Using Raw Data from Schultheis et al. article

**Abstract:** The enemy release hypothesis predicts that invasive species will receive less damage from enemies, compared to co-occurring native and non-invasive exotic species in their introduced range. However, release operating early in invasion could be lost over time and with increased range size as introduced species acquire new enemies. We used three years of data, from 61 plant species planted into common gardens, to determine whether (1) invasive, non-invasive exotic, and native species experience differential damage from insect herbivores and mammalian browsers, and (2) enemy release is lost with increased residence time and geographic spread in the introduced range. We find no evidence suggesting enemy release is a general mechanism contributing to invasiveness in this region. Invasive species received the most insect herbivory, and damage increased with longer residence times and larger range sizes at three spatial scales. Our results show that invasive and exotic species fail to escape enemies, particularly over longer temporal and larger spatial scales.

**MetaData:** We (author Schultheis and her team) measured damage from insect herbivores as the proportion of leaf area removed on 10 leaves per plant, selected as every third leaf starting at the top of the plant. Author Schultheis collected all damage data to ensure estimates of aboveground vegetation removal were consistent. 2011 data collected from October 11 to November 3// 2012 data collected from September 10 to October 4// 2013 data collected from August 26 to September 12

**INSTRUCTIONS**

**Substantiate the Schultheis et al. work published in 2015 by forming graphs to visualize their results that “invasive and exotic species fail to escape enemies, particularly over longer temporal and larger spatial scales”**

1. Open Dryad Schultheis et al. experimental data (EXCEL file)
2. Sort Data in spreadsheet
   1. Highlight all data, so that the Sort function does not disconnect each row information
   2. 1ST Level Sort by Plot, 2nd Level Sort by Status, 3rd Level Sort by Date
3. Use data for all plots except 9, 21, 22, 24, 25, 27, 29, 32, 35, 40, 50
4. Use data from what is in the Status column (Exotic, Invasive, and Native)
5. Leaf damage is given as percentages, so average of each classification for Status column
6. Open a new worksheet in this same file and input data

Column A ...Plot #

Column B … Status (Exotic, Invasive, Native)

Column C - E … Dates

Interior Cells … Leaf Damage (percentages) calculate AVERAGE for each Status class

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| PLOT |  | 2011 | 2012 | 2013 |
| 1 | exotic |  | 6.6 | 5.34 |
|  | invasive |  | 4.45 | 8.03 |
|  | native |  | 12.06 | 9.75 |

1. Form **Custom Column** Chart for graphs (see example below)
   1. For each Plot #
   2. For all plots

1. Write a short paragraph under each of the 14 plot graphs to explain the patterns seen.