

CHAPTER 9. LANDSLIDES AND SUBSIDENCE

Landslides are one of the most common geologic hazards in Wyoming, with most of the landslides occurring in the western half of the state. The figure below shows mapped landslides in Wyoming. Note the low concentration of landslide deposits in Converse County and southeastern Wyoming in general.

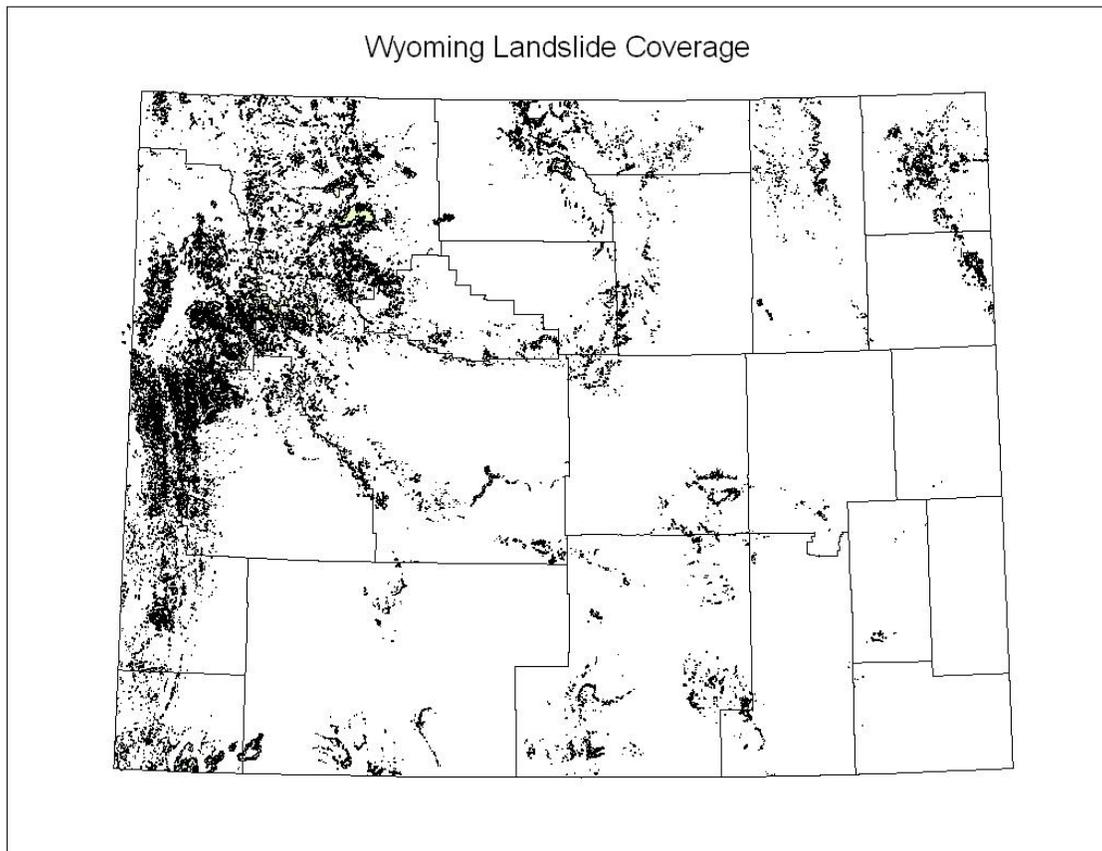
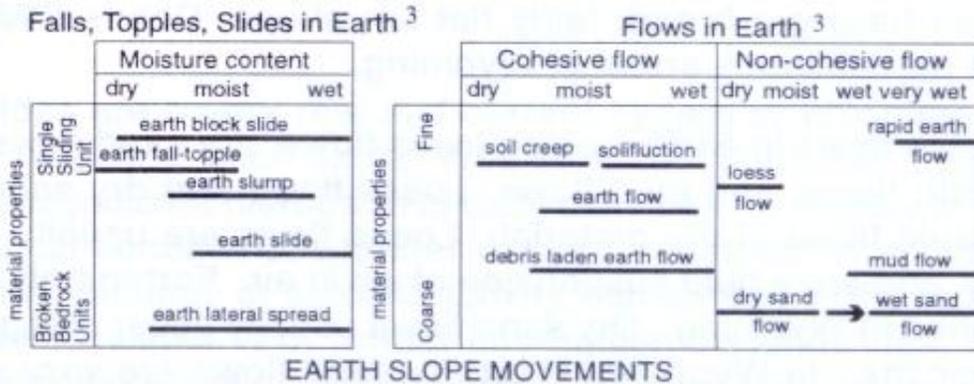
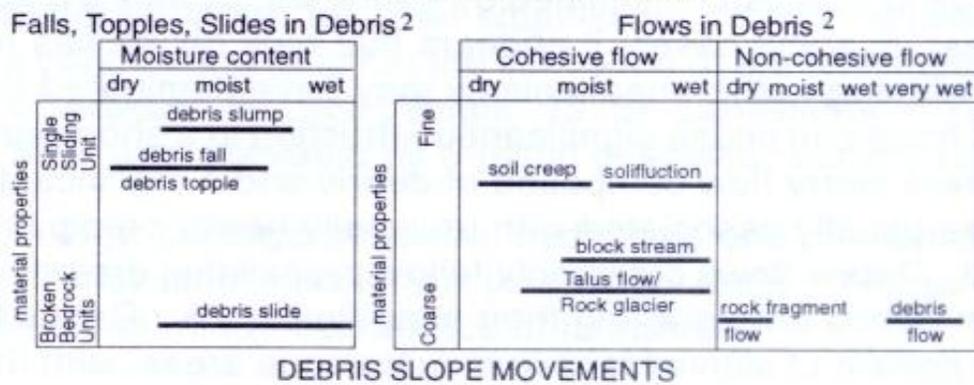
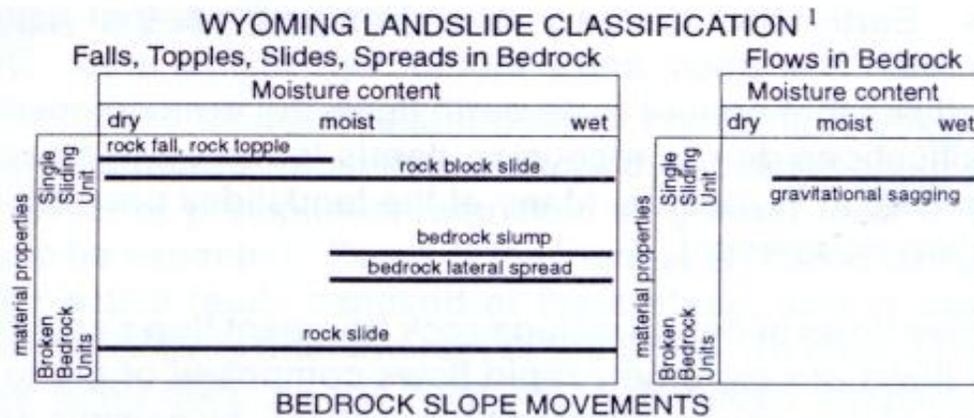


