to consumption by fire. Recommended unit is centimetres (cm). Acronym: [Depth of Burn \(DOB\)](#).

**Deputy** A fully qualified individual who, in the absence of a superior, could be delegated the authority to manage a functional operation or perform a specific task. In some cases, a Deputy could act as relief for a superior and therefore must be fully qualified in the position. Deputies can be assigned to the Incident Commander, General Staff, and Branch Directors.

**Detection Aircraft** An aircraft deployed for the express purpose of discovering, locating, and reporting wildfires. See [Aerial Detection](#), [Fire Detection](#).

**Detection Pattern** A predetermined flight plan for detection aircraft.

**Dewpoint Depression** The difference in degrees between the air temperature and the dewpoint. Recommended unit is degrees Celsius.

**Dewpoint Temperature** The temperature to which air must be cooled to reach saturation at a constant atmospheric pressure. The dew point is always lower than the wet-bulb temperature which in turn is always lower than the dry-bulb temperature. The only exception to this occurs when the

air is saturated (i.e. relative humidity is 100 percent), in which case all three are equal. Recommended unit is degrees Celsius.

**Difficulty of Control** The amount of effort required to contain and mop-up a fire based on its behaviour and persistence as determined by the fire environment. See [Resistance to Control](#), [Resistance to Fireguard Construction](#).

**Direct Attack** A method whereby the fire is attacked on to the burning fuel.

**Director** The ICS title for individuals responsible for supervision of a Branch.

**Discharge Head** See [Static Discharge Head](#).

**Discovery** Determination that a fire exists at a specific location; in contrast to action related to detection, reporting of the fire is not required.

**Discovery Time** The period from start of a fire (estimated or known) until the time the fire was discovered.

**Dispatch** The implementation of a command decision to move a resource or resources to an assigned operational mission or an administrative move from one location to another.

**Division** Divisions are used to divide an incident into geographical areas of operation. A division is located within the ICS organization between the Branch and the Task Force and/or Strike Team. Divisions are identified by alphabetic characters for horizontal applications and, often, by floor numbers when used in buildings. See [Group](#), [Branch](#).

**Division Supervisor** The individual responsible for supervising equipment and personnel assigned to a division. Reports to a Branch Director or Operations Section Chief.

**DMC** [Duff Moisture Code](#).

**DOB** [Depth of Burn](#).

**Documentation Unit** Functional unit within the Planning Section responsible for collecting, recording, and safeguarding all documents relevant to the incident.

**Drift** Advice or indication that a wind condition exists of sufficient velocity to significantly affect aerial drop placements and that a correction factor must be allowed for wind drift.

**Drift Smoke** Smoke that has drifted from its origin and has lost any column structure.

**Drip Torch** A hand-held incendiary device that releases slow-burning flaming fuel at a predetermined rate.

**Drop Height** Height of the airtanker at load release, usually given in feet above tree top level.

**Drop Zone** Target area for the release of the airtanker's load.

**Drought** A period of relatively long duration with substantially less than normal precipitation, occurring usually over a wide area.

**Drought Code** A numerical rating of the average moisture content of deep, compact organic layers. This code indicates seasonal drought effects on forest fuels, and is a predictor of smouldering in deep duff layers and large logs. Acronym: [Drought Code \(DC\)](#).

**Dry Adiabatic Lapse Rate** A meteorological term referring to the rate of decrease of temperature with height of a parcel of dry air ascending in the atmosphere without mixing or heat exchange. A typical value is approximately 1 degree Celsius per 100 metres of altitude. Conversely, dry air descending in the atmosphere warms at the same rate. See [Atmospheric Stability](#).

**Dry-bulb Temperature** The temperature registered by a dry-bulb thermometer, and identical to the temperature of the air in the normal sense. Recommended unit is degrees Celsius. See [Air Temperature](#).

**Dry Foam** A type of foam with very thin bubble walls and only small amounts of solution between the bubbles. These types of foams have very slow drainage rates.

**Dry Lightning Storm** A thunderstorm with negligible precipitation reaching the ground.

**DSR** [Daily Severity Rating](#).

**Duff** The layer of partially and fully decomposed organic materials lying below the litter and immediately above the mineral soil. It corresponds to the fermentation (F) and humus (H) layers of the forest floor. When moss is present, the top of the duff is just below the green portion of the moss. See [Litter](#).

- Duff Moisture Code** A numerical rating of the average moisture content of loosely compacted organic layers of moderate depth. This code indicates fuel consumption in moderate duff layers and medium-sized woody material. Acronym: [Duff Moisture Code \(DMC\)](#).
- Dummy Run** A simulated run made on a target by the birddog aircraft to indicate target and run to the airtanker. See [Inspection Run](#), [Lead-in](#).
- Ecosystem impacts** Disturbance characteristics such as portion of vegetation killed or damaged, effects on soil organisms, and post-fire regeneration patterns.
- Eductor** A proportioning device using vacuum created by a liquid moving through a hose line to draw another liquid into the stream.
- EFF** [Emergency Fire Fighter](#).
- Effective Wind Speed** The sum of the vectors of the 10-m open wind speed and the slope equivalent wind speed.
- Elliptical Fire Growth Model** A model of a free-burning point source fire with an elliptical shape. Assumptions include uniform and constant fuels, homogeneous topography, constant but non-zero wind, and no suppression.
- Ember Transport** See [Heat Transfer](#).
- EMC** [Equilibrium Moisture Content](#).
- Emergency Fire Fighter** Personnel other than regular employees or seasonally employed crews, hired on a casual basis for presuppression and suppression related work activities. Acronym: [Emergency Fire Fighter \(EFF\)](#).
- Emergency Operations Centre** The physical location at which the coordination of information and resources to support incident management (on-scene operations) activities normally takes place. An EOC may be a temporary facility or may be located in a more central or permanently established facility, perhaps at a higher level of organization within a jurisdiction. EOCs may be organized by major functional disciplines (e.g., fire, law enforcement, medical services), by jurisdiction (e.g., federal, provincial, regional, municipal), or by some combination thereof. Acronym: [Emergency Operations Centre \(EOC\)](#).
- Emergency Operations Plan** An ongoing plan for responding to a wide variety of potential hazards.
- Entrapment** A situation where fire fighters are in danger of being burned over, with no access to an escape route or safety zone. See [Safety Zone](#).
- EOC** [Emergency Operations Centre](#).
- Equilibrium Moisture Content** The moisture content that a fuel element would attain if exposed for an infinite period in an environment of specified constant dry-bulb temperature and relative humidity. When a fuel element has reached its EMC, it neither gains nor loses moisture as long as conditions remain constant. Acronym: [Equilibrium Moisture Content \(EMC\)](#).
- Equipment Tracking** A system used by agencies to maintain inventories of fire equipment both internally and externally.
- Escaped Fire** A wildfire (or prescribed fire that has burned beyond its intended area) that remains not under control following initial attack. See [Excursion](#).
- Escaped Fire Analysis** The process of deciding what action to take on an escaped fire. This involves a review and analysis of the threats to public safety, values, resource management objectives, probable fire effects, existing fire load, present and anticipated fire behaviour, availability of fire suppression resources, probability of successful control, and feasible fire suppression methods.
- Escape Route** A pre-determined route that can be used by anyone in the event that fire begins an unexpected run that will jeopardize the safety of crews or anyone else on the fire line. The escape route will take everyone to another pre-determined location (safety zone).. See [Safety Zone](#).
- Event** Occurrence or change of a particular set of circumstance.
- Excursion** An unplanned but acceptable enlargement of the area intended to be treated with prescribed fire which does not greatly affect any values and involves a minimum of suppression effort. See [Escaped Fire](#), [Flareup](#).
- Exposure** Proportion of amount of a value that interacts with a hazard. Exposure is a function of time and distance based on the physical process being considered (i.e. ember transport versus radiant heating).

- Extreme Fire Behaviour** A level of fire behaviour that often precludes any fire suppression action. It usually involves one or more of the following characteristics: high rate of spread and Head Fire Intensity, crowning, prolific spotting, presence of large fire whirls, and a well-established convection column. Fires exhibiting such phenomena often behave in an erratic and dangerous manner. See [Blowup](#), [Conflagration](#).
- Facilities Unit** Functional unit within the Support Branch of the Logistics Section that provides fixed facilities for the incident. These facilities may include the Incident Base, feeding areas, sleeping areas, sanitary facilities, etc.
- False Smoke** Any phenomenon mistaken for smoke.
- FBP** [Canadian Forest Fire Behaviour Prediction System](#).
- Feller** An individual who is qualified under workplace regulations to fall non-danger trees on an incident. See [Danger Tree](#).
- FFMC** [Fine Fuel Moisture Code](#).
- Field Operations Guide** A pocket-size manual of instructions on the application of the Incident Command System.
- Final Run** A live run where the pilot intends to drop the load of water or retardant.
- Finance/Administration Section** The Section responsible for all incident costs and financial considerations. This section includes the Time Unit, Procurement Unit, Compensation/Claims Unit, and Cost Unit.
- Finance/Administration Section Chief** The individual responsible for supervising the Finance/Administration Section. Reports to the Incident Commander and is a member of the General Staff. This position may have one or more deputies assigned.
- Fine Fuel Moisture Code** A numerical rating of the moisture content of litter and other cured fine fuels. This code indicates the relative ease of ignition and flammability of fine fuel. Acronym: [Fine Fuel Moisture Code \(FFMC\)](#).
- Fine Fuels** Fuels that dry quickly, ignite readily, and are consumed rapidly by fire. Examples include: cured grass, fallen leaves, needles, and small twigs. See [Medium Fuels](#), [Heavy Fuels](#).
- Fingers** An elongated burned areas projecting from the main body of the fire resulting in an irregular fire perimeter.
- Fire** (1) Simultaneous release of heat, light, and flame, generated by the combustion of flammable material. (2) In a wider sense, any outbreak of fire. See [Forest Fire](#), [Wildfire](#).
- Fire Analysis** Review of fire management actions taken with respect to a specific fire, group of fires, or fire season in order to identify reasons for effective and ineffective actions and to recommend or prescribe ways and means of doing a more efficient job.
- Fire Atlas** An ordered collection of fire maps, charts, and statistics used as a basis for fire management planning.
- Fire Behaviour** The manner in which fuel ignites, flame develops, and fire spreads and exhibits other related phenomena as determined by the interaction of fuels, weather, and topography.
- Fire Behaviour Analyst** A specialist position under the plans function of a fire incident management team responsible for making predictions of probable fire behaviour based on an analysis of the current and forecasted state of the fire environment.
- Fire Behaviour Triangle** An instructional aid in which the sides of an equilateral triangle represent the three interacting components of the fire environment that are responsible for fire behaviour (i.e. fire weather, fuels, and topography). See [Fire Triangle](#). Synonym: [Fire Environment Triangle](#).
- Fire Benefits** Any effect(s) of fire that are favourable or beneficial in terms of the attainment of forest management and other land use objectives. See [Fire Effects](#), [Fire Impacts](#).
- Firebrand** An airborne piece of flaming or smouldering material capable of acting as an ignition source.
- Fire Bust** See [Multiple Fire Situation](#).
- Fire Cause - Human - Forest Industry** A wildfire caused by people or machines engaged in any activity associated with forest products production.
- Fire Cause - Human - Human Other** A wildfire of known human cause that cannot be properly classified under any of the other standard classes listed below.

