**ES322 Geomorphology Journal Article Review** – Roering et al., 2005, Characterizing structural and lithologic controls on deep-seated landsliding: Implications for topographic relief and landscape evolution in the Oregon Coast Range, USA

**Reading Summary Questions - Instructions. Read the Roering et al., 2005 paper, and answer the following summary questions. Questions are aligned with article organization from abstract to conclusion.**

1. Using internet resources: draw a sketch showing the differences between deep-seated rock-block landslides, and shallow-failure debris flow. Write a brief description of each.
2. List the causal long-term and short-term factors that influence the occurrence of deep-seated landslides.
3. Draw a sketch map showing the location of the Oregon Coast Range (OCR) and the occurrence of outcrop in the Eocene Tyee Formation that underlie the hillslopes.
4. True or False: the OCR was subject to Pleistocene glaciation. Explain your answer.
5. True or False: landslide-dam lakes are an uncommon occurrence in the central OCR, explain your answer.
6. List the three goals of the Roering et al., 2005 study.
7. Describe the physiographic and geologic setting of the central OCR and the landscape that is underlain by outcrops of the Tyee Formation.
8. What is the age and depositional history / environment of the Tyee Formation. Describe the changes in sedimentary rock composition (facies) from north to south in the OCR outcrop belt.
9. What is the tectonic and deformational history of the OCR. Cite the evidence that supports your answer.
10. What are the ranges of rates of uplift in the OCR and coastal Oregon. Cite your sources of evidence.
11. What are the measured short-term and long-term rates of erosion in the OCR. Cite your sources of evidence.
12. True of False: the rates of erosion greatly exceed the rate of uplift in the central OCR. Explain your answer.
13. What is the range of time that deep-seated landslide features persist on the landscape. How does this compare with shallow debris-flow features?
14. What does radiocarbon age dating indicated about the timing of landslide events in the central Oregon Coast Range?
15. List the data sources that were used by the authors to analyze the distribution and occurrence of landslide features in the OCR.
16. What effects to igneous intrusive rocks have on landscape resistance to erosion and relief in the OCR?
17. Using 3 to 4 sentences, briefly describe the methodology and analysis used by the authors to conduct their study.
18. Describe the results of the analysis in the context of landslide occurrence and character, in the northern vs. southern Tyee outcrop belt in the OCR. What are the primary geologic / bedrock factors that appear to control the distributions of landslides in the region.
19. Describe how fold deformation of strata and dip angle influences the occurrence of deep-seated landslides in the OCR.
20. Discuss the potential significance of rainfall patterns and seismicity in controlling landslide occurrence in the OCR>
21. Using key figures provided in the article, draw a sketch from north to south in the OCR Tyee Formation outcrop belt, illustrating the effects of bedrock composition and lithofacies, on the style and occurrence of landslides in the Coast Range. Label your drawing and provide a brief explanation.