

'Miami Ice' Age Site Yields Rich Haul

An archaeological site in southern Florida may provide scientists with a rare glimpse of a brief slice of time around 10,000 years ago when humans and many now-extinct animals co-existed in North America. Remains at the site could figure prominently in debates over whether the extinction of numerous animal species was caused by human population growth and intensified hunting near the end of the Ice Age, which extended from 20,000 to 8,000 years ago.

"What's unique is the combination of human and animal remains from the late Ice Age," says Dade County archaeologist and project director Robert Carr. "This is an ideal site; all sorts of animals were dragged or trapped there."

Says anthropologist Paul Martin of the University of Arizona in Tucson: "I know of no site in North America where there is a clear and distinct association of humans and extinct animals from 10,000 years ago. If [the Florida investigators] have one, it would be a first and would be quite remarkable." Martin plans to visit the site next month.

The excavation, which began last October and will continue into the summer, is located in a cave exposed by a sinkhole and is about the size of an average living room, according to Carr. It is within a mile of Biscayne Bay, near Miami. More than 300 bags of human and animal bone fragments and bone tools such as scrapers and knives have been recovered, says paleontologist Gary Morgan of the Florida State Museum in Gainesville. Several complete human bones have also been found. At least 50 species of animals are represented at the site, adds Morgan, who participated in the dig. These include mammoths, bison, giant sloths, condors, jaguars, bats, wolves, lizards and rodents.

Although the scientists expected to find animal remains in the cave, "it was quite a shock to find human bones this old," says Carr. Fewer than a dozen 10,000-year-old human skeletons have been unearthed in North America, he explains. Until now, the earliest human remains in



Photos: R. Line/Carr

Scientists at 10,000-year-old Ice Age site in Florida (top) and a partially uncovered dire wolf jaw.

southern Florida dated to 4,000 years ago.

While preliminary dating of sediments, rock and bone sets them at about 10,000 years old, firm ages for each of the myriad species that have been identified will be determined in the next few months, he says.

It appears, says Carr, that both humans and many now-extinct animals lived in southern Florida before the Ice Age glaciers melted, creating the Everglades and Biscayne Bay by raising the sea level. During the Ice Age the site may have been part of a savanna-like area with extensive grasslands, suggests Carr. It was probably drier and cooler than modern Florida.

The researchers are not sure why such a diversity of animal species lies within the same sediments. "There is a greater percentage of bones from large carnivores such as dire wolves and jaguars than would be expected," says Morgan. "This, along with the fact that some

of the human bones have gnawing marks on them, suggests that the cave was a carnivore den." Dire wolves are extinct and were larger than modern wolves and dogs.

Ice Age humans may have later inhabited the cave, adds Morgan. "As we dig deeper, we're finding more and more human bones," he says. The site also contains what may be the oldest hearth in eastern North America. Carr notes that there is evidence of cooking in the hearth,

which contains the charred bones of several small mammals.

The site, asserts Morgan, should be a fertile testing ground for the controversial theory that many extinct animals were killed off by Ice Age peoples, possibly between 12,000 and 10,000 years ago. Several years ago, Martin and his colleagues extended this argument with their "Blitzkrieg hypothesis." A rapidly expanding human population containing proficient hunters could have wiped out large animals such as the mammoth over as few as 200 years, according to their analysis of several 11,000-year-old Ice Age sites in North America. "If extinct animal remains at the Florida site are younger than 11,000 years," says Martin, "it would be a refutation of this hypothesis." And if some of the animals are younger than 10,000 years, says Morgan, it would indicate that their demise was not solely due to Ice Age hunting.

In addition, archaeologists can begin to decipher the culture, biology and migration patterns of humans living in Florida at the end of the Ice Age. "The site is way, way south and east of most known human samples from that time," says paleontologist David Webb, curator of the fossil vertebrate collection at the Florida State Museum.

Local residents discovered the cave in 1979 and showed the large animal teeth they found to Carr. After the site was vandalized last year, Carr realized scientific work had to begin. As it turns out, he says, "this is perhaps the richest fossil site ever found in Florida or eastern North America." —B. Bower