# Computational Biology Assignment 9 Markdown

## The Biological Question

The data set that was picked was used to see if there was a correlation of island size to plant species survival in the Pacific Ocean specifically in the Wellington Bay of New Zealand.

![Image result for wellington bay new zealand](https://www.researchgate.net/profile/Thomas\_Glade/publication/225723454/figure/fig1/AS:669994237059083@1536750482370/Location-of-the-study-sites-at-Hawkes-Bay-and-Wellington-New-Zealand.png)

## Content

## Methods

The [experiment](https://www.journals.uchicago.edu/doi/pdfplus/10.1086/682934) was done over a ten year period, data collection occurred in the spring and summer. Data was collected from 39 Islands of differing isolation (distance form the main land) and size.

The [dataset](https://datadryad.org/bitstream/handle/10255/dryad.90297/Burns\_data.csv?sequence=1) was produced by traveling to each of the 39 islands and taking a survey of plant species, making note of new species and those which had gone extinct on any particular islands.

The experimenters used the data collected to explain the theory of island bio-geography and to predict differences in species turnover for both exotic and invasive species. Basically they wanted to modify the theory of island bio-geography in order to reflect exotic or invasive species.

I put the data together in graph forms in order to be able to see clusters of points around island sizes to provide a visual representation for how island size affects colonization and extinction events for both native and exotic species. This was in order to see if the exotic/invasive species had any kind of a fitness advantage in a area that is still geologically young and developing. So we can potentially be better prepared as conversationalists to protect certain areas from invasive species.

## Results

It was found that the exotic/ invasive species of plant had a higher colonization rate and a lower extinction rate overall. Meaning they should have a slight fitness advantage when they are competing for the same resources (land, nutrients) on the islands. Noting that the island size did not affect the exotic species as much as the native species. Indicating that island size was less important overall to the exotics and they had a higher fitness. Which means that eventually in time they will probably become the new native species on the islands.

## Works Cited

[The Theory of Island Biogeography for Exotic Species](https://www.journals.uchicago.edu/doi/pdfplus/10.1086/682934)

[Dryad data set](https://datadryad.org/bitstream/handle/10255/dryad.90297/Burns\_data.csv?sequence=1)

> Written with [StackEdit](https://stackedit.io/).