The Geospatial Desktop
Open Source GIS and Mapping

Gary Sherman

Figures and Illustrations

The Geospatial Desktop: Open Source GIS and Mapping
by Gary Sherman

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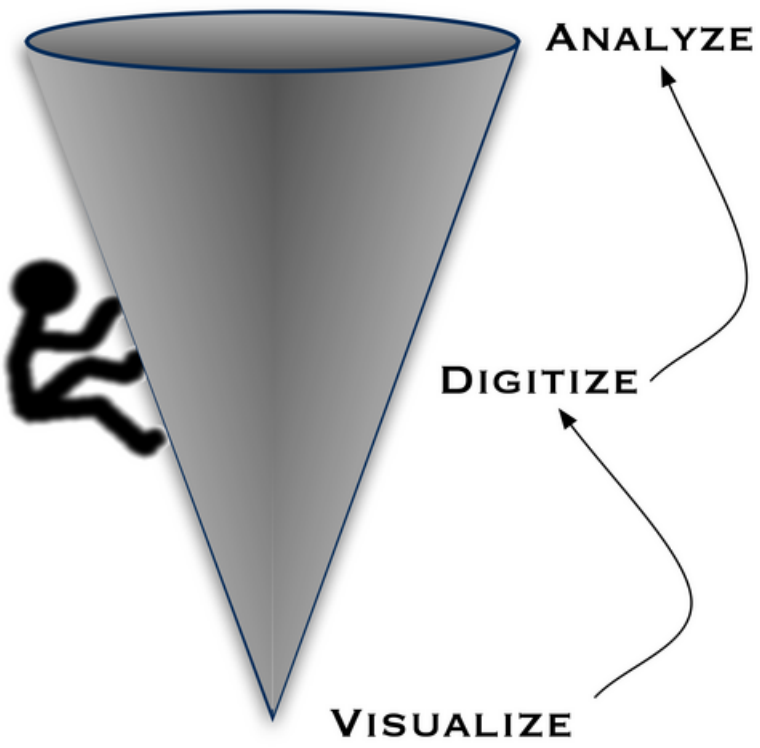

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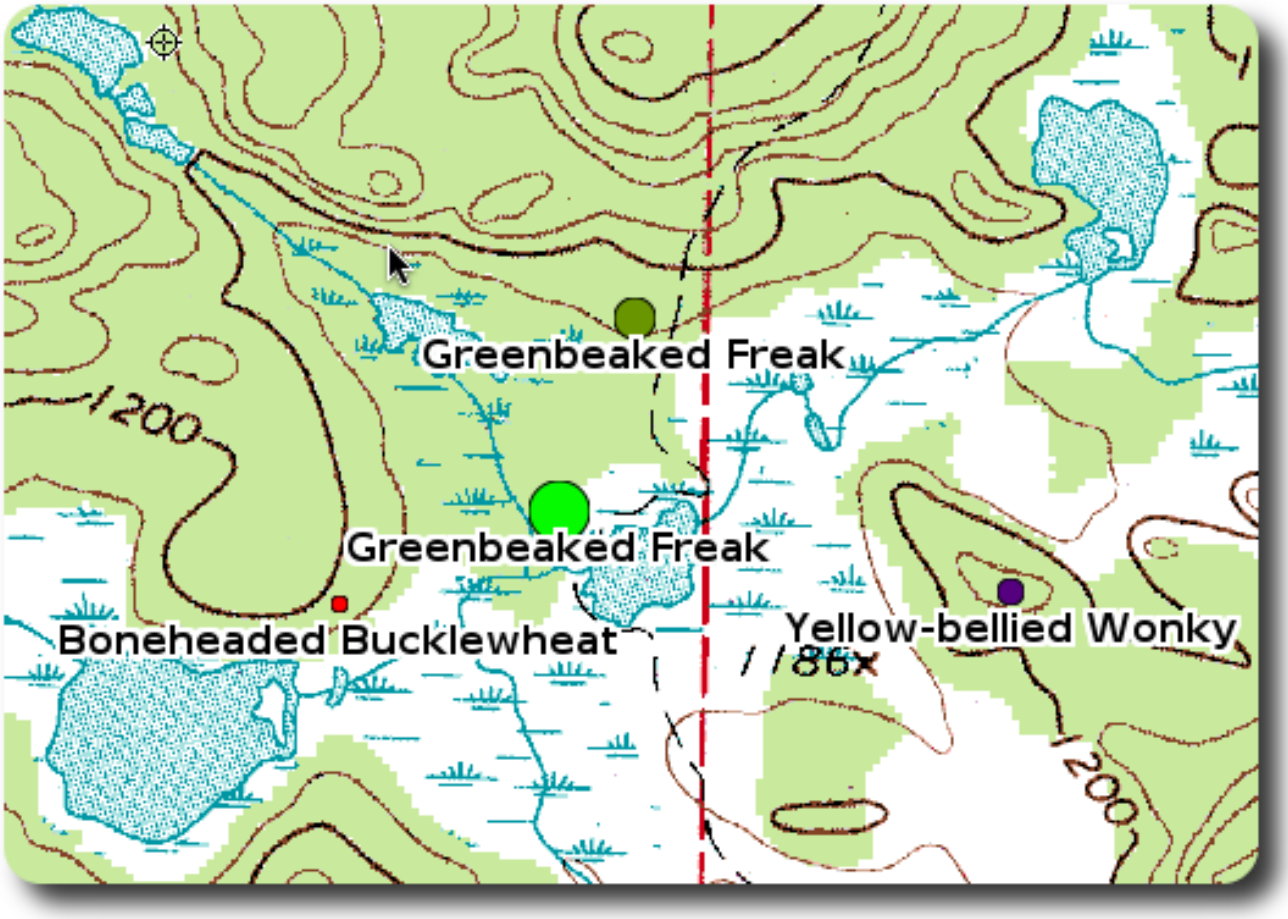

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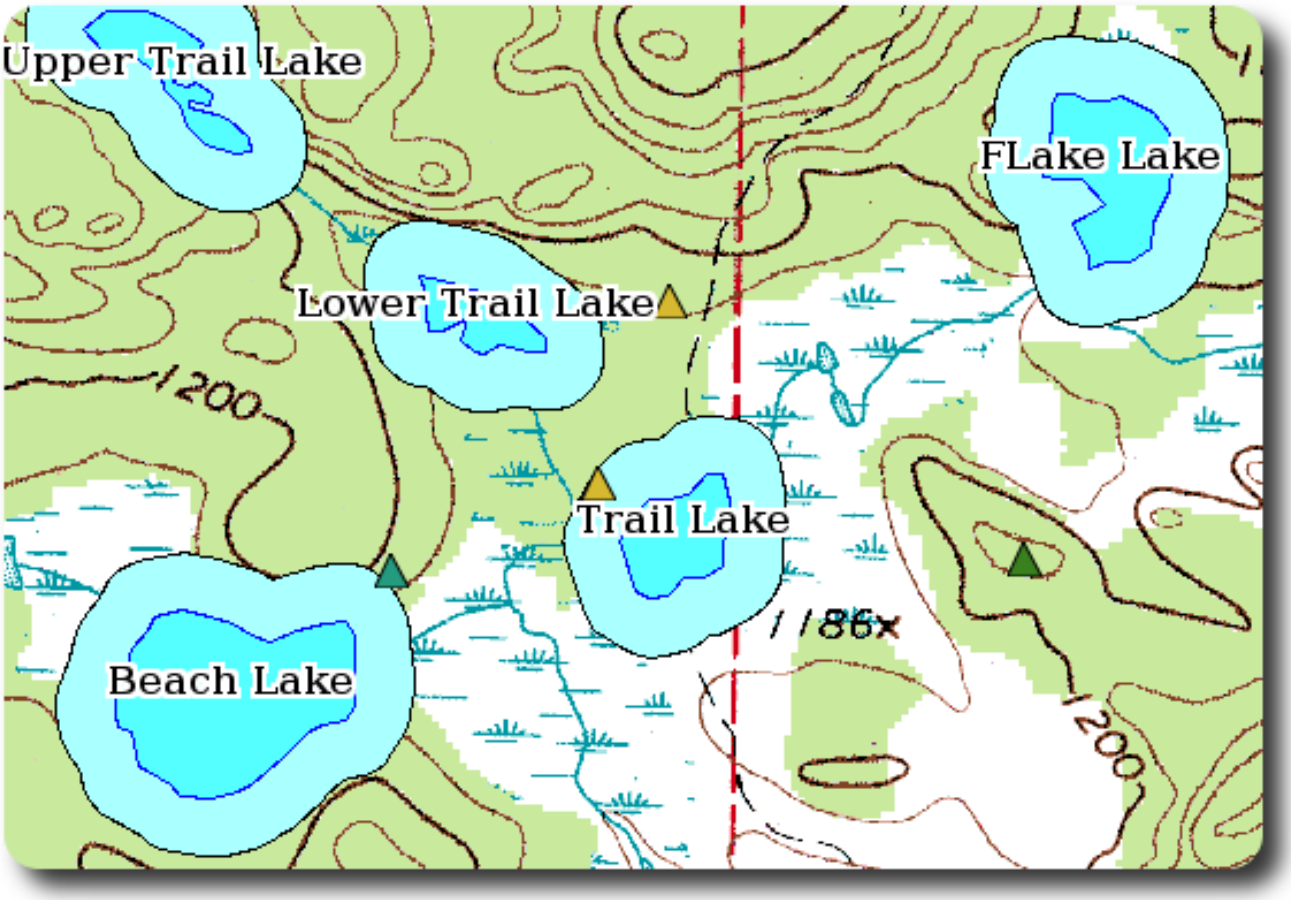

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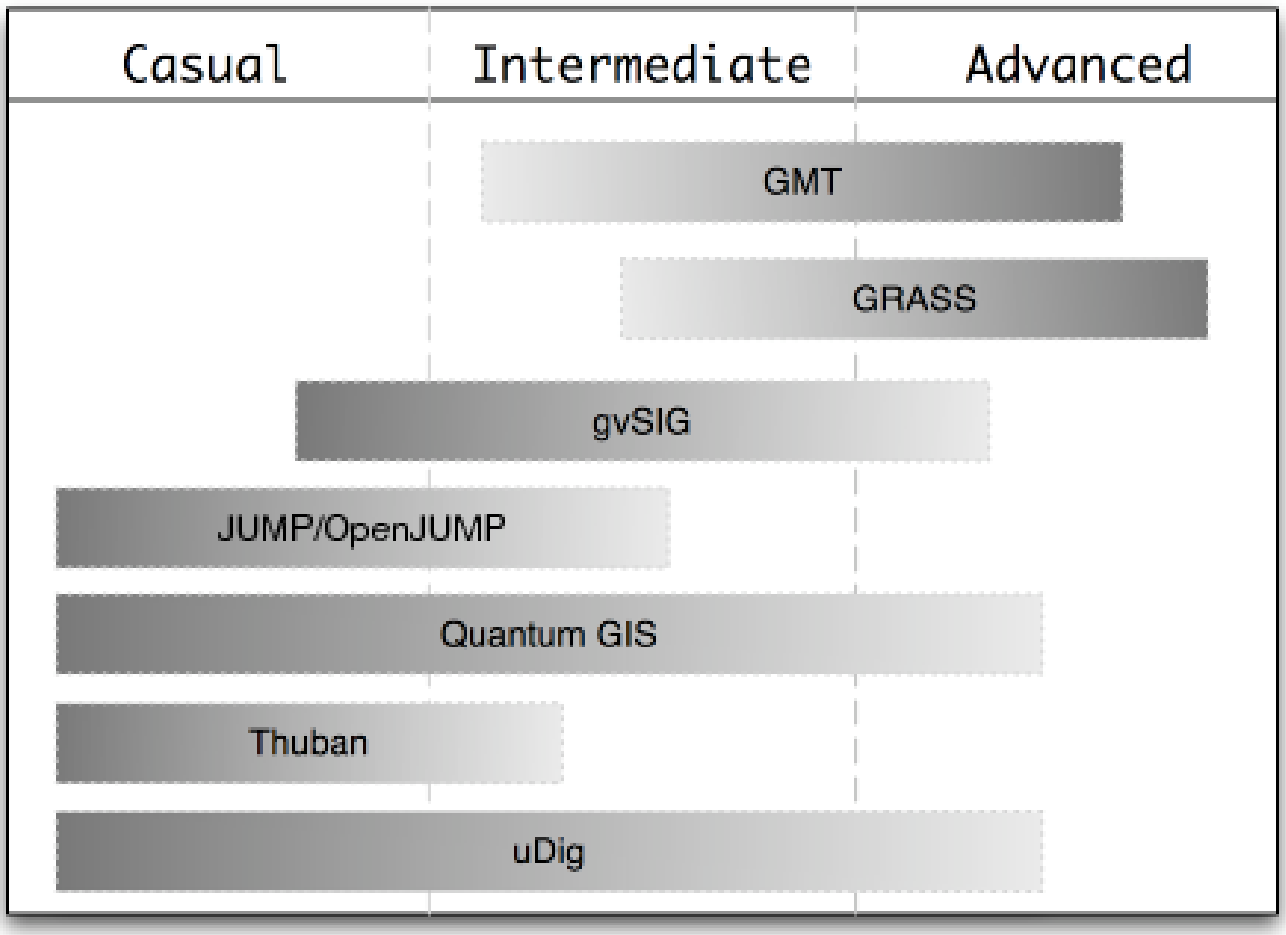

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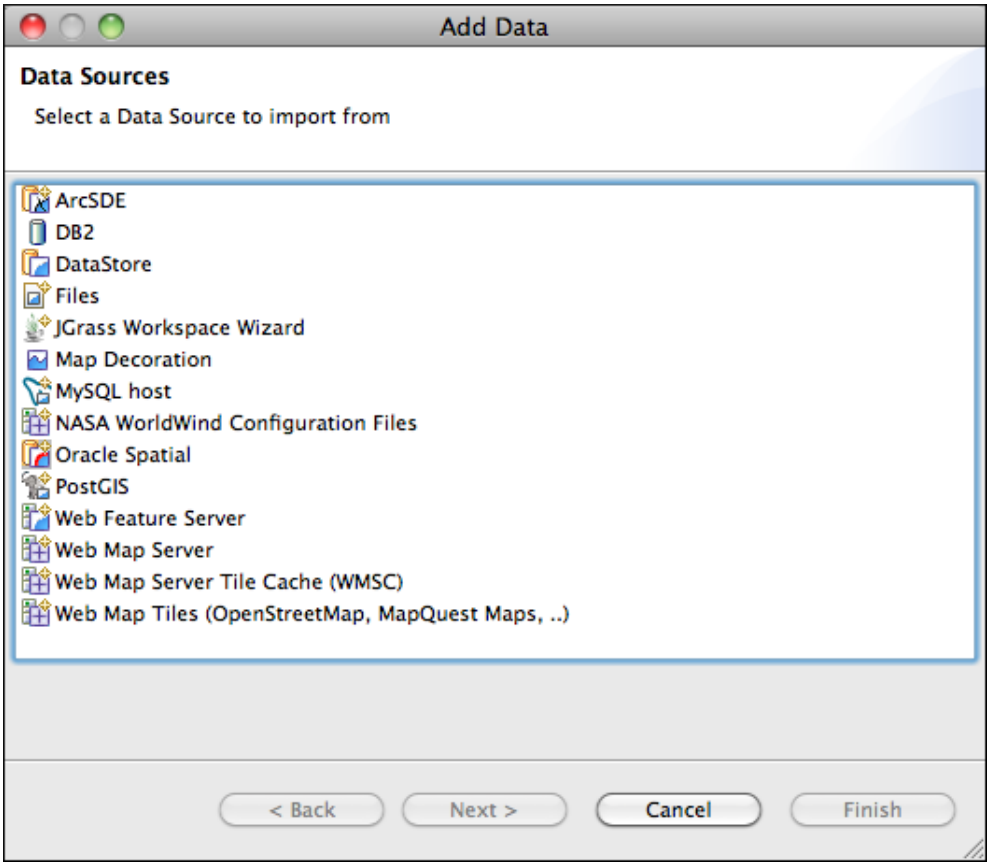

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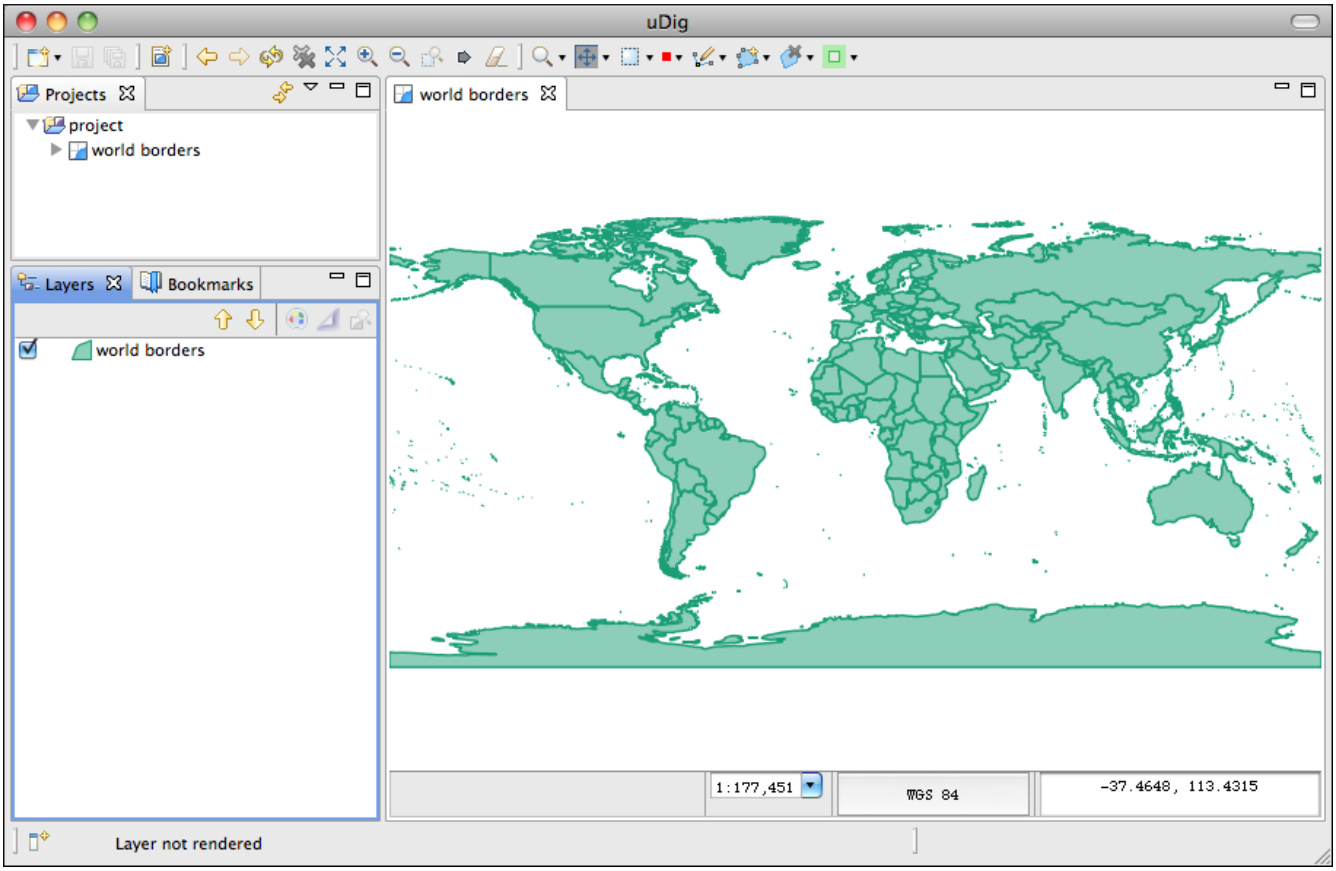

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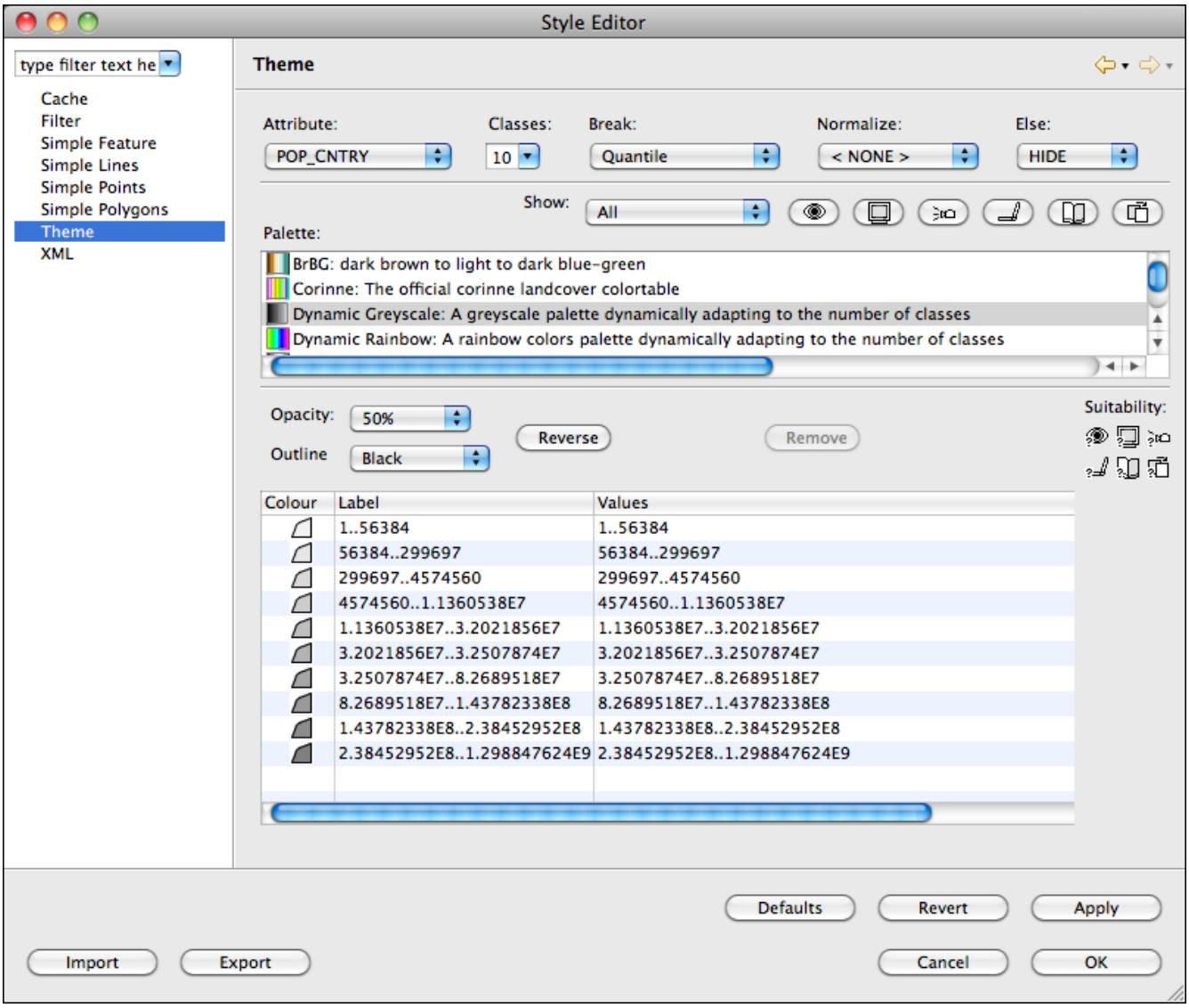

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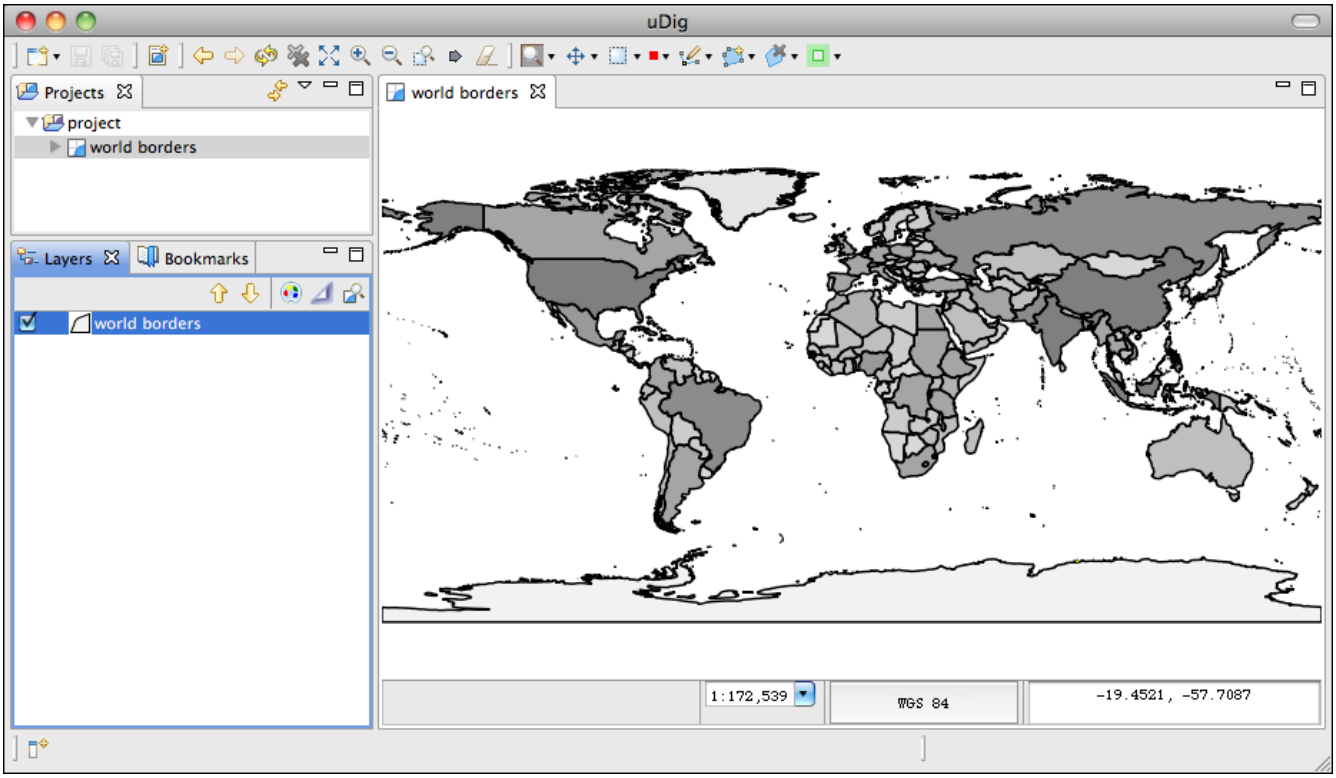

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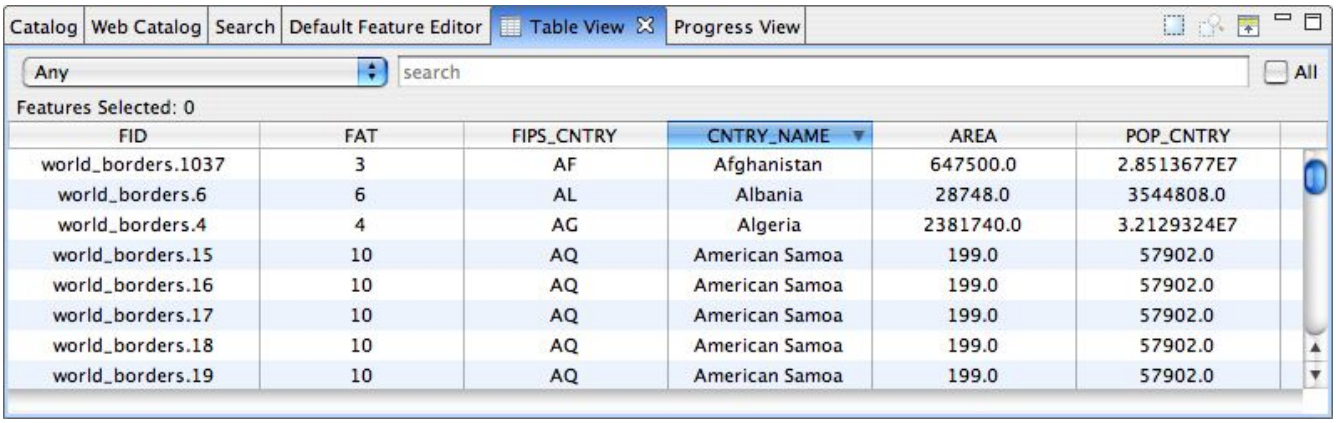

FID	FAT	FIPS_CNTRY	CNTRY_NAME	AREA	POP_CNTRY
world_borders.1037	3	AF	Afghanistan	647500.0	2.8513677E7
world_borders.6	6	AL	Albania	28748.0	3544808.0
world_borders.4	4	AG	Algeria	2381740.0	3.2129324E7
world_borders.15	10	AQ	American Samoa	199.0	57902.0
world_borders.16	10	AQ	American Samoa	199.0	57902.0
world_borders.17	10	AQ	American Samoa	199.0	57902.0
world_borders.18	10	AQ	American Samoa	199.0	57902.0
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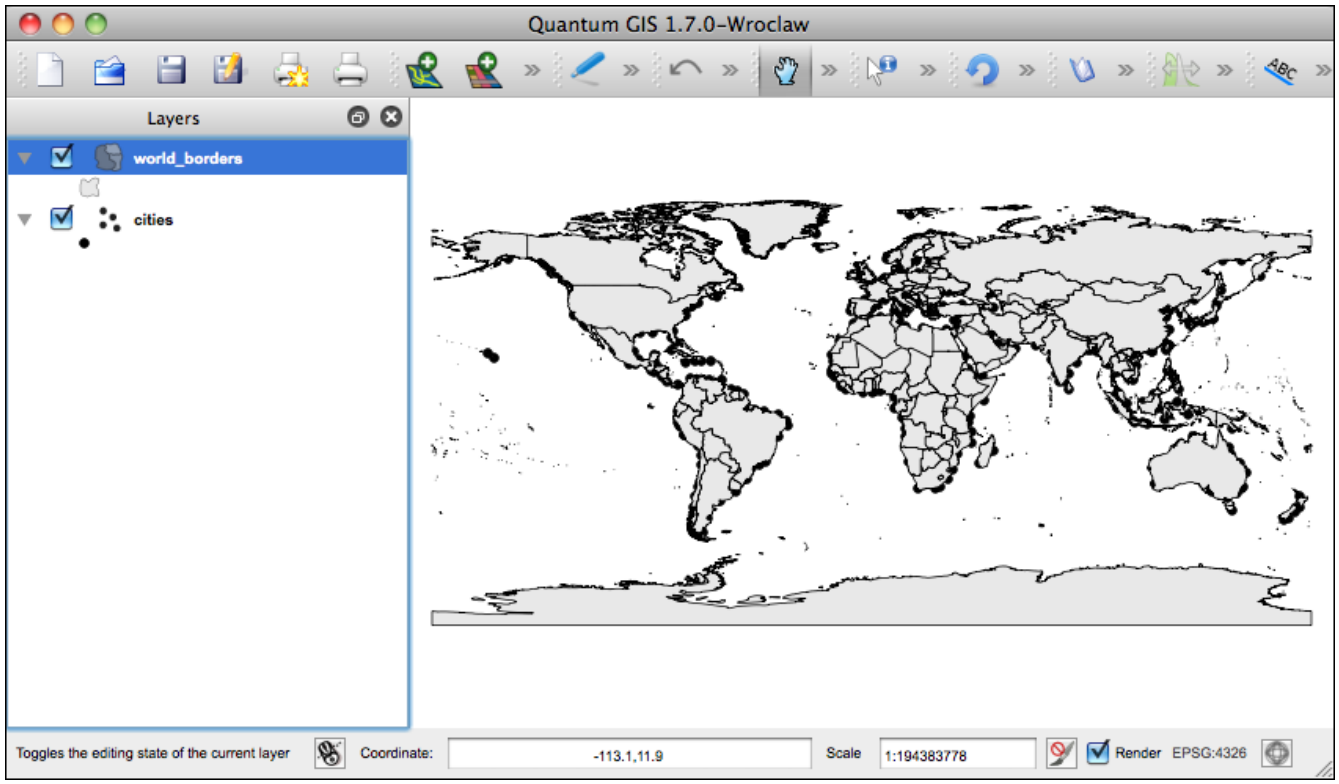

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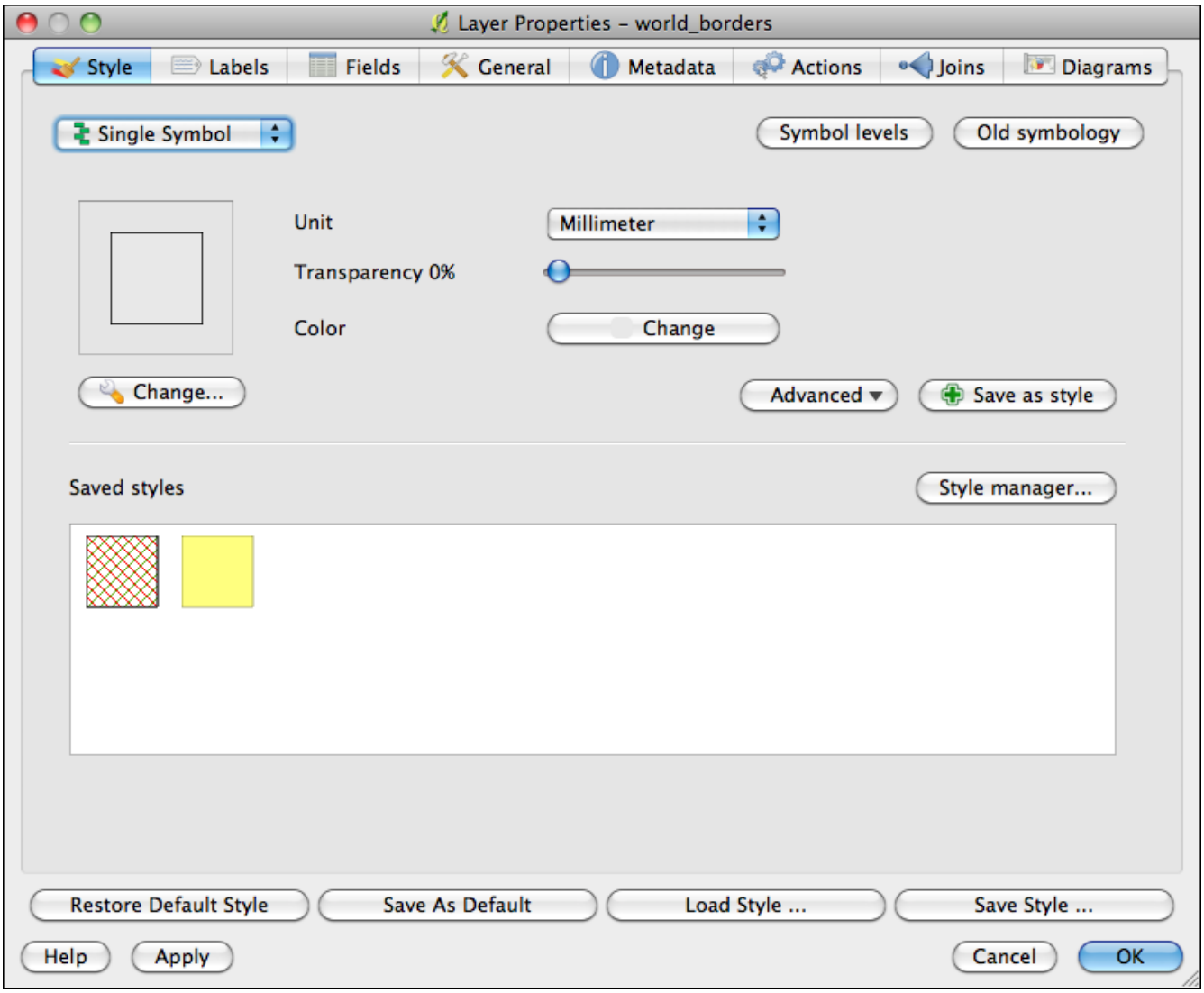

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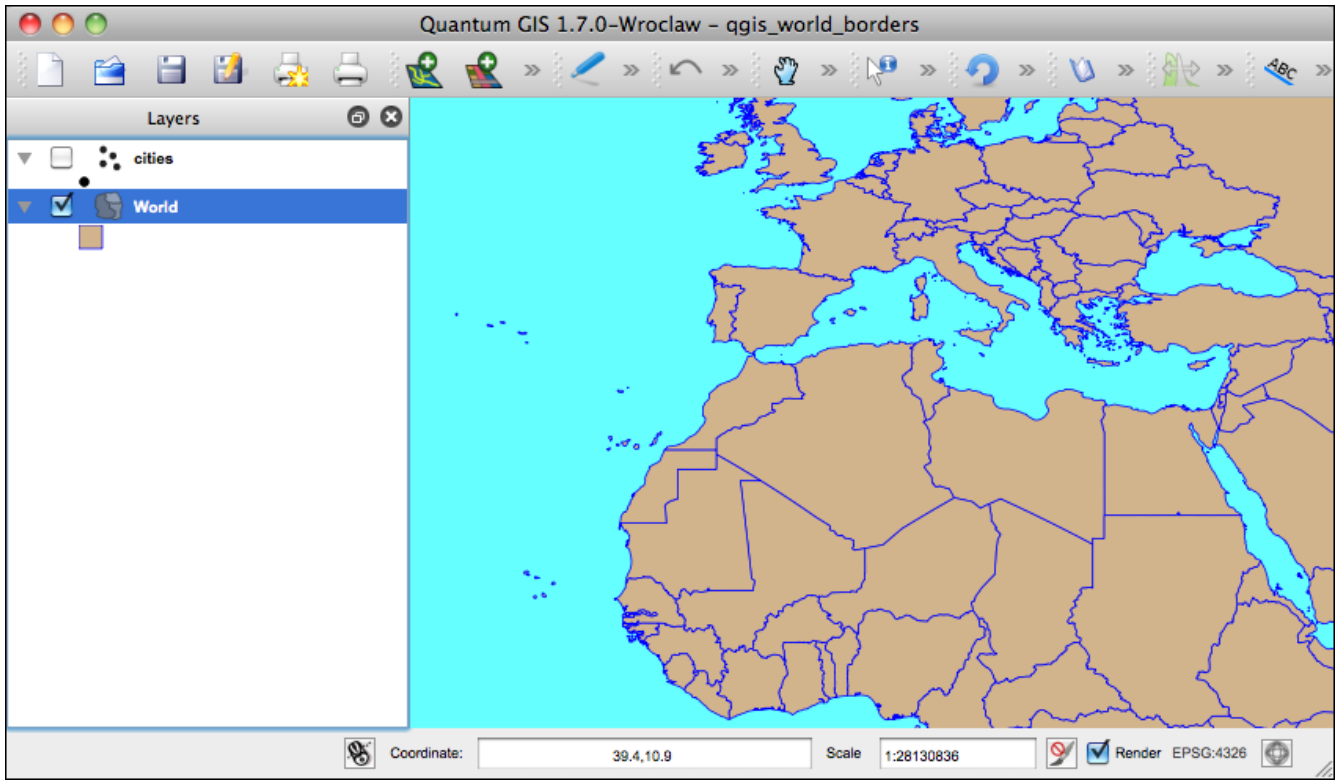

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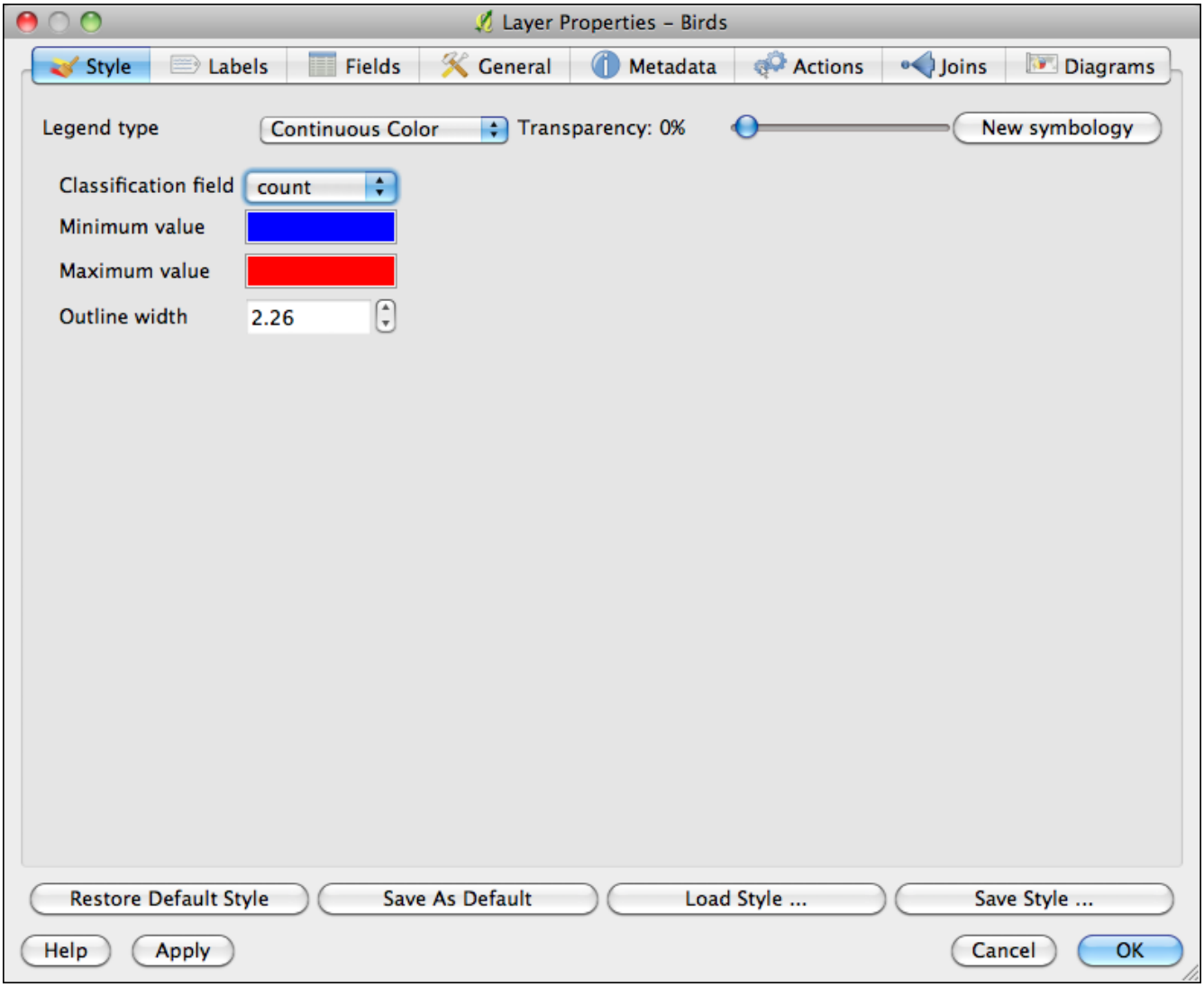

