ES473 Environmental Geology
In-Class Exercise: Using Lidar-Based Hillshade Models and Slope Maps to Identify Landslide Features

Refer to Instructor handout of the Lower Rock Creek Sub-basin, Upper Nehalem Watershed in the northwestern Coast Range of Oregon.

Examine the hillshade and slope maps of the watershed. These maps are based on 1-m Lidar elevation data collected by the Oregon Lidar Consortium, in association with the Oregon Dept. of Forestry, US Geological Survey and Oregon Dept. of Mineral Industries.

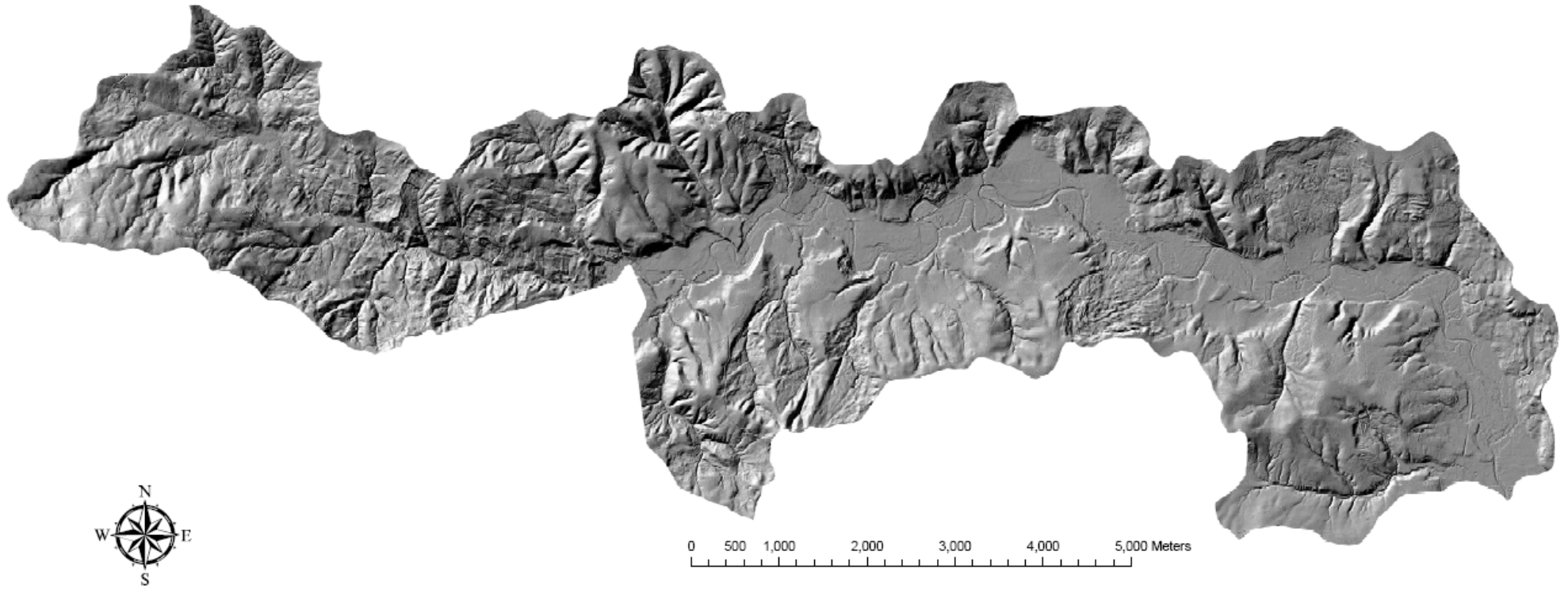In groups of 3-4, using colored pencils, map the following landscape features on the hillshade model:

(1) Active river channels (dark Blue line / highlight)
(2) Roads (Black line highlight)
(3) Outline of floodplain areas (Green highlight outline, low lying, next to river channels)
(4) Outline of terrace (abandoned floodplain areas; Yellow highlight outline)
(5) Outline of landslide areas (head scarp, hummocky topography, lobate margins; Red highlight outline for area, show head scarp with Purple line)
(6) Outline of regions associated with steep, undisturbed hillslope areas and low-order stream tributaries (orange outline).

Place your team names on your maps.

Briefly describe the criteria you used to identify each of the landscape features, and discuss the distribution of patterns across the watershed. Hypothesize as to the controlling factors of the patterns that you observe between the various landscape features.

Provide a 5-minute "pop-up" discussion of your team results.

1-m Lidar Hillshade Model - Lower Rock Creek

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0   500 1,000   2,000   3,000   4,000   5,000 Meters

1-m Lidar Hillshade Model - Lower Rock Creek