Figure 9.1. Mapped Landslides in Wyoming

There are many types of landslides present in Wyoming. In order to properly describe landslide type, the Geologic Hazards Section developed a landslide classification modified from Varnes (1978) and Campbell (1985). As can be seen in Figure 9.2 below there are five basic types of landslides that occur in three types of material. Falls, topples, slides, lateral spreads, and flows can occur in bedrock, debris, or earth. While individual landslide types can occur in nature, most landslides are complex, or composed of combinations of basic types of landslides.

A map of abandoned and unreclaimed mines is on file with the CCEMA. There is no documented history of subsidence in the county.



¹ Classification modified from Varnes (1978) and Campbell (1985).
² Debris is defined as an engineering soil in which 20 to 80 percent of the fragments are larger than 2 millimeters (.08 inch).
³ Earth is defined as an engineering soil in which 80 percent of the fragments are smaller than 2 millimeters (.08 inch).

Wyoming State Geological Survey
 Geologic Hazards Section, Jan., 1998

Figure 9.2 Wyoming Landslide Classification

Landslide Distribution

The Wyoming Geological Survey has mapped over 30,000 landslides in the state. Landslide areas in Converse County are limited to the southern, mountainous areas, primarily on public land away from development. Landslides have been mapped in the following quadrangles located wholly or in part in Converse County:

- Blue Nose Creek
- Braae
- Hermit Rock
- Maneater Creek
- Poison Lake
- Rock Creek
- Root Creek
- Saddleback Mountain

Impacts

There are three measures of future landslide impacts – historic dollar damages, estimated yearly damages, and building exposure values. There are not enough current data to estimate historic or yearly dollar damages.

The WSGS has calculated the building exposure value for buildings that may occur within or within 100 feet of a landslide. All landslides mapped in Wyoming have been digitized. The landslides then had a 100-foot buffer digitally added to the outside of the landslides. The modified landslides were then digitally crossed with Census block building values. In some cases, a landslide boundary will dissect a census block. In that case the proportional value of buildings in the census block will be assigned to the landslide. If a census block is within a landslide, then the values of all the buildings in the census block is assigned. The values derived by county are shown in Figure 9.3 below. Table 9.1 shows the ranking of counties based upon landslide building exposure values.