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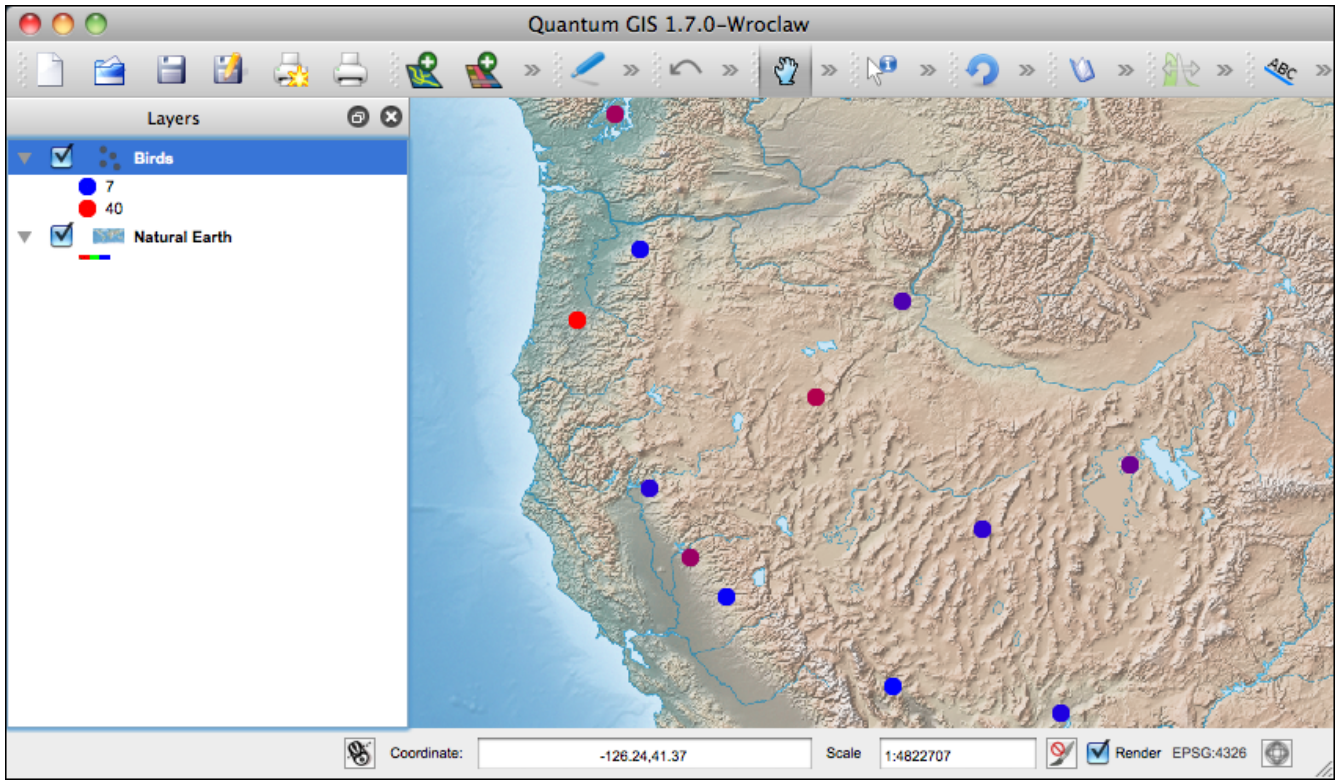

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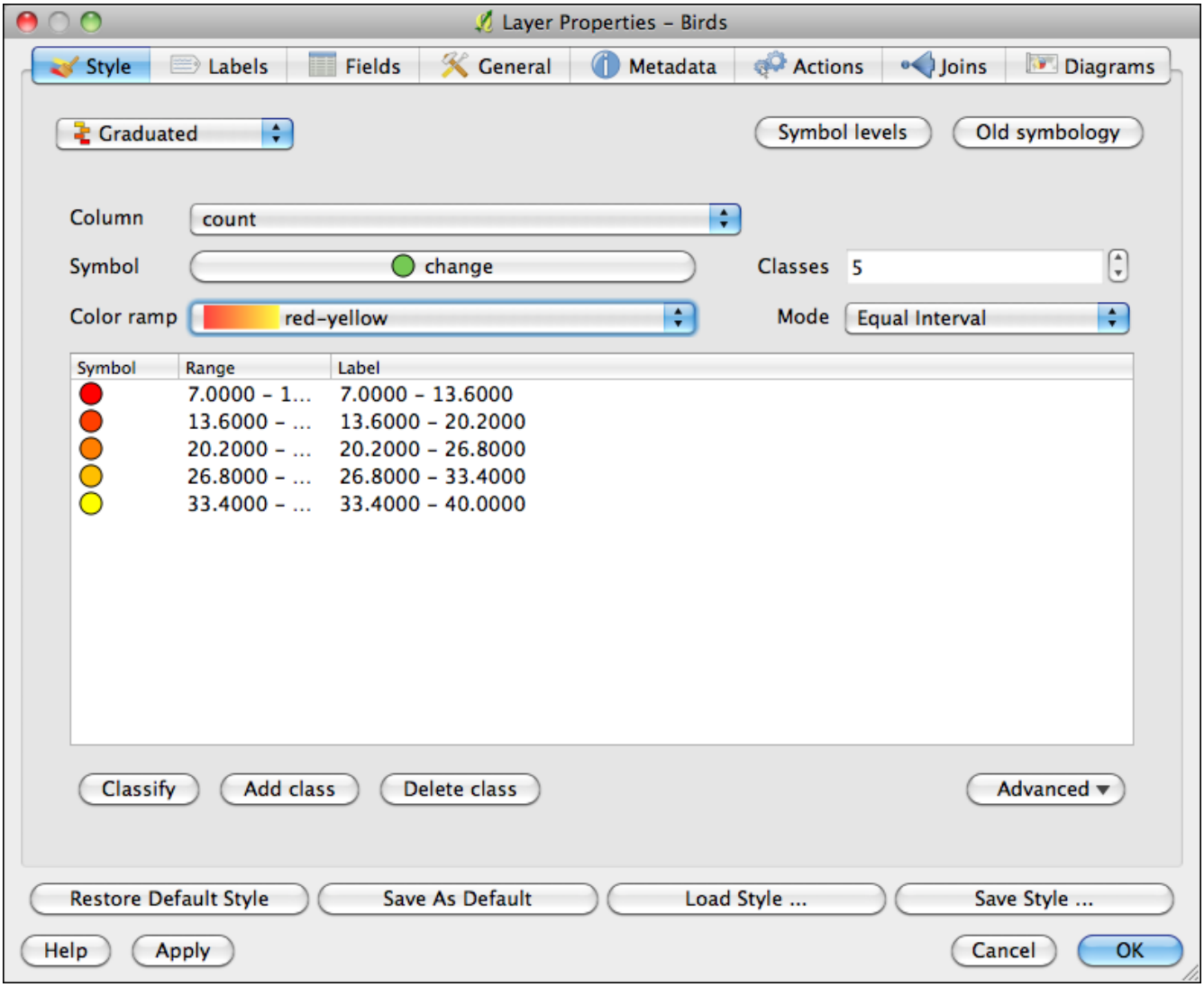

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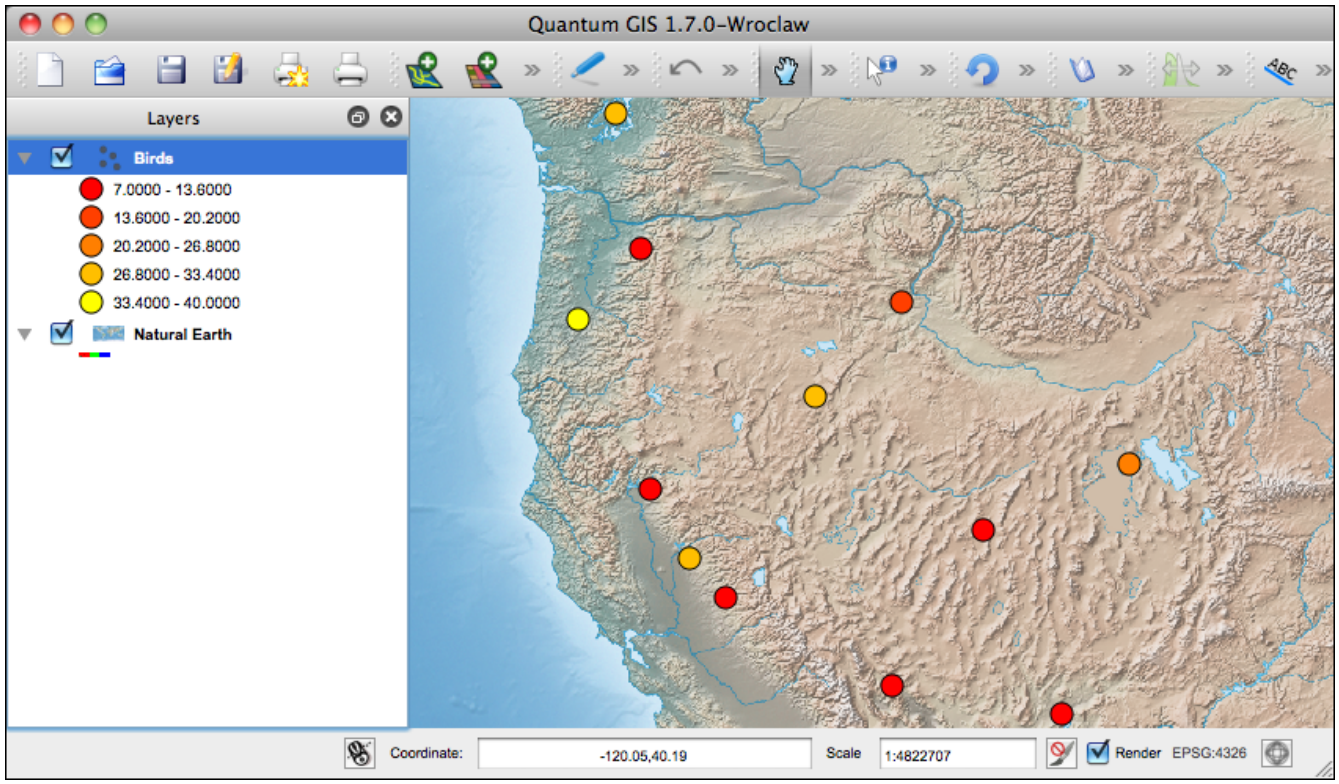

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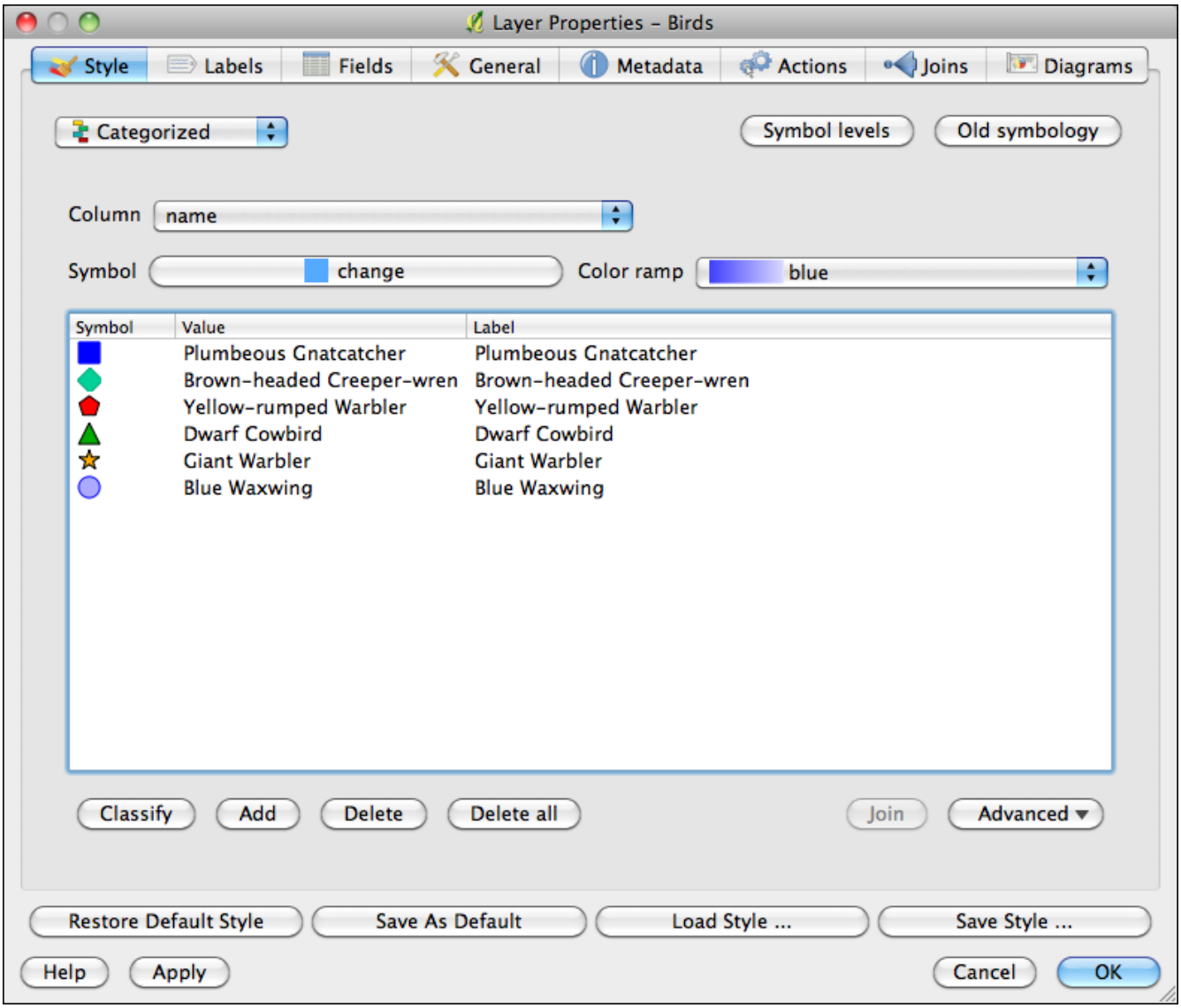

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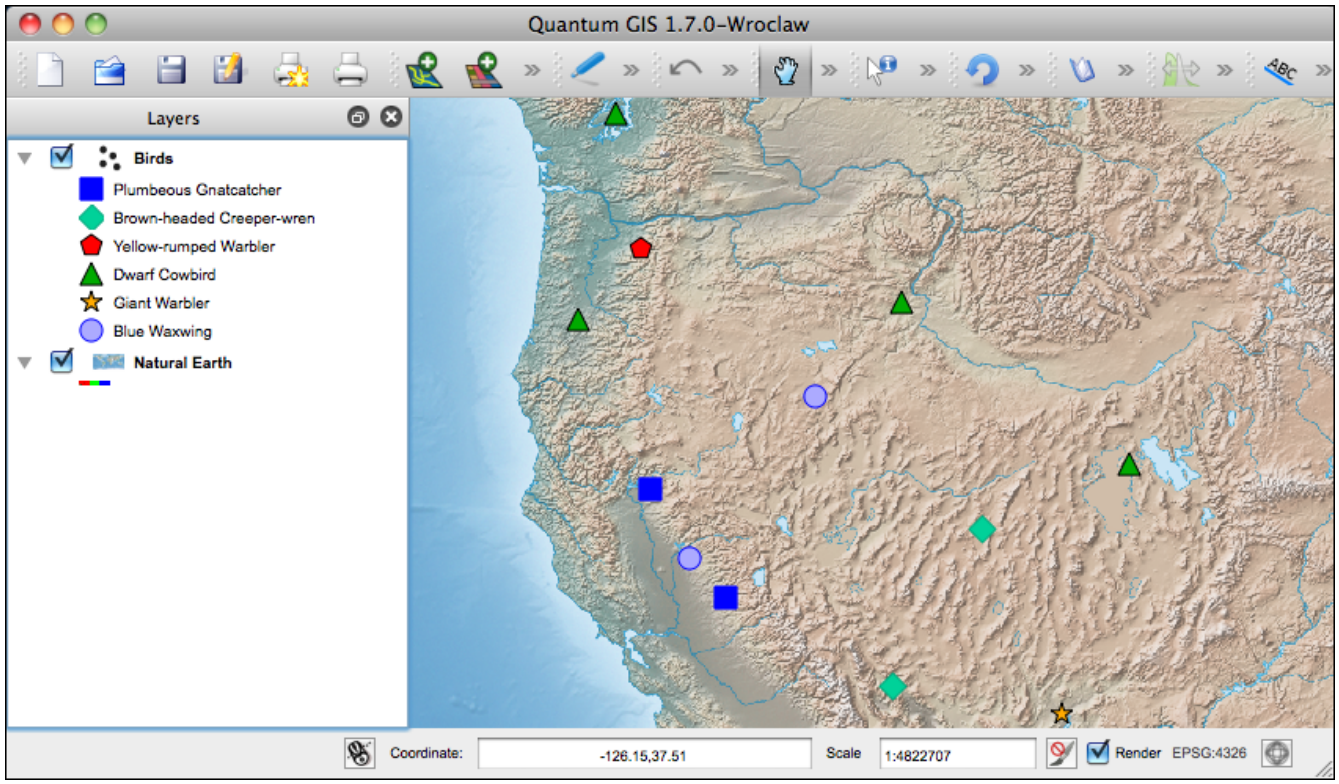

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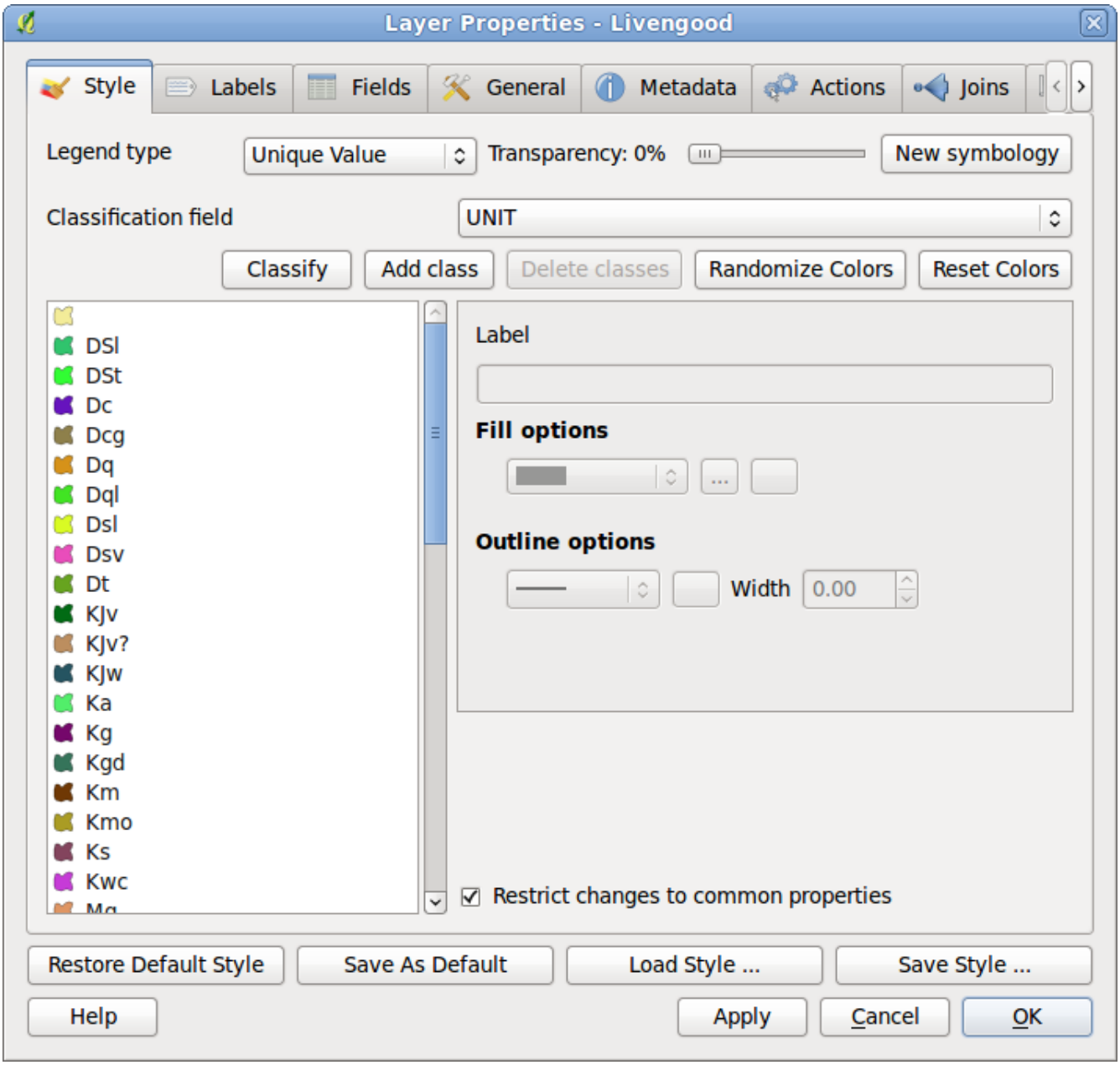

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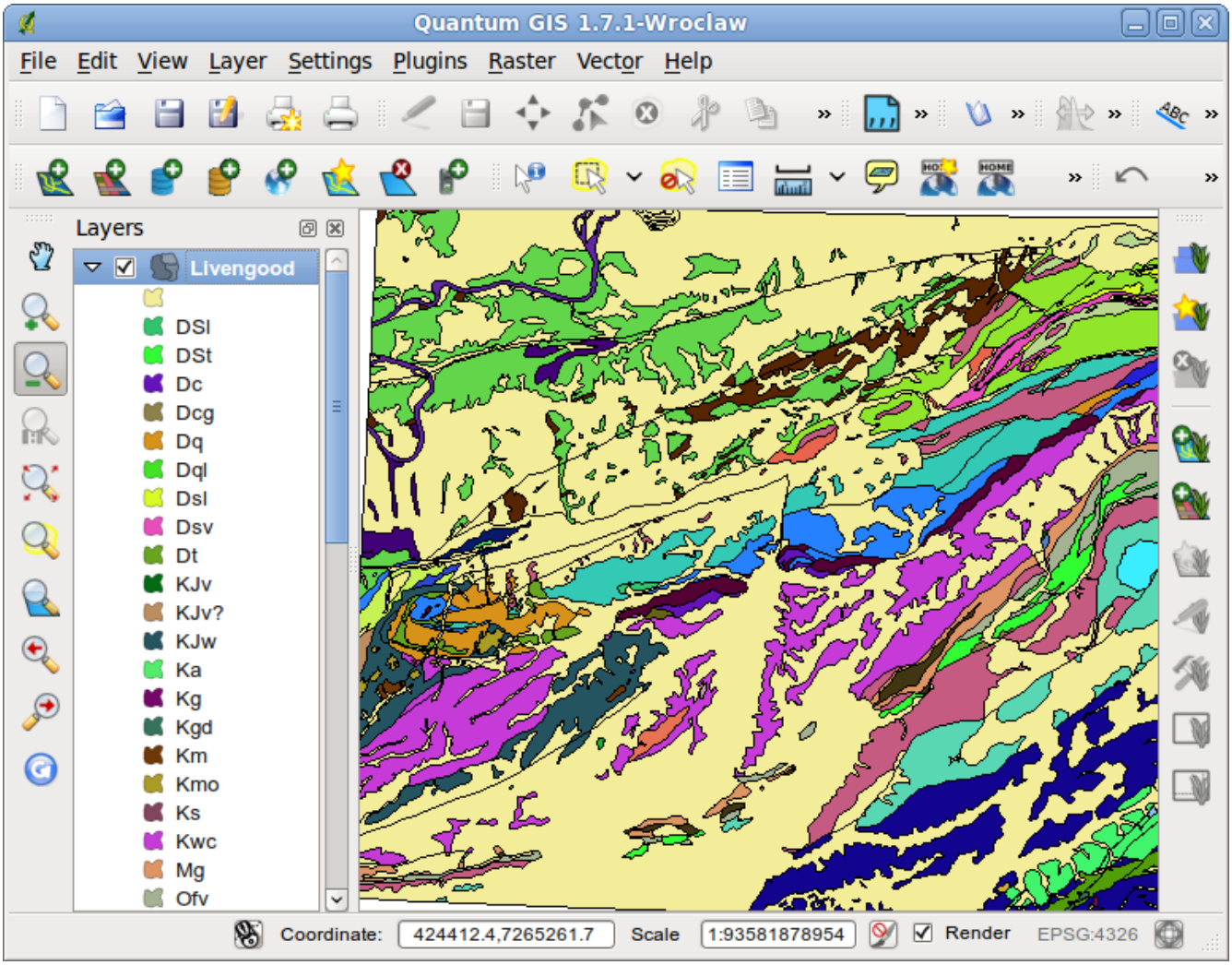

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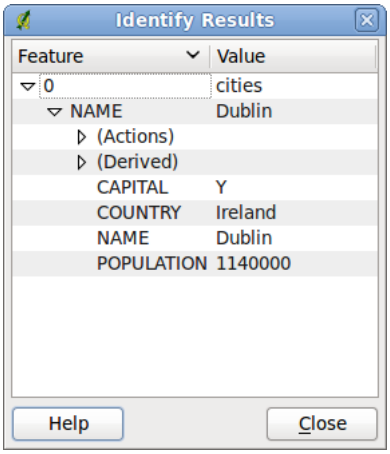

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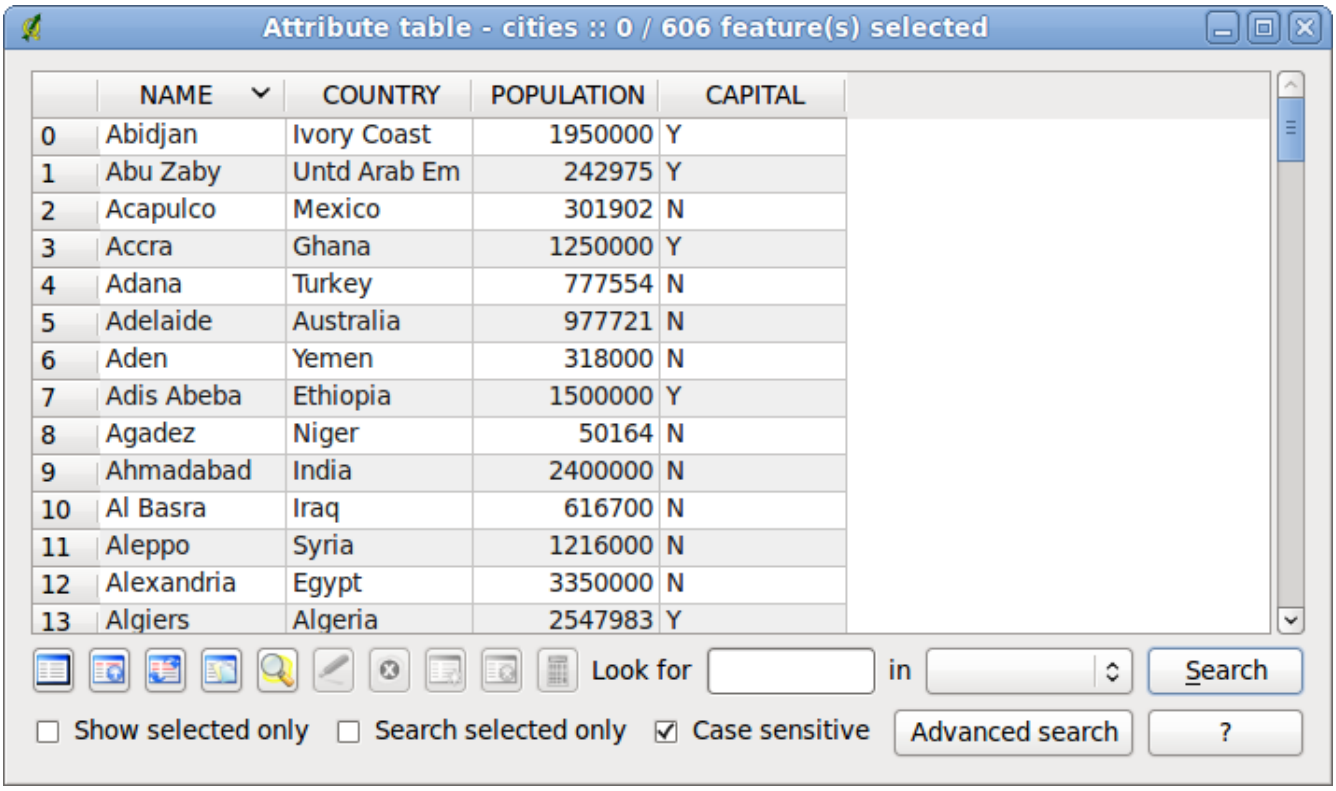

	NAME	COUNTRY	POPULATION	CAPITAL
0	Abidjan	Ivory Coast	1950000	Y
1	Abu Zaby	Untd Arab Em	242975	Y
2	Acapulco	Mexico	301902	N
3	Accra	Ghana	1250000	Y
4	Adana	Turkey	777554	N
5	Adelaide	Australia	977721	N
6	Aden	Yemen	318000	N
7	Adis Abeba	Ethiopia	1500000	Y
8	Agadez	Niger	50164	N
9	Ahmadabad	India	2400000	N
10	Al Basra	Iraq	616700	N
11	Aleppo	Syria	1216000	N
12	Alexandria	Egypt	3350000	N
13	Algiers	Algeria	2547983	Y

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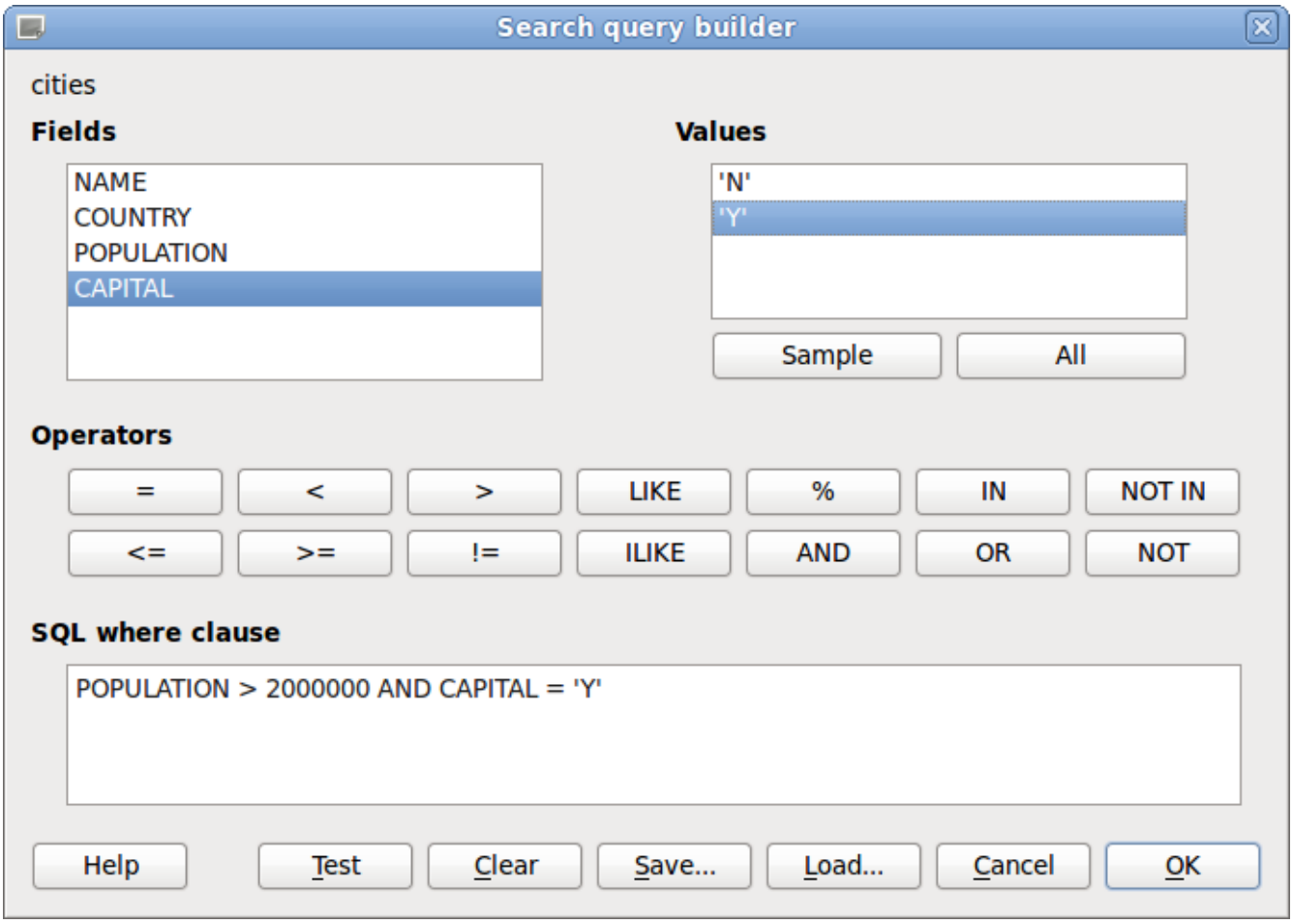

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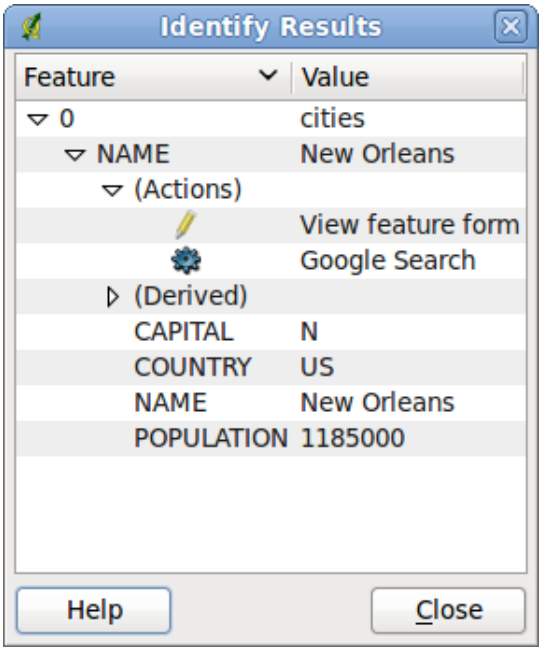

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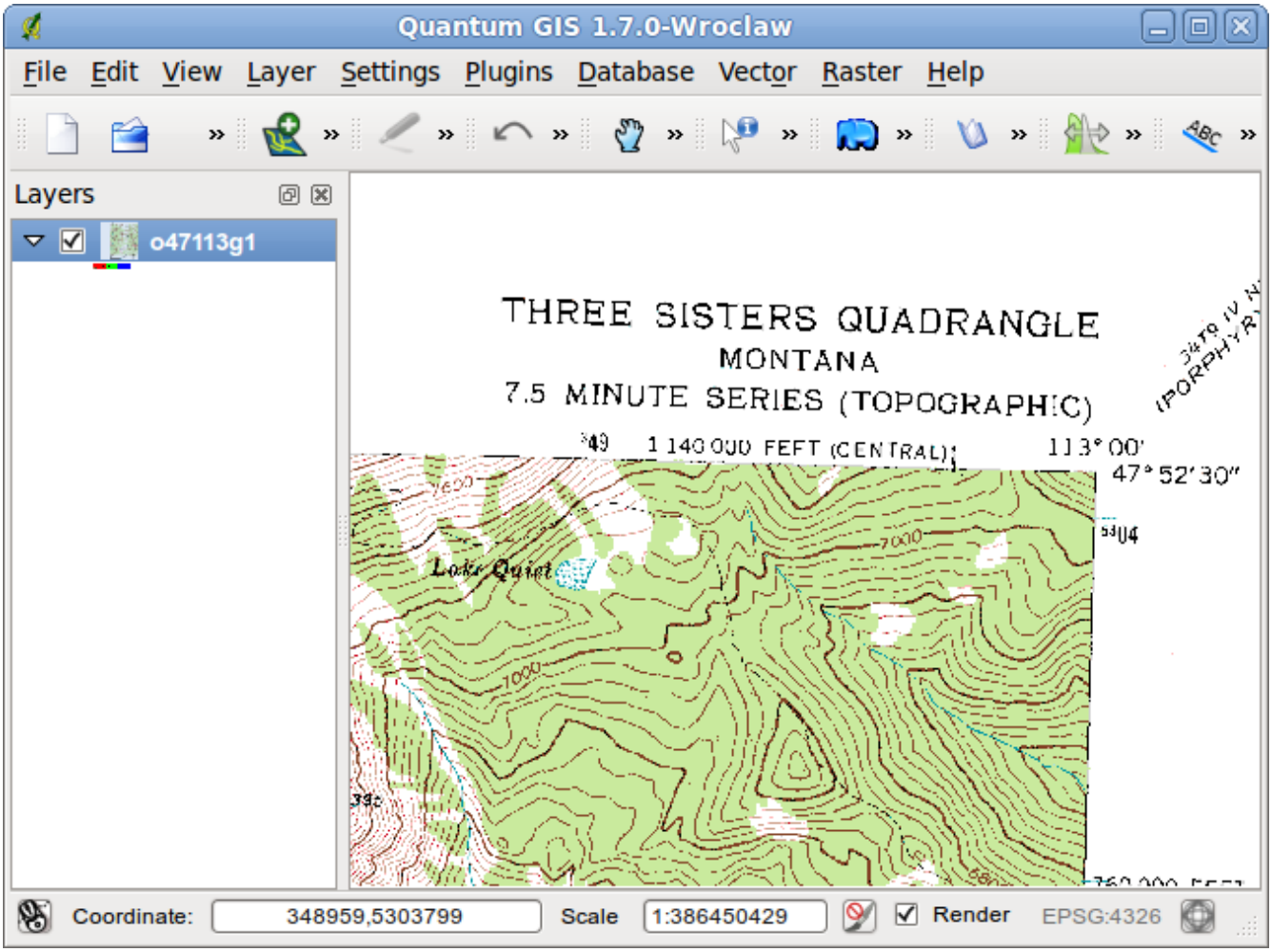

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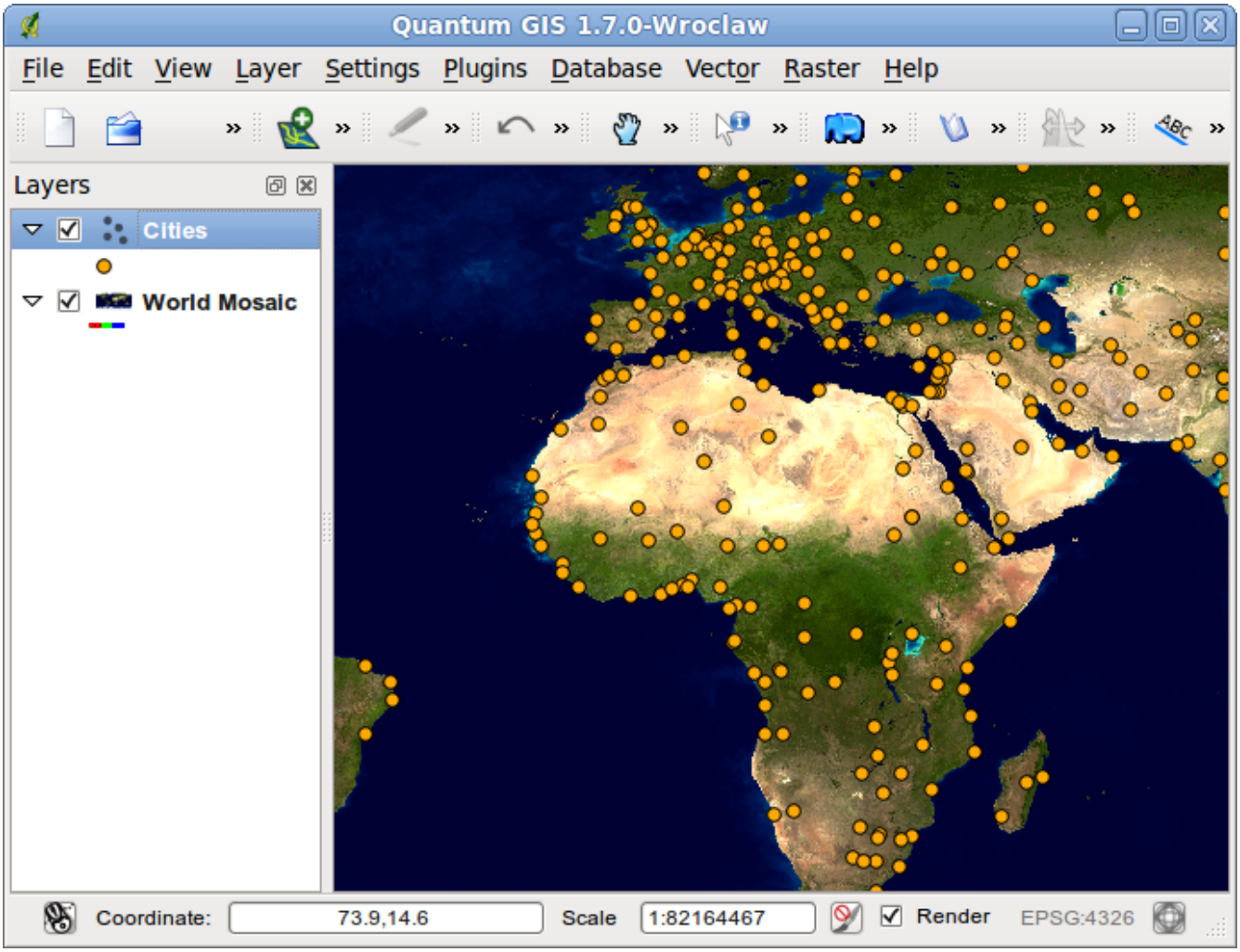

