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Preliminary Digital Geologic Compilation Map of Part of Northwestern Oregon

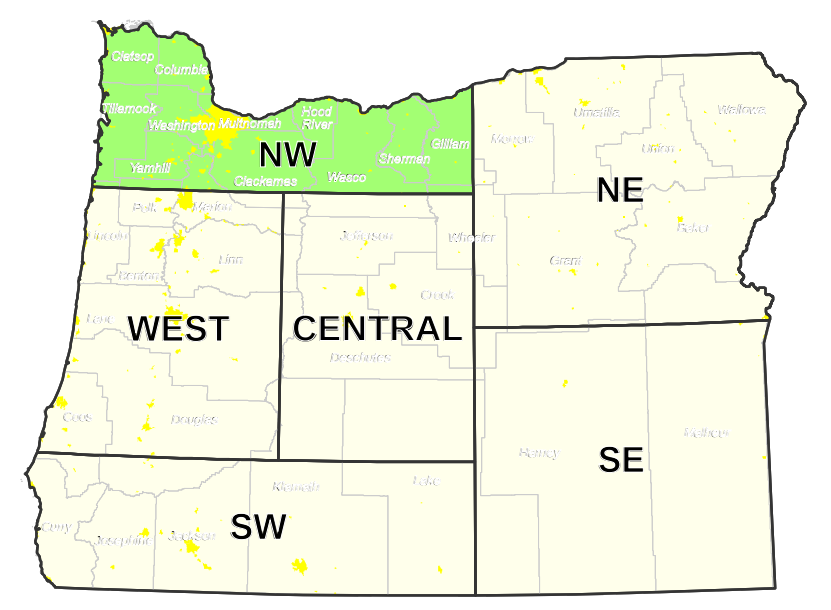
2009

INTRODUCTION

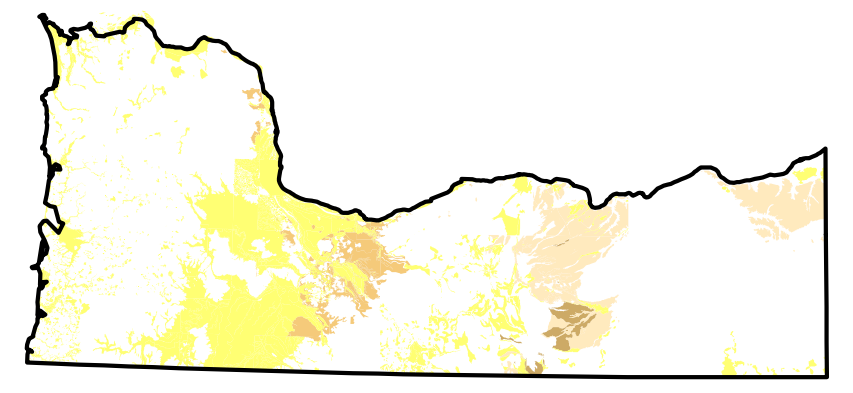
This map depicts the results of a U.S. Geological Survey STATEMAP-funded project to complete the sixth of six planned phases of digital compilation of the best available geology for the entire state of Oregon. The most current version of the database is available for purchase on DVD through the Nature of the Northwest Information Center (http://www.naturenw.org/) and includes both GIS files for the geologic polygons depicted in this map and a Microsoft Access format database with complete unit description data from the original source maps.

The compilation consists of a spatial database of GIS files depicting the surface geology of the area. The data were derived from 47 source maps (see source map) and include 809 unique units defined by the various source map authors. To help make sense of this large number of units, the compilers have assigned each original unique unit to one of 294 geologic merge units based on age, lithology, and stratigraphy. The map presented here is a further simplification of those 294 units. This map was compiled at a nominal scale of 1:100,000 on a mosaic of 1:100,000 DRG base maps. It is hard to make a visually meaningful plot of the geology on the original base map at any reasonable size, so the map presented here has a simplified base map and a scale of 1:175,000.

