*This page provides general **background** on the experiments conducted to obtain the data contained within this data collection. The next page explains how the data are **organized** within the files.*

BACKGROUND

We used the data within these files to determine whether the extinction of a single population within a population network would affect remaining populations in terms of (1) mean population abundance, (2) synchrony in local dynamics (i.e., how similarly remaining populations increase and decrease through time), and population stability (i.e., the variability in abundance fluctuations through time).

Each experiment used 8 experimental population networks: 4 treatment and 4 control. Networks were comprised of 5 populations of Paramecium caudatum, each contained in a filter flask that was "connected" to the other populations via a migration corridor (see image file).

Each experiment consisted of three 10-day periods: pre-extinction, extinction, and reestablishment.

Treatment and control networks were treated precisely the same way **except** during the extinction period when extinction was maintained on the center population in treatment networks for the full 10-day period. There was no extinction in control networks.

To calculate growth for 30 time periods we estimated the abundance of each population within all networks for 31 consecutive days (therefore, "Day 0" is not included in the pre-extinction period). Population abundance was extrapolated from the mean number of paramecia captured in three 0.25 mL samples.

The data presented in these files are the daily density estimates (#paramecia/0.25 mL) for each population within each network. All other measures (e.g., stability, synchrony) were calculated using these data.

The experiments differed according to the following:

Experiment 1 was conducted in homogeneous networks, where all populations were the same size.

Experiment 2 was conducted in heterogeneous networks, where the population subjected to extinction was 4 time larger (4XL networks) or 8 times larger (8XL networks) than surrounding populations. Because this experiment required 16 networks, it was conducted in 2 blocks. The blocks were identical in that each used four 4XL and four 8XL networks (two treatment and to control networks of each type). Since there was no block effect, we pooled the data for analysis.

Experiment 3 was conducted in 8XL networks that were subjected to persistent, gradual habitat destruction.

Chapters 3, 4, and 5 within the Dissertation.pdf file contains detailed methods for each experiment.

ORGANIZATION (All data sets are formatted the same way):

Column A: Network Number

This number is arbitrary but was useful for keeping the data organized.

Column B: Relative Size of Center Population

In homogenous networks (Experiment 1), each 70 mL population was contained in a 50 mL filter flask (the population surpassed the side arm of the flask so that paramecia could enter the migration corridor). Therefore, in Experiment 1, the entry for all networks is "1XL", meaning that the population subjected to extinction (i.e., the center population) was the same size (volume) as surrounding populations.

In heterogeneous networks (Experiments 2 & 3), the population subjected to extinction was either a 280 mL population contained in a 250 mL flask (4XL networks) or a 560 mL population contained in a 500 mL flask (8XL networks)

Column C: Treatment or Control?

This column indicates whether or not the center population was subjected to extinction during the second 10-day period.

Column D: Population Number

The first number indicates the Network Number and the second number indicates the population's position within the network. Given that the population was a linear array of 5 populations, the relative position of the population is more important than the population number. For example, population 3 signifies the population in the center position; populations 2 & 4 flanked the center position, and populations 1 & 5 occupied the distal positions.

Row 1:

This row denotes whether the data point falls within the pre-extinction, extinction, or reestablishment period of the experiment.

Row 2:

This row is marked "Day" throughout and is intended to indicate that the number below identifies the specific day within the experiment (day 0-30, as indicated in Row 3).