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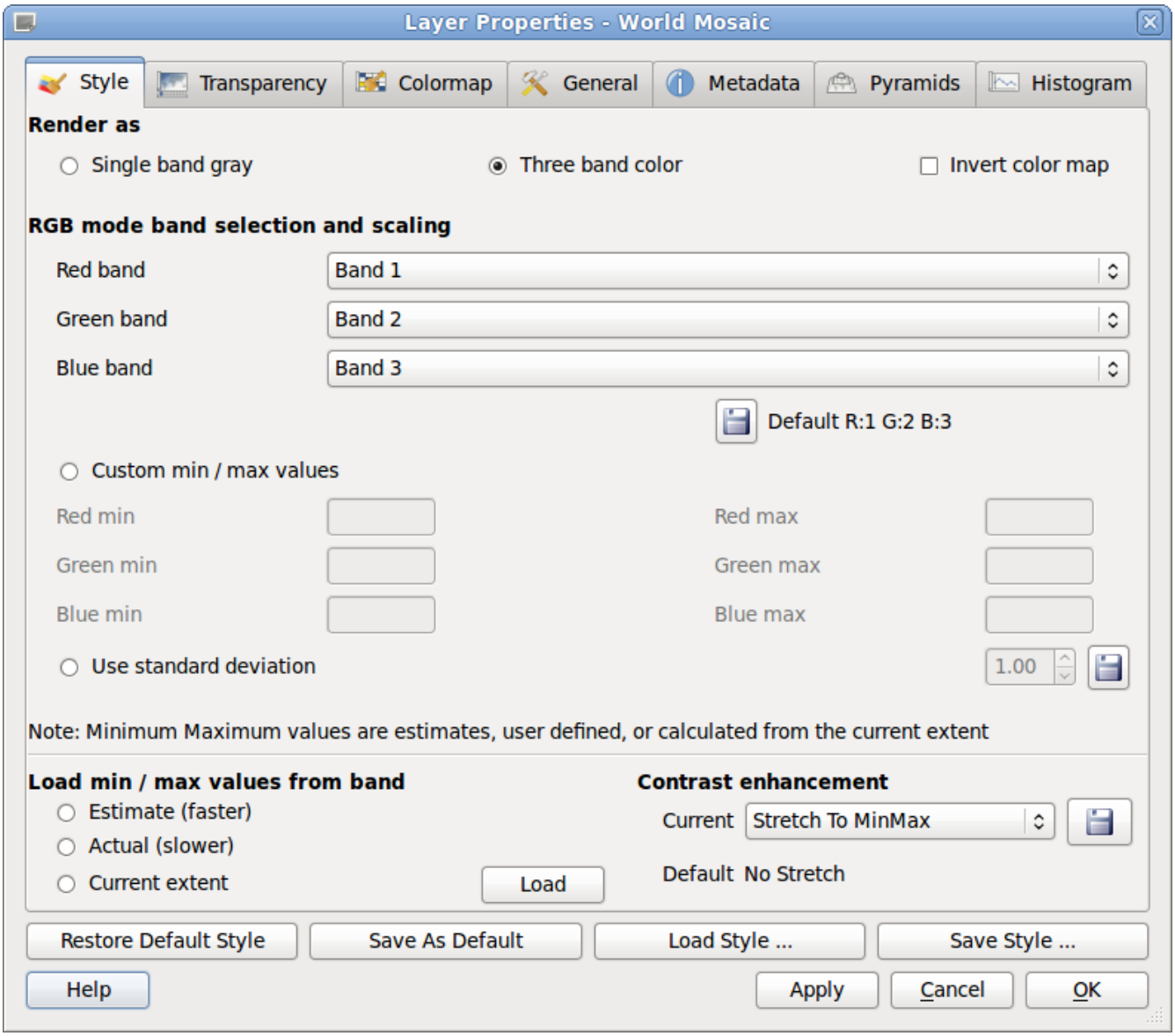

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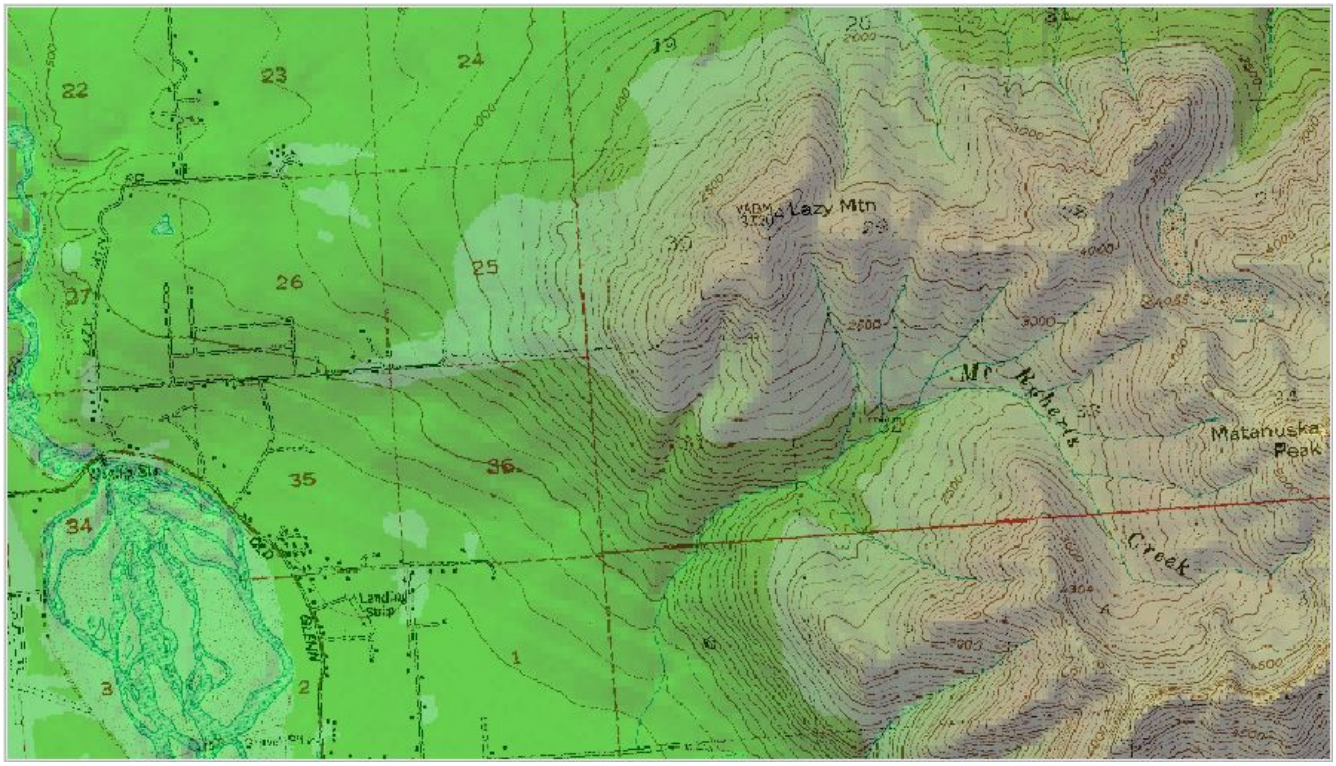

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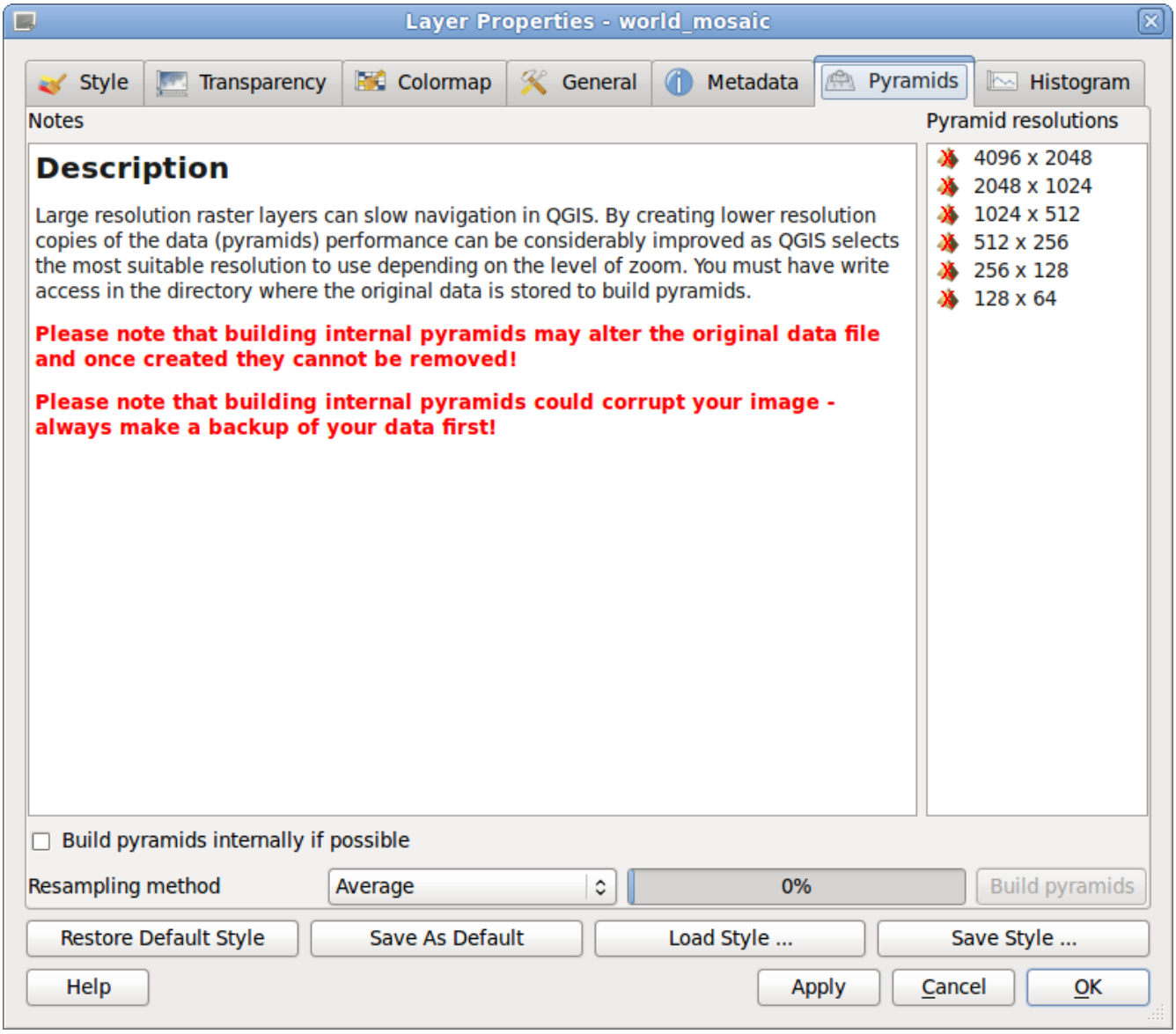

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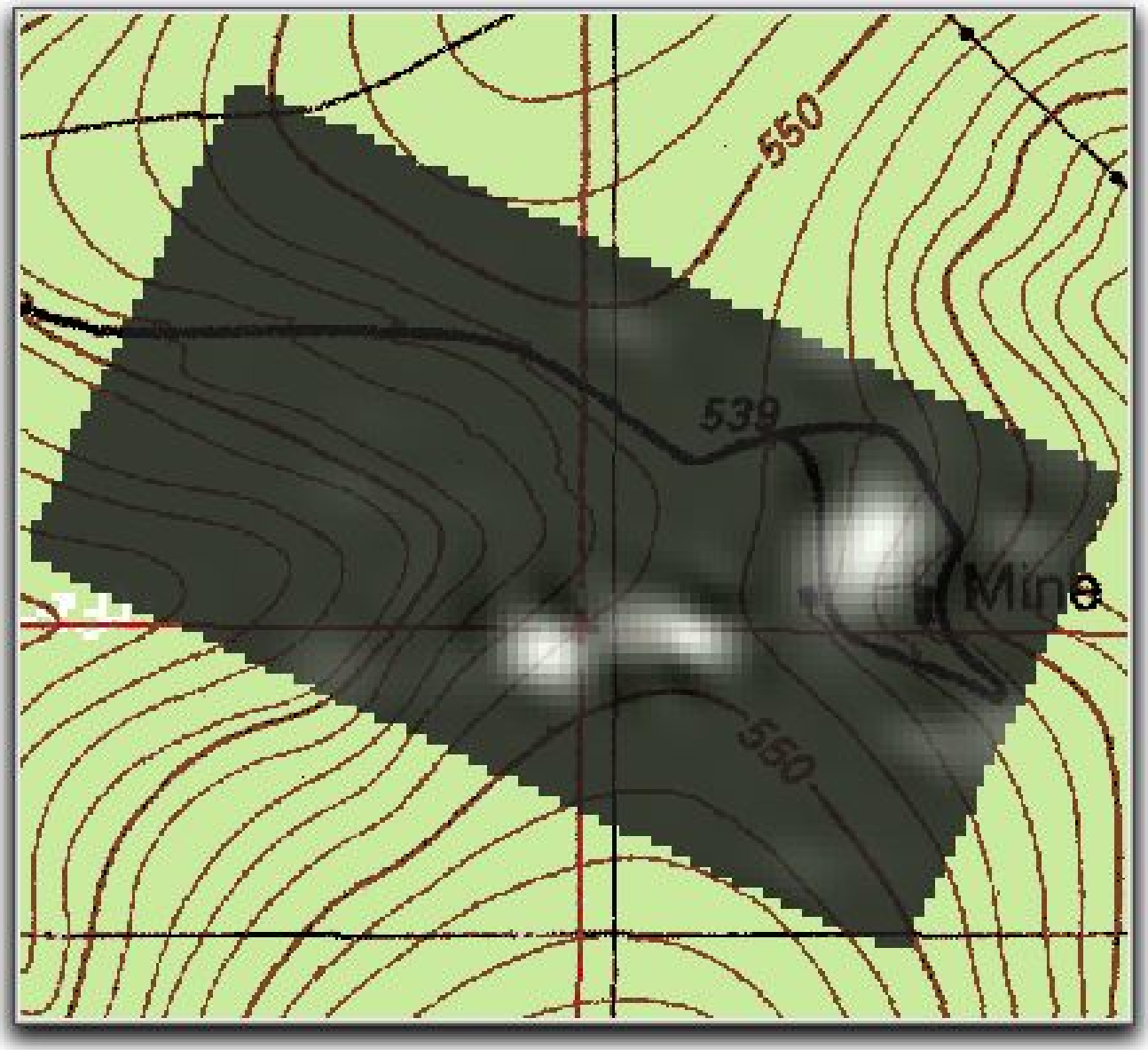

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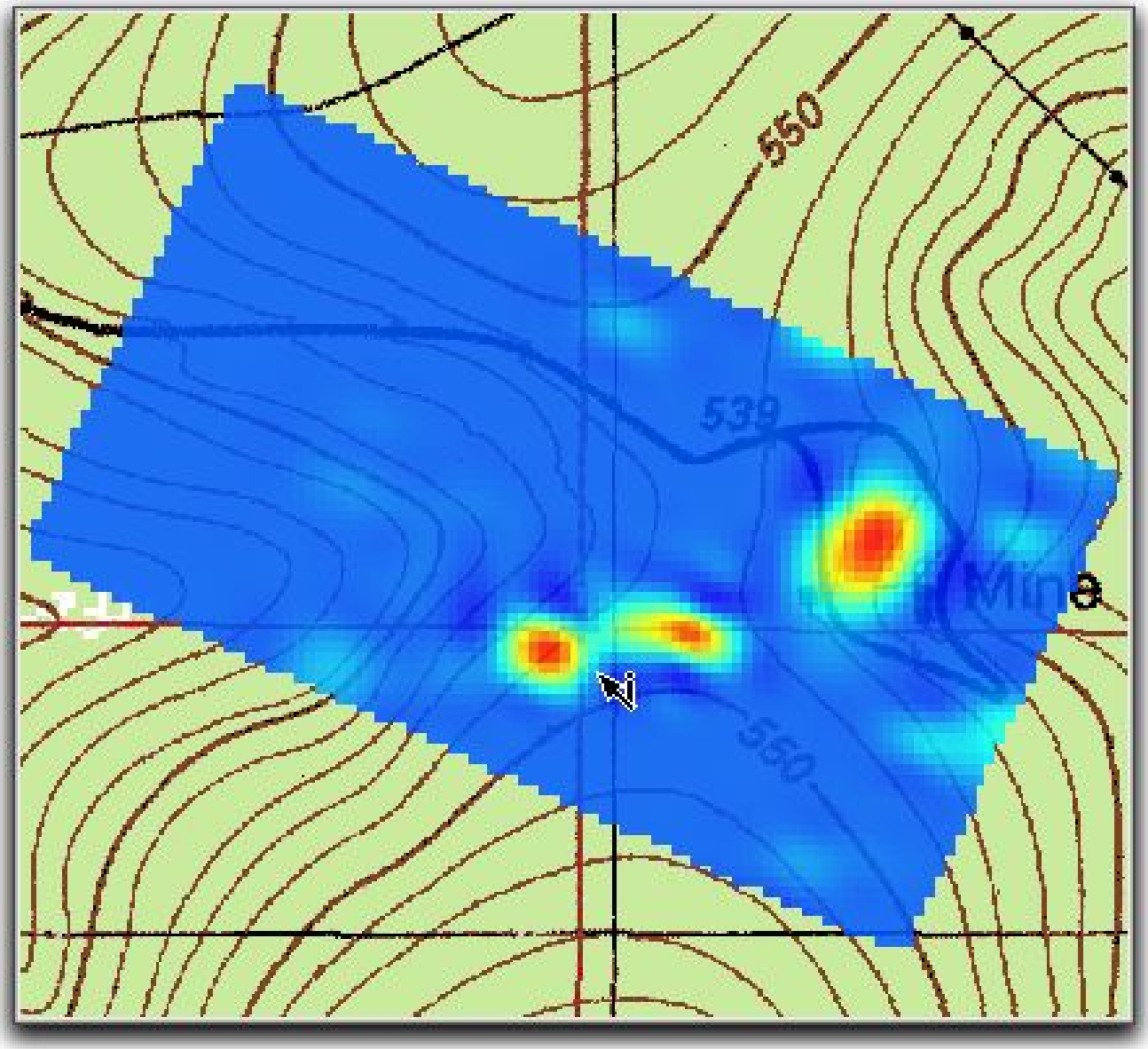

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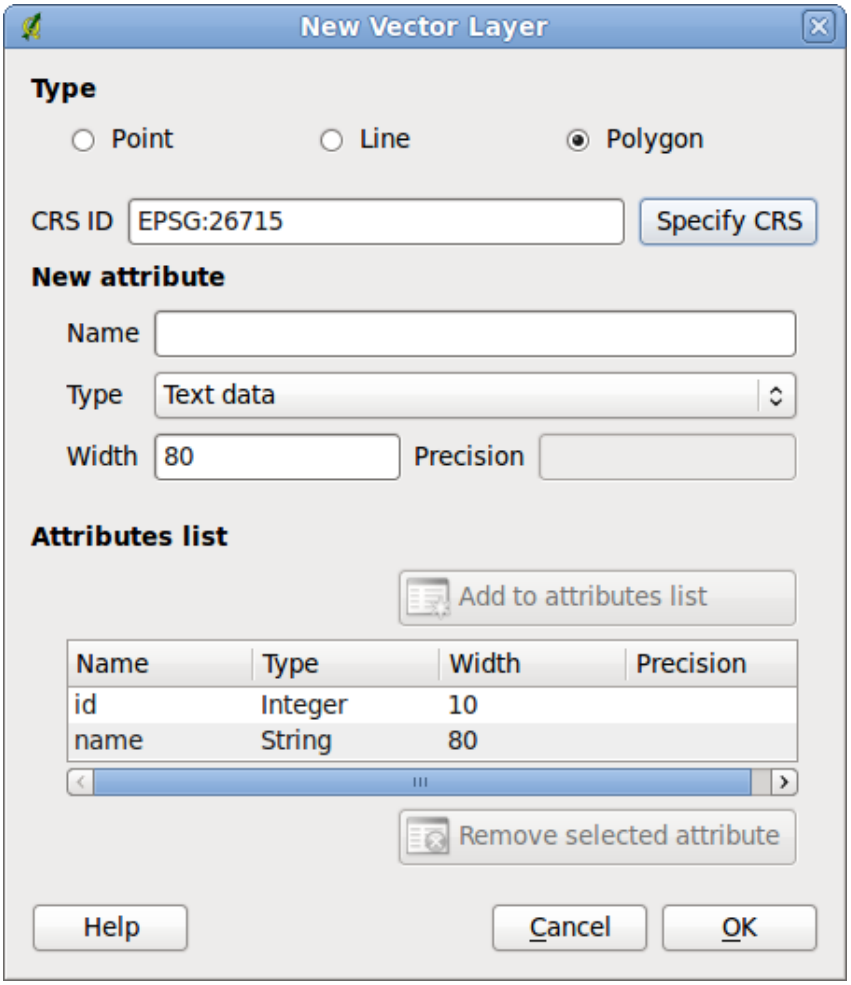

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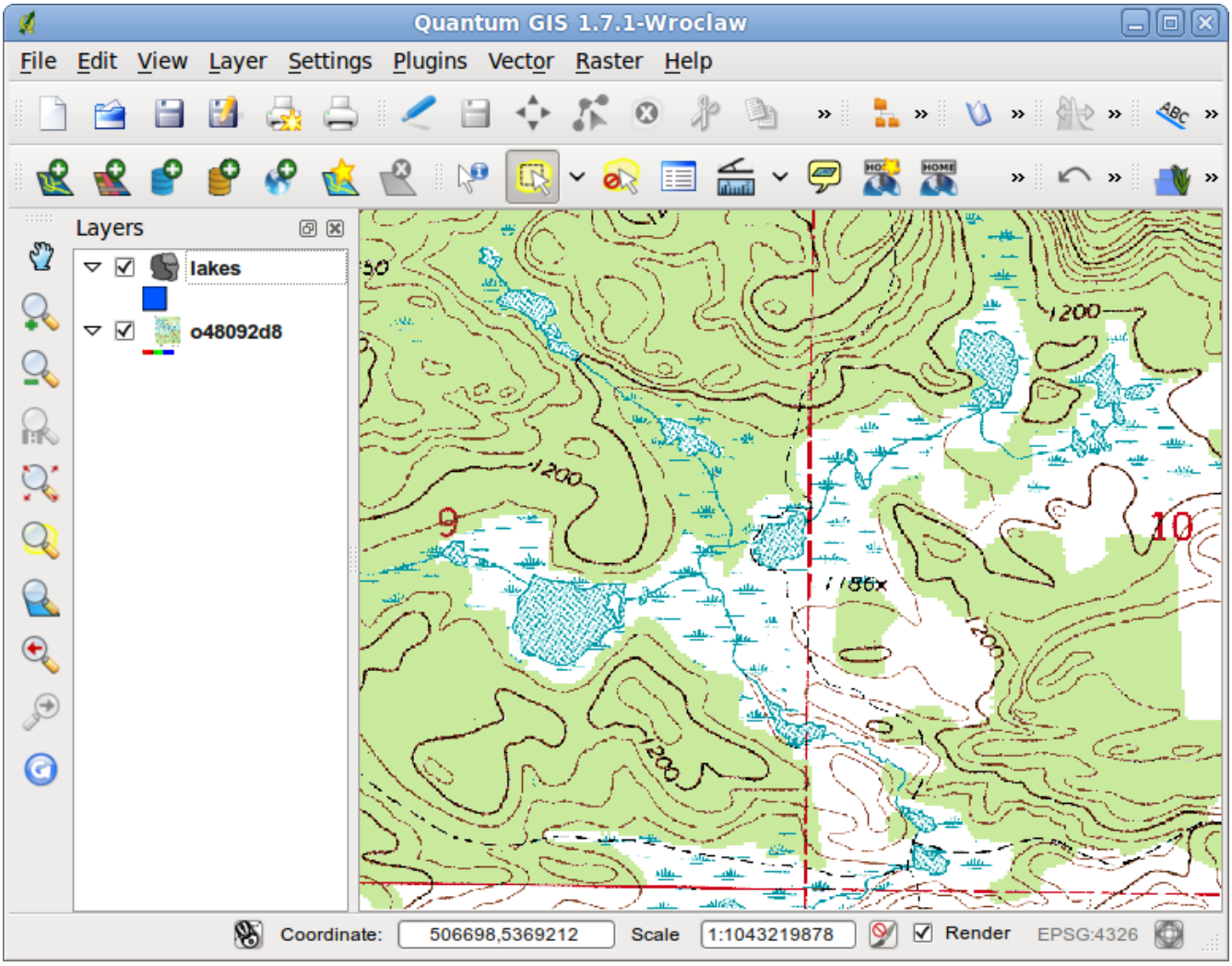

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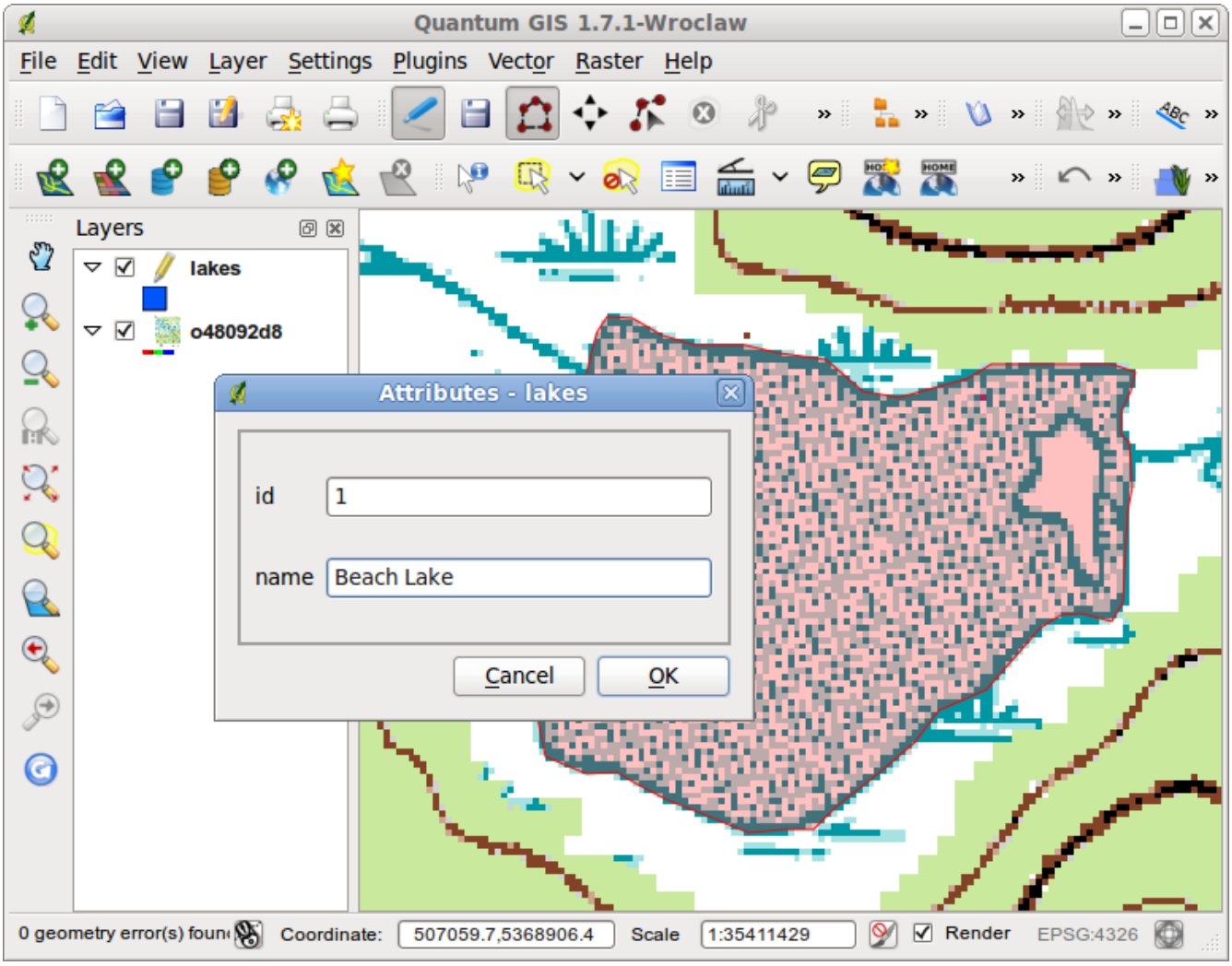

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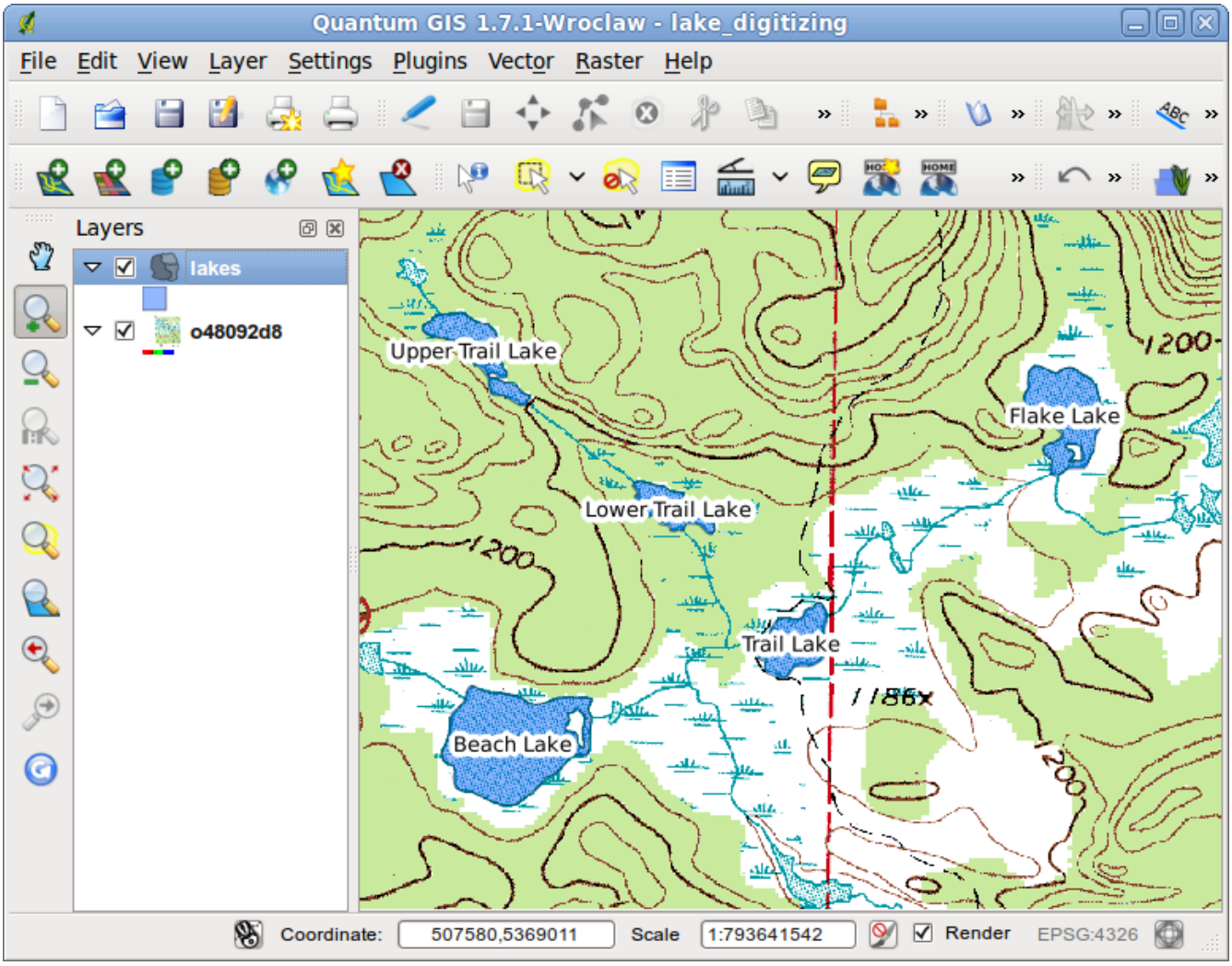

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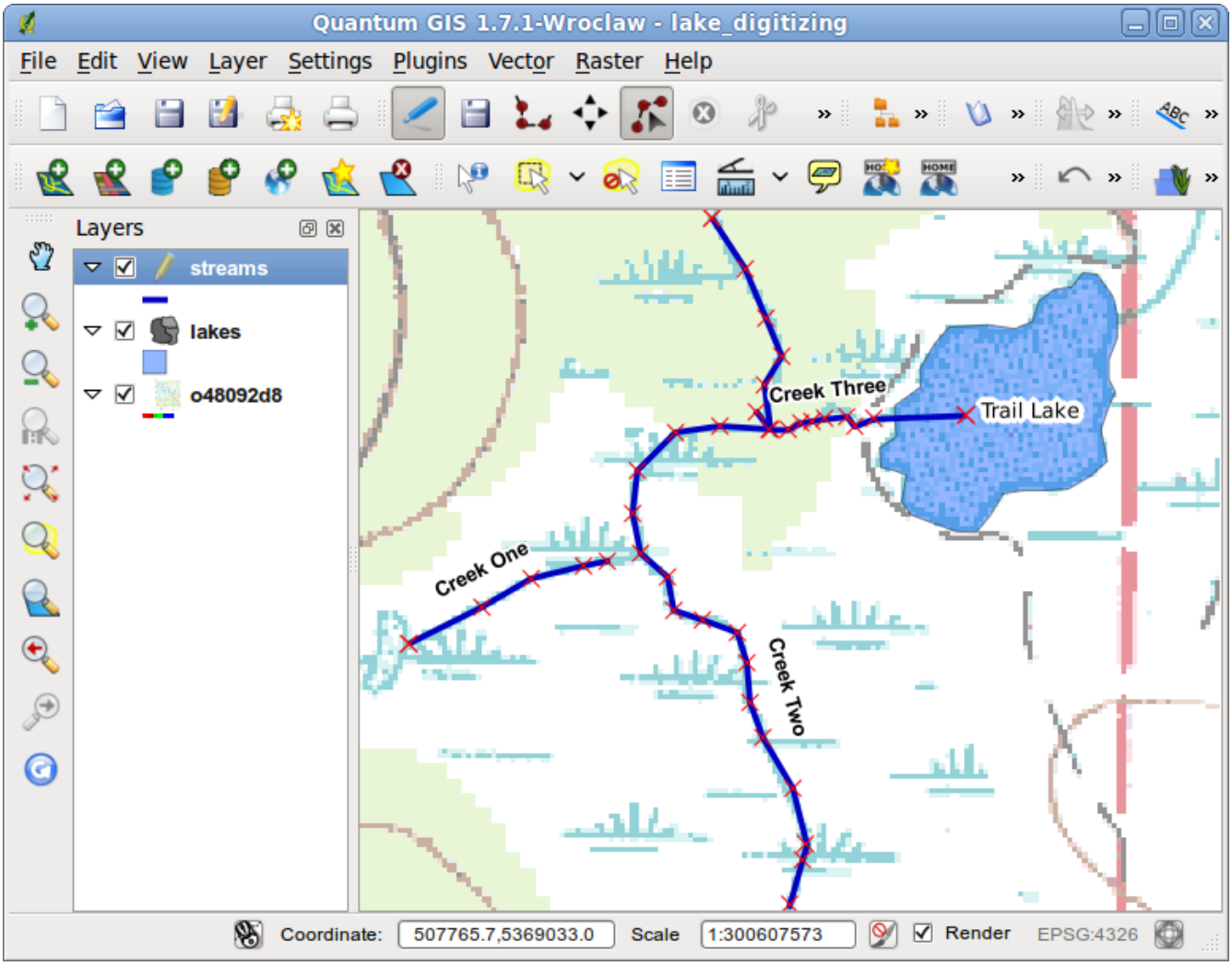

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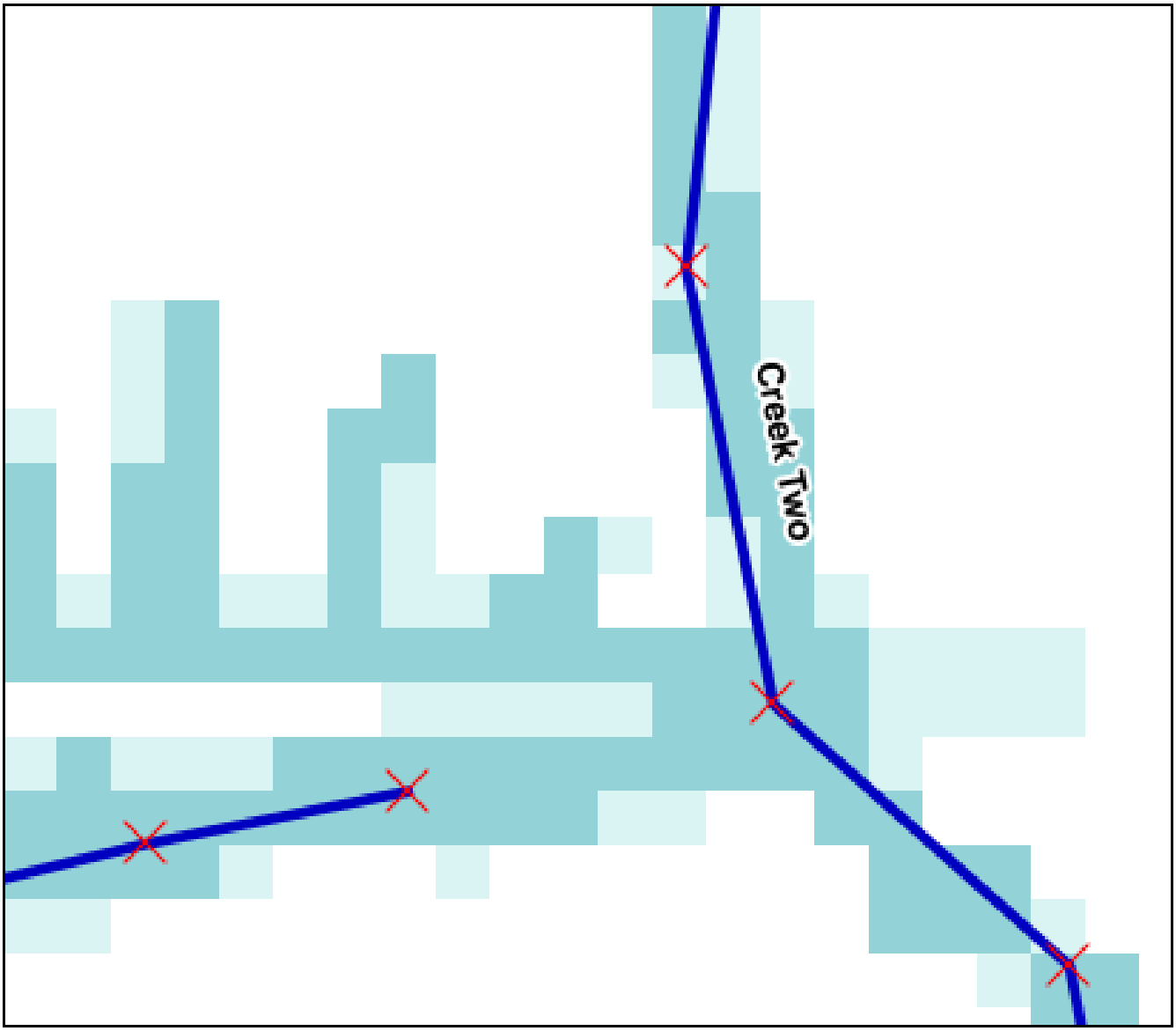

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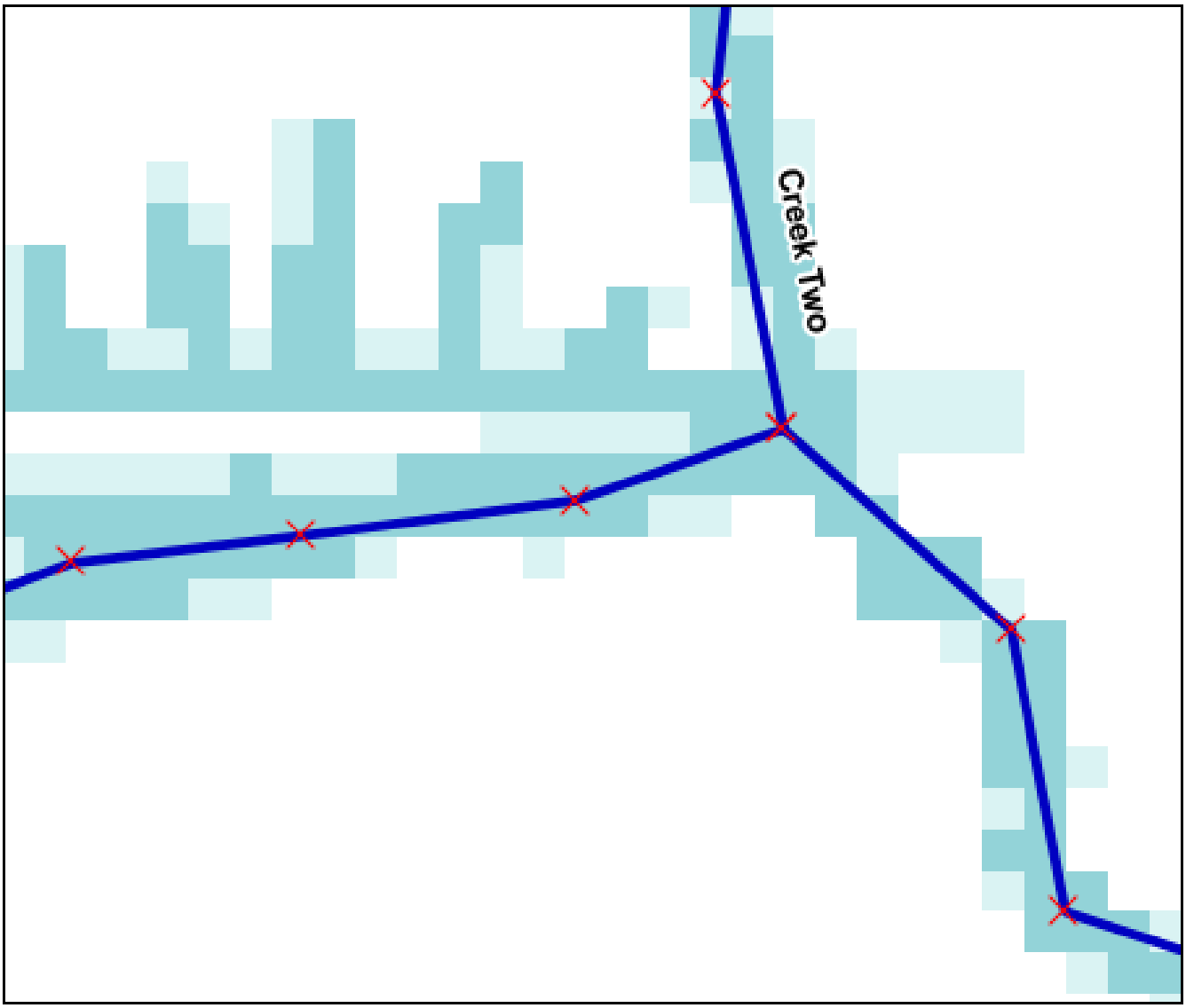

