



Stone Artifacts & Prehistoric Human Migration

The Question: What can scientists learn about the large collection of stone artifacts found in Rocky Mountain National Park (RMNP), including projectile points, tools, and scattered flakes?

Archeologists, historians, and anthropologists have always been interested in how and when man migrated from place to place. Scientists can compare stone artifacts with the original source of those materials to learn about the timing of migration and occupation of the RMNP area. Were the materials indigenous or exotic? Did the materials change with time? Answers to these questions will provide information on historic migration and occupation patterns.

The Project: Study the source material of stone artifacts and correlated these with human migration patterns.

The University of Northern Colorado's (UNC) Anthropology Laboratory houses a large stone comparative source collection from quarry sites located in Colorado, Wyoming, Nebraska, New Mexico, and Texas. During the five-year Systematic Archeological Inventory Program (SAIP) with RMNP, the university collected 417 stone artifacts in the park for comparison with this database.

UNC researchers conducted laboratory analyses through macroscopic comparison with the source collection and microscopic analyses, including ultraviolet fluorescence studies of tool material chert, chalcedony, quartzite, jaspers, and petrified wood. Geochemical analysis of three obsidian artifacts allowed precise geographic identification of their volcanic sources. UNC researchers also used computer mapping techniques to determine patterns of artifact distributions, particularly of time and culture identifiable projectile points, within the park's environmental zones revealing important information about the history of cultural adaptations in park landscapes through time.



Clovis projectile point found in park.

The Results: The stone tool materials of early inhabitants were from exotic locations, though local stone sources were used more as people became adapted to the mountain environment. Scientists also believe that known climate warming during this period resulted in increased habitability of the region.

Comparison of projectile point locations, high site numbers, and their environmental zones indicate heavy use of the alpine region during an Early Archaic (6,500-4,500 BP, years before present) warm period. Warmer summers and longer growing seasons at high altitude encouraged larger numbers of game in alpine areas and help account for the high density of seasonal human occupations.

Tool materials found in RMNP from prehistoric times (11,000-400 BP) were obtained mainly (65-80%) from regional sources within 40 miles of the park. The local tool use pattern indicates limited seasonal migration into the park from nearby mountain valleys or the eastern Front Range foothills, suggesting a long-term history of residentially localized human occupations with short-distance seasonal migratory rounds between lower elevation (cold season) and upper elevation (warm season) environmental zones. Fewer artifacts came from more distant stone sources through either trade or long-distance migrants to the park region. Surprisingly, three obsidian artifacts found in the park were brought from distant locations: Teton Pass, Wyoming; Wild Horse Canyon, Utah; and Cerro Del Medio, New Mexico. Source analysis of stone artifacts is an important technique for unveiling park history.



Illustration of prehistoric Trail Ridge game drive.