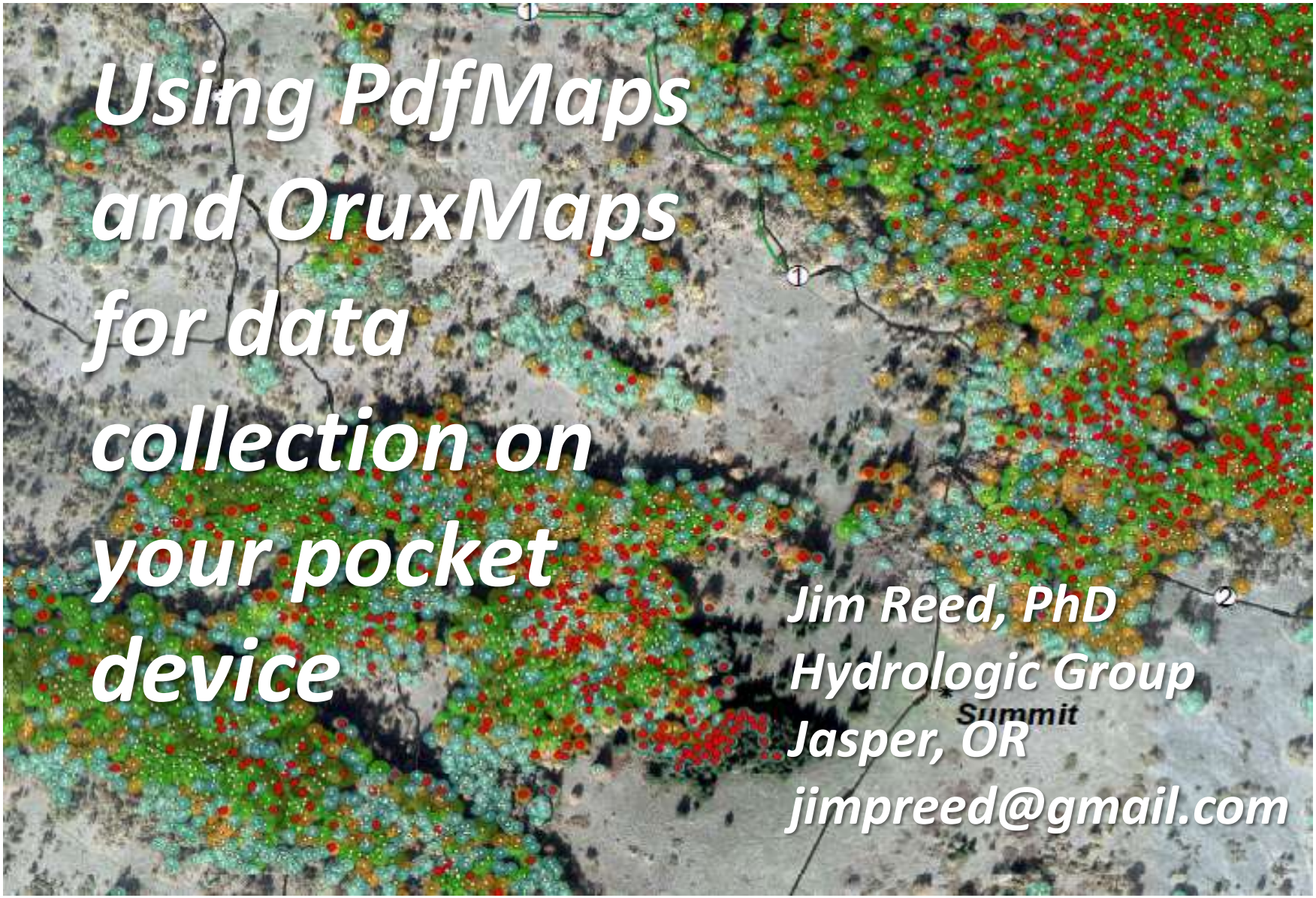


Using PdfMaps and OruxMaps for data collection on your pocket device

Jim Reed, PhD
Hydrologic Group
Jasper, OR
jimpreed@gmail.com

Avenza's PdfMaps app and the **OruxMaps** app
are free downloads from the Android Play Store.
PdfMaps also runs on iOS.

Other apps I use:

GPS Status to see how many satellites are in view,
and refresh the ephemeris.

GPS Essentials for background tracking and
georeferenced photos

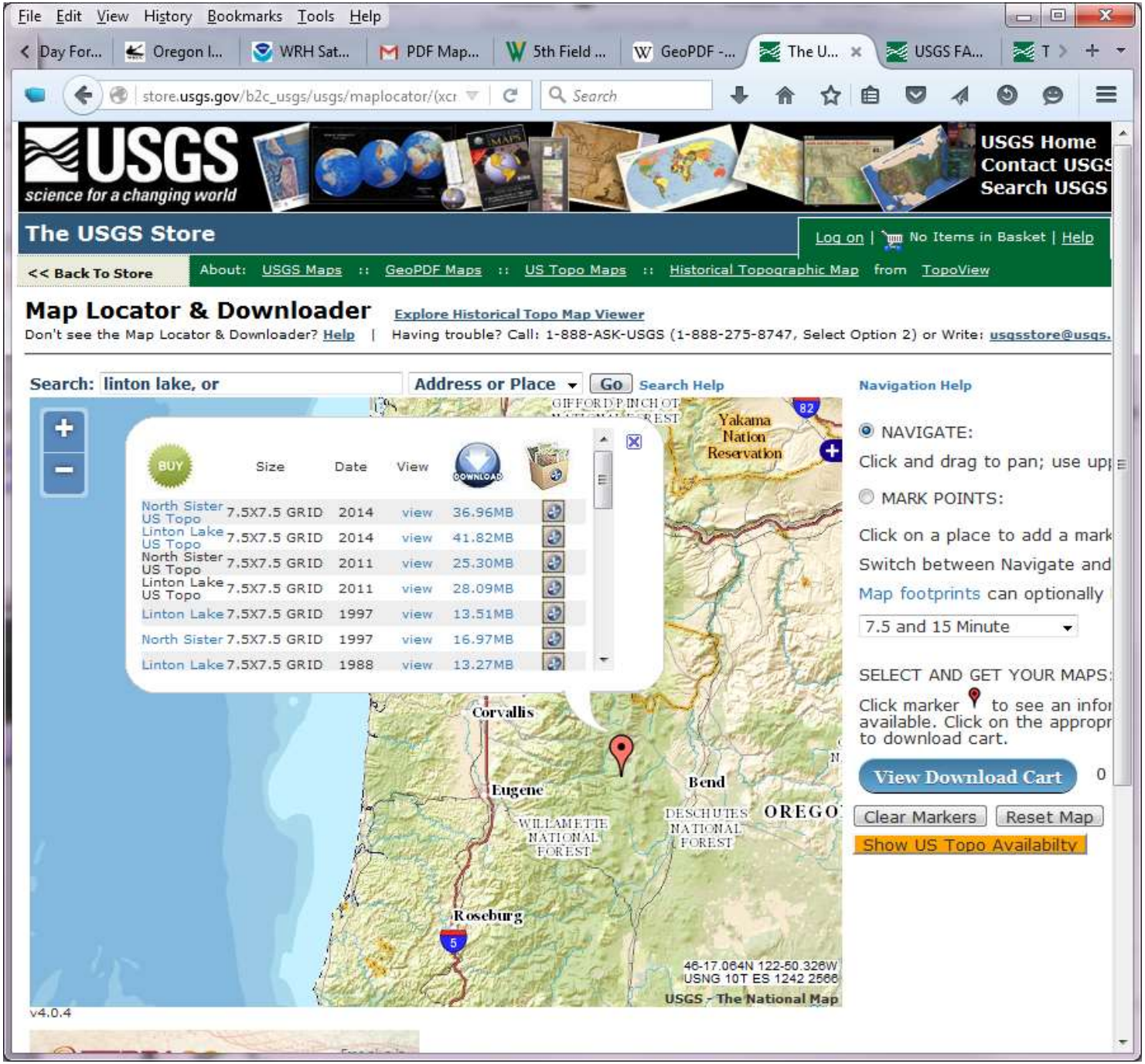
GeoViewer from MrSid can load in 4GB of sid file
like NAIP aerials, and BLM merged topos
on ½ degree scale, but then you can add shp files
if in the same projection. No Query though.

On the PC, I use **Geosetter** to look at my tracks and georef photos
DNR GPS for converting to/from shp /kml
Mapinfo and **ArcGIS** for creating geo pdfs.
Geoviewer from MrSid to create geotifs

In the field I use a Samsung 7” tablet, my $10 LG Tracfone phone with GPS and GLONASS, a GPS watch and an old DeLorme waterproof handheld GPS ($300 + $250 software package)

With **PdfMaps** you can download direct from the app using the “Store” tab for nautical charts, recreation, topo..

For topo maps, get the latest geopdf from http://store.usgs.gov/
Then to map locator.
Choose a 7.5 min quad and download the map.


File Edit View History Bookmarks Tools Help
Day For... Oregon I... WRH Sat... PDF Map... 5th Field ... GeoPDF -... The U... USGS FA...
store.usgs.gov/b2c_usgs/usgs/maplocator/(xcr
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Explore Historical Topo Map Viewer
Don't see the Map Locator & Downloader? Help | Having trouble? Call: 1-888-ASK-USGS (1-888-275-8747, Select Option 2) or Write: usgsstore@usgs.
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North Sister US Topo 7.5X7.5 GRID 2014 view 36.96MB
Linton Lake US Topo 7.5X7.5 GRID 2014 view 41.82MB
North Sister US Topo 7.5X7.5 GRID 2011 view 25.30MB
Linton Lake US Topo 7.5X7.5 GRID 2011 view 28.09MB
Linton Lake 7.5X7.5 GRID 1997 view 13.51MB
North Sister 7.5X7.5 GRID 1997 view 16.97MB
Linton Lake 7.5X7.5 GRID 1988 view 13.27MB
Yakama Nation Reservation
82
Corvallis
Eugene
Bend
WILLAMETTE NATIONAL FOREST
DESCHUTES NATIONAL FOREST
Roseburg
5
46-17.064N 122-50.326W
USNG 10T ES 1242 2566
USGS - The National Map
v4.0.4
NAVIGATE:
Click and drag to pan; use up
MARK POINTS:
Click on a place to add a mark
Switch between Navigate and
Map footprints can optionally
7.5 and 15 Minute
SELECT AND GET YOUR MAPS:
Click marker to see an infor
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to download cart.
View Download Cart
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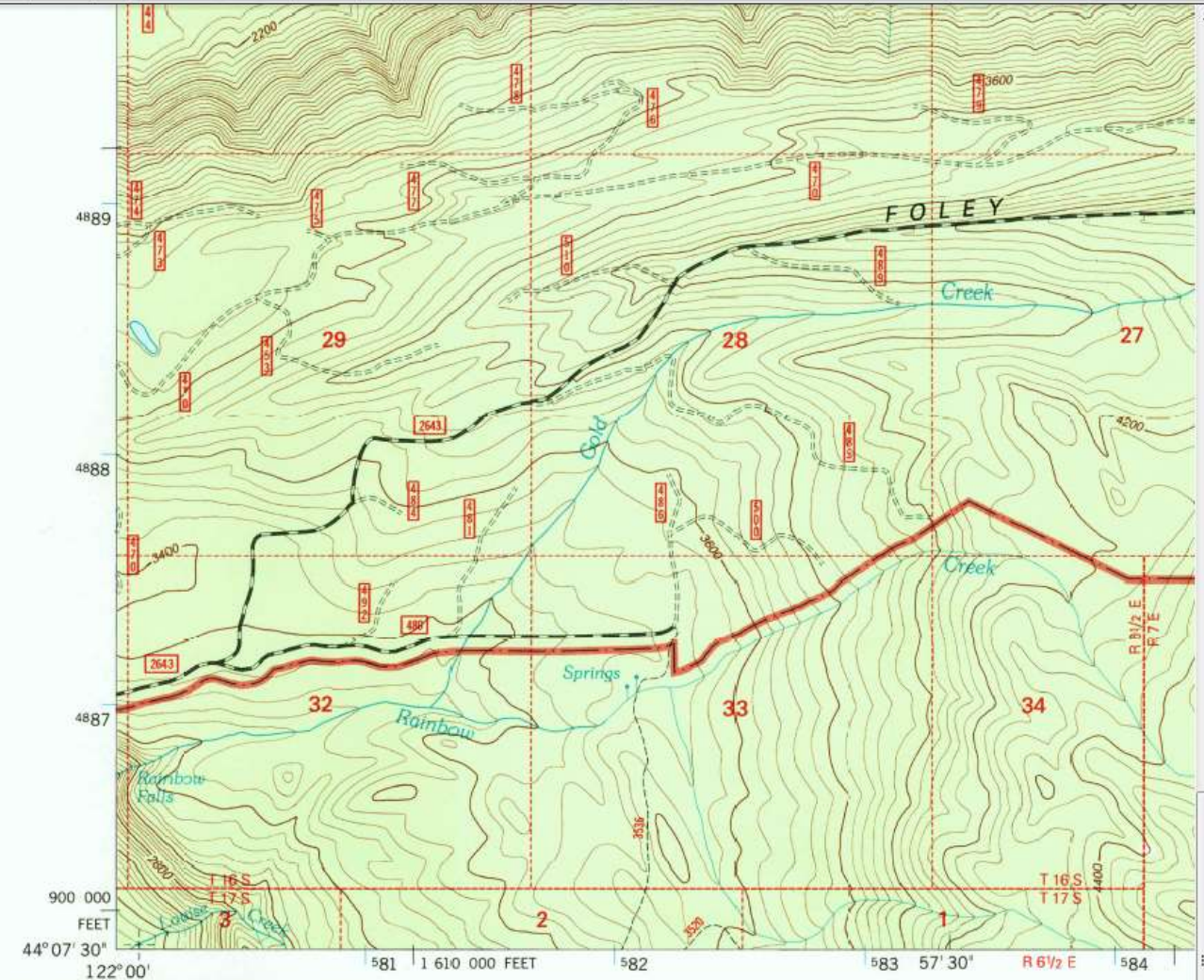
Show US Topo Availabilty

OR_Linton Lake_280524_1997_24000_geo.pdf - Adobe Reader
File Edit View Window Help
1 / 1 100% Tools Sign Comment Extended



Produced by the United States Geological Survey 1988
Revision by USDA Forest Service 1997

Topography compiled 1957. Planimetry derived from imagery taken 1995 and other sources. Public Land Survey System and survey control current as of 1997

North American Datum of 1927 (NAD 27). Projection and 10 000-foot ticks: Oregon coordinate system, south zone (Lambert conformal conic)
Blue 1000-meter Universal Transverse Mercator ticks, zone 10

North American Datum of 1983 (NAD 83) is shown by dashed corner ticks
The values of the shift between NAD 27 and NAD 83 for 7.5-minute intersections are obtainable from National Geodetic Survey NADCON software

