

## **LOCATION**

**8611**

(1987)

All of the hard work that goes into detecting smokes is of little value unless the lookout can quickly and accurately locate them.

## **METHODS OF LOCATION**

**8611.1**

(1987)

## **FIREFINDER**

**8611.1.1**

(1987)

When the lookout detects a smoke, a directional reading and distance estimate are immediately taken on the firefinder.

- Directional reading (azimuth or horizontal angle) - While watching the object to be sighted, grasp the firefinder by the vertical sighting-ring post. (Do not move the sighting ring by grasping the front or rear sights, as this may put the sights out of adjustment.) When the firefinder is in about the right position, look through the rear slot sight until the object sighted is covered by the vertical hair of the front sight. If an obstruction to the view is encountered, slide the firefinder forward or backward on the tracks. If the obstruction still cannot be dodged, change the position of the whole instrument to the other set of tracks. This will not disturb the orientation or adjustment of the firefinder.

When the instrument is correctly sighted with the vertical hair and rear sight slot in line with the object, read the graduations on the circle to the nearest division. This will be thirty minutes, or one-half degree on most instruments. A preliminary reading is thus obtained, such as 172-1/2 degrees.

Most instruments have a guard which prevents the operator from reading backwards. Always be sure that you are reading the graduations in a clockwise direction when taking a directional reading.

It is important to be as accurate as possible when locating a smoke; however there are some limitations. When taking directional readings, keep in mind that the ECC officer who will be plotting the reading on the ECC map will probably not be able to accurately distinguish less than one-half degree. Therefore it is usually not necessary to take additional time to distinguish between 172-1/2 degrees, and 172 degrees, 42 minutes. If it is important for the ECC to distinguish this difference, the lookout will be asked. (See [8652.2](#) for details.)

- Distance - With the firefinder sighted on the object or smoke, look straight down on the steel tape which is stretched across the center of the instrument. This will define on the map the exact line along which the sights are trained. The plotted position of the smoke must be somewhere on this line. By studying the topography along the line of sight, it will be observed that the smoke is beyond certain known ridges or streams and that other streams or ridges lie beyond the smoke. The observer can usually determine very closely where the smoke should be plotted. Mark this point on your instrument map. Measure the distance to the smoke by reading from the graduations on the steel tape, and convert it into miles in accordance with the scale of the map used.

To prevent error in distance measurement, be certain the scale of your map is known and that the measurement of inches along the tape to the object sighted is exact.

At a map scale of one inch equals two miles, six and a half inches on the map represents thirteen miles ( $6\frac{1}{2} \times 2 = 13$ ). This problem can be worked out in a similar manner for all map scales.

With experience and knowledge of the area, a lookout's location skills can become extremely accurate. Always try to be as accurate as possible, but do not be misleadingly precise. The lookout should not identify a smoke as being thirteen and a half miles if it could be eleven or fifteen miles. Maps and terrain can be misleading, and it is sometimes very difficult to pin a smoke down, especially if there are no nearby landmarks. If a lookout is not absolutely sure of the exact location of the smoke, it is better to give a range of possible mileages. For example, "10-12 miles, in the Navarro River drainage," or "approximately 18 miles, on the north side of Highway 20."

When a smoke is coming up behind a major ridge, there is no way for a lookout to give an accurate estimate of distance. Hopefully, another lookout will be able to give a cross-shot reading to help pinpoint it.

At times, the distance estimate is critical--primarily when no cross shot is available, and a difference of one or two miles would substantially affect the access route and time of arrival of ground attack forces. In this case, the ECC will ask for more precise information.

(For another method of determining distance, see [8660](#))

- Recommended location procedure - Upon detection of a smoke, use the firefinder to obtain a directional reading and distance. Quickly double check it and write it down. Check your map for a general location, but don't spend a lot of time here. Report the smoke to the ECC. It is best to give the ECC an appropriate location and get other lookouts focused on the area for a cross shot. You may then proceed to further refine the location and update it later, if appropriate.

## LOCATION AIDS

8611.2

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## MAPS

8611.2.1

(1987)

A good set of maps is absolutely essential for the lookout. They are used to locate and mark smokes as well as to help familiarize the lookout with the surrounding terrain. The lookout map set should include the following maps as a minimum complement:

- Plastic three-dimensional topographic relief maps give a fairly accurate representation of a lookout's area. They are particularly helpful in orienting the lookout to the peaks and ridges that can be seen. Perhaps even more importantly, they make the lookout aware of the vast amount of area that cannot be seen due to intervening ridges.
- A large-scale road map, such as an American Automobile Association (AAA) map which divides the state into large sections, gives the lookout a general idea of roads, cities, and towns near the area.
- Sets of 15-minute and 7-1/2-minute quadrangle maps are essential. The 15-minute quads should cover as much of the lookout's area of responsibility as possible. This scale gives a good overview of geographical features. The 7-1/2-minute quads should cover at least a 10-mile area around the lookout to provide more accurate detail. (See [8670](#) for additional information about topographic maps.)
  - Official CDF administrative maps are useful for their identification of section, townships and ranges which are used to specify "legal" locations. They are also the maps most generally used on the firefinder. These maps come in many different vintages and scales. The largest, one inch to the mile, are the newest but are sometimes too large for the limited space available. The one-half-inch to the mile scale seems to work best. (See [8680](#) for information on legal locations.)
  - Specific maps used by a unit, such as Thomas Brothers or geolock grid maps may be appropriate.
  - Other agency maps can be helpful. U.S. Forest Service maps, Bureau of Land Management maps, state and county park maps, and industry maps are necessary if the added detail they provide would contribute to more accurate smoke locations.

## OTHER LOCATION AIDS

8611.2.2

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Many lookouts around the state have come up with site specific solutions to area familiarization.

Panoramic photographs with prominent features labeled and proper reference lines can be of benefit to both the lookout and the ECC. When the location is identified, the ECC can actually see the same slope and fuel type that the lookout sees.

Hand drawings labeled with topographic features have been hung above the lookout windows in their relative position.

Sight records or charts which relate landmarks to directional and distance readings can tie in legal locations and map references. For example:

| Azimuth | Distance | Landmark    | Legal Location | Quad Map  |
|---------|----------|-------------|----------------|-----------|
| 180     | 8 mi.    | Queens Peak | Sec 7,10N,12W  | Annapolis |
| 180     | 12 mi.   | Jones Barn  | Sec 31,10N,12W | Annapolis |

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