

OREGON DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES

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Geologic Maps of Corvallis, Marys Peak and Wren Quadrangles released

Portland, Oregon: The Oregon Department of Geology and Mineral Industries (DOGAMI) has released O-08-14, Preliminary Geologic Maps of the Corvallis, Wren, and Marys Peak 7.5' Quadrangles, Benton, Lincoln, and Linn Counties, Oregon by Thomas J. Wiley, Oregon Department of Geology and Mineral Industries.

Rocks within this mapped area reveal a rich and turbulent geologic history beginning about 50 million years ago that includes tropical islands, volcanic eruptions and epic floods.

The largest floods in the world

During the last ice age, a series of extraordinary floods which began around 15,000 years ago, brought on by the bursting of distant glacial ice dams, floated boulders and cobbles from Canada and Montana down the Columbia River and into the Willamette Valley. This temporarily transformed the valley into a giant muddy lake 100 miles long, 60 miles wide and 300 to 400 feet deep. When the lake drained for the last time, a blanket of silt covered almost everything below 400 feet elevation. Today, the soils that were carried here by these great floods help make the Willamette Valley one of the most fertile areas in the country.

Landslides and earthquake faults

Within the 3 mapped areas, many small alluvial fans were identified, most on the basis of the topography shown on the maps. Where these alluvial fans lie at the mouths of steep sided canyons there may be significant risk of fast-moving landslides such as debris flows. In terms of timing, the risk of fast-moving landslides is increased during times of intense rainfall that occur after soils have been saturated by fall and early winter rainfall.

It is recommended that landowners intending to build on lots that sit on alluvial fans or landslide deposits identified on these maps have a site-specific geologic investigation conducted by a registered geologist or engineer before building pads or foundations are designed. An interactive statewide database of over 15,000 mapped landslides can be found online at:

<http://www.oregongeology.com/sub/slido/index.htm>

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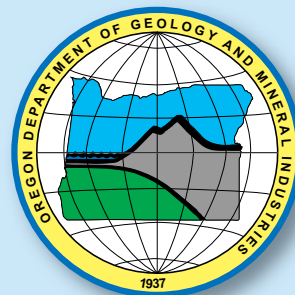
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Earthquake hazards include the Corvallis fault and others, although the greater risk from earthquakes comes from the Cascadia Subduction Zone, sitting 75 miles offshore with the capability of generating magnitude 9+ earthquakes that could shake the region for minutes.

Rock types that can be found within the 3 quadrangles include sandstone and siltstone that was laid down tens of millions of years ago in shallow seas, and basalt, gabbro, diorite and granodiorite, which were formed millions of years later as sheetlike intrusions of igneous rock (magma) forced its way between the sandstone layers.

Radiometric dates and fossil collections suggest that the oldest rocks in the area are about 50 million years old, the marine sandstone beds began forming about 40 million years, the intrusive sills are 30 to 35 million years old, and the youngest silt deposits from the great floods are 10 to 12 thousand years old.

The importance of geologic maps

Creating geologic maps is commonly confused with surveying, and making road maps and topographic maps, which show hills, valleys, roads, and other natural and man-made features on the Earth's surface. Geologic maps, however, use a combination of colors, lines, and symbols to depict the composition, distribution and relationships of rocks and sediments at and near the Earth's surface. The maps reveal the structure of rocks below the Earth's surface in a three-dimensional arrangement. Understanding this third dimension is particularly important for the discovery and assessment of mineral and energy resources; the location and type of geologic hazards such as landslides and faults; and the location and type of resources such as sand and gravel, ore deposits, and ground water.

Open File Report O-08-14 (Corvallis, Marys Peak and Wren quadrangles) is available on CD-ROM for \$10 each. 3 separate maps are available for \$15 each. They can be purchased from the Nature of the Northwest Information Center (NNW), 800 NE Oregon Street, Suite 177, Portland, Oregon, 97232. You may also call NNW at (503) 872-2750 or order online at <http://www.naturenw.org>. There is a \$4 shipping and handling charge for all mailed items.

For additional information, please contact the Nature of the Northwest Information Center. Additionally, these items as well as all department maps and publications can be purchased at DOGAMI Field Offices including 5375 Monument Drive, Grants Pass, (541) 476-2496 and 1510 Campbell Street, Baker City, (541) 523-3133.

Learn more about Oregon's fascinating geology by going online at: <http://www.OregonGeology.org>

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