UTM GRID AND 1998 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

21.90 x 26.76 in

OR_Linton_Lake_20140723_TM_geoAA.pdf - Adobe Reader

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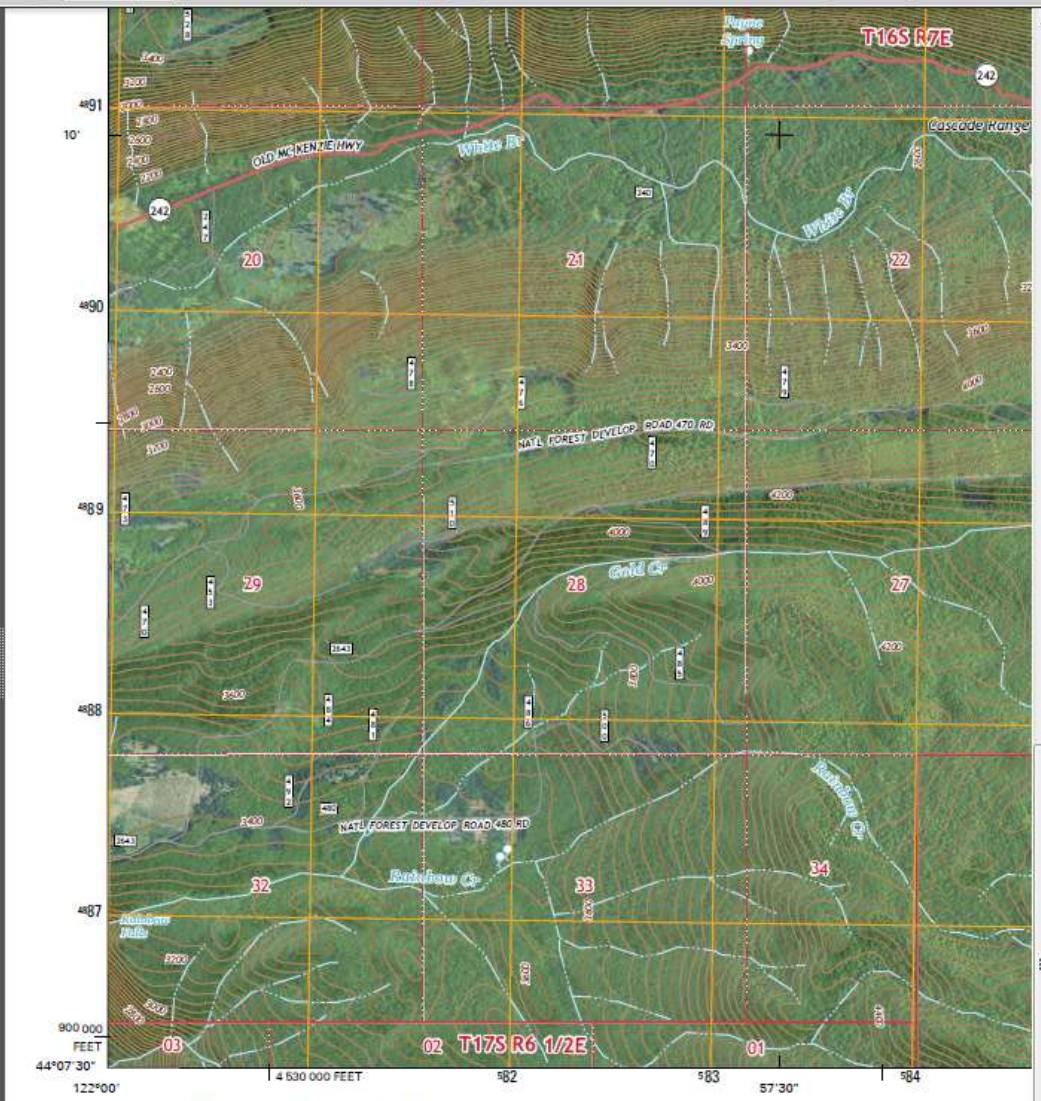
1 / 1 75% Tools Sign Comment

Layers

- Map Collar
  - Map Elements
- Map Frame
  - Projection and Grids
  - Geographic Names
  - Structures
  - Transportation
    - Road Names and Shields
    - Road Features
    - Trails
    - Railroads
    - Airports
  - PLSS
  - Hydrography
  - Terrain
    - Contours
    - Shaded Relief
  - Woodland
  - Boundaries
    - Jurisdictional Boundaries
    - Federal Administered Lands
- Images
  - Orthoimage
- Barcode



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and 1 000-meter grid: Universal Transverse Mercator, Zone 10T
10 000-foot ticks: Oregon Coordinate System of 1983 (south zone)

This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

Imagery.....NAIP, August 2012

UTM GRID AND 2014 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

U.S. National Grid

22.75 x 29.00 in

OR_Linton_Lake_20140723_TM_geoAA.pdf - Adobe Reader

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1 / 1 75% Tools Sign Comment

Layers

- Map Collar
  - Map Elements
- Map Frame
  - Projection and Grids
  - Geographic Names
  - Structures
  - Transportation
    - Road Names and Shields
    - Road Features
    - Trails
    - Railroads
    - Airports
  - PLSS
  - Hydrography
  - Terrain
    - Contours
    - Shaded Relief
  - Woodland
  - Boundaries
    - Jurisdictional Boundaries
    - Federal Administered Lands
- Images
  - Orthoimage
- Barcode

Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and 1 000-meter grid: Universal Transverse Mercator, Zone 10T
10 000-foot ticks: Oregon Coordinate System of 1983 (south zone)

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Imagery.....NAIP, August 2012

UTM GRID AND 2014 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

U.S. National Grid

NORTH

22.75 x 29.00 in

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Layers

- Map Collar
  - Map Elements
- Map Frame
  - Projection and Grids
  - Geographic Names
  - Structures
  - Transportation
    - Road Names and Shields
    - Road Features
    - Trails
    - Railroads
    - Airports
  - PLSS
  - Hydrography
  - Terrain
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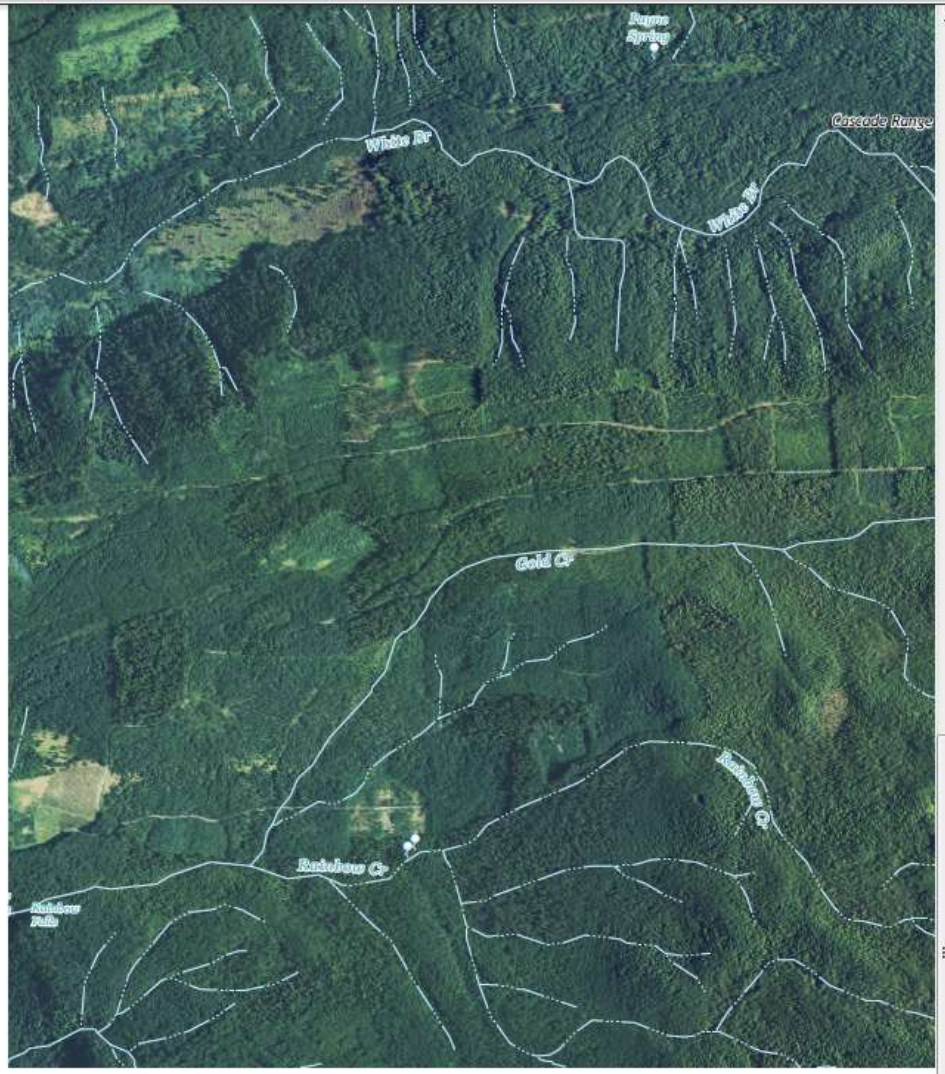
  - Woodland
  - Boundaries
    - Jurisdictional Boundaries
    - Federal Administered Lands
- Images
  - Orthoimage
- Barcode



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and 1 000-meter grid: Universal Transverse Mercator, Zone 10T
10 000-foot ticks: Oregon Coordinate System of 1983 (south zone)

This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

Imagery.....NAIP, August 2012

UTM GRID AND 2014 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

U.S. National Grid

22.75 x 29.00 in

80% 3:22 PM
OR_Linton_Lake_20140723_TM_geo
44.13632, -121.96658
WILLAMETTE NATIONAL FOREST
Gold Cr
Rainbow Cr
Spruce Meadow
NAT. FOREST DEVELOP. ROAD 480 RD
T17S R6 1/2E
29
28
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57'30"
Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
SCALE 1:24 000
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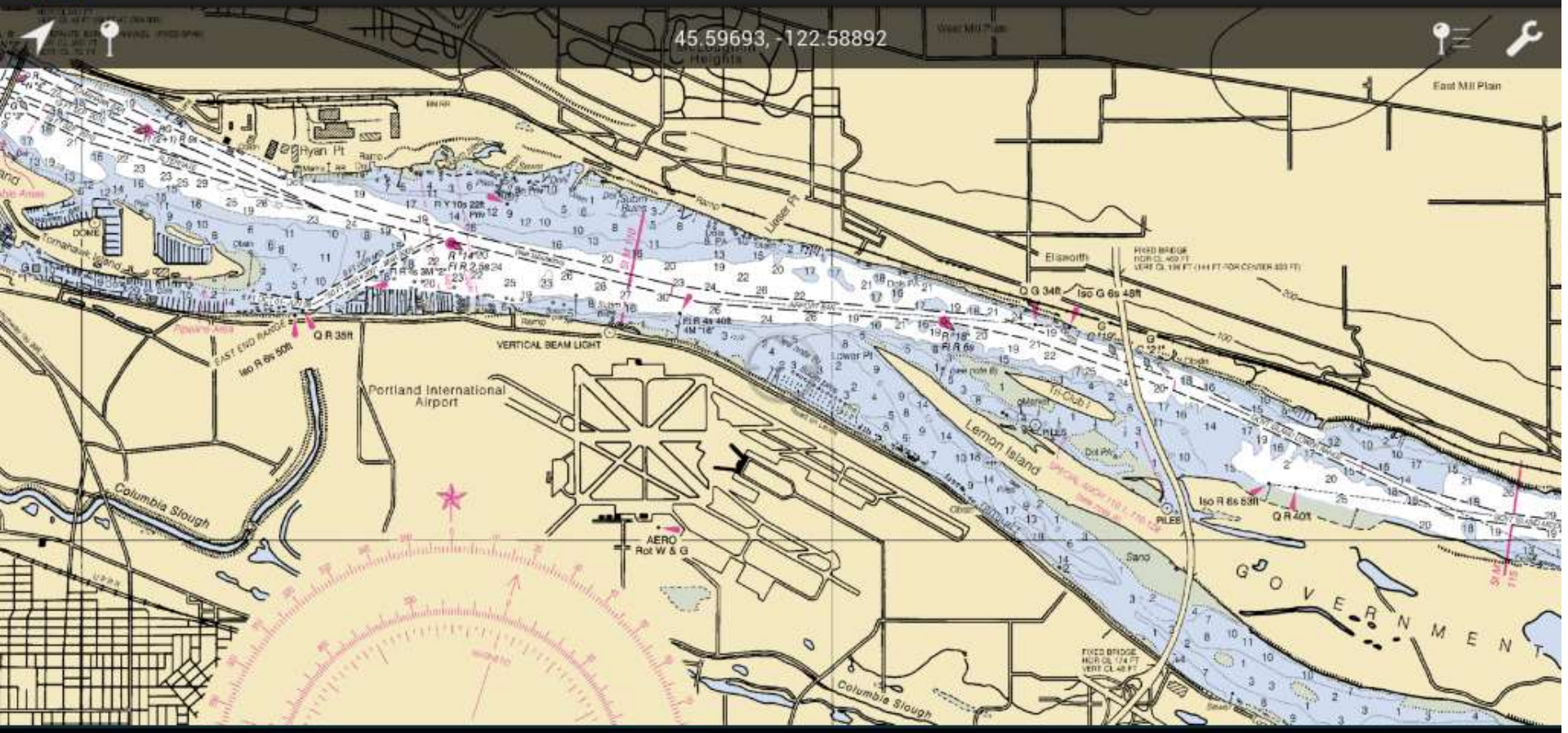
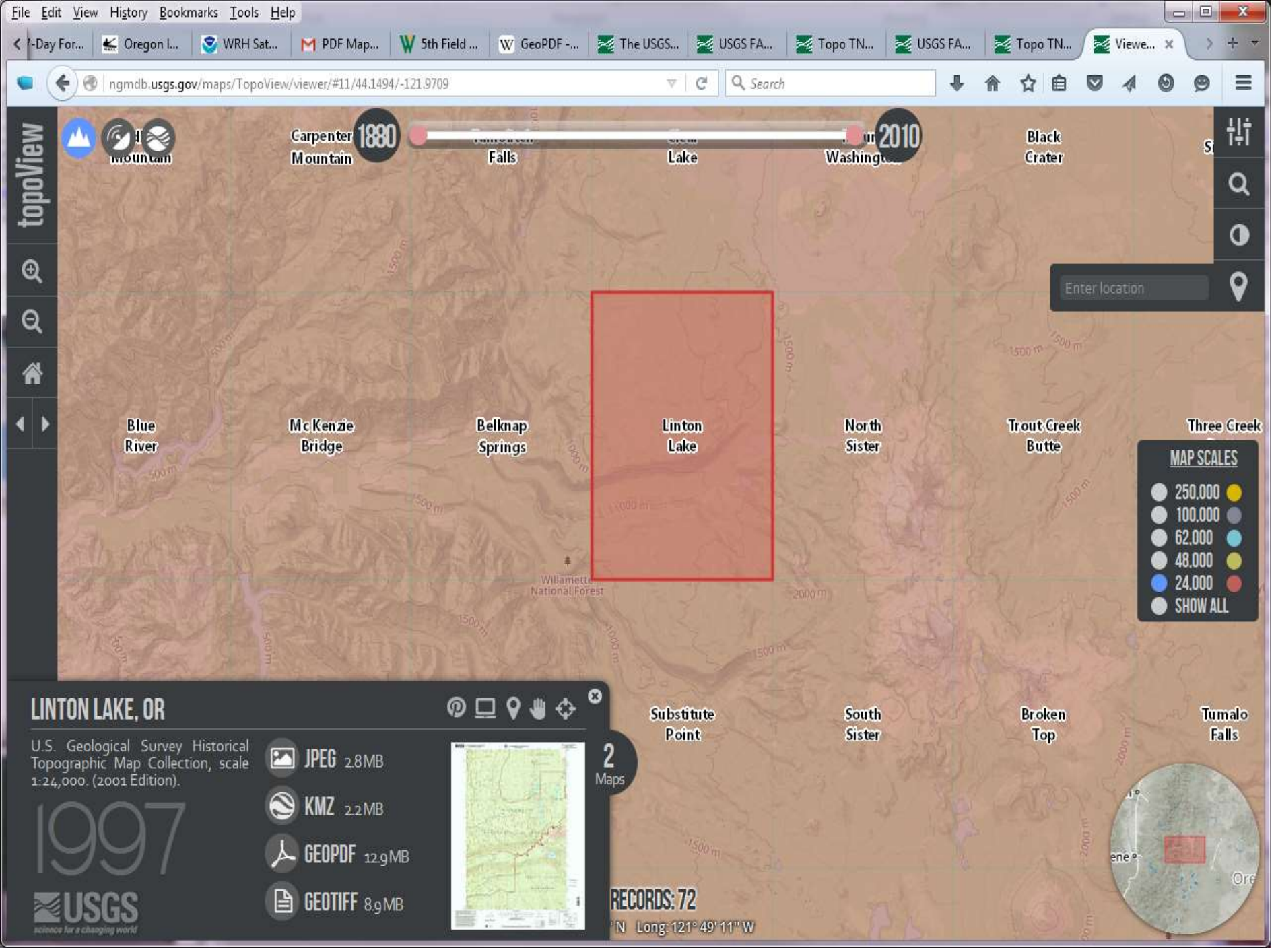
1