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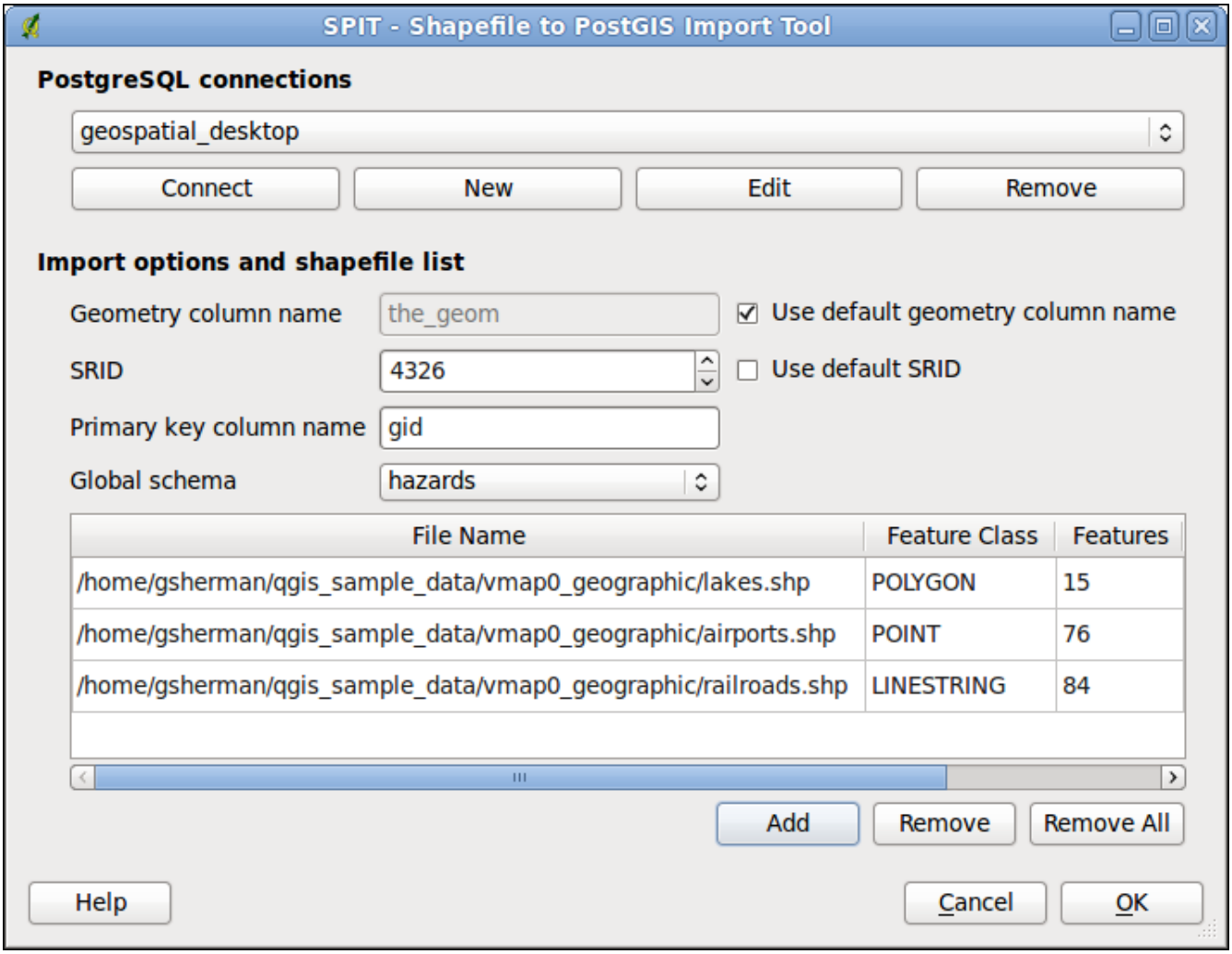

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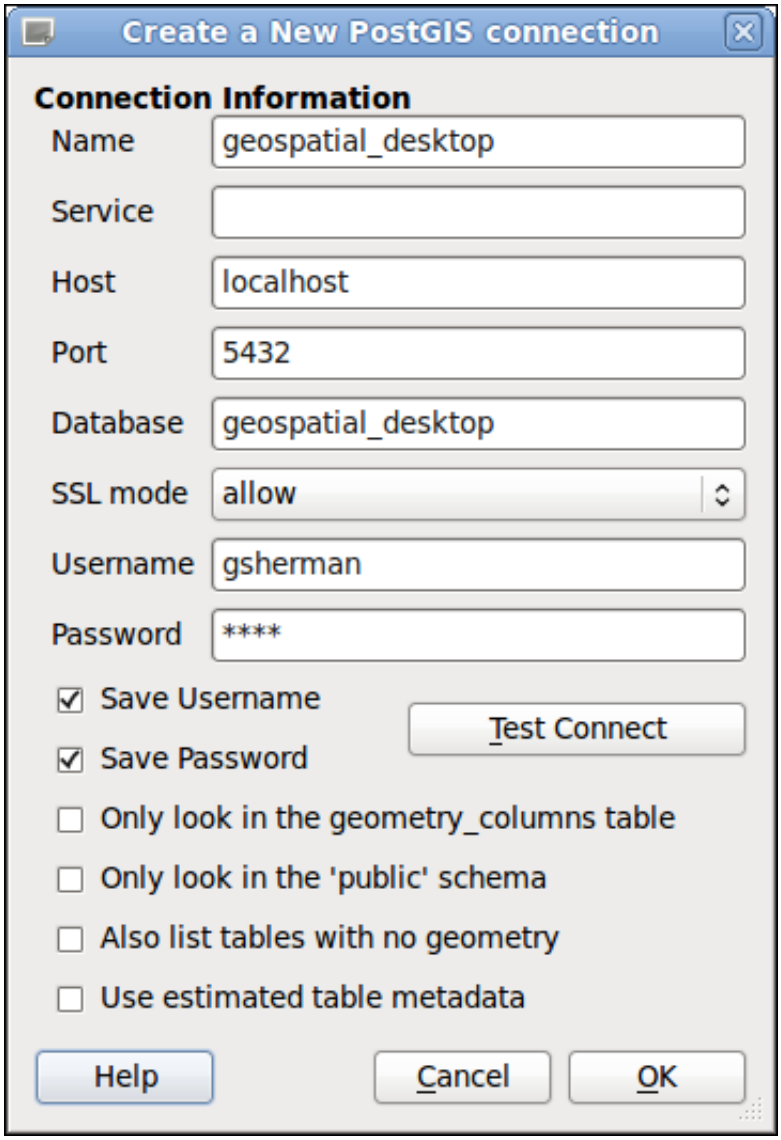

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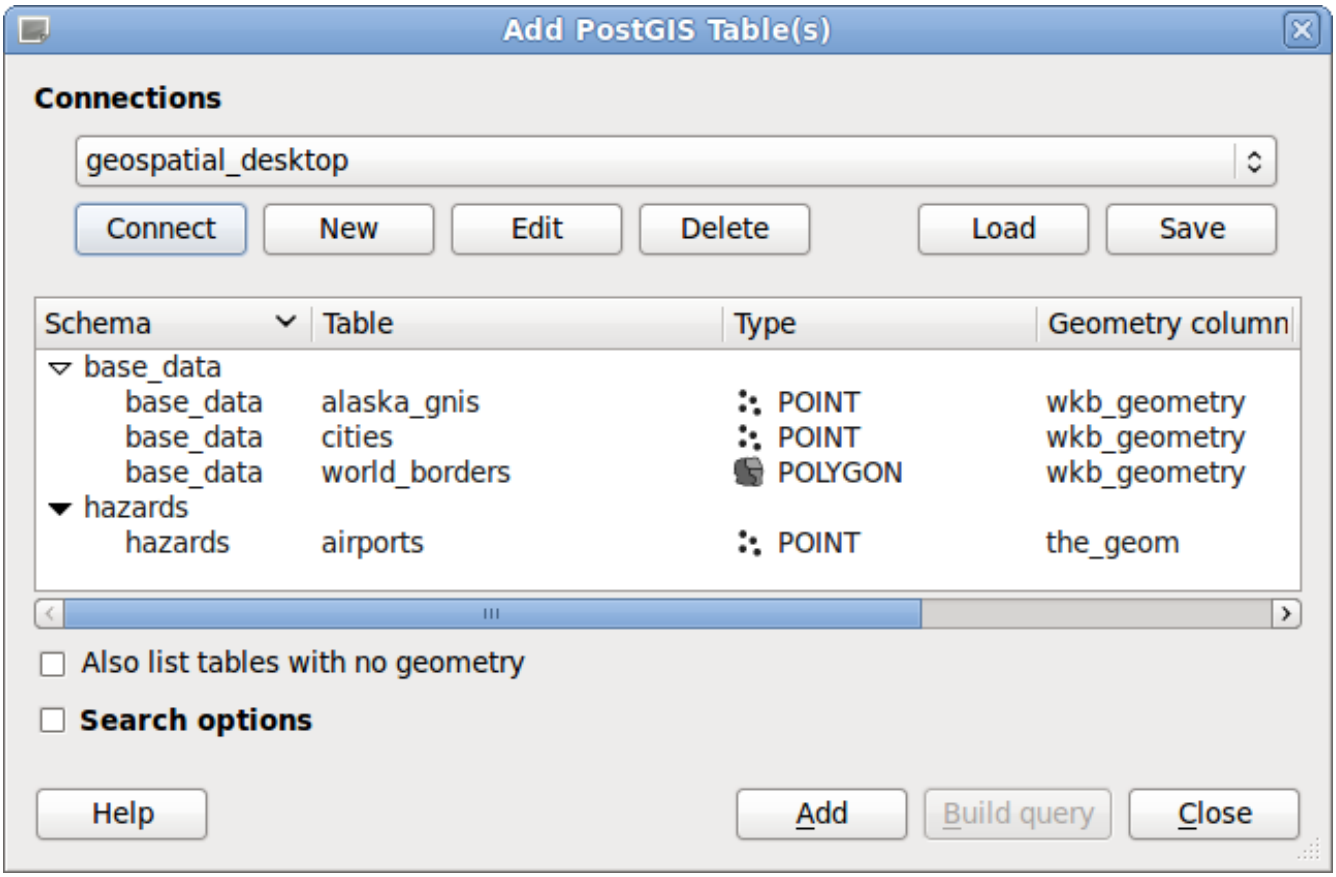

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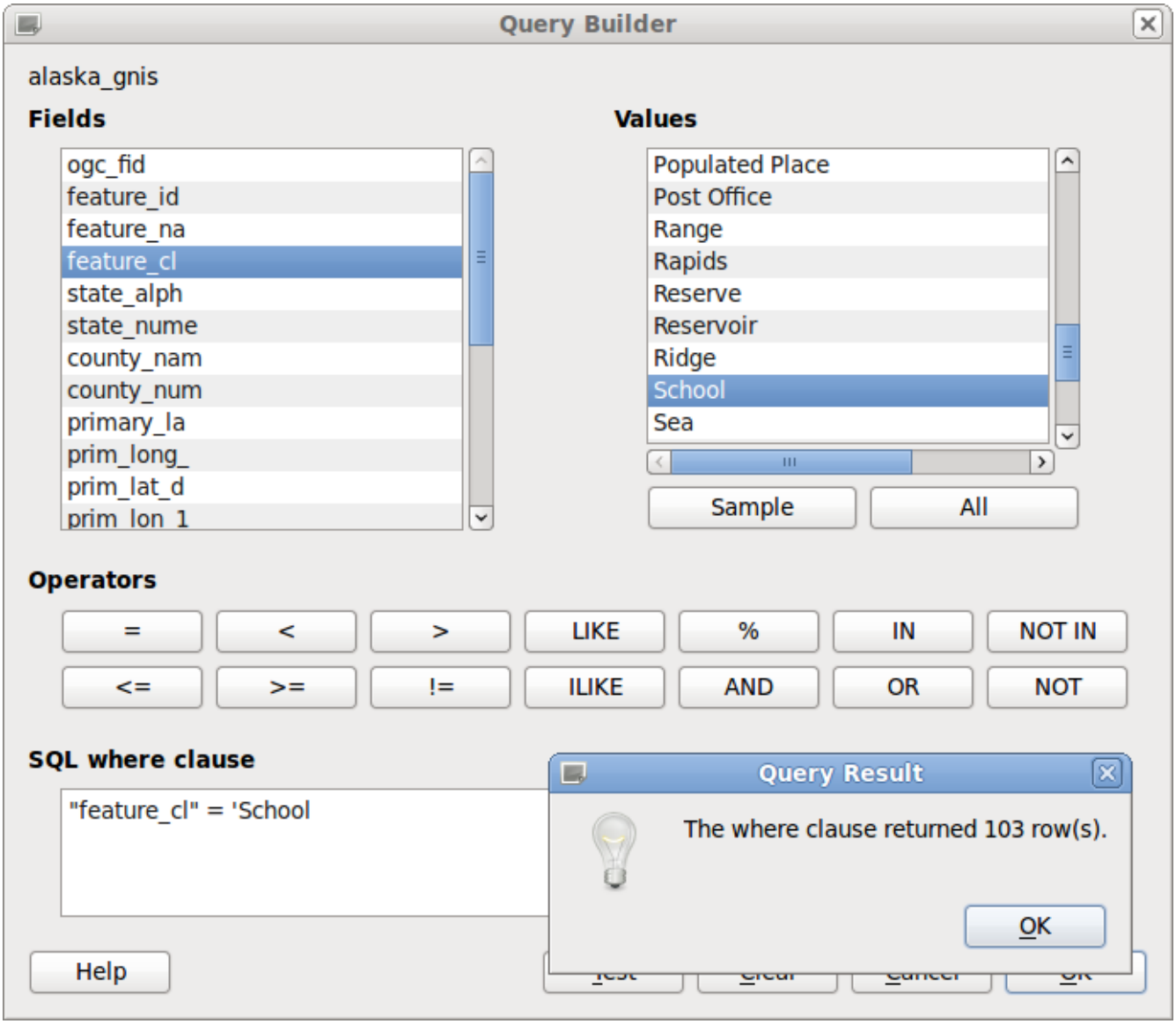

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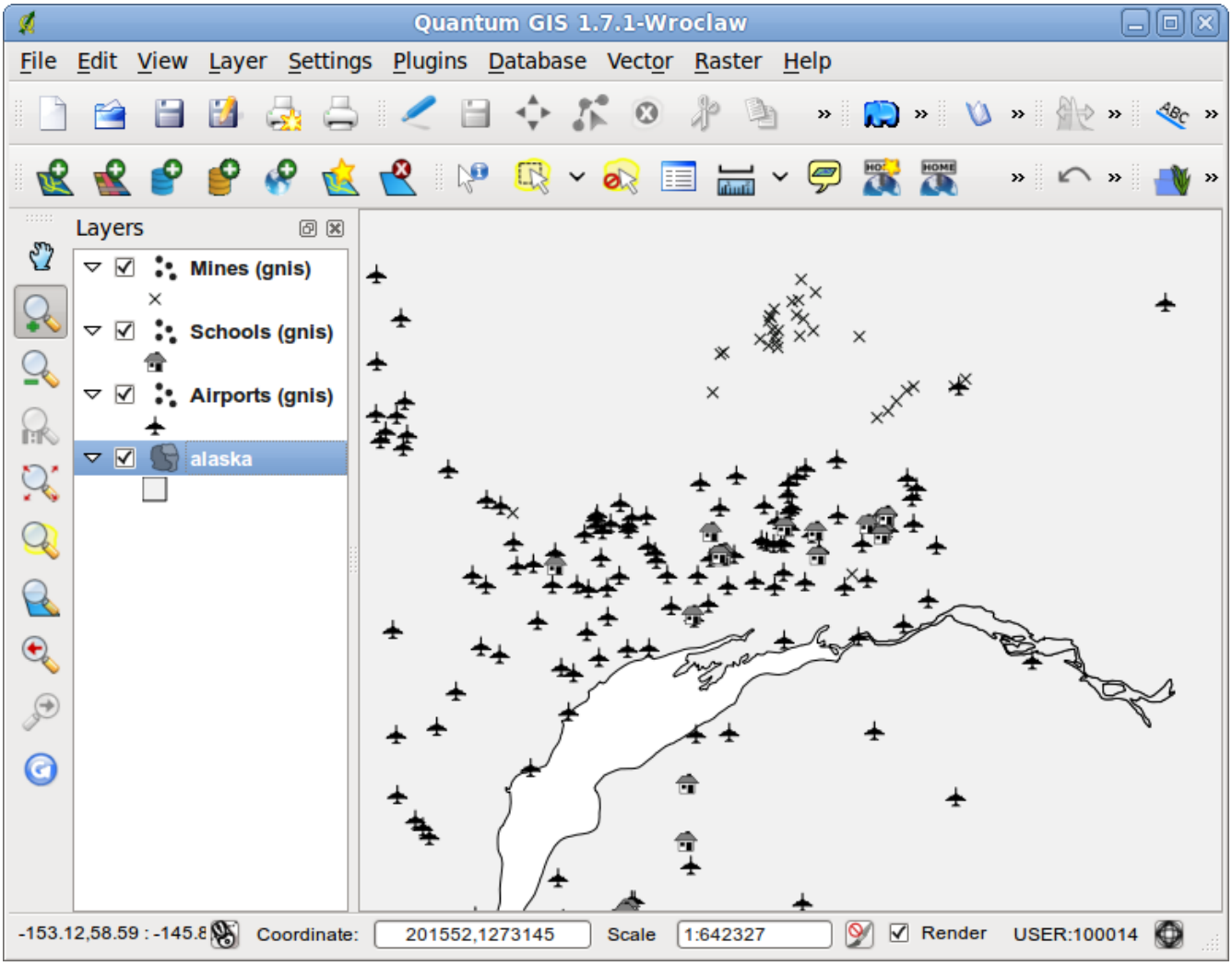

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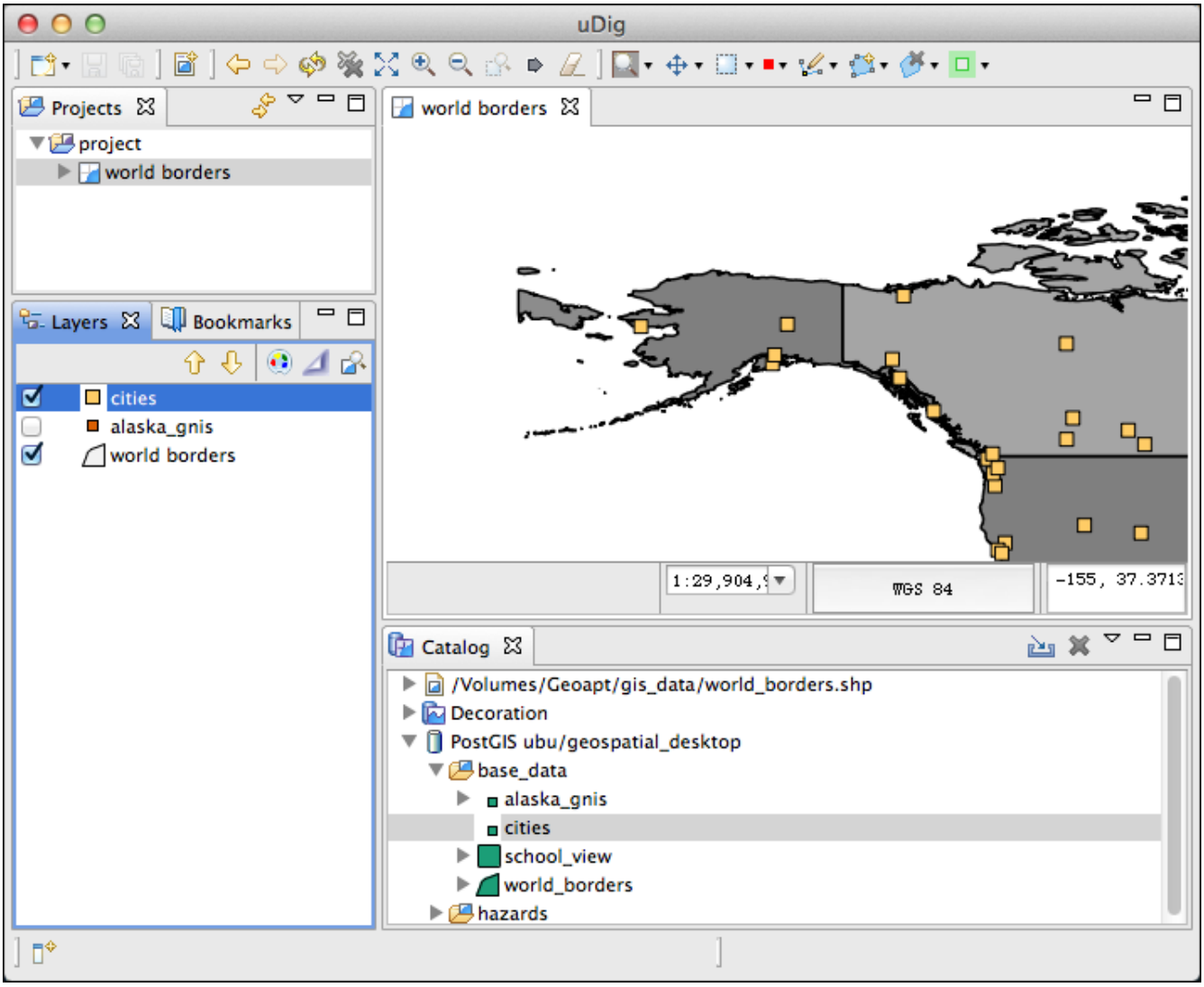

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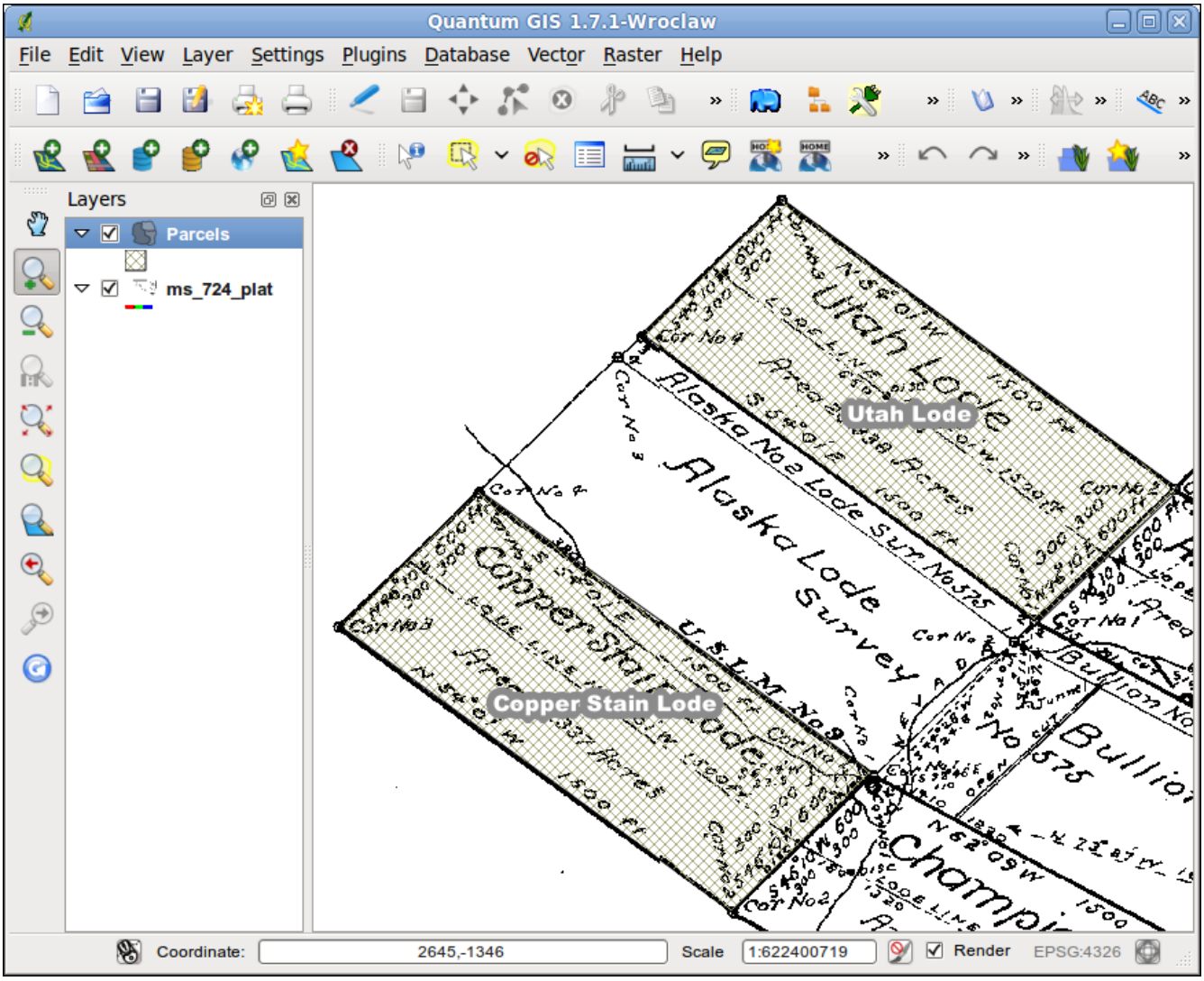
10 Creating Data



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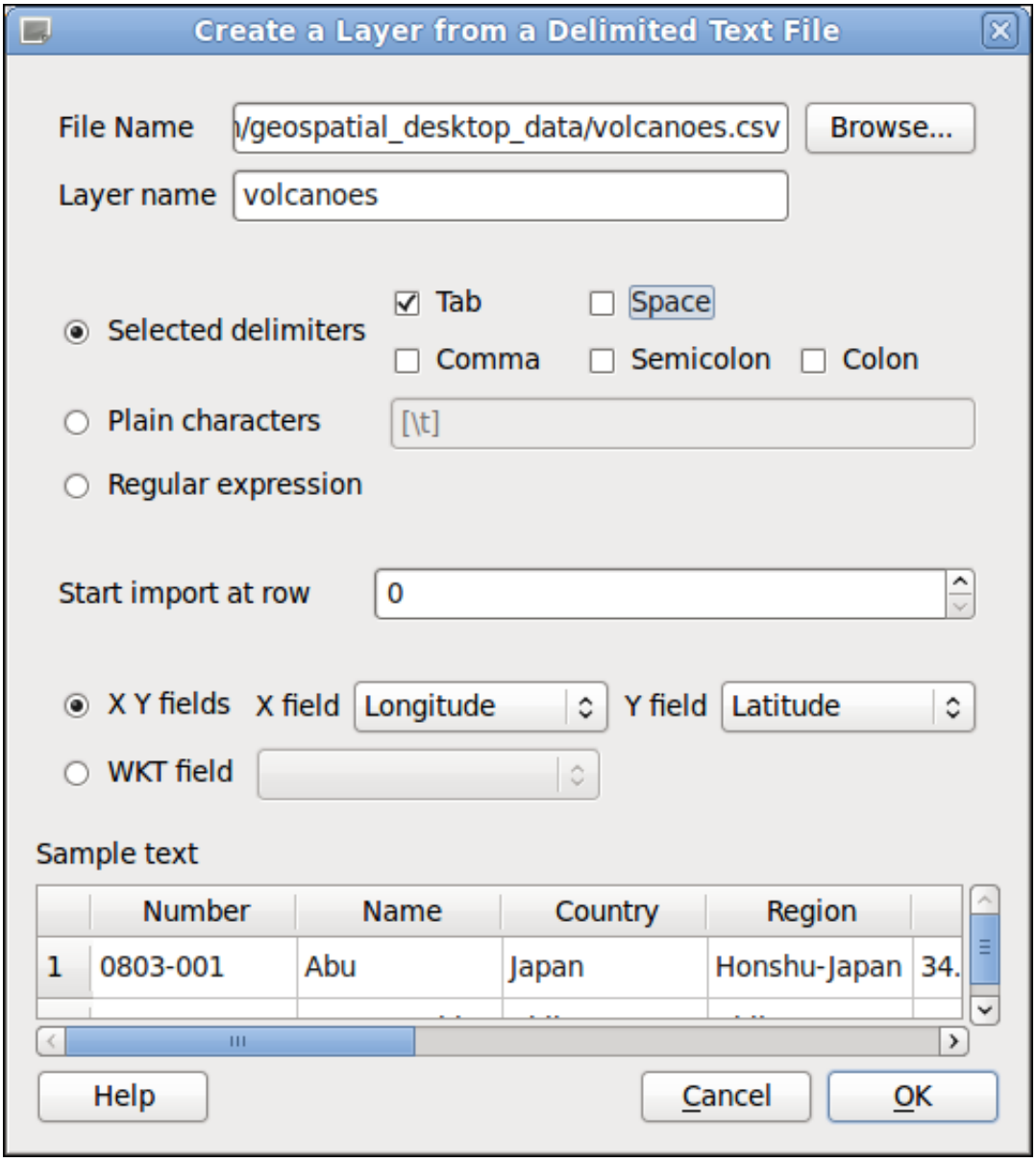

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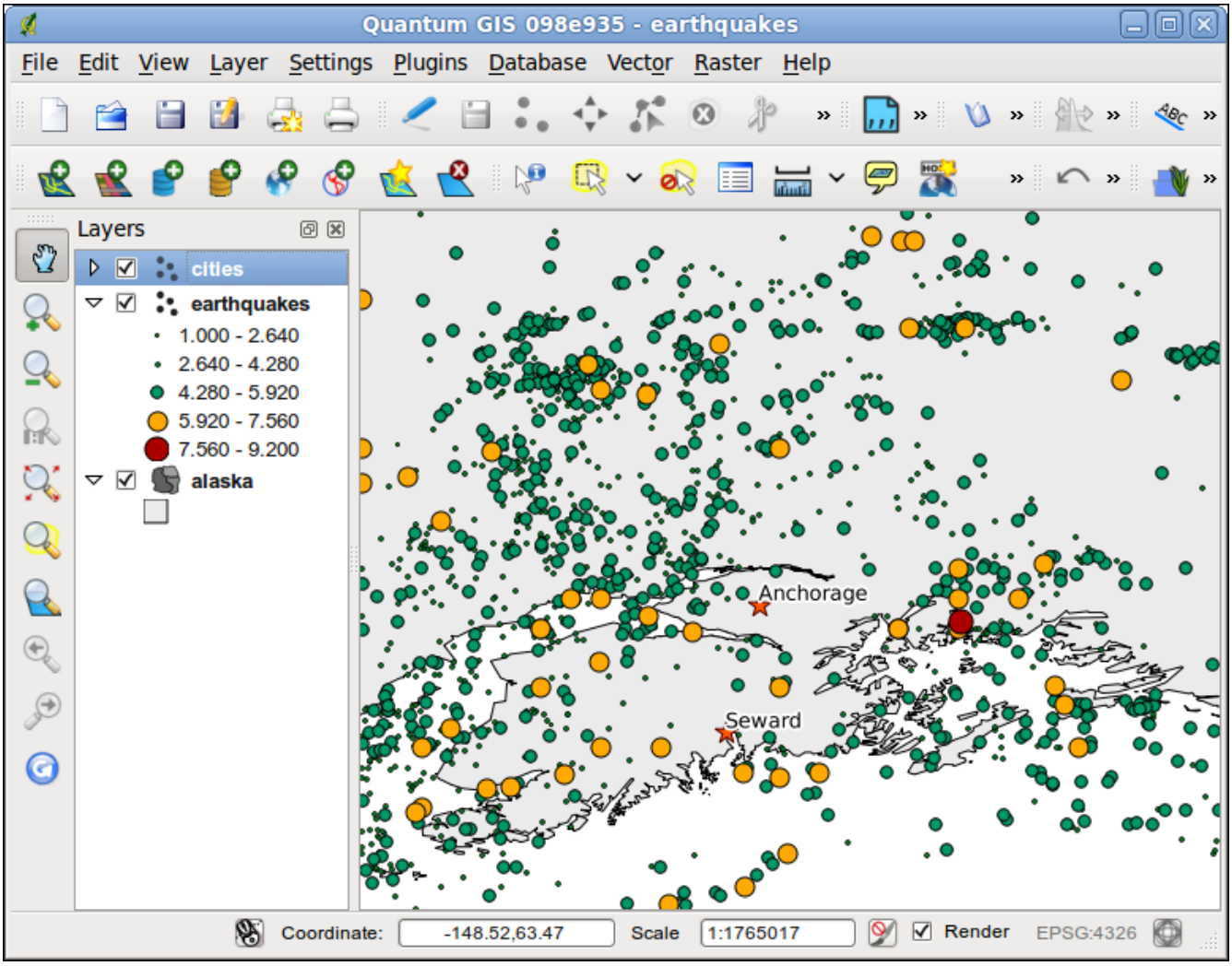

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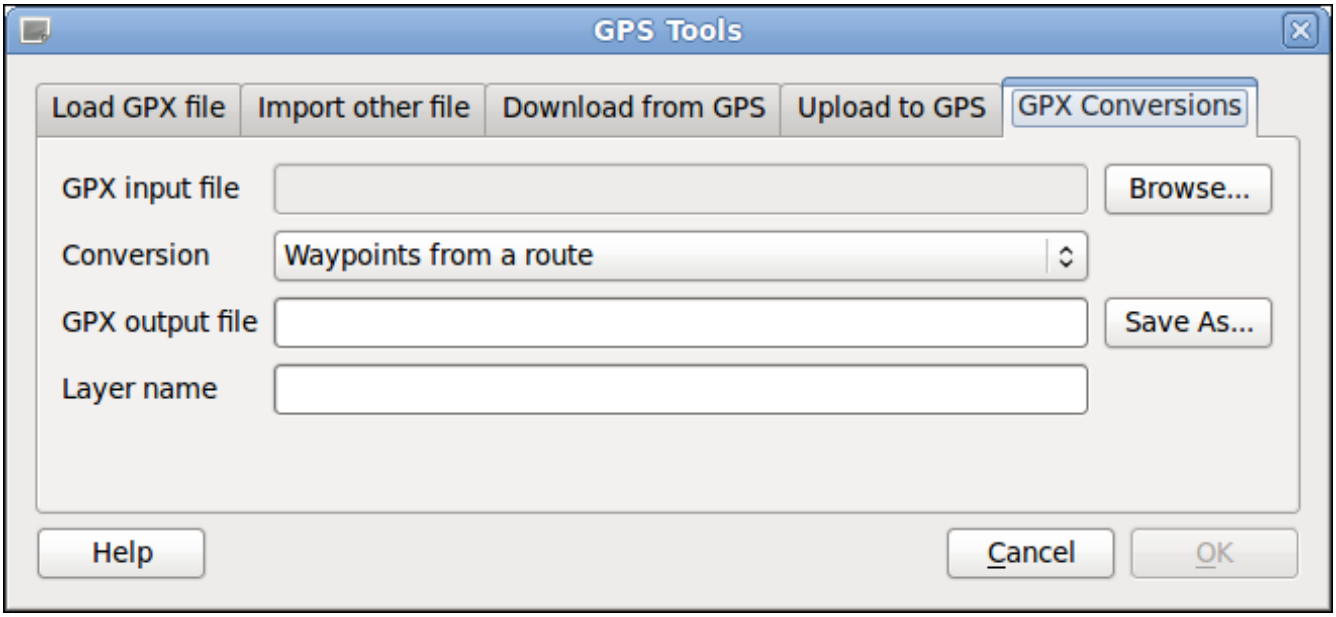

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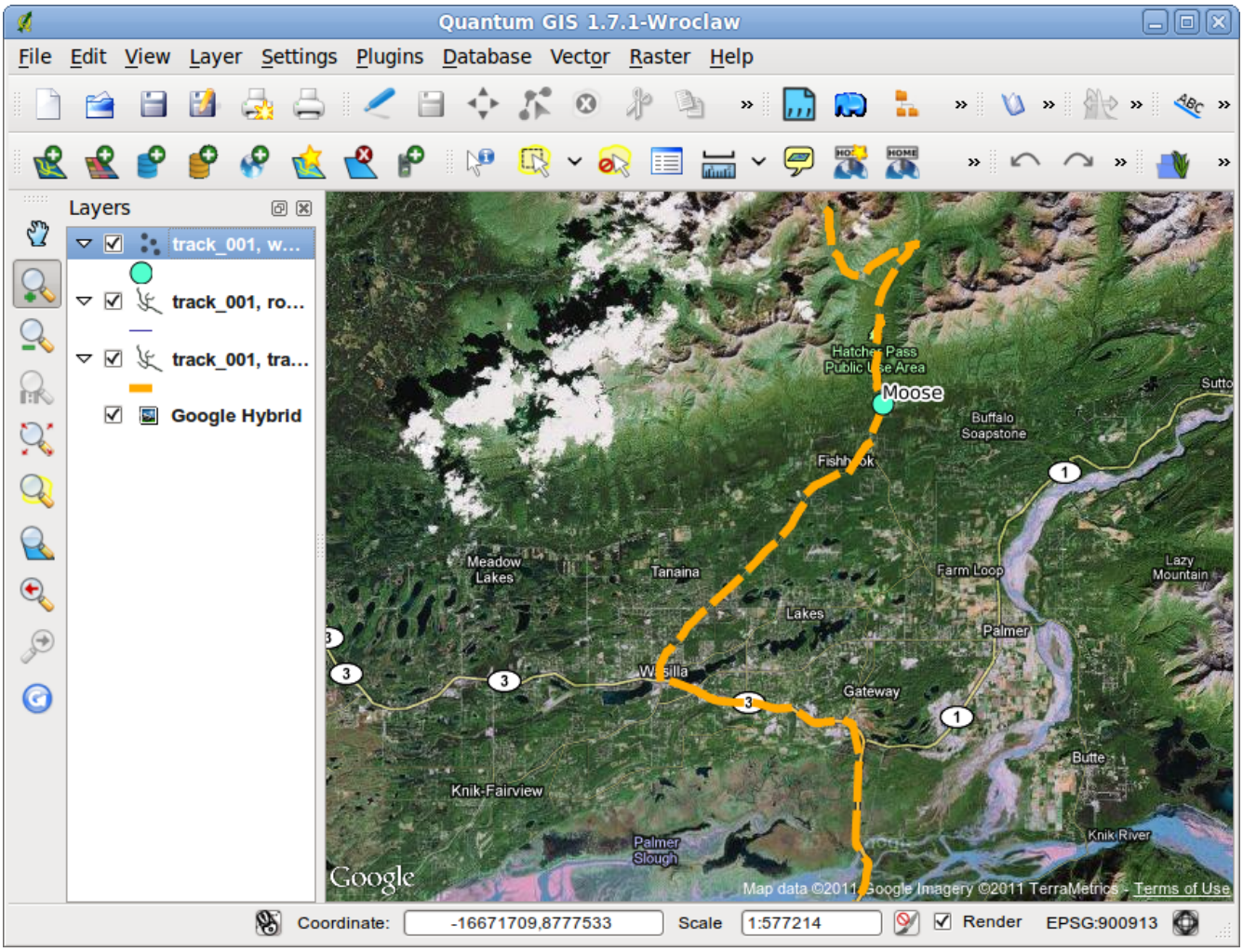

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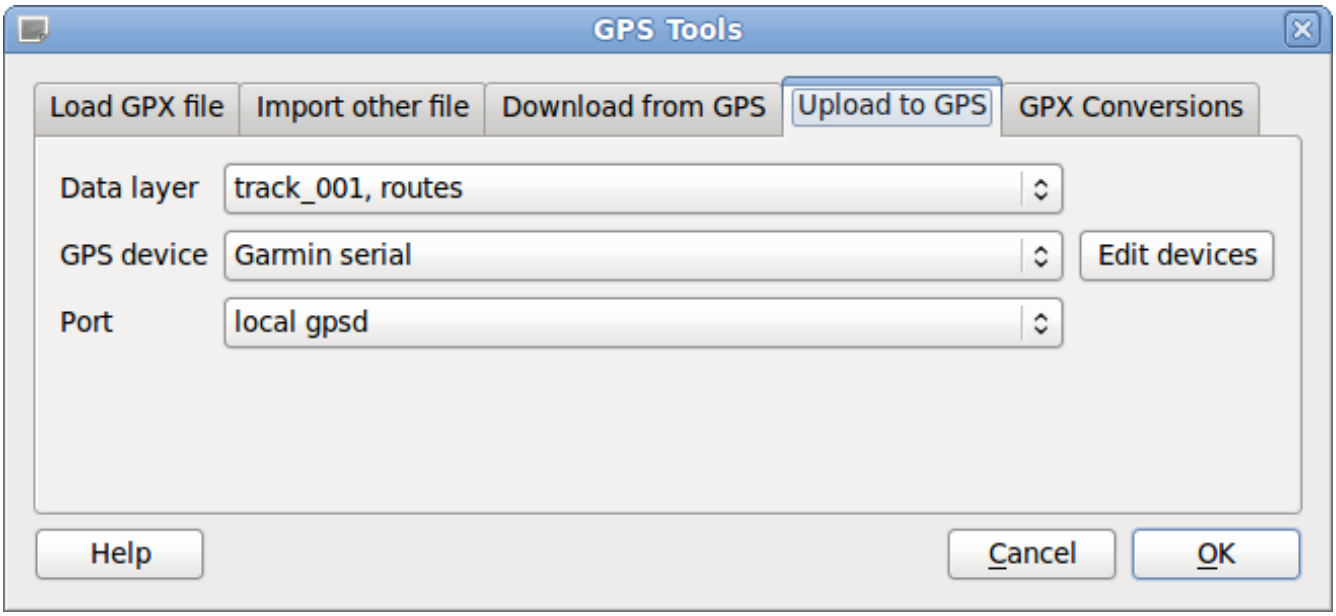

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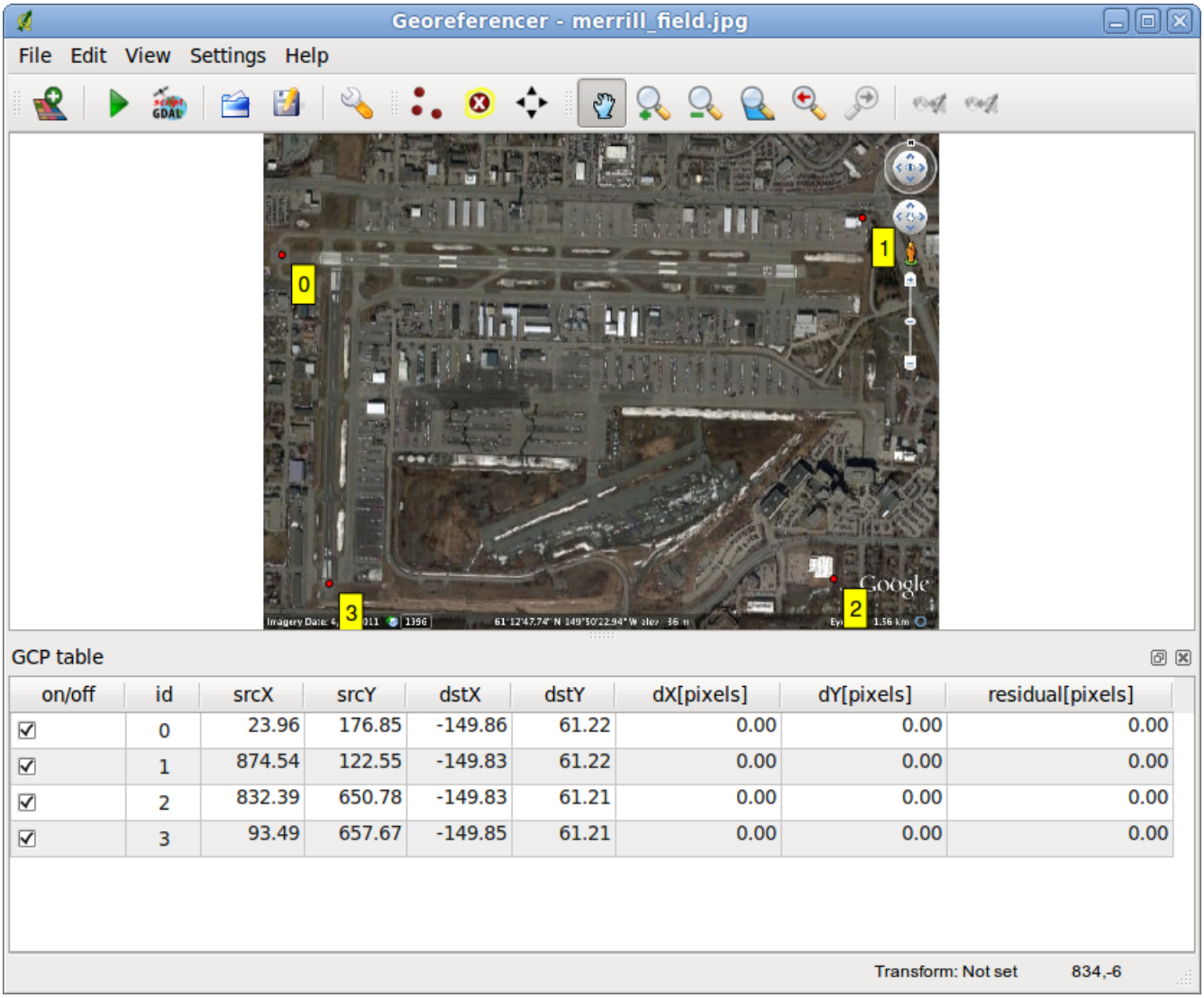

