

Ancient artifacts revealed as northern ice patches melt

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High in the Mackenzie Mountains, scientists are finding a treasure trove of ancient hunting tools being revealed as warming temperatures melt patches of ice that have been in place for thousands of years.

Tom Andrews, an archaeologist with the Prince of Wales Northern Heritage Centre in Yellowknife and lead researcher on the International Polar Year Ice Patch Study, is amazed at the implements being discovered by researchers.

"We're just like children opening Christmas presents. I kind of pinch myself," says Andrews.

Ice patches are accumulations of annual snow that, until recently, remained frozen all year. For millennia, caribou seeking relief from summer heat and insects have made their way to ice patches where they bed down until cooler temperatures prevail. Hunters noticed caribou were, in effect, marooned on these ice islands and took advantage.

"I'm never surprised at the brilliance of ancient hunters anymore. I feel stupid that we didn't find this sooner," says Andrews.

Ice patch [archeology](#) is a recent phenomenon that began in Yukon. In 1997, sheep hunters discovered a 4,300-year-old dart shaft in caribou dung that had become exposed as the ice receded. Scientists who investigated the site found layers of caribou dung buried between annual deposits of ice. They also discovered a repository of well-preserved artifacts.

Andrews first became aware of the importance of ice patches when word about the Yukon find started leaking out. "We began wondering if we had the same phenomenon here."

In 2000, he cobbled together funds to buy [satellite imagery](#) of specific areas in the Mackenzie

Mountains and began to examine ice patches in the region. Five years later, he had raised enough to support a four-hour helicopter ride to investigate two ice patches. The trip proved fruitful.

"Low and behold, we found a willow bow." That discovery led to a successful application for federal International Polar Year funds which have allowed an interdisciplinary team of researchers to explore eight ice patches for four years.

The results have been extraordinary. Andrews and his team have found 2400-year-old spear throwing tools, a 1000-year-old ground squirrel snare, and bows and arrows dating back 850 years. Biologists involved in the project are examining dung for plant remains, insect parts, pollen and caribou parasites. Others are studying DNA evidence to track the lineage and migration patterns of caribou. Andrews also works closely with the Shutaot'ine or Mountain Dene, drawing on their guiding experience and traditional knowledge.

"The implements are truly amazing. There are wooden arrows and dart shafts so fine you can't believe someone sat down with a stone and made them."

Andrews is currently in a race against time. His IPY funds have run out and he is keenly aware that each summer, the patches continue to melt. In fact, two of the eight original patches have already disappeared.

"We realize that the ice patches are continuing to melt and we have an ethical obligation to collect these artifacts as they are exposed," says Andrews. If left on the ground, exposed artifacts would be trampled by caribou or dissolved by the acidic soils. "In a year or two the artifacts would be gone."

Provided by Arctic Institute of North America

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