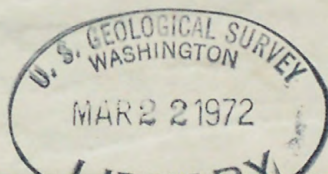


U. S. Geological Survey.

REPORTS-OPEN FILE SERIES, no. 1614: 1971.



(200)  
R290  
No. 1614



(200)  
R290  
[no. 1614]

MAP IN MAP DRAWER

UNITED STATES DEPARTMENT OF THE INTERIOR

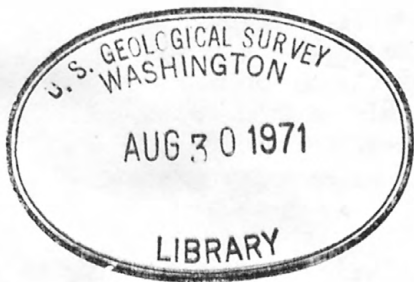
✓ U.S. GEOLOGICAL SURVEY  
[Reports - Open file series]



Preliminary map of landslide deposits in  
the Green Mountain area, Jefferson County, Colorado

By

Glenn R. Scott



230105

Open-file report

1971

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

200)  
290  
1614

(2,00)

Weld - Int. 2905

R 290

No 1614

U.S. GEOLOGICAL SURVEY  
WASHINGTON, D. C.  
20242

Reports - Open File Series

For release AUGUST 30, 1971

The U.S. Geological Survey is releasing in open file the following reports. Copies are available for inspection in the Geological Survey Libraries, 1033 GS Bldg., Washington, D.C. 20242; Bldg. 25, Federal Center, Denver, Colo. 80225; and 345 Middlefield Rd., Menlo Park, Calif. 94025. Copies are also available for inspection at other offices as listed:

1. Preliminary geologic map of the Goldfield mining district, Esmeralda and Nye Counties, Nevada, by R. P. Ashley. Map, explanation, cross-sections (1 sheet), scale 1:24,000. 504 Custom House, San Francisco, Calif. 94111; 7638 Federal Bldg., Los Angeles, Calif. 90012; 8102 Federal Office Bldg., Salt Lake City, Utah 84111; Library, Mackay School of Mines, University of Nevada, Reno, Nev. 89507. [Material from which copy can be made at private expense is available in the Reno office listed.]

2. Preliminary map of landslide deposits in the Green Mountain area, Jefferson County, Colorado, by Glenn R. Scott. 3 p., 1 sheet, scale 1:24,000. 1012 Federal Bldg., Denver, Colo. 80202; 8102 Federal Office Bldg., Salt Lake City, Utah 84111. [Material from which copy can be made at private expense is available at 1012 Federal Bldg., Denver.]

3. Geologic map of the Copper Canyon area, Battle Mountain mining district, Lander County, Nevada, by Ted G. Theodore. Map, explanation (2 sheets), scale 1:48,000. 504 Custom House, San Francisco, Calif. 94111; 7638 Federal Bldg., Los Angeles, Calif. 90012; 8102 Federal Office Bldg., Salt Lake City, Utah 84111; Library, Mackay School of Mines, University of Nevada, Reno, Nev. 89507. [Material from which copy can be made at private expense is available in the Reno office listed.]

4. Aeromagnetic map of part of south-central New Mexico, by the U.S. Geological Survey. 1 sheet, scale 1:62,500. 1012 Federal Bldg., Denver, Colo. 80202; 8102 Federal Office Bldg., Salt Lake City, Utah 84111; Room 1C45, 1100 Commerce St. Dallas, Tex. 75202; Water Resources Div., USGS, Geology Bldg., University of New Mexico, Albuquerque, N. Mex. 87106; New Mexico State Bureau of Mines and Mineral Resources, Campus Station, Socorro, N. Mex. 87801. [Material from which copy can be made at private expense is available at 1012 Federal Bldg., Denver, Colo., and in New Mexico State Bureau of Mines, Socorro, N.Mex.]

