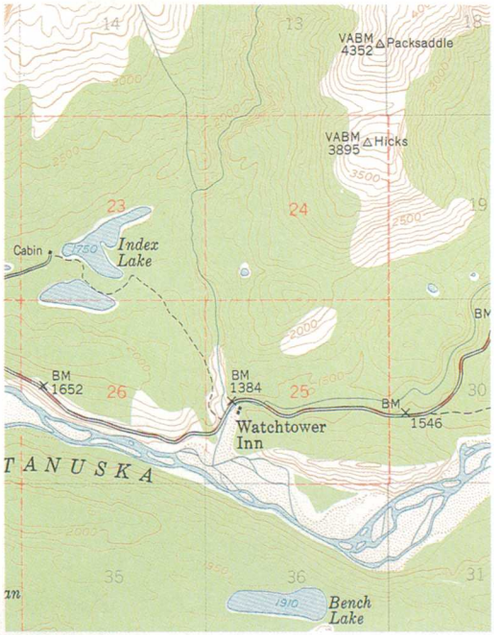


1:63,360 scale

Map Scales

U.S. Department of the Interior
U.S. Geological Survey
Earth Science
Information Center (ESIC)

To be most useful, a map must show locations and distances accurately on a sheet of paper of convenient size. This means that everything included in the map—ground area, distance, rivers, lakes, roads, and so on—must be shown proportionately smaller than it really is. The proportion chosen for a particular map is its scale.

Large Is Small

Simply defined, scale is the relationship between distance on the map and distance on the ground. A map scale might be given in a drawing (a graphic scale), but it usually is given as a fraction or a ratio—1/10,000 or 1:10,000.

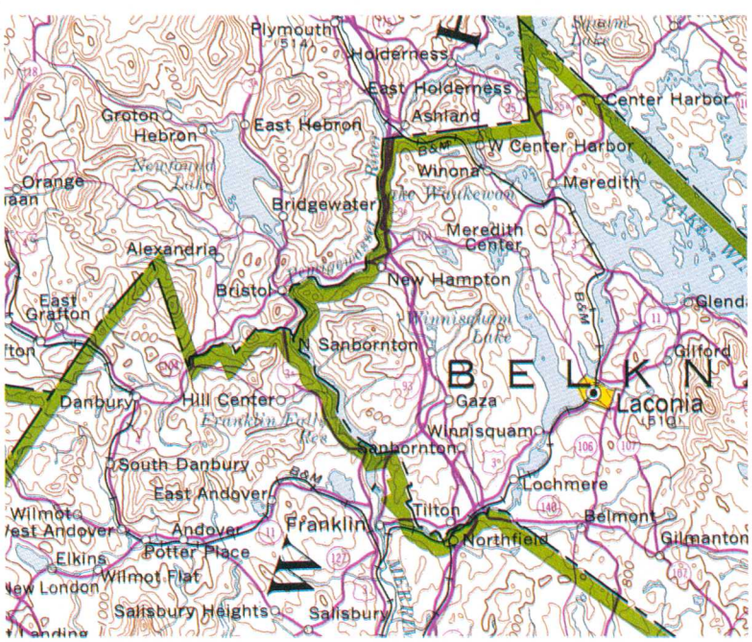
These "representative fraction" scales mean that one unit of measurement on the map—1 inch or 1 centimeter—represents 10,000 of the same units on the ground. If the scale were 1:63,360, for instance, then 1 inch on the map would represent 63,360 inches or 1 mile on the ground (63,360 inches divided by 12 inches = 5,280 feet or 1 mile). The first number (map distance) is always 1. The second number (ground distance) is different for each scale; the larger this second number is, the smaller the scale of the map.

"The larger the number, the smaller the scale" sounds confusing, but it is easy to understand. A map of an area 100 miles long by 100 miles wide drawn at a scale of 1:63,360 would be more than 8 feet square! To make this map a more convenient size, either the scale used or the amount of area included must be reduced.