Or go to TopoView:
http://ngmdb.usgs.gov/maps/TopoView/viewer/#
can get geotif, jpg, kmz, geopdf

Geotifs can be loaded into PdfMaps.
The advantage of geotif is the you draw on it on Paint*, or add other layers in GIS

In the very near future, you will be able use the geopdf in ArcGIS 10. See TopoTNMStyleTemplate Tailoring Instructions.pdf July 2015


45.59693, -122.58892
Ryan Pt
Ramp
DOME
Tomahawk Island
EAST END RANGE
Iso R 6s 50ft
Q R 35ft
VERTICAL BEAM LIGHT
Portland International Airport
Columbia Slough
AERO
Rot W & G
Lower Pt
Elsworth
Q G 34ft
Iso G 6s 48ft
Lemon Island
Tri-Club
PILES
Iso R 6s 53ft
Q R 20ft
Sand
GOVERNMENT
Columbia Slough
East Mill Plain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ngmdb.usgs.gov/maps/TopoView/viewer/#11/44.1494/-121.9709
Search
topoView
Carpenter Mountain
1880
2010
Falls
Lake
Black Crater
Enter location
Blue River
Mc Kenzie Bridge
Belknap Springs
Linton Lake
North Sister
Trout Creek Butte
Three Creek
MAP SCALES
250,000
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62,000
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24,000
SHOW ALL
Willamette National Forest
Substitute Point
South Sister
Broken Top
Tumalo Falls
LINTON LAKE, OR
U.S. Geological Survey Historical Topographic Map Collection, scale 1:24,000. (2001 Edition).
1997
USGS
science for a changing world
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KMZ 2.2MB
GEOPDF 12.9MB
GEOTIFF 8.9MB
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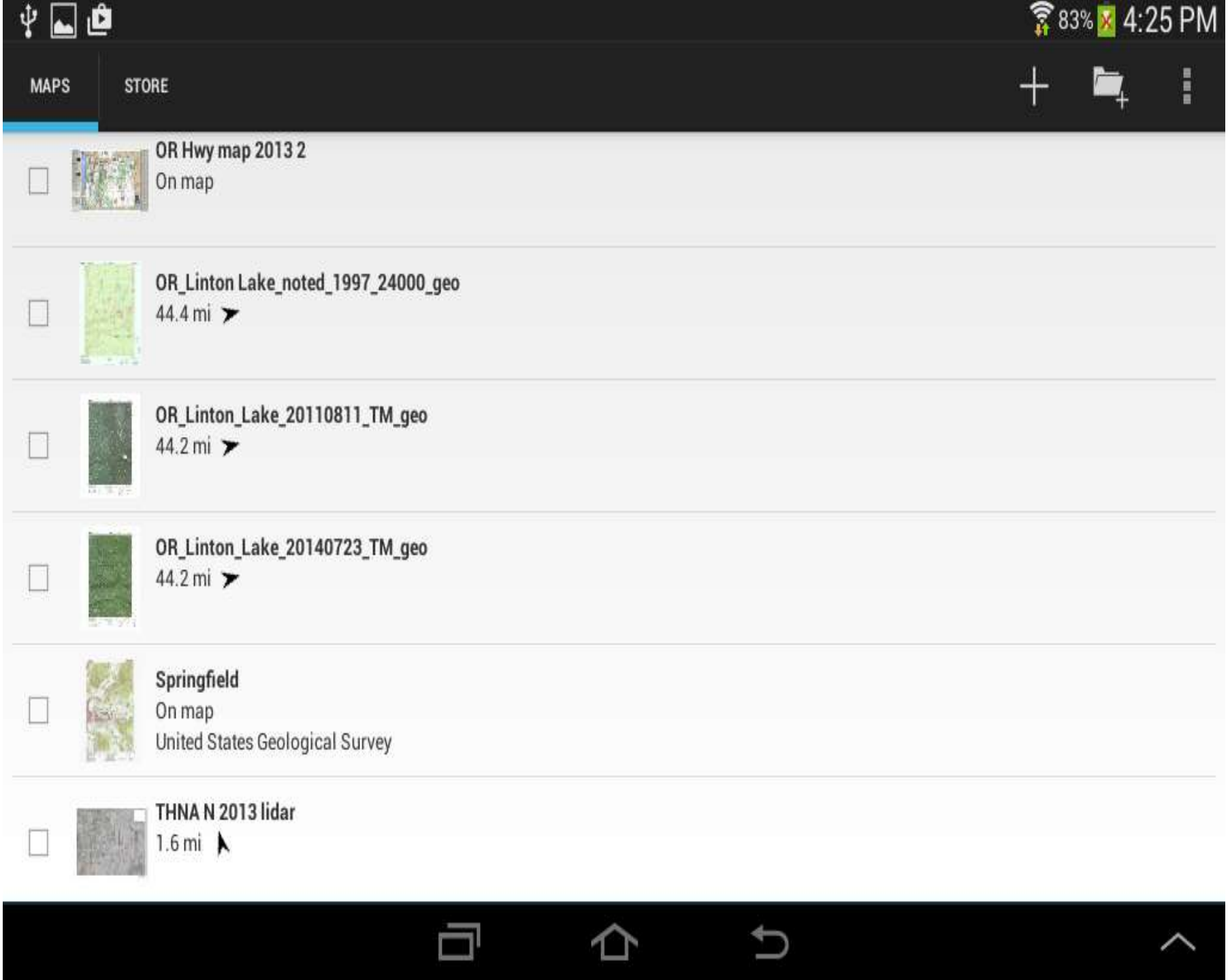
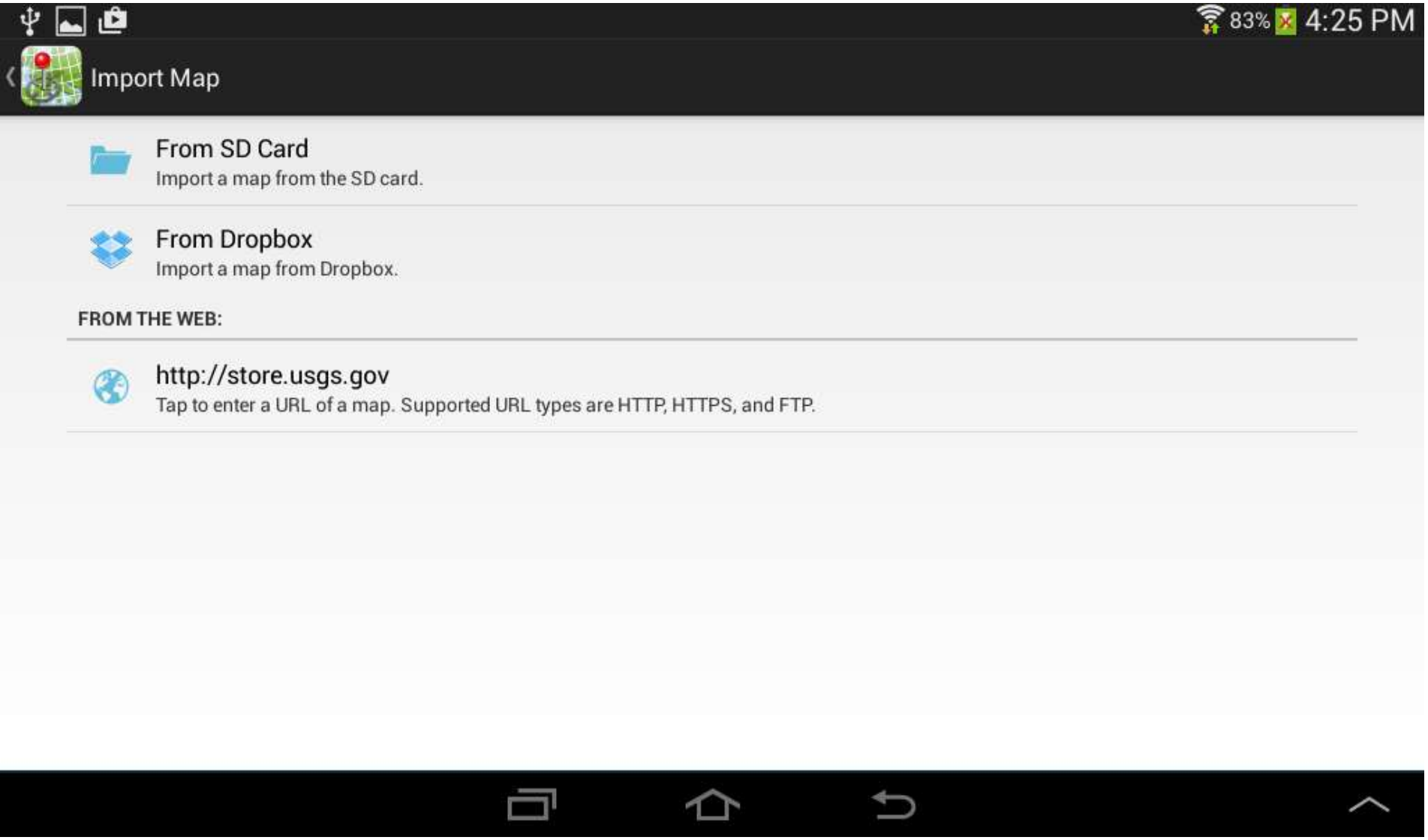
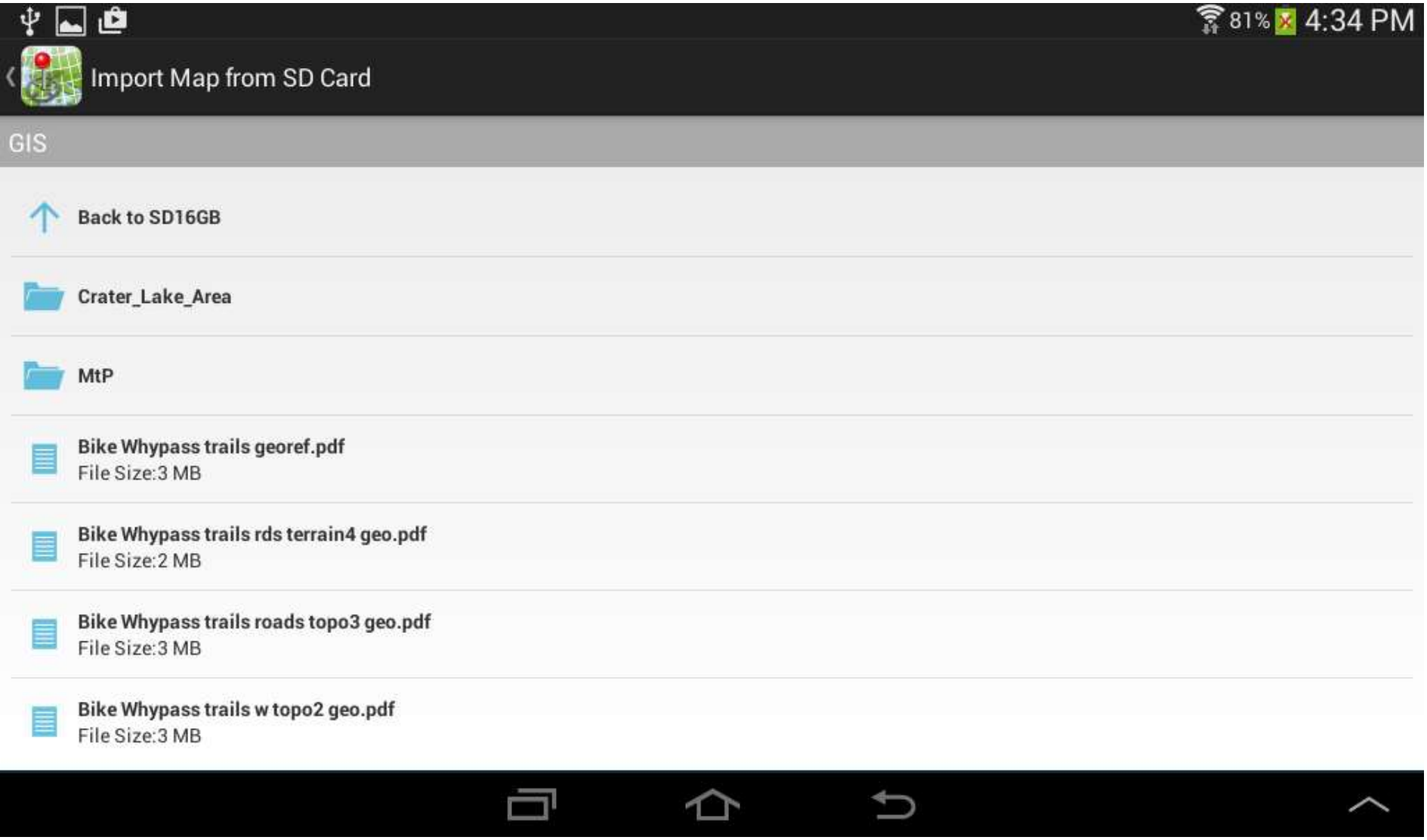
Maps
RECORDS: 72
Long: 121° 49' 11" W


83% 4:25 PM
MAPS
STORE
OR Hwy map 2013 2
On map
OR_Linton Lake_noted_1997_24000_geo
44.4 mi
OR_Linton_Lake_20110811_TM_geo
44.2 mi
OR_Linton_Lake_20140723_TM_geo
44.2 mi
Springfield
On map
United States Geological Survey
THNA N 2013 lidar
1.6 mi


83% 4:25 PM
Import Map
From SD Card
Import a map from the SD card.
From Dropbox
Import a map from Dropbox.
FROM THE WEB:
http://store.usgs.gov
Tap to enter a URL of a map. Supported URL types are HTTP, HTTPS, and FTP.


81% 4:34 PM
Import Map from SD Card
GIS
Back to SD16GB
Crater_Lake_Area
MtP
Bike Whypass trails georef.pdf
File Size:3 MB
Bike Whypass trails rds terrain4 geo.pdf
File Size:2 MB
Bike Whypass trails roads topo3 geo.pdf
File Size:3 MB
Bike Whypass trails w topo2 geo.pdf
File Size:3 MB

OR Hwy map 2013 2
On map

OR_Linton Lake_noted_1997_24000_geo
44.4 mi

OR_Linton_Lake_20110811_TM_geo
44.2 mi

OR_Linton_Lake_20140723_TM_geo
44.2 mi

Springfield
On map
United States Geological Survey

THNA N 2013 lidar
1.6 mi

After a while, you'll notice that you have run out of space on your phone. It may be due to the "hidden" Avenza formatted Pdf files on the internal storage card, even though you stored all of your pdfs on the external card.

