

WHAT ONCE WAS LOST, NOW IS FOUND

FROZEN IN TIME

By Craig M. Lee; with contributions by Robert L. Kelly, Marcia Peterson, Matt Stirn, Rachel Reckin, Rebecca Sgouros, and Lawrence C. Todd

Our changing climate is causing perennial ice patches at high latitudes and high elevations to melt, resulting in the release of ancient paleobiological and archaeological materials that, until recently, were in cryogenic-like stasis. In North America, the field of “ice patch archaeology” refers to the study of anthropogenic materials recovered in association with these retreating snow and ice patches. Researchers in Europe frequently refer to this field as “glacial archaeology,” in part, because of archaeological finds in glaciated passes. The stable ice in these features exhibits little internal deformation or movement and can preserve otherwise perishable materials for millennia. The oldest artifact recovered from an ice patch anywhere in the world, is a 10,300-year-old atlatl dart, recovered in the eastern Greater Yellowstone Area of Wyoming.

Ice patches in the GYA. Photo: Craig Lee/INSTAAR/MSU



Detail of 10,300-year-old foreshaft showing ownership marks. Photo: Tara L. Hornung/INSTAAR

Discoveries at numerous locations around the world demonstrate that ice patches were attractive to animals and their human predators, and thus have the potential to provide a record of human hunting and other activities. In northwestern North America, researchers have conducted systematic investigations of ice patches in the Yukon Territory and Northwest Territories as well as in Alaska, including Denali, Gates of the Arctic, Katmai, Lake Clark and Wrangell-St. Elias national parks, the Chugach National Forest and the Tangle Lakes area south of the Alaska Range. In the conterminous United States, scientific investigations have occurred in the Colorado Front Range, including Rocky Mountain National Park and the Arapahoe-Roosevelt National Forest, Olympic National Park in Oregon, Glacier National Park in Montana, and in the Greater Yellowstone Area (GYA) of Wyoming, Montana and Idaho, including the Shoshone, Bridger-Teton, Caribou-Targhee, and Custer Gallatin national forests as well as in Grand Teton and Yellowstone national parks. Sadly, there are several instances of looting known as well.

The exposure of ancient archaeological and paleobiological materials by the retreat of moisture-starved and heat-ravaged ice patches in the GYA is a tangible indication of climate change in the Rocky Mountain West. The impacts transcend the divide between the cultural and natural world.

Chipped stone projectile points, bows, dart and arrow foreshafts and shafts, and the remains of prey species—certainly bighorn sheep (*Ovis canadensis*) and probably bison (*Bison bison*) as well—have been recovered in direct association with melting Greater



Complete bighorn sheep skull from a GYA ice patch. Photo: Craig Lee/INSTAAR



Historic wallet melting from an ice patch in Grand Teton National Park. Based on the preserved contents of the wallet, it appears to have been lost by a fourteen-year old boy—Gordon Stokes—in 1947 while he was visiting the local Boy Scout camp. Conservation: Spicer Art Conservation. Photo: Marcia Peterson, Office of the Wyoming State Archaeologist

Yellowstone Area ice patches. The prey species illustrate that hunting was a primary activity at these features; however, other types of organic artifacts recovered at these locations, hint at a broader use of the alpine. While few in number, perishable ice patch artifacts enhance evidence provided by the abundant, durable stone tools being identified and documented in alpine archaeological landscapes writ large. These records seem to reflect repeated occupations by family units—or still larger groups—taking advantage of a seasonally enriched biome. The archaeological record demonstrates repeated use of ice patches by Native Americans for millennia, suggesting they were an important element of their sociocultural and geographic landscape.

Humans’ role in the alpine ecosystem was not necessarily as the apex predator, but likely as an “apex participant.” The mountains were a sacred place to the Native peoples, and the heritage of Wyoming’s tribes is inexorably tied to the Rockies through story, song, traditional ecological knowledge, and ceremony. The Rocky Mountains are more than just an ecosystem; their archaeological record attests to an undeniable human attachment and they are resplendent with spiritual and emotional value.

In addition to drawing people in the pre-contact era, some ice patches were attractive into the historic period and doubtlessly into modern times. Since the contact period, people have continued to journey into the high mountains to experience their splendor and access their unique resources. As a result, archaeologists have recovered the remains of historic artifacts melting from ice patches as well.

Ice patches contain not only a record of human use of high altitudes, but also a record of changing climate. Since they can trap everything from tiny, wind-blown plant material to animal feces, to entire trees, they hold dateable materials that record changing patterns of land-use by animals and vegetation, including tree line. As such, they are a rapidly

Chronologically stratified ice recovered from ice cores provides context for archaeological and paleobiological materials exposed by current melting. Photo: Craig Lee/INSTAAR



disappearing record of high altitude environmental change, and global climate change.

As ice patches melt, the biological and cultural material they disgorge deteriorates rapidly. With only a handful of sites in North America under investigation, only a small window for research each year, and only a few ice-patch researchers to study them, archaeologists are struggling to keep up with the effects of climate change.



A pine bow being packed for transport. Photo: Lawrence C. Todd, GRSLE, Inc.

For additional information please access:

- www.frozenpasts.com (or on Facebook)
- Ice Patch Archaeology (video) www.vimeo.com/252583882
- Or... Craig M. Lee, Robert L. Kelly, Rachel Reckin, Ira Matt, and Pei-Lin Yu "Ice Patch Archaeology in Western North America." In *SAA Archaeological Record*. 14(2):15-19 via your local library.