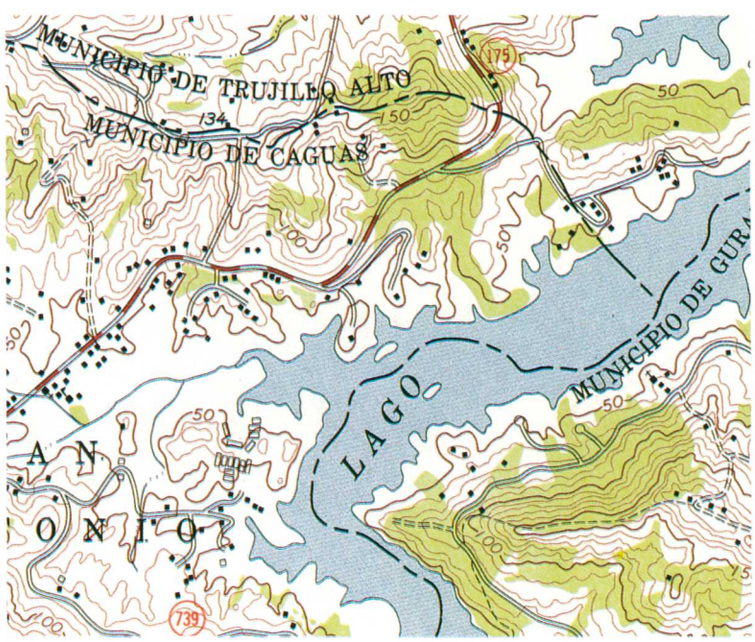
If the scale is reduced to 1:316,800, then 1 inch on the map represents 5 miles on the ground, and an area 100 miles square can be mapped on a sheet less than 2 feet square (100 miles at 5 miles/inch equals 20 inches, or 1.66 feet). On the other hand, if the original 1:63,360 scale is used but the mapped area is reduced to 20 miles square, the resulting map will also be less than 2 feet square.

Such maps would be much handier. But would they be more useful? In the small-scale map (1:316,800), there is less room; therefore, everything must be drawn smaller, and some landmarks must be left out altogether. On the other hand, the larger scale map (1:63,360) permits more detail, but it also covers much less ground.

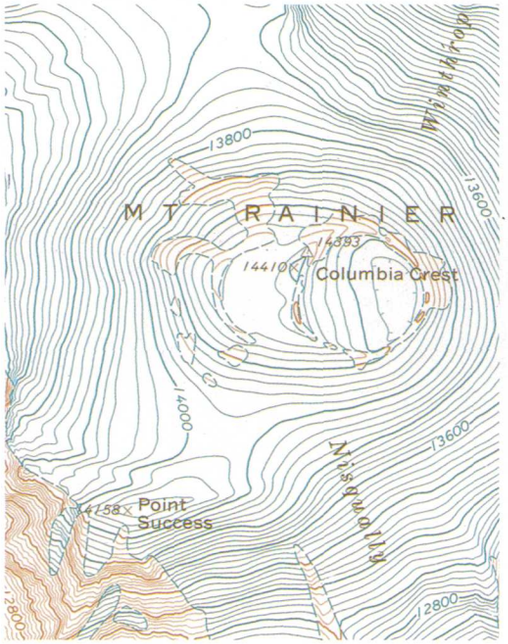
Many areas have been mapped at different scales. When choosing a map—that is, when choosing a scale—the most important consideration is its intended use. A town engineer, for instance, may need a very detailed map in order to precisely locate house lots, power and water lines, and streets and alleys in a community. A commonly used scale for this purpose is 1:600 (1 inch on the map represents 50 feet on the ground). This scale is so large that many features—such as buildings, roads, railroad tracks—that are usually represented on smaller scale maps by symbols can be drawn to scale.