A simplified version of the database can be viewed online at: http://www.oregongeology.com/sub/ogdc/index.htm

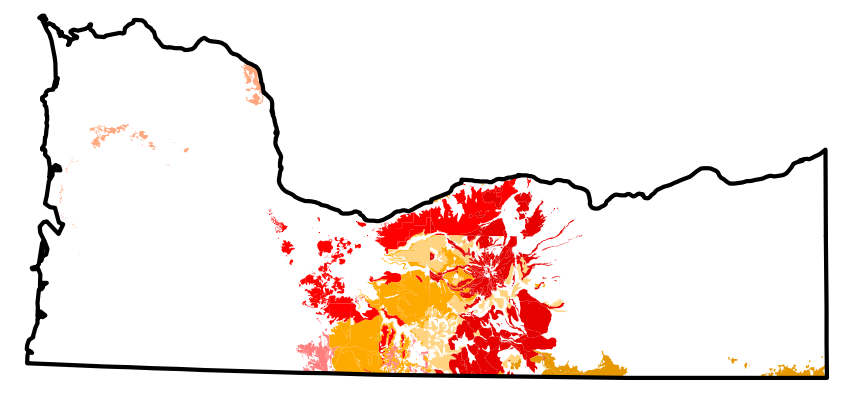


GEOLOGIC UNIT DESCRIPTIONS



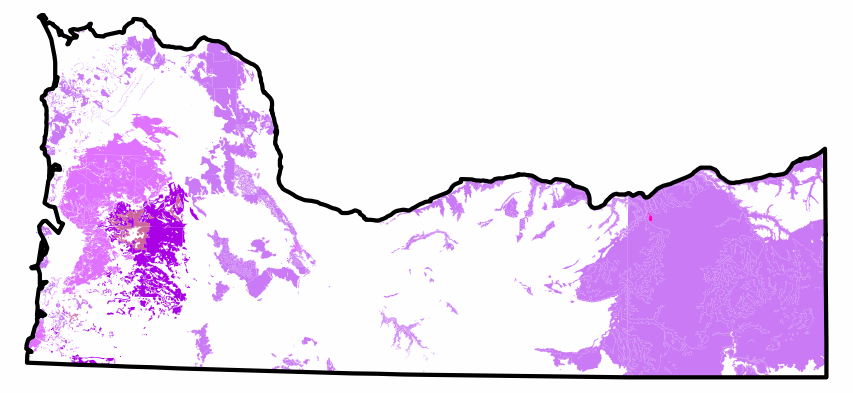
Continental Sediments

- Quaternary surficial deposits — Includes alluvium, landslide deposits, glacial deposits, beach and dune deposits, river and coastal terrace deposits, and Bretz/Missoula flood deposits
- Dalles Group — Miocene and Pliocene fluvial sedimentary rocks, includes Dalles, Deschutes, and Simtustus Formations
- Neogene sedimentary rocks — unassigned Miocene and Pliocene fluvial and lacustrine sedimentary rocks
- Willamette Group — Miocene to Pleistocene fluvial sedimentary rocks, includes Troutdale and Hillsboro Formations



