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Famous Galápagos Tortoise, Lonesome George, May Not Be Alone

Science Daily — "Lonesome George," a giant Galapagos tortoise and conservation icon long thought to be the sole survivor of his species, may not be alone for much longer, according to a multinational team of researchers headed by investigators at Yale University.

New research led by biologists Adalgisa Caccone and Jeffrey Powell in the Department of Ecology and Evolutionary Biology at Yale, with the strong support and cooperation of the Galápagos National Park and Charles Darwin Research Station, has identified a tortoise that is clearly a first generation hybrid between the native tortoises from the islands of Isabela and Santa Cruz. That means, this new tortoise has half his genes in common with Lonesome George.

According to the Guinness Book of World Records Lonesome George, a native of Santa Cruz, an isolated northern island of the Galápagos, is the "rarest living creature." By the late 1960s, it was noted that the tortoise population on this island that is visited only occasionally by scientists and fishermen, had dwindled close to extinction, and in 1972, only this single male of the species *Geochelone abingdoni* was found.

Lonesome George was immediately brought into captivity at the Charles Darwin Research Station on the island of Santa Cruz where he is housed with two female tortoises from a species found on the neighboring island of Isabela.

"Even after 35 years, Lonesome George seems uninterested in passing on his unique genes and has failed to produce offspring," said lead author Michael Russell of the University of British Columbia Okanagan who began working with the tortoises as a postdoctoral fellow at Yale. "The continuing saga surrounding the search for a mate has positioned Lonesome George as a potent conservation icon, not just for Galápagos, but worldwide." Although Lonesome George has yet to find a tortoise partner, upwards of 50,000 people visit him each year.

The study, published in Current



Lonesome George at the Charles Darwin Research Station. (Credit: Alison Llerena/CDRS)

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Biology, gives a peek into the evolutionary history of a species of Galápagos tortoise (*G. becki*) -- previously known to be genetically mixed -- on the neighboring island of Isabela. The results were possible only with advances in technology from these researchers that make DNA from ancient or museum specimens useful for genetic analysis.

Population analyses of a large database including individuals from all 11 existing species of Galápagos tortoises was compared to the genetic variation within two of the *G. becki* populations. DNA data for the nearly extinct *G. abingdoni* species from Pinta was available for the first time from six museum specimens -- and from Lonesome George.

There are well over 2,000 tortoises of *G. becki* living on the neighboring volcanic Isabela Island, which has only two sites accessible from the sea. The research team collected samples from a total of 89 tortoises -- 29 at one location, 62 on the other side of the island. Because the subset of the population they sampled was so small, the researchers hope that thorough sampling will locate a genetically pure Pinta tortoise.

The authors speculate that, in the event additional individuals of pure Pinta ancestry are discovered, a captive breeding and repatriation program could be set up for species recovery. "It will take a team of about 20 people about three to four weeks to do a first, exhaustive sampling and transmitter-tagging of the tortoises on the volcano," said Caccone. "Then once individuals of interest are found -- either hybrids with Pinta or pure Pinta animals -- an equivalent field expedition will have to be mounted to find the animals and bring them in captivity. But, it is a harsh environment with no local resources and funding such an operation will be costly."

According to Powell, "These findings offer the potential for transforming the legacy of Lonesome George from an enduring symbol of rarity to a conservation success story."

Other authors on the paper are Nathan Havill from Yale, Luciano B. Beheregaray from Macquarie University in Sydney, Australia, James P. Gibbs from the State University of New York at Syracuse and Thomas Fritts from the University of New Mexico. The research was supported by the Bay Foundation, the Yale Institute for Biospheric Studies and the National Geographic Society.

Citation: Current Biology (May 1, 2007 -- early online)

Note: This story has been adapted from a news release issued by Yale University.

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