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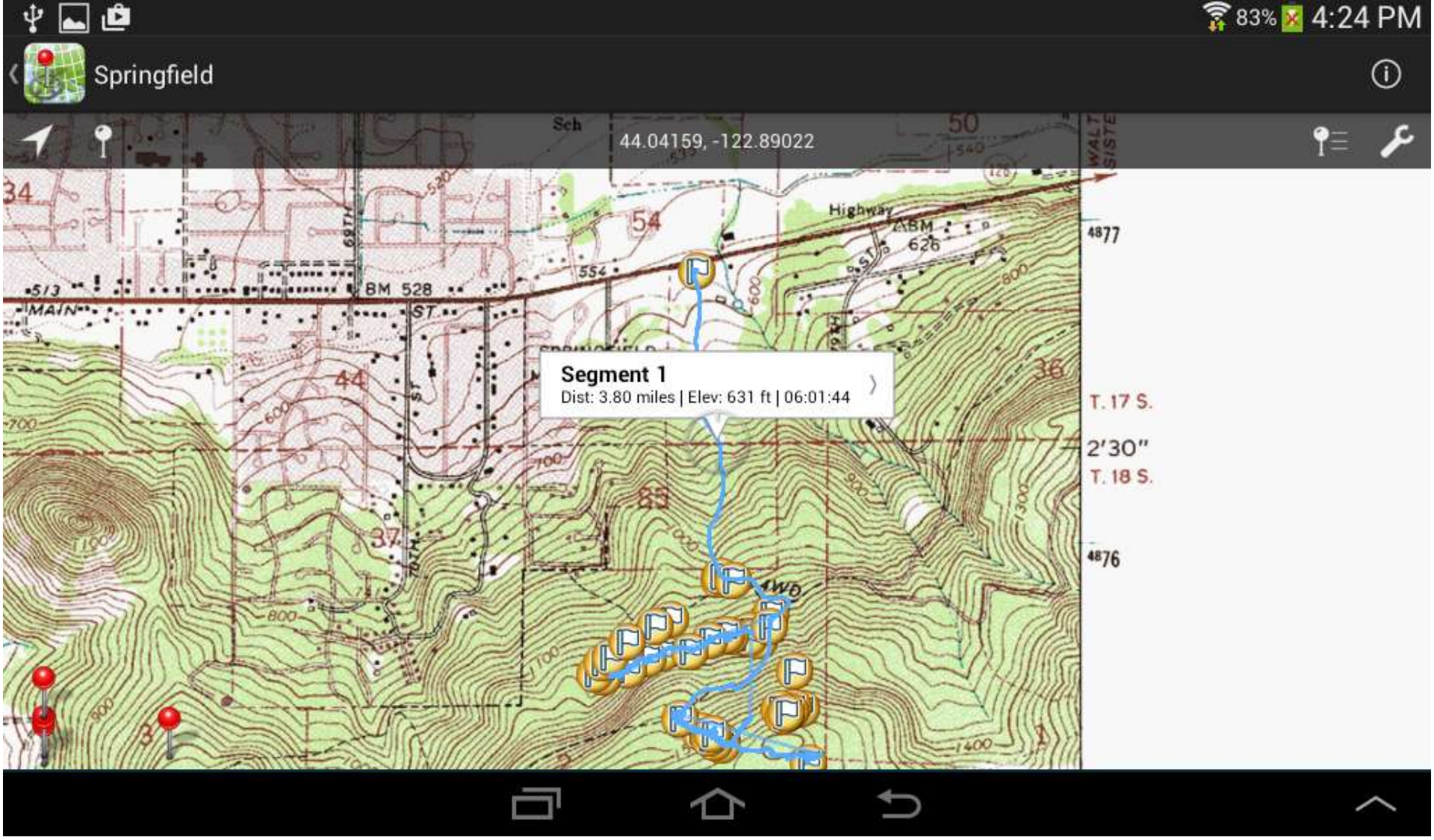
83%
4:24 PM
Springfield
44.04159, -122.89022
Segment 1
Dist: 3.80 miles | Elev: 631 ft | 06:01:44
Highway
BM 528
MAIN
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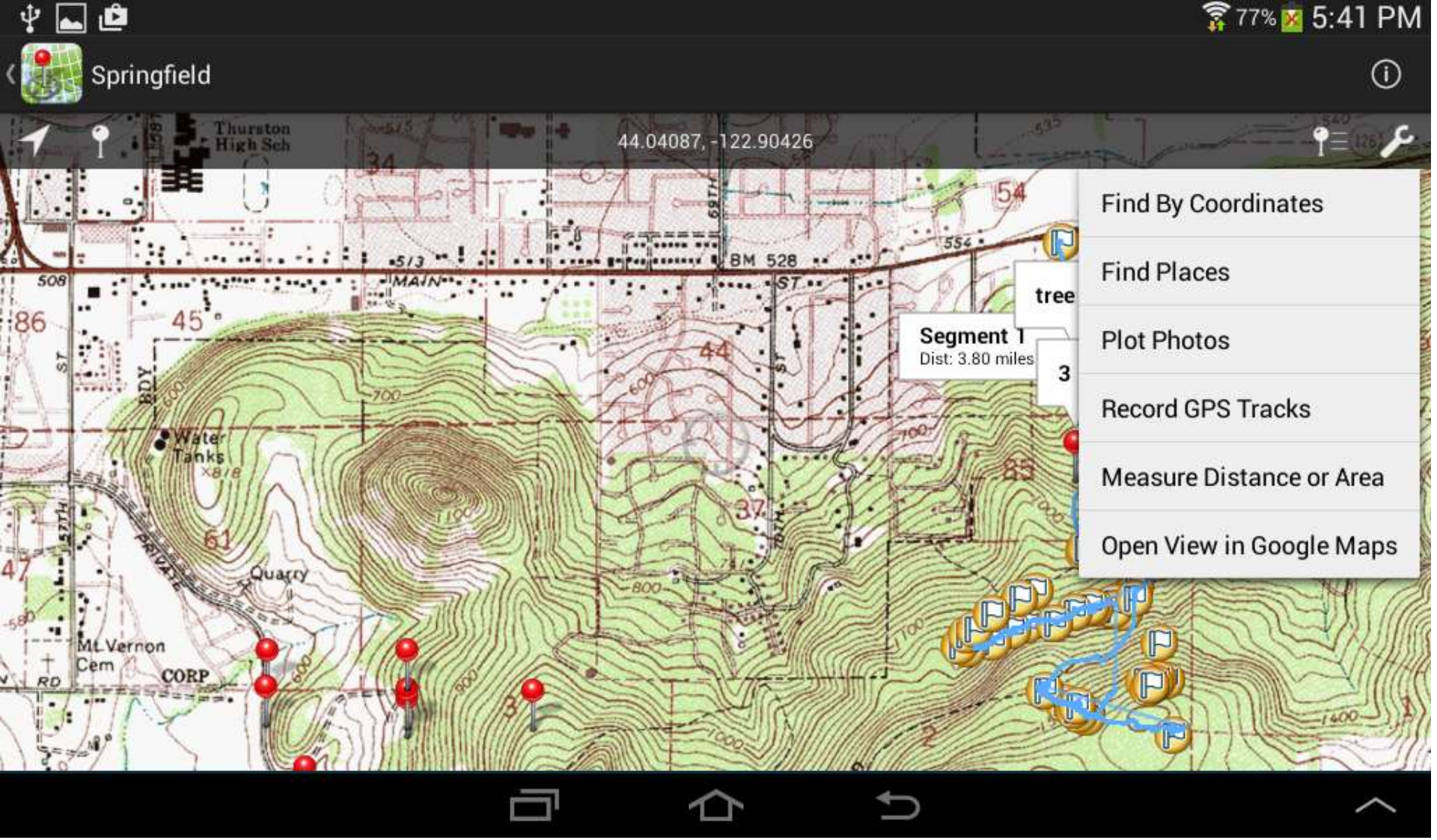
T. 17 S.
2'30"
T. 18 S.
4877
4876


77% 5:41 PM
Springfield
44.04087, -122.90426
Find By Coordinates
Find Places
Plot Photos
Record GPS Tracks
Measure Distance or Area
Open View in Google Maps
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Segment 1
Dist: 3.80 miles
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Water Tanks
Quarry
Mt Vernon Cem
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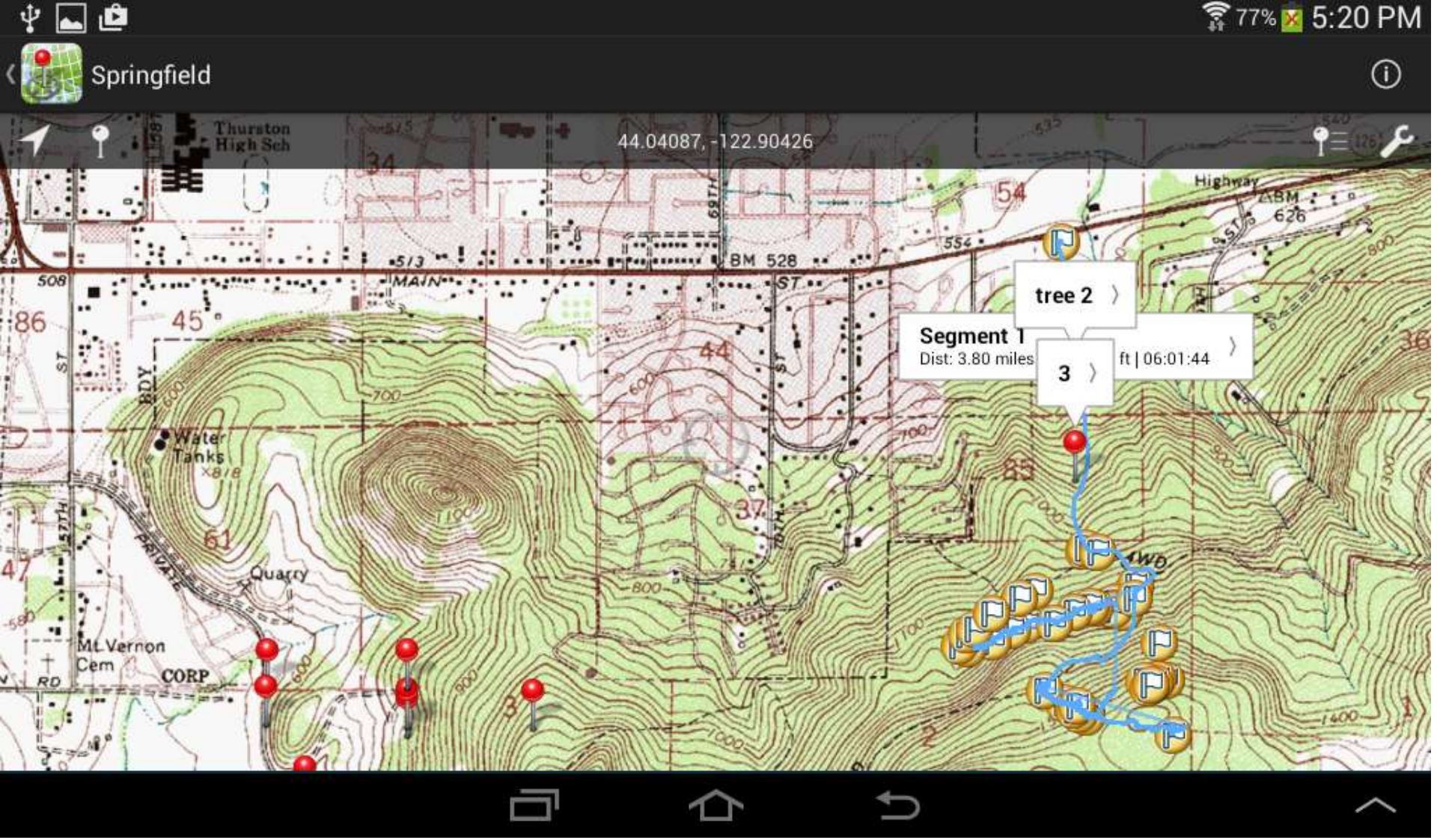
PRIVATE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Segment 1
Dist: 3.80 miles
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Water Tanks
Quarry
Mt Vernon Cem
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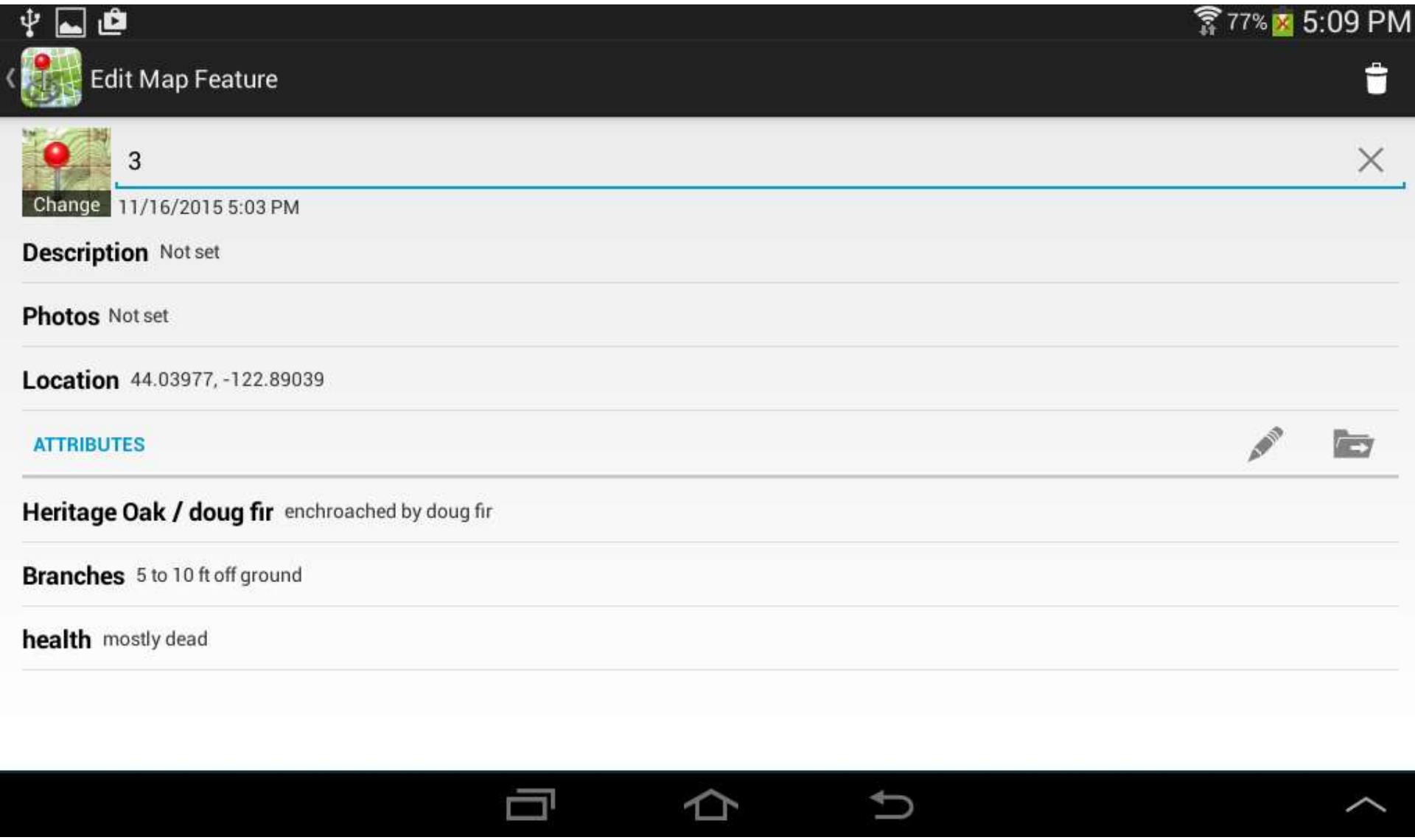
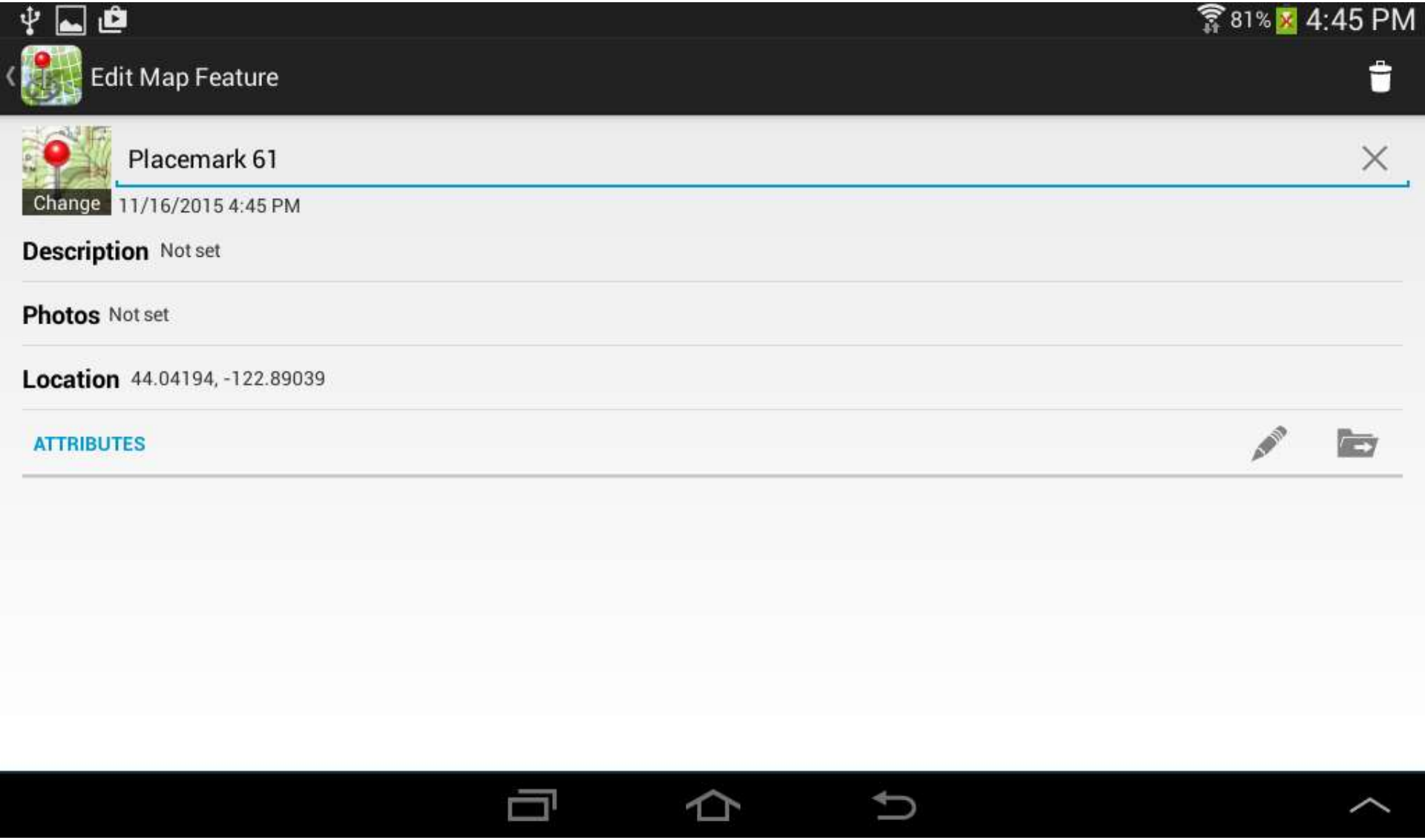