- Fire Cause - Human - Incendiary** A wildfire willfully started for the purpose of mischief, grudge, or illegitimate gain.
- Fire Cause - Human - Other Industry** A wildfire caused by industrial operations other than forest industry or railroads. Includes municipal, provincial, or federal works projects whether employees, agents, or contractors.
- Fire Cause - Human - Railroads** A wildfire caused by any machine, employee, agent, or contractor performing work associated with a railway operation, or a passenger on a train.
- Fire Cause - Human - Recreation** A wildfire caused by people or equipment engaged in a recreational activity (e.g. vacationing, fishing, picnicking, non-commercial berry picking, hiking).
- Fire Cause - Human - Resident** A wildfire resulting from activity performed by people or machines for the purpose of agriculture or an accidental fire caused by activity associated with normal living in a forested area.
- Fire Cause - Human - Undetermined** A wildfire of undetermined cause, including a wildfire that is currently under investigation, as well as one where the investigation has been completed.
- Fire Cause - Natural - Lightning** A wildfire caused directly or indirectly by lightning.
- Fire Cause - Natural - Natural Other** A wildfire of known natural cause other than lightning.
- Fire Climate** The composite pattern or integration over time of the fire weather elements that affect fire occurrence and fire behaviour in a given area.
- Fire Control Line** See [Control Line](#).
- Fire Cycle** The number of years required to burn over an area equal to the entire area of interest. See [Fire Frequency](#), [Fire Interval](#).
- Fire Danger** A general term used to express an assessment of both fixed and variable factors of the fire environment that determine the ease of ignition, rate of spread, difficulty of control, and fire impact. See [Fire Hazard](#), [Burning Conditions](#).
- Fire Danger Class** A segment of a fire danger index scale identified by a descriptive term (e.g. Low, Moderate, High, Extreme), and/or a colour code. The classification system may be based on one or more fire danger index (e.g. the Buildup Index is sometimes used in addition to the Fire Weather Index).
- Fire Danger Index** A quantitative indicator of one of more facets of fire danger, expressed either in a relative sense or as an absolute measure; often used as a guide in a variety of fire management activities (e.g. to judge day-to-day preparedness and suppression requirements, as a basis for providing information on fire danger to the general public in fire prevention, as an aid to prescribed burning).
- Fire Danger Rating** The process of systematically evaluating and integrating the individual and combined factors influencing fire danger represented in the form of fire danger indexes.
- Fire Dependent Ecosystems** An ecosystem can be considered fire dependent if periodic fire is essential for maintaining the character, diversity and vigour of the intrinsic plant and animal communities. See [Fire Regime](#).
- Fire Detection** A system for or the act of discovering, locating, and reporting wildfires. See [Detection Aircraft](#).
- Fire Ecology** The study of the relationships between fire, the physical environment, and living organisms.
- Fire Effects** Any ecosystem impacts attributable to a fire, whether immediate or long-term. May be detrimental, beneficial, or benign. See [Fire Benefits](#), [Fire Impacts](#).
- Fire Effects Value Appraisal** Determination of the net gains or losses resulting directly or indirectly from forest fires, expressed in monetary or other terms, based on a systematic assessment of fire benefits and impacts. See [Damage Appraisal](#).
- Fire Environment** The surrounding conditions, influences, and modifying forces of topography, fuel, and fire weather that determine fire behaviour.
- Fire Environment Triangle** See [Fire Behaviour Triangle](#), [Fire Triangle](#).
- Fire Equipment Cache** A supply of fire fighting tools and equipment in planned quantities or standard units at a strategic point for exclusive use in fire suppression. Synonym: [Tool Cache](#).
- Fire Frequency** The average number of fires that occur per unit time at a given point. See [Fire Cycle](#), [Fire Interval](#).

**Fire Front** The strip of primarily flaming combustion along the fire perimeter; a particularly active fire edge. Fine fuels typically produce a narrow fire front, whereas dry, heavy fuels produce a wider zone or band of flames. See [Flame Depth](#). Synonym: [Flaming Front](#).

**Fireguard** A strategically planned barrier, either manually or mechanically constructed, intended to stop or retard the rate of spread of a fire, and from which suppression action is carried out to control a fire. The constructed portion of a control line. See [Control Line](#), [Fuelbreak](#).

**Fire Hazard** A general term to describe the potential fire behaviour, without regard to the state of weather-influenced fuel moisture content, and/or resistance to fireguard construction for a given fuel type. This may be expressed in either the absolute (e.g. cured grass is a fire hazard) or comparative (e.g. clear-cut logging slash is a greater fire hazard than a deciduous cover type) sense. Such an assessment is based on physical fuel characteristics (e.g. fuel arrangement, fuel load, condition of herbaceous vegetation, presence of ladder fuels). See [Fire Danger](#), [Wildfire Risk](#).

**Fire History** The study and/or compilation of evidence (e.g. historical documents, fire reports, fire scars, tree growth rings, charcoal deposits) that records the occurrence and effects of past wildfires for an area. See [Fire Cycle](#), [Fire Frequency](#).

**Fire Impacts** The immediately evident effect of fire on the ecosystem in terms of biophysical alterations. See [Fire Benefits](#), [Fire Effects](#).

**Fire Intensity** See [Head Fire Intensity](#).

**Fire Interval** The average number of years between the occurrence of fires at a given point. See [Fire Frequency](#), [Fire Cycle](#).

**Fireline** That portion of the fire upon which resources are deployed and are actively engaged in the incident. In a general sense, the working area around a fire.

**Fire Load** The number and magnitude (i.e. fire size class and Head Fire Intensity) of all fires requiring suppression action during a given period within a specified area.

**Fire Management** The activities concerned with the protection of people, property, and forest areas from wildfire and the use of prescribed burning

for the attainment of forest management and other land use objectives, all conducted in a manner that considers environmental, social, and economic criteria. Fire management represents both a land management philosophy and a land management activity. It involves the strategic integration of such factors as knowledge of fire regimes, probable fire effects, values -at-risk, level of forest protection required, cost of fire-related activities, and prescribed fire technology into multiple-use planning, decision making, and day-to-day activities to accomplish stated resource management objectives. Successful fire management depends on effective fire prevention, detection, and presuppression, having an adequate fire suppression capability, and consideration of fire ecology relationships.

**Fire Management Decision Support System** A generic term for the various systems used by fire management agencies in Canada that employ computer software designed to facilitate the storage, compilation, analysis and display of fire intelligence data and other related information on the fire environment, fire suppression resources, fire occurrences, values -at-risk, etc. in support of planning and daily operational decision making with respect to wildfires and prescribed fires.

**Fire Management Plan** A statement of policy and prescribed actions with respect to forest fires (prescribed fires and wildfires) for a specific area (may include maps, charts, and statistical data). See [Preattack Plan](#).

**Fire Management Planning** The systematic, technological, and administrative management process of determining the organization, facilities, resources, and procedures required to protect people, property, and forest areas from fire and to use fire to accomplish forest management and other land use objectives.

**Fire Occurrence** The number of fires started in a given area over a given period of time. See [Fire Cycle](#), [Fire Frequency](#).

**Fire Perimeter** The entire outer edge boundary of a fire. Recommended units are metres or kilometres.

**Fire Prevention** Activities directed at reducing fire occurrence; includes public education, law enforcement, personal contact, and reduction of fire hazards and risks.

**Fire Progression Map** A map maintained to show at given times the location of the fire perimeter and

- spot fires, deployment of resources, and fire suppression activities (e.g. constructed fireguard).
- Fire Pump** An engine driven pump, usually gasoline powered, specifically designed for use in fire suppression. Synonym: [Power Pump](#).
- Fire Rake** A long-handled combination rake and cutting tool, the blade of which is made up of a single row of mowing-machine cutter teeth. Useful for trenching, scraping, and cutting, particularly in leaves, pine needles, and light duff. Synonym: [Rich Tool](#).
- Fire Regime** The kind of fire activity or pattern of fires that generally characterize a given area. Some important elements of the characteristic pattern include fire cycle or fire interval, fire season, and the number, type, and intensity of fires. See [Fire Dependent Ecosystems](#).
- Fire Report** An official report of a fire, generally including information on cause, location, action taken, damage, and costs from start of the fire until completion of suppression action. The report is usually accompanied by a map of the burn. These reports vary in form and detail from agency to agency.
- Fire Retardant** A substance that by chemical or physical action reduces flammability of combustibles. See [Short-term Retardant](#), [Long-term Retardant](#).
- Fire Run** A term normally associated with the rapid advance of a wildfire characterized by a marked increase in rate of spread and a corresponding increase in Head Fire Intensity with respect to that seen before and following the event. See [Blowup](#), [Flareup](#).
- Fire Scar** An injury or wound on a tree caused or accentuated by fire.
- Fire Scouting** Reconnaissance of a fire and its surroundings by any means to obtain fire intelligence information.
- Fire Season** The period(s) of the year during which fires are likely to start, spread, and do damage to values -at-risk sufficient to warrant organized fire suppression; a period of the year set out and commonly referred to in fire prevention legislation. The fire season is usually further divided on the basis of the seasonal flammability of fuel types (e.g. spring, summer, and fall).
- Fire Severity** Organic matter consumption from flaming and smouldering combustion. See [Burn Severity](#).
- Fire Simulator** A training device that imposes simulated fire and smoke and depictions of fire suppression measures on a projected landscape scene to instruct fire management personnel in different fire situations and fire suppression techniques.
- Fire Situation Map** A map used by fire management personnel to locate and plot wildfires reported, burning, and out.
- Fire Size Class** A classification of fire area, independent of fire typing through the Incident Command System Type A less than 0.1 ha; Type B 0.11 to 1.0 ha; Type C 1.1 to 10 ha; Type D 10.1 to 100 ha; Type E 100.1 to 1,000 ha; Type F 1,000.1 to 10,000 ha; Type G 10,000.1 to 100,000 ha; Type H over 100,000 ha.
- Fire Status - Being Held** Indicates that with currently committed resources, sufficient suppression action has been taken that the fire is not likely to spread beyond existent or predetermined boundaries under prevailing and forecasted conditions.
- Fire Status - Being Monitored** Currently not receiving suppression action, due to agency policy and management objectives.
- Fire Status - Out** Having been extinguished.
- Fire Status - Out of Control** Describes a wildfire not responding or only responding on a limited basis to suppression action such that perimeter spread is not being contained.
- Fire Status - Under Control** Having received sufficient suppression action to ensure no further spread of the fire.
- Fire Storm** A large continuous area of intense burning characterized by violent fire-induced convection resulting in gale-force indraft surface winds near and beyond the fire perimeter, a towering convection column, and the occurrence of large fire whirls. See [Blowup](#), [Conflagration](#).
- Fire Suppression** All activities concerned with controlling and extinguishing a fire following its detection. See [Attack](#).
- Fire Triangle** An instructional aid in which the sides of an equilateral triangle represent the three factors necessary for combustion and flame production (i.e. oxygen, heat, and fuel). When any one

of these factors is removed, flame production is not possible or ceases. See [Fire Behaviour Triangle](#).

