

# **Wildland Fire Module: NFIRS-8**

## ***Objectives***

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After completing the Wildland Fire Module the student will be able to:

1. Describe when the Wildland Fire Module is to be used.
  2. Demonstrate how to complete the Wildland Fire Module and identify appropriate other modules, given the scenario of a hypothetical incident.
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## **Pretest #8 – Wildland Fire Module**

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1. A Basic Module must be completed if the Wildland Fire Module is completed.
  - (a) True.
  - (b) False.
  
2. The Wildland Fire Module is a required NFIRS Module.
  - (a) True.
  - (b) False.
  
3. The Fire Module and the Wildland Fire Module can be completed for the same incident.
  - (a) True.
  - (b) False.
  
4. Buildings ignited as a result of a wildland fire are not exposure fires and therefore do not require separate exposure reports.
  - (a) True.
  - (b) False.
  
5. The Wildland Fire Module can be used for non-hostile fires such as controlled burning and prescribed fires.
  - (a) True.
  - (b) False.

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## Wildland Fire Module Use

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Historically, NFIRS data have not proved useful in understanding the nature and magnitude of the wildland fire problem. The optional Wildland Fire Module attempts to rectify this by capturing data about:

- the number of acres burned and the type of materials involved in these fires;
- conditions which contribute to the ignition and spread of wildland fires; and
- the resources needed to control and/or extinguish these fires.

The purpose of the Wildland Fire Module is to document reportable wildland fires. A **reportable** wildland fire is any fire involving vegetative fuels that occurs in the wildland or urban-wildland interface areas, including those fires that threaten or consume structures. To better understand the role of fire on the wildland ecosystem, prescribed fires also are included in this definition of reportable fires.

For the purpose of wildland fire reporting, note the following definitions:

**Prescribed Fire**—Any fire ignited by management actions to meet specific objectives. A written, approved prescribed fire plan must exist prior to ignition (Incident Type 632). A prescribed fire that escapes management is a hostile fire (Incident type 141, Wildland Fire).

**Urban-Wildland Interface Area**—The geographical area in which structures and other human development meet or intermingle with wildland or vegetative fuels.

**Urban-Wildland Interface Fire**—Any fire, other than prescribed fire, where fire suppression tactics were influenced by a geographical area where structures and other human development meet or intermingle with wildland or vegetative fuels (Incident Type 141).

**Wildland**—An area in which development is essentially nonexistent, except for roads, railroads, power lines, and similar facilities.

**Wildland Fire**—Any fire other than a prescribed fire, involving vegetative fuels that occur in the wildland. A wildland fire may expose and possibly consume structures (Incident Type 141).

The Wildland Fire Module permits wildland fires to be profiled in depth for resource allocation, incident management, and fire impact analysis. In addition, aggregated data on wildland fires will provide invaluable information that can be used by policymakers developing codes and standards, zoning ordinances, and forest management plans.

Use the optional Wildland Fire Module when the Incident Type is coded as Forest, Woods, or Wildland Fire (Incident Type 141), or a Prescribed Fire (Incident Type 632). In these cases, the Wildland Fire Module would be used in lieu of the Fire Module.

The Wildland Fire Module also may be used for the following incident types:

- 140, Vegetation Fire, Other;
- 142, Brush, or Brush and Grass Mixture Fire;

- 143, Grass Fire;
- 160, Special Outside Fire;
- 170, Cultivated Vegetation, Crop Fire, Other;
- 171, Cultivated Grain, Crop Fire;
- 172, Cultivated Orchard or Vineyard Fire;
- 173, Cultivated Trees or Nursery Stock Fire;
- 561, Unauthorized Burning; and
- 631, Controlled Burning (Authorized).

### CONTROLLED BURNING VERSUS PRESCRIBED FIRE

Incident Type 631, Controlled Burning, is used for fires where the burning is authorized and under control. Controlled burns are typically agricultural in nature, and are managed by the property owner. In order to meet the definition of a Prescribed Fire (Incident Type 632), a written, approved prescribed fire plan must exist prior to ignition.

Typically, these fires are carried out by a wildland management agency.

Both types of fires are considered nonhostile, and both presume that the Environmental Protection Agency (EPA) requirements are met prior to ignition.

*NOTE: A prescribed fire that escapes management is a hostile fire—Incident Type is 141 (Wildland Fire). A hostile fire cannot become a prescribed fire, but the management strategy (actions taken) may change.*

If it does not have a written, approved prescribed fire plan prior to ignition, it is not a prescribed fire, regardless of how it is managed (or how many times it escapes control). How the hostile fire is managed is the action taken.

## Section A: FDID, State, Incident Date, Station, Incident Number, Exposure

<b>A</b>	FDID	State	MM	DD	YYYY	Station	Incident Number	Exposure	<input type="checkbox"/> Delete	<b>NFIRS-8 Wildland Fire</b>
	★	★	★	★	★	★	★	★	<input type="checkbox"/> Change	

This information is consistent with the Basic Module. You can use it to recall the incident from a computer program or to print a hard copy of an incident. In an automated system, you can enter a data element once and it may appear automatically in all the fields where that information is required.

## Section B: Alternate Location Specification

B Alternate Location Specification		
Enter Latitude/Longitude OR Township/Range/Section/Subsection Meridian if Section B on the Basic Module is not completed		
<input type="text"/>	.	<input type="text"/>
Latitude		Longitude
<b>OR</b>		
<input type="text"/>	.	<input type="text"/>
Township		Range
	<input type="checkbox"/> North <input type="checkbox"/> South	<input type="checkbox"/> East <input type="checkbox"/> West
<input type="text"/>	<input type="text"/>	<input type="text"/>
Section	Subsection	Meridian

This section documents the geographical location of the wildland fire — use it in place of Section B of the Basic Module when traditional addressing methods or the U.S. National Grid standard are not used ([www.fgdc.gov/usng](http://www.fgdc.gov/usng)).

