APPENDIX 8

INTERNET MAP SOURCES

**Prepared by the
Mapping and Marking Committee**

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INTERNET MAP SOURCES

Two types of maps form the foundation for our mapping activities: General Land Office (GLO) surveys and USGS topographic quads. Of the many USGS maps the most important are the 7.5 minute quads that display information at a scale of 1 to 24,000 (1:24,000).

<u>USGS Topographic Quadrangles</u>

The 7.5 minute quads were the basis for the methodology described in the original MET Manual. They were available directly from the USGS or from map and recreational stores. With the advent of mapping software that incorporates these maps, obtaining printed copies has become more difficult and more costly. However, they are available from the USGS site for free download or hardcopy purchase (about $8 each). A search in your browser using "USGS" will take you to the site with all USGS products and information. A search tool within the site allows you to identify and access, download or purchase the appropriate quad.

The USGS site also includes access to the GeoPDF add-on to Adobe's Acrobat Reader. Since the downloaded quads are in PDF format, it is recommended that the tool also be downloaded and installed. It provides tools for working with the PDF maps.

OCTA's preferred mapping software is Terrain Navigator and Terrain Navigator Pro. The later includes aerial images that may be compared with maps and used as a tool for locating trail. The purchase of a TNP package for a state provides all of the USGS maps at several scales (including 1:24,000) for that state. The maps are viewable singly or in a seamless mode over the entire state. The maps are identical to the USGS maps obtainable from the USGS website. The software includes mapping tools that allow interface with a GPS for downloading trail data. Tracks and markers are plotted automatically and annotation may be added. For more information on Terrain Navigator go to www.maptech.mytopo.com.

There are other mapping products that provide similar capabilities, some at less cost. However, TNP is recommended based on both its cost (under $200 for OCTA members) and capabilities that approach sophisticated GIS software such as that provided by ESRI (ArcGIS products). The later represent the state-of-the-art, but are costly (about $1,500). Since ArcGIS is used by most government agencies, compatibility with it is highly desirable. TNP mapping data may be output in a format that is compatible with ArcGIS.

<u>General Land Office Survey Plats and Field Notes</u>

The second set of maps of primary interest is the GLO maps. These maps are the original maps created for the Public Lands Survey System (PLSS). See Appendix X for a full description. The earliest maps often date to the mid-1800s and may display early trails and roads and are, therefore, a good starting point for trail research. A typical map is shown in Figure 8-1.
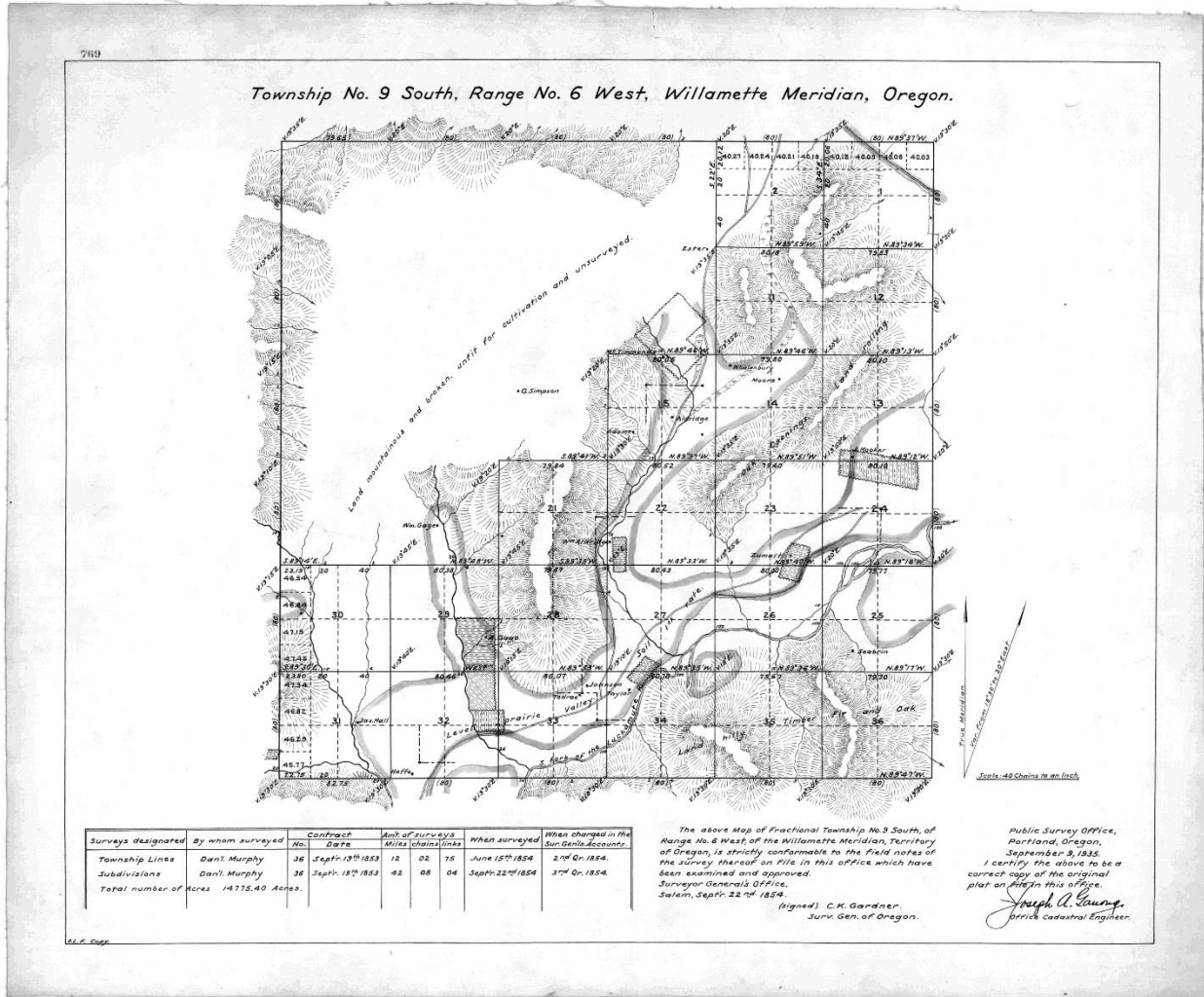
Figure 8-1 Example GLO Map