**Fire Types - Type 1** All functions are filled, plus leaders, branches etc. Multi-agency and national resources; Large number of personnel and equipment are assigned to the incident. It is a large, complex incident. See [Incident - Type 1](#).

**Fire Types - Type 2** Incident Commander spends all time being a manager; most Command and General staff positions are filled; Large number of resources utilized; incident extends into multiple operational periods; Base Camp(s) established; significant logistical support is required. See [Incident - Type 2](#).

**Fire Types - Type 3** Extended initial attack on wildland fires; Incident Commander walks the line between a manager and a 'doer'; resources may vary from several single resources to several task forces or strike teams; some Command/General Staff positions (ie, Division Supervisor, Unit Leader), may be filled; may extend into another operational period (12 hours), and require an IAP. See [Incident - Type 3](#).

**Fire Types - Type 4** Initial attack or first response to an incident; Incident Commander is a hands on leader and performs all functions of Operations, Logistics, Planning, and Finance; few resources are used (several individuals or a single strike team); normally limited to one operational period; does not require a written Incident Action Plan. See [Incident - Type 4](#).

**Fire Types - Type 5** A fire undergoing initial attack; short duration, seldom lasting into the next burning period; few resources assigned (generally fewer than 6 people); little complexity. See [Incident - Type 5](#).

**Fire Use** See [Prescribed Burning](#).

**Fire Weather** Collectively, those weather parameters that influence fire occurrence and subsequent fire behaviour (e.g. dry-bulb temperature, relative humidity, wind speed and direction, precipitation, atmospheric stability, winds aloft).

**Fire Weather Forecast** A prediction of the future state of the atmosphere prepared specifically to meet the needs of fire management in fire suppression and prescribed burning operations. Two types of forecasts are most common: The zone or area weather forecast is issued on a regular basis

during the fire season for a particular geographical region and/or one or more fire weather stations. These regions are delineated on the basis of fire climate and/or administrative considerations. A spot weather forecast is issued to fit the time, topography, and weather of a specific campaign fire location or prescribed fire site. These forecasts are issued on request and are more detailed, timely, and specific than zone or area weather forecasts.

**Fire Weather Index** A numerical rating of fire intensity that combines the Initial Spread Index and Buildup Index. It is suitable as a general index of fire danger throughout the forested areas of Canada. Acronym: [Fire Weather Index \(FWI\)](#). See [Canadian Forest Fire Weather Index System](#).

**Fire Whirl** A spinning, moving column of hot air and gases rising up from a fire and carrying aloft smoke, debris, flame and firebrands. These range from less than one metre to several hundred metres in diameter. They may involve the entire fire area or only hot spots within or outside the fire perimeter.

**First Nations** A broad term for Canada's first peoples, including status and non-status, but not including Inuit or Metis peoples of Canada.

**Flame Angle** The angle formed between the flame at the fire front and the ground surface, expressed in degrees.

**Flame Depth** The width of the zone within which continuous flaming occurs behind the edge of a fire front. Recommended unit is metres (m). See [Fire Front](#).

**Flame Height** The average maximum vertical extension of flames at the fire front; occasional flashes that rise above the general level of flames are not considered. Recommended unit is metres (m).

**Flame Length** The length of flames measured along their axis at the fire front; the distance between the flame height tip and the midpoint of the flame depth at the ground surface. Flame length is an approximate indicator of Head Fire Intensity. Recommended unit is metres (m). See [Head Fire Intensity](#).

**Flaming Combustion** See [Combustion](#).

**Flaming Front** See [Fire Front](#).

**Flammability** The relative ease with which a substance ignites and sustains combustion.



- Flank Fire** A fire spreading, or set to spread, at roughly right angles to the prevailing wind direction. See [Backfire](#), [Head Fire](#).
- Flanks** Those portions of the fire perimeter that are between the head and the back of the fire which are roughly parallel to the main direction of spread.
- Flareup** A sudden, localized increase in Head Fire Intensity within or along the fire perimeter requiring a temporary adjustment in suppression action in order to avoid a possible blowup condition. Unlike a blowup, a flareup is of relatively short duration and does not radically change existing control plans. See [Blowup](#), [Fire Run](#).
- Flash-over** The rapid combustion and/or explosion of trapped, unburned gases; usually occurs in poorly ventilated areas. The flash-over phenomenon is normally associated with structural or urban fires. However, it can occur in forest fires (although rare) when gases are trapped in topographic pockets or accumulate over a broad area when there is a temporary lull in air movement.
- Foam** The collection of a mass of bubbles which are formed by forcing air into a solution of water and foam concentrate by means of suitably designed equipment or by cascading it through the air at a high velocity.
- Foam Blanket** A layer of foam which forms an insulating and reflective barrier from heat and is used for fuel protection and property.
- Foam - Class A** Foam intended for use on woody fuels. Made from hydrocarbon-based surfactants possessing excellent wetting properties and is biodegradable.
- Foam - Class B** Foam designed for use on flammable liquid fires.
- Foam Concentrate** The concentrated foaming agent as received from the manufacturer, containing a surfactant, corrosion inhibitor, and stabilizers.
- Foam Generation** The transformation of a foam solution into foam by the addition of air to the solution.
- Foam Solution** A homogeneous mixture of water and foam concentrate to which air is added to produce foam. Foam solution has no real bubble structure but some bubble formation may occur due to agitation and impact.
- Foliar Moisture Content** The percentage moisture content by weight of live conifer needles at least 1-year old.
- Follow Up** The act of supporting or increasing the efforts of initial attack by increasing suppression resources and commitment to control.
- Food Unit** Functional unit within the Service Branch of the Logistics Section responsible for providing meals for incident personnel.
- Forest Closure** An official order by a designated authority to close a specified forest area. Usually provided for in fire prevention legislation. See [Closed Area](#).
- Forest Fire** Any wildfire or prescribed fire that is burning in forested areas, grass, or alpine/tundra vegetation. The main types of forest fire are: ground fire, surface fire, and crown fire. See [Fire](#), [Wildfire](#).
- Forest Fire Management** See [Fire Management](#).
- Forest Floor** The organic surface component of the soil supporting forest vegetation; the combined duff (if present) and litter layers.
- Forest Protection** That branch of forestry concerned with the prevention and control of damage to forests from fire, insects, disease, and other harmful agents.
- Forwarder Unit** (1) A self-contained unit consisting of a water tank, fire pump, and hose specially designed to be carried on a logging forwarder for use in fire suppression. (2) A box to hold fire fighting tools and equipment specially designed to be carried on a logging forwarder. (3) The term usually applies to the special attachments, but it may also refer to the attachments and logging forwarder together. See [Skidder Unit](#).
- Free-burning** A general term to describe the condition of a fire or portion of a fire perimeter that is unaffected by natural or man-made barriers to fire growth and/or any suppression measures taken.
- Front** In meteorology, the boundary between two air masses of different density. A cold front represents the leading edge of colder air replacing warmer air; the reverse of this is a warm front.
- Fuel Appraisal** The process of first describing the fuel type characteristics and secondly interpreting the fuel description in terms of potential fire behaviour on the basis of past experience, comparative methods, and mathematical models.

**Fuel Arrangement** A general term referring to the horizontal and vertical distribution of all combustible materials within a particular fuel type.

**Fuelbreak** An existing barrier or change in fuel type (to one that is less flammable than that surrounding it), or a wide strip of land on which the native vegetation has been modified or cleared, that act as a buffer to fire spread so that fires burning into them can be more readily controlled. Often selected or constructed to protect a high value area from fire. In the event of fire, may serve as a control line from which to carry out suppressive operations. See [Control Line](#), [Fireguard](#).

**Fuel Bulk Density** The dry weight of combustible materials per unit volume. Numerically, it is equal to fuel load divided by the depth of the particular fuel layer (e.g. duff, tree crown foliage). Recommended units are kilograms per cubic metre.

**Fuel Complex** See [Fuel Type](#).

**Fuel Description** A description of the fuel properties that are important for assessing potential fire behaviour (e.g. fuel arrangement, fuel load, fuel moisture content).

**Fuel Load** The dry weight of combustible materials per unit area. Recommended units are kilograms per square metre ( $\text{kg}/\text{m}^2$ ) or tonnes per hectare ( $\text{t}/\text{ha}$ ).  $1.0 \text{ kg}/\text{m}^2$  is equivalent to  $10 \text{ t}/\text{ha}$ .

**Fuel Management** The planned manipulation and/or reduction of living or dead forest fuels for forest management and other land use objectives (e.g. hazard reduction, silvicultural purposes, wildlife habitat improvement) by prescribed fire; mechanical, chemical, or biological means; and/or changing stand structure and species composition. See [Slash Disposal](#).

**Fuel Moisture Content** The amount of water present in fuel generally expressed as a percentage of the fuel's dry weight when thoroughly dried at 100 degrees Celsius.

**Fuel Treatment** See [Hazard Reduction](#).

**Fuel Type** An identifiable association of fuel elements of distinctive species, form, size, arrangement, and continuity that will exhibit characteristic fire behaviour under defined burning conditions. Synonym: [Fuel Complex](#).

**Full Response Fire** A wildfire which requires immediate, aggressive initial attack and/or sustained

suppression action until the fire is declared out. See [Modified Response Fire](#), [Monitored Response Fire](#).

**Function** Refers to the five major activities in ICS: Command, Operations, Planning, Logistics, and Finance/Administration. The term function is also used when describing the activity involved, e.g., the planning function. A sixth function, Intelligence, may be established, if required, to meet incident management needs.

**FWI** [Fire Weather Index](#).

**Gated Wye** A three-way hose line accessory permitting two lines of hose to be taken from a single supply line. Valves located in the discharge ports permit control of stream flow or shutting off one or both discharge lines.

**General Staff** A group of incident management personnel organized according to function and reporting to the Incident Commander. The General Staff normally consists of the Operations Section Chief, Planning Section Chief, Logistics Section Chief, and Finance/Administration Section Chief. An Intelligence/Investigations Chief may be established, if required, to meet incident management needs.