Enter both the latitude and longitude of the fire location **or** the Township, Range, Section, Subsection, and Meridian. This information may be of value to local authorities for contacting the owner in connection with the fire and in making a long-term analysis of wildland fires in similar areas or on property under the same ownership.

## Section C: Area Type

C	Area Type ☆
1	<input type="checkbox"/> Rural, farms >50 acres
2	<input type="checkbox"/> Urban (heavily populated)
3	<input type="checkbox"/> Rural/urban or suburban
4	<input type="checkbox"/> Urban-wildland interface area

This required section is a general description of the area in which the wildland fire occurred. By marking the appropriate box, it even allows for documentation of fires occurring in urban-wildland interface areas.

Aggregate information on the areas where wildland fires occur will help determine the level of risk for fires in densely populated areas versus those in rural areas.

## Section D: Wildland Fire Cause, Human and Other Factors Contributing To Ignition, and Fire Suppression Factors

**Block D<sub>1</sub>** data identifies factors contributing to ignition in a wildland fire. The classification of ignition causes is consistent with the General Fire Causes adopted by the National Wildfire Coordinating Group (NWCG). The primary use of this information is to distinguish between human and nature-caused wildland fires.

<b>D1 Wildland Fire Cause</b> ☆			
1 <input type="checkbox"/>	Natural source	8 <input type="checkbox"/>	Misuse of fire
2 <input type="checkbox"/>	Equipment	0 <input type="checkbox"/>	Other
3 <input type="checkbox"/>	Smoking	U <input type="checkbox"/>	Undetermined
4 <input type="checkbox"/>	Open/outdoor fire		
5 <input type="checkbox"/>	Debris/vegetation burn		
6 <input type="checkbox"/>	Structure (exposure)		
7 <input type="checkbox"/>	Incendiary		

The classification of Wildland Fire Cause represents a significant departure from the coding scheme used in the Fire Module, where a combination of Cause of Ignition and Factors Contributing to Ignition are used to describe how and why the fire started. In fact, in some cases, the Wildland Fire Cause is not a “cause” at all, but an incident type or a factor contributing to ignition.

<b>D2 Human Factors Contributing to Ignition</b>	
Check as many boxes as are applicable. <input type="checkbox"/> None	
1 <input type="checkbox"/>	Asleep
2 <input type="checkbox"/>	Possibly impaired by alcohol or drugs
3 <input type="checkbox"/>	Unattended person
4 <input type="checkbox"/>	Possibly mentally disabled
5 <input type="checkbox"/>	Physically disabled
6 <input type="checkbox"/>	Multiple persons involved
7 <input type="checkbox"/>	Age was a factor

**Block D2** offers a number of options to record human factors that might contribute to the ignition of a fire. Select all of the applicable factors by marking the appropriate boxes.

The data element Age was a factor is particularly useful in tracking juvenile firesetter trends. When used in combination with L2–Gender of Person Involved and L3–Age or Date of Birth, it can help define who was involved with the fire.

<b>D3 Factors Contributing to Ignition</b>	
None <input type="checkbox"/>	
#1	_____#2

**Block D3** notes conditions or situations that contributed to the ignition of the fire. These factors help to clarify how a heat source and combustible material combined to start a fire. Up to two factors can be recorded, or if appropriate, “UU” can be selected. In several instances, the unique classification of Wildland Fire Causes limits the range of Factors Contributing that can be used.

**Examples:**

If the Wildland Fire Cause is recorded as Smoking, the Factor Contributing to Ignition should be 11– Abandoned or discarded materials or products.

If the Wildland Fire Cause is recorded as Structure, the Factor Contributing to Ignition should be 71– Exposure.

NOTE: The code set table used for this data element is the same set that is used for **Factors Contributing to Ignition–E2** in the Fire Module. Please see the codes listed for that data element in the Complete Reference Guide (CRG).

Enter up to three factors	<b>D4 Fire Suppression Factors</b> <input type="checkbox"/> None	
	#1	_____
	#2	_____
	#3	_____

Use **Block D4** to document factors or conditions that affected the fire suppression effort or which affected the fire management strategy. Up to three factors or conditions that constituted a significant fire suppression problem or affected the means by which the fire was managed can be entered here.

NOTE: The code set table used for this data element is the same set that is used for **Fire Suppression Factors – G** in the Fire Module. See the codes listed for that data element in the CRG.

## Section E: Heat Source

<b>E</b>	<b>Heat Source</b>	<input type="checkbox"/> None
	_____	

This refers to the specific source of the heat energy that started the fire. Examples include cigarette, cigarette lighter, match, or spark. Enter a code from the CRG.

NOTE: The code set table used for this data element is the same set that is used for **Heat Source–D2** in the Fire Module. See the codes listed for that data element in the CRG.

## Section F: Mobile Property Type

<b>F</b>	<b>Mobile Property Type</b>
	_____

Mobile Property Type refers to property that is designed and constructed to be mobile, movable under its own power, or towed. Details regarding mobile property that either (a) failed; (b) was used improperly; **or** (c) while working properly provided the principal heat that caused ignition is collected in this section. If no mobile property was involved in ignition, this section should be left blank.

NOTE: The code set table used for this data element is the same set that is used for **Mobile Property Type – H2** in the Fire Module. Please see the codes listed for that data element in the CRG.

## Section G: Equipment Involved in Ignition

<b>G</b>	<b>Equipment Involved in Ignition</b>	<input type="checkbox"/> None
	_____	

This section allows for the documentation of equipment that provided the principal heat that caused ignition. The same type of information as noted above in Mobile Property Type can be recorded.



NOTE: The code set table used for this data element is the same set that is used for **Equipment Involved In Ignition – F1** in the Fire Module. Please see the codes listed for that data element in the CRG.

Information on the type of equipment involved in ignition can be used to guide prevention, enforcement, and product design efforts. It is just as important to know the kind of equipment that was used improperly as it is to know the kind of equipment that malfunctioned. When involved in ignition, equipment information provides an important part of the causal data.