77%
5:09 PM
Edit Map Feature
3
Change
11/16/2015 5:03 PM
Description Not set
Photos Not set
Location 44.03977, -122.89039
ATTRIBUTES
Heritage Oak / doug fir enchroached by doug fir
Branches 5 to 10 ft off ground
health mostly dead


81% 4:45 PM
Edit Map Feature
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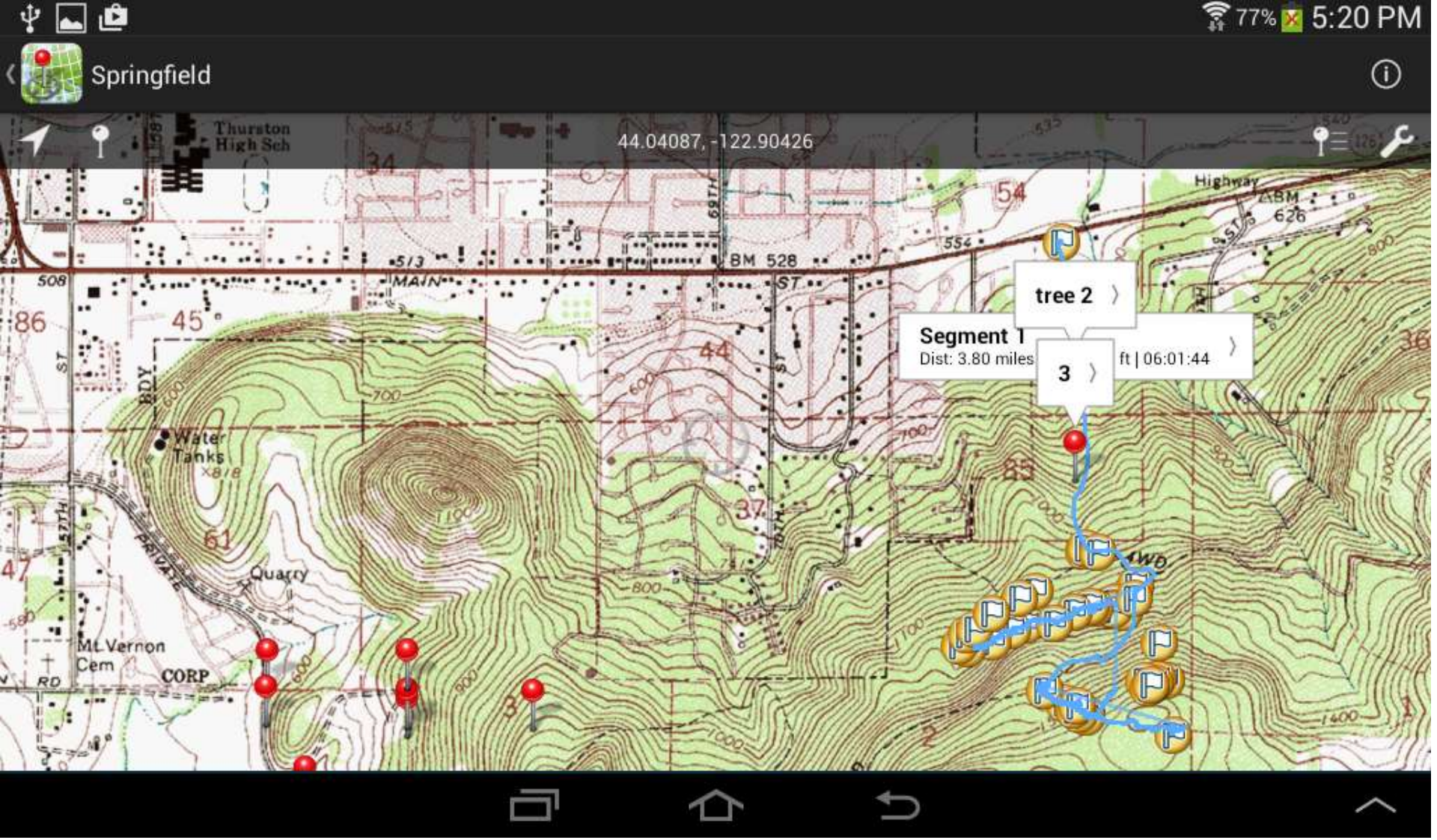
Location 44.04194, -122.89039
ATTRIBUTES

77% 5:09 PM
Edit Attribute Value
HERITAGE OAK / DOUG FIR
enchroached by doug fir
RECENTLY USED VALUES
open
enchroached by doug fir
overtopped by doug fir


77% 5:20 PM
Springfield
44.04087, -122.90426
tree 2
Segment 1
Dist: 3.80 miles
ft | 06:01:44
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Thurston High Sch
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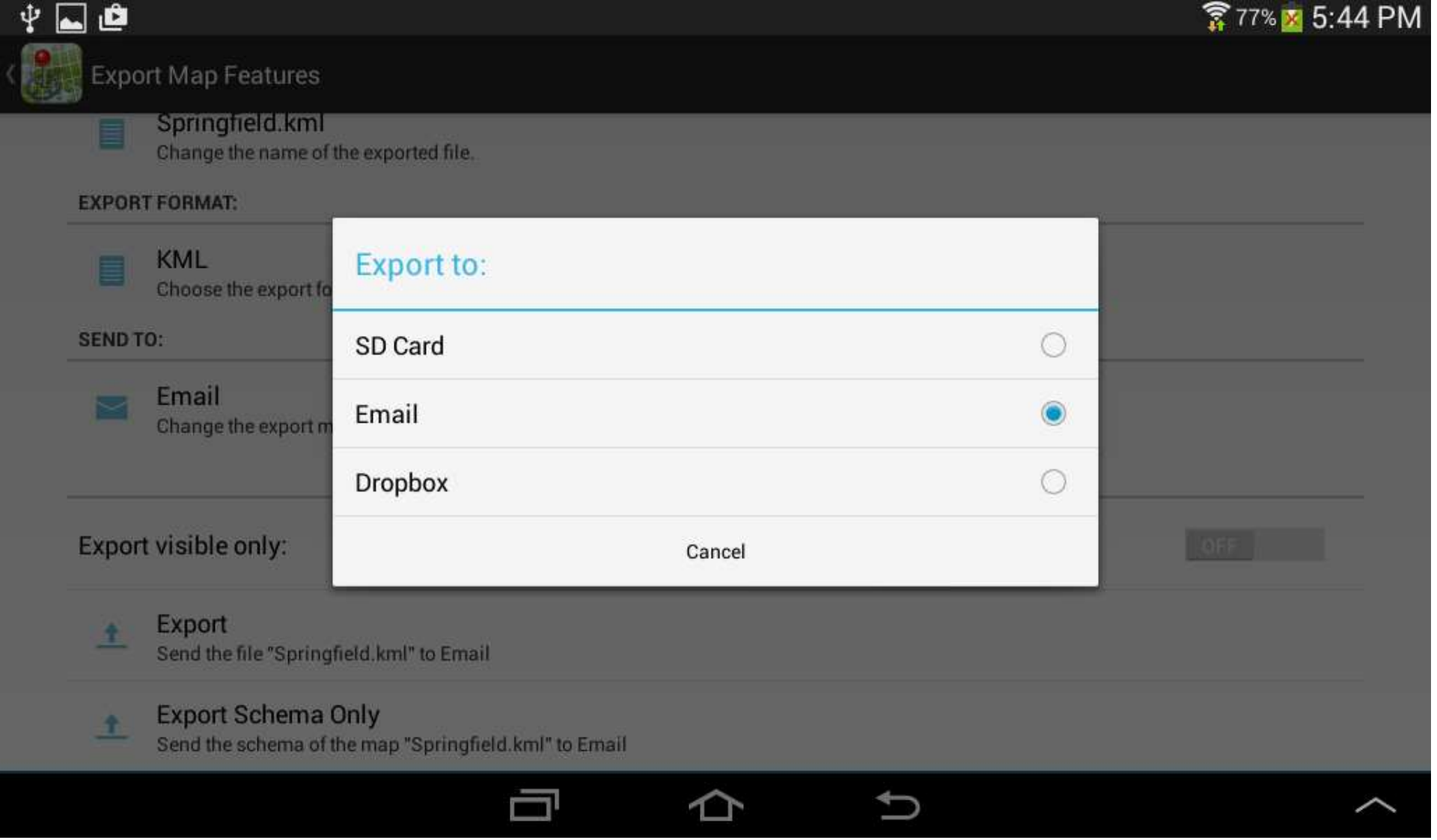
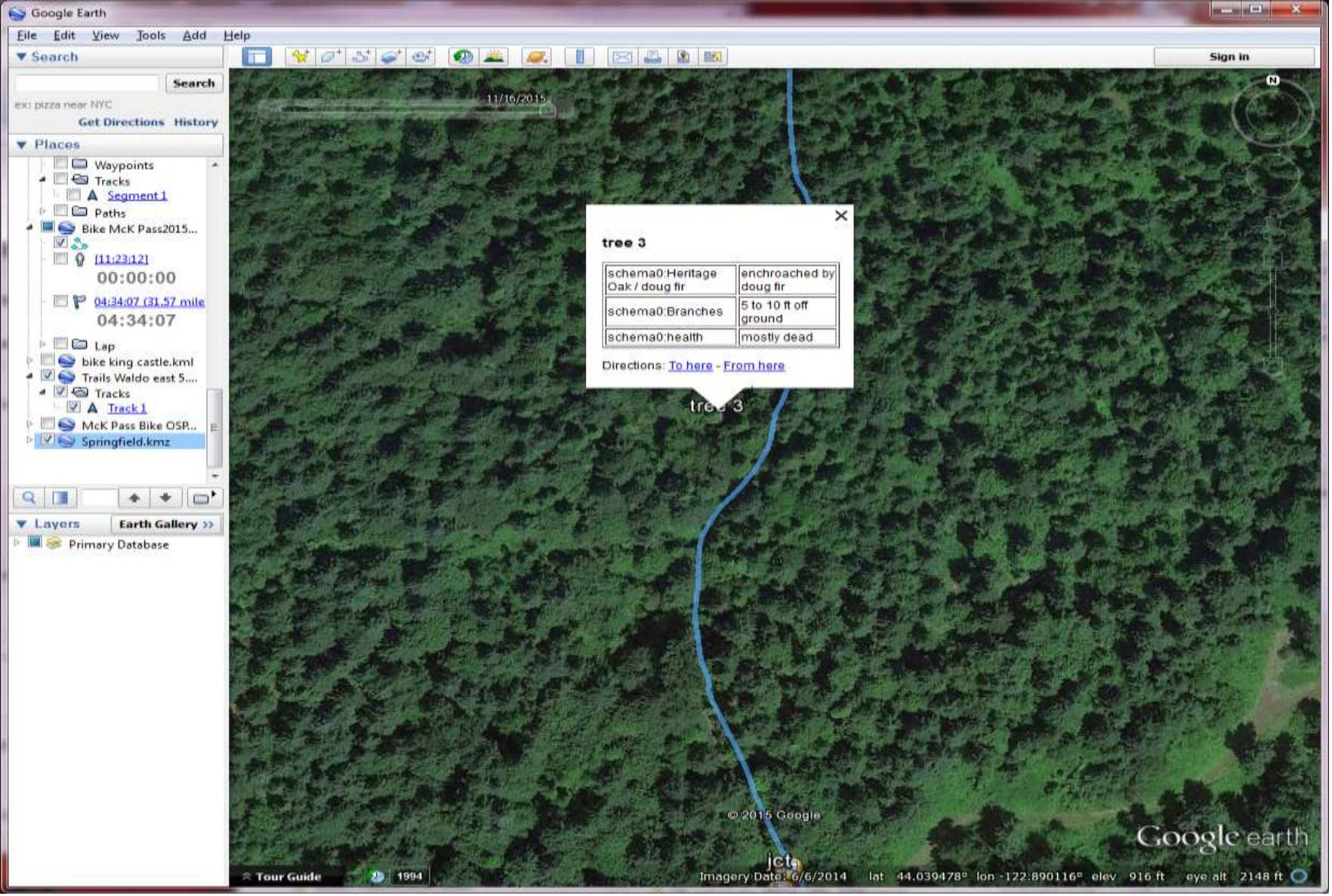
Water Tanks
Quarry
Mt Vernon Cem
CORP
PRIVATE
4WD