**Green Up** The appropriate time during the first half of the fire season in which deciduous trees and/or understory vegetation (e.g. grasses, herbs, shrubs) have more or less completed their flushing of new growth. This typically takes place in late spring/early summer.

**Ground Effect** Reaction of a helicopter's rotor downwash against the ground surface forming a ground cushion that increases the lifting capability of that parcel of air.

**Ground Fire** A fire that burns in the ground fuel layer.

**Ground Fuels** All combustible materials below the litter layer of the forest floor that normally supports smouldering or glowing combustion associated with ground fires (e.g. duff, roots, buried punky wood, peat). See [Surface Fuels](#).

**Ground Probe** A specialized nozzle used to penetrate deep-seated combustible fuels to extinguish ground fires.

**Ground Support Unit** Functional unit within the Support Branch of the Logistics Section responsible for the fuelling, maintaining, and repairing of vehicles, and the transportation of personnel and supplies.

- Group** Established to divide the incident into functional areas of operation. Groups are composed of resources assembled to perform a special function not necessarily within a single geographic division. Groups are located between Branches (when activated) and Resources in the Operations Section. See [Division](#).
- Group Supervisor** The individual responsible for supervising equipment and personnel assigned to a group. Reports to a Branch Director or Operations Section Chief.
- Gutter Trench** A ditch dug to the mineral soil on a slope below a fire to trap rolling firebrands, such as cones and logs.
- Hazard Reduction** Treatment of living or dead forest fuels to diminish the likelihood of a fire starting, and to lessen the potential rate of spread and resistance to control.
- Hazard Reduction Burning** The burning of surface fuels, most often grass, in low intensity fires in order to reduce fuel loading and potential fire intensity. Most commonly conducted in spring with hand ignitions using a drip torch. See [Drip Torch](#).
- Head** A fire spreading, or set to spread, with the wind (upslope in the absence of wind). See [Backfire](#), [Flank Fire](#).
- Head Fire** That portion of the fire perimeter having the greatest rate of spread and fire intensity which is generally on the downwind and/or upslope part of the fire.
- Head Fire Intensity** The rate of heat energy release per unit time per unit length of head of the fire. Flame size is its main visual manifestation. Head fire intensity is a major determinant of certain fire effects and difficulty of control. Numerically, it is equal to the product of the net heat of combustion, quantity of fuel consumed in the flaming front, and linear rate of spread. Recommended unit is kilowatts per metre (kW/m). Acronym: [Head Fire Intensity \(HFI\)](#).
- Heat of Combustion** The potential heat energy available for release by the combustion process. In Head Fire Intensity calculations, the heat of combustion value used is subject to several possible reductions, chiefly because of the presence of moisture in the fuel. A quantity is generally specified for a particular fuel on a per unit weight basis. Recommended unit is kilojoules per kilogram (kJ/kg).
- Heat Transfer** The process by which heat is imparted from one body or object to another. In forest fires, heat energy is transmitted from burning to unburned fuels by conduction, convection, and radiation.
- Heavy Fuels** Large diameter woody or deep organic materials that are difficult to ignite and burn more slowly than fine or medium fuels. See [Fine Fuels](#), [Medium Fuels](#).
- Heavy Helicopter** 15-plus passenger seats up to 25,000 lbs. external load (e.g. Bell 214, Sikorsky 61 and 64, Vertol 107 and 234, Kamov 32). See [Intermediate Helicopter](#), [Medium Helicopter](#).
- Held Line** All control line that still contains the fire when it is declared Under Control. See [Control Line](#).
- Helibase** The main location for parking, fuelling, maintenance, and loading of helicopters operating in support of an incident. It is usually located at or near the incident base.
- Helibucket** A specially designed rigid or collapsible container slung by a helicopter and used for picking up and dropping suppressants or retardants on a fire. Size of bucket load is compatible with the size of helicopter.
- Helicopter Sounding** Determination of the vertical temperature profile based on observations of a helicopter's free-air thermometer and corresponding altimeter readings. See [Vertical Temperature Profile](#).
- Helipad** The prepared surface or structure at a heliport where a helicopter actually lands.
- Heliport** A permanent landing area for helicopters, where fuel, service, and supply are generally available.
- Helispot** Any designated location where a helicopter can safely take off and land. Some helispots may be used for loading of supplies, equipment, or personnel.
- Helitack** Initial attack on wildfires involving the use of helicopters and trained crews, deployed as a complete unit.
- Helitack Crew** An initial attack crew specially trained in the tactical and logistical use of helicopters for fire suppression. See [Initial Attack Crew](#).

- Helitank** A specially designed tank fitted to a helicopter and used for transporting and dropping suppressants or retardants.
- Helitanker** A helicopter equipped with a helitank or a bucket. See [Airtanker](#).
- Helitorch** A specialized aerial drip torch, primarily using a gelled fuel, slung and activated from a helicopter. See [Aerial Ignition Device](#), [Delayed Aerial Ignition Device](#).
- HFI** [Head Fire Intensity](#).
- Holdover Fire** A fire that remains dormant and undetected for a considerable time after it starts (particularly lightning-caused fires). See [Overwintering Fire](#).
- Hook, Cargo** Hook attached to the helicopter to allow carrying of external loads. It is designed to include both electrical and mechanical release functions.
- Hose** Conveys water under positive and sometimes negative pressure from the fire pumping unit to the outlet normally affixed with standardized couplings or connectors.
- Hose Friction Loss** Reduction in efficiency of a fire hose (the amount of water pressure lost) due to the resistance between the inside wall of the hose and the water flowing through the hose. The factors affecting friction loss are the velocity of the water through the hose, the roughness of the inner lining of the hose, and the diameter of the hose.
- Hose Key** A special tool for tightening or loosening external-lug threaded hose couplings and accessory connections.
- Hose-lay** The arrangement of connected lengths of fire hose and accessories on the ground beginning at the first pumping unit and ending at the point(s) of water delivery.
- Hose Washer** An apparatus normally hooked to a fire pump for cleaning the exterior of fire hose.
- Hot Spot** (1) A particularly active part of a fire; (2) A small area of smouldering or glowing combustion, which may be exhibiting smoke, located on or within the fire perimeter; a term commonly used during the mop-up stage of a fire; (3) A satellite detection of an area of active flaming combustion. See [Cold Trailing](#).
- Hot Spotting** A method to check the spread and intensity of a fire at those points that exhibit the most rapid spread or that otherwise pose some special threat to control of the situation. This is in contrast to systematically working all parts of the fire at the same time, or progressively, in a step-by-step manner.
- IAP** [Incident Action Plan](#).
- IC** [Incident Commander](#).
- ICP** [Incident Command Post](#).
- ICS** [Incident Command System](#).
- Ignition** The beginning of flame production or smouldering combustion; the starting of a fire.
- Ignition Temperature** The minimum temperature at which ignition can take place and sustained combustion can occur.
- Impact** Change in a given value. Impact is a function of vulnerability, intensity, and exposure.
- Incident** An occurrence, either caused by humans or natural phenomena that requires a response to prevent or minimize loss of life or damage to property and/or the environment.
- Incident Action Plan** An oral or written plan containing general objectives reflecting the overall strategy for managing an incident. It may include the identification of operational resources and assignments. It may also include attachments that provide direction and important information for management of the incident during one or more operational periods. Acronym: [Incident Action Plan \(IAP\)](#).
- Incident Commander** The individual responsible for all incident activities, including the development of strategies and tactics and the ordering and release of resources. The IC has overall authority and responsibility for conducting incident operations and is responsible for the management of all incident operations at the incident site. Acronym: [Incident Commander \(IC\)](#).
- Incident Command Post** The field location at which the primary tactical-level, on-scene incident command functions are performed. The ICP may be co-located with the Incident Base or other incident facilities and is sometimes identified by a green rotating or flashing light. Acronym: [Incident Command Post \(ICP\)](#).

**Incident Command System** A standardized on-scene emergency management construct specifically designed to provide for the adoption of an integrated organizational structure that reflects the complexity and demands of single or multiple incidents, without being hindered by jurisdictional boundaries. ICS is the combination of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure, designed to aid in the management of resources during incidents. It is used for all kinds of emergencies and is applicable to small as well as large and complex incidents. ICS is used by various jurisdictions and functional agencies, both public and private, to organize field-level incident management operations. Acronym: [Incident Command System \(ICS\)](#).

**Incident Management Team** The Incident Commander and the appropriate Command and General Staff personnel assigned to an incident.

**Incident Objectives** Statements of guidance and direction necessary for the selection of appropriate strategy(s), and the tactical direction of resources. Incident objectives are based on realistic expectations of what can be accomplished when all allocated resources have been effectively deployed. Incident objectives must be achievable and measurable, yet flexible enough to allow for strategic and tactical alternatives.

**Incident Support Organization** Includes any off-incident support provided to an incident. Examples would be Agency Dispatch Centres, Airports, Mobilization Centres, etc.

**Incident - Type 1** Most complex type of incident to safely and effectively manage and operate; all Command and General Staff and required support positions are activated. The incident complexity analysis, agency administrative briefings, and agency delegation of authority must be completed and monitored and updated as required. Multiple agencies will be involved and there may be a declaration of emergency by the appropriate authority. A written IAP is required for each operational period. See [Fire Types - Type 1](#).

**Incident - Type 2** Incident will extend into multiple operational periods; this type of incident may exceed the capabilities of local fire management resources. Most or all Command and General staff positions are filled. The Agency Administrator

or official is responsible for the incident complexity analysis, agency administrative briefings, and agency delegation of authority; multiple agencies may be involved. A written IAP is required for each operational period. See [Fire Types - Type 2](#).

**Incident - Type 3** The incident normally extends into multiple operational periods; the appropriate ICS positions should be added to match the complexity of the incident; some of the Command/General Staff positions (Division Supervisor, Unit Leader) may be filled; a written IAP may be required for each operational period. See [Fire Types - Type 3](#).

**Incident - Type 4** Limited to one operational period in the out of control stage; Incident Commander is activated and other operational positions activated as required; No written Incident Action Plan is required, but an operational briefing will be completed for all incoming resources. See [Fire Types - Type 4](#).

**Incident - Type 5** An incident of little complexity and normally under control or out within the first operational period. Incident Commander is the only position activated; a verbal Incident Action Plan is required, no written IAP is needed. See [Fire Types - Type 5](#).

**Indigenous** The preferred term in Canada to include First Nations, Inuit, and Metis.

**Indirect Attack** A method whereby the control line is strategically located to take advantage of favourable terrain and natural breaks in advance of the fire perimeter and the intervening strip is usually burned out or backfired.

**Information Officer** A member of the Command Staff responsible for interfacing with the public and media or with other agencies requiring information directly from the incident. There is only one Information Officer per incident. The Information Officer may have assistants.

**Infrared Scanner** An optical-electronic system for identifying thermal infrared radiation in the flaming, smouldering, or glowing combustion phases. The system may be operated from an aircraft, or hand-held on the ground. Synonym: [Thermal Imager](#).