## Section H: Weather Information

H Weather Information		
NFDRS Weather Station ID		
Weather Type	Wind Direction	
Wind Speed (mph)	Air Temperature F°	<input type="checkbox"/> Check if negative
Relative Humidity %	Fuel Moisture %	Fire Danger Rating

Record the six-character ID number of the NFDRS Weather Station that monitors weather conditions at the location of fire origin, in the National Fire Danger Rating System (NFDRS) Weather Station ID field. Researchers can use this information to obtain specific weather data for the time and location of the fire origin. Specific weather data permit analysis of those conditions that may have contributed to the fire cause or spread.

The weather type field is used to record a general description of the weather type at the time and location of fire origin. Make a choice from the following list:

### Weather Type

- 10 Clear: less than 1/10 cloud cover.
- 11 Scattered clouds: 1/10 to 5/10 cloud cover
- 12 Broken Clouds: 6/10 to 9/10 cloud cover
- 13 Overcast: 9/10 or more cloud cover
- 14 Foggy
- 15 Drizzle or mist
- 16 Raining
- 17 Snow or sleet
- 18 Shower
- 19 Thunderstorm in progress
- 00 Other weather type

Record the direction from which the wind was blowing at eye level in the wind direction field.

**Example:**

A wind blowing out of the north would push a fire to the south. This information helps in the investigation of fire causes as well as determining the rate of spread and direction of a fire.

The wind speed m.p.h. field records the wind speed at the fire origin when fire suppression forces arrived. Enter the average wind speed (to the nearest mile per hour) at the fire origin. You can measure wind speed using an anemometer or it may be obtained from the weather station. Calm conditions are recorded as "0."

*NOTE: Wind speed is possibly the most important factor affecting the rate of fire spread at an incident. This information is used to understand and predict fire behavior as well as to evaluate fire protection strategies.*

The air temperature field documents the ambient air temperature in degrees Fahrenheit (°F) at the time and location of fire origin. Information about air temperature is used in fire modeling, to assess the potential for ignition, and to understand problems associated with suppressing fires in various weather conditions.

Relative Humidity is a measurement of the ratio of the amount of water vapor to the greatest amount possible at the same temperature. Record the relative humidity at the time and location of fire origin here. It is expressed as a percentage from 0 to 100 percent. Information about relative humidity is used in fire modeling, to assess the potential for ignition and rate of spread under various weather conditions.


The fuel moisture field records fuel moisture expressed as a percentage of total weight (generally ranging from 0 to 25 percent). Fuel moisture refers to the 10-hour reading of the moisture content of a fuel stick taken in the general area of the fire origin. Information about fuel moisture is used in fire modeling, to assess the potential for ignition and rate of spread for different fuels under various weather conditions.

Record the fire danger rating in the Fire Danger Rating field. This entry refers to the NFDRS, one method of describing the wildfire threat in a particular area. It is derived from both constant and variable fire danger factors that affect the ignition, spread, and difficulty of control of fires and the damage they cause.


Factors considered when estimating the fire danger are temperature, relative humidity, wind speed, fuel type, and fuel moisture.

This information is used in fire prevention activities to determine when fires are most likely to occur and their severity. Burning bans and park or forest closures or restrictions may be invoked based on the Fire Danger Rating. It is also useful in presuppression planning to determine staffing levels and critical initial attack times.


## Section I: Number of Buildings Ignited, Number of Buildings Threatened, Total Acres Burned, and Primary Crops Burned

<b>I<sub>1</sub></b>	<b>Number of Buildings Ignited</b>	<input type="checkbox"/> None
		
Number of buildings that were ignited in Wildland fire		

**Block I<sub>1</sub>** is a numerical expression of the total number of buildings, if any, that were ignited in the wildland fire. Each building ignited would be considered an exposure.

<b>I<sub>2</sub></b>	<b>Number of Buildings Threatened</b>	<input type="checkbox"/> None
		
Number of buildings that were threatened by Wildland fire but were not involved		


If buildings were threatened, but not ignited, in the wildland fire, that number is noted in **Block I<sub>2</sub>**. This entry implies that these buildings were saved by the efforts of fire suppression resources. Therefore, it should be used only when the fire management tactics employed were for the specific purpose of protecting threatened structures.

<b>I<sub>3</sub></b>	<b>Total Acres Burned</b> ★
	

**Block I<sub>3</sub>** records the total acres burned by a wildland fire. Recording the estimated number of acres burned indicates the magnitude of each fire and of the wildland fire problem overall.

An estimated number of acres burned represents a vital component of the overall fire loss picture. This information can be used to evaluate progress in wildland fire prevention. It also can help determine the magnitude of resources that should be devoted to fire protection and the cost effectiveness of various programs.

This entry should be the most accurate estimate of acres burned that is practical to obtain (1 acre equals 43,560 square feet). Estimates based on the use of accurately scaled maps, dot grids, planimeters, or other accurate measuring methods are preferred. If less than 1 acre was burned, the decimal point field should be used to denote tenths of an acre.

<b>I<sub>4</sub></b>	<b>Primary Crops Burned</b>
Identify up to 3 crops if any crops were burned	
	

**Block I<sub>4</sub>** collects information regarding up to three types of crops that burned. List the crop with the most acres burned first. If no crops were burned, leave this block blank.

Information about what type of crops burned in the fire is useful in tracking trends and patterns in wildland fires, and in planning prevention strategies.

## Section J: Property Management

**J Property Management**

Indicate the percent of the total acres burned for each ownership type then check the ONE box to identify the property ownership at the origin of the fire. If the ownership at origin is Federal, enter the Federal Agency Code.