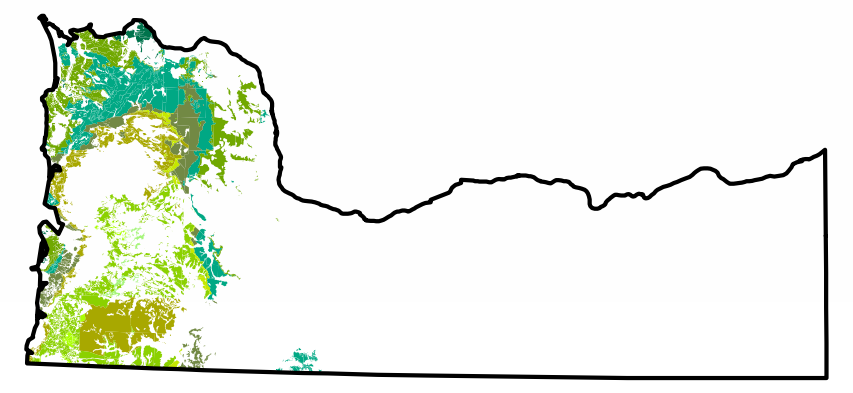
Arc Volcanics

- Late High Cascade Volcanics — Quaternary basalt, basaltic andesite vents and flows, basalt to andesite stratovolcanoes
- Boring Volcanic Field — Pliocene-Pleistocene basalt and basaltic andesite flows and vents
- Early High Cascade Volcanics — Miocene to Pliocene basalt and andesite flows
- Western Cascade Volcanics — Miocene andesite flows, volcaniclastic rocks
- Little Butte Volcanics — Eocene to Miocene volcaniclastic rocks and basalt flows
- John Day/Clarno Group — Eocene to Oligocene volcaniclastic rocks and andesite flows
- Goble Group — Eocene basalt flows and dikes



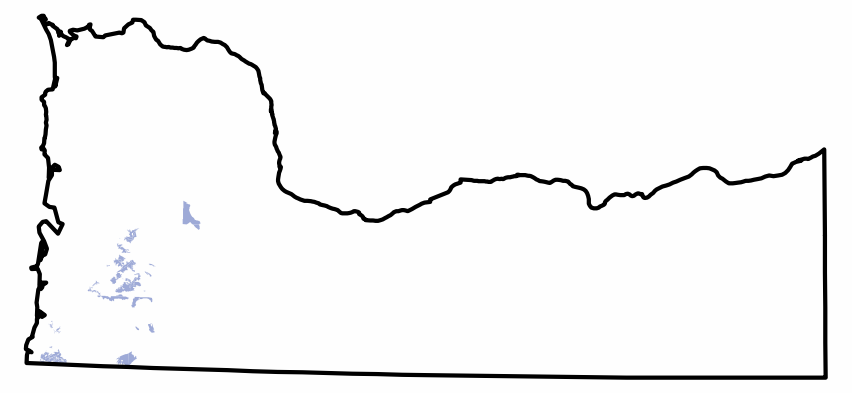
Hot Spot Volcanics

- Quaternary Volcanics — Quaternary basalt flows and vents
- Columbia River Basalt Group — Miocene flood basalt and basaltic andesite flows, intrusions, and invasive bodies
- Coastal Alkalic Basalts — Eocene alkalic basalt intrusions
- Coastal Intrusives Group — Eocene basalt intrusions
- Yachats-Tillamook Group — Eocene subaerial basalt flows
- Hembre Ridge-Three Rivers Group — Eocene submarine basalt flows



Marine Sedimentary Rocks

- Whalecove-Gnat Creek Group — Miocene continental and marine sandstone
- Astoria Group — Miocene deltaic, shelf, and slope deposits
- Yaquina-Pittsburg Bluff Group — Oligocene to Miocene deltaic and shelf deposits
- Keasey-Alsea Group — Eocene tuffaceous marine sedimentary rocks
- Coaledo-Cowlitz Group — Eocene deltaic sandstone
- Nestucca-Hamlet Group — Eocene slope mudstone and shelf sandstone
- Elkton-Yamhill Group — Eocene slope mudstone
- Tyee Group — Eocene turbidites
- Umpqua Group — Eocene turbidites



Exotic Terranes

- Siletz Terrane — Eocene basalt, pillow basalt, and marine sedimentary rocks

LEGEND

Base map is hillshade derived from USGS 30-m DEM
Projection is Oregon Lambert 1997, International Feet

- Faults
- Folds
- Streams
- Water Bodies
- Interstate Highways
- U.S. Routes
- Oregon Routes

