

Department of the Interior
U.S. Geological Survey

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and Ridge, Virginia, West Virginia, Maryland, and Pennsylvania

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Open-File Report 86-94

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

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Fifteen giant rockslides and 3 giant rockslide complexes in the Valley and Ridge province of the Central- and Southern-Appalachian fold and thrust belt have been identified and characterized to enable further investigation. The giant rockslides range in size from 0.2 mi. to 2 mi. wide (north to south) and 0.1 mi. to 2.7 mi. long (east to west); giant rockslide complexes include numerous individual rockslides of varying type and can be as large as 1 mi. wide and 20 mi. long. Due to their enormous dimensions, 11 of the giant rockslides were identified by photogeologic interpretation; one was identified from a 1:250,000-scale Landsat multispectral scanner (MSS) image, 3 from 1:250,000-scale side-looking airborne radar (SLAR) image mosaics, and 7 from color-infrared (CIR) medium-altitude aerial photographs ranging in scale from 1:58,000 to 1:24,000. Three rockslides were identified by interpretation of 1:24,000-scale topographic maps while 6 rockslides were identified by field mapping (Sites, 1978, Lesure, 1981; Schultz, 1986; Southworth, 1986; and Schultz and others, in press).

Field mapping of the Lost River-, Elkhorn Mountain-, Gap Mountain-, Cumberland-, Little Mountain- and Sinking Creek complex-giant rockslides have resulted in the preliminary classification of 3 general types of giant rockslides; debris avalanches, rock slumps, and rock-block slides. The characteristics of the 15 giant rockslides and 3 giant rockslide complexes are listed in table 1. The locations of the 18 rockslide sites are shown on a 1:1,000,000-scale SLAR image mosaic of the Appalachian region (fig. 1). Figure 2 provides an index to the 7.5' quadrangles listed in table 1 and the 1°X2° quadrangle SLAR image mosaics in figure 1.

The characteristics of the 18 giant rockslide localities are further synthesized in table 2. Thirteen occur on the dip slopes of anticlinal limbs, 3 occur on the dip slopes of synclinal limbs, 4 involve the crests of anticlines while 6 occur on the plunging fold noses. Sixteen involve sandstone formations of Silurian age, 2 involve sandstone formations of Devonian age, and 3 occur near a sandstone-and carbonate-rock contact. At least 5 of the rockslides have parts that are presently active and 4 are adjacent to cultural development. Although triggering mechanisms have not been established, 7 rockslides occur along ancient or modern stream cuts. Over 9 occur within the Giles County, Virginia, seismic zone (Bollinger & Wheeler, 1983) and may have been triggered by prehistoric seismic events (Schultz, 1986).

In conclusion, detailed field investigations of these 18 rockslide sites and reconnaissance investigation of the entire Central-and Southern-Appalachian Valley and Ridge province are in progress to better understand the ages of these features, their mode of occurrence and their effect on the geomorphologic development of the Valley and Ridge Province.

References

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Table 2 - Characteristics of Appalachian Valley and Ridge Giant Rockslides and
Rockslide Complexes

Giant Rockslides	15
Giant Rockslide Complexes	3
Location	
Central Appalachian	8
Southern Appalachian	10
Structure	
Dip Slope West Limb Anticline	8
Dip Slope East Limb Anticline	5
Dip Slope West Limb Syncline	2
Dip Slope East Limb Syncline	1
Involve Thrust-Fault(s)	3
Occur Near Fold Plunge	6
Occur Near Water-Gap	4
Involve Crest of Anticline	4
Lithology	
Silurian Sandstone	16
Devonian Sandstone	2
Near Sandstone/Carbonate Contact	3
Head Scarp Location	
Dip Slope	11
Crest	6
Trigger Mechanism	
Cut-Bank of River/Creek	7
Paleo-Seismic Zone	+2
Unknown	9
Presently Active	5
Near Cultural Development	4
Federal Land	7
Relief, Base Slope to Scarp	Range 100' to 2000'
Length	Range 600' to 20 mi.
Width	Range 0.2 mi. to 1 mi.
Thickness	Range 15' to 2100'
Area of Mass	Range 50-to 1150 acres and 10 to 20 sq. mi.
Means of Identification	
Field Mapping	6
Image Analysis	
SLAR	3
Landsat	1
Aerial Photograph Interpretation	7
Topographic Map Interpretation	3