Ownership	% Total Acres Burned
↓	↓
<b>U</b> <input type="checkbox"/> <b>Undetermined</b>	_____ %
<b>Private</b>	
<b>1</b> <input type="checkbox"/> <b>Tax paying</b>	_____ %
<b>2</b> <input type="checkbox"/> <b>Non-tax paying</b>	_____ %
<b>Public</b>	
<b>3</b> <input type="checkbox"/> <b>City, town, village, local</b>	_____ %
<b>4</b> <input type="checkbox"/> <b>County or parish</b>	_____ %
<b>5</b> <input type="checkbox"/> <b>State or province</b>	_____ %
<b>6</b> <input type="checkbox"/> <b>Federal</b> _____	_____ %
	Federal Agency Code
<b>7</b> <input type="checkbox"/> <b>Foreign</b>	_____ %
<b>8</b> <input type="checkbox"/> <b>Military</b>	_____ %
<b>0</b> <input type="checkbox"/> <b>Other</b>	_____ %

This section records the principal entity responsible for maintenance or control of property use where the fire originated. You also may record the percent of total acres burned for each type of ownership involved.

A record of the number of acres burned broken down by property ownership is of significant value to local fire departments as well as State and Federal wildland agencies. It provides a means to determine the frequency and impact of fire on property managers, especially major holders of land such as ranchers, lumber and paper companies, agricultural producers, and Federal and State governments. This information will help target fire protection programs to entities having the greatest risk or loss potential. This information also helps identify the entity responsible for reimbursing costs associated with fire suppression efforts.

Indicate the percent of the total acres burned for each type of ownership involved. Continue by marking the box that describes the principal entity with responsibility for the property where the fire originated. If a Federal agency has responsibility for the property, enter the five-digit Federal Agency Code in the space provided. Mark "U" if undetermined.

## Section K: NFDRS Fuel Model at Origin

**K** NFDRS Fuel Model at Origin

Enter the code and the descriptor corresponding to the NFDRS Fuel Model at Origin

This data element identifies the type of wildland fuel involved in a wildland fire at the point of origin. Fuel models were devised to organize information about vegetative fuels for use in the NFDRS to predict fire danger. The local forester should be able to assist you in identifying the fuel models in your area.

The proper entry in this field is the two-digit code and descriptor corresponding to the NFDRS fuel model that best identifies the type of vegetation burned at the point of origin.

NFDRS Fuel Model at Origin Codes	
01	A: Annual Grasses. (less than 25 tons per acre)
02	B: Mature brush [6 ft +]
03	C: Open pine with grass
04	D: Southern rough
05	E: Hardwood litter
06	F: Intermountain west brush
07	G: West Coast conifers; close, heavy down materials
08	H: Short needle conifers; normal down woody materials
09	I: Heavy slash, clear-cut conifers greater than 25 tons per area
10	J: Medium slash, heavily thinned conifers
11	K: Light slash (less than 15 tons per acre)
12	L: Perennial grasses
14	N: Saw grass, marsh needle-like grass
15	O: High pocosin
16	P: Southern long-needle pine
17	Q: Alaska black spruce
18	R: Hardwood litter (summer)
19	S: Tundra
20	T: Sagebrush with grass
21	U: Western long-leaf pine
UU	Undetermined

## Section L: Person Responsible For Fire, Gender of Person Involved, Age or Date of Birth, and Activity of Person Involved

**L<sub>1</sub>** Person Responsible for Fire

1  Identified person caused fire

2  Unidentified person caused fire

3  Fire not caused by person

**Block L<sub>1</sub>** documents whether or not a person was responsible for the fire and whether or not that person was identified. If the person was identified, the rest of Section L should be completed.

**NOTE:** If the person responsible for causing the fire is known, enter identifying information about the person in Block K<sub>1</sub> of either the Basic Module or the Supplemental Module.

<b>L2</b>	<b>Gender of Person Involved</b>
1	<input type="checkbox"/> Male
2	<input type="checkbox"/> Female

Information on the gender of persons involved—entered in **Block L2**—can be used with other demographic information to identify fire problems in certain segments of the population and to target fire prevention and fire safety programs for certain audiences.

<b>L3</b>	<b>Age or Date of Birth</b>
Age in Years	Date of Birth
<input type="text"/>	<input type="text"/> OR <input type="text"/> <input type="text"/> <input type="text"/>
	Month Day Year

**Block L3** records the age or date of birth for the person identified as being responsible for the fire, whether the cause was accidental or intentional.

This information can be used with gender and other demographic data to identify fire problems in certain segments of the population and to target fire prevention and fire safety programs for certain audiences. This data element is particularly useful in tracking juvenile firesetter trends when Age was a factor if noted in D<sub>2</sub> and gender (L<sub>2</sub>) are considered.

<b>L4</b>	<b>Activity of Person Involved</b>
<input type="text"/>	<input type="text"/>
Activity of Person Involved	

The entry in **Block L4** describes the primary activity of the person believed to have caused the fire. Prevention programs and strategy development on wildland fires are of utmost importance in continuing education on fire behavior. Collecting information on the primary activity of the person involved will assist in developing programs that better address the fire prevention needs of each activity.

## Section M: Type of Right-of-Way

<b>M</b>	<b>Type of Right-of-Way</b>	<input type="checkbox"/> None
Required if less than 100 feet		
<input type="text"/> Feet	<input type="text"/>	
Horizontal distance from right-of-way	Type of right-of-way	

Right of Way refers to the horizontal distance of fire-origin point from the edge of the traveled surface of a road or the nearest outside rail of a railroad right-of-way, or from the nearest power line or power transmission equipment of a utility right-of-way.

NOTE: This section is completed only for fires starting on or near (within 99 feet) of road, railroad, or power line right-of-ways.

This section contains two fields. In one, the actual measured or estimated horizontal distance (to the nearest foot, up to 99 feet) of the point of fire origin from the right-of-way is entered. A description of the type of right-of-way near or on which the fire started is recorded in the second field.

Aggregate data about horizontal distances from rights-of-way provide information necessary to assess the risks of certain hazards and to develop hazard reduction strategies such as regulations for controlling combustible fuels along roads and other rights-of-way.

## Section N: Fire Behavior

**N Fire Behavior**

These optional descriptors refer to observations made at the point of initial attack

Elevation  Feet

Relative position on slope

Aspect

Flame length  Feet

Rate of spread  Chains per Hour

This section allows for the documentation of the topographical features and fire characteristics that contributed to the fire behavior. Information about fire behavior is used in fire modeling to assess the potential for fire ignition and rate of spread for different fuels under various conditions.