The General Land Office was superseded by the Bureau of Land Management (BLM). A primary source for copies of these maps is the BLM although they are also available from state libraries and other repositories. A starting point for locating a map in a particular area can be found at www.glorecords.blm.gov. Alternatively, a search using "BLM GLO" should take you to this site.

The information of most interest is the "survey plats" and "field notes." A search tool allows plats and field notes (if available) in a given area to be found and downloaded. Files are in the PDF format. Not all survey plats are accessible through this site. As of July 1, 2013 the coverage from this national BLM site, along with alternate sources, is as shown in Table 8-1.

State	Included?	Other repository
Arizona	Yes	
California	Yes	
Colorado	Yes	
Idaho	Yes	
Kansas	No	Only available on CD
Missouri	No	Missouri Department of Natural Resources
Nebraska	No	Nebraska State Surveyors Office
Nevada	No	BLM Nevada
New Mexico	Yes	
Oklahoma	Yes	
Oregon	No	BLM Oregon
Texas	Yes	
Utah	No	BLM Utah
Washington	No	BLM Oregon
Wyoming	No	BLM Wyoming

Table 8-1 Sources for Downloading GLO Survey Plats and Notes

For a summary of GLO resource locations go the University of Northern Illinois website at:
http://www.lib.niu.edu/1999/il9904232.html

A third type of map of interest is historic maps of all types. Sources for historic maps include the National Archives, state archives and university libraries. While this list is not comprehensive, here are a few that have been recommended by OCTA members:

CaAtlas Geospatial Clearinghouse	atlas.ca.gov
David Rumsey Historical Maps	www.davidrumsey.com
Global Mapper	www.globalmapper.com
Library of Congress	www.loc.gov
National Archives	www.archives.gov
Trails.com	www.trails.com
University of California, Bancroft Library	bancroft.berkeley.edu
University of Nevada, Keck Library	keck.library.unr.edu
University of Oregon	libweb.uoregon.edu/map
University of Texas	www.lib.utexas.edu/maps
University of Wyoming	www-lib.uwyo.edu
Western Association of Map Libraries	www.waml.org
Wichita State University	http://libraries.wichita.edu/ablah/index.php/specialcollections

The Western Association of Map Libraries may lead you to other sources.

<u>Other Map-related Internet Resources</u>

In the course of working with maps, members have identified some useful tools that may be found on the internet as shown below.

Degrees, Minutes, Seconds and Decimal Degrees Latitude/Longitude Conversions
http://transition.fcc.gov/mb/audio/bickel/DDDMMSS-decimal.html

Convert latitude and longitude from NAD 27 to NAD 83 or from NAD 83 to NAD 27
http://www.ngs.noaa.gov/cgi-bin/nadcon.prl

Convert NAD83 or NAD27 Latitude/longitude to Universal Transverse Mercator (UTM)
http://www.ngs.noaa.gov/cgi-bin/utm_getut.prl

Convert Universal Transverse Mercator Coordinates (UTM) to latitude/longitude
http://www.ngs.noaa.gov/cgi-bin/utm_getgp.prl

Lessons on how to use a compass
http://www.learn-orienteering.org/old/lesson1.html

Sun or moon altitude/azimuth table
http://aa.usno.navy.mil/data/docs/AltAz.php