# FREE USGS MAPS

By Joe Griffith, March 2015

The U. S. Geological Survey provides free PDF files of their topographic maps at The USGS Store, which you can find at http://store.usgs.gov. The USGS has a new series of maps based on aerial photography. Here is the top section of the new Evergreen quadrangle, which is available for free. The older maps are still useful for hiking, so in this demonstration we will download an earlier version from 1994.
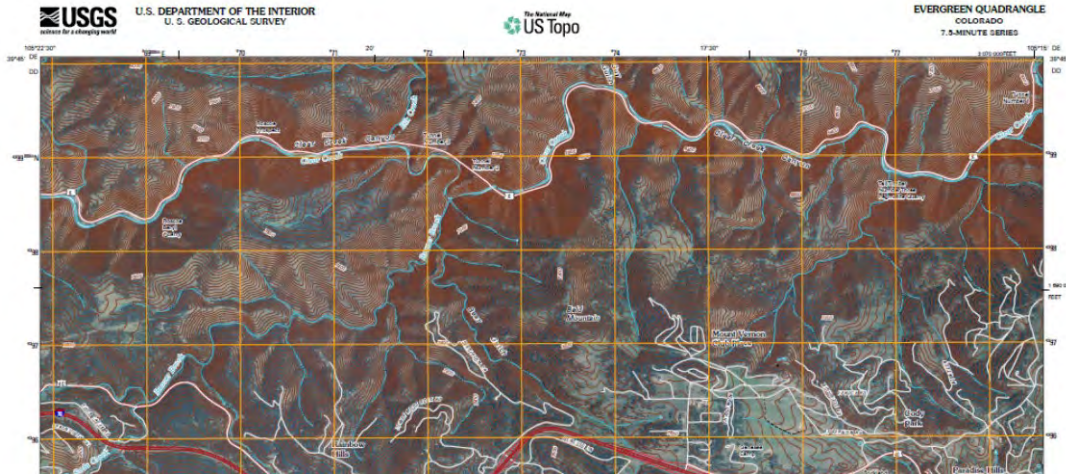

