CAVES & KARST

Karst and Cave Management and Research

About 850 square miles of the Tongass are underlain by carbonate bedrock. With the geologic and climatic setting of Southeastern Alaska, dramatic karst landscapes and their associated extensive cave systems have formed. The karstlands support some of the most productive forest sites. Much of the past timber harvest has been focused on these areas. With the passing of the Federal Cave Resources Protection Act of 1988, subsequent Forest Service regulations, and development of the Tongass Forest Plan Karst and Cave Standards and Guidelines, inventory of the karstlands has begun.

During inventory within the caves, bone deposits were discovered. Researchers sampled deposits in caves on Prince of Wales Island and will be continuing paleontological, archeological, and palynological studies during summer 1999 to learn more about the past history and climates of southeastern Alaska.

Background

Before the first formal cave exploration in southern Southeast Alaska in 1987, little was known about the prehistory and historic ecology of the region. Bone and soil deposits within the caves shed light on the history of the region. The mineral deposits coating the walls of some caves hold a wealth of long-term historic ecological data including vegetation in the area and climatic changes over thousands of years.

Current situation

During the summer, scientists from the University of South Dakota, Smithsonian, Denver Museum of Natural History, and U.S. Geological Survey excavated within and adjacent to specific caves. This research complements ongoing research dealing with glaciers, paleontology (study of fossil remains), and palynology (study of pollen).

The caves have yielded animal bones that date to more than 45,500 years old. The bone deposits provide a preliminary timeline for the occurrence of island mammals. Mammals extinct to the area have been recovered including the brown bear, red fox, arctic fox, caribou, saiga antelope, ring seal, marmot, and possibly wolverine.

Archeologists will continue excavations on a human occupation site dating possibly to 10,500 years before the present. Laboratory analysis indicates the occupants were fully adapted to a marine subsistence lifestyle. This is a significant finding given the early date of this site.

Scientists core bogs, peatlands and lakes to find a pollen record before and during the last glacial period. The combined efforts will slowly piece together the glacial history and paleoecology of southern Southeast Alaska for the first time.

Results

More complete findings of Dr. Timothy Heaton's research are available at http://www.usd.edu/esci/alaska/.

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