Alligator Study May Provide Dinosaur Clue

CAMERON, La. (AP) — Two biologists say their studies of Louisiana alligators may provide a clue to what caused dinosaurs to disappear relatively suddenly, a question that has long caused scientific debate.

The sex of newborn alligators is determined by the temperature of the nests in which they are incubated, the scientists said.

Alligator eggs incubated at about 30 degrees centigrade develop into females, while those incubated at about 34 degrees become males, they say in a report published in the current issue of "Nature" magazine.

Eggs die when incubated at temperatures at below 28 degrees centigrade or above 36 degrees, they said.

Ted Joenan, research leader at Rockefeller Wildlife Refuge, teamed with Mark Ferguson of Queen's University in Belfast, Northern Ireland, on the study.

"Alligators go back 180 million years to the age of dinosaurs," Joenan said.

He said that if the sex of dinosaurs was also determined by incubation temperatures, "Then this may explain the selective extinction of these groups in response to a relatively sudden, continuous change in climate to one that is either hotter or colder."

Joenan said he is more interested in learning how to manage Louisiana's alligator population.

"Some other scientist might use it to explain the end of the dinosaurs," he said.

Joenan began his studies of the alligator after hunters had just about wiped out Louisiana's population. During his tenure at Rockefeller, statewide conservation measures resulted in a resurgence that now permits regulated harvesting of alligators for their hides.

He said he discovered that temperature determines sex occurred while he was studying methods of hatching alligators artificially.

He said refuge workers put eggs into an incubator and guessed at a good temperature. Mostly females hatched out.

"Several years later, we raised the temperature, and a higher percentage of males was produced. We started using different temperature settings to produce different sex ratios," he said.

Ferguson joined the project in the mid-1970s, he said. "With his experience in embryology, we were able to go into the eggs prior to their hatching," he said. "After that, we were able to tie down different temperature settings as influencing the determination of sex."

He said his research is now aimed at learning more about how the new knowledge about the influence of temperatures relates to life in the wild.

Alligator nests stand about three feet high, and they are made of vegetation. Heavy rain forms an insulating puddle at the base of the nest, he said.

Although the Louisiana alligator is no longer classed as endangered, Joenan said more knowledge is needed to help manage the species well.

"The research might help us find out, for example, how putting a canal into the marshes or lowering their water content will affect the alligators' courting habits," he said.