This is the home page of the USGS Store. To find a map, click on the Map Locator & Downloader link, which is in the red oval.
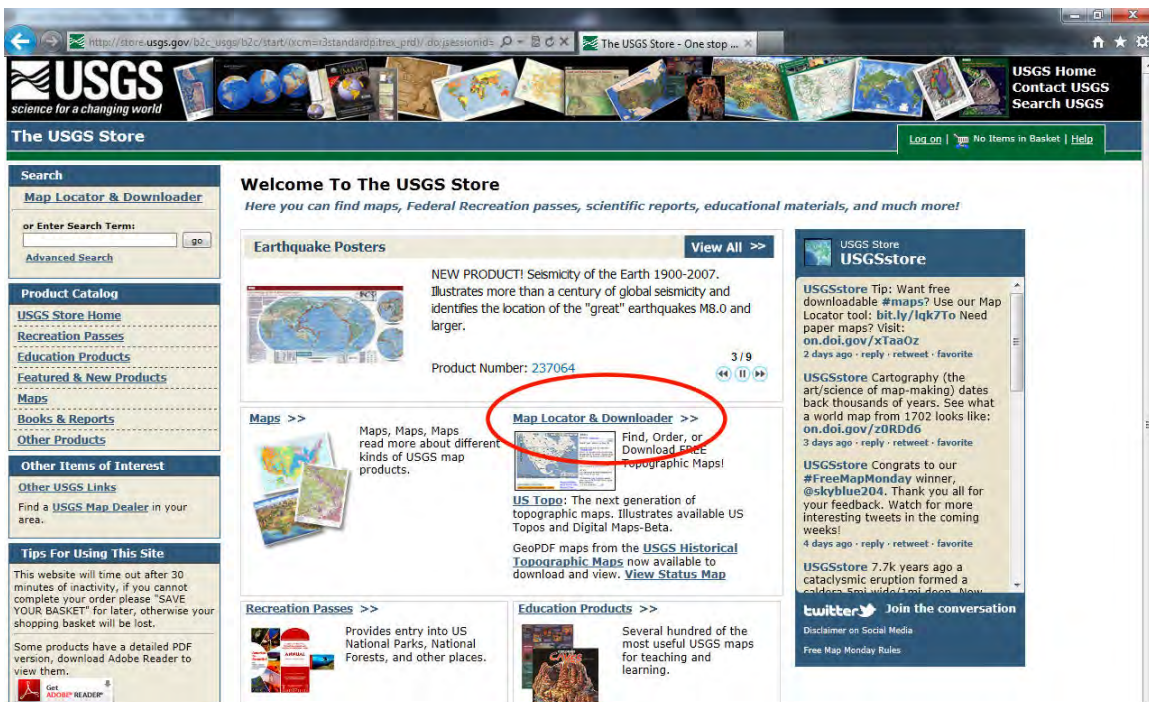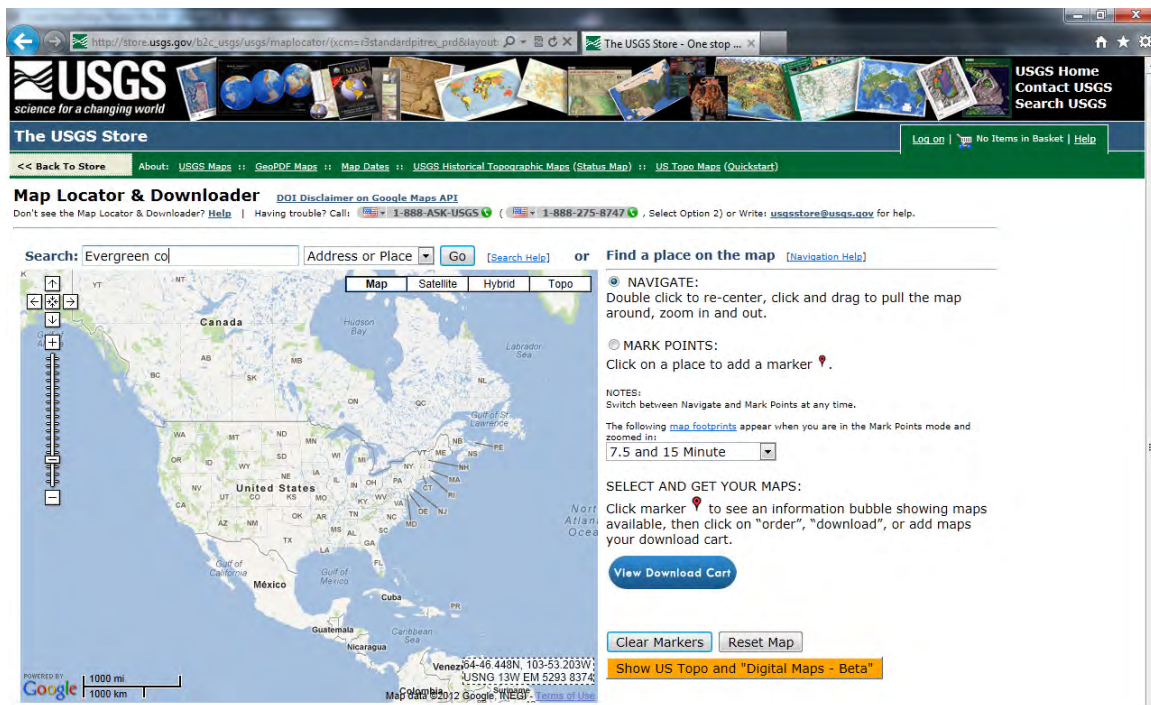
The Map Locator & Downloader page provides a couple of methods for finding the map you want. If you know the name of the quadrangle, the easiest method is to type it into the search box, which is in the red oval. Otherwise, the map below the search box allows you to zoom in to the desired location.
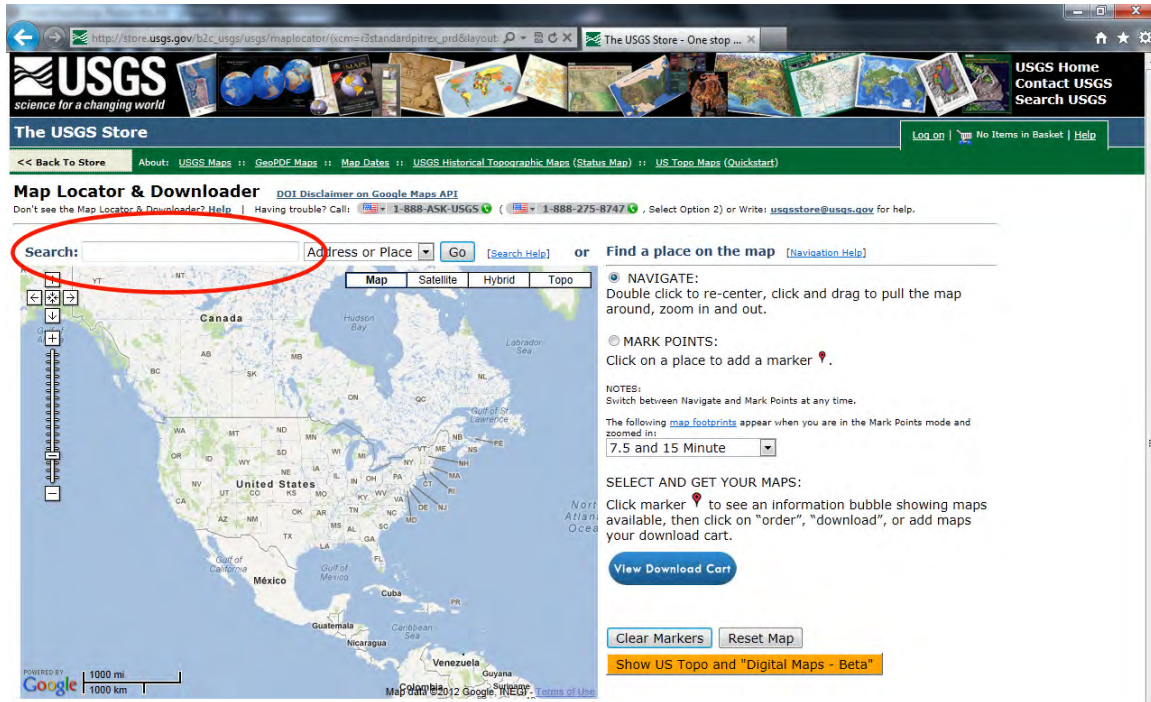

In this case we type "Evergreen co" into the search box.