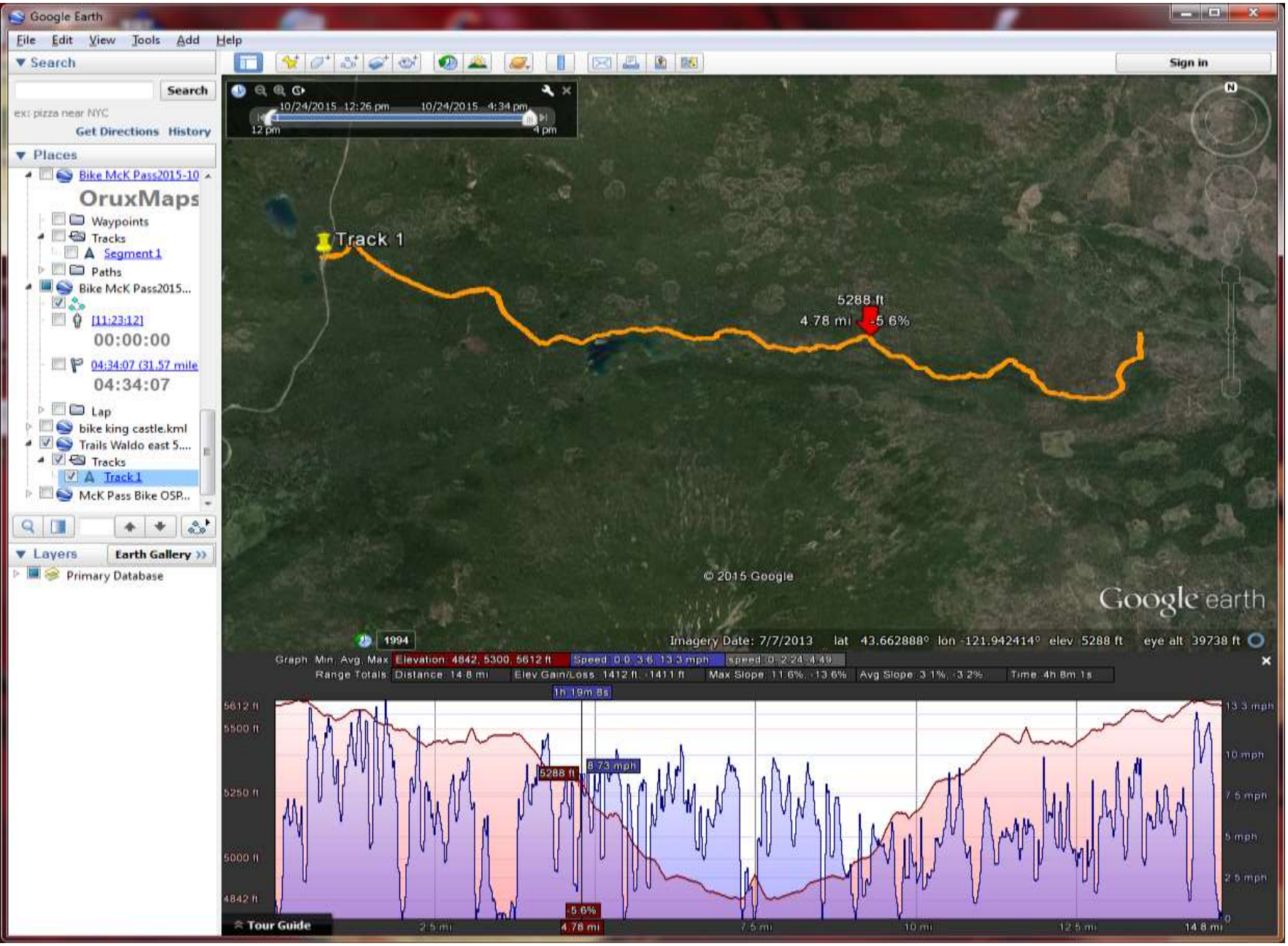
77%
5:43 PM
Map Features
Heritage oaks
14 Placemarks
Waypoints
6 Placemarks
Tracks
1 Tracks/Lines
Paths
Waypoints
42 Placemarks
Tracks
1 Tracks/Lines



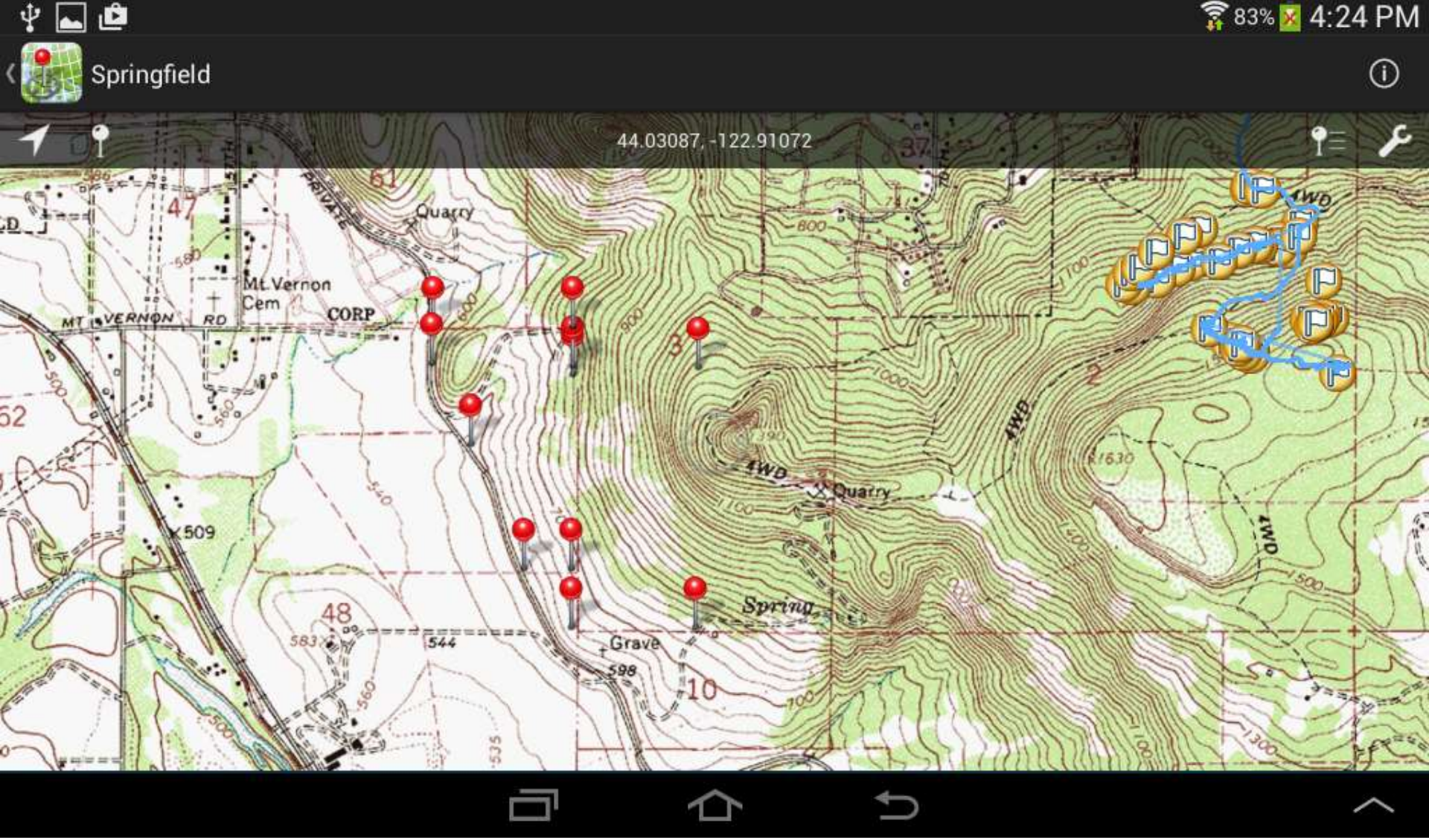
Export Format: KML, GPX, CSV
Export
Export Schema only



To import the data into GIS, export as csv. Delete extraneous info save as txt…



Exported kml track taken into Google Earth, then Show profile.



Imported kml points shown as red pins that can be queried.

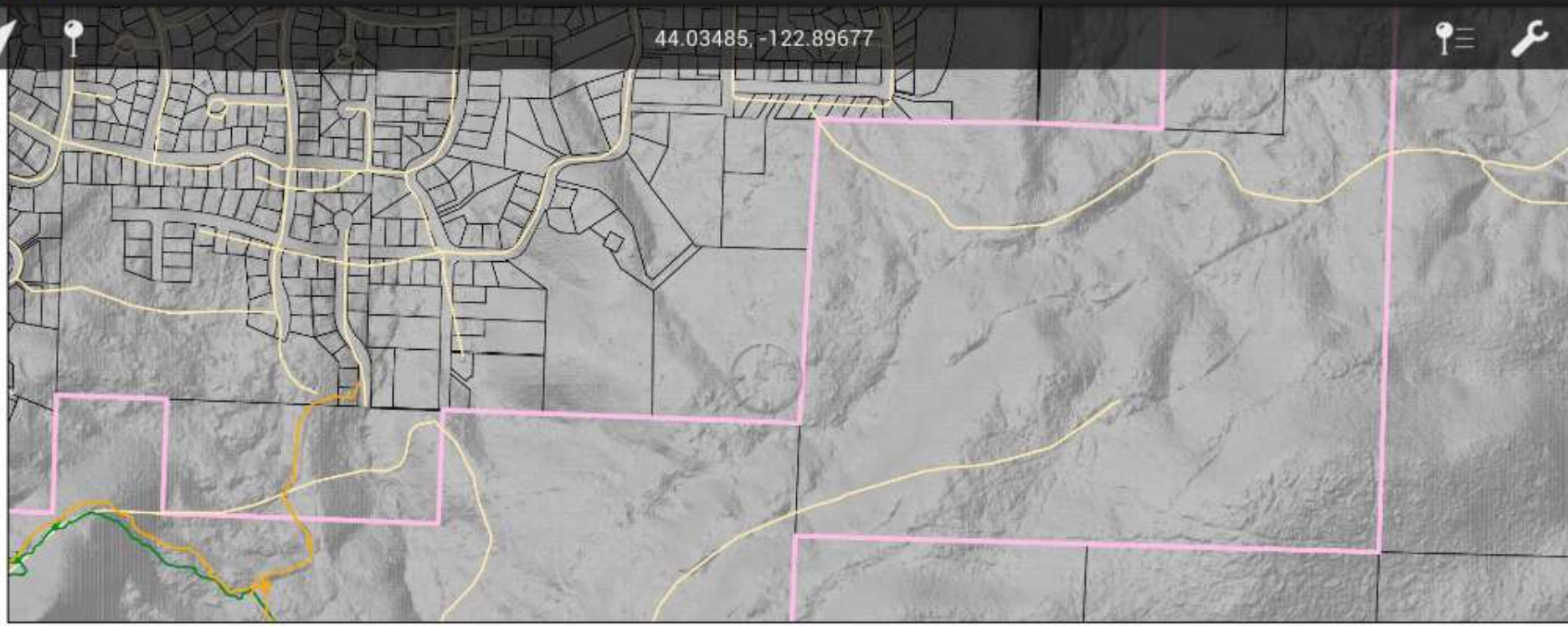
I use **GPSVisualizer.com** to convert route directions in Google Maps to kml. Copy the url, paste it, check box kml conversion…

Other sources of geo_pdfs, geotifs:

Mapinfo

ArcGis

99% 10:44 AM
THNA N 2013 lidar
44.03485, -122.89677



Thurston Hills Natural Area N
2013 Lidar: Bare earth

0 280 560 1,120 Feet

N

Sa
GIS by J

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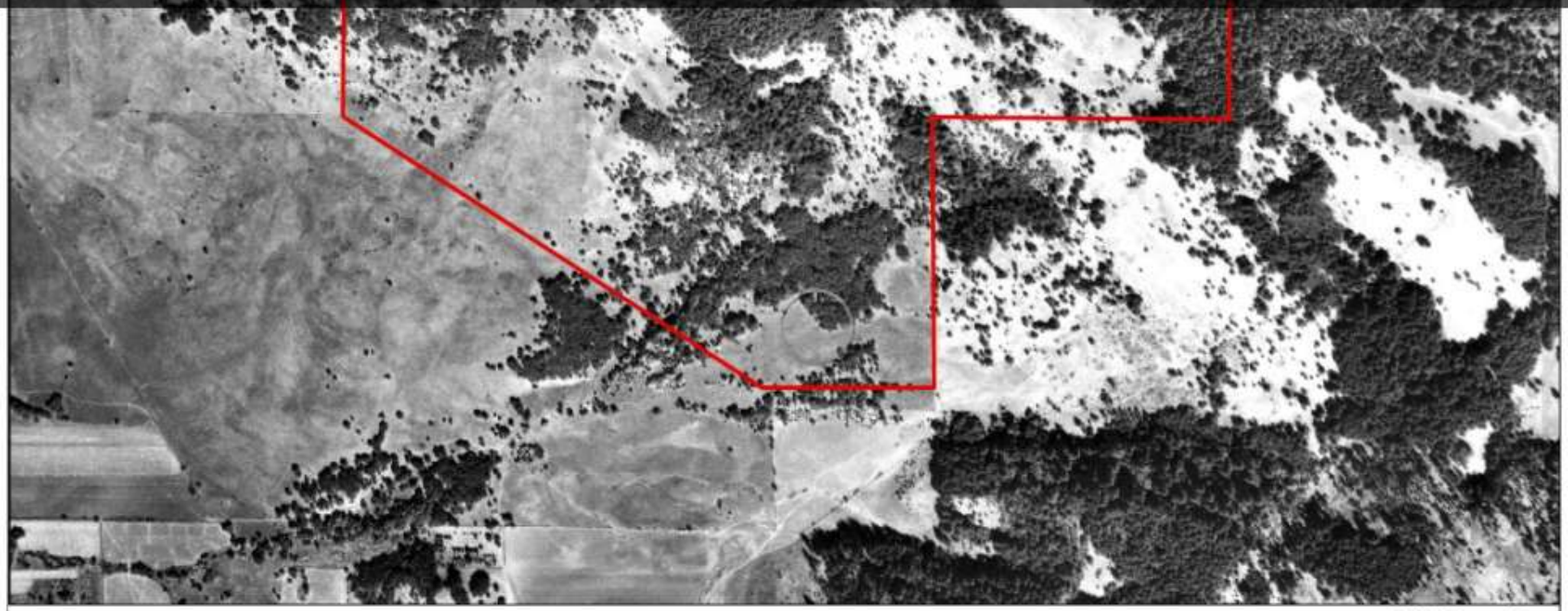
Thurston Hills Phase II 1936a aerial