N

scale 1:175,000

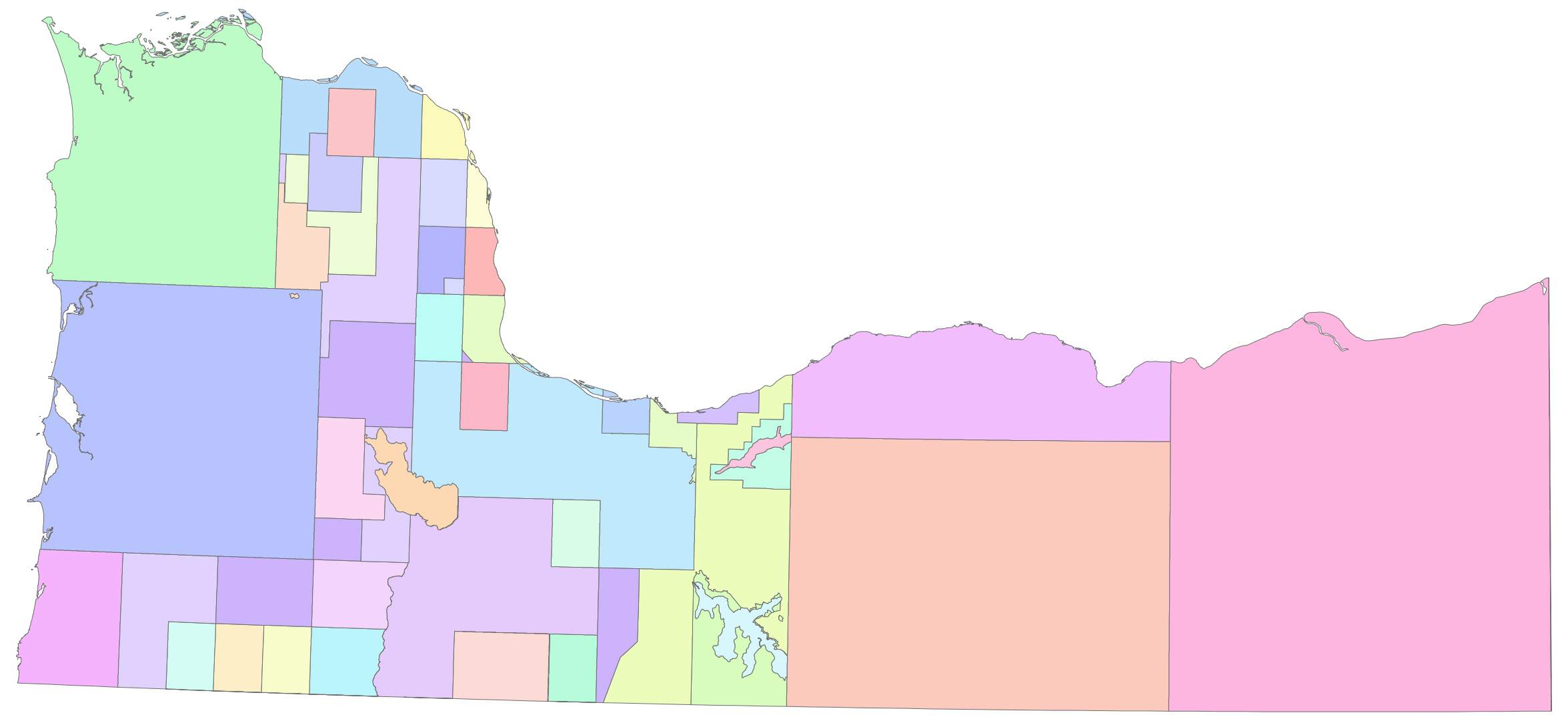
Miles: 0, 5, 10

Kilometers: 0, 5, 10, 15, 20, 25

Pacific Ocean
124°0'0"W
123°0'0"W
122°0'0"W
121°0'0"W
120°0'0"W
46°0'0"N
45°0'0"N

