



# Diablo Canyon Archaeology: Prehistoric Hunting along California Coast

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## Summary

Across the globe, tens of thousands of plant and animal species are teetering on the verge of extinction, casualties of habitat destruction, pollution and other aspects of modern living. If it seems our gas-guzzling, wireless world is the source of all environmental destruction on planet Earth, think again. Prehistoric peoples in California also put a dent—albeit a much smaller one—in their natural world, according to new California Sea Grant research.

Anthropologist Terry Jones of Cal Poly San Luis Obispo has evidence suggesting prehistoric human hunters drove a flightless duck to extinction about 4,000 years ago. His theory is based on a 10,000-year history of shell and bone refuse, and other remnants of human settlement, excavated in the 1960s during the construction of the Diablo Canyon nuclear power plant in San Luis Obispo County. The refuse is part of what archeologists call a “kitchen midden”—a trash heap showing what people hunted and ate. The Chumash Indians are among the modern descendants of the coastal dwellers represented at the site.

That the flightless duck went extinct is not surprising or new. All the iconic Ice Age megafauna—mastodon, longhorn bison, giant ground sloth and mammoth—eventually went the way of the dinosaurs. These die offs, many believe, were caused by climate change—melting glaciers, flooding and intensified seasons that occurred about 10,000 years ago at the end of the Pleistocene. Prior to Jones’ Sea Grant research, researchers assumed the flightless duck *Chendytes* most likely met the same fate. The timing of the disappearance of *Chendytes* bones from archeological remains, however, suggests it was the expansion of our own species, *Homo sapiens*, and our increasing sophistication with tools and hunting that pushed the bird to the brink—not climate change.

## Project

Jones’ *Chendytes* discovery was an unexpected upshot of a broader Sea Grant project to: (1) evaluate coastal resource use by early prehistoric people as represented by faunal remains from the Diablo Canyon archaeological sites; and (2) evaluate effects of human exploitation on coastal resources, based on the trans-Holocene zooarchaeological record.

To accomplish these objectives, the researchers: (1) analyzed all bird, mammal and fish bones from Diablo Canyon archaeological sites CA-SLO-2 and CA-SLO-585; and (2) improved the Diablo Canyon chronology by obtaining a sequence of radiocarbon dates.

## Results

This research provides insights into the kinds and numbers of birds, mammals and fish exploited through the Holocene. For example, from the largest faunal assemblage of 10,605 fish bones, 6,973 were identified to the genus level or better. Of 13,517 bird and mammal bones, 2,694 were identified to the genus level or better.

Jones and colleagues have tentatively defined four periods of occupation at CA-SLO-2: 1) 8000-5700 cal B.C.; 2) 5000-3000 cal B.C.; 3) 300 cal B.C. - cal A.D. 1030; and 4) cal A.D. 1030-1500. (“Cal” means the dates have been calibrated to calendar years through radiocarbon dating.)

The researchers have also characterized relative abundances of animals through time. In the oldest remains, 42 percent of the bones are from deer; 20 percent from cottontail rabbits, 20 percent flightless duck (*Chendytes lawi*); and 8 percent sooty shearwater.

“This is a fascinating and totally unexpected mix,” Jones said. “Shellfish and fish were also important in the diet, particularly the former.”

(continued)

## California Sea Grant College Program

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While the dominance of deer, which continued through all subsequent occupations, suggests an emphasis on terrestrial hunting, the flightless ducks were almost certainly exploited with watercraft since this species must have used offshore rocks for nesting sites.”

Otter bones appear in the record during the Late Millingstone occupation (5000-3000 cal B.C.) making up only 4 percent of 419 bones. Deer represent 51 percent of the assemblage, followed by cottontail rabbits 16 percent, and flightless duck 12 percent. The decline in flightless duck bones continued into the next period of the site's occupation (300 cal B.C.– cal A.D. 1000), when the species eventually went extinct. With the disappearance of Chendytes, sea otter exploitation increased to 17 percent, the scientists reported. During the course of the Holocene, sea otter exploitation increased to 21 percent.

“Concurrent with the steady increase in sea otter bones is a steady increase in abalone,” Jones said. “It would appear that exploitation of the sea otter brought with it greater availability of abalone.

## Applications

Patricia Lambert, a professor of anthropology at Utah State University, familiar with Jones' research said: “We don't really have a good sense of what 'natural' is. Is 'natural' what it was like when Europeans appeared or when the first people arrived in California? If your goal is to try and bring an animal back, to what point in time do you want to bring it back? We assume there is a natural condition, but what is natural? Terry is grappling with that notion.

“By looking at a long sequence, you can look at what animals were there, and what relationship existed between humans and animals,” Lambert said. “I think this is very important for management since it gives people an idea of what their management goals should be. There have been human impacts on resources for thousands of years. This research establishes the antiquity of human exploitation of marine resources.”

## Presentation

Jones, Terry L., Judy Porcasi, and Ken Gobalet, 2006, Diablo Canyon Revisited: Preliminary Analysis of Trans-Holocene Faunal Remains from CA-SLO-2, San Luis Obispo, California. Paper presented at the Annual Meeting of the Society for California Archaeology, April 1, 2006, Ventura, CA, USA.

## Publication

Jones, T.L., R.T. Fitzgerald and J.F. Porcasi. The Cross Creek-Diablo Canyon Complex of South Central California: Mid-latitude Pacific Foragers at the Pleistocene-Holocene Boundary. J. North Pacific Prehistory. In press.

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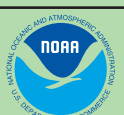


Terry Jones



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