44.02310, -122.90327



Thurston Hills Natural Area: Phase II
Historic aerial 1936

0 250 500 1,000 Feet

N

Sources:
Aerial: Univ. Oregon Map Library

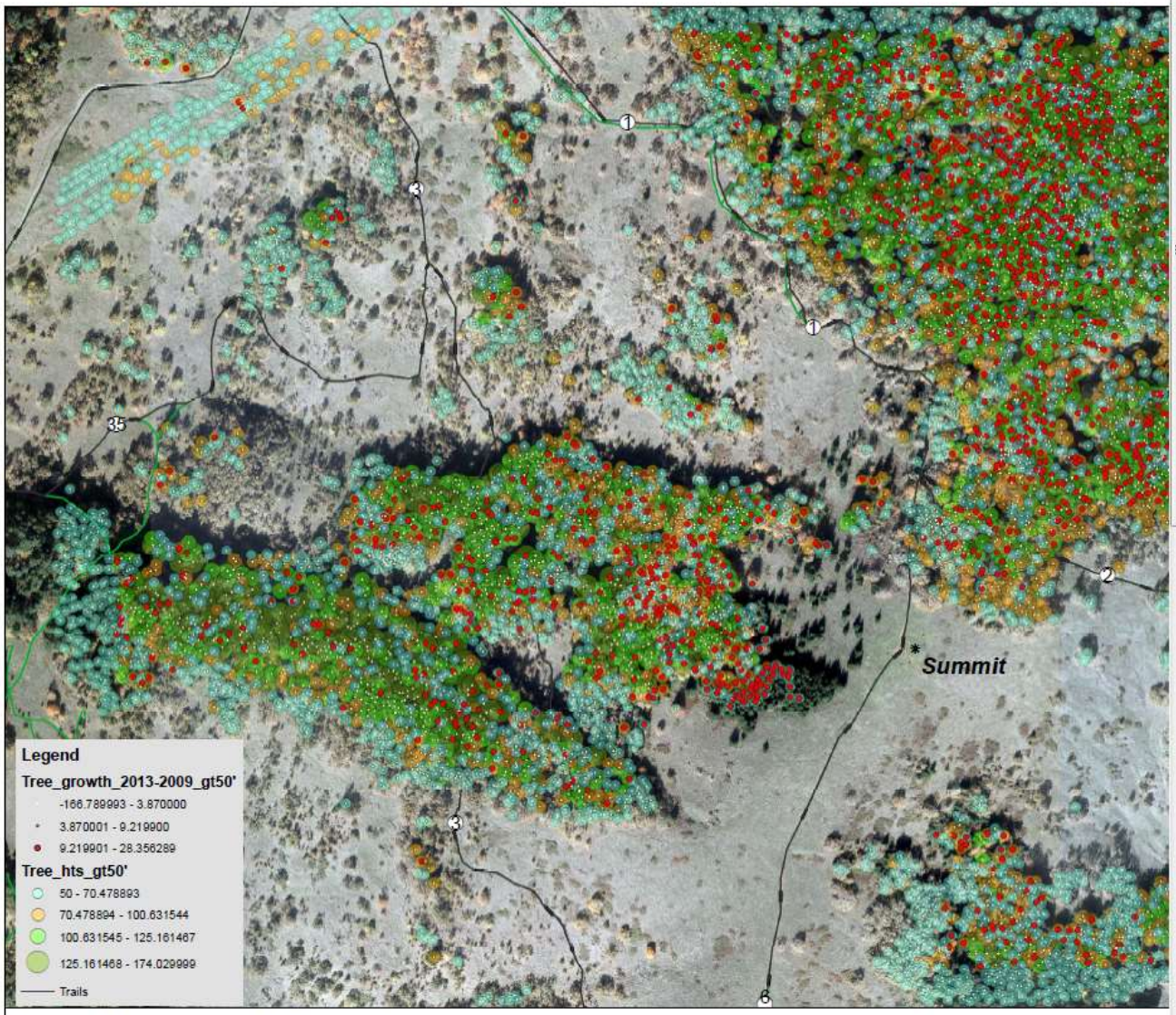
Salix Associates
GIS by Jim Reed, PhD
2014

HBRA summit tree ht growth.pdf - Adobe Reader

File Edit View Window Help

1 / 1 100% Tools Sign Comment

Zoom in (Ctrl+Plus)



11.00 x 8.50 in

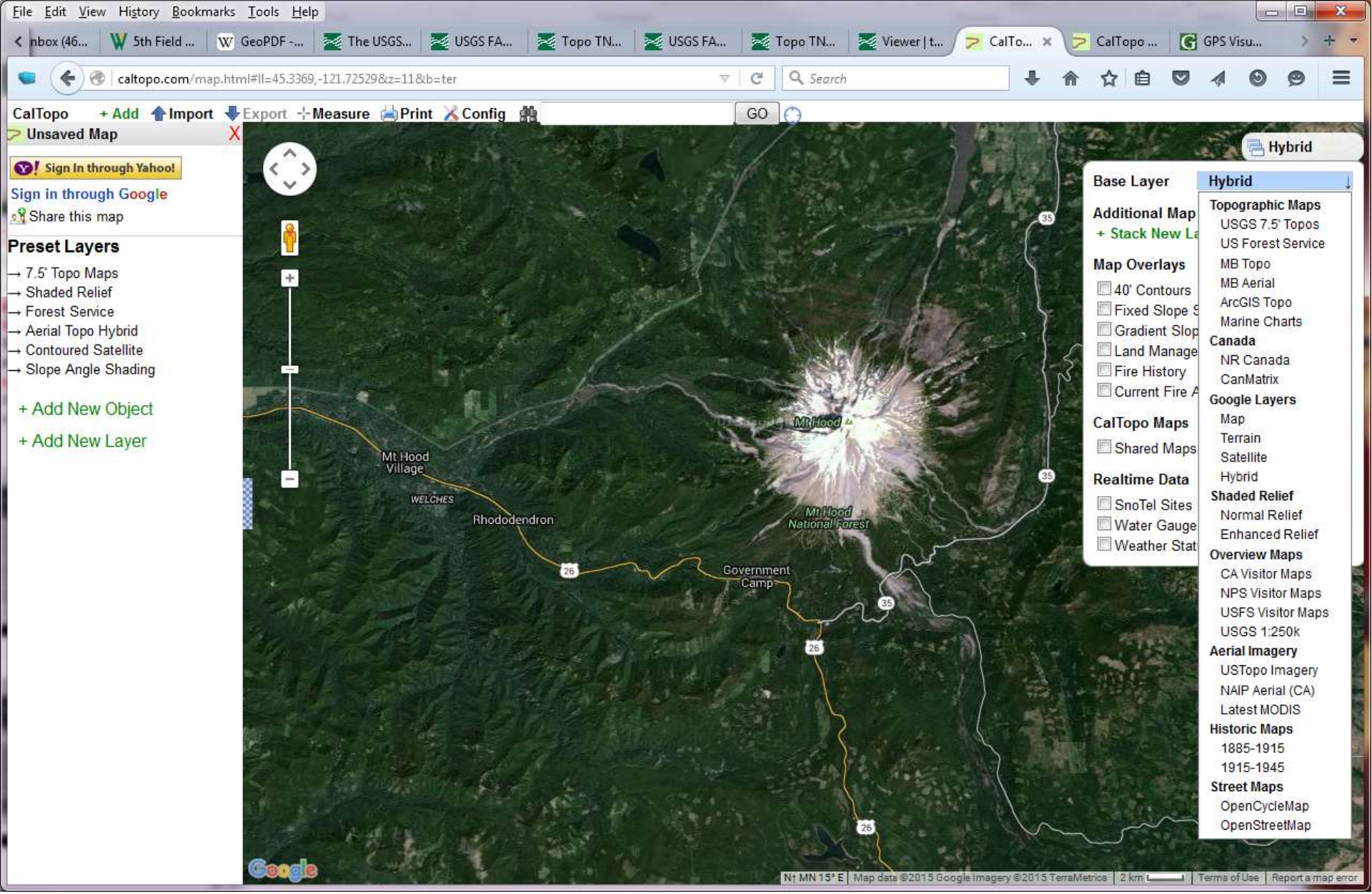
Caltopo.com for geopdfs, kml

Print to pdf, 8.5x11 for free.

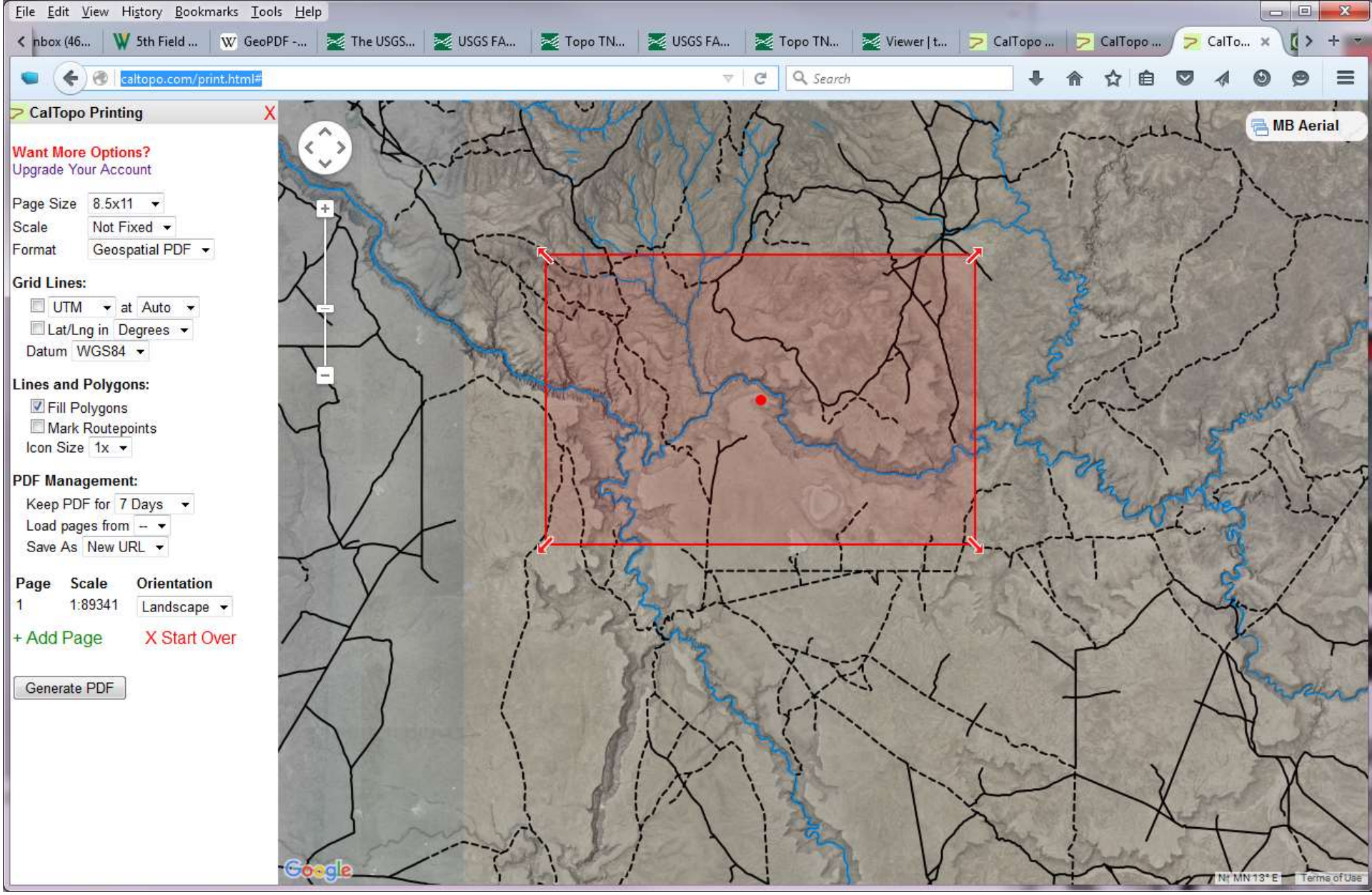
It automatically downloads a file named

Something like oavx2.

Rename it to MtHood.pdf



With **Caltopo** there are many options for background maps that can be “Printed”as a pdf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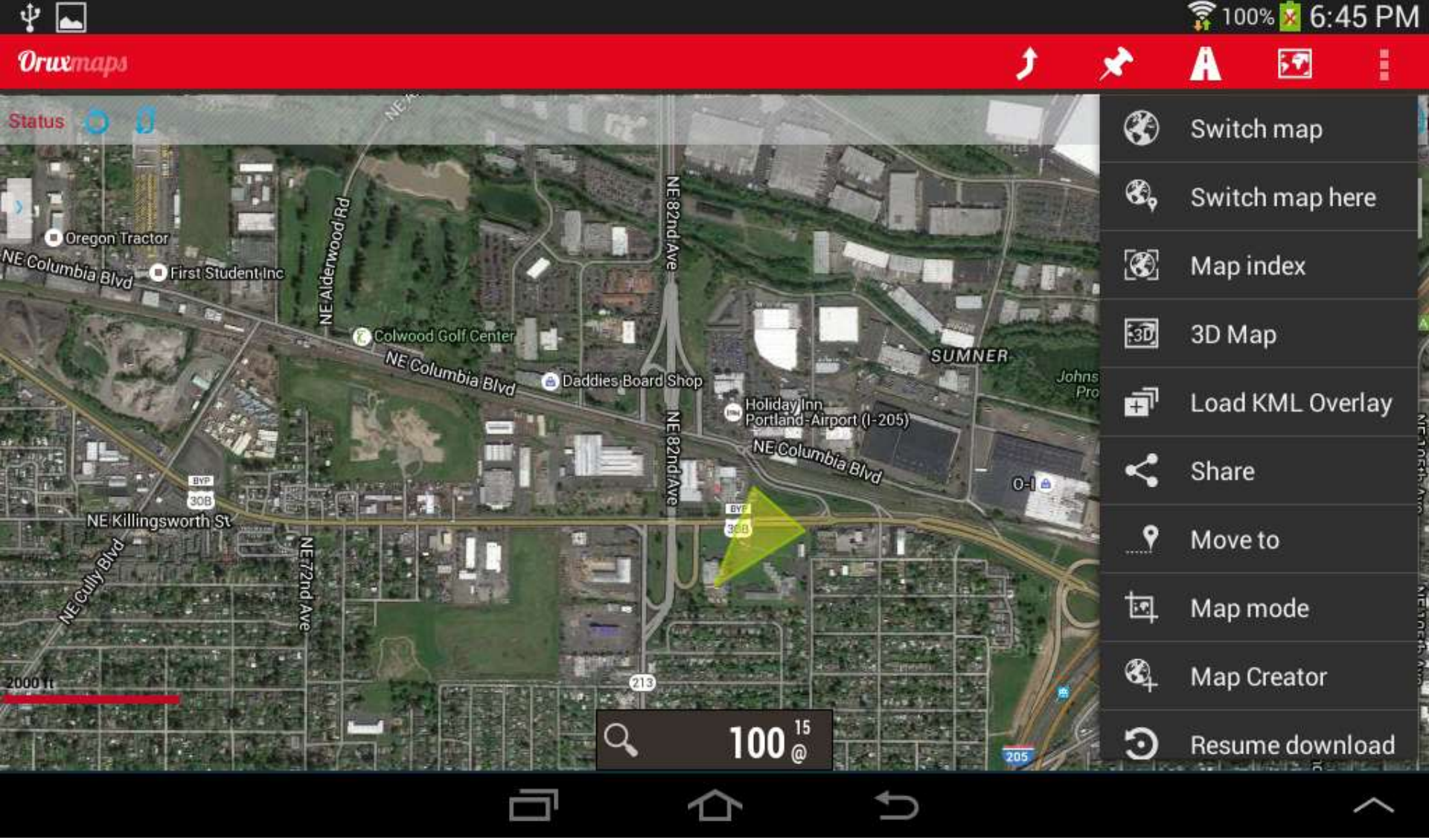
Google
Terms of Use