SOURCE MAP REFERENCES

AlAzFA1980
AleiAM1981
AndeJL1978
BrowME1981a
BrowME1981b
BrowME1982a
BrowME1982b
BrowME1982c
ErikA2002
EvarRC2002
EvarRC2004
EvarRC2008
HammPE1982
KadrMM1982
KeltKB1981
KoroMA1987
MacLNS1969
MadiIP2004
MadiIP2008a
MadiIP2008b
MadiIPUnpub
MadiIPUnpubA
MartRC1983
MillPR1984
NiemAR1985
OconJE2001
PhilWM1987
RobeCL1997
RobiPT1975
SchuMG1980
SherDR1995
SherDR2000
SnavPD1996
SwanDA1981sheet1
SwanDA1981sheet2
TolaTL1982
TolaTL1999sheet1
TolaTL2000sheet1
TrimDE1963
VogtBF1981
WalkGW1989
WalsTJ1987
WellRE1983
WellRE1995
WilkWD1946
YeatRS1996plate2A
YeatRS1996plate2B



AlazFA1980	Al-Azzaby, F. A., 1980, Geologic map of portions of central north Yamhill County and southern Washington County, thesis, scale 1:24,000: Portland, Oreg., Portland State University.
AleiAM1981	Al-Eisa, A. M., 1981, The structure and stratigraphy of the Columbia River Basalt in the Chehalem Mountains, Oregon, thesis, scale 1:24,000: Portland, Oreg., Portland State University.
AndeJL1978	Anderson, J. L., 1978, The stratigraphy and structure of the Columbia River Basalt in the Clackamas River drainage, thesis, scale 1:24,000: Portland, Oreg., Portland State University.
BrowME1981a	Brownfield, M. E., and Schlicker, H. G., 1981, Preliminary geologic map of the Amity and Misson Bottom quadrangles, Oregon, Open-File Report O-81-5, scale 1:24,000: Portland, Oreg., Oregon Department of Geology and Mineral Industries.
BrowME1981b	Brownfield, M. E., and Schlicker, H. G., 1981, Preliminary geologic map of the McMinnville and Dayton quadrangles, Oregon, Open-File Report O-81-6, scale 1:24,000: Portland, Oreg., Oregon Department of Geology and Mineral Industries.
BrowME1982a	Brownfield, M. E., 1982, Geologic map of the Sheridan quadrangle, Polk and Yamhill counties, Oregon, Geological Map GMS-23, scale 1:24,000: Portland, Oreg., Oregon Department of Geology and Mineral Industries.
BrowME1982b	Brownfield, M. E., 1982, Geologic map of the Grande Ronde quadrangle, Polk and Yamhill counties, Oregon, Geological Map GMS-24, scale 1:24,000: Portland, Oreg., Oregon Department of Geology and Mineral Industries.
BrowME1982c	Brownfield, M. E., 1982, Preliminary geologic map of the Ballston quadrangle, Oregon, Open-File Report O-82-2, scale 1:24,000: Portland, Oreg., Oregon Department of Geology and Mineral Industries.
ErikA2002	Eriksson, A., 2002, Stratigraphy, structure, and natural gas potential of Tertiary sedimentary and volcanic units, Clatskanie 7.5-minute quadrangle, northwest Oregon, thesis, scale 1:24,000: Corvallis, Oreg., Oregon State University.
EvarRC2002	Evarts, R. C., 2002, Geologic map of the Deer Island quadrangle, Columbia County, Oregon and Cowlitz County, Washington, Miscellaneous Field Studies Map MF-2392, scale 1:24,000: Reston, Va., U.S. Geological Survey.
EvarRC2004	Evarts, R. C., 2004, Geologic map of the Saint Helens quadrangle, Columbia County, Oregon, and Clark and Cowlitz counties, Washington, Scientific Investigations Map 2834, scale 1:24,000: Reston, Va., U.S. Geological Survey.
EvarRC2008	Evarts, R. C., and O'Connor, J. E., 2008, Geologic map of the Camas quadrangle, Clark County, Washington, and Multnomah County, Oregon, Scientific Investigations Map 3017, scale 1:24,000: Reston, Va., U.S. Geological Survey.