**Initial Attack** The action taken to halt the spread or potential spread of a fire by the first fire fighting force to arrive at the fire.

**Initial Attack Base** Any place where initial attack capability has been positioned in readiness for probable fire action. Resources must have air and/or ground transport capability on site.

**Initial Attack Crew** Personnel trained, equipped, and deployed to conduct suppression action to halt the spread or potential spread of a wildfire within the first burning period. See [Helitack Crew](#), [Rappel Crew](#).

**Initial Attack Resources** Fire fighting resources funded and organized specifically for the prime objective of implementing initial attack on wildfires. See [Airtanker](#), [Initial Attack Crew](#).

**Initial Response** Resources initially committed to an incident.

**Initial Spread Index** A numerical rating related to the expected rate of fire spread. It combines the effects of wind and Fine Fuel Moisture Code on rate of spread but excludes the influence of variable quantities of fuel. Acronym: [Initial Spread Index \(ISI\)](#). See [Fine Fuel Moisture Code](#).

**Inspection Run** A pass over the target by the bird dog aircraft or the airtanker to assess the flight path and target. See [Dummy Run](#), [Lead-in](#).

**Intake Hose** See [Suction Hose](#).

**Intensity** In the context of risk, a measure of the magnitude of a fire, such as head fire intensity, smoke density, or rate of spread. A contextual term dependent upon the values being impacted. See [Head Fire Intensity](#).

**Intermediate Helicopter** 5 to 8 seats, up to approximately 2,500 lbs. external load. (e.g. Bell 206L, AS350, Bell 407, Bell 222, etc.). See [Light Helicopter](#), [Medium Helicopter](#).

**Intermittent Crown Fire** A moderate to high-intensity crown fire with crown fraction burned greater than 10 percent and less than 90 percent.

**Intermittent Smoke** Smoke that becomes visible occasionally.

**Intervalometer** An electronic device mounted in an aircraft which actuates the compartment doors(s) singly, or multiple doors simultaneously or in sequence, to produce the desired coverage level and line length.

**Inversion** The atmospheric condition in which temperature within a vertical layer of air increases with altitude, resulting in a very stable atmosphere until the inversion lifts or breaks. This is contrary to the usual situation in which temperature decreases with height. Temperature inversions at the earth's surface are a common occurrence in the early morning hours during the fire season and dampen fire behaviour.

**ISI** [Initial Spread Index](#).

**Islands of a Fire** An area(s) of unburned fuels located within the fire perimeter.

**Isobar** A line of equal or constant atmospheric pressure displayed on a synoptic chart.

**Isochrone** Lines on a map showing fire progression at constant time; the forecasted or mapped location of the fire front over time.

**Jump Fire** See [Spot Fire](#).

**Jurisdiction** A range or sphere of authority. Public agencies have jurisdiction at an incident related to their legal responsibilities and authority. Jurisdictional authority at an incident can be political or geographical (e.g., municipal, regional) or functional (e.g., law enforcement, public health).

**Jurisdictional Agency** The agency having jurisdiction and responsibility for a specific geographical area, or a mandated function.

**Kind of Resource** Describes what the resource is (e.g. medic, firefighter, Planning Section Chief, helicopter, ambulance, combustible gas indicator, bulldozer). Resource capability is defined by Type.

**LACES** A safety system used by wildland firefighters to protect themselves from entrapment in free-burning wildfires and other fireline hazards. Stands for Lookouts, Anchor points, Communications, Escape routes, and Safety zones. See [Anchor Point](#), [Escape Route](#).

**Ladder Fuels** Fuels that provide vertical continuity between the surface fuels and crown fuels in a forest stand, thus contributing to the ease of torching and crowning (e.g. tall shrubs, small-sized trees, bark flakes, tree lichens). See [Surface Fuels](#), [Crown Fuels](#).

**Landscape Fire Management** Landscape fire management is the integration and implementation of fire management at multiple scales including the

- individual homeowner scale, the community scale (wildland urban interface), and the landscape beyond the interface scale. Landscape fire management assists fire managers and communities in finding cost-effective approaches to preventing unwanted fires, as well as maintaining desirable fire regimes. When fires do occur, landscape fire management provides the framework for: (1) evaluating whether the effects will be detrimental or benign; (2) weighing relative benefits and risks of different scenarios; and (3) responding appropriately based on the objectives.
- Lanyard** A length of rope or cable used to attach a cargo net or sling to a helicopter cargo hook.
- Leader** The ICS title for an individual responsible for a Task Force, Strike Team, or Functional Unit.
- Lead-in** A technique whereby the airtanker follows the birddog aircraft on the final run. See [Dummy Run](#), [Inspection Run](#).
- Legitimate Smoke** Smoke from any authorized use of fire or other permissible sources, such as permitted debris burning or industrial operations.
- Level of Protection** The amount of effort that a fire management organization is willing to expend to respond to forest fires based on the organization's land and resource management objectives.
- Liaison Officer** A member of the Command Staff responsible for coordinating with representatives from cooperating and assisting agencies or organizations.
- Life-Safety** Refers to the joint consideration of both the life and physical well being of individuals.
- Light Helicopter** 1 to 4 passenger seats, up to approximately 1,500 lbs. external load (e.g. Robinson R22, Bell 47 and 206B, Hiller 12E/T, Hughes 500, etc.). See [Intermediate Helicopter](#), [Medium Helicopter](#).
- Lightning Locator System** A network of sensors to detect the location and polarity of cloud-to-ground lightning flashes in real-time.
- Likelihood** Probability of an event occurring.
- Line Locator** A person who selects and marks the location of a control line.
- Litres of Water per Hour Concept** An initial and supporting aerial attack operation, with minimum turn-around time for airtankers, involving rapid and repeated dropping of large quantities of water or other short-term retardant, with the objective of holding the fire until complete control is achieved by ground personnel. See [One Strike Concept](#).
- Litter** The uppermost part of the forest floor consisting of freshly cast or slightly decomposed organic materials (i.e. the L layer). See [Duff](#).
- Loaded Patrol** An aerial patrol where the aircraft is carrying an initial attack crew or fire retardants on board while conducting aerial detection flights.
- Loading Pad** A cement pad at a retardant base on which aircraft stand when being loaded with slurry. Synonym: [Loading Ramp](#).
- Loading Ramp** See [Loading Pad](#).
- Logistics Section** The Section responsible for providing facilities, services, and materials for the Incident.
- Logistics Section Chief** This individual responsible for supervising the Logistic Section. Reports to the Incident Commander and is a member of the General Staff. This position may have one or more deputies assigned.
- Longline** A cable, 50-ft. in length or greater, that may be equipped with an electrical cable to activate the hook(s).
- Long-term Retardant** A substance that by chemical or physical action reduces the flammability of combustibles and remains effective after application, even after water content has evaporated. Long-term retardants depend on certain flame-inhibiting chemicals for their effectiveness. See [Fire Retardant](#), [Short-term Retardant](#).
- Lookout** A competent and trusted person located in an advantageous position who has the responsibility of watching for potential fire problems and then relating them to their supervisor. See [LACES](#).
- Lost Line** Any part of a control line that fails to stop the spread of a fire.
- Low Expansion** Foam having an expansion between 1:1 and 20:1.
- Low-level Jet Wind** A particular type of wind aloft condition, evident in the vertical wind profile, in which there is a zone increasing wind speed near the earth's surface and then a zone of decreasing velocity above a point of maximum wind speed.

**Management by Objectives** A management approach that involves a five-step process for achieving the incident goal. The Management by Objectives approach includes the following: establishing overarching incident objectives; developing strategies based on overarching incident objectives; developing and issuing assignments, plans, procedures, and protocols; establishing specific, measurable tactics or tasks for various incident-management functional activities and directing efforts to attain them, in support of defined strategies; and documenting results to measure performance and facilitate corrective action.

**Managers** Individual within an Incident Command System organizational unit who is assigned specific managerial responsibilities (e.g. Staging Area Manager or Camp Manager).

**Manning Action** The daily or short-term adjustments in the strength and positioning of fire suppression resources required for initial attack to meet a predetermined level of preparedness based on the likelihood of fire occurrence and probable fire behaviour as determined by the forecasted fire danger. This may involve increasing or decreasing the number and types of suppression crews and equipment.

**Masticated Fuels** A mechanical process by which trees and shrubs are chipped to create irregularly shaped fuel particles that effectively relocates vertical ladder fuels onto the surface. See [Mulch](#).

**Medical Unit** Functional unit within the Service Branch of the Logistics Section responsible for the development of the Medical Emergency Plan, and for providing emergency medical treatment of incident personnel.

**Medium Expansion** Foam having an expansion between 21:1 and 200:1.

**Medium Fuels** Fuels too large to be ignited until after the leading edge of the fire front passes, but small enough to be completely consumed. See [Fine Fuels](#), [Heavy Fuels](#).

**Medium Helicopter** 9 to 14 passenger seats, up to approximately 6,000 lbs. external load. (e.g. Sikorsky S55T and 58T, Bell 204, 205, 212, K-Max, etc.). See [Intermediate Helicopter](#), [Heavy Helicopter](#).

**Mineral Soil** That portion of the soil stratum immediately below the litter and duff. Mineral soil contains very little combustible material except on

highly productive sites where an upper soil horizon may be enriched with organic matter.

**Minisonde Observation** A method of constructing a vertical temperature profile determined by air temperature data being continuously telemetered to a portable receiver unit at the earth's surface from a transmitting sensor package that is carried aloft by a free-lift balloon. Winds aloft may also be determined at the same time for the purpose of constructing vertical wind profile by employing the procedures used for a pilot balloon observation. See [Rawinsonde Observation](#), [Pilot Balloon Observation](#).

**Mitigation** The actions taken to reduce the impact of disasters in order to protect lives, property, the environment, and to reduce economic disruption.

**Mixing Height** A term commonly used in air pollution meteorology to determine the maximum height above the earth's surface to which relatively vigorous mixing due to convection takes place. Above this layer, a stable atmosphere exists which acts to suppress vertical mixing. The mixing height is dependent on the vertical temperature profile. Recommended unit is metres (m). See [Smoke Management](#), [Ventilation Index](#).

**Mixmaster** The person in charge of fire retardant mixing operations, with responsibility for quantity and quality of the slurry and for the loading of aircraft in land-based airtanker operations.

**Mix Ratio** The ratio of foam or retardant concentrate to water. Foam expressed in percent. Retardant expressed in ratio.

**Modern Treaty** Comprehensive land claims in areas where Aboriginal land rights have not been dealt with by treaty or through other means. In these areas, forward-looking agreements are negotiated between the Aboriginal group, Canada, and the province or territory. The treaties include certainty about ownership, use and management of land and resources, and may include provisions relating to Aboriginal self-government.

