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August 23, 2001

Graduate School

Natural science professors receive $20,000 Disney research grant

Dr. Carter holds a Bahamian rock iguana to allow closer inspection by local Boy Scouts.

Two natural sciences professors were recently notified by officials of The Disney Wildlife Conservation Fund that they would receive a $20,000 grant to continue research of the endangered Bahamian rock iguana populations on the outlying islands of the Bahamas.

Ronald L. Carter, PhD, professor and chair of natural sciences, and William K. Hayes, PhD, associate professor of natural sciences, Loma Linda University Graduate School, learned recently of the favorable response to their grant application.

“The grant will help fund our next step in the study of reproductive ecology and rehabilitation of the nesting habitat on Green Cay, San Salvador Island, Bahamas,” explains Dr. Carter.

In October of 1999, Hurricane Floyd hit Green Cay with sustained winds of 155 miles per hour for two days. Wind-generated waves washed over the islet and destroyed nesting habitat and new hatchlings, along with most of the young from the previous few years.

“Disney was also anxious for us to include in our proposal an education component to be produced for the school system in the Bahamas on conservation of iguanas,” adds Dr. Carter.

Dr. Carter and graduate biology student Eric Grove recently returned from a trip to the Bahamas, where they were assisted in their efforts to restore nesting habitats by local Boy Scouts.

Drs. Carter and Hayes have been conducting research in the Bahamas for seven years and are working closely with the Bahamian government

and the International Union for the Conservation of Nature (IUCN) in developing conservation management plans for the few remaining islands with iguanas.

Boy Scouts from a Bahamian troop assist Dr. Carter and biology master's student Eric Grove in rebuilding the nesting habitat for the rock iguanas on San Salvador Island.

The first step of their research involved crisis management of the endangered rock iguanas—basically locating, counting, and identifying them, as well as remediating where possible human-caused threats to their existence and conducting population genetic studies.

"Our early studies changed the picture we started with," informs Dr. Carter. "Some populations we thought were in grave danger are not as bad off as we thought, while other populations are actually worse off."

The iguana habitats have been taken over by human inhabitants or their quality reduced by human activity. Goats, cows, dogs, cats, and rats have devastated much of the habitat areas required for the well-being of iguanas and countless sea birds.

Drs. Carter and Hayes have spent considerable time working with graduate students, volunteers, and various conservation groups, and have received financial help in the past from the Denver Zoo, the Chicago Zoological Society, and from the pharmaceutical company, Zenica, located in Germany.

Much of this support has been focused on efforts to eradicate rats from the most threatened iguana populations. On one Bahamian island in the Southern Exumas, a very rare population was nearly destroyed—reduced to maybe only 20 females and 80 males—by a single pet raccoon that found its way to the island or was left there by accident. It was very difficult to trap and remove this unnatural predator.

Drs. Carter and Hayes have also studied the population genetics of Cyclura rileyi and find that the level of genetic diversity between and among the populations to be extremely low.

Dr. Carter points out that, "While individual iguanas may appear healthy and well-adapted for their current environment, the lack of genetic diversity gives these populations little chance to respond to any major ecological change or even new diseases which may come in the future."

The second step in their research has followed more traditional methodologies of looking at the reproductive behavior and nesting

ecology of the Bahamian rock iguanas.

Using radio telemetry, underground burrow scopes, night vision equipment, and various behavior analysis techniques, Drs. Carter and Hayes and their graduate students have discovered a great deal about the biology of iguanas.

One Boy Scout proudly holds an iguana. Educating the Bahamian human population to appreciate and protect the iguana population is an important step in preserving it.

Drs. Carter and Hayes, together with two other scientists, are editing and writing chapters for an upcoming volume on iguanas. They will share in this book many of their latest findings.

"We really need to understand more fully the basic life history biology of these unique animals," suggests Dr. Carter, "in order to help rebuild, protect, and manage the fragile environment that allows these wonderful dragon-like animals to survive."

He continues, "When the teenage San Salvador Boy Scouts arrived at the outer cays—many handling iguanas and helping to restore nesting sites for the first time—you could see in their eyes a new appreciation for the wonders of nature and a gleam of pride in personal accomplishment."

Dr. Carter feels strongly that "the future depends on great numbers of young people becoming invested and involved in conservation."

Disney and the Bahamian Ministries of Agriculture and Education are counting on the research-based recommendations and educational modules being produced by the Loma Linda scientists to make a difference in the survival of the Bahamian rock iguana, as well as other endangered species.

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