

## STREAM ECOLOGY

### CLASS PROJECT: LAND-USE CHANGE AND LEAF BREAKDOWN RATE—PART 2

**Background:** We are providing the data that you collected, as well as a previous class, following the same protocol (alder leaves, coarse mesh leaf bags). The data is in “Leaf Data\_2013.xls”. The previous class collected the data in California streams, in Santa Cruz County. You can use these data to investigate patterns of land use and leaf breakdown. I recommend focusing on the 1km perspective for land use.

#### What did you find?

Analyze the data.

- A. Use the following equation to estimate K (leaf breakdown rate) for each leaf bag:

$$K = - \ln (Mass_t / Mass_{initial}) / t$$

- B. Average the K for each location (data has already been aggregated for the California data).
- C. What is the relationship between land cover and leaf breakdown rate (K)? Does this vary across regions? Create graphs that show this relationship.

#### The Assignment

*This will consist of 15% of your final grade.*

**Due:** April 9

We are asking you to submit a ~3 page narrative (double-spaced) about the class results. This assignment should be typed using proper sentence and paragraph structure, and include the following items.

- **Your Name.**
- **Statement of question.**
- **Graphs showing data.** Create graphs that show the relationship between land cover and leaf breakdown rate (K). The graphs should show results for both regions. The axes should be properly labeled. Include a figure caption for each figure that allows the reader to interpret these data.
- **Result narrative.** Using sentences, describe what you discovered.
- **Result interpretation.** What is a potential mechanism explaining your observed results? Compare regions and compare your results to previous studies.
- **Future directions.** What would you do to build off of this study? How might you test what mechanism(s) might be driving these data?
- **References.** The interpretation and future directions sections should review and reference 3-5 previous studies that are relevant to your project. Some possible starting points include: Gessner and Chauvet Ecological Applications 2002; Paul et al. Freshwater Biology 2006.