

Final Examination
BIOL 570
2:00 pm, December 13, 2007
Turn in at the beginning of the scheduled Final Exam
THIS EXAM SHOULD BE DONE ALONE – NO COLLABORATION

THE TOP OF YOUR ANSWERS MUST INCLUDE THE FOLLOWING SIGNED STATEMENT

The answers written on this exam are my own individual work, and were not done in collaboration with anyone else.

1. (50 pts) Your saga as Chief Scientist of the Mars Ecology Mission continues. Your plane that NASA sent to pick you up from your landing site in Africa has crashed in the Caribbean. You find yourself on a group of 20 small islands, inhabited by 4 species of lizards. Given a year to do experiments on these animals, how would you decide whether their patterns of distribution and abundance indicated that they were:

- a) in equilibrium
- b) controlled by disturbance
- c) controlled by predation
- d) controlled by competition
- e) controlled by the physical environment
- f) controlled by dispersal (metapopulation) processes
- g) an assemblage of individual species that do not interact

Describe

(A) the MANIPULATIVE EXPERIMENTS you would do,

(B) the controls for your treatments, and

(C) the theoretical predictions you would test, in order to distinguish among these hypotheses.

REMEMBER: experiments are actual modifications of the environment by the experimenter, not just observations. You have only your solar-powered laptop computer, your pocket knife, a shovel, and what materials you can make from the native vegetation on the islands. You discover a small canoe which allows you to travel between islands easily. Your laptop has electronic copies of all of the papers from 570.