Natural selection, evolution

In life, we have heard the phrase “ only the strongest will survive”, and undoubtedly, think of the strength of a lion or the ferociousness of a bear, but this is not always the case to being a dominant species in a community. In this lab, we will explore the theory of natural selection, or as Charles Darwin put it, “ Survival of the fittest” (King et al, 1-14). Through this concept, we will come to the understanding that being the fittest is not about being the strongest or most cunning, but simple having the best attributes to survive in a specific environment.

For example, would a lion or a camel be the dominant race in the Sahara desert? The answer is the camel; even though the lion surpasses it in almost every aspect, the camel has the specific characteristic of conserving water which was acquired through the process of evolution. This processes essentially means, that the camel is the product of many generations of organisms reproducing and dyeing to successfully survive in their environment. To test the theory of natural selection theory through means of prey and predation, we will brooch the specific trait of camouflage.

That is, if the color of the prey is not consistent with the natural habitat, than the prey will experience increased selection pressure; effectively decreasing the chance of surviving natural selection or predation. Materials and Methods To test our hypothesis we conducted an experiment utilizing a piece of multi-colored fabric (blue, red, yellow, orange and backdrop on primarily yellow) to simulate a rich diverse environment, and punched out color chips to simulate varying organisms within the population.

To increase the effect of selection pressure among the organisms we included colors other than that of the natural habitat (dark green, pink,

brown, black, and white). These colors essentially represented a negative control to gage the correctness of our hypothesis. To simulate the processes of predation, evolution, and growth we began the first round of predation with 10 different colored organisms to total 100. At the beginning of each round, the distributor would place all the colored chips on the simulated habitat, than had the 3 predators select 25 prey.

After the predation cycle was complete, the distributor would count the number of remaining prey, and times each perspective group by 4 to simulate both growth and evolution of the specified organisms with the population. This method of growth was derived from Darwin's theory of natural selection that states, " all living things tend to over-reproduce..." (King et al, 1-14). The experiment then continued for a total of 3 rounds of predation to decide which group was the fittest to survive in the environment. Results

As predation incurred colors such as pink, brown, and black that contrasted with the multi-colored fabric habitat, experienced increased selection pressure, marking in most cases the extinction of the organism. However, species within the population such as dark blue and dark green that blended into their environment (effective demonstrating the use of camouflage) experienced less selection pressure, therefore becoming dominant in the population. Overall dark blue surpassed all other colors with a growth totaling 64 percent of the population. Discussion

In this experiment it was thought that yellow would have become the dominating organism within the population, since the Multi-colored fabric cloth exhibited more yellow in the pattern and in the backdrop, than blue.

However, it is theorized, that because the dark blue paper chip more closely resembled the natural occurring color of the fabric, that it experienced tremendously less selection pressure than that of the yellow. Therefore, as the two colors continued to beat out the other colors through the predation rounds, they began to compete against one another.

This ultimate displayed that the yellow paper chip was more distinguishable than the dark blue, decreasing its chances of surviving the natural selection or predation. Ultimately, this experiment shows how effectively blending into ones environment more effectively increases a organisms chances of becoming a dominant portion in a population. Further, it exemplifies how predators will react to two competing dominate species, and that only the fittest, the species that is more adept in blending in with its surrounding, will survive.