**Modified Response Fire** A wildfire that is managed using a combination of suppression techniques, including direct and indirect attack as well as monitoring to steer, contain or otherwise manage fire activity within a pre-determined perimeter such that costs and/or damage are minimized and/or benefits from the fire are maximized. See [Full Response Fire](#), [Monitored Response Fire](#).



- Monitored Response Fire** A wildfire that is observed and assessed to determine the response option required to minimize social disruption and/or significant value and resource impacts while achieving beneficial ecological, economic or resource management objectives. See [Full Response Fire](#), [Modified Response Fire](#).
- Mop-up** The act of extinguishing a fire after it has been brought under control.
- Mop-up Time** The period from achievement of control until enough work has been done to ensure the fire can not rekindle.
- Mulch** Masticated woody tree material, primarily stem wood, with additional bark, branch, and foliage content. See [Masticated Fuels](#).
- Multi-hook** A system of multiple hooks allowing the transport of separate loads.
- Multi-jurisdiction Incident** An incident requiring action from multiple agencies that each have jurisdiction to manage certain aspects of an incident. In ICS, these incidents may be managed under single or Unified Command.
- Multiple Fire Situation** A circumstance of high fire incidence over short periods of time in any administrative unit, usually overtaxing the normal initial attack capability of the unit. Synonym: [Fire Bust](#).
- Muskeg Tanker** A specialized self-contained all-terrain vehicle with a pumping unit that has the capabilities of a conventional truck tanker.
- Mutual Aid Agreement** An agreement between and among jurisdictions that provides a mechanism to quickly obtain emergency assistance in the form of personnel, equipment, materials, and other services. The primary objective is to facilitate rapid, short-term deployment of emergency support prior to, during, and/or after an incident.
- Neutral Atmosphere** A condition of the atmosphere in which the temperature decreases with altitude equal to the Dry Adiabatic Lapse Rate.
- Non-Percolating Hose** Fire hose without wetting or soaking characteristics.
- NOTAM** Temporary airspace restrictions for non-incident aircraft in the incident area. NOTAMS are established by Transport Canada to ensure aircraft safety.
- Officer** The ICS title for the personnel responsible for a Command Staff position of Safety, Liaison, or Information.
- One Strike Concept** An aerial operation involving fast initial action and the delivery of enough resources to achieve the initial attack objective in one trip. See [Litres of Water per Hour Concept](#).
- Operational Period** The time scheduled for executing a given set of operation actions, as specified in the Incident Action Plan. Operational periods can be of various lengths, although usually they last 12 to 24 hours.
- Operations Section** The Section responsible for all tactical operations at the incident. This section can include Branches, Divisions and/or Groups, Task Forces, Strike teams, Single Resources, and Staging Areas.
- Operations Section Chief** The individual responsible for supervising the Operations Section. Reports to the Incident Commander and is a member of the General Staff. This position may have one or more deputies assigned.
- Organic Layer** The accumulated partially to fully decomposed organic matter at the soil surface. It corresponds to the fermentation (F) and humus (H) layers in forests and/or the O (peat) layer in wetlands.
- Out-of-Service Resources** Resources assigned to an incident but unable to respond for mechanical, rest, or personnel reasons.
- Overhead** Overhead is not an ICS-specific term but a collective term for all positions not including crews. Overhead includes supervisory positions as well as single resources.
- Overwintering Fire** A fire that persists throughout winter months to the opening of a fire season. See [Holdover Fire](#).
- Pack Pump** See [Back-pack Pump](#).
- Para-cargo** That portion of air cargo to be delivered by para-drop.
- Para-drop** Cargo, attached to a parachute, dropped from an aircraft in flight.
- Parallel Attack** A method whereby a fireguard is constructed as close to the fire as heat and flame permit, and burning out the fuel between the fire and the fireguard.

**Parallel Pumping** A procedure whereby the flow from two fire pumps is combined into one hose line.

**Patrol** (1) To inspect a section of a control line or portion of the fire perimeter to prevent escape of the fire; (2) To travel a given route to inspect, prevent, detect, and suppress fires.

**Patrol Time** The period from completion of mop-up until the fire is declared out.

**Percolating Hose** A self-protecting fire hose with wetting or soaking characteristics which allow the hose material to become saturated with the water when conveying water to help prevent it from burning.

**Period of Alert** See [Alert](#).

**Personal Protective Equipment** Any piece of equipment or clothing designed to be used to protect the health and safety of an individual. Acronym: [Personal Protective Equipment \(PPE\)](#).

**Pilot Balloon Observation** A method of determining winds aloft in the vicinity of an observation station by periodically reading the elevation and azimuth angles of a theodolite, usually at 1-minute intervals, while optically tracking the ascent of a small free-lift balloon. Commonly used for constructing a vertical wind profile. See [Minisonde Observation](#), [Rawinsonde Observation](#).

**Planned event** A scheduled non-emergency activity (e.g. sporting event, concert, parade, etc.).

**Planning Meeting** A meeting held as needed before and throughout the duration of an incident to select specific strategies and tactics for incident control operations and for service and support planning. For larger incidents, the Planning Meeting is a major element in the development of the Incident Action Plan.

**Planning Section** The Incident Command System Section responsible for the collection, evaluation, and dissemination of operational information related to the incident, and for the preparation and documentation of the Incident Action Plan. This Section also maintains information on the current and forecasted situation and on the status of resources assigned to the incident.

**Planning Section Chief** The individual responsible for supervising the Planning Section. Reports to the Incident Commander and is a member of the General Staff. This position may have one or more deputies assigned.

**Positive Suction Lift** See [Static Suction Lift](#).

**Power Pump** See [Fire Pump](#).

**Power Pump Kit** A kit containing a portable forestry power pump, pump tool box containing hoseline accessories, suction hose with foot valve and gasoline container with fuel line.

**Power Pump Unit** A unit containing a power pump-kit with the addition of 20-25 lengths of hose with quick-connect couplings.

**PPE** [Personal Protective Equipment](#).

**Preattack Plan** A plan detailing predetermined fire suppression strategy and tactics to be deployed following fire occurrence in a given land management unit. A preattack plan contains data on fuel types and topographic conditions including fuel breaks, access routes and travel times, water supply sources, lakes suitable for skimmer aircraft, and existing heliports. It also includes information on existing and/or proposed locations for control lines (including the types and number of fire suppression resources that may be required and probable rates of fire guard construction, and possible constraints), base and line camps, helispots, and the priorities for construction and/or improvement of presuppression facilities. See [Fire Management Plan](#).

**Precipitation** Any or all of the forms of water, whether liquid (i.e. rain or drizzle) or solid (e.g. snow or hail), that fall from the atmosphere and reach the ground. The more common term rainfall also is used in this total sense to include not only amount of rain, but also the water equivalent of frozen precipitation. Precipitation is the preferred general term.

**Preheating Phase** Unburned fuel is raised to its ignition temperature and gaseous vapours begin to evolve.

**Preparedness** A continuous cycle of planning, organizing, training, equipping, exercising, evaluating, and taking corrective action in an effort to ensure effective coordination during incident response.

**Prescribed Burning** The knowledgeable application of fire to a specific land area to accomplish predetermined forest management or other land use objectives. See [Fire Use](#).

**Prescribed Fire** Any fire utilized for prescribed burning; usually ignited according to agency policy and management objectives.

**Presuppression** Those fire management activities in advance of fire occurrence concerned with the organization, training, and management of a fire fighting force and the procurement, maintenance, and inspection of improvements, equipment, and supplies to ensure effective fire suppression.

**Prevention** Actions taken to avoid the occurrence of negative consequences associated with a given threat; prevention activities may be included as part of mitigation. See [Mitigation](#).

**Probe** See [Ground Probe](#).

**Procurement Unit** Functional unit within the Finance/Administration Section responsible for financial matters involving vendor contracts.

**Professional Passenger** Someone who takes an active role in ensuring that a flight is conducted as safely as possible.

**Project Fire** See [Campaign Fire](#).

**Proportioner** A device that adds a predetermined amount of liquid foam or retardant concentrate to water to form a solution.

**Pulaski** A combination chopping and trenching tool, which combines a single-bitted axe blade with a narrow adze-like trenching blade fitted to a straight handle. Useful for grubbing or trenching in duff and matted roots. See [Duff](#).

**Pumper Trailer** See [Tank Trailer](#).

**Qualification** A specified pre-arranged series of requirements (knowledge, abilities, skills, and experience) that shall be acquired to eligible to perform a specific position or role.

**Radiation** Transfer of heat in straight lines from warm surfaces to cooler surroundings.

**Radio Cache** A supply of radios stored in a predetermined location for assignment to incidents.

**Rain** Precipitation in the form of liquid water drops. Recommended unit for measurement is millimetres (mm).

**Rain Gauge** The general name for instruments designed to measure the amount of rain that has fallen. Both recording and non-recording types are commonly used at fire weather stations.

**Rappel Crew** An initial attack crew trained to descend from a specially equipped, hovering helicopter on a rope fitted with a mechanical device to control the rate of descent. See [Initial Attack Crew](#).

**Rate of Area Growth** The speed at which a fire increases its size, expressed in terms of area per unit of time. Recommended unit is hectares per hour (ha/h). See [Rate of Perimeter Growth](#), [Rate of Spread](#).

**Rate of Perimeter Growth** The speed at which a fire increases its perimeter, expressed in terms of distance per unit of time. Recommended units are metres per minute (m/min) and kilometres per hour (km/h). See [Rate of Area Growth](#).

**Rate of Spread** The speed at which a fire extends its horizontal dimensions, expressed in terms of distance per unit of time. Generally thought of in terms of a fire's forward movement or head fire rate of spread, but also applicable to backfire and flank fire rates of spread. Recommended units are metres per minute (m/min) or kilometres per hour (km/h). Acronym: [Rate of Spread \(ROS\)](#). See [Rate of Area Growth](#), [Rate of Perimeter Growth](#).

**Rawinsonde Observation** A method of determining wind speed and direction, air temperature, relative humidity, and atmospheric pressure at various levels in the atmosphere in the vicinity of an observation station by tracking a transmitting, balloon-borne sensor package with a radio direction-finder or by radar. A rawinsonde observation is commonly used in determining atmospheric stability and for constructing vertical temperature and wind profiles. See [Minisonde Observation](#), [Pilot Balloon Observation](#).

**RAWS** [Remote Automatic Weather Station](#).

**Rear of a Fire** See [Back](#).

**Reburn** Subsequent burning of an area previously burned.

**Re-Certification** An ongoing or periodic assessment of an individual's ability to demonstrate competence and remain current in a specific position or role.

**Recorders** Individuals within ICS organizational units who are responsible for recording information. Recorders may be found in Planning, Logistics, or Finance/Administration Units.