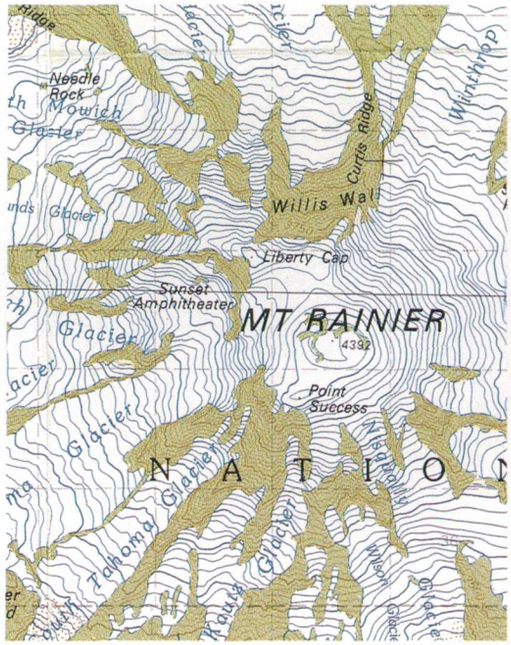
1:500,000 scale



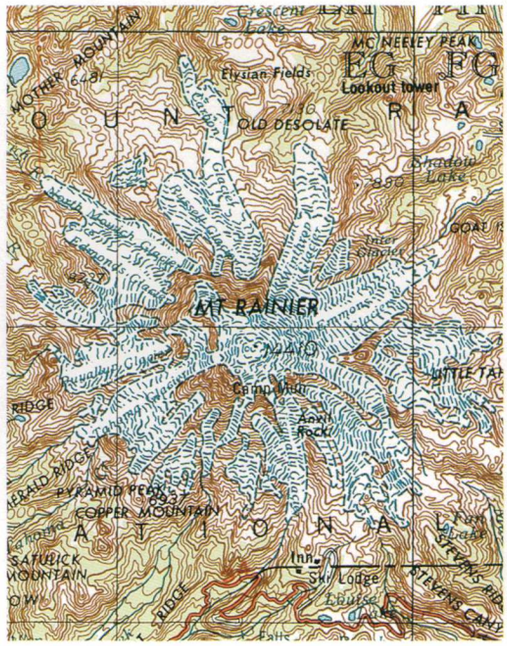
1:20,000 scale



1:24,000 scale



1:100,000 scale



1:250,000 scale

U.S. Geological Survey Scales

The U.S. Geological Survey publishes maps at various scales. The scale used for most U.S. topographic mapping is 1:24,000. Maps published at this scale cover 7.5 minutes of latitude and 7.5 minutes of longitude; they are commonly called "7.5-minute quadrangle" maps. Map coverage for the United States has been completed at this scale, except for Puerto Rico, which is mapped at 1:20,000 and 1:30,000, and a few States that have been mapped at 1:25,000. Most of Alaska has been mapped at 1:63,360, with some populated areas also mapped at 1:24,000 and 1:25,000.

The 1:24,000 scale is fairly large. A map at this scale provides detailed information about the natural and manmade features of an area, including the locations of important buildings and most campgrounds, caves, ski lifts, watermills, and even drive-in theaters. Footbridges, drawbridges, fence lines, private roads, and changes in the number of lanes in a road are also shown at this scale. They would be omitted, usually, from maps in the 1:50,000 to 1:100,000 scale range; these maps cover more area while retaining a reasonable level of detail. Maps at these scales most often use the 15-minute or 30-by-60 minute quadrangle formats.

Small-scale maps (1:250,000 and smaller) show large areas on a single map sheet, but details are limited to major features—boundaries, State parks, airports, major roads, and railroads.

For more information contact any Earth Science Information Center (ESIC) or call 1-800-USA-MAPS

or the following office:

USGS Topographic Maps

Scale	Series	1 inch represents	1 centimeter represents	Standard quadrangle size (latitude-longitude)	Quadrangle area (square miles)
1:20,000	Puerto Rico 7.5 minute	1,667 feet (about)	200 meters	7.5 × 7.5 min.	71
1:24,000	7.5 minute	2,000 feet	240 meters	7.5 × 7.5 min.	49 to 70
1:25,000	7.5 × 15 minute	2,083 feet (about)	250 meters	7.5 × 15 min.	98 to 140
1:50,000	Intermediate	.8 mile (about)	500 meters	NA	county
1:62,500	15 minute	1 mile (about)	625 meters	15 × 15 min.	197 to 282
1:63,360	Alaska 1:63,360	1 mile	634 meters (about)	15 × 20 to 36 min.	207 to 281
1:100,000	Intermediate	1.6 miles (about)	1 kilometer	30 × 60 min.	1,568 to 2,240
1:100,000	Intermediate	1.6 miles (about)	1 kilometer	NA	county
1:125,000	30 minute	2 miles (about)	1.25 kilometers	30 × 30 min.	788 to 1,128
1:250,000	United States	4 miles (about)	2.5 kilometers	1° × 2° or 3°	4,580 to 8,669
1:250,000	Antarctica	4 miles (about)	2.5 kilometers	1° × 3° to 15°	4,089 to 8,336
1:500,000	Antarctica	8 miles (about)	5 kilometers	2° × 7.5°	28,174 to 30,462
1:500,000	State maps	8 miles (about)	5 kilometers	NA	NA
1:1,000,000	United States	16 miles (about)	10 kilometers	4° × 6°	73,734 to 102,759