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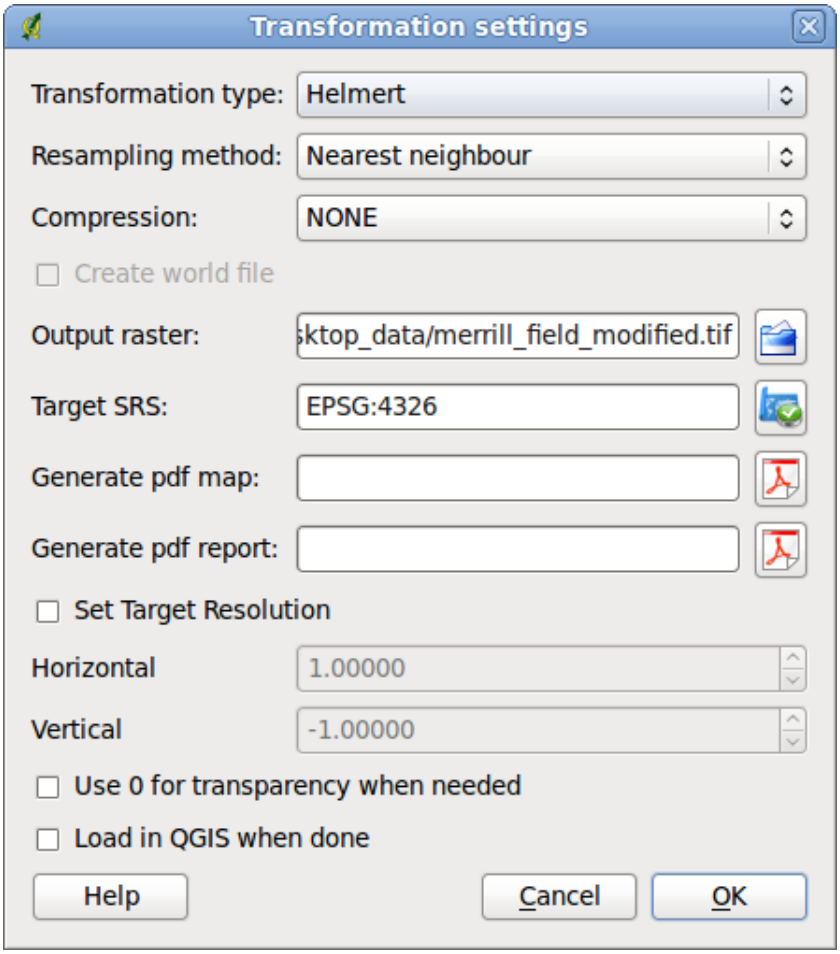

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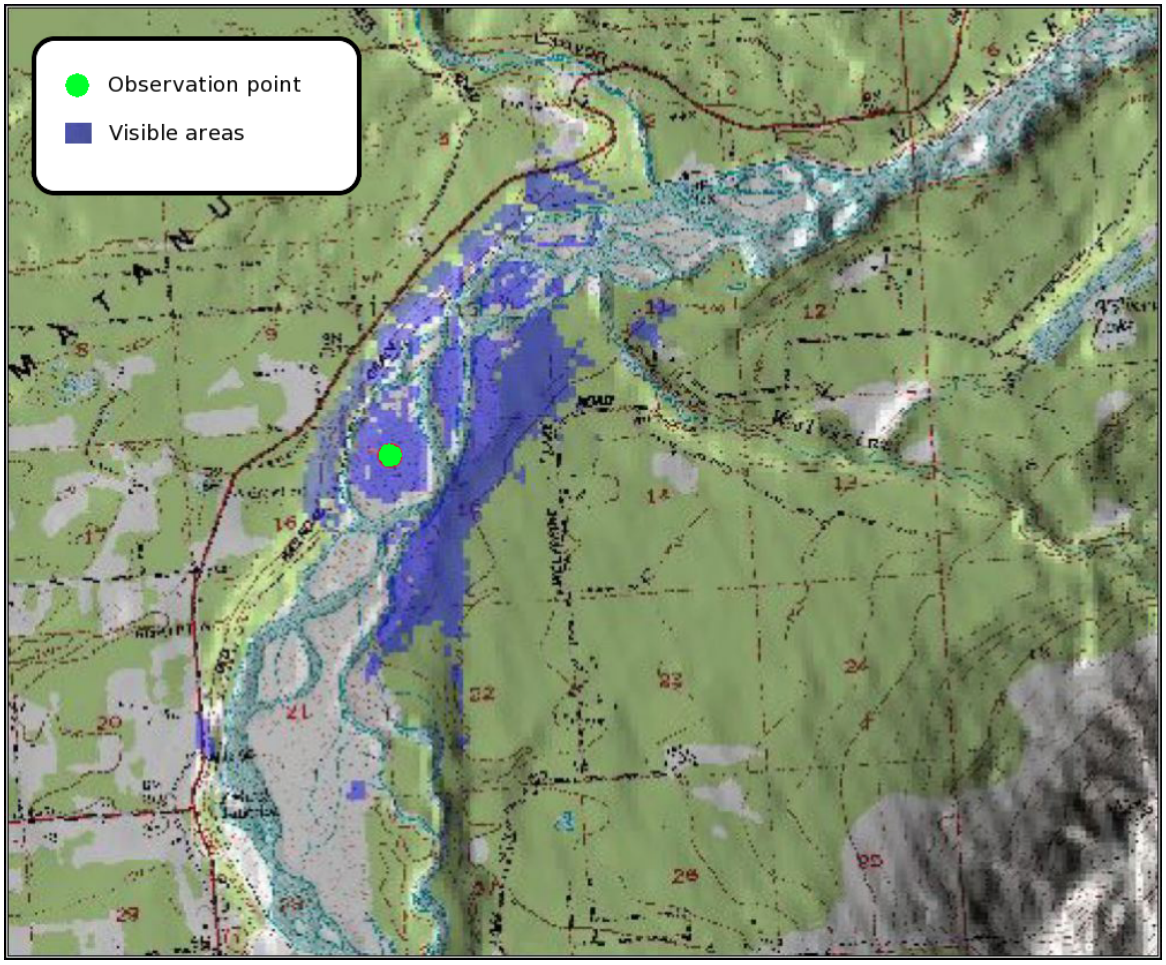

Figure 12.1: Results of line-of-sight analysis in GRASS

Figure 12.2: Raising sea level by 100 meters

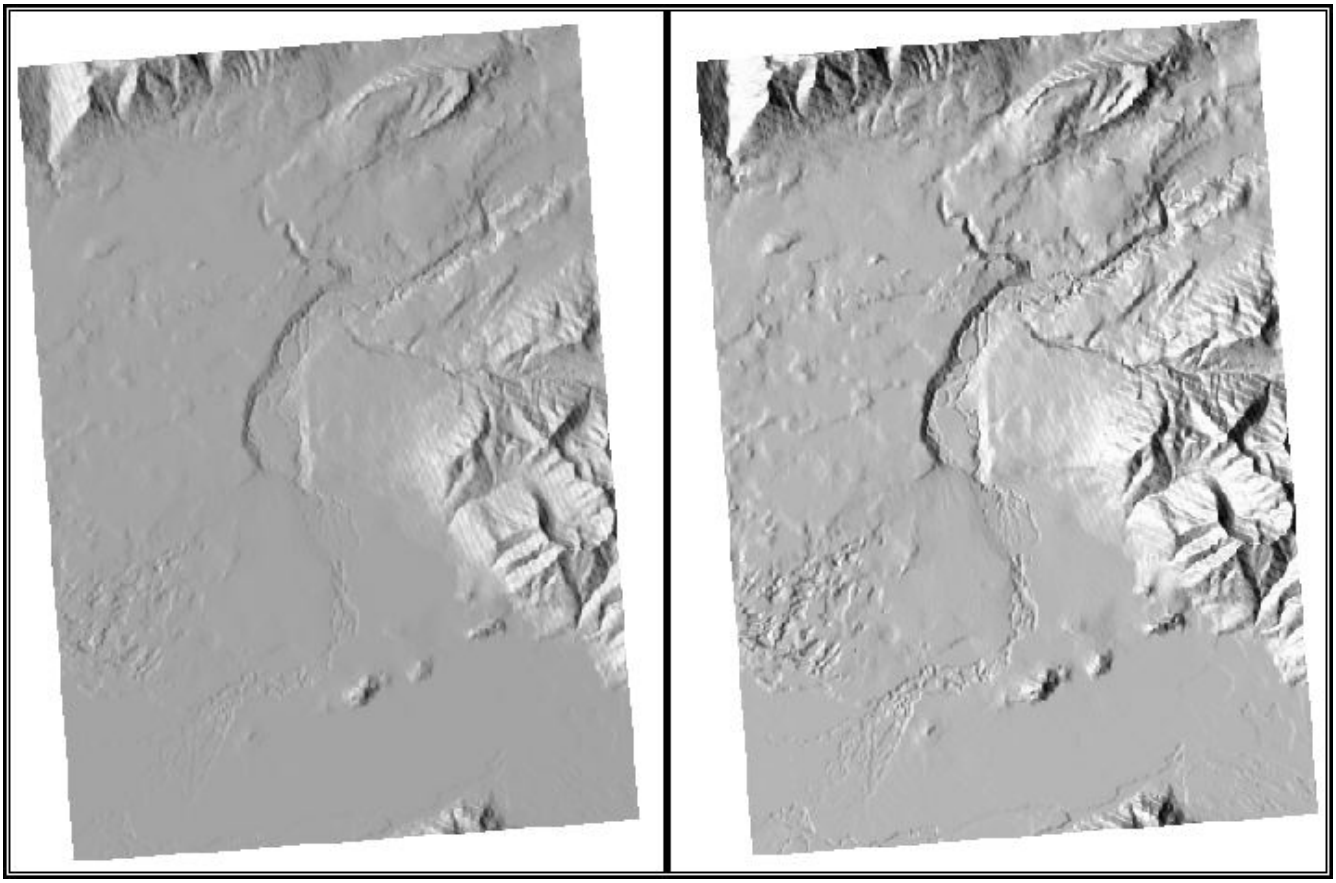

Figure 12.3: Hillshade with no exaggeration (left) and 4X exaggeration (right)