**Reinforced Response** Those resources requested in addition to the initial response.

**Relative Humidity** The ratio, expressed as a percentage, of the amount of water vapour or moisture in the air to the maximum amount of moisture that the air would hold at the same dry-bulb temperature and atmospheric pressure. RH can vary from 0 to 100 percent. Acronym: [Relative Humidity \(RH\)](#).

**Relative Humidity Recovery** The increase in relative humidity during the overnight period to near-saturation (100 percent) levels. The recovery of relative humidity indicates an increase in fine fuel moisture content and decreased fire intensity. See [Relative Humidity](#).

**Relay Tank** A tank, usually collapsible, used as a reservoir in the relay of water from one fire pump to another.

**Remote Automatic Weather Station** A weather station at which the services of an observer are not required. A RAWS unit measures selected weather elements automatically and is equipped with telemetry apparatus for transmitting the electronically recorded data via radio, satellite, or by a land-line communication system at predetermined times or on a user request basis. Acronym: [Remote Automatic Weather Station \(RAWS\)](#).

**Remote or Extended Hook** Designed to attach to the end of a line which can be remotely operated by the helicopter pilot.

**Reporting Locations** Location or facilities where incoming resources can check-in at the incident. See [Check-in](#).

**Report Time** The period from discovery of a fire until the first person charged with initiating suppression action is notified of its existence and location.

**Reserve** A tract of land, the legal title to which is held by the Crown, set apart for use and benefit of an First Nations band.

**Residence Time** The length of time required for the flaming zone or fire front of a spreading forest fire to pass a given point, most commonly expressed in minutes (min) and/or seconds (s). Numerically, it is equal to the flame depth divided by the rate of spread.

**Resistance to Control** The relative ease of establishing and holding a fireguard and/or securing a control line as determined by the difficulty of control and resistance to fireguard construction. See [Difficulty of Control](#), [Resistance to Fireguard Construction](#).

**Resistance to Fireguard Construction** The relative difficulty of constructing fireguards as determined by fuel type characteristics (e.g. forest floor depth), effects of topography on access (e.g. slope steepness), and mineral soil type. See [Difficulty of Control](#), [Resistance to Control](#).

**Resources** Personnel and major items of equipment, supplies, and facilities available or potentially available for assignment to incident operations and for which status is maintained. Resources are described by Kind and Type and may be used in operational support or supervisory capacities at an incident.

**Resources Unit** Functional unit within the Planning Section responsible for recording the status of resources committed to the incident. The Unit also evaluates resources currently committed to the incident, the impact that additional responding resources will have on the incident, and anticipated resource needs.

**Response Time** The period from receipt of first report of a fire to start of actual fire fighting. See [Travel Time](#).

**Restricted Fire Zone** See [Closed Area](#), [Forest Closure](#).

**Retardant Base** The ground facilities for mixing, storing, and loading fire retardant into airtankers. See [Airtanker Base](#).

**RH** [Relative Humidity](#).

**Rich Tool** See [Fire Rake](#).

**Risk** Broadly, the effect of uncertainty on objectives. Risk is often expressed in terms of a combination of the consequences of an event and the associated likelihood of occurrence.

**Risk Management Framework** Set of components that provide the foundations and organizational arrangements for designing, implementing, monitoring, reviewing and continually improving risk management throughout the organization.

**ROS** [Rate of Spread](#).

- Rotor Downwash** The air turbulence occurring under and around the main rotor system(s) of an operating rotary-wing aircraft. See [Vortex Turbulence](#).
- Safety Attitude** A person's tendency to respond positively toward a safety goal, idea, plan, procedure, prevention, or situation.
- Safety Margin** The cushion of time in excess of the time needed by firefighters to get to a safety zone before the fire gets to them. See [Safety Zone](#).
- Safety Officer** A member of the Command Staff responsible for monitoring and assessing safety hazards or unsafe situations, and for developing measures for ensuring personnel safety.
- Safety Zone** A location clear of fuels and of sufficient size to allow for safe shelter during the passage of the fire front.
- Salvo** To drop all of an airtanker's load of suppressant or retardant at once.
- Section** The Incident Command System organizational level having responsibility for a major functional area of incident management (e.g. Operations, Planning, Logistics, Finance/Administration, and Intelligence/Investigations (if established)). The Section is organizationally situated between the Branch and the Incident Command. See [Branch](#).
- Sector** A geographical area in which a Task Force/Strike Team Leader or Supervisor of a single resource is assigned authority and responsibility for the coordination of resources and implementation of planned tactics. A Sector may be a portion of a Division or an area inside or outside the perimeter of an incident. Sectors are identified with Arabic numbers. Segment is used in place of Sector in all-hazard incidents. See [Division](#).
- Service Branch** A Branch within the Logistics Section responsible for service activities at the incident. Includes the Communications, Medical, and Food Units.
- Short-term Retardant** A water-based substance wherein water is the fire suppressing agent. See [Fire Retardant](#), [Long-term Retardant](#).
- Shovel, Fire** A type of shovel specifically designed for use in constructing a fire line, having a tapered blade with both edges sharpened. Used for scraping, digging, grubbing, throwing and cutting.
- Single Resource** An individual, a piece of equipment and its personnel complement, or a crew/team of individuals with an identified work supervisor that can be used on an incident.
- Situational Awareness** The understanding of what the fire is doing and what you are doing in relation to the fire and your goals. It involves an awareness of the fire behaviour and terrain and the ability to predict where the fire and you will be in the future. See [LACES](#).
- Situation Report** Confirmed or verified information regarding the specific details relating to an incident.
- Situation Unit** Functional unit within the Planning Section responsible for the collection, organization, and analysis of incident status information, and for analysis of the situation as it progresses.
- Skidder Tanker** See [Skidder Unit](#).
- Skidder Unit** (1) A self-contained unit consisting of water tank, fire pump, and hose specially designed to be carried on a logging skidder for use in fire suppression. (2) A basket to hold fire fighting tools and equipment specially designed to be carried on a logging skidder. (3) The term usually applies to the special attachments, but it may also refer to the attachments and logging skidder together. See [Forwarder Unit](#), [Skidder Tanker](#).
- Skimmer** Any aircraft equipped to pick up water while in motion over water.
- Slash** Debris left as a result of forest and other vegetation being altered by forestry practices and other land use activities (e.g. timber harvesting, thinning and pruning, road construction, seismic line clearing). Slash includes material such as logs, splinters or chips, tree branches and tops, uprooted stumps, and broken or uprooted trees and shrubs.
- Slashburning** The broadcast burning of slash resulting specifically from timber harvesting operations.
- Slash Disposal** The treatment of slash for hazard reduction, silvicultural, or other purposes. See [Fuel Management](#).
- Sling** A looped line of strap or rope attachable to a lanyard to lift, lower, or carry cargo beneath a helicopter. See [Cargo Net](#).
- Slip-on Tank** A self-contained unit consisting of a water tank, fire pump, and hose designed for quick loading on conventional trucks.

- Slope** The upward or downward inclination of the earth's surface (i.e. the deviation in terrain from level or flat ground). Most commonly expressed as a percentage. Numerically, it is equal to the vertical rise or fall in elevation divided by the horizontal distance and then multiplied by 100.
- Slurry** A suspension of insoluble matter in water. In fire suppression, it is a general term applied to any long-term or short-term retardant after the mixing process has been completed.
- Smoke** The visible products of combustion rising above a fire.
- Smoke Column** Smoke and other gases that form a column -shaped mass above a fire, characterized by sharply defined, billowed edges. See [Convection Column](#).
- Smoke Haze** Haze caused by smoke.
- Smoke Management** Scheduling and conducting a prescribed burning program under predetermined burning prescriptions and firing techniques that will minimize the adverse impacts of the resulting smoke production in smoke sensitive areas. See [Mixing Height](#), [Ventilation Index](#).
- Smoke Sensitive Area** An area in which smoke from outside sources is intolerable, owing to heavy population, transportation services, existing air pollution, and/or intensive recreation/tourist use.
- Smouldering** A fire burning without flame with low rates of spread.
- Snag** A standing dead tree or part of a dead tree from which at least the smaller branches have fallen. See [Danger Tree](#). Synonym: [Chicot](#).
- Span of Control** The number of resources for which a supervisor is responsible, usually expressed as the ratio of supervisors to individuals. An appropriate span of control is between 1:3 and 1:7, with optimal being 1:5.
- Spatial Fire Management System** Software that produces daily to hourly maps of fire weather and potential fire behaviour based on the interpolation of weather observations and fuels maps.
- Spot Fire** A fire ignited by firebrands that are carried outside the main fire perimeter by air currents, gravity, and/or fire whirls.
- Spotter** In rappelling and smoke jumping operations, the individual responsible for selecting drop target and supervising all aspects of dropping smoke jumpers or rappel crews.
- Spotting** A fire producing firebrands carried by the surface wind, a fire whirl, and/or convection column that fall beyond the main fire perimeter and result in spot fires.
- Spot Weather Forecast** See [Fire Weather Forecast](#).
- Sprinkler Kit** A collection of water thieves, supply hose and water sprinkler heads used to wet the fuels along the fire perimeter or along a fireguard or in value protection.
- Squall Line** A narrow, organized band of active thunderstorms, often preceding a cold front.
- Stable Atmosphere** The temperature decrease with altitude is less than the dry adiabatic lapse rate. See [Dry Adiabatic Lapse Rate](#).
- Staging Area** Location established where resources can be placed while awaiting a tactical assignment. The Operations Section manages Staging Areas.
- Stakeholder** A person, group, organization, or government with an interest or concern in a particular measure, proposal, or event.
- Standby** A state of readiness to take immediate action on detection of a fire. See [Period of Alert](#).
- Stand Composition** The proportion of each tree species in a stand expressed as a percentage of the total; in the fire management sense, as a percentage of the crown biomass.
- Stand Conversion** The process of actively removing conifer trees in a mixedwood stand to simultaneously reduce the total stem density and proportion of conifer trees relative to deciduous trees. See [Stand Structure](#).
- Stand Structure** The horizontal and vertical distribution of components of a forest stand including the crown layers and stems of trees, shrubs, herbaceous understory, snags, and downed woody debris.
- Static Discharge Head** In hydraulics, the term used for the vertical distance between a fire pump and the nozzle outlet.
- Static Suction Lift** In hydraulics, the term used for the vertical distance between the surface of the water supply to the suction inlet of a fire pump;

may be positive or negative. Positive suction lift occurs when the water supply level is higher than that of the suction inlet (the water is aiding the pump). If the fire pump is above the water supply it must lift the water, creating a negative suction lift (the most common situation).

**Storm Damage** See [Windfall](#).

**Strategy** The general plan or direction selected to accomplish incident objectives.

**Strike Team** A specific combination of the same kind and type of resources with common communications and a Leader.

**Strike Team Leader** The individual responsible for supervising a strike team. Reports to a Division/Group Supervisor or Operations Section Chief.

**String Drop** A technique whereby a specified number of doors are opened in succession to give an extended pattern or string on the ground.