*NOTE: These optional descriptors refer to observations made at the point of initial attack. Use of these descriptors most likely will be limited to wildland fire management agencies that are trained in making these observations.*

The Elevation Field is used to record the height above mean sea level, measured in feet.

The Relative Position on Slope field indicates the relative position of the fire on a slope. It can be coded as follows:

- 0, Valley Bottom;
- 1, Lower Slope;
- 2, Mid Slope;
- 3, Upper Slope; or
- 4, Ridge Top.

The Aspect field is the direction that the slope faces. This observation is coded as follows:

- 0, Flat/None;
- 1, Northeast;
- 2, East;
- 3, Southeast;
- 4, South;
- 5, Southwest;
- 6, West;
- 7, Northwest; or
- 8, North.

The Flame Length refers to the distance between the flame tip and the midpoint of the flame depth at the base of the flame (generally the ground surface) measured in feet.

The chains per hour field is used to record the measurement of forward-spread rate of the fire front (a “chain” is equivalent to 66 feet, or approximately 1 foot per minute).

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## SUMMARY

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Use the optional Wildland Fire Module to document reportable wildland fires. A reportable fire is generally any wildland fire involving vegetative fuels that occurs in the wildland or urban-wildland interface areas. This includes fires that threaten or consume structures.

It permits wildland fires to be profiled in depth for resource allocation, incident management, and fire impact analysis. Aggregated data on wildland fires will provide information that can be used by policy-makers for developing codes and standards, zoning ordinances, and forest management plans.



## EXAMPLE: Grass and Brush Fire

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**Directions:** Read the call information in the example below. Then look at the completed Wildland Fire Module form. Look at each section and follow along with the proper use of the information as applicable to the Wildland Fire Module.

On January 1, 2002, at 1550 hours, Fire Department FDID #TR100, Station #001, was called to a grass and brush fire (Incident #0200001) at several vacant fields and a small (1/2 acre) cornfield, located at the intersection of a rural road with State Highway 162 just north of an apartment complex at the northern edge of Oklahoma City, OK.

The temperature was 75 °F, the humidity only 5 percent, and there were scattered clouds. The wind was brisk, from the northeast at 15 to 20 miles per hour. There were two structures in the immediate area: a dwelling and a barn at the southwest corner of the cornfield that was burning. Engines 2, 3, and 4 arrived at the scene at 1605 hours. The fire was moving rapidly toward the southwest and was about 1/2 mile from the exposed structures.

The fire service personnel set up a defensive line with ample water and prevented the fire from spreading. The exposed structures were protected. There were no victims. About 2.5 acres were burned completely, including the corn crop. The cause of the fire seems to be a discarded cigarette thrown into the annual grasses from Highway 162.



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## EXERCISE SCENARIO 8-1: Brush Fire Incident

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**Directions:** Read the call information in the exercise below. Use the information provided to complete the Wildland Fire Module form. Compare your work to the answers provided on the completed Wildland Fire Module form. If your answers are different from the ones provided, read over the Wildland Fire Module again.

At 1000 hours Saturday, June 27, 1998, a Type 2 engine carrying three personnel was dispatched to a brush fire threatening homes in Carlyle Canyon, CA. The location given was the SE 1/4 of the NE 1/4 of Section 34, Township 7N, Range 12W, San Bernardino (S.B.) Meridian. The weather at 1000 hours was 78 °F, 29 percent relative humidity, winds from the southwest at 6 m.p.h. and clear skies. Fuel moisture is estimated at 9 percent.

The fire was started adjacent to a hiking trail in the canyon bottom at an elevation of 1,250 feet. It was estimated at 2 acres in size at arrival at 1040 hours. There was no vehicle access into the canyon. The fire was a slope-driven one, with relatively slow spread (estimated at 127 chains per hour) with an average horizontal flame length of 12 feet. The fuel bed was medium to heavy brush (Fuel Model F) with good continuity. The canyon slope was 50 percent. The fire, on the lower, northwest side of the slope was approximately 3/4 of a mile away from the closest structure.

In addition to the initial unit and crew members, four other Type 2 engines (each with a crew of three) were dispatched to the fire. A chief officer was responding, but was not on scene until 1200 hours. Two Type 1 air tankers were available on request, both 20 minutes away.

A total of five structures were fueled by this fire. By the time the fire was brought under control (confined) at 1800 hours, it had burned 300 acres and destroyed two structures. The estimated property loss was \$300,000 of which \$50,000 was the contents of the two structures. There were no injuries or deaths associated with this fire.

After the fire, it was determined that a 20-year-old male hiker started the fire by carelessly discarding a cigarette into the dry brush. The fire started 5 feet away from the hiking trail in the canyon bottom on country open space property. Seventy percent of the acreage burned was privately owned, the rest was county owned. The scene cleared at 0800 hours Sunday, June 28th. FDID #TR100, San Bernardino, CA, County Fire Department, Station 106, Incident #9805210.

