

geomorphic terrains

learning about the landscape

The Mattole Watershed can be broken into 3 types of geomorphic terrain: soft, moderate, and hard. Each of these categories has specific characteristics which determine the land's relative tendency to slide.

SOFT TERRAINS are dominated by *mélange* (a clay conglomeration), and are recognizable by lumpy and irregular topography with gentle slopes. These terrains constitute approximately one-quarter of the entire watershed and dominate the lower Mattole basin. Soft terrains generally have poorly developed drainage and few trees. Thus, nearly half of the landslides in the Mattole occur within this type of landscape. Slides that occur in this type of terrain generally slide for multiple years. (see sediment series issue #10)

MODERATE TERRAINS are made up of a mixture of *mélange* and sandstone, and form irregular topography without well-incised drainages. Small, fast-moving slides are most common in this type of terrain. These slides are not generally active for long periods of time.

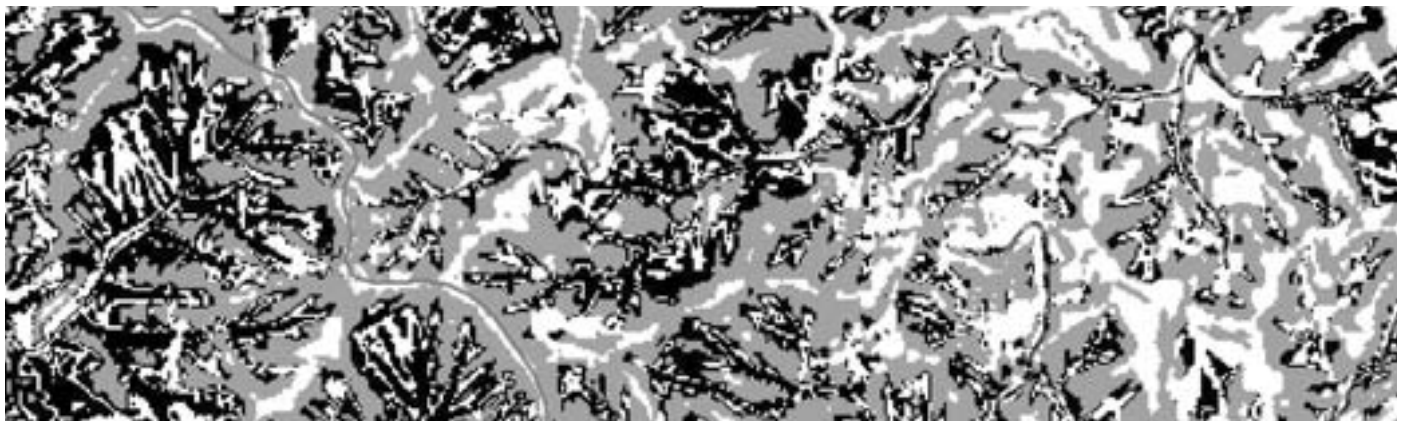
HARD TERRAINS are predominated by sandstone with sharp-crested ridges, and are dominant in the upper Mattole basin. Slides occurring in this type of terrain are generally less than 100' wide. This type of terrain is most stable, thus slides are least likely in this type of terrain.

The beauty of the Mattole Valley's dramatically steep, green ridges juxtaposed against gently rolling grassy hills has long-inspired a deep love for this area. However, the geologic and subsequent climatic forces which create such beauty contribute to its dynamic nature. Major geologic fault lines, frequent earthquakes and uplift, and intense ocean-born storms make the Mattole Watershed exceptionally prone to landslides and erosion.

While some sediment is necessary, excessive sediment is harmful to rivers. Approximately $\frac{3}{4}$ of all the Mattole's historically active landslides have contributed sediment to the streams. The impacts of increased sedimentation include: decreased surface flow, decreased water quality, increased stream temperature, and fewer deep pools. Such conditions are often deadly to salmon and are present in many portions of the watershed. Thus, preventing and fixing human-caused landslides are key elements to recovering the Mattole.

The good news is that some recent geomorphic studies indicate that 14% fewer of the Mattole's streams are currently affected by excess sediment than 20 years ago.

You can help contribute to this trend by learning how to prevent and treat landslides on your land. Well-constructed out-sloped roads with rolling dips help prevent gullying and road failures. The Mattole Restoration Council's "Good Roads Clear Creeks" program can assist you with road upgrades. Our "Cool Creeks" program will survey your stream-side property and will plant trees to prevent or fix unstable banks. Both of these programs are available to Mattole landowners at low or little cost. If you are interested in learning more about these programs or in talking with a resource professional about landslide concerns on your property, please call us at 629-3514.



LANDSLIDE RISK: Black = High, Grey = Moderate, White = Low. A more detailed color map (seven degrees of landslide risk) of your property can be made at MRC. Please contact us for further information.

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