

Understanding Maps

Shasta-Trinity National Forest



There are basically two types of maps which cover the Shasta-Trinity National Forest: 1/2" to the mile Recreation Maps and various scale topographic maps. The Forest Recreation Map shows detail in a flat, two dimensional (planimetric) way. Topographic maps add a third dimension, that of depth, by means of elevational lines known as contour lines that are measured in feet or meters above sea level. Wilderness maps published by the Forest Service are topographic.

Recreation Maps

The most widely used maps are probably the Forest Recreation Maps. These maps, which cover an entire National Forest, show the locations of land features, roads, streams, campgrounds, lakes and trails.

Two kinds of coordinate systems can be found on these maps. The most commonly used system is the township grid. The 36 square mile townships are placed in a grid pattern, using east-west and north-south running base meridians as the main orientation lines. Townships are numbered from north to south and east to west of these base meridians.

North-south orientation is noted in the right hand (east) and left hand (west) margins of the map and indicated thusly: T1N, T1S, etc.

East-west orientation is noted in the top (north) and bottom (south) margins of the map and indicated thusly: R1E, R1W, etc.

The Township grid is further broken down into a system of 36 one square mile sections. These sections are numbered like the example in the next column.

Forest visitors may encounter "location posters" or "K tags." These yellow, metal signs show one's location by section, township and range.

The second coordinate system shown on the Forest Recreation map is longitude and latitude. Longitude is expressed in degrees, minutes and seconds west from Greenwich. Latitude is expressed in the same

R. 6W.						
6	5	4	3	2	1	
7	8	9	10	11	12	
18	17	16	15	14	13	T.
19	20	21	22	23	24	36
30	29	28	27	26	25	N.
31	32	33	34	35	36	
Township Grid						

increments north of the equator. This system is rarely used by the Forest Service. It is, however, the basis of measurement for 7.5 and 15 minute topographic maps. Latitude and Longitude are shown in 7.5 minute increments on Forest Service Recreation Maps.

Topographic Maps

Topographic maps are most commonly referred to as quad maps or "topo" maps. These maps are usually published by the U.S. Geological Survey, although the Forest Service Wilderness Maps are also topographic and cover the entire wilderness area. There are also some private publishers of topographic maps.

The most notable feature of a topo map is the contour lines. Contour lines are thin brown lines which connect points of equal ground elevation. By studying the contour lines one can determine the general shape or form of the land.

The vertical distance between contour lines is known as the contour interval. Most maps have the contour interval printed in the map legend, or immediately under the map scale. Contour line intervals are usually 40 feet for 7.5 minute maps, and 80 feet for 15 minute maps (this can vary with different kinds of terrain).

Like the recreation map, the topo map has the township grid and longitude and latitude noted in the margins. Additionally, the map includes a Universal Transverse Mercator (UTM) grid, which is a metric system rarely used by Forest Visitors.

Using a map and compass

When using a compass, one must understand the angle of declination. This is the angle between magnetic north and true north. The compass needle always points to magnetic north. The difference between magnetic north and true north varies according to your geographic location. In most of California the declination is usually about 15° to 17° east. The accepted rule of thumb on the Shasta-Trinity National Forests is 16.5° east.

Declination is generally printed on the map margin, adjacent to the north arrow. Some maps also include a grid north, or GN notation, showing the map in reference to magnetic or true north.

Several methods are used to compensate for the effects of declination; there are minor advantages to each one, depending upon your personal preference. One method involves projecting parallel magnetic arrows across the map, using these lines for reference each time a compass reading is made. The second method involves use of a compass which has declination setting device built in. The third method involves adding or subtracting the angle of declination each time a compass reading is made.

Traveling by map and compass

This method may be used if your compass does not have a built in declination device:

1. Orient your map to the terrain. Magnetic north arrow on your map should point in the same direction as the magnetic needle on the compass.
2. Place the compass on the map with a long edge of the base plate touching a line between the starting point and the destination. The direction of travel arrow on the compass should be

pointing in the direction of the destination point. Holding the base firmly, rotate the compass housing until the orienting arrow is in line with the north portion of the compass needle.

3. Look in the direction of the arrow (destination of travel). Look for a landmark, as far as the terrain will allow.
4. Travel towards your landmark object, then repeat steps 1 through 4 as required.

Finding location with map and compass

It is possible to find your present location by taking compass readings from your location to various land features (peaks, lakes, gaps or saddles all work well) which you have positively identified. The best method is to take readings of three (3) land features at least 45° apart. Then plot the readings of each individual landmark on the map, in accordance with the declination. The point where all three lines intersect is your location. Location takes, time, practice and patience.

Obtaining maps

Forest Service maps may be purchased from individual forest offices, or from the regional office. You may refer to our National Forest Maps List for availability information.

Refer topographic quadrangle map inquiries to the [U.S. Geological Survey website](http://store.usgs.gov/) (<http://store.usgs.gov/>).

Topographic maps can usually be obtained at local engineering supply stores, or at stores specializing in outdoor recreational equipment.

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