<b>A</b> <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="display: flex; gap: 10px;"> <div style="text-align: center;">FDID <input type="text"/></div> <div style="text-align: center;">State <input type="text"/></div> <div style="text-align: center;">Incident Date <input type="text"/></div> <div style="text-align: center;">Station <input type="text"/></div> <div style="text-align: center;">Incident Number <input type="text"/></div> <div style="text-align: center;">Exposure <input type="text"/></div> </div> <div style="text-align: right;"> <input type="checkbox"/> Delete  <input type="checkbox"/> Change             </div> </div>		<b>NFIRS-8 Wildland Fire</b>
<b>B Alternate Location Specification</b> Enter Latitude/Longitude OR Township/Range/Section/Subsection Meridian if Section B on the Basic Module is not completed  <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <input type="text"/>. <input type="text"/>. <input type="text"/> Latitude                 </div> <div style="text-align: center;"> <input type="text"/>. <input type="text"/>. <input type="text"/> Longitude                 </div> </div> <p style="text-align: center; font-weight: bold;">OR</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <input type="text"/>. <input type="text"/> Township                 </div> <div style="text-align: center;"> <input type="text"/>. <input type="text"/> Range                 </div> <div style="text-align: center;"> <input type="text"/>. <input type="text"/> Section                 </div> <div style="text-align: center;"> <input type="text"/>. <input type="text"/> Subsection                 </div> <div style="text-align: center;"> <input type="text"/>. <input type="text"/> Meridian                 </div> </div>	<b>D1 Wildland Fire Cause</b> ☆ 1 <input type="checkbox"/> Natural source 2 <input type="checkbox"/> Equipment 3 <input type="checkbox"/> Smoking 4 <input type="checkbox"/> Open/outdoor fire 5 <input type="checkbox"/> Debris/vegetation burn 6 <input type="checkbox"/> Structure (exposure) 7 <input type="checkbox"/> Incendiary 8 <input type="checkbox"/> Misuse of fire 0 <input type="checkbox"/> Other U <input type="checkbox"/> Undetermined	<b>D3 Factors Contributing to Ignition</b> <input type="checkbox"/> None #1 <input type="text"/> #2 <input type="text"/> <b>D4 Fire Suppression Factors</b> <input type="checkbox"/> None #1 <input type="text"/> #2 <input type="text"/> #3 <input type="text"/> Enter up to three factors
<b>C Area Type</b> ☆ 1 <input type="checkbox"/> Rural, farms >50 acres 2 <input type="checkbox"/> Urban (heavily populated) 3 <input type="checkbox"/> Rural/urban or suburban 4 <input type="checkbox"/> Urban-wildland interface area	<b>D2 Human Factors Contributing to Ignition</b> <input type="checkbox"/> None Check as many boxes as are applicable. 1 <input type="checkbox"/> Asleep 2 <input type="checkbox"/> Possibly impaired by alcohol or drugs 3 <input type="checkbox"/> Unattended person 4 <input type="checkbox"/> Possibly mentally disabled 5 <input type="checkbox"/> Physically disabled 6 <input type="checkbox"/> Multiple persons involved 7 <input type="checkbox"/> Age was a factor	<b>E Heat Source</b> <input type="checkbox"/> None <input type="text"/> <b>F Mobile Property Type</b> <input type="text"/> <b>G Equipment Involved in Ignition</b> <input type="checkbox"/> None <input type="text"/>
<b>H Weather Information</b> <input type="text"/> NFDRS Weather Station ID  <input type="text"/> Weather Type <input type="text"/> Wind Direction  <input type="text"/> Wind Speed (mph) <input type="text"/> F° Air Temperature <input type="checkbox"/> Check if negative  <input type="text"/> % Relative Humidity <input type="text"/> % Fuel Moisture <input type="text"/> Fire Danger Rating	<b>I1 Number of Buildings Ignited</b> <input type="checkbox"/> None <input type="text"/> Number of buildings that were ignited in Wildland fire  <b>I2 Number of Buildings Threatened</b> <input type="checkbox"/> None <input type="text"/> Number of buildings that were threatened by Wildland fire but were not involved  <b>I3 Total Acres Burned</b> ☆ <input type="text"/> , <input type="text"/> , <input type="text"/> . <input type="text"/>	<b>I4 Primary Crops Burned</b> Identify up to 3 crops if any crops were burned  <input type="text"/> Crop 1  <input type="text"/> Crop 2  <input type="text"/> Crop 3
<b>J Property Management</b> Indicate the percent of the total acres burned for each ownership type then check the ONE box to identify the property ownership at the origin of the fire. If the ownership at origin is Federal, enter the Federal Agency Code.  Ownership      % Total Acres Burned ↓      ↓ U <input type="checkbox"/> Undetermined <input type="text"/> %  <b>Private</b> 1 <input type="checkbox"/> Tax paying <input type="text"/> % 2 <input type="checkbox"/> Non-tax paying <input type="text"/> %  <b>Public</b> 3 <input type="checkbox"/> City, town, village, local <input type="text"/> % 4 <input type="checkbox"/> County or parish <input type="text"/> % 5 <input type="checkbox"/> State or province <input type="text"/> % 6 <input type="checkbox"/> Federal <input type="text"/> % Federal Agency Code 7 <input type="checkbox"/> Foreign <input type="text"/> % 8 <input type="checkbox"/> Military <input type="text"/> % 0 <input type="checkbox"/> Other <input type="text"/> %	<b>K NFDRS Fuel Model at Origin</b> Enter the code and the descriptor corresponding to the NFDRS Fuel Model at Origin <input type="text"/>	<b>M Type of Right-of-Way</b> <input type="checkbox"/> None Required if less than 100 feet <input type="text"/> Feet <input type="text"/> Type of right-of-way Horizontal distance from right-of-way
<b>L1 Person Responsible for Fire</b> 1 <input type="checkbox"/> Identified person caused fire 2 <input type="checkbox"/> Unidentified person caused fire 3 <input type="checkbox"/> Fire not caused by person If person identified, complete the rest of Section L  <b>L2 Gender of Person Involved</b> 1 <input type="checkbox"/> Male 2 <input type="checkbox"/> Female  <b>L3 Age or Date of Birth</b> Age in Years      Date of Birth <input type="text"/> OR <input type="text"/> / <input type="text"/> / <input type="text"/> Month      Day      Year  <b>L4 Activity of Person Involved</b> <input type="text"/> Activity of Person Involved	<b>N Fire Behavior</b> These optional descriptors refer to observations made at the point of initial attack  <input type="text"/> Feet Elevation  <input type="text"/> Relative position on slope  <input type="text"/> Aspect  <input type="text"/> Feet Flame length  <input type="text"/> Chains per Hour Rate of spread	



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## EXERCISE SCENARIO 8-2: Vehicle Fire on I-95

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**Directions:** Read the call information in the exercise below. Use the information provided to complete the entire Wildland Fire Module form and other required forms. Compare your work to the answers provided in Appendix A. If your answers are different from the ones provided, read over the Wildland Fire Module again.

