

Outcome of geographically separated lizard populations essay example

[Science](#), [Genetics](#)



Introduction

According to Russell, Hertz and McMillan most biologists define a species according to morphological characteristics (Russell, P., Hertz, P., & McMillan, B. (2013). These characteristics serve as indicators of species genetic similarity to or divergence from other species. A species is a collection of interbreeding populations that are reproductively isolated from other species in nature.

The experiment was carried out to find out the outcome of geographically separated lizard populations. Russell, Hertz and McMillan state that speciation resulting from divergent evolution among geographically separated populations is referred to as allopatric speciation (Russell, P., Hertz, P., & McMillan, B. (2013). If these allopatric populations accrue sufficient genetic variations, they will be reproductively isolated upon secondary interaction. Once the species have been separated, evolution is expected. The first thing the relocated species will do is adapt to its environment. The species will change feeding habits and reproduction cycles. The experiment conducted seeks to prove that evolution occurs when species are geographically separated.

Hypothesis

Evolution would occur if species of lizards were suddenly split into two groups by a hurricane, resulting in separation of a small group of individuals on an island far from the mainland (Russell, P., Hertz, P., & McMillan, B. (2013).

Methods

The procedure involves creating two controlled habitats. One habitat is referred as the mainland. The mainland's environment is controlled to fit the original environment of the sample population. The second habitat is referred as island. The island habitat environment is controlled to fit colder conditions. A sample population is collected. This population is referred to as the originals. The originals consist an equal number of male and female lizards. This sample is divided equally among the two habitats. The data collected is based on breeding schedule, cross breeding, number of eggs laid and hatched, and the environmental conditions.

Results

The sample population that was introduced in the island habitat breeds more slowly. Cool temperatures slowed down the foetus development. The shift of this population's breeding schedule was an adaptation to the environment.

Analysis

The fifth and tenth generations of the lizards from both habitats were breed. The results showed a substantial but not complete post-zygotic reproductive isolation. Speciation results in divergent evolution.

References

Russell, P., Hertz, P., & McMillan, B. (2013). *Biology: The Dynamic Science*, Volume 1 (Units 1 & 2). Cengage Learning.