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News about BLM's National System of Public Lands in Alaska

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Raven Bluff: An Archaeologist's Dream

Craig McCaa

Excavating a pit at the Raven Bluff site on the Kivalina River. Tarps protect the surrounding tundra until the pits are refilled.

The Mother Lode. The Big Kahuna. An Alaska archaeologist's dream site.

When BLM Central Yukon Field Office archaeologist Bill Hedman ponders such a find, his thoughts don't stop at a treasure trove of artifacts covering thousands of years of human history. His ideal site would also have thick soil deposition to help differentiate artifacts from different time periods. There'd be lots of bone, too, or other organic material for dating the artifacts. Oh, and add a nice breeze to keep the swarms of arctic mosquitoes down.

It's a long list, but Hedman thinks he's found just such a site next to the Kivalina River, a 60-mile-long river that begins in the DeLong Mountains of the western Brooks Range and flows southwest to Kivalina Lagoon in the Chukchi Sea. The site is approximately 100 air miles north of Kotzebue.

Hedman has christened the new site "Raven Bluff." According to Hedman, only a handful of sites this old have been found in northern Alaska. He's hoping Raven Bluff's unusually long record of human use will shed new light on the earliest inhabitants of North America.

A Deep Site

Hedman and a colleague discovered Raven Bluff in 2007 during the first year of a three-year archaeological survey and testing project centered on the Kivalina River. One evening a low, grassy knoll caught his attention.

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Alaska

Dream Dig Site

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"It looked really prominent and isolated out here, surrounded by mostly flat, mundane tundra with the river right up against it," he recalls.

"We got over there, climbed up onto the bluff, and just started finding [stone] flakes. They were everywhere!"

A few quick pits revealed that, unlike the other sites they'd seen, artifacts were not confined to the surface. Many more appeared to lay buried in the soil.

Hedman returned with more help in 2008. He and his crew dug five or six pits that summer. In all but one location, they were stopped close to the surface by frozen ground. At one pit, however, they dug deeper than a meter. The bottom of that pit contained abundant bone and tool-making debris in soil that was eventually dated at approximately 10,000 years old.

The type and age of artifacts in that single pit already pointed to a significant archeological find. But was the Raven Bluff site confined to a small area, or was there more to find elsewhere on the knoll?

To find out, Hedman returned to the site with another crew for two weeks last summer. Due to the warmer weather, the crew was able to dig deeper at a number of carefully surveyed locations across the knoll.

Craig McCaa

Volunteer Kris Hedman records soil layers in a pit excavated at Raven Bluff.

Craig McCaa

Aerial view of the Raven Bluff camp on the Kivalina River and, directly above it, the knoll that initially caught Bill Hedman's attention.

Layer by Layer

Standing next to a meter-deep pit on the knoll's crest, Hedman gazes down at the Kivalina River, which rushes out of the rugged DeLong Mountains behind him and flows past this year's camp, a jumble of yellow tents on a gravel bar, before braiding across a vast, tundra-covered plain.

"What we think is going on here is that we have a landform that's oriented perpendicular to the prevailing summer winds," Hedman says. "Summer is the season in which soils are deposited by wind. So we've got wind actually carrying [river] sediment up over the edge of this bluff and laying it down in different places across the landform."

"You've got material being buried quickly, so that when the next person comes along and makes a tool, there's already three centimeters of soil on the ground that they're depositing their tools on."

On the face of it, soil deposition wouldn't seem to hold much allure for archaeologists eager to find artifacts. In fact, digging it out of the way requires tiring shovel work. However, if the Raven Bluff site holds the significance that Hedman thinks it does, the site's steady accumulation of soil over hundreds and thousands of years may prove nearly as important as the rich collection of artifacts he's already finding.

That's because the frequent and thick buildup of soil helps establish the order in which artifacts were deposited at a site. This is especially true in Alaska, where the seasonal freeze-thaw cycle can move artifacts and other material out of sequence as they go up and down through the soil column.

The next and critical step—determining the age of soil layers and the artifacts found in them—requires recovering bone or other organic material, often charcoal, from the soil. These items can be analyzed

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Craig McCaa

Archaeologist Bill Hedman inspects a stone flake he found on the tundra near the Raven Bluff site.

Dream Dig Site— *continued from page 2*

with Carbon-14 dating. Here too, the Raven Bluff site is proving unusually rich.

That quickly became apparent to Steve Kuehn, an archaeologist with a research interest in animal bones. Kuehn traveled to the Raven Bluff site from the University of Illinois at Urbana-Champaign to volunteer on Hedman's crew last summer. He found the bone to be in surprisingly good condition for its age.

"Preservation of bone at this site was exceptional, especially for the North Slope," Kuehn says. "To get caribou bone that's potentially 10,000 years old…that's great!"

Kuehn and his fellow volunteer and colleague Kris Hedman, a University of Illinois anthropologist—and not coincidentally Bill Hedman's older sister—saw that material firsthand this summer as they meticulously excavated several deep pits and sifted the soil through screens, looking for the most minute flake or bone chip.

Craig McCaa

Kevan Cooper carefully sifts and inspects every bit of excavated soil for artifacts, pieces of bone and other items at the Raven Bluff site.

For Kris Hedman, Raven Bluff was a far cry from her usual urban sites, some of which are in sketchy areas where working after dark is dangerous. Above the Arctic Circle in July and August, neither darkness nor crime posed problems for her at Raven Bluff, although she and the rest of the crew faced cold and gusty winds, bears, mosquito swarms, and thick smoke from distant wildland fires. All of these Hedman took in stride.

Her only complaint? "My brother promised me an electric fence around my tent for bear protection!" she says with a laugh. (The bear fence instead protected the cooking and food storage tent.)

Her brother Bill is still awaiting results from laboratory analysis of artifacts found this summer even though early indications suggest that Raven Bluff and its thick layers of soil hold important information about a human presence in North America.

Raven Bluff indeed appears to be an archaeologist's dream site.

— Craig McCaa
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Resolved: Unauthorized Use Cases

Marnie Graham

BLM staff tear apart and remove a collapsed and gutted trailer left abandoned along an unnamed creek.

Imagine the work involved in removing more than 60 tons of metal, wood debris and trash left abandoned on federal public lands. That's what the Glennallen Field Office did this summer, as the office mitigated 77 cases of unauthorized use within the East Alaska planning area. Resolving the cases ensures that land titles can be conveyed free of encumbrances to the State of Alaska under the Alaska Statehood Act. A few cases involved unauthorized cabins, and the field office worked with the Alaska Department of Natural Resources on a case-by-case basis to determine options available to authorize existing cabins under state regulations. An additional 30 unauthorized sites in the planning area are slated for mitigation and removal during the summer of 2010.

The East Alaska Resource Management Plan covers 5.3 million acres managed by the Glennallen Field Office, interspersed among lands managed by Alaska Native regional and village corporations and the State of Alaska. The planning area is bisected by the Trans-Alaska Pipeline and includes two designated wild and scenic rivers, the Bering Glacier, and the Denali Highway.

— Marnie Graham
contributed to this story

Marnie Graham

BLM staff load metal scraps from collapsed trailer into an ATV to haul away.