

NPS Cultural Landscapes

Climate Change Case Study

Secrets of the Frozen North: New Discoveries Uncovered from Melting Glaciers in Wrangell-St. Elias National Park and Preserve

As a result of climate change, many glaciers around the world are melting and revealing historic artifacts from around the world. Alaska national parks are located in areas where glaciers are prominent, and are important regions for archeological and paleo-ecological research associated with climate change. Wrangell-St. Elias National Park and Preserve, the largest national park in the United States, is the most extensively glaciated area in the nation; its ice-covered portion encompasses 7,726 square miles. Historically, a few of these glaciers were used as hunting grounds by ancient peoples and provided transportation routes for prospectors during the first quarter of the 20th century.

In more recent years, research funding and logistic support from the National Science Foundation's Office of Polar Programs facilitated the development of a GIS model to guide archeological surveys on glaciers and ice patches in the park (Dixon et al. 2005). In the summer of 2001 and 2003, several archeological surveys were conducted resulting in spectacular findings.

Five prehistoric sites were identified that contained artifacts ranging in age from 370 to 2880 before present. Prehistoric weapons, a basket and organic materials that were preserved and frozen in ice for thousands of years were recovered. Several arrowheads were also among these artifacts. One arrowhead was armed with a metal point manufactured from a native copper nugget (Fig. 1) that is similar to other arrowheads reported from Interior Alaska and the Copper River region, and at least one arrowhead with ownership marks (the "signature" of the individual who made or owned the arrow) was preserved (Dixon et al. 1985). Wooden arrow shafts and fragments of what appears to be atlatl darts (lightweight spears propelled with the use of a spear thrower called an "atlatl") were also recovered (Fig. 2). In addition, the remnant of a 650-year-old birch bark basket was recovered from the edge of a melting ice patch (Fig. 3).

Six historic sites, all likely dating from the 1913 Chisana gold rush, were discovered lying directly on glacial ice. Historic artifacts, such as horse hoof trimmings and horseshoe nails (evidence of a horse being shod on the glacier), a frying pan, a bucket, and a variety of cut wood and metal objects were found at these sites. One of the most notable features observed, was the remains of a roadhouse that provisioned and sheltered travelers traversing a glacier during the 1913 Chisana gold rush (Bleakley 1996).

These discoveries provide new insights into cultural development and highlight the exceptional craftsmanship, genius and resourcefulness of early people in Alaska. It is possible that these sites could largely disappear in the near future as the glaciers and ice patches continue to melt. Consequently, it is incredibly important to document, collect, study and preserve the artifacts these ephemeral sites contain, before they are lost forever.

The field research in Wrangell-St. Elias National Park and Preserve funded by the National Science Foundation ended in 2012; however partnerships between scientists and the Ahtna Heritage Foundation continue. By collaborating local knowledge and utilizing scientific research, the history of individual glaciers and ice patches can be more thoroughly evaluated to enhance the understanding of these magnificent features and their importance to people.

Sources:

Bleakley, Geoffrey T. *A History of the Chisana Mining District, Alaska, 1890-1990*. (Anchorage, Alaska: National Park Service, 1996).

Dixon, E. James, Craig M. Lee, William F. Manley, Ruth Ann Warden, and William D. Harrison. "The Frozen Past of Wrangell-St. Elias National Park and Preserve", *Alaska Park Science*. (Anchorage, Alaska: National Park Service, 2007, vol. 6, issue 1), pp. 25-29.

Dixon, E. James, William F. Manley, and Craig M. Lee. "*The Emerging Archaeology of Glaciers and Ice Patches: Examples from Alaska's Wrangell-St. Elias National Park and Preserve.*" *American Antiquity*. (Society for American Anthropology, 2005, vol. 70, issue 1) pp.129-43.

Dixon, E. James. "Cultural Chronology of Central Interior Alaska." *American Antiquity*. (Society for American Anthropology, 1985, vol. 22, issue 1) pp. 47-66.



Fig. 1: Projectile points made from copper nuggets were used to arm antler projectile points (W. Manley, NPS, 2007).



Fig. 2: Close-up of sinew lashing used to secure an antler projectile point to an arrow shaft (W. Manley, NPS, 2007).



Fig. 3: The birch bark basket, with a detail of the stitching holes (W. Manley, NPS, 2007).



Fig. 4: Documenting materials melting from an ice patch in Wrangell-St. Elias NPP (W. Manley, NPS, 2007).