The Evergreen quadrangle appears on the map, marked with a red balloon. Note that the MARK POINTS button is set on the right. With MARK POINTS active you can select other quads on the map by clicking in the area of the quadrangle.
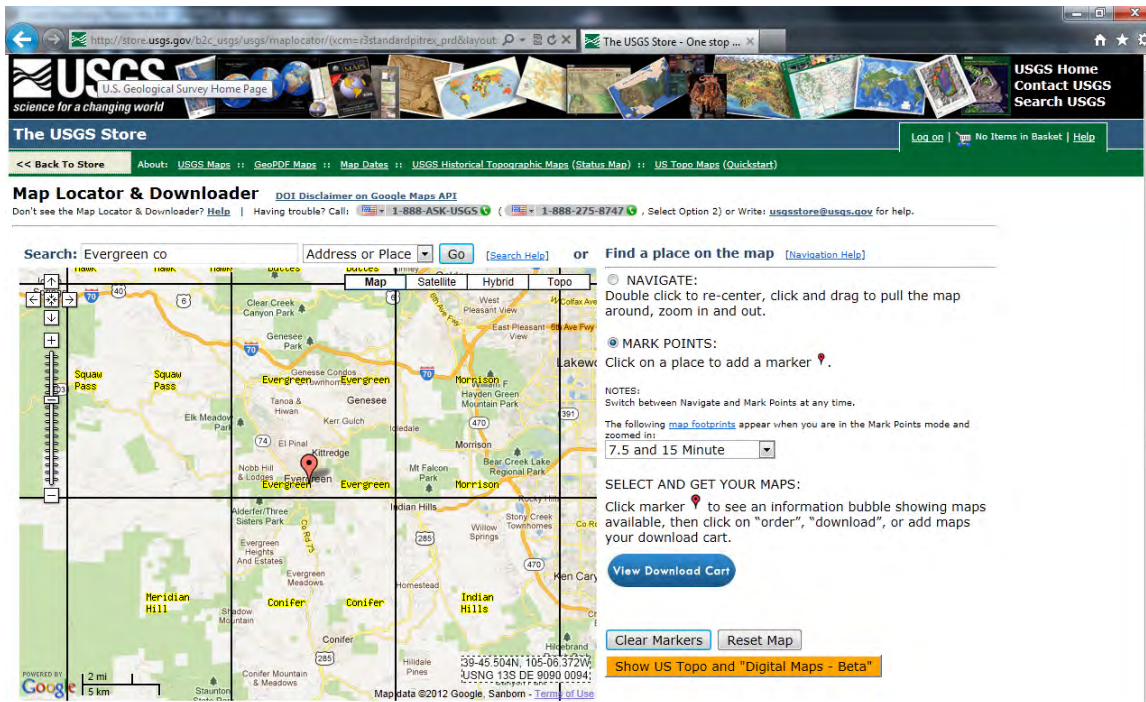
When we click on the red balloon, a box pops up containing a list of Evergreen maps. We want the 1994 7.5x7.5 map that is 15.0Mb in size, so we click on the link in the red oval.