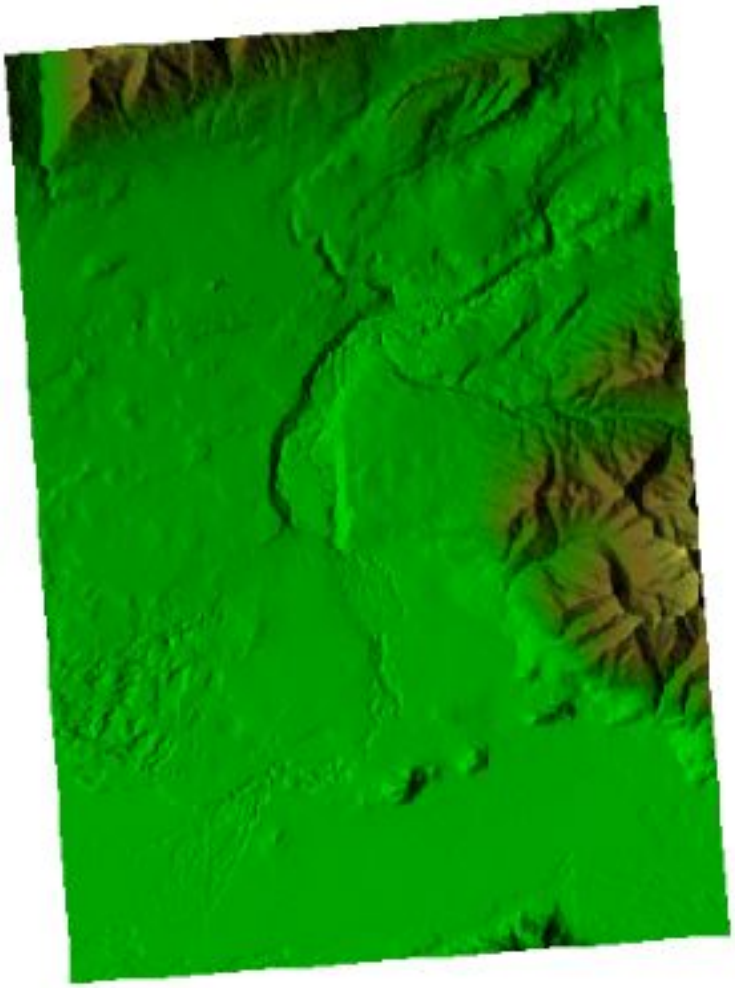

Figure 12.4: Colored shaded relief map created with GRASS

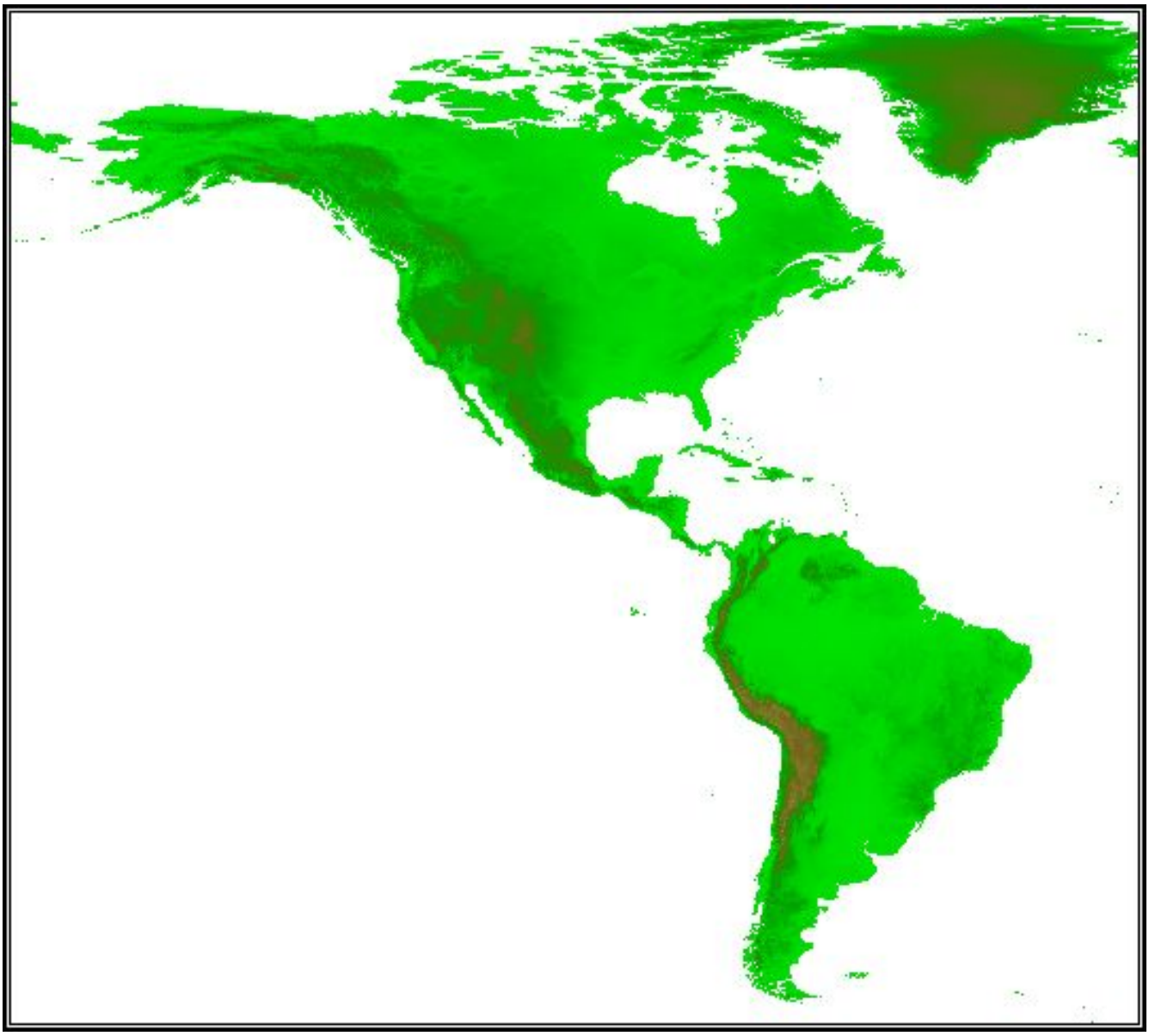

Figure 12.5: Merged GTOPO30 DEM

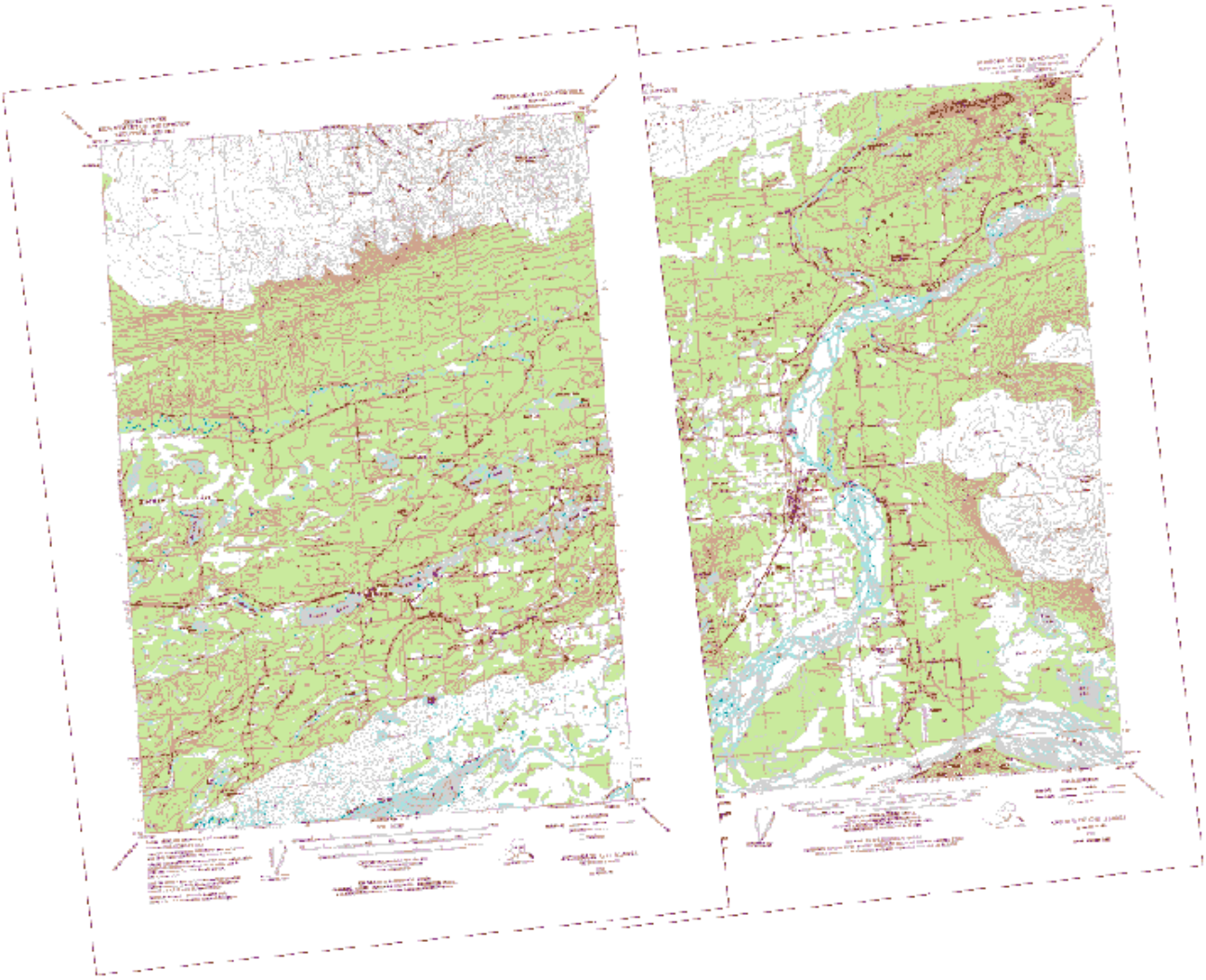

Figure 12.6: Overlapping collars on DRGs

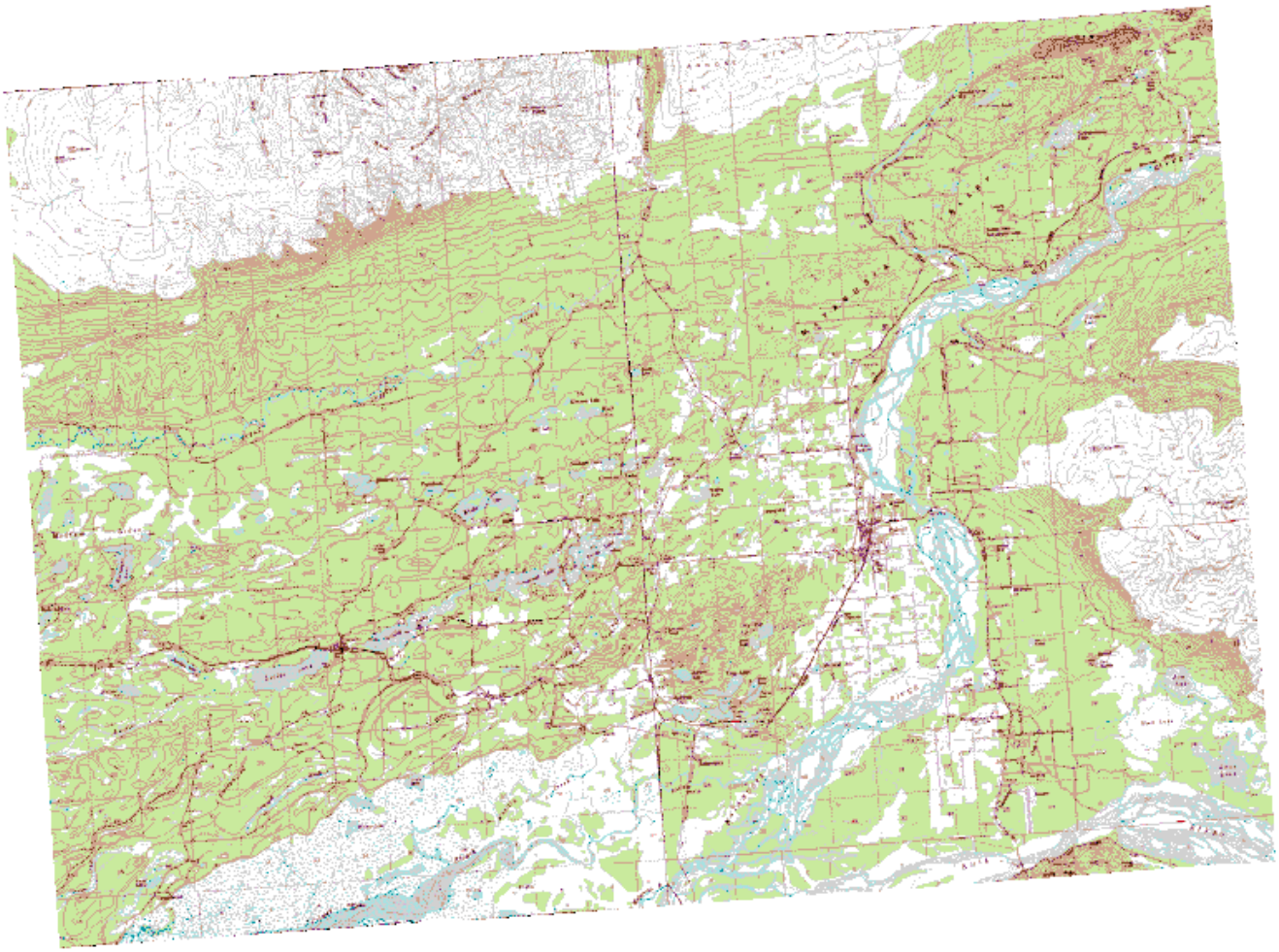

Figure 12.7: Seamless display of clipped DRGs

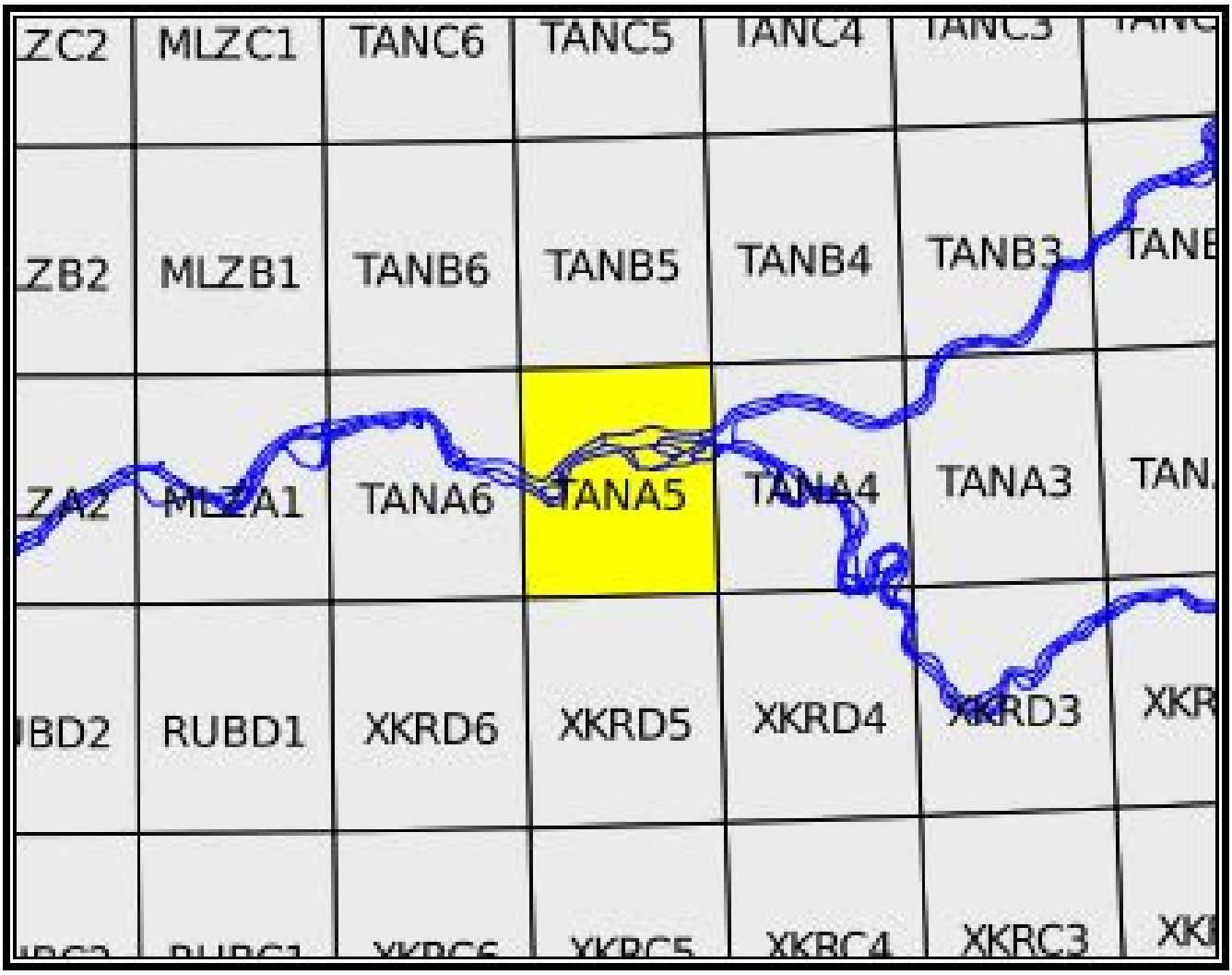

Figure 12.8: Rivers and the quadrangle for clipping

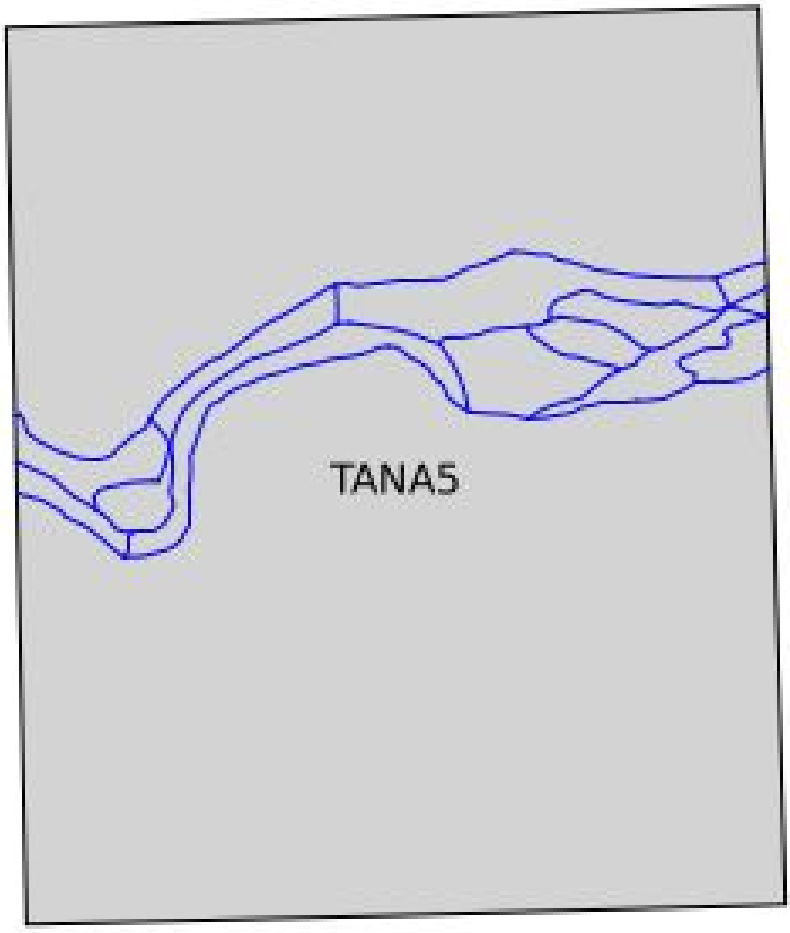

Figure 12.9: Rivers clipped to a quadrangle boundary

13 Using Command-Line Tools

Figure 13.1: Hemisphere view of Earth created with GMT

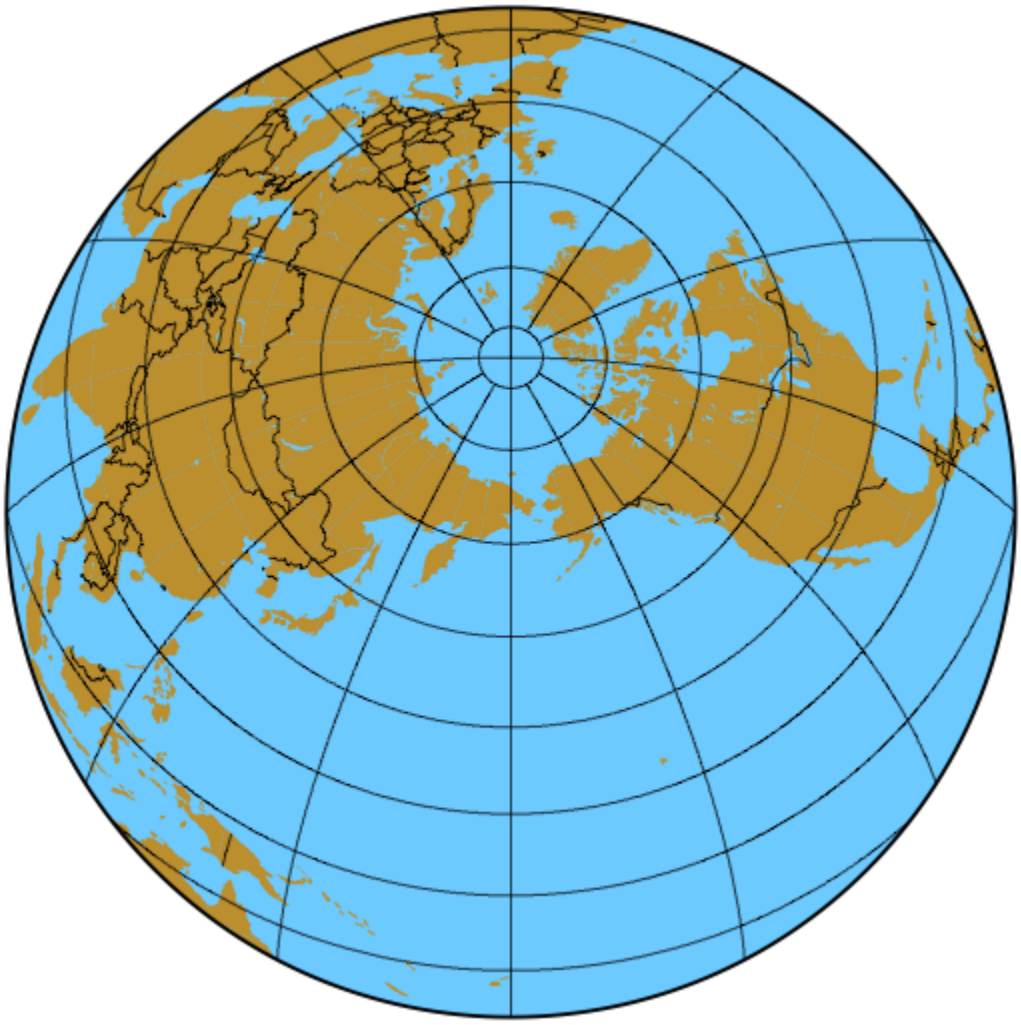

Figure 13.2: Globe centered on 180/65

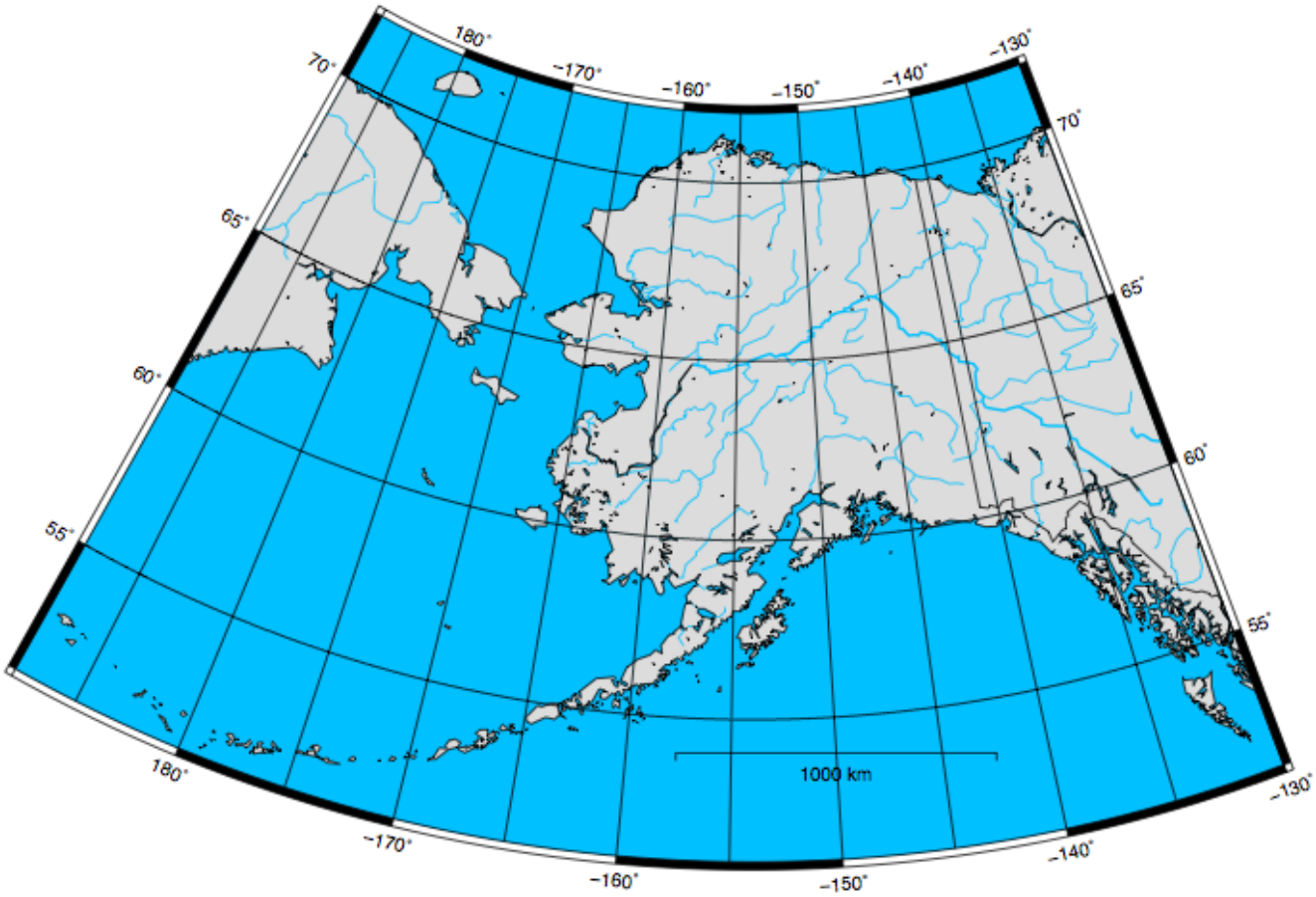

Figure 13.3: Alaska coastline generated with GMT

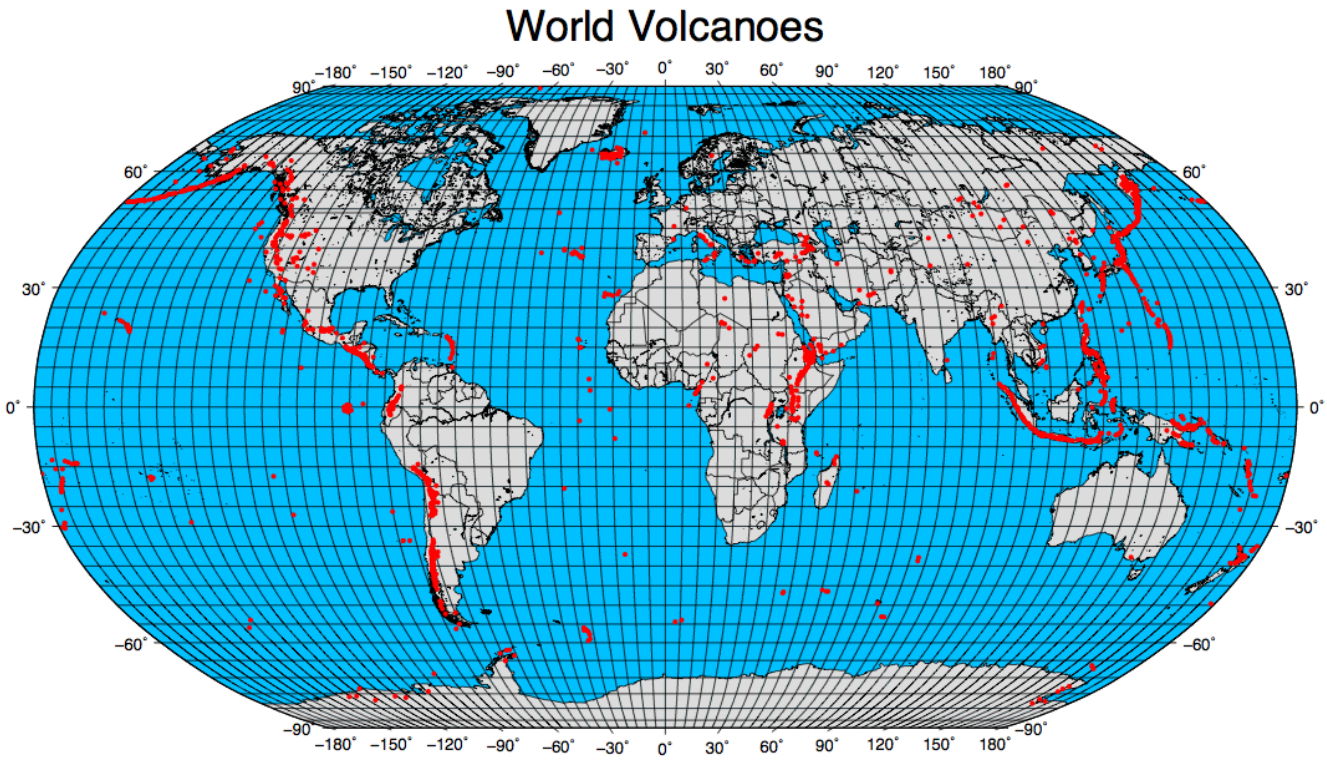

Figure 13.4: Volcanoes plotted on a Robinson projection using GMT

Figure 13.5: Alaska derived from the world mosaic

Figure 13.6: Alaska mosaic warped to Alaska Albers projection

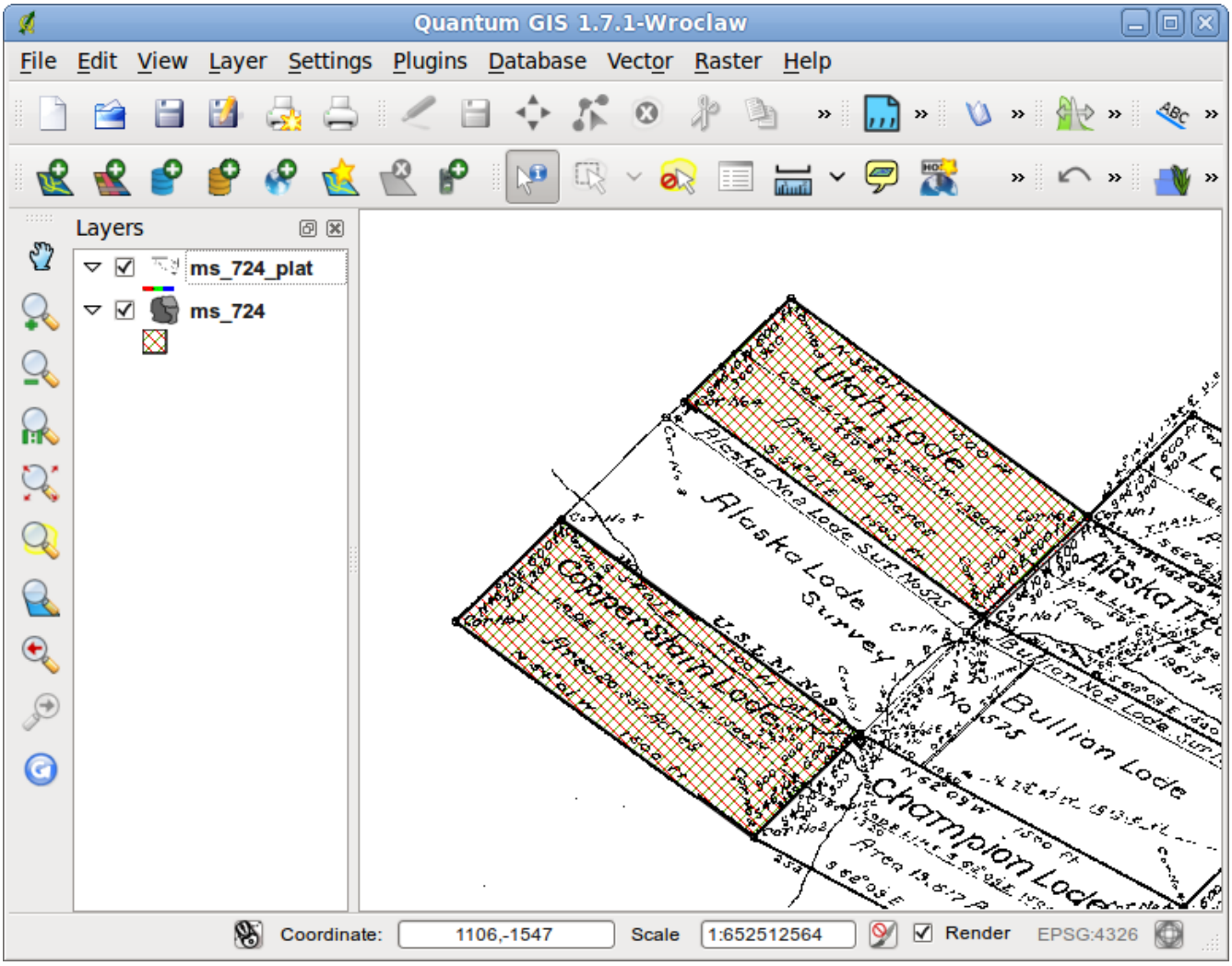

Figure 13.7: VRT raster over the parcel shapefile

14 Getting the Most Out of QGIS and GRASS Integration

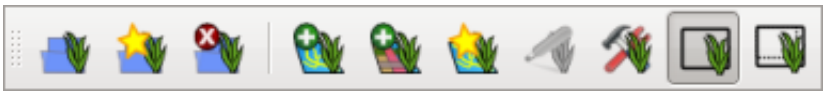

Figure 14.1: The GRASS Plugin Toolbar

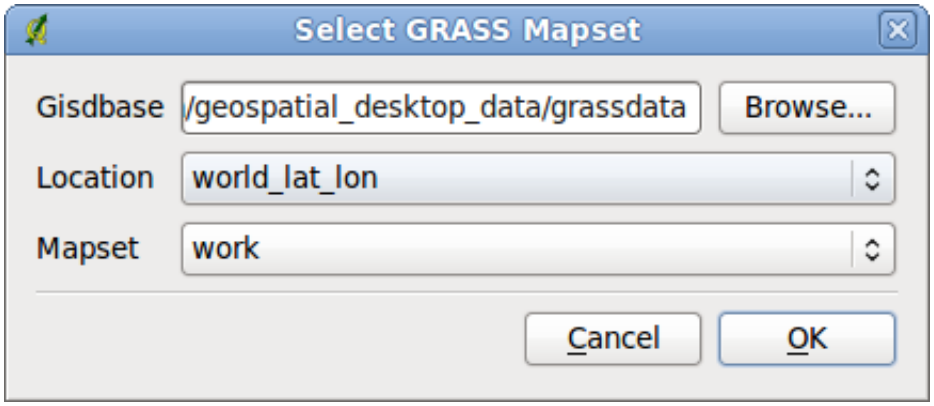

Figure 14.2: Selecting a GRASS mapset in QGIS

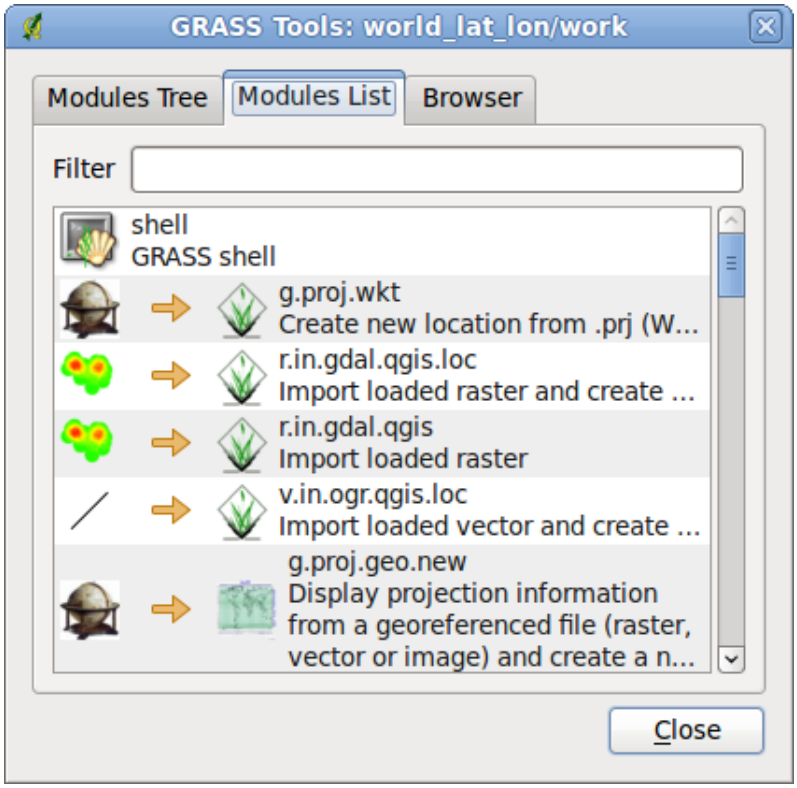

Figure 14.3: The GRASS tools in QGIS

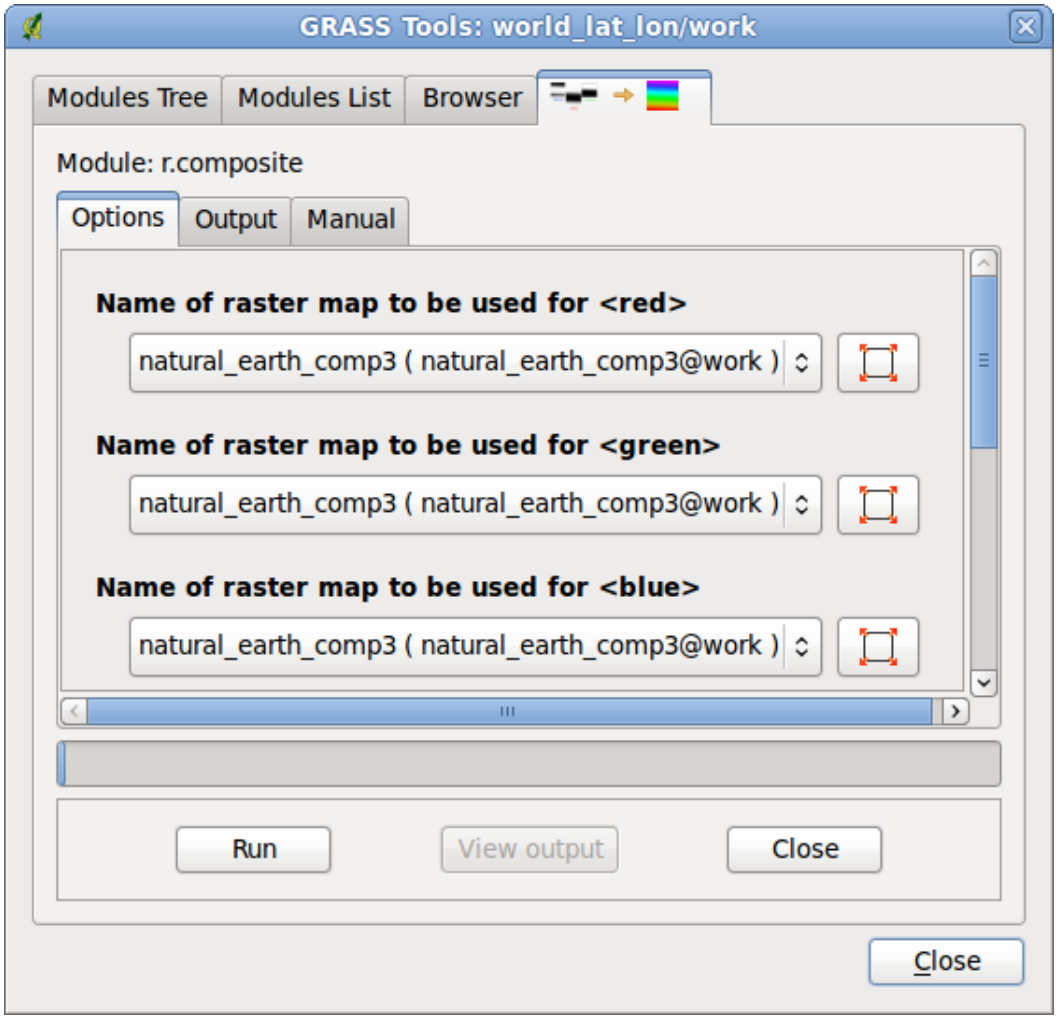

Figure 14.4: The GRASS Toolbox Ready to Run r.composite

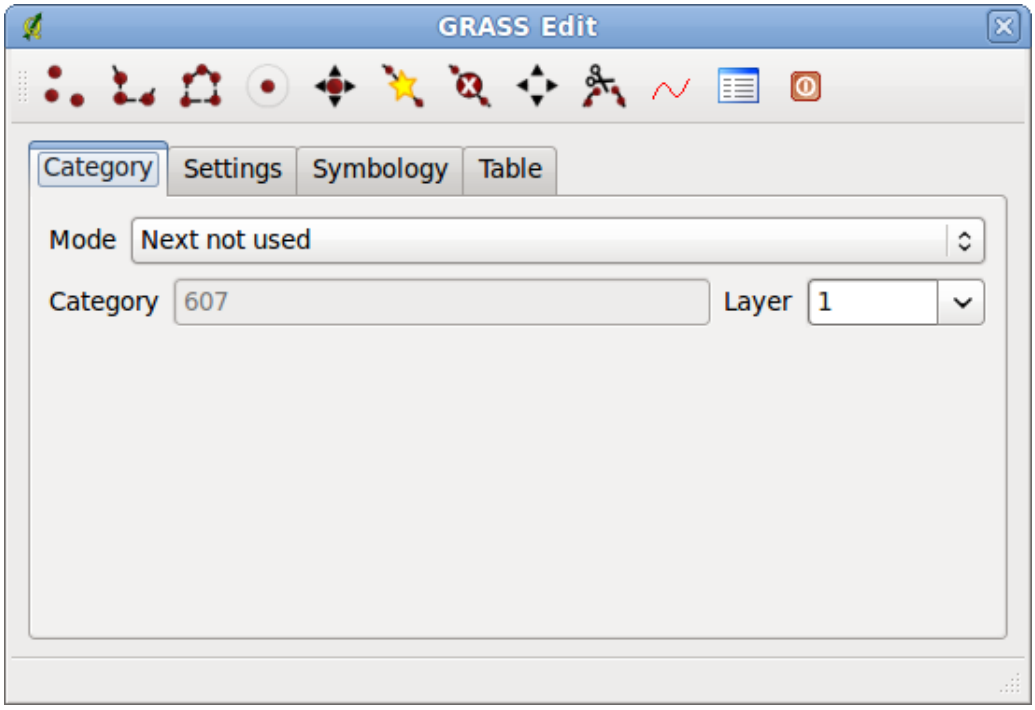

Figure 14.5: GRASS edit tools in QGIS

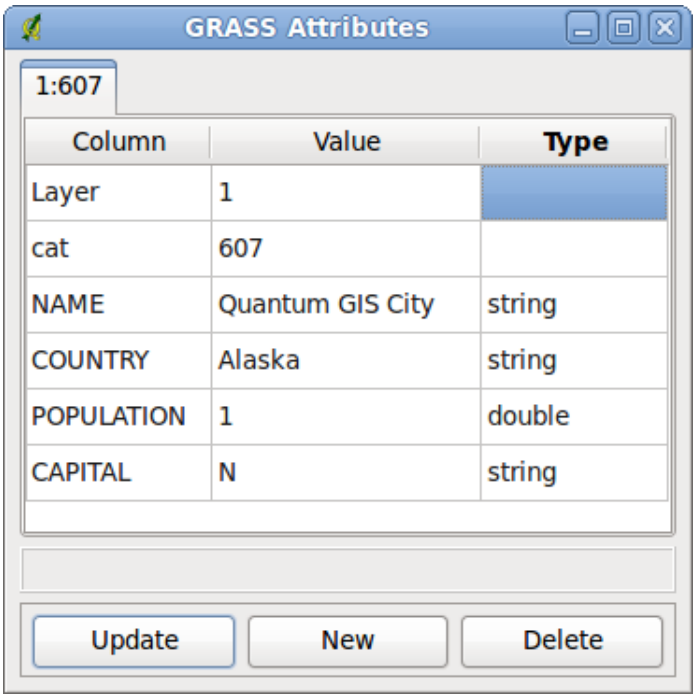

Figure 14.6: Adding attributes to a GRASS feature