Oruxmaps is the only way I know to use Google Earth maps offline in a GIS program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NE Alderwood Rd
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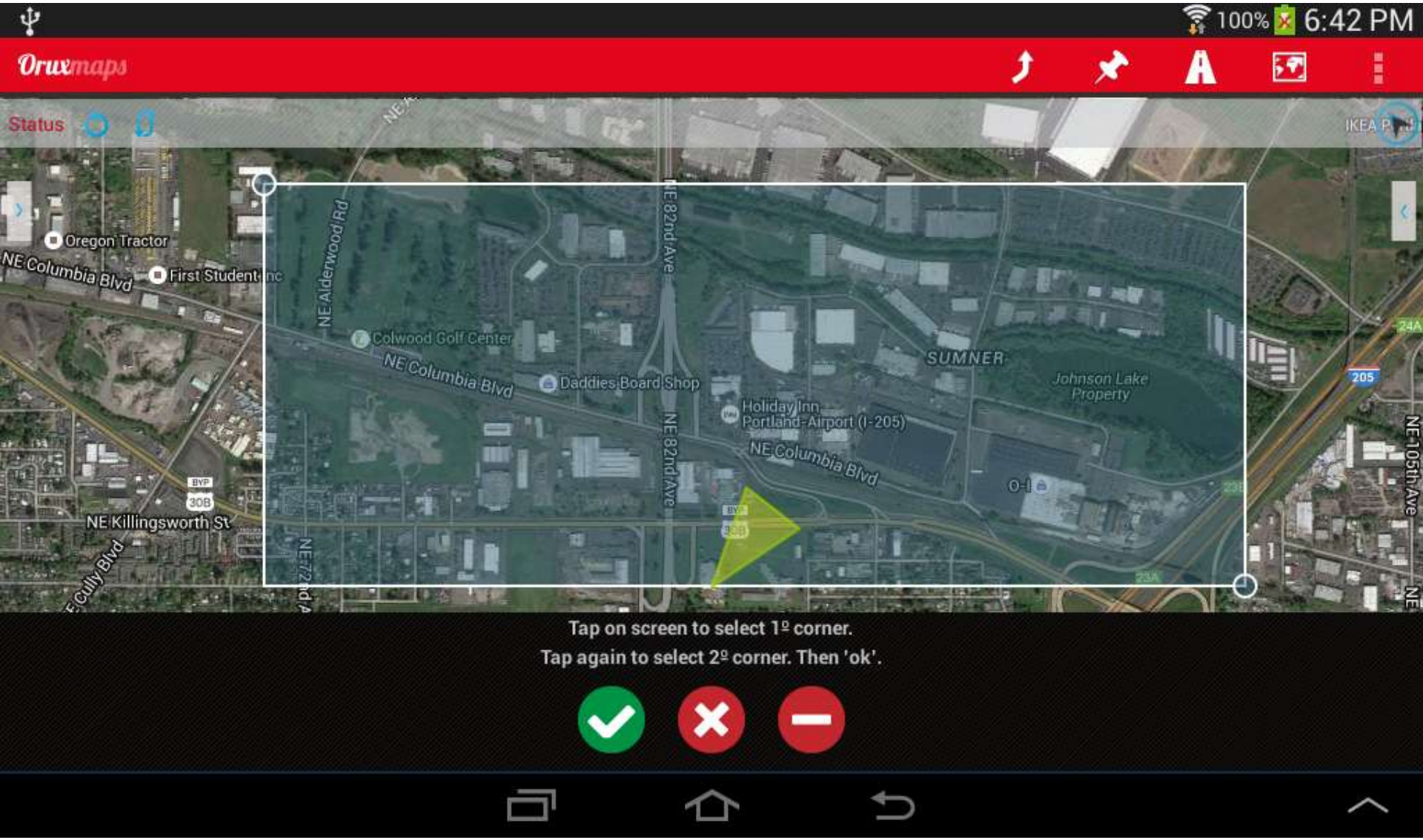
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Daddies Board Shop
Holiday Inn Portland-Airport (I-205)
NE Columbia Blvd
SUMNER
Johnson Lake Property
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NE 105th Ave
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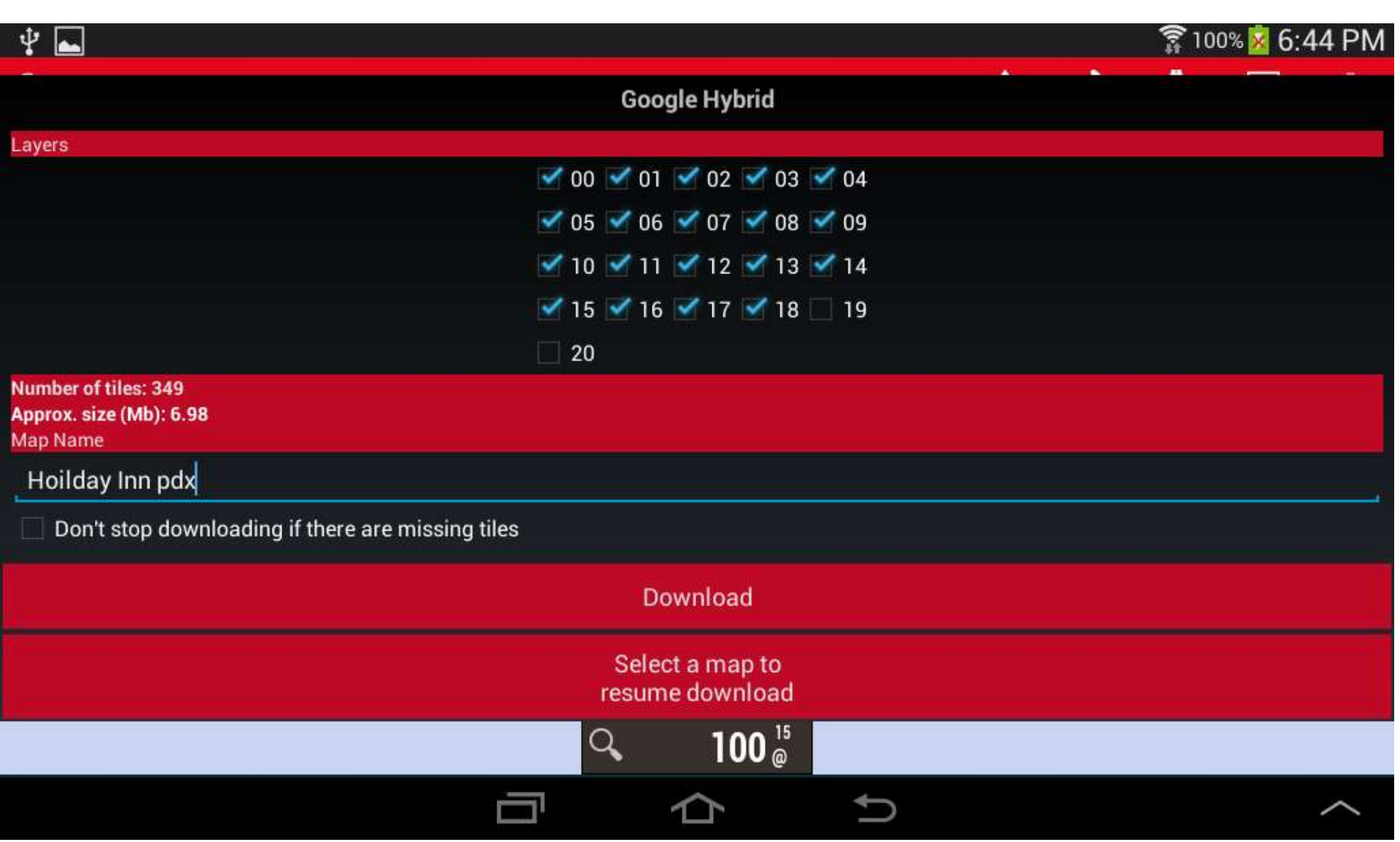
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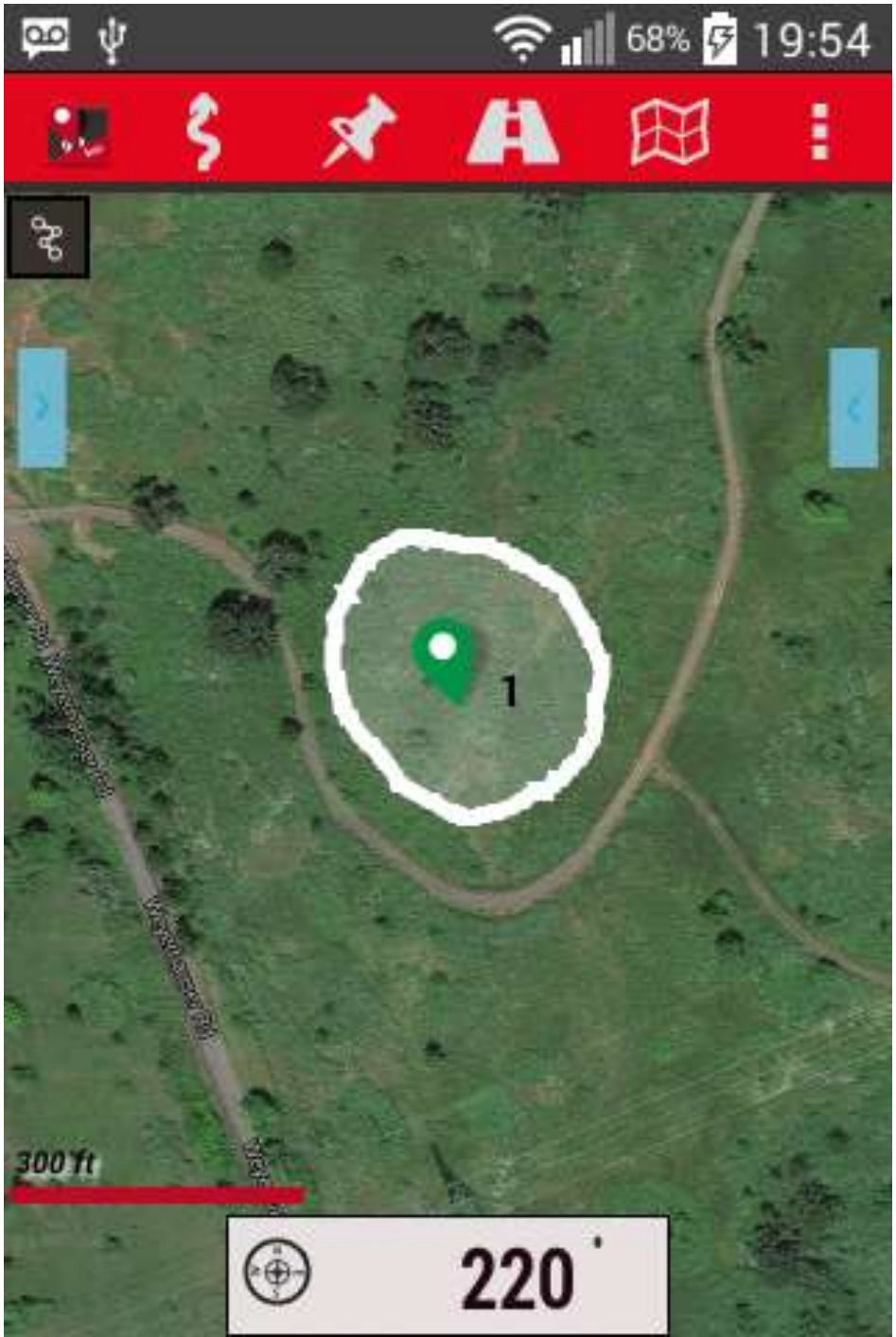
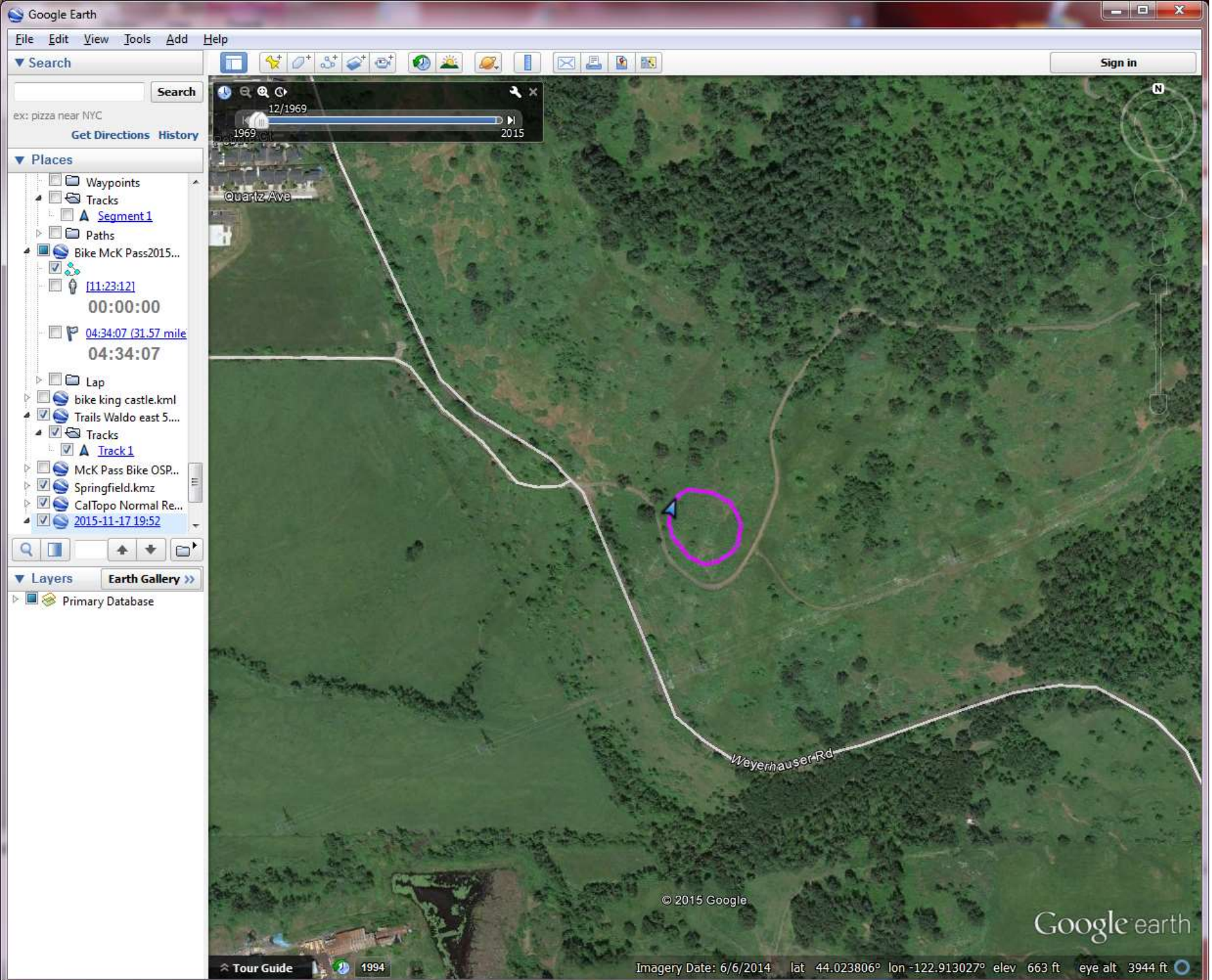


For habitat classification in the field, you can just draw an Overlay.

Add a waypoint to identify the habitat.

“Share” the track via email. It is saved as a kml.


Google Earth
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Weyerhauser Rd
© 2015 Google
Google earth
Tour Guide
1994
Imagery Date: 6/6/2014 lat 44.023806° lon -122.913027° elev 663 ft eye alt 3944 ft

Questions?