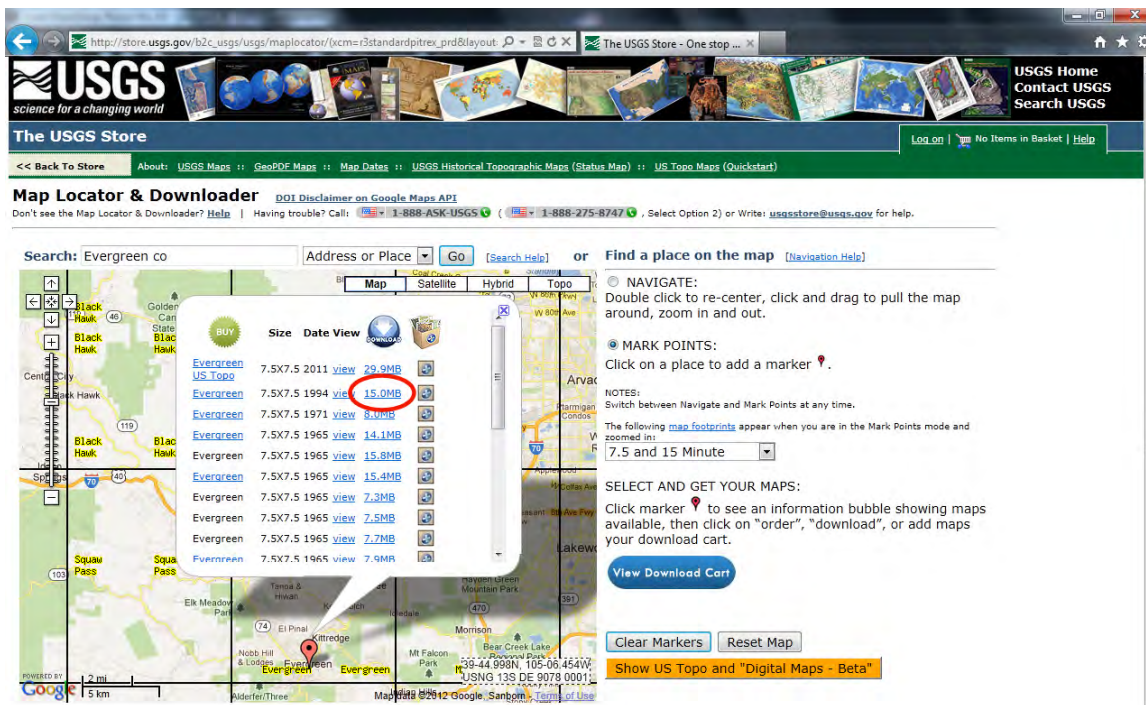
In Internet Explorer a dialog box appears at the bottom asking, "Do you want to open or save gda_5349601.zip from ims.er.usgs.gov?" Other browsers will present something similar. Click Save. If you have a broadband connection the download should take a couple of minutes. Once the download is complete, click Open Folder in the dialog box to find the file. Double clicking on the zip file will bring up a window showing the PDF file, which is in this case CO_Evergreen_232973_1994_24000_geo.pdf.

Open the file with Adobe® Reader®, which is available from adobe.com for free. The most recent version is Adobe Reader X. The map file contains the entire quadrangle, so you can scroll to any part of it. It is a high resolution file, so you can enlarge the view with the "+" or "-" buttons or the pull-down menu to the right of them on the toolbar.
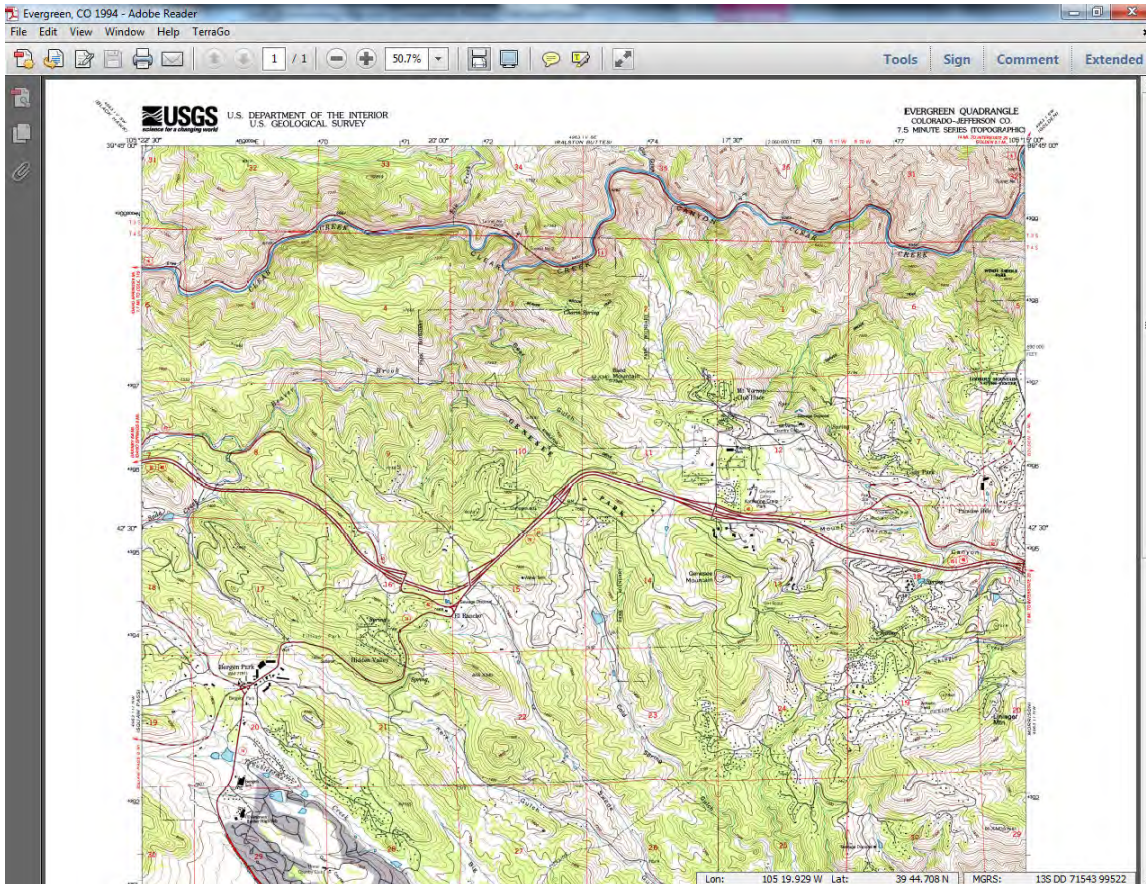
The size of the original paper map is 21 ¾"x27". We want to print a section of this map while preserving the 1:24000 scale. First, we go to the Edit pull-down menu and click Take a Snapshot, which is shown in the red oval.