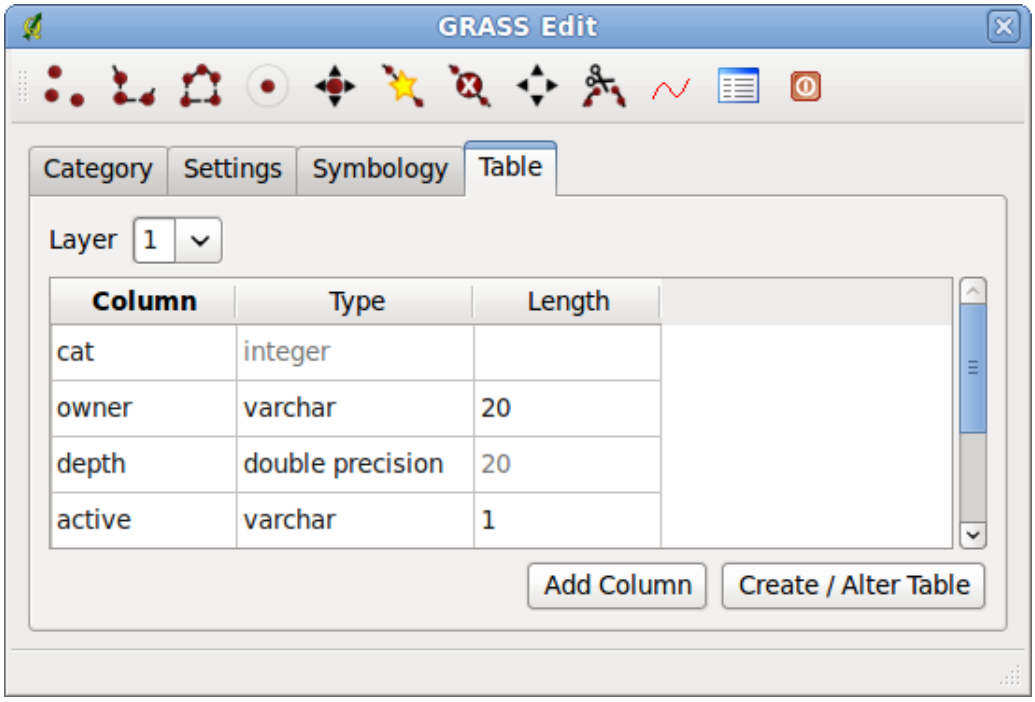

Figure 14.7: Adding columns to the new GRASS map table

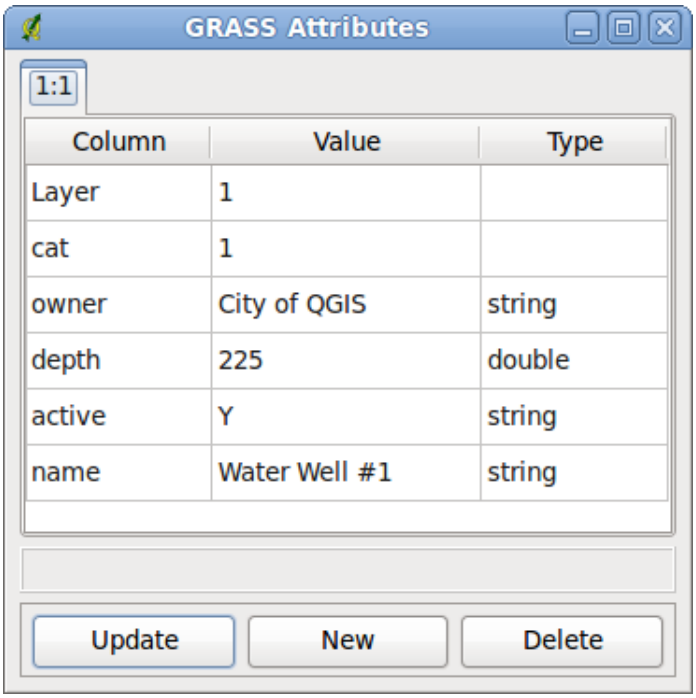

Figure 14.8: Editing the attributes of an existing feature

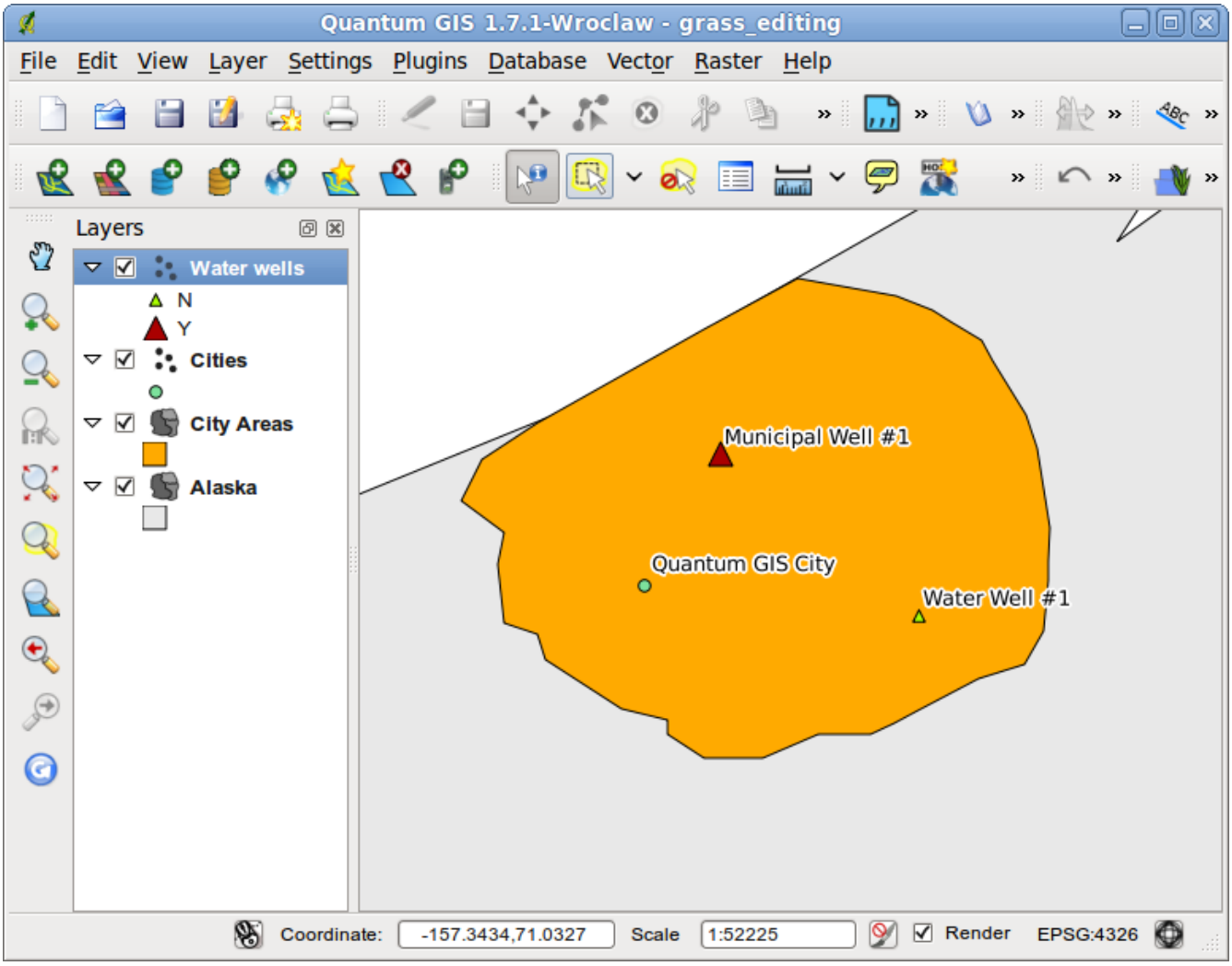

Figure 14.9: Completed city map with water wells

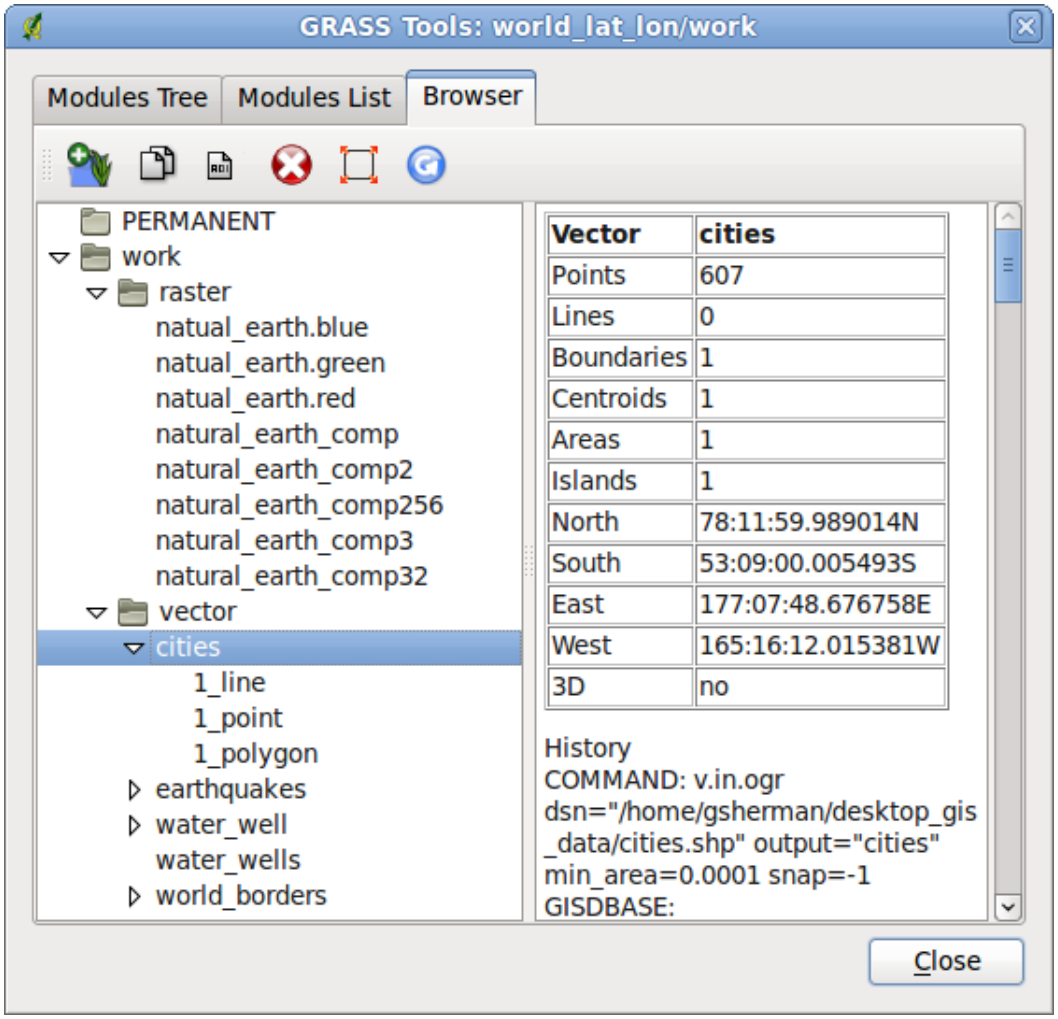

Figure 14.10: GRASS browser in QGIS

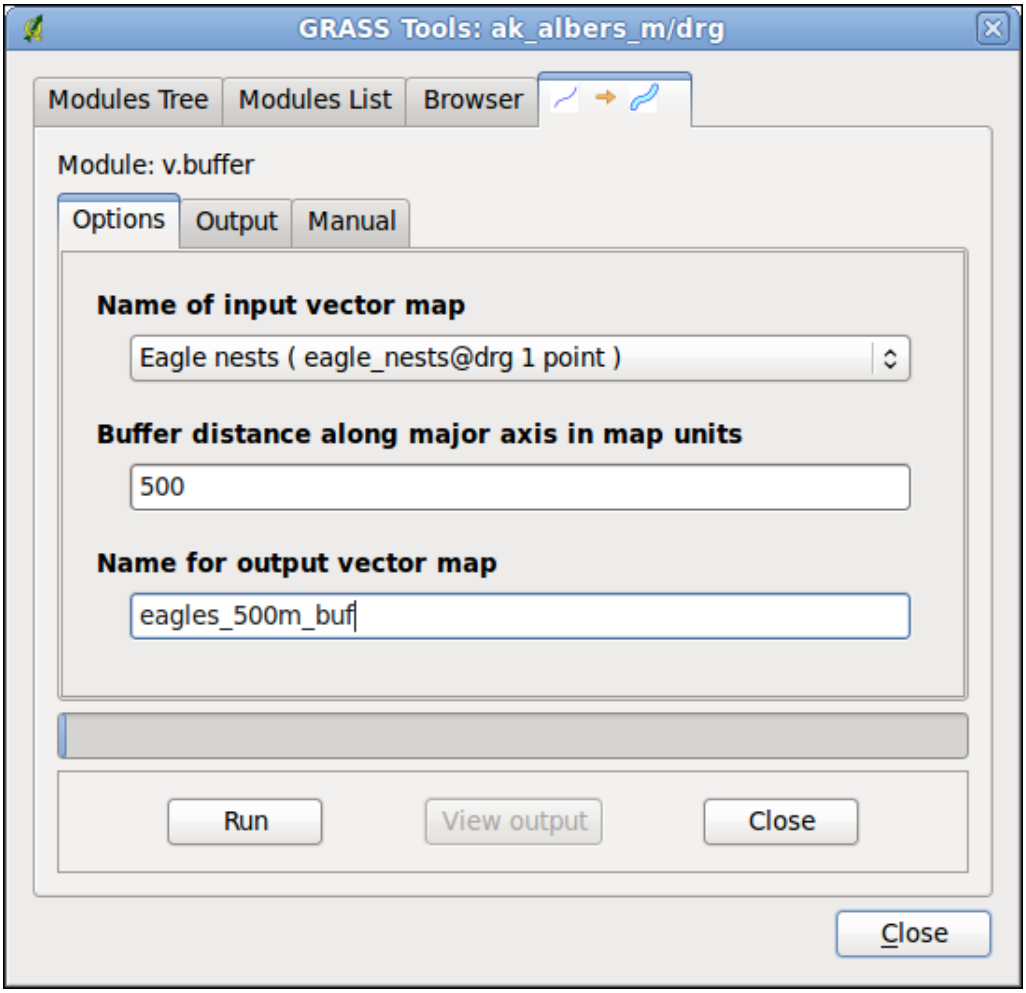

Figure 14.11: Buffer module ready to buffer eagle nest locations

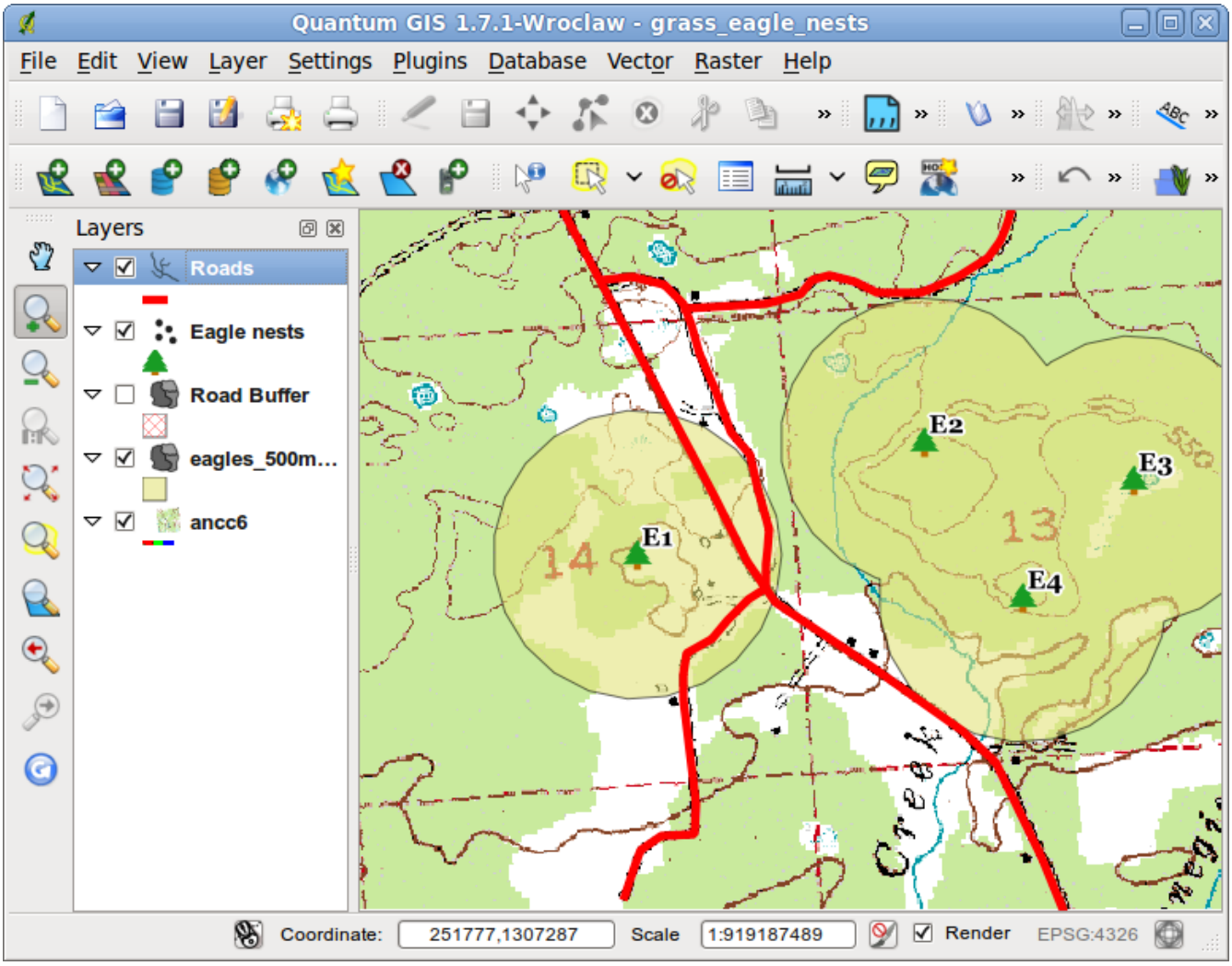

Figure 14.12: Buffered eagle nests created with GRASS and QGIS

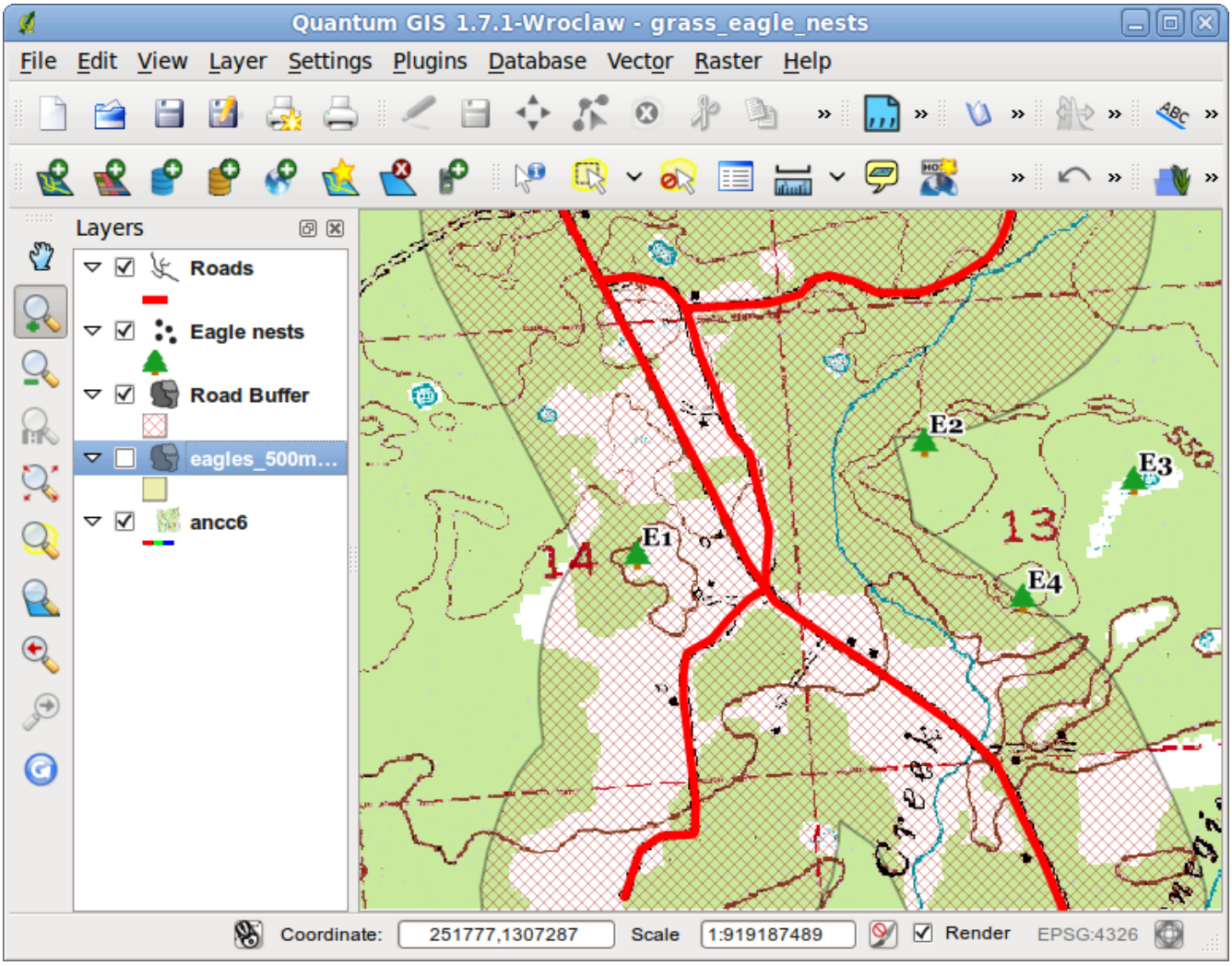

Figure 14.13: Roads buffered using GRASS in QGIS

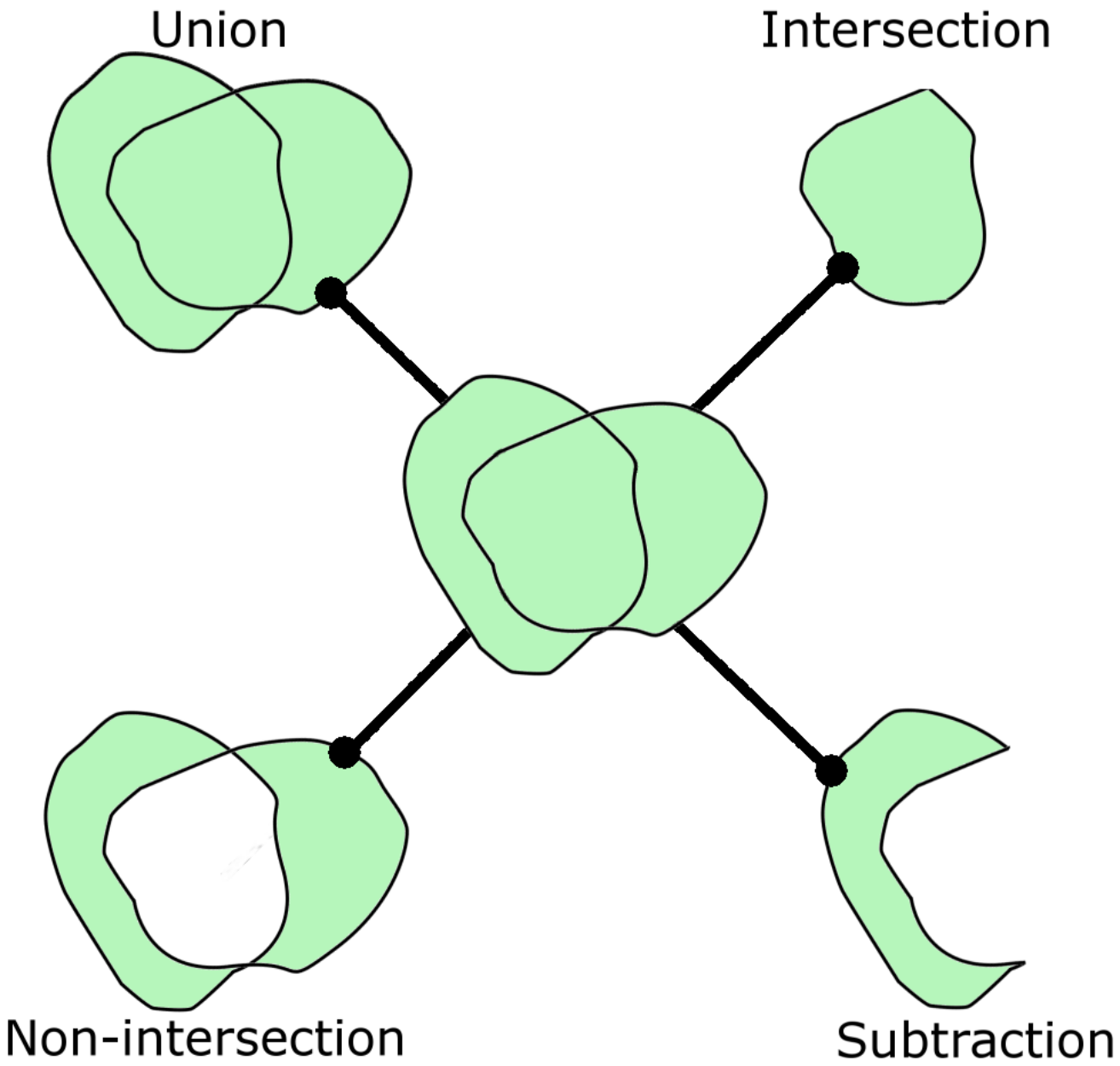

Figure 14.14: Result of each type of vector overlay operation

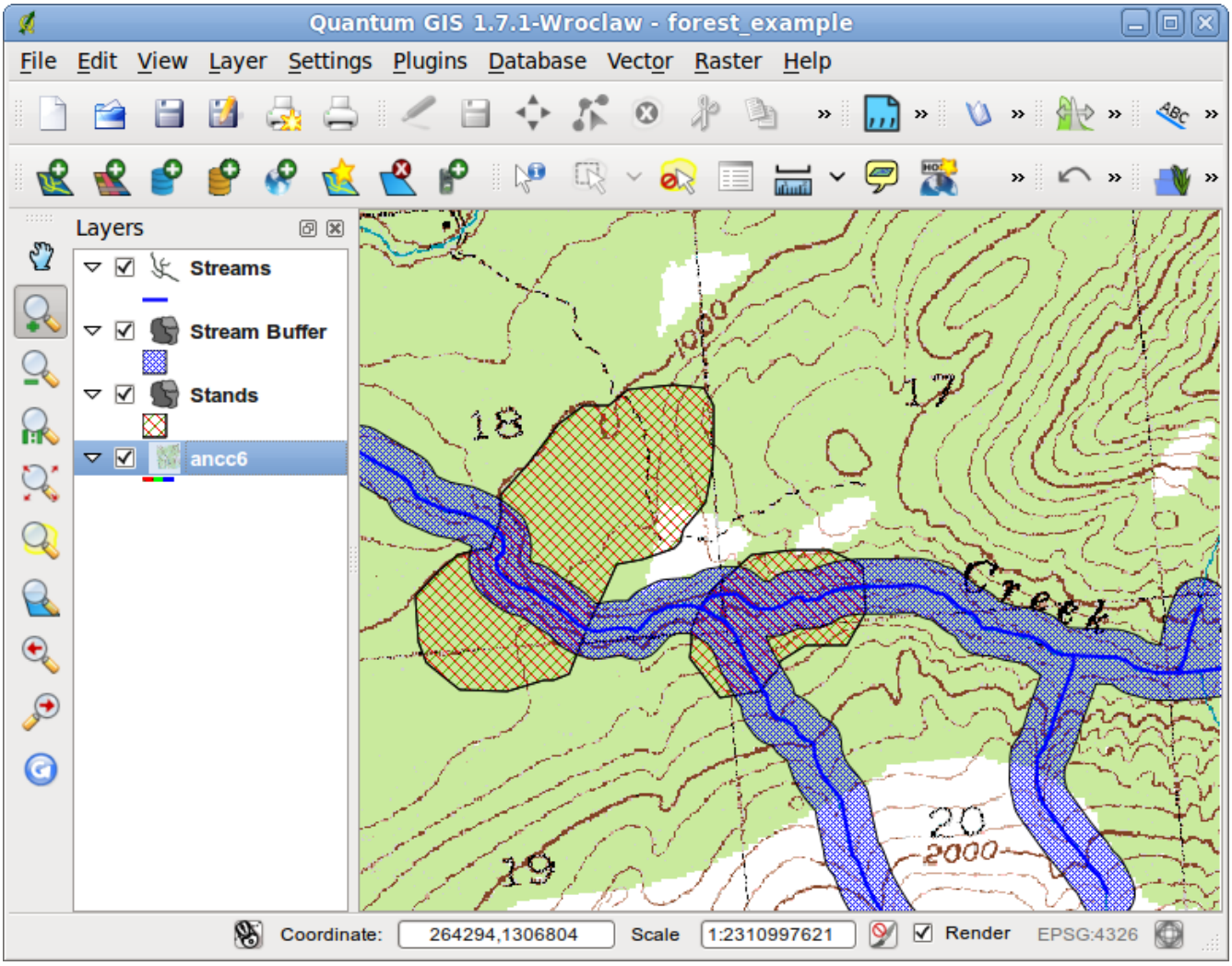

Figure 14.15: Timber stands and stream buffers

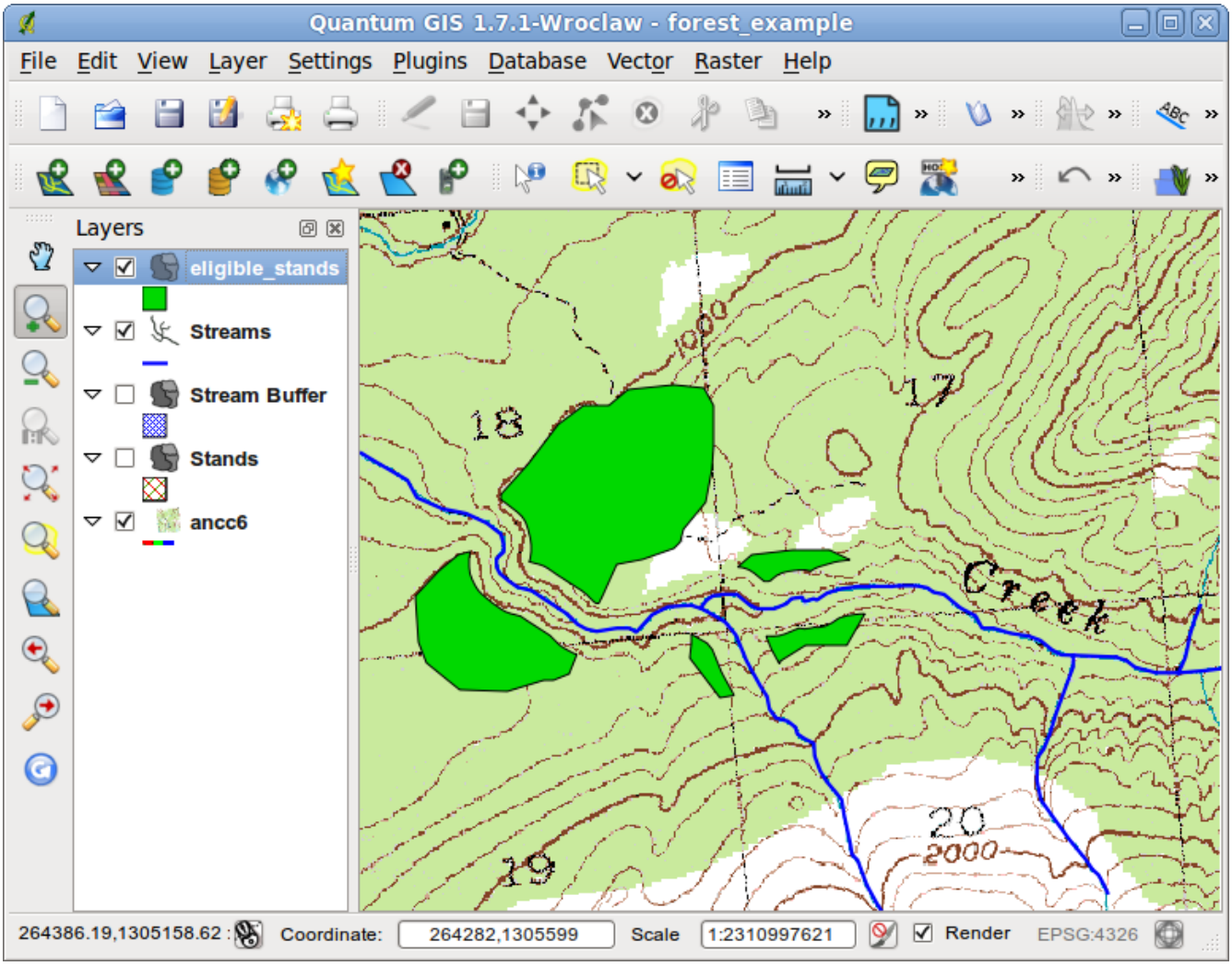

Figure 14.16: Eligible logging areas after vector subtraction

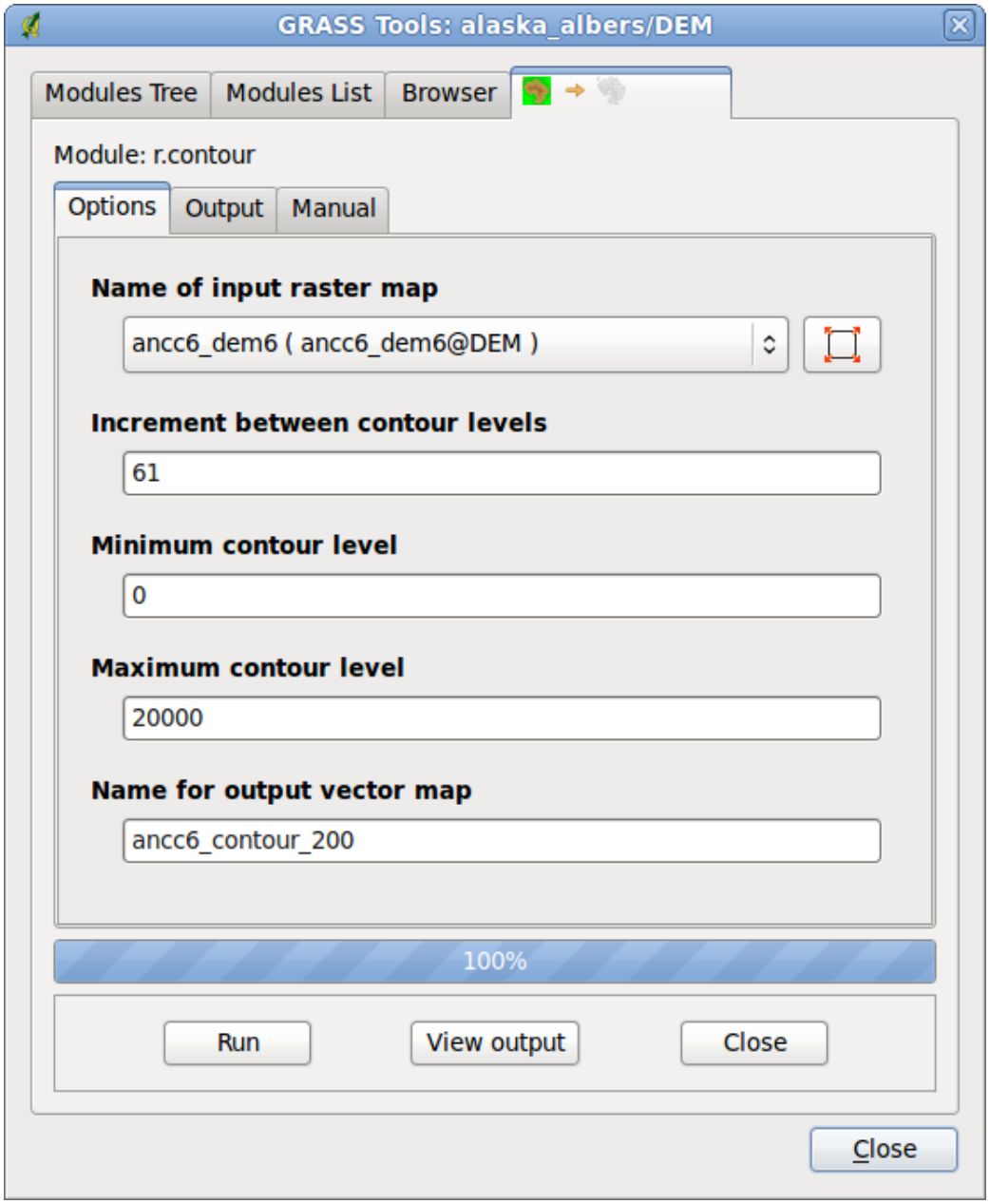

Figure 14.17: Setting up to contour a DEM

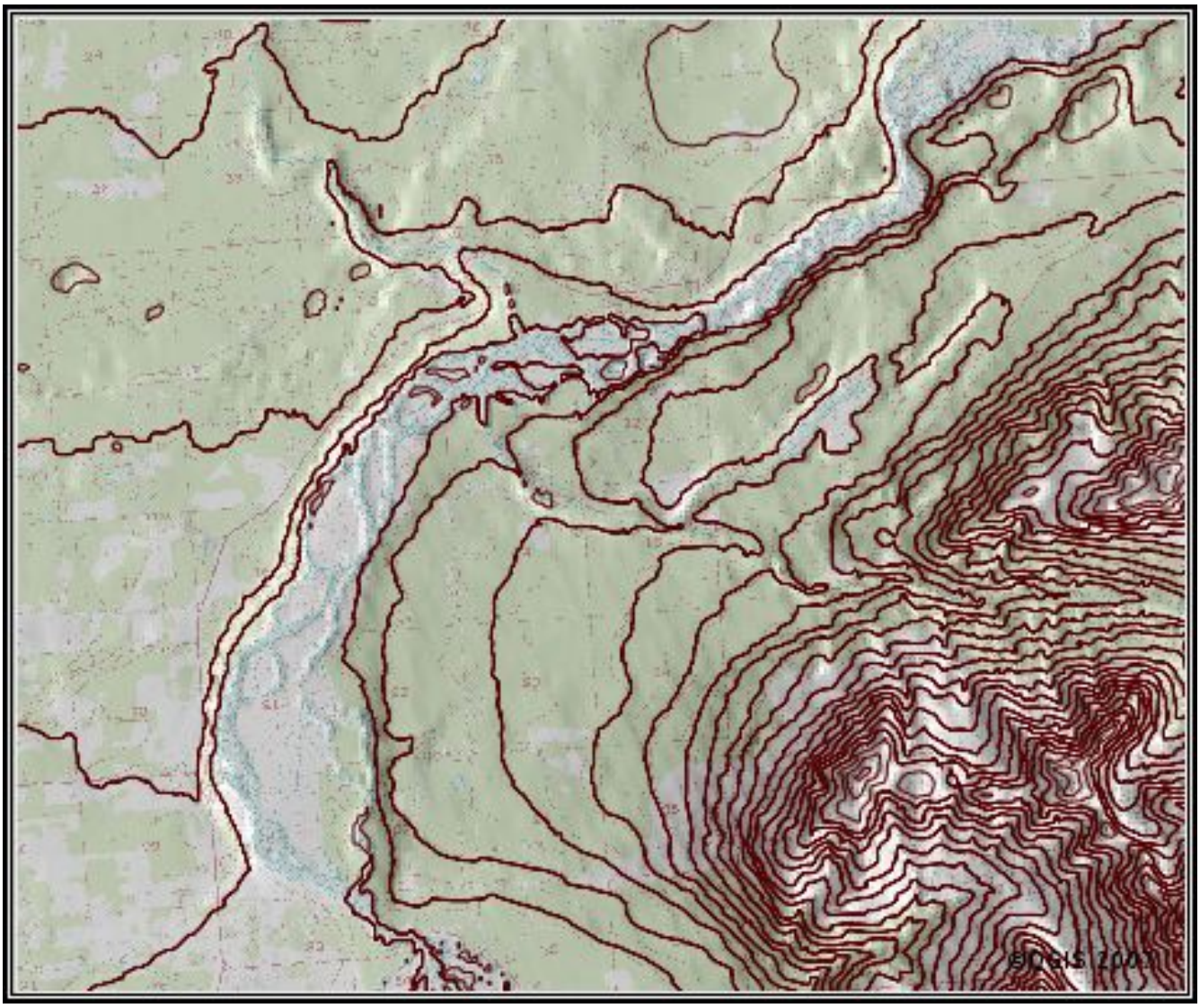

Figure 14.18: Result of contouring the DEM

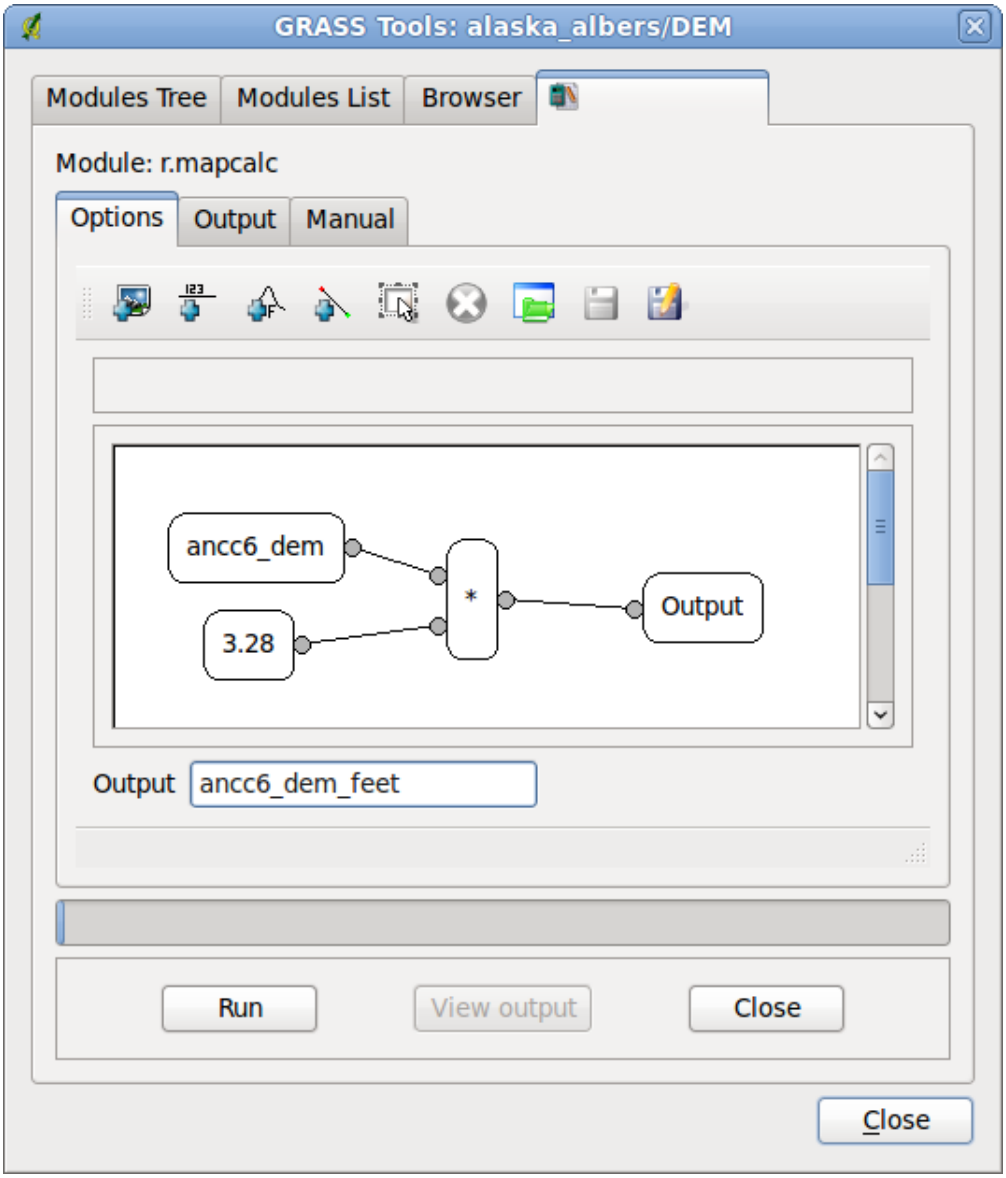

Figure 14.19: Mapcalc model for converting DEM from meters to feet

15 GIS Scripting

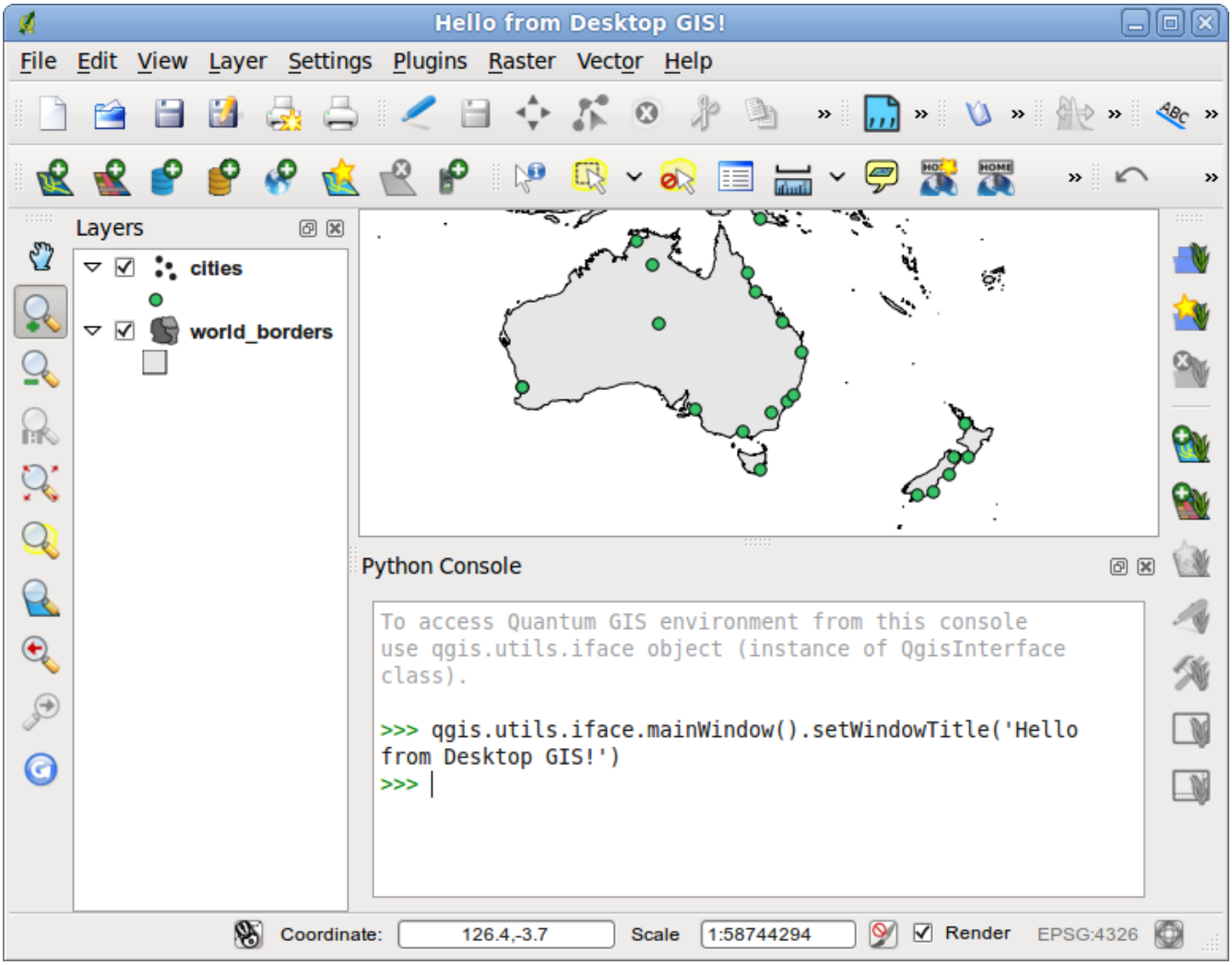

Figure 15.1: Changing the window title with Python

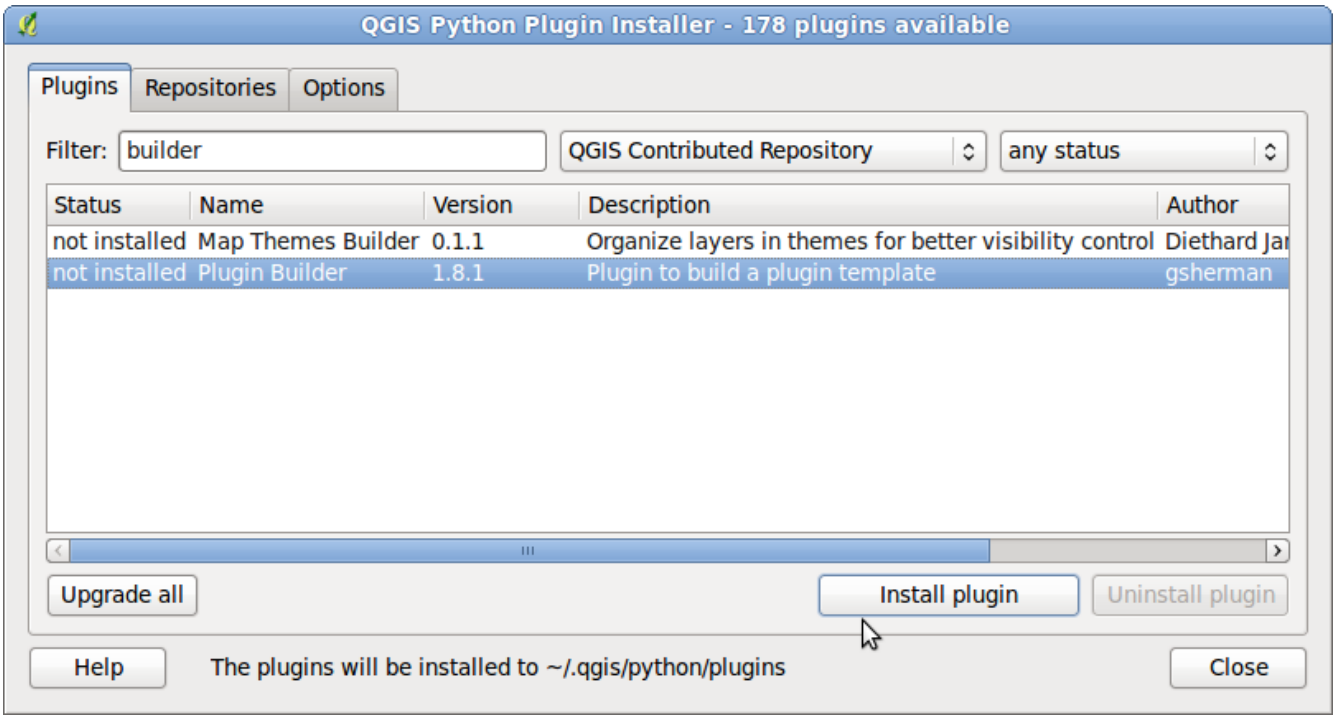

Figure 15.2: Installing the Plugin Builder

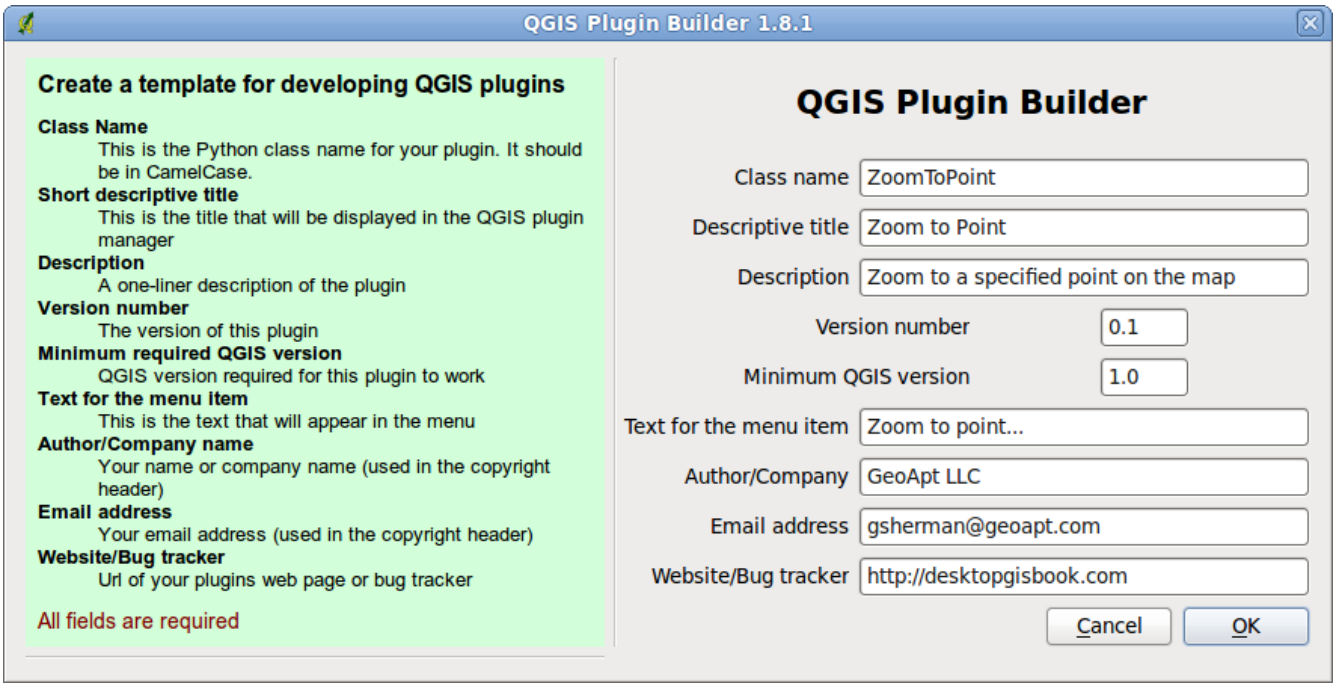

Figure 15.3: Plugin Builder Ready to Generate the Zoom to Point Plugin

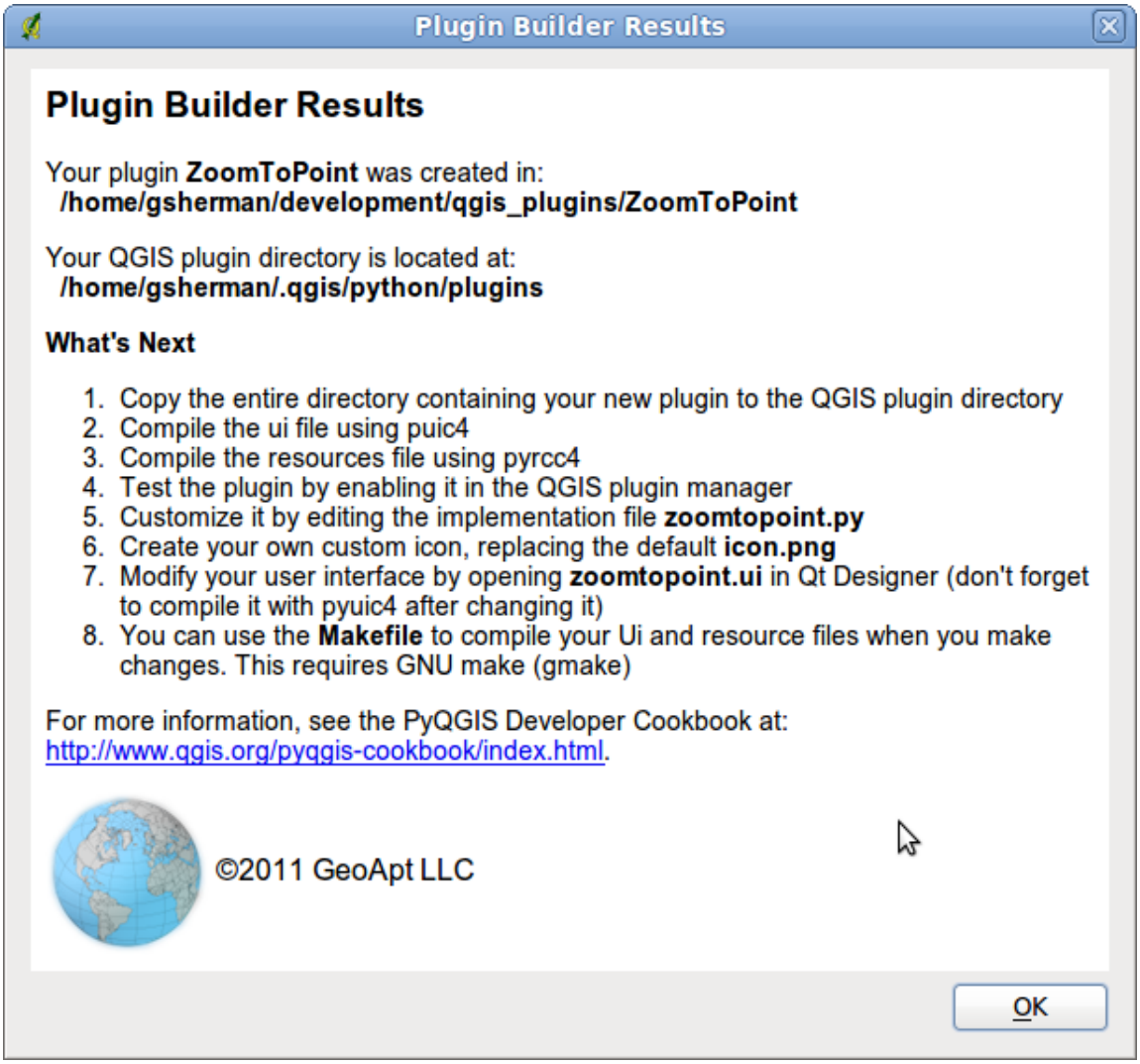

Figure 15.4: Results of Generating the ZoomToPoint Plugin

