

ART BY MAURICIO ANTON

Dire wolves and gray wolves fight over prey. Mauricio Anton depicts dire wolves with a reddish coat because of new discoveries made by scientists in 2021.



A research team at the Tar Pits works on carbon dating to reconstruct the history of the extinction of large mammals from the Last Ice Age. Scientists try to understand why those animals went extinct about 10,000 – 11,000 years ago. They look for the causes to narrow down the time interval of the extinction. They include factors like the decline of certain plants or animals and possible increase of fires. Those details might help reconstruct the story.

“We know pretty well the individual players, the individual species,” Balisi said. “So we try to piece them together into a big story of what was going on with the whole community, with the ecosystem.”

The question of extinction does not have only one answer. Scientists research multiple ideas on how Pleistocene megafauna went extinct.

“The main culprits that we think of are humans and climate,” Balisi said. “And that’s not just based on [findings at] the Tar Pits but also based on other things that scientists have discovered around the continent, around the world. What we are finding at the Tar Pits now

is a more detailed answer to that question. It is probably still humans, probably still climate, but now we are finding that there might be fire involved as well.”

California’s problems include fires, earthquakes, water availability and drought. They were problems during Pleistocene as well.

According to the “Botany Collection” article, when the climate in Southern California became cooler, the amount of carbon dioxide in the atmosphere decreased and that affected the photosynthesis process. Scientists found evidence of “severe stress from carbon starvation,” in a 14,000 year-old fossil tree and other plant fossils recovered from the tar deposits at La Brea.

Jessie George is a graduate student at UCLA who studies Ice Age plant material at the La Brea Tar Pits.

She says that carbon dating revealed that plants in the regions responded to changes in climate. Bishop pine fossils found in the tar deposits suggest that in the past, Los Angeles had different climate patterns, similar to the

ones where the bishop tree thrives today.

“We are seeing this sorting of species as climates shift,” George said. “We have bishop pine in the fossil collection. You see it north of Santa Barbara, in Baja California and on the Channel Islands, but not in Los Angeles, not in San Diego. ... They live in areas that get heavy summer fog. In L.A. we do not get marine fog now, so just looking at that species you can see one of the changes that happened in climate.”

If the plants of Pleistocene Los Angeles were starving, so were the herbivores that fed on them. And that could have affected the large predators as well. When prey was scarce, dire wolves chewed on bone more. Tooth breakage began to occur more frequently, based on recovered fossils.

“This could help to explain the dire wolf’s extinction—if dire wolves had become very specialized, then a change in their environment could be very disruptive,” Mitchell said. “In contrast, gray wolves may have been less specialized and better able to overcome the same environmental change.” *