The Alberta Fire Department (FDID #92188) received a call for a grass fire on I-95 near mile marker 73 and Exit 2B in Brunswick, Virginia 23351, on May 3, 2005. The dispatcher assigned the incident (#5455) to Engine Co. 2 from Shift C. The unit received the alarm at 11:58 p.m. and arrived at the scene in 6 minutes with a four-person engine crew. Mr. Robert L. Anderson (49 years old) was driving to Emporia, Virginia, to return his son, Joseph, to his mother. Mr. Anderson lives at 1630 Second Avenue, Jarrett, North Carolina 24501. His telephone number is 555-432-0987. He said that he and his son stopped in a rest/picnic area to have a little dinner. They started a fire in a grill at the rest area. Mr. Anderson stated that it got windy and sparks blew into the grass and a grass fire resulted. The Virginia Department of Transportation owns the property at latitude 37.55 degrees north and longitude 77.44 degrees west. The area is rural. It was a clear night, with a wind speed of 10 m.p.h. from the east, 62 °F, and 70 percent relative humidity. The fuel moisture reading was 15 percent with a fire danger rating of moderate. The 1-acre fire was extinguished by the four-person engine crew. There was no dollar loss to the property. The crew brought the fire under control at 12:40 a.m. The last unit cleared the incident at 1:05 a.m. Michael Harris, FF2 Badge No. 123, completed the report. Captain Ernest Greene was the Officer in Charge of the incident.