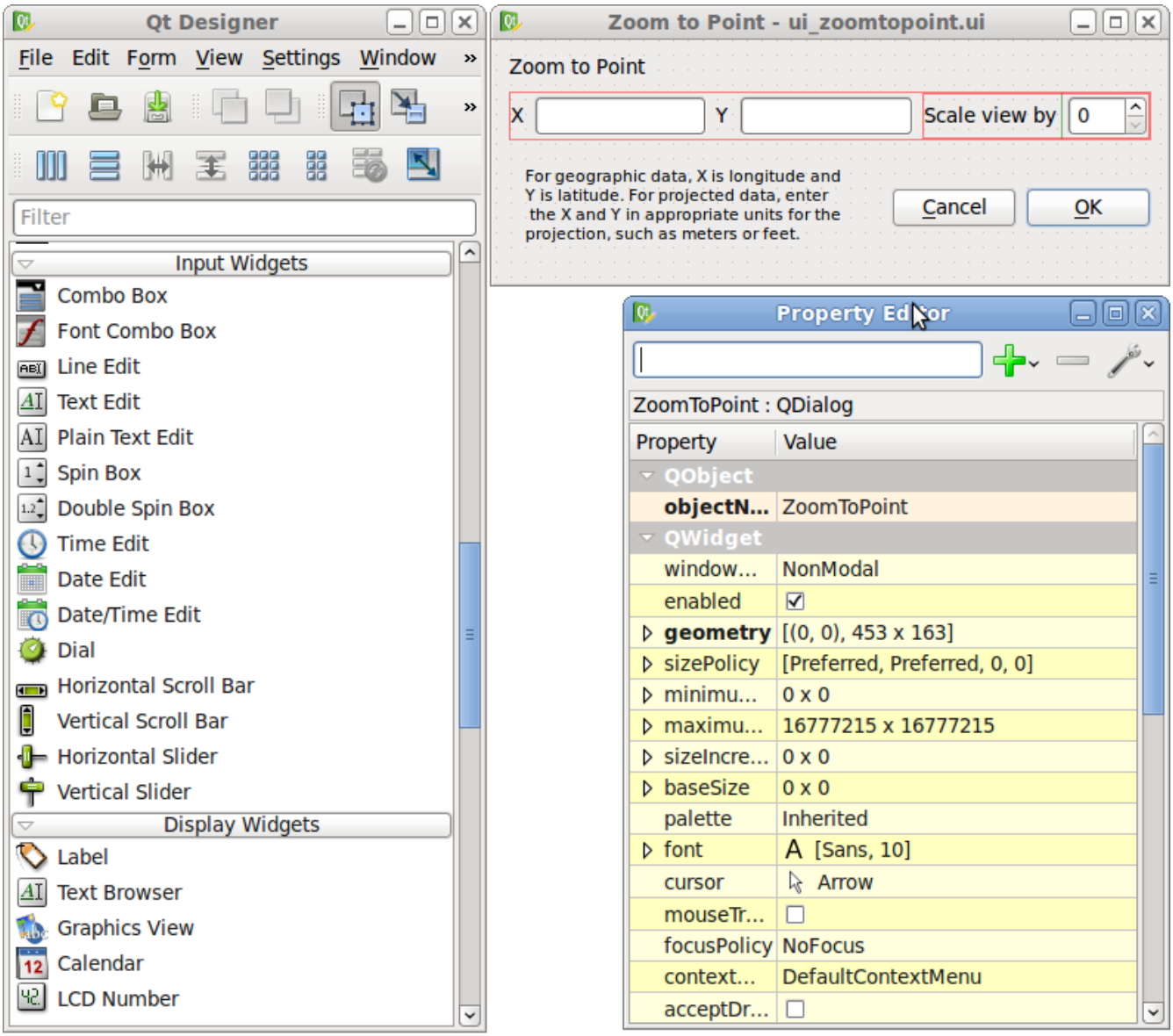

Figure 15.5: Plugin dialog box in Qt Designer

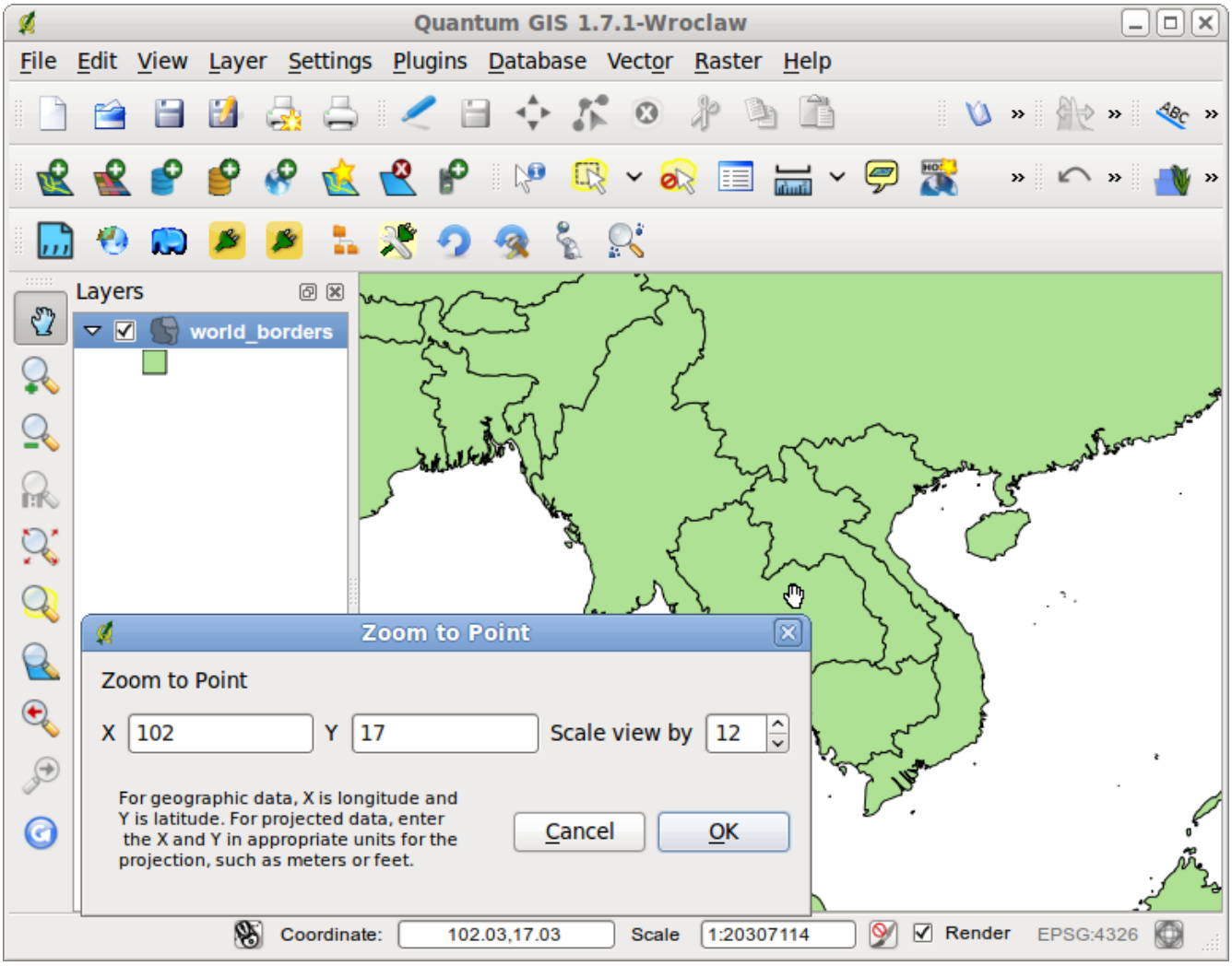

Figure 15.6: ZoomToPoint plugin in use

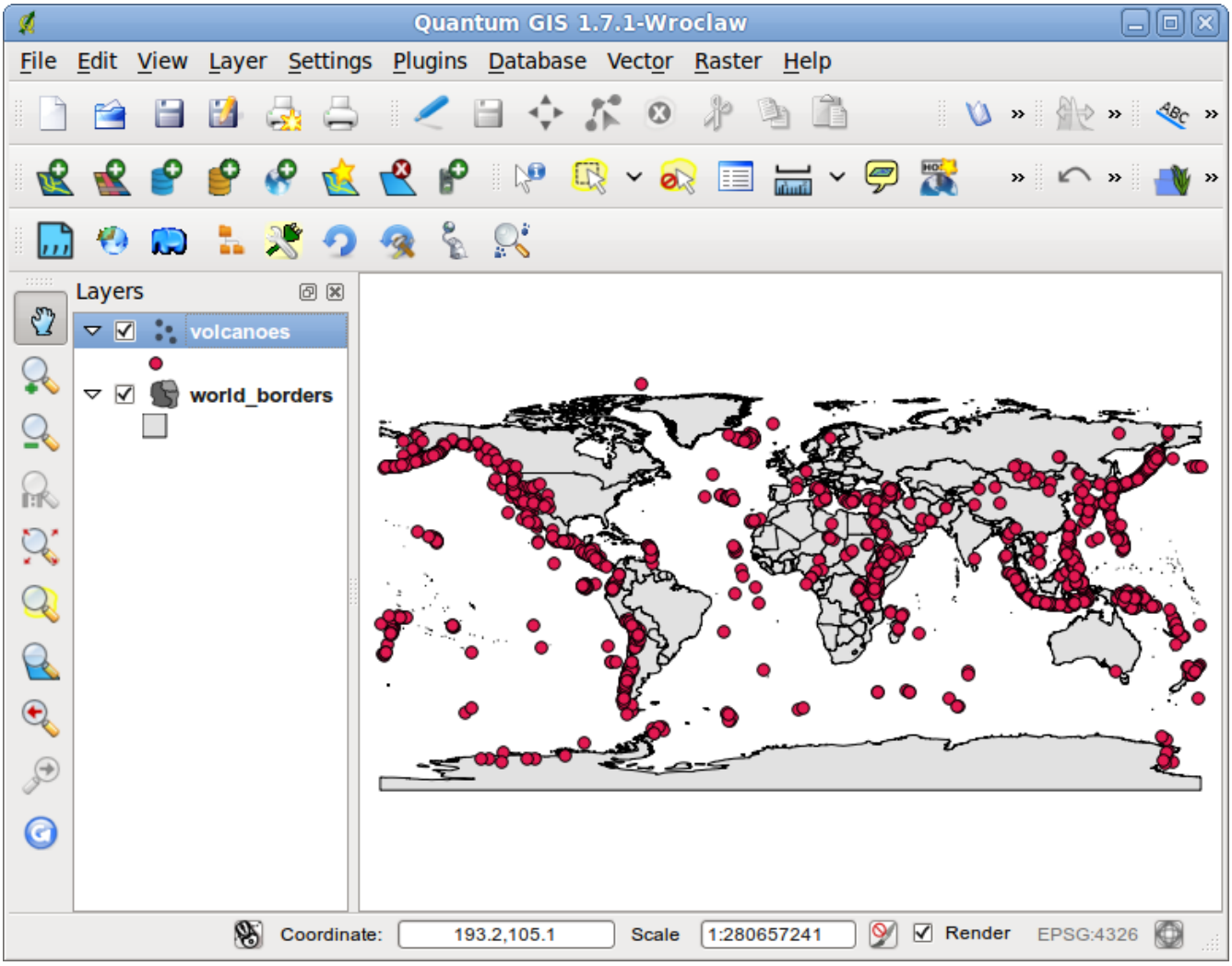

Figure 15.7: Volcanoes shapefile created with Python script

16 Appendix A: Survey of Desktop GIS Software

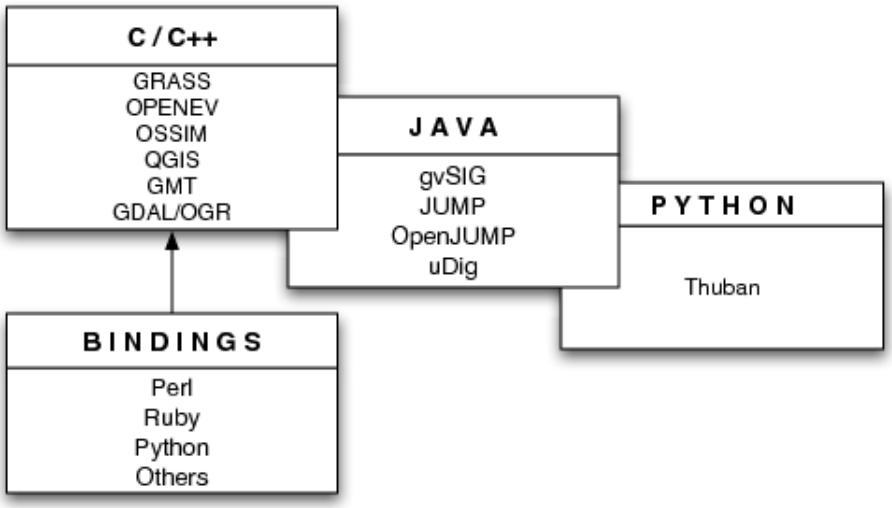

Figure 16.1: Applications grouped by underlying programming language

18 GRASS Basics

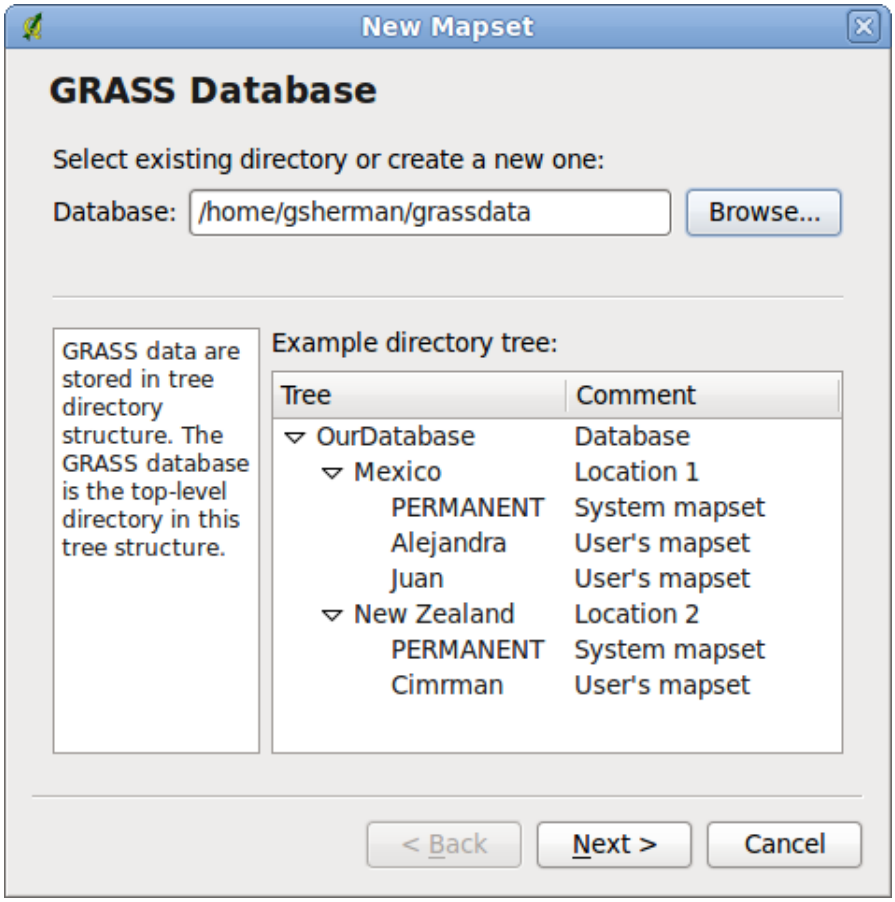

Figure 18.1: GRASS database selection/creation dialog box

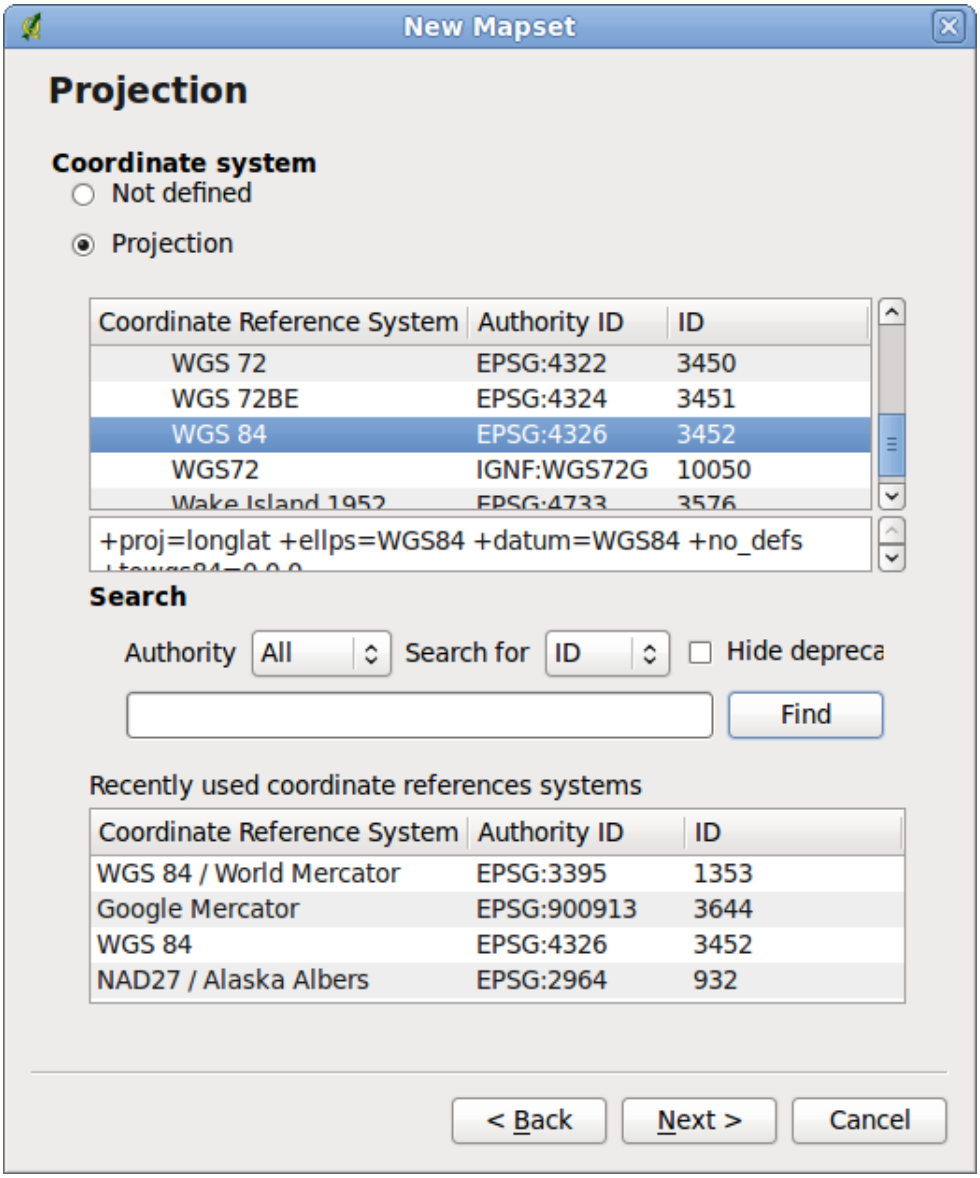

Figure 18.2: Choosing the WGS 84 projection for the GRASS location

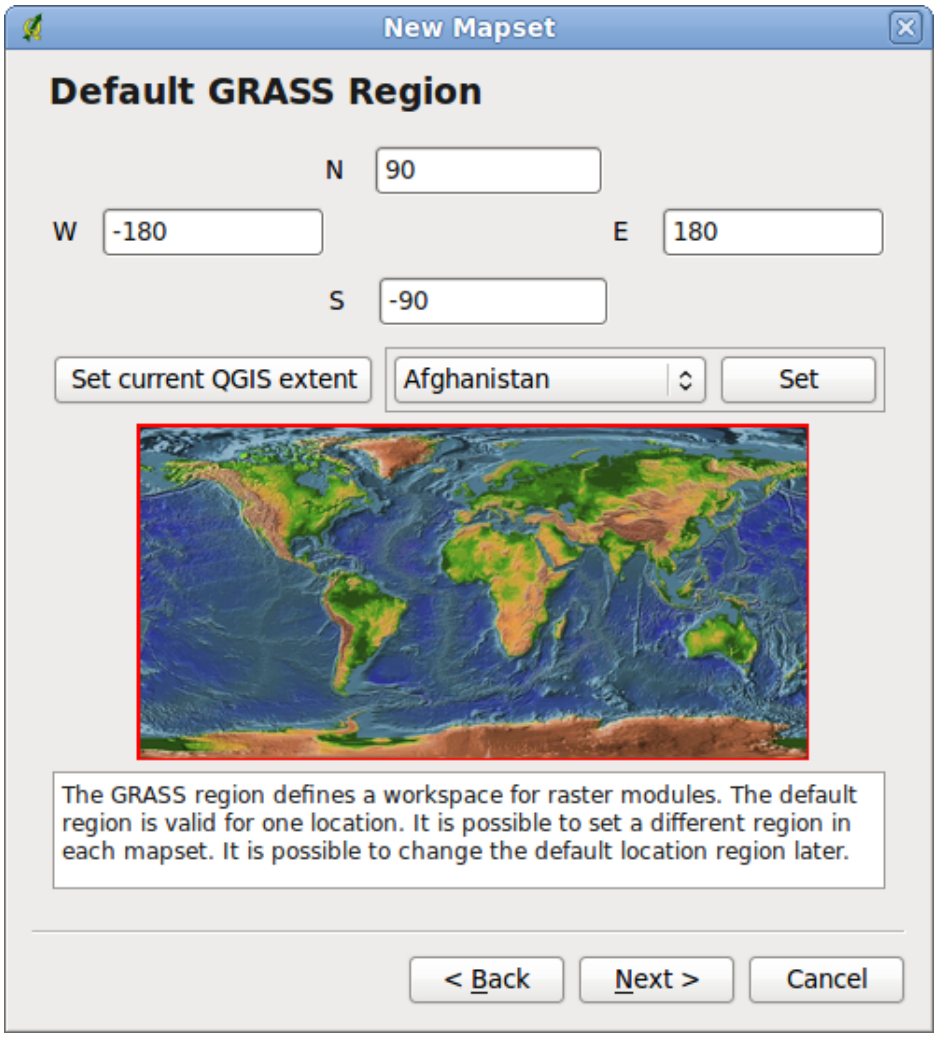

Figure 18.3: Default region settings for a WGS 84 world location

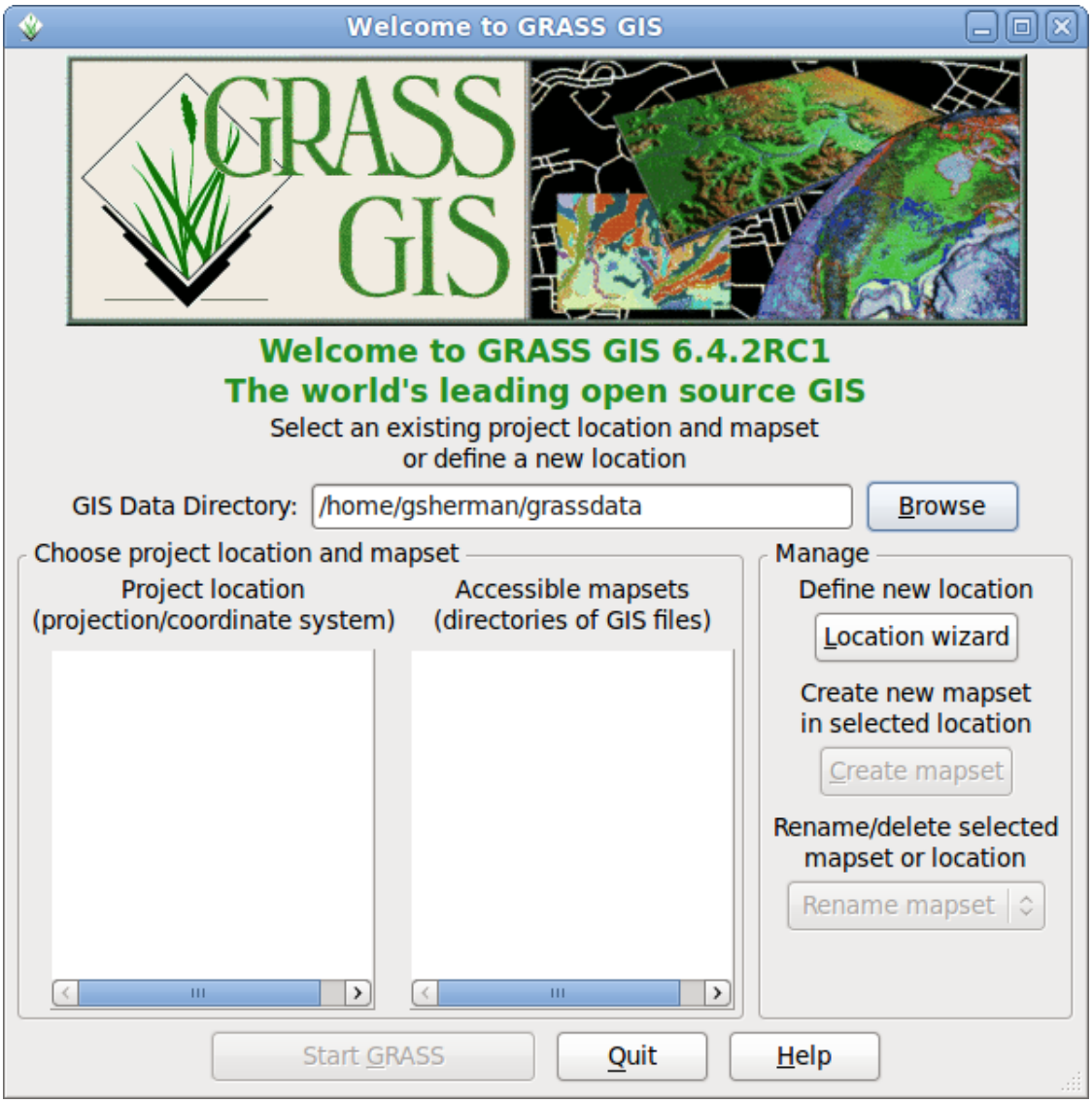

Figure 18.4: GRASS start-up form

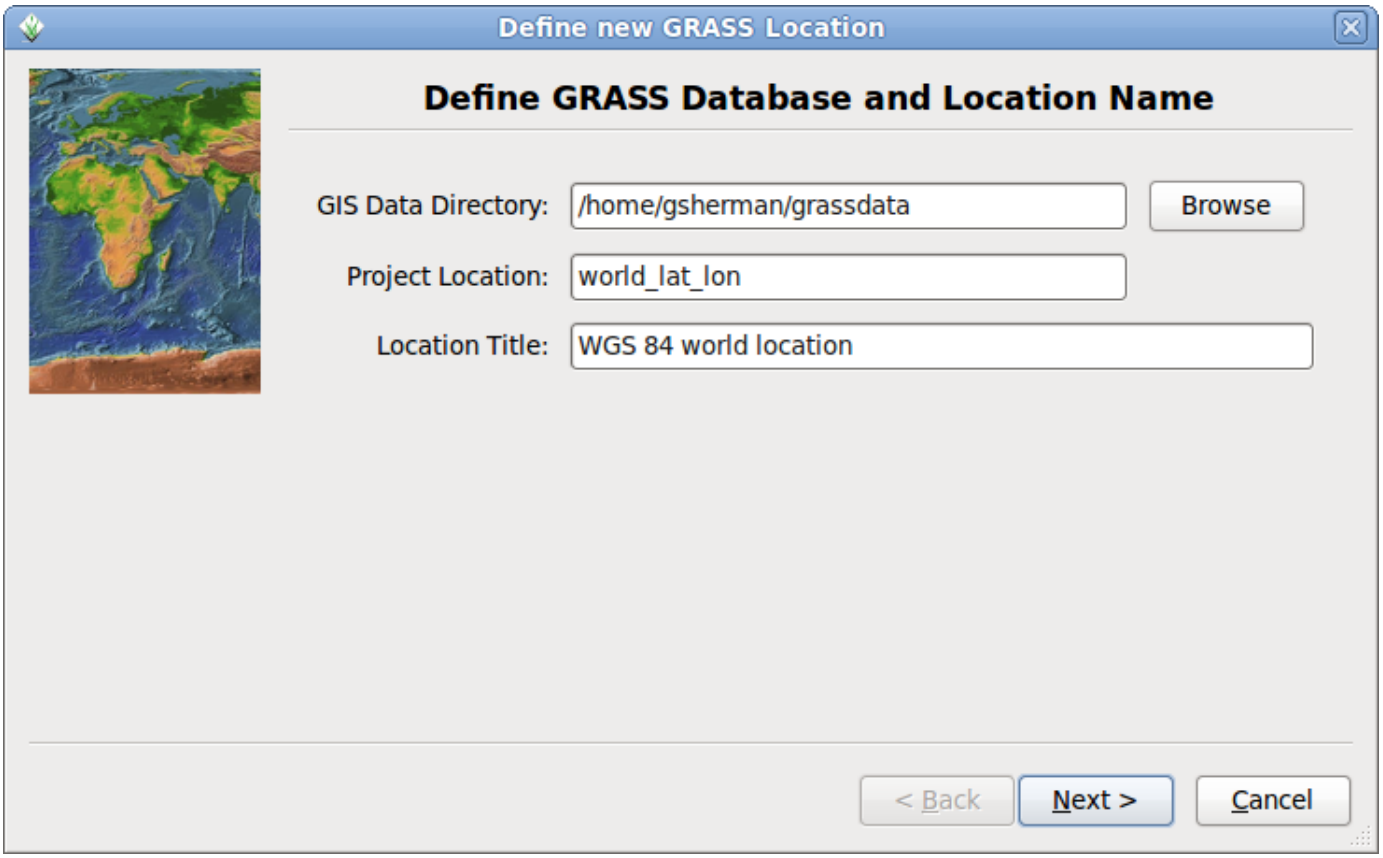

Figure 18.5: GRASS location parameters

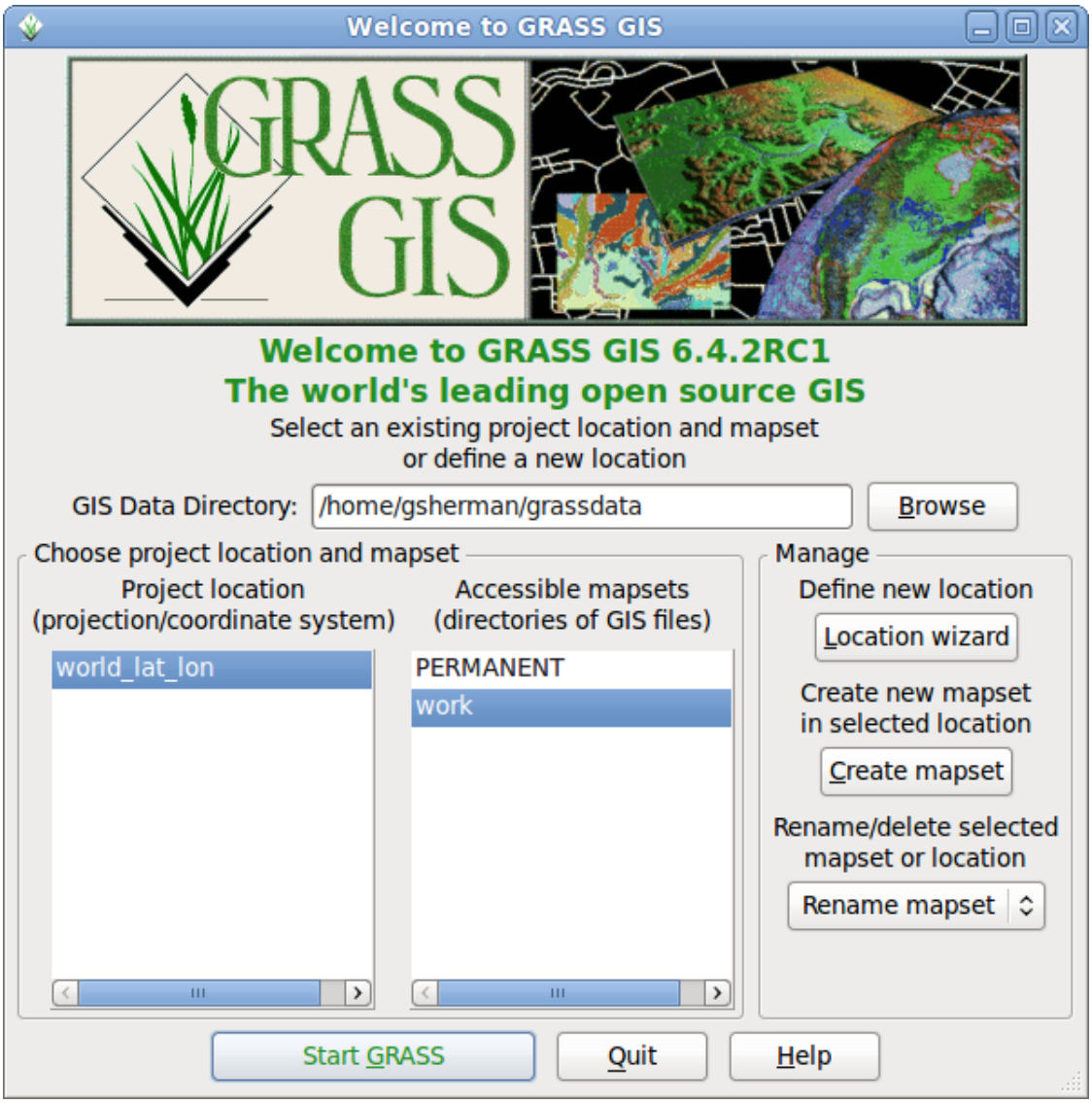

Figure 18.6: GRASS location and mapset created and ready to use

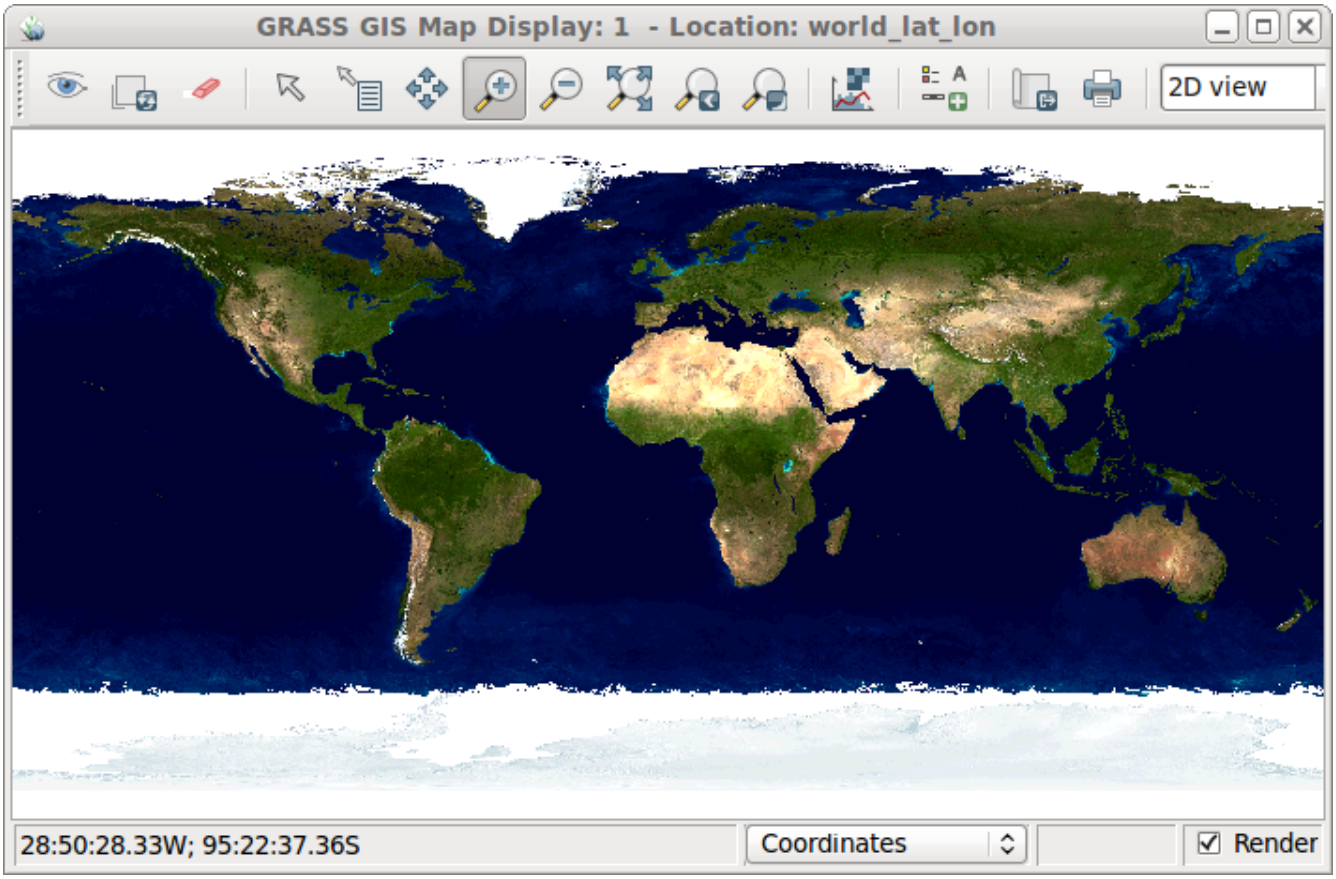

Figure 18.7: World mosaic in GRASS

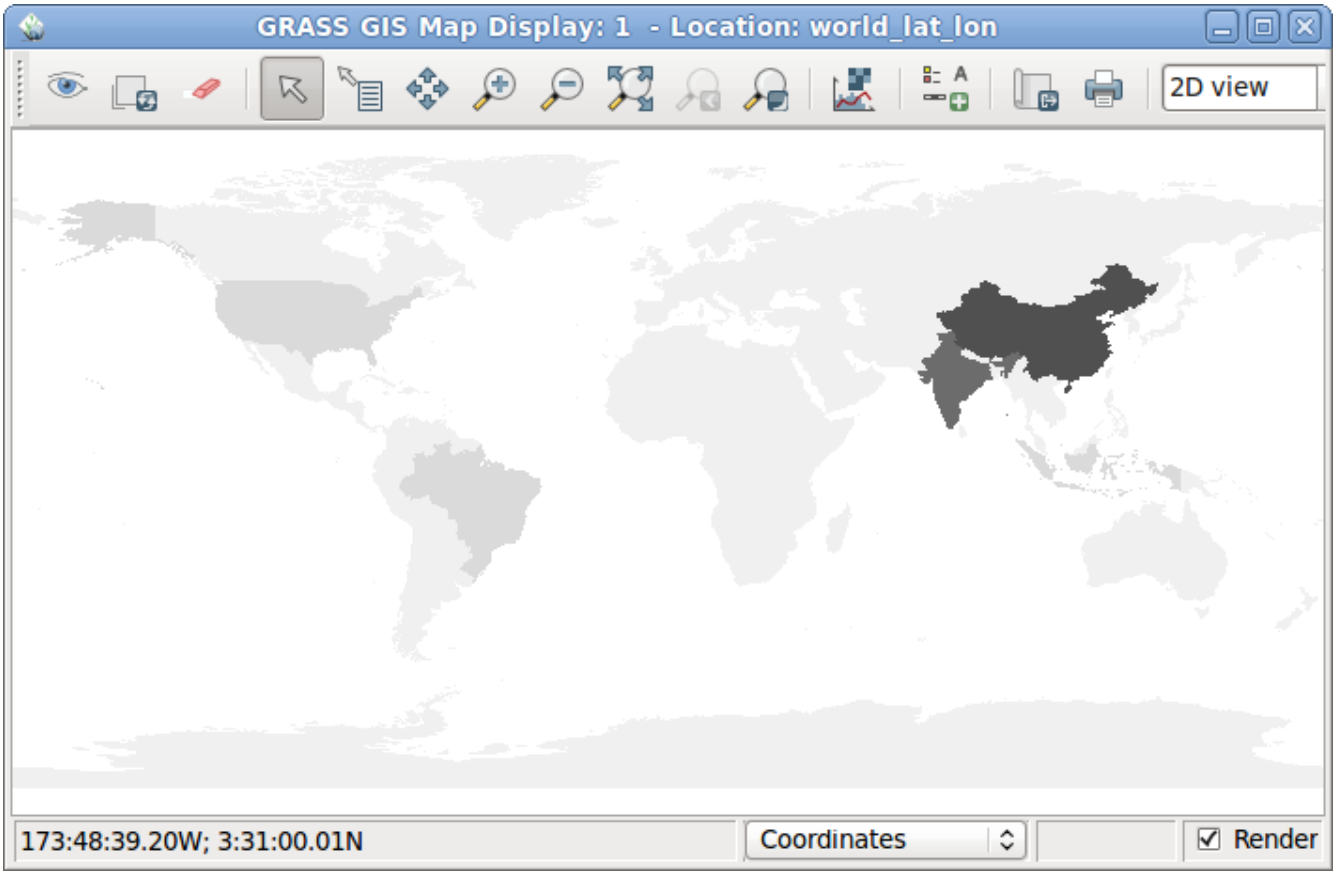

Figure 18.8: GRASS thematic map showing world population

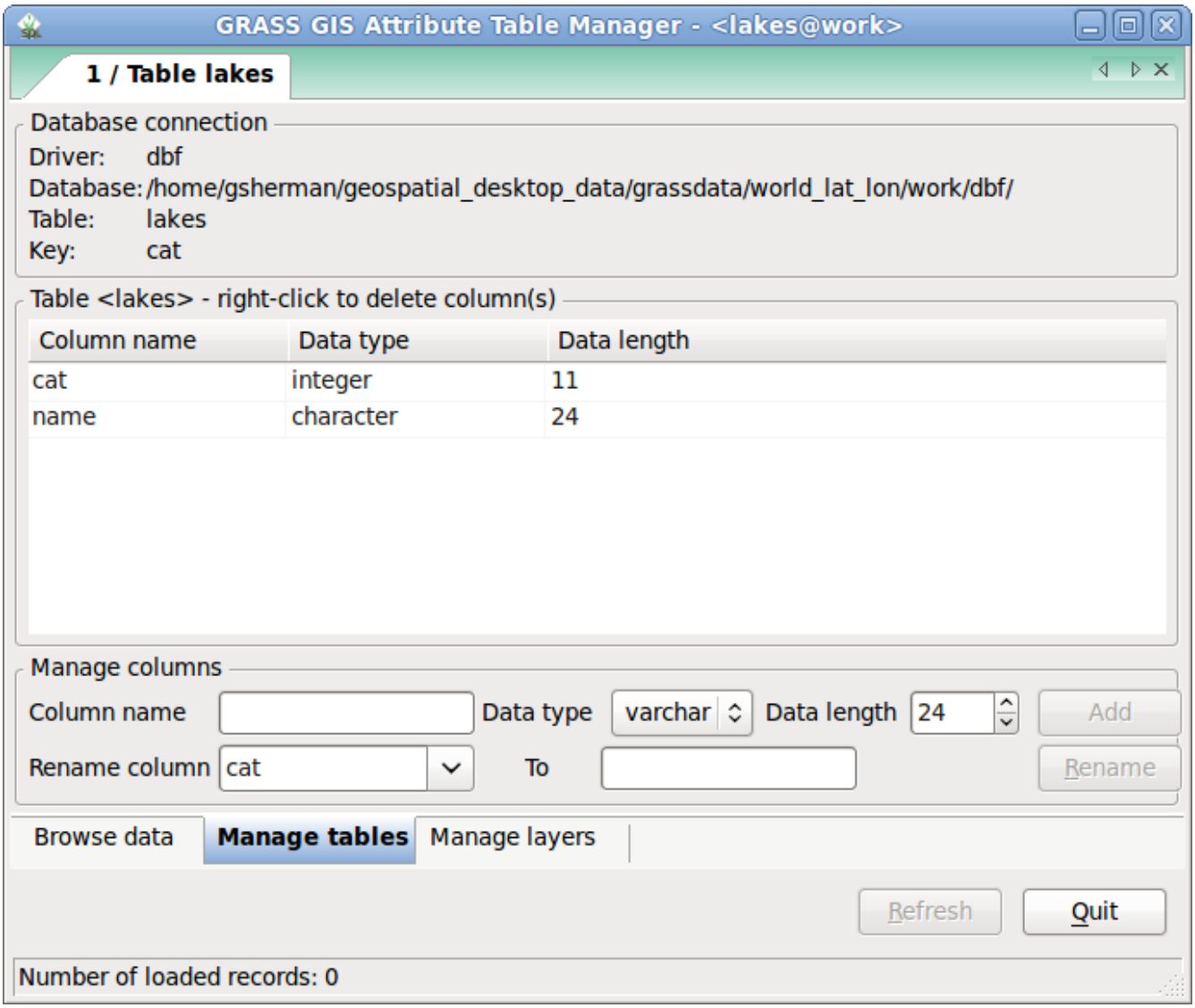

Figure 18.9: Adding a Column to a GRASS Vector Map

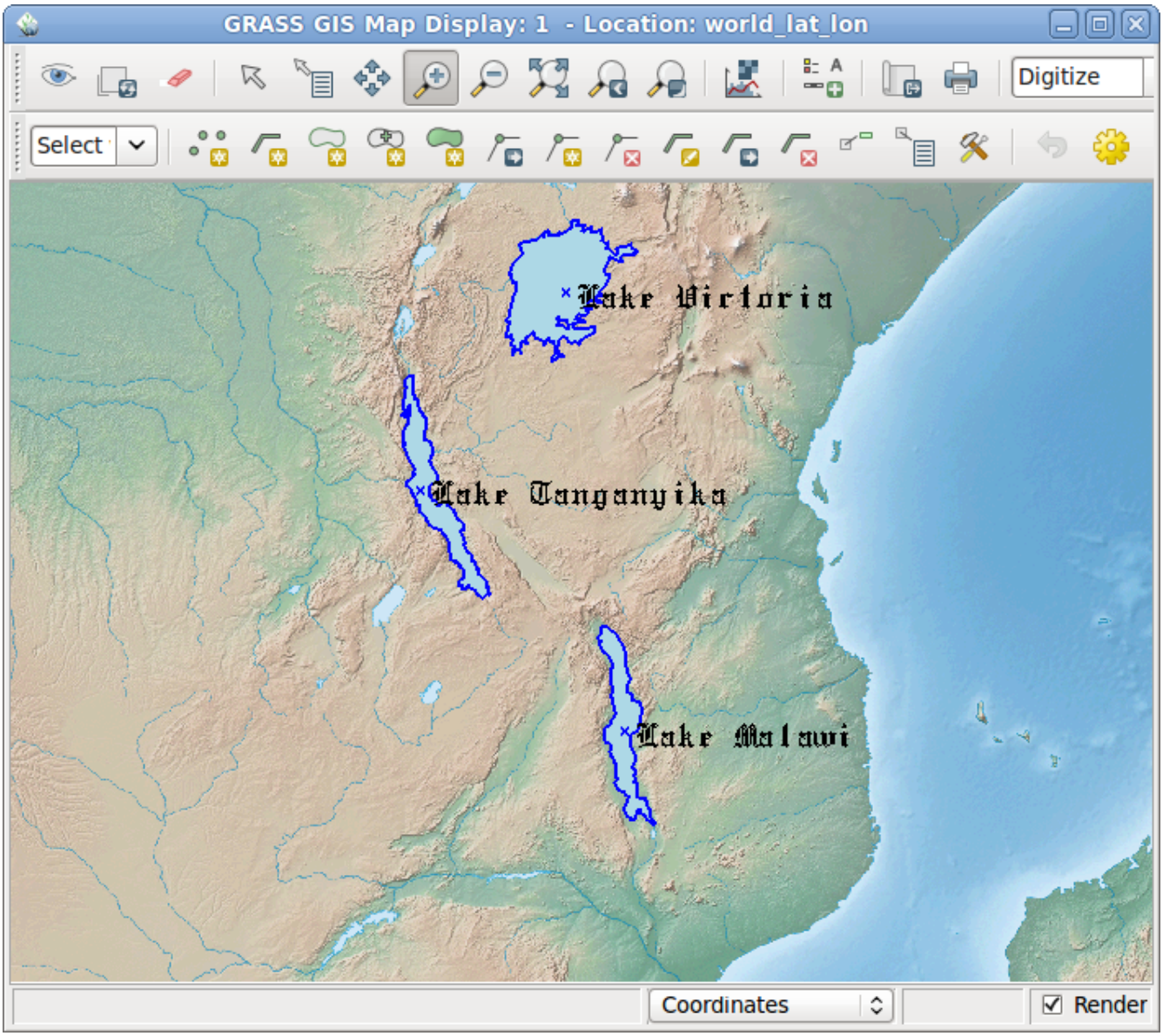

Figure 18.10: Results of digitizing lakes in GRASS

19 Quantum GIS Basics

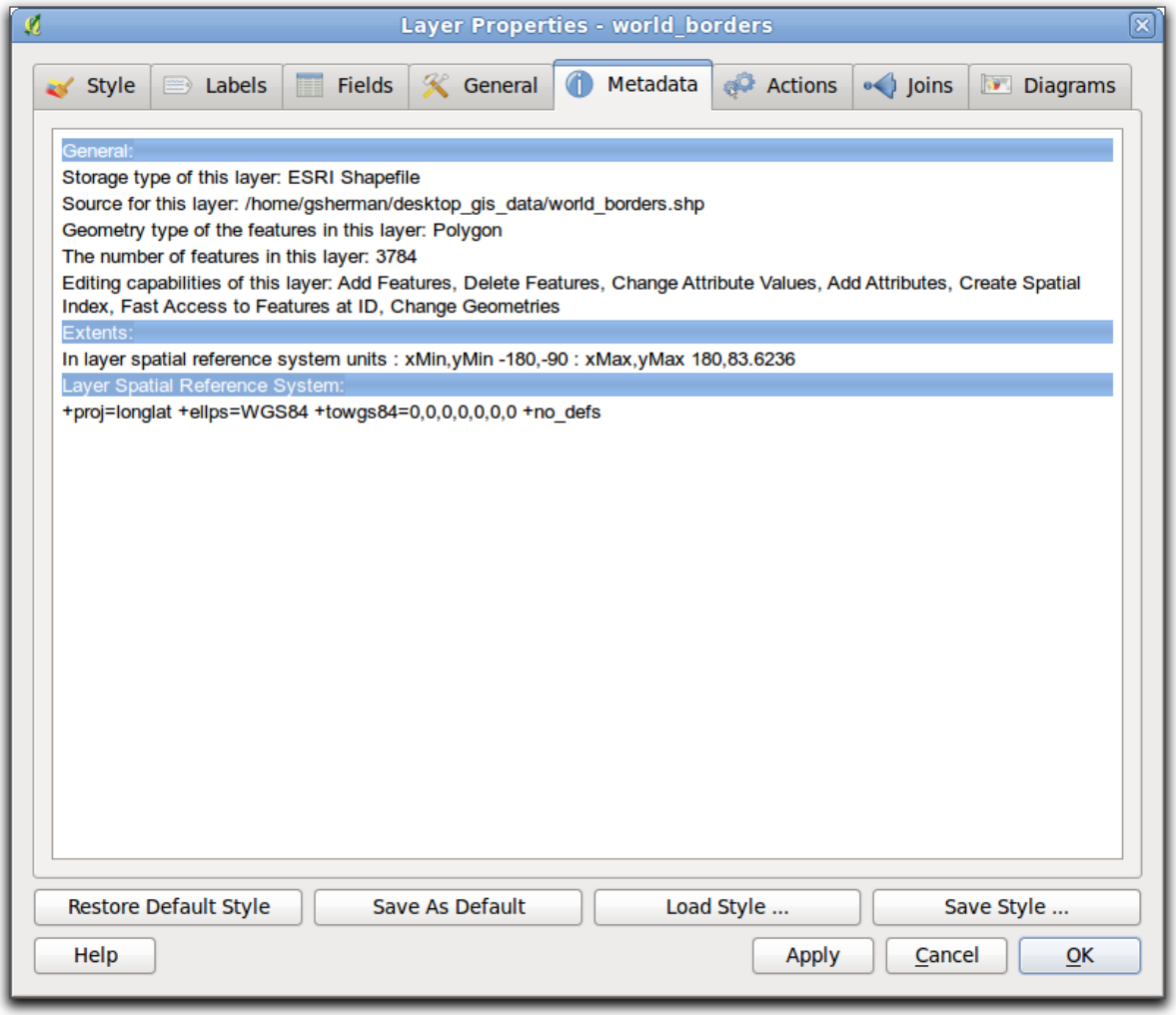

Figure 19.1: Metadata for the world borders layer

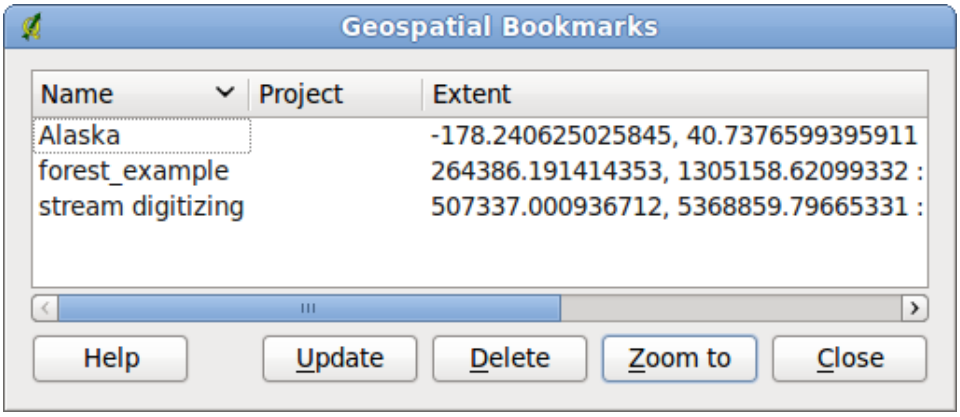

Figure 19.2: QGIS Geospatial Bookmarks dialog box

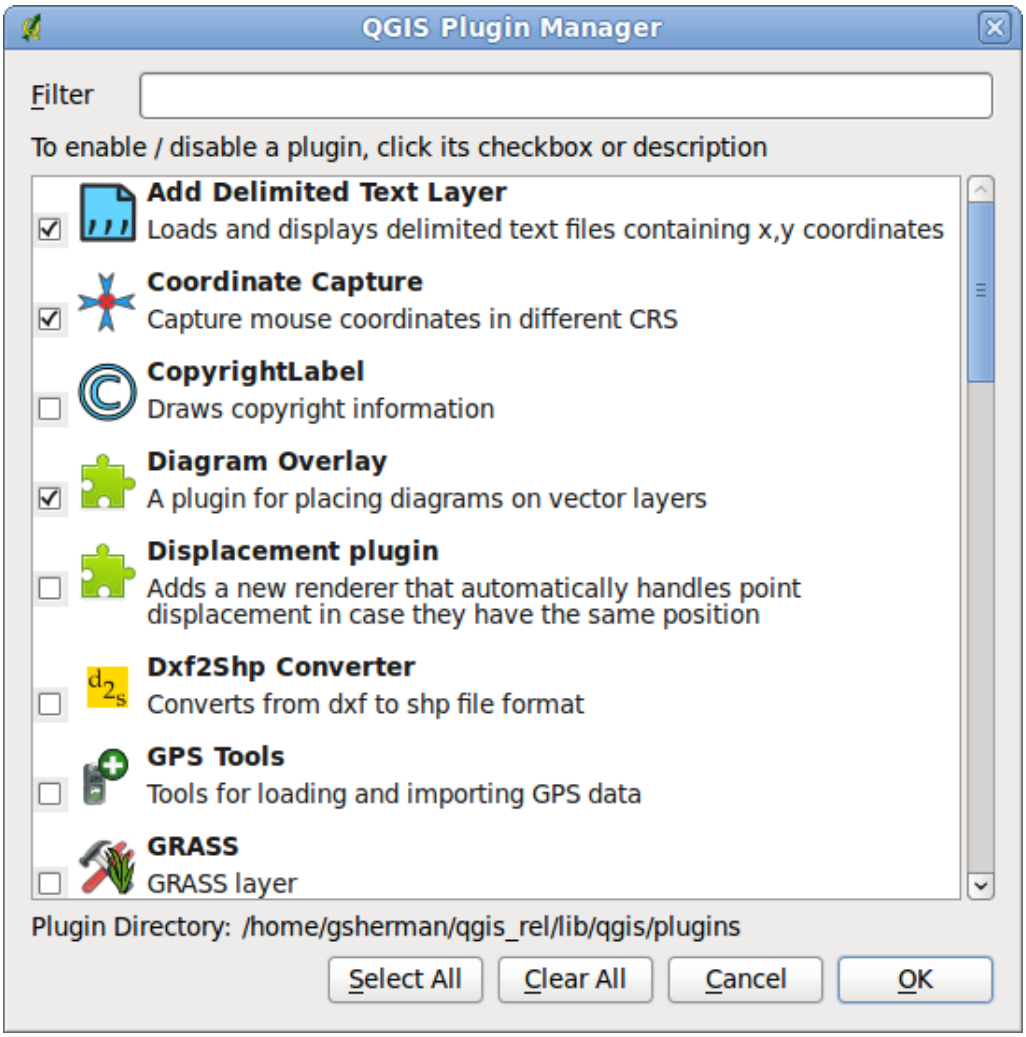

Figure 19.3: QGIS Plugin Manager