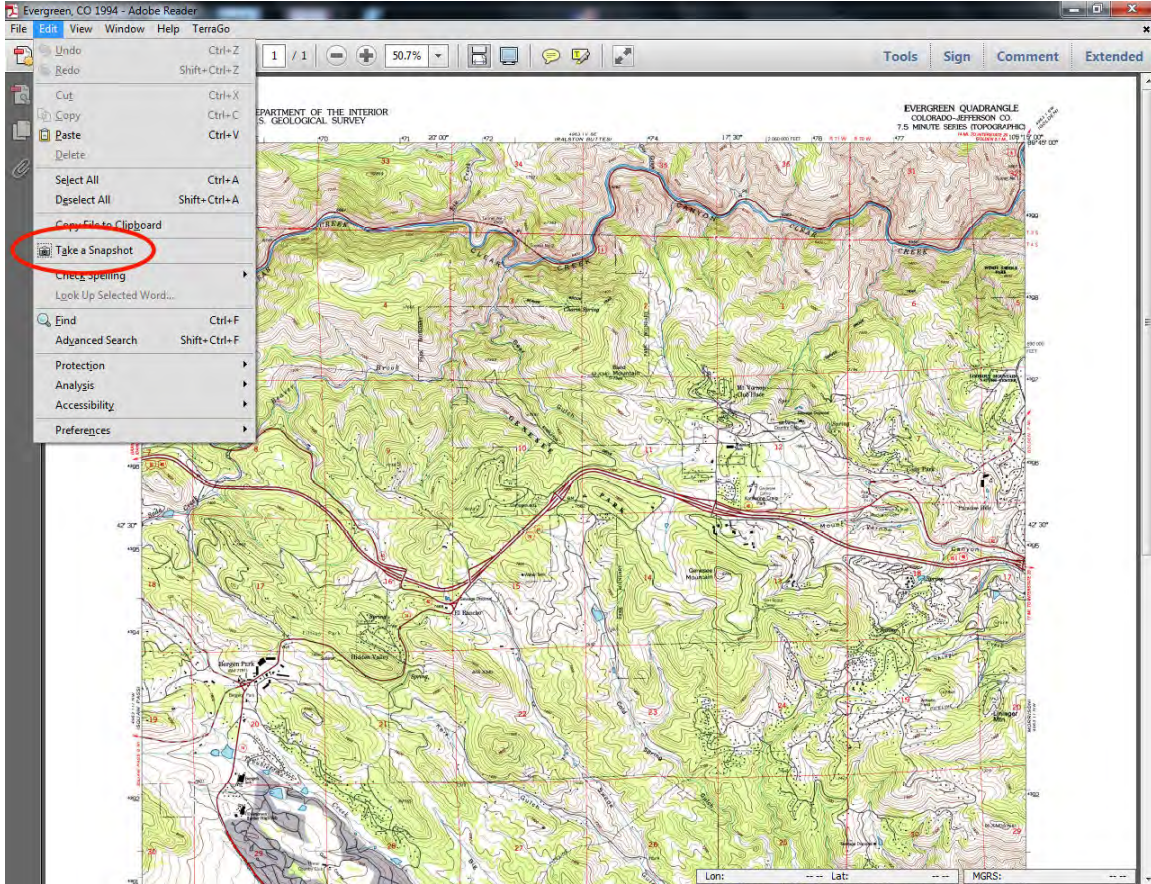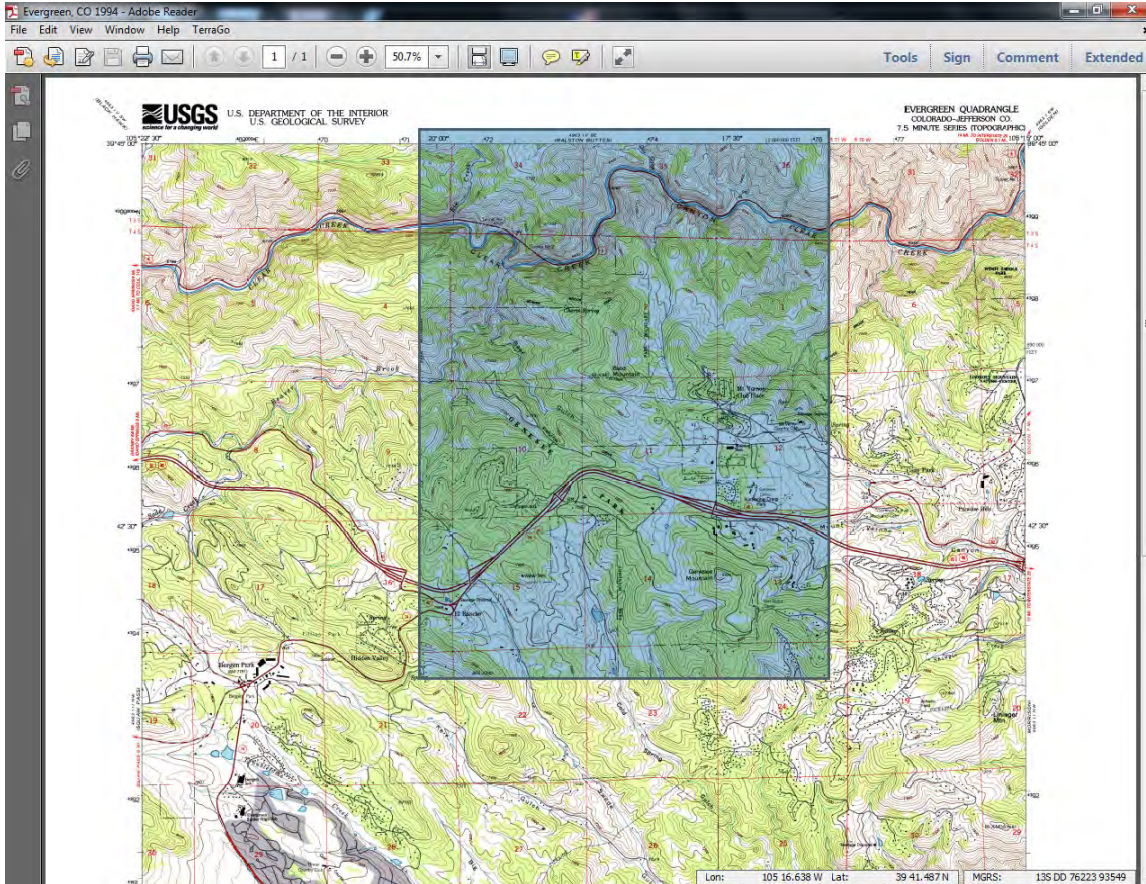
While holding the mouse button down, we drag the cursor across the area that we want to select. The rectangle shaded blue shows the area we have selected, which approximately fits an 8 ½"x11" sheet.

We want to print this area, so we bring up the Print dialog by clicking on the printer icon on the toolbar, by clicking on File->Print, or by typing ctrl-P. To preserve the map scale it is important that the Size Option "Actual size" be chosen. The button for it is shown in the red oval. The edges will be automatically cropped if the