Yale Researchers May Have Solved Mystery About Why "Lonesome George" Refuses To Mate

ScienceDaily (Nov. 9, 1999) — New Haven, Conn. -- "Lonesome George," the only remaining male of a subspecies of the giant Galapagos tortoise, may be turning up his nose at potential mates on nearby islands because the females most closely related to him are on an island 200 miles away, say Yale researchers studying the tortoises.

"The Darwin Research Station has been trying to mate him with females from islands closest to his, but he doesn't seem interested," said Professor Jeffrey Powell of the Department of Ecology and Evolutionary Biology. "We found from our DNA studies that he is most closely related to a subspecies on islands farthest from his. If he is going to mate, he might do so with a subspecies that is closest to his island."

The study was a collaboration between Powell's research group, the Yale Institute for Biospherics Studies' Laboratory for Molecular Systematics and Conservation Genetics directed by Adalgisa Caccone and James Gibbs at the State University of New York. It was published in the November issue of the "Proceedings of the National Academy of Sciences."

The giant tortoises are renowned both for their size -- up to five feet in length and a hefty 650 pounds -- and their contribution to the development of Darwin's theory of natural selection. Darwin recognized that the isolation of the Galapagos islands off the coast of Ecuador in the Pacific Ocean encouraged specific adaptations to local environments. The islands also were of great interest to him because of their equatorial location in cool waters, their distance from the mainland, and the diversity of life zones possible in an archipelago.

At one time there were 15 different subspecies of tortoises in the Galapagos, but only 11 remain. The other subspecies of the giant tortoises are extinct -- victims of heavy trapping through the 19th century and the destruction of their habitats by feral animals abandoned on the islands.

Lonesome George is so closely related to subspecies from the distant islands of San Cristobal and Espanola that there was suspicion he may actually have originated on one of these islands and been transported to Pinta, George's home. To test this theory, the Yale team studied skins from stuffed tortoises collected on Pinta in 1906. The DNA sequenced from these skins was found to be identical to George's, lending support to the belief that George is native to Pinta and truly the last survivor of his lineage.

"Now that we see he has close genetic affinities to the Espanola and San Cristobal subspecies, perhaps they would be a more appropriate source of a mate for this sole survivor," the authors of the study said.

The study also revealed that the closest living relative of the Galapagos tortoise is the Chaco tortoise, the smallest of the three remaining species of tortoises on the mainland of South America.