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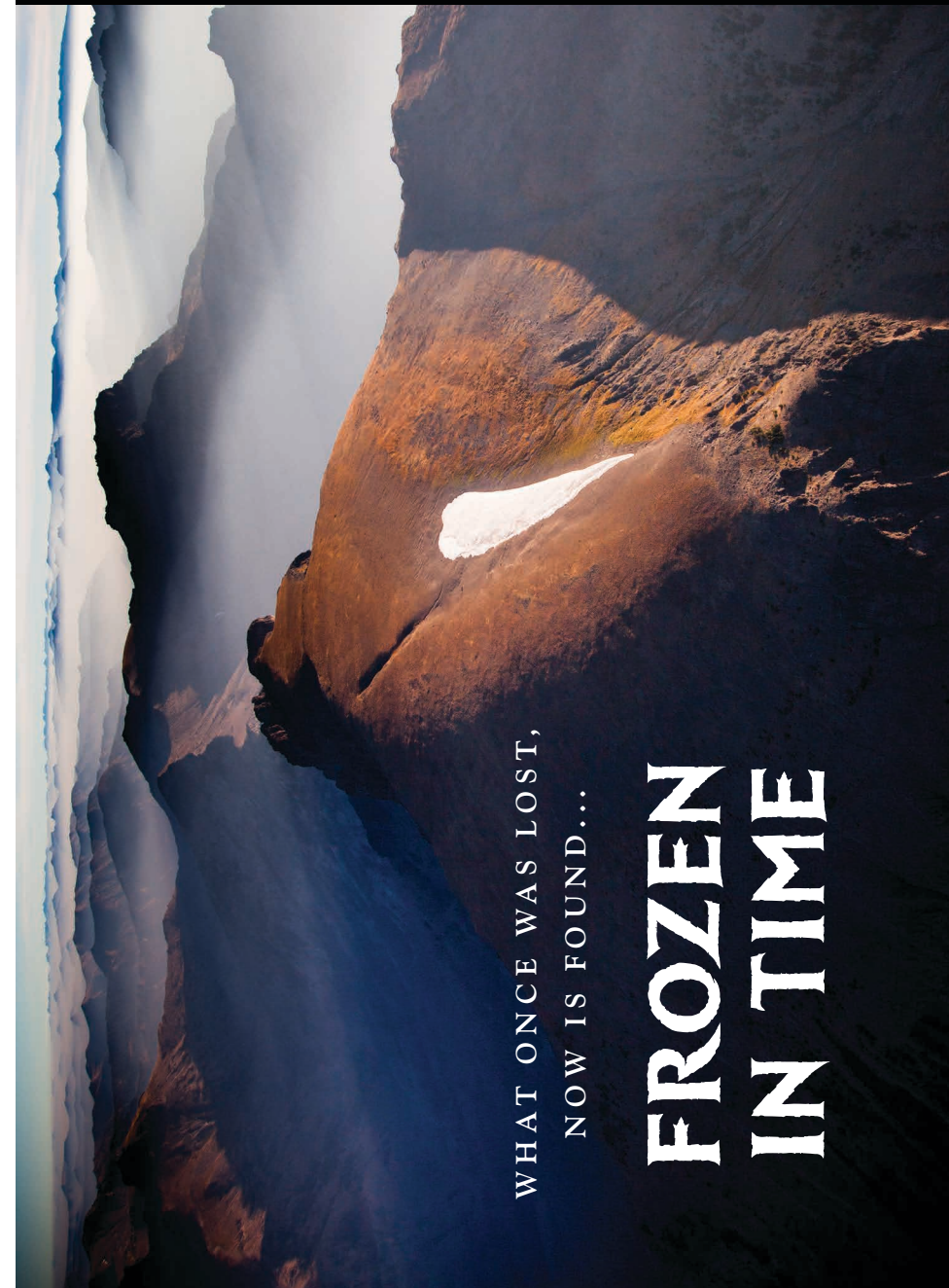
University of Colorado at Boulder—Institute of Arctic and Alpine Research (INSTAAR); Department of Sociology and Anthropology, Montana State University; Metcalf Archaeological Consultants, Inc.; GRSLE, Inc.; Custer Gallatin National Forest; Shoshone National Forest; Bridger-Teton National Forest; Mercyhurst University; Kestrel Aerial; Yellowstone National Park; Caribou-Targhee National Forest; Grand Teton National Park; Jackson History Museum; Bureau of Land Management—Billings Curation Center; Wyoming State Historic Preservation Office; Office of the Wyoming State Archaeologist; University of Wyoming Department of Anthropology; Region 1 U.S. Forest Service; Region 2 U.S. Forest Service; Region 4 U.S. Forest Service; Cody Institute of Western American Studies; Montana University System—Institute on Ecosystems.



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Ice patch photograph by Christopher Boyer, Kestrel Aerial Services; bows by Richard Collier, Wyoming Dept. of State Parks and Cultural Resources; basket by Craig M. Lee, INSTAAR/Billings Curation Center; foreshaft by Tara L. Hornung, INSTAAR; culturally modified wood by Matt Stirn. Graphic design by Mariko Design LLC/Elizabeth Ono Rahel.

For information about Wyoming Archaeology Awareness Month activities, visit our Web page: <http://wyoshpo.state.wy.us/AAmonth/Index.aspx>



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