KadrMM1982	Kadri, M. M., 1982, Structure and influence of the Tillamook Uplift on the stratigraphy of the Mist area, Oregon, thesis, scale 1:31,250: Portland, Oreg., Portland State University.
KeltKB1981	Kelty, K. B., 1981, Stratigraphy, lithofacies, and environment of deposition of the Scappoose Formation in central Columbia County, Oregon, thesis, scale 1:31,250: Portland, Oreg., Portland State University.
KoroMA1987	Korosec, M. A., 1987, Geologic map of the Hood River quadrangle, Washington and Oregon, Open-File Report 87-6, scale 1:100,000: Olympia, Wash., Washington Department of Natural Resources.
MadiIP2004	Madin, I. P., 2004, Preliminary digital geologic compilation map of the greater Portland urban area, Oregon, Open-File Report O-04-02, scale 1:24,000: Portland, Oreg., Oregon Department of Geology and Mineral Industries.
MadiIP2008a	Madin, I. P., Ma, L., and Niewendorp, C. A., 2008, Preliminary geologic map of the Linnton 7.5' quadrangle, Multnomah and Washington counties, Oregon, Open-File Report O-08-06, scale 1:24,000: Portland, Oreg., Oregon Department of Geology and Mineral Industries.
MadiIP2008b	Madin, I. P., and Niewendorp, C. A., 2008, Preliminary geologic map of the Dixie Mountain 7.5' quadrangle, Columbia, Multnomah and Washington counties, Oregon, Open-File Report O-08-07, scale 1:24,000: Portland, Oreg., Oregon Department of Geology and Mineral Industries.
MadiIPunpubA	Madin, I. P., unpublished data, Preliminary geologic map of the Oregon City quadrangle, Clackamas County, Oregon, scale 1:100,000: Portland, Oreg., Oregon Department of Geology and Mineral Industries and Mineral Industries.
MartRC1983	Marty, R. C., 1983, Formation and zonation of ferruginous bauxite deposits of the Chapman quadrangle, Oregon, thesis, figure 4, scale 1:24,000: Portland, Oreg., Portland State University.
MillPR1984	Miller, P. R., and Orr, W. N., 1984, Geologic map of the Wilhoit quadrangle, Oregon, Geological Map GMS-32, scale 1:24,000: Portland, Oreg., Oregon Department of Geology and Mineral Industries.
NiemAR1985	Niem, A. R., and Niem, W. A., 1985, Geologic map of the Astoria Basin, Clatsop and northernmost Tillamook counties, northwest Oregon, Oil and Gas Investigation Map OGI-14, plate 1, scale 1:100,000: Portland, Oreg., Oregon Department of Geology and Mineral Industries.
PhilWM1987	Phillips, W. M., 1987, Geologic map of the Mount St. Helens quadrangle, Washington And Oregon, Open-File Report 87-4, scale 1:100,000: Olympia, Wash., Washington Department of Natural Resources.
RobeCL1997	Robertson, C. L., 1997, Surface-subsurface facies and distribution of the Eocene Cowlitz and Hamlet formations, northwest Oregon, thesis, scale 1:100,000: Corvallis, Oreg., Oregon State University.
SchuMG1980	Schulz, M. G., 1980, The quantification of soil mass movements and their relationship to bedrock geology in the Bull Run Watershed, Multnomah and Clackamas counties, Oregon, thesis, Plate 1, scale 1:24,000: Corvallis, Oreg., Oregon State University.
SherDR1995	Sherrod, D. R., and Scott, W. E., 1995, Preliminary map of the Mount Hood 30 by 60-minute quadrangle, Cascade Range, North-Central Oregon, Open-File Report 95-219, scale 1:100,000: Reston, Va., U.S. Geological Survey.
