LANDSLIDES IN KENTUCKY

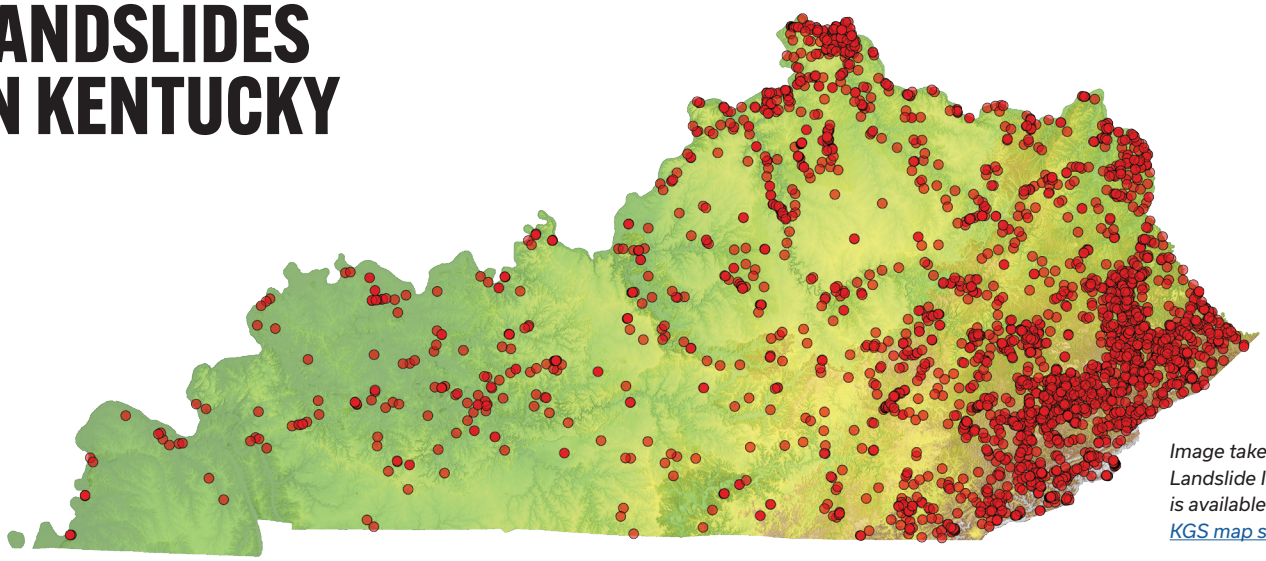


Image taken from the KGS Landslide Inventory, which is available on the KGS map service.

WHAT CAUSES LANDSLIDES?

A landslide is the downward movement of rock, soil, or both under the influence of gravity. Landslides have complex causes related to bedrock geology, soil type, soil thickness, and slope shape, but they happen as a result of a trigger.

In Kentucky, common landslide triggers are:

- Intense or prolonged rainfall
- Saturated soil (increasing pore water pressure)
- Artificial fill, or other weight, added to the top of a slope
- Road cuts or stream erosion that remove the slope base
- Clearing trees, plants, or other vegetation

RECOGNIZING A LANDSLIDE

If you're looking for landslides where you live, consider these factors:

- Stream banks and erosion
- Broken sewer or water lines
- Steep slopes
- Rough terrain or cracks in the soil

MITIGATION

Mitigation is an action or a process that reduces or eliminates the long-term risk of a disaster. For a property at-risk of landslides, mitigation might include slope stabilization or drainage work. This should always be done by a professionally licensed engineer, geotechnical engineer, or a geologist.

Landslides happen across the state, but they are most common in places that have:

- Steep slopes
- Pre-existing landslides
- Artificial fill / bad construction
- Steep drainage hollows
- Concave slopes with thicker soils

IF YOU SUSPECT A LANDSLIDE:

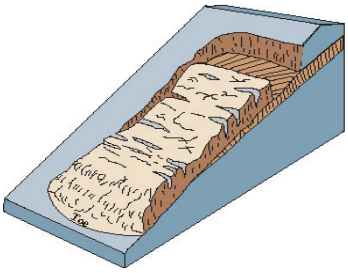
- Stay alert to any unusual sounds like cracking trees, rocks, or moving walls, especially during rain.
- Move away from windows and areas where the landslide debris might enter your house.
- Stay calm and evacuate the affected structure when it is safe to do so. Call 911.

TYPES OF LANDSLIDES

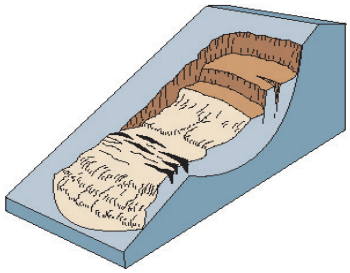
Landslides are classified into different types depending on the earth material involved and how fast that material moves. Knowing the correct landslide type helps professionals better predict landslide risk and understand how to manage or stabilize a site.

Slides have different speeds and different sizes, but they all move down a slide zone or plane. The shape of the plane determines the type of slide. A transitional slide moves along a flat plane and a slump moves along a curved plane deeper beneath the surface. A slide can move as little as a few inches per year or as much as several feet per second.

Translational Slide

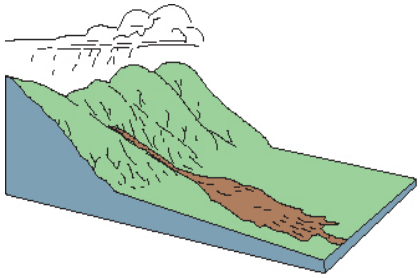


Slump



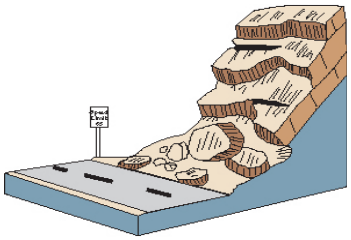
Flows are a complicated mix of water, soil, and rock that usually move very fast. Mudflows are made up of water, silt, and clay, while debris flows might contain large rocks or even boulders Depending on the type of material and the slope angle, flows can move faster than 35 miles per hour.

Debris Flow

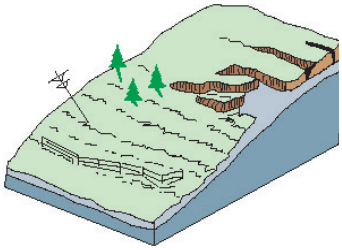


Falls happen when large pieces of rock move downward quickly through the air. Falls are common along very steep slopes or cuts in rock along roads.

Rockfall



Soil Creep



A **Soil Creep** is a common type of flow that moves very slowly at less than a foot per decade. The soil movement is only noticeable over time because of tilted trees, poles, or damaged infrastructure.


Translational Slide


Slump


Soil Creep


Debris Flow


Rockfall

RESOURCES

Landslide Locations in Kentucky (KGS Landslide Inventory)
kgs.uky.edu/kgsmap/helpfiles/landslide_help.shtm

Landslide Susceptibility Maps in Kentucky
kgs.uky.edu/kgsmap/helpfiles/landslidesusc_help.shtm

The Landslide Handbook – A Guide to Understanding Landslides
pubs.usgs.gov/circ/1325/

Kentucky Association of Mitigation Managers
kymitigation.org/about-kamm/

*All Landslide graphics modified from Highland and Brobowsky's 2008 *The Landslide Handbook — A Guide to Understanding Landslides*