

Slope Failures in Oregon

GIS Inventory for Three 1996/97 Storm Events

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ABSTRACT

The objective of this project was to collect and consolidate data on Oregon landslides associated with severe storm events in February 1996, November 1996, and December 1996/January 1997. This study builds upon previous work in the Portland Metro area by Scott Burns and others at Portland State University, as well as on a number of other landslide studies throughout the state. The February storm event led to a Federal disaster declaration for 27 counties, the November event for 3, and the December/January storms for 14. Over 98 percent of the landslides were recorded in the western portion of the state, mainly in the Coast Range and the Cascade Range, with fewer in the Willamette Valley and the Klamath Mountains. Counties with the highest percentage of total landslides reported are Lane (24 %), Douglas (11 %), Linn

(10 %), Clackamas (9 %), Tillamook (9 %), Lincoln (8 %), and Multnomah (7 %).

The products of this study are (1) a digital Geographic Information System (GIS) inventory of Oregon landslide locations, (2) a spreadsheet version of the inventory for those not using GIS, and (3) this explanatory text. The inventory database includes 9,582 slide location entries, with varying amounts of information reported for each individual entry. The database entries contain several items describing the geographic location of each landslide and up to 15 additional items relating to failure mechanism, size, geometry, associated damage, etc., depending upon the information obtained from the contributing sources. The digital outputs are intended to provide a starting point for future landslide-related studies.

INTRODUCTION

Nationwide, ground failures account for 25 to 50 deaths annually and approximately \$1.5 billion in economic losses, more than all other natural disasters combined (Schuster, 1996). The Pacific Northwest, with its wet climate and considerable topographic relief, is one of the more prolific portions of the nation for slope failures. As Oregon's population continues to increase, and as areas undergo development that previously had been considered unsafe for building, the problem is often exacerbated.

The impetus for developing this database was a desire to better document the magnitude and distribu-

tion of landslide occurrences throughout Oregon. Funding for the project was awarded to the Oregon Department of Geology and Minerals Industries (DOGAMI) through a competitive bidding process by the Federal Emergency Management Agency (FEMA). The resulting inventory provides both technical and nontechnical users with readily accessible data for exploring landslide issues. It is hoped that the data will lead to a greater understanding of regional landslide issues and assist in efforts to minimize the threat to public health and property that landslides can pose.