<b>A</b> FDID <input type="text"/> State <input type="text"/> Incident Date MM <input type="text"/> DD <input type="text"/> YYYY <input type="text"/> Station <input type="text"/> Incident Number <input type="text"/> Exposure <input type="text"/>		<input type="checkbox"/> Delete <input type="checkbox"/> Change <input type="checkbox"/> No Activity	<b>NFIRS-1 Basic</b>
<b>B Location Type</b> <input type="checkbox"/> Check this box to indicate that the address for this incident is provided on the Wildland Fire Module in Section B, "Alternative Location Specification." Use only for wildland fires.			
<input type="checkbox"/> Street address <input type="checkbox"/> Intersection <input type="checkbox"/> In front of <input type="checkbox"/> Rear of <input type="checkbox"/> Adjacent to <input type="checkbox"/> Directions <input type="checkbox"/> US National Grid			
Census Tract <input type="text"/> - <input type="text"/> Number/Milepost <input type="text"/> Prefix <input type="text"/> Street or Highway <input type="text"/> Street Type <input type="text"/> Suffix <input type="text"/> Apt./Suite/Room <input type="text"/> City <input type="text"/> State <input type="text"/> ZIP Code <input type="text"/>			
Cross Street, Directions or National Grid, as applicable			
<b>C Incident Type</b> <input type="text"/>		<b>E1 Dates and Times</b> Midnight is 0000 Month <input type="text"/> Day <input type="text"/> Year <input type="text"/> Hour <input type="text"/> Min <input type="text"/>	
<b>D Aid Given or Received</b> <input type="checkbox"/> None		Check boxes if dates are the same as Alarm Date. <b>Alarm</b> <input type="checkbox"/> <b>Arrival</b> <input type="checkbox"/> <b>Controlled</b> <input type="checkbox"/> <b>Last Unit Cleared</b> <input type="checkbox"/>	
1 <input type="checkbox"/> Mutual aid received 2 <input type="checkbox"/> Auto. aid received 3 <input type="checkbox"/> Mutual aid given 4 <input type="checkbox"/> Auto. aid given 5 <input type="checkbox"/> Other aid given		ARRIVAL required, unless canceled or did not arrive CONTROLLED optional, except for wildland fires LAST UNIT CLEARED, required except for wildland fires	
Their FDID <input type="text"/> Their State <input type="text"/> Their Incident Number <input type="text"/>		<b>E2 Shifts and Alarms</b> Local Option Shift or Platoon <input type="text"/> Alarms <input type="text"/> District <input type="text"/>	
Their Incident Number <input type="text"/>		<b>E3 Special Studies</b> Local Option Special Study ID# <input type="text"/> Special Study Value <input type="text"/>	
<b>F Actions Taken</b>		<b>G1 Resources</b>	
Primary Action Taken (1) <input type="text"/> Additional Action Taken (2) <input type="text"/> Additional Action Taken (3) <input type="text"/>		<input type="checkbox"/> Check this box and skip this block if an Apparatus or Personnel Module is used. Apparatus <input type="text"/> Personnel <input type="text"/> Suppression <input type="text"/> EMS <input type="text"/> Other <input type="text"/>	
Check box if resource counts include aid received resources.		<b>G2 Estimated Dollar Losses and Values</b>	
Property \$ <input type="text"/> ; <input type="text"/> ; <input type="text"/> <input type="checkbox"/> None Contents \$ <input type="text"/> ; <input type="text"/> ; <input type="text"/> <input type="checkbox"/>		Required for all fires if known. Optional for non-fires.	
PRE-INCIDENT VALUE: Optional Property \$ <input type="text"/> ; <input type="text"/> ; <input type="text"/> <input type="checkbox"/> Contents \$ <input type="text"/> ; <input type="text"/> ; <input type="text"/> <input type="checkbox"/>		None	
<b>Completed Modules</b>		<b>H1 Casualties</b> <input type="checkbox"/> None	
<input type="checkbox"/> Fire-2 <input type="checkbox"/> Structure Fire-3 <input type="checkbox"/> Civilian Fire Cas.-4 <input type="checkbox"/> Fire Service Cas.-5 <input type="checkbox"/> EMS-6 <input type="checkbox"/> HazMat-7 <input type="checkbox"/> Wildland Fire-8 <input type="checkbox"/> Apparatus-9 <input type="checkbox"/> Personnel-10 <input type="checkbox"/> Arson-11		Deaths <input type="text"/> Injuries <input type="text"/> Fire Service <input type="text"/> <input type="text"/> Civilian <input type="text"/> <input type="text"/>	
<b>H2 Detector</b> Required for confined fires. 1 <input type="checkbox"/> Detector alerted occupants 2 <input type="checkbox"/> Detector did not alert them U <input type="checkbox"/> Unknown		<b>H3 Hazardous Materials Release</b> <input type="checkbox"/> None	
1 <input type="checkbox"/> Natural gas: slow leak, no evacuation or HazMat actions 2 <input type="checkbox"/> Propane gas: <21-lb tank (as in home BBQ grill) 3 <input type="checkbox"/> Gasoline: vehicle fuel tank or portable container 4 <input type="checkbox"/> Kerosene: fuel burning equipment or portable storage 5 <input type="checkbox"/> Diesel fuel/fuel oil: vehicle fuel tank or portable storage 6 <input type="checkbox"/> Household solvents: home/office spill, cleanup only 7 <input type="checkbox"/> Motor oil: from engine or portable container 8 <input type="checkbox"/> Paint: from paint cans totaling <55 gallons 0 <input type="checkbox"/> Other: special HazMat actions required or spill > 55 gal (Please complete the HazMat form.)		<b>I Mixed Use Property</b> <input type="checkbox"/> Not mixed	
10 <input type="checkbox"/> Assembly use 20 <input type="checkbox"/> Education use 33 <input type="checkbox"/> Medical use 40 <input type="checkbox"/> Residential use 51 <input type="checkbox"/> Row of stores 53 <input type="checkbox"/> Enclosed mall 58 <input type="checkbox"/> Business & residential 59 <input type="checkbox"/> Office use 60 <input type="checkbox"/> Industrial use 63 <input type="checkbox"/> Military use 65 <input type="checkbox"/> Farm use 00 <input type="checkbox"/> Other mixed use		341 <input type="checkbox"/> Clinic, clinic-type infirmary 342 <input type="checkbox"/> Doctor/dentist office 361 <input type="checkbox"/> Prison or jail, not juvenile 419 <input type="checkbox"/> 1- or 2-family dwelling 429 <input type="checkbox"/> Multifamily dwelling 439 <input type="checkbox"/> Rooming/boarding house 449 <input type="checkbox"/> Commercial hotel or motel 459 <input type="checkbox"/> Residential, board and care 464 <input type="checkbox"/> Dormitory/barracks 519 <input type="checkbox"/> Food and beverage sales 539 <input type="checkbox"/> Household goods, sales, repairs 571 <input type="checkbox"/> Gas or service station 579 <input type="checkbox"/> Motor vehicle/boat sales/repairs 599 <input type="checkbox"/> Business office 615 <input type="checkbox"/> Electric-generating plant 629 <input type="checkbox"/> Laboratory/science laboratory 700 <input type="checkbox"/> Manufacturing plant 819 <input type="checkbox"/> Livestock/poultry storage (barn) 882 <input type="checkbox"/> Non-residential parking garage 891 <input type="checkbox"/> Warehouse 936 <input type="checkbox"/> Vacant lot 938 <input type="checkbox"/> Graded/cared for plot of land 946 <input type="checkbox"/> Lake, river, stream 951 <input type="checkbox"/> Railroad right-of-way 960 <input type="checkbox"/> Other street 961 <input type="checkbox"/> Highway/divided highway 962 <input type="checkbox"/> Residential street/driveway 981 <input type="checkbox"/> Construction site 984 <input type="checkbox"/> Industrial plant yard	
<b>J Property Use</b> <input type="checkbox"/> None		Look up and enter a Property Use code and description only if you have NOT checked a Property Use box.	
Structures 131 <input type="checkbox"/> Church, place of worship 161 <input type="checkbox"/> Restaurant or cafeteria 162 <input type="checkbox"/> Bar/tavern or nightclub 213 <input type="checkbox"/> Elementary school, kindergarten 215 <input type="checkbox"/> High school, junior high 241 <input type="checkbox"/> College, adult education 311 <input type="checkbox"/> Nursing home 331 <input type="checkbox"/> Hospital		Property Use <input type="text"/> Code <input type="text"/>	
Outside 124 <input type="checkbox"/> Playground or park 655 <input type="checkbox"/> Crops or orchard 669 <input type="checkbox"/> Forest (timberland) 807 <input type="checkbox"/> Outdoor storage area 919 <input type="checkbox"/> Dump or sanitary landfill 931 <input type="checkbox"/> Open land or field		NFIRS-1 Revision 01/01/05	







## Wildland Fire Module Test

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1. Which statement is not correct? The Wildland Fire Module captures data about
  - (a) the number of acres burned and the type of materials involved in wildland fires.
  - (b) conditions that contribute to the ignition and spread of wildland fires.
  - (c) the resources needed to control or extinguish wildland fires.
  - (d) actions needed to prevent unauthorized access to wildland properties.
  
2. Controlled Burning and Prescribed Fire have the following in common.
  - (a) A written, approved fire plan existed prior to ignition.
  - (b) Nonhostile fires.
  - (c) Presume that Environmental Protection Agency (EPA) requirements are met prior to ignition.
  - (d) Managed by the property owner.
  
3. Which data element is **not** an example of weather information collected on the Wildland Fire Module?
  - (a) Weather Type.
  - (b) Elevation.
  - (c) Relative Humidity.
  - (d) Fire Danger Rating.
  
4. Which data element is **not** an example of fire behavior collected on the Wildland Fire Module?
  - (a) NFDRS Fuel Model.
  - (b) Elevation.
  - (c) Relative Position on Slope.
  - (d) Rate of Spread.
  
5. Which data element allows the documentation of the topographical features and fire characteristics that contributed to the fire performance?
  - (a) Factors Contributing to Ignition.
  - (b) Weather Information.
  - (c) Fire Behavior.
  - (d) Property Management.