selected area is larger than the paper size. To adjust the print quality, click on the Properties button at the top of the dialog. If you want a map that will resist the rain, National Geographic's Adventure Paper™ is a waterproof material for use with inkjet printers. It is not suitable for laser printers.
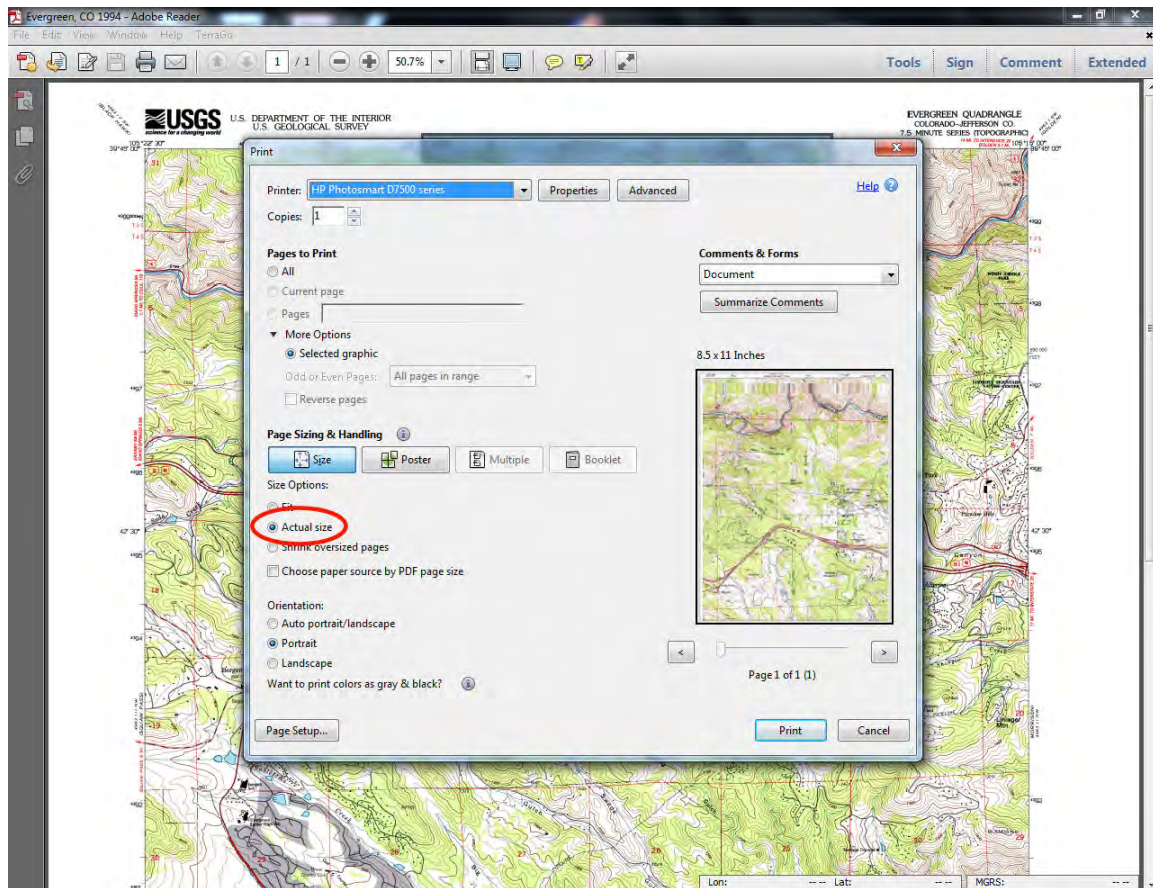
In this case the printed page should look like this, filling an 8 ½"x11" page with a copy of the selected section. Choosing "Actual size" in the Print dialog assures that the printout will be a 1:24000 map.
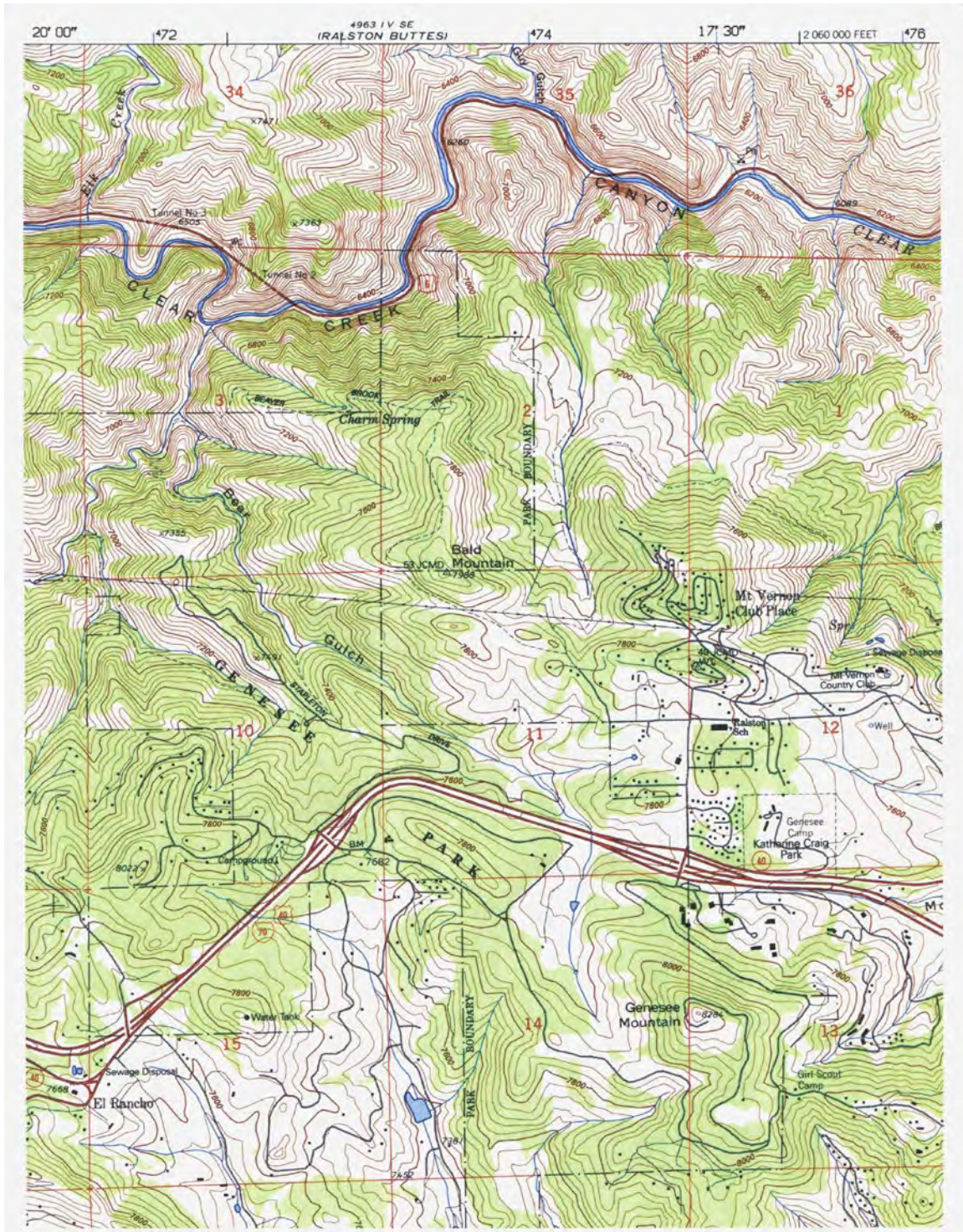
The map files are called GeoPDF® files because they contain additional geospatial information, which can be accessed in Microsoft Windows with a free program provided by TerraGo®. The program adds additional capabilities to Adobe Reader. The download link is visible in the lower left corner of the figure on page 4. The TerraGo Toolbar™ allows one, for instance, to display the latitude and longitude of the cursor in Adobe Reader. These capabilities are not, however, needed to view or print the map. Complete directions on how to use the toolbar are in *US Topo and Historical Topo Users Guide* nationalmap.gov/ustopo/quickstart.pdf.