SherDR2000	Sherrod, D. R., and Smith, J. G., 2000, Geologic map of Upper Eocene to Holocene volcanic and related rocks of the Cascade Range, Oregon, Interpretive Map I-2569, sheet 1, scale 1:500,000: Reston, Va., U.S. Geological Survey.
SnavPD1996	Snavely, P. D., Niem, A., Wong, F. L., MacLeod, N. S., and Calhoun, T. K., 1996, Geologic map of the Cascade Head area, northwestern Oregon Coast Range (Neskowin, Nestucca Bay, Hebo and Dolph 7.5-minute quadrangles), Open-File Report 96-0534, sheets 1 and 2, scale 1:24,000: Reston, Va., U.S. Geological Survey.
SwanDA1981sheet1	Swanson, D. A., Anderson, J. L., Camp, V. E., Hooper, P. R., Taubeneck, W. H., and Wright, T. L., 1981, Reconnaissance geologic map of the Columbia River Basalt Group, northern Oregon and western Idaho, Open-File Report 81-797, sheet 1, scale 1:250,000: Reston, Va., U.S. Geological Survey.
TolaTL1982	Tolan, T. L., 1982, Geologic map of the Lower Columbia River Gorge, Oregon and Washington, thesis, scale 1:21,120: Portland, Oreg., Portland State University.
TolaTL1999Sheet1	Tolan, T. L., and Beeson, M. H., 1999, Geologic map of the Silverton and Scotts Mills 7.5-minute quadrangles, northwest Oregon, Open-File Report 99-141, sheet 1, scale 1:24,000: Reston, Va., U.S. Geological Survey.
TrimDE1963	Trimble, D. E., 1963, Geology of Portland, Oregon and adjacent areas, Bulletin 1119, scale 1:62,500: Reston, Va., U.S. Geological Survey.
VogtBF1981	Vogt, B. F., 1981, The stratigraphy and structure of the Columbia River Basalt Group in the Bull Run Watershed, Multnomah and Clackamas counties, Oregon, thesis, scale 1:63,360: Portland, Oreg., Portland State University.
WalsTJ1987	Walsh, T. J., 1987, Geologic map of the Astoria and Ilwaco quadrangles, Washington and Oregon, Open-File Report 87-2, scale 1:100,000: Olympia, Wash., Washington Department of Natural Resources.
WellRE1983	Wells, R. E., Niem, A. R., MacLeod, N. S., Snavely, P. D., and Niem, W. A., 1983, Preliminary geologic map of the west half of the Vancouver (WA-OR) 1 x 2 quadrangle, Open-File Report 83-591, scale 1:250,000: Reston, Va., U.S. Geological Survey. (Also published as DOGAMI Open-File Report O-83-6.)
WellRE1995	Wells, R. E., Snavely, P. D. Jr., MacLeod, N. S., Kelly, M. M., and Parker, M. J., 1995, Geologic map of the Tillamook Highlands, northwest Oregon Coast Range (Tillamook, Nehalem, Enright, Timber, Fairdale, Blaine 15-minute quadrangles), Open-File Report 94-21, scale 1:62,500: Reston, Va., U.S. Geological Survey. (Digital version published as Open-File Report 95-670.)
WilkWD1946	Wilkinson, W. D., Lowry, W. D., and Baldwin, E. M., 1945, Geology of the St. Helens quadrangle, Oregon, Bulletin 31, scale 1:62,500: Portland, Oreg., Oregon Department of Geology and Mineral Industries.
YeatRS1996plate2A	Yeats, R. S., Werner, K. S., and Popowski, T. A., 1996, Geologic map of the northern Willamette Valley, Clackamas, Marion, Multnomah, Polk, Tillamook, Washington, and Yamhill counties, Oregon, *in* Rogers, A. M., Assessing earthquake hazards and reducing risk in the Pacific Northwest, Professional Paper 1560, plate 2A, scale 1:100,000: Reston, Va., U.S. Geological Survey.

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