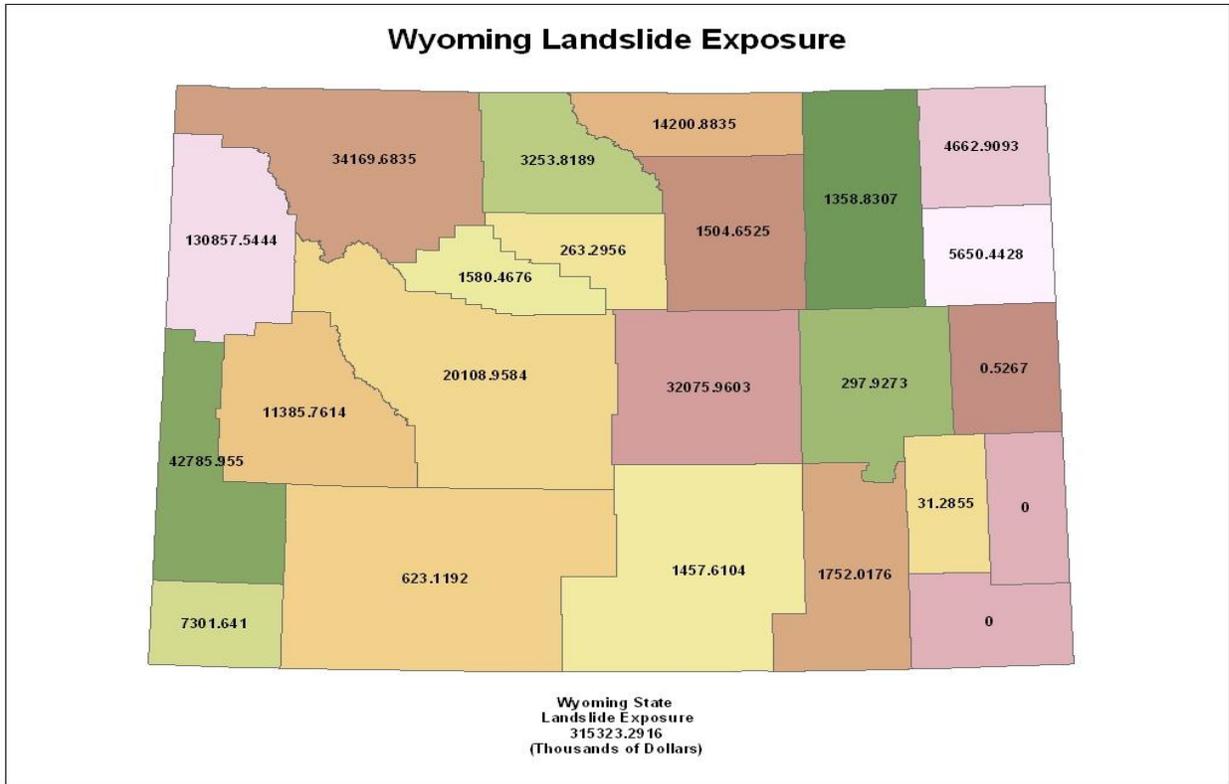


Figure 9.3 Wyoming Landslide Exposure by County

There is an estimated \$297,930 in buildings that are built on or near landslides in the county. Converse County has the sixth lowest landslide building exposure in the state.

Table 9.1 Building Exposure Values for Landslides

County	Landslide Building Exposure Value (USD)
Teton	130,857,545
Lincoln	42,785,955
Park	34,169,685
Natrona	32,075,960
Fremont	20,108,960
Sheridan	14,200,885
Sublette	11,385,760

Uinta	7,301,640
Weston	5,650,450
Crook	4,662,910
Big Horn	3,253,820
Albany	1,752,020
Hot Springs	1,580,470
Johnson	1,504,650
Carbon	1,457,610
Campbell	1,358,830
Sweetwater	623,120
Converse	297,930
Washakie	263,295
Platte	31,285
Niobrara	525
Goshen	0
Laramie	0
Total	315,323,305

The probability of a landslide causing damage in the county is difficult to determine, but heavy periods of precipitation or significant development could have an effect on slope stability in the future. Power transmission lines could be affected in parts of the County. Rockslide and debris flow/alluvial fan complexes can block roads or dam creeks and rivers.

Summary

PROPERTY AFFECTED: Low
POPULATION AFFECTED: Low
PROBABILITY: Low
JURISDICTION AFFECTED: Unincorporated County