This figure shows a section of the latest US Topo map for the Idaho Springs quadrangle. The overlay on the Resthouse Meadows Trail is from the TerraGo GeoMeasure tool. The trail is easy to follow up to the saddle at about 11,100', but just beyond it a sharp turn to the southwest is easy to miss. The last segment of the overlay shows that the turn is 102 m (335') from the saddle on a true bearing of 158°. The coordinates of the red square at the turn are in the lower right hand corner.
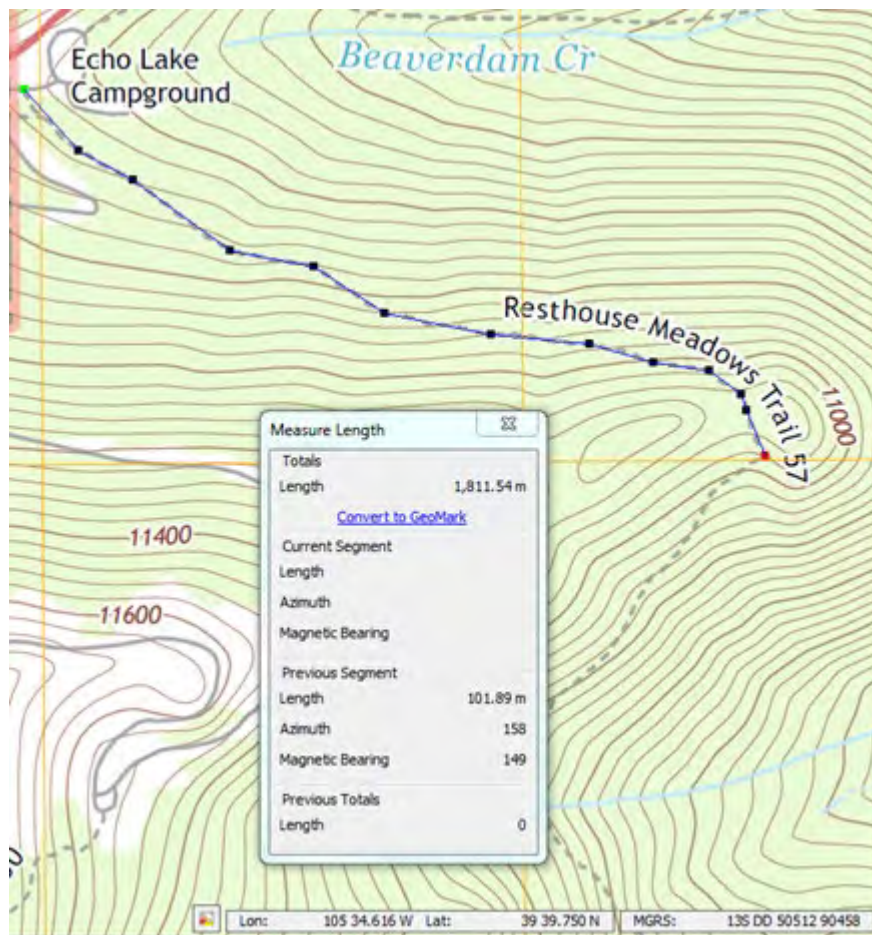
References

US Topo and Historical Topo Users Guide

nationalmap.gov/ustopo/quickstart.pdf

US Topo: Topographic Maps for the Nation, USGS Fact Sheet 2009-3108

http://pubs.usgs.gov/fs/2009/3108/fs2009-3108.pdf

Brochure for Fact Sheet 2009-3108

http://pubs.usgs.gov/fs/2009/3108/TopoMapBroch_New5F.pdf