5. Aeromagnetic map of part of west-central Utah, by the U.S. Geological Survey. 1 sheet, scale 1:250,000. 1012 Federal Bldg., Denver, Colo. 80202; 8102 Federal Office Bldg., Salt Lake City, Utah 84111; Idaho Bureau of Mines and Geology, Moscow, Ida. 83843; Montana Bureau of Mines and Geology, Montana College of Mineral Science and Technology, Butte, Mont. 59701; Utah Geological and Mineralogical Survey, 103 Utah Geol. Survey Bldg., University of Utah, Salt Lake City, Utah 84111. [Material from which copy can be made at private expense is available in offices of Utah Geol. & Mineralog. Survey.]

Preliminary map of landslide deposits in  
the Green Mountain area, Jefferson County, Colorado

By

Glenn R. Scott

A landslide deposit is a mass of rock and soil that has slid downward and outward from its original position on a slope. Movement can be slow or fast. Confirmed landslide deposits and unconfirmed but probable landslide deposits on the flanks of Green Mountain are shown on the accompanying map. The eastern part of Green Mountain is within the City of Lakewood; the northernmost flank of the mountain is in the City of Golden.

Landslide deposits of the Green Mountain area were mapped as part of a current study of the geology of the Morrison quadrangle. The landslide deposits were identified chiefly from topographic and geologic evidence and were mapped by a combination of photogeologic and field techniques. The boundaries of the deposits are approximately located or are inferred. Other types of surficial deposits are not shown on this preliminary map.

The only landslide on Green Mountain known to be active is in the center of the NW1/4 sec. 18, T. 4 S., R. 69 W. Small open fractures that have been observed in the earth at the upslope margin of this slide at various times during the past 2 years indicate continuing instability.

Thirty-eight landslide deposits are shown on the map. The largest is more than 0.8 mile in longest dimension. Twenty-six of the landslide deposits are wholly or partly on the Denver Formation, which consists of interbedded silty claystone and sandstone, with some conglomerate. Eleven deposits are on and derived from the Green Mountain Conglomerate, which overlies the Denver Formation and contains, besides conglomerate, a few thin beds of silty claystone and sandstone. One landslide deposit is located on rocks older than the Denver Formation.

Some of the claystone layers in the Denver Formation and the Green Mountain Conglomerate consist chiefly of expansive clays, which swell when wetted and shrink on drying. Intermittent natural seeps at many places on the flanks of Green Mountain cause alternate wetting and drying of layers that contain expansive clays and thus contribute to potential instability of the slopes. In addition, the moisture may increase the pore-water

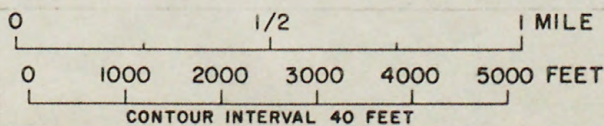
pressures between the particles of the fine-grained sedimentary rocks, and so reduce the effective shear strength of the material.

A landslide deposit is a record of past slope failure, but it is not necessarily proof of present or future slope instability. The deposits shown on the map should be regarded as potentially unstable, however, because they might be reactivated if disturbed. Other places sharing the same physiographic setting but not previously unstable might also become unstable if disturbed. The most common actions by man that reduce the stability of a landslide deposit, or a potential slide, are weighting the upper part of a hillside by placing fill on it, excavating the lower part of a hillside and thus removing support from it, and adding water from septic systems or lawn irrigation to the subsoil of a hillside. Significantly, the presence of so many landslide deposits on slopes underlain by the Denver Formation and the Green Mountain Conglomerate indicates that other areas on the flanks of Green Mountain which are not known to have been unstable in the past may be potentially unstable, especially if any of the adverse actions noted above are taken during land modification.

The preliminary and general information presented in this report is not intended to supplant detailed site and subdivision exploration that will be needed prior to land development in the area.



Base map from U.S. Geological Survey, 1965



This map has not been edited  
for conformity with USGS  
standards or nomenclature

**PRELIMINARY MAP OF LANDSLIDE DEPOSITS IN THE GREEN MOUNTAIN AREA,  
JEFFERSON COUNTY, COLORADO**

By  
**Glenn R. Scott**



**Bno-Dart**  
NEWARK, N.J. • WILLIAMSPORT, PA.  
LOS ANGELES, CALIF.  
BRANTFORD, ONT.

USCS LIBRARY RESTON



3 1818 00060356 1