**Subsidence** A meteorological term referring to the descending motion of air in the atmosphere, usually extending over a rather broad area, accompanied by warming and drying. See [Convection](#).

**Suction Hose** A hose, reinforced to prevent collapse due to pressure, used to draft water into a fire pump. See [Hose](#).

**Suction Lift** See [Static Suction Lift](#).

**Supervisor** The Incident Command System title for an individual responsible for a Division or Group.

**Supply Unit** Functional unit within the Support Branch of the Logistics Section responsible for ordering equipment and supplies required for incident operations.

**Support Branch** A Branch within the Logistics Section responsible for providing personnel, equipment, and supplies to support incident operations. Includes the Supply, Facilities, and Ground Support Units.

**Suppressant** An agent used to extinguish the flaming, smouldering, or glowing stages of combustion by direct application to burning fuels. See [Fire Retardant](#).

**Suppression Crew** A unit of fire fighters assembled and organized for conducting fire suppression, either for initial attack and/or continuing work on

fires. Crew size, specialization, and configuration determined by agency procedure. See [Initial Attack Crew](#), [Sustained Action Crew](#).

**Surface Fire** A fire that burns in the surface fuel layer, excluding the crowns of the trees, as either ahead fire, flank fire, or backfire.

**Surface Fuels** All combustible materials lying above the duff layer between the ground and ladder fuels that are responsible for propagating surface fires (e.g. litter, herbaceous vegetation, low and medium shrubs, tree seedlings, stumps, downed-dead roundwood). See [Ladder Fuels](#), [Crown Fuels](#).

**Surfactant** A surface active agent or wetting agent. A formulation which, when added to water in proper amounts, will materially reduce the surface tension of the water and increase penetration and spreading abilities of the water.

**Sustained Action Crew** Personnel trained, equipped, and deployed to conduct suppression action on a wildfire for an extended period of time. See [Suppression Crew](#), [Initial Attack Crew](#).

**Synoptic Chart** Any map on which weather data and analyses are presented depicting the state of meteorological conditions over a large area at the earth's surface and at various levels in the upper atmosphere, at a particular time. See [Weather Map](#).

**Tactics, Fire Suppression** Determining exactly where to establish control lines, what to do along these lines, and how best to utilize each fire fighting resource group to cope with site-specific conditions and fire behaviour at the moment.

**Tandem** A term to designate the use of two or more units of the same type (e.g. fire pumps, bulldozers, crews of fire fighters) working one in front of the other to accomplish a specific fire suppression job.

**Tanker** A specialized truck on which is mounted a tank, a fire pump, hose, and supplementary equipment. Can also be used as a short form for airtanker. See [Airtanker](#).

**Tank Trailer** A specialized trailer on which is mounted a tank, a fire pump, hose, and supplementary equipment. Synonym: [Pumper Trailer](#).

**Task Force** Any combination of single resources assembled for a particular tactical need with common communications and a Leader.

- Task Force Leader** The individual responsible for supervising a task force. Reports to a Division/Group Supervisor or Operations Section Chief.
- Technical Specialists** Personnel with special skills that can be used anywhere within the Incident Command System organization.
- Thermal Imagery** See [Infrared Scanner](#).
- Thunderhead** A popular term for a cumulonimbus cloud formation associated with a thunderstorm. It is characterized by a large vertical column topped by a mushroom or anvil-shaped head.
- Thunderstorm** A localized storm producing lightning and thunder.
- Timelag** The drying time required for dead fuels to lose two-thirds of the difference between their initial moisture content and their equilibrium moisture content. The fuels represented by the Fine Fuel Moisture Code, Duff Moisture Code, and Drought Code in the Canadian Forest Fire Weather Index System have timelag values of 2/3 (or 16 hours), 15, and 53 days in average weather, respectively.
- Time Unit** Functional unit within the Finance/Administration Section responsible for recording time for incident personnel and hired equipment.
- Tool Cache** See [Fire Equipment Cache](#).
- Torching** The ignition of a single tree or small group of trees from the bottom up.
- Traditional Knowledge** The knowledge, innovations, and practices of Indigenous and local communities. Developed from experience gained over the centuries and adapted to the local culture and environment, traditional knowledge is transmitted orally from generation to generation.
- Traditional Lands** As land ownership systems evolved over time and with the introduction of protected area policies and large infrastructure development, Indigenous peoples have found themselves increasingly marginalized, exploited, and displaced from traditional land and sources of food.
- Trainee** An individual who has acquired a pre-arranged series of competencies (knowledge, abilities, and skills) but requires additional experience in a specific role. The Trainee requires direct supervision by a person who is certified in the role or position and meets the CIFFC Exchange Standard for that role or position, to which the Trainee is assigned to for the duration of the assignment.
- Training** The learning process involving the acquisition of knowledge, skills, and competencies.
- Travel Time** The period between departure of the initial attack force for a fire and its arrival at the fire.
- Turnaround Time** Time used by an air tanker or helitanker to reload and return to the fire.
- Type** A classification of resources that refers to capability. Type 1 is more capable than Types 2, 3, or 4 respectively, because of size, power, capacity, or in the case of Incident Management Teams experience and qualifications.
- UAC** [Unified Area Command](#).
- UC** [Unified Command](#).
- UHF** The Ultra High Frequency radio frequency range, between 300 and 3000 MHz.
- Underburning** Prescribed burning under a forest canopy without the involvement of canopy fuels.
- Unified Area Command** Version of command established when incidents under an Area Command are multijurisdictional. A Unified Area Command (UAC) is established when Incidents under an Area Command are multijurisdictional. See Area Command and Unified Command. Acronym: [Unified Area Command \(UAC\)](#).
- Unified Command** An application used when more than one agency has incident jurisdiction or when incidents cross political jurisdictions. Agencies work together through the designated members of the Unified Command (UC), often the senior persons from agencies and/or disciplines participating in the UC, to establish a common set of objectives and strategies and a single Incident Action Plan. Acronym: [Unified Command \(UC\)](#).
- Unit** The organizational element having functional responsibility for a specific incident Planning, Logistics, or Finance/Administration activity.
- Unity of Command** The concept by which each person within an organization reports to one and only one designated person. The purpose of unity of command is to ensure unity of effort under one responsible commander for every objective.



- Unstable Atmosphere** The temperature decrease with altitude is greater than the dry adiabatic lapse rate. See [Dry Adiabatic Lapse Rate](#).
- Upper Ridge** A meteorological term referring to an elongated area of relatively high atmospheric pressure in the upper atmosphere; usually associated with warm and dry weather conditions at the earth's surface. The opposite of an upper ridge is an upper trough.
- Upper Ridge Breakdown** A weakening or collapse of an upper ridge; generally associated with an increase in fire weather severity at the earth's surface.
- Upper Trough** A meteorological term referring to an elongated area of relatively low atmospheric pressure in the upper atmosphere; often associated with cool and showery weather conditions at the earth's surface. The opposite of an upper trough is an upper ridge.
- Values-at-Risk** The specific or collective set of natural resources and man-made improvements/ developments that have measurable or intrinsic worth and that could of may be destroyed or otherwise altered by fire in any given area.
- Ventilation Index** The ventilation index is a numerical value relating to the potential of the atmosphere to disperse airborne pollutants from a stationary source (e.g. smoke from a prescribed fire). Five ventilation classes, from poor to excellent dispersion, are defined for use in operational forecasting. See [Mixing Height](#), [Smoke Management](#).
- Vertical Temperature Profile** A plot of actual air temperature against height above the earth's surface; most commonly determined by a rawinsonde observation. See [Rawinsonde Observation](#).
- Vertical Wind Profile** A plot of winds aloft against height above the earth's surface; most commonly determined by a pilot balloon observation. See [Pilot Balloon Observation](#).
- VHF** Very High Frequency radio. The standard aircraft radio that all civil aircraft use to communicate with ground radio stations and other aircraft.
- VHF-AM** Very High Frequency Amplitude Modulation. Aircraft radio operates in the 118 MHz to 130 MHz range.
- VHF-FM** Very High Frequency Frequency Modulation radio. Commonly used for dispatch, land-based mobile, and airborne communications. Generally 46 to 175 Mhz.
- Virga** Wisps or streaks of water or ice particles falling out of a cloud but evaporating before reaching the earth's surface as precipitation.
- Viscosity** The relative ability of a fluid to resist flow.
- Vortex Turbulence** Horizontal whirlwind(s) created in the wake of fixed- and rotary-wing aircraft that are in flight. Under certain atmospheric conditions, this turbulent air can be projected to the ground and in turn adversely affect fire behaviour. A small fire or segment of a fire perimeter can unexpectedly flare up, particularly if the wind speed is light and an unstable atmosphere exists. See [Rotor Downwash](#).
- Vulnerability** How easily damaged a particular value is to a fire of a given intensity.
- Warm Front** See [Front](#).
- Water Bombing** The act of dropping suppressants (water or short-term retardant) on a wildfire from an aircraft in flight.
- Water Thief** A type of bleeder valve designed for installation at convenient points in hose lines to permit drawing off water for filling back-pack pumps or other use without interfering with pump or nozzle operation.
- Weather Map** See [Synoptic Chart](#).
- Wet-bulb Temperature** The lowest temperature to which the air can be cooled by evaporating water into it at a constant atmospheric pressure. Recommended unit is degrees Celsius.
- Wet Foam** The bubbles of wet foams are spherical masses of air which are enclosed on solution. The bubble walls are separated by a large amount of solution, relative to other types of foams. Wet foams have very fast drainage rates.
- Wetting Agent** A chemical that reduces the surface tension of water causing it to spread and penetrate more effectively.
- Wet Water** Water with added chemicals, called wetting agents, that increase spreading and penetrating properties of water by reducing its surface tension.
- Wildfire** An unplanned or unwanted natural or human-caused fire, as contrasted with a prescribed fire. See [Fire](#), [Forest Fire](#).

**Wildfire Risk** The combination of the likelihood of a wildfire occurring combined with the potential impacts of that fire. See [Risk](#).

**Wildland Urban Interface** The area where homes and other human development meets or are inter-mixed with wildland fire fuels. Acronym: [Wildland Urban Interface \(WUI\)](#).

**Wind Direction** The direction from which the wind is blowing. Wind direction is most commonly referred to by cardinal direction (e.g. North, East, South, West) but may also be expressed in degrees (i.e. 1D to 360D).

**Windfall** A tree or trees that have been uprooted or broken off by wind, or an area of previously standing timber that has been blown over by strong winds or storms. Synonyms: [Blowdown](#), [Storm Damage](#).

**Wind Speed** The rate of horizontal motion of the air. In the Canadian Forest Fire Danger Rating System and in fire weather forecasts, wind speed is assumed to be measured or estimated at a standard height of 10 metres in the open on level terrain. Recommended unit is kilometres per hour (km/h).

**WUI** [Wildland Urban Interface](#).