

Tundra Fires and Two Archaeological Sites in the Seward Peninsula, Alaska

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ABSTRACT. A 1977 tundra fire in the Seward Peninsula, Alaska removed the vegetation mats surrounding and covering several stone-lined pits and a cache pit near the east shore of Imuruk Lake. Bones and artifacts which had been covered by and incorporated into these vegetation mats were strikingly revealed *in situ*. None of these objects were found during a brief reconnaissance of these sites by the author and others in 1973. These observations supplement the original interpretation of the sites and suggest benefits from locating and examining archeological sites in areas of relatively recent tundra fire.

INTRODUCTION

During a 1973 biological survey of the proposed Bering Land Bridge National Preserve in the Seward Peninsula, Alaska, several archaeological sites were found and examined near the east shore of Imuruk Lake (Melchoir and Bennett, 1974). As the botanist for this survey, I (CHR) visited these sites, which included five stone-lined pits or depressions on the top of a rocky knoll 2 km east of and 90 m above Imuruk Lake, and a cache pit dug into an old shoreline bluff just above the sandy beach of Granite Bay. The stone-lined pits were conspicuous, as their margins were outlined by stones projecting above the surrounding boulders. Low willow shrubs bordered the pits and had grown into some of them, while mats of avens (*Dryas* sp.) and various cushion plants covered much of the surrounding well-drained ground. No test pits were dug in these stone depressions, but several hours were spent searching the ground surface within and surrounding them without finding any bones or artifacts. Melchoir and Bennett (1974) believe that the stone pits are the remains of dwellings since no geologic process is known that is likely to have produced such a structure. No animal remains or artifacts were found in the cache pit, even though we removed the overburden in the pit to the depth of frozen ground. High centered polygons with sedge tussock-dwarf-shrub tundra covered the flat bench immediately above the cache pit and no artifacts were found there either. Without excavation it was not possible to determine more about these sites.

During the summer of 1977, warm, dry weather followed by lightning storms resulted in widespread tundra fires in northwestern Alaska, and in particular on the Seward Peninsula. One fire burned about 958 km² over a large area south of Deering and north of Imuruk Lake between the Inmachuk and Kugruk rivers (Fig. 1). This same fire burned up to the water's edge along the east shore of Imuruk Lake to the site of the 1973 biological survey base camp.

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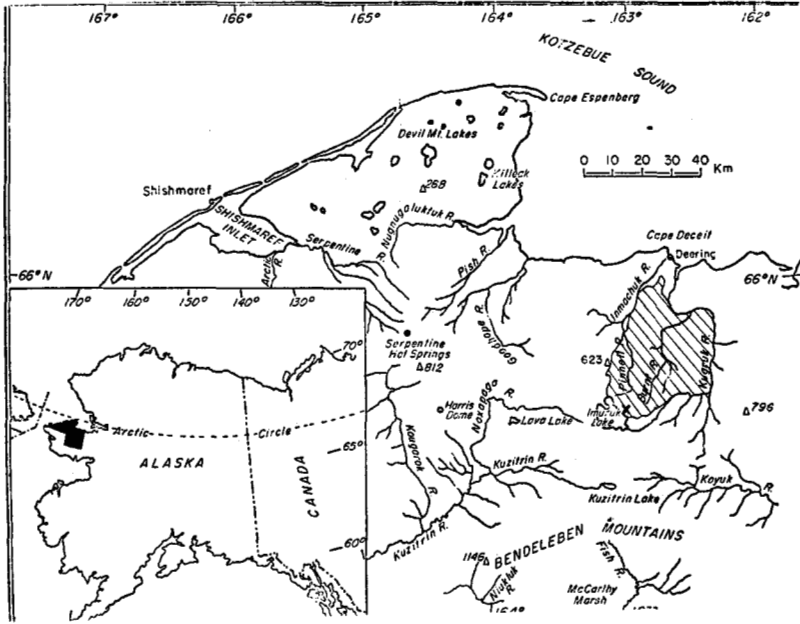


FIG. 1. Location of the study area in the proposed Bering Land Bridge National Preserve (inset map); archaeological sites on the east shore of Imuruk Lake (X) and the adjacent area burned by a 1977 tundra fire (hachured area).

METHODS

In July 1978, we returned to this camp site with the intent of comparing pre- and post-fire vegetation and soils in this area. Although the emphasis of this research was the effects of tundra fires on vegetation, soils and post-fire recovery, we were able to revisit the archaeological sites described above and thereby observe the effects of the fire on these sites.

RESULTS

The vegetation mat that covered the ground around the stone-lined pits on top of the knoll had burned during the 1977 fires. Although these mats consisted of a thin and broken layer of matted dwarf shrubs, cushion plants and lichens over a stony soil, enough organic fuel was apparently present to allow complete burning of large patches (Fig. 2). The fire also burned the bordering willows and into the bottom of one stone-lined pit. Where the fire had burned off the vegetation mat in the vicinity of these pits, the ground was littered with large numbers of unburned bones and bone fragments visible in Figure 3. Most of the bone fragments appeared to be from caribou leg bones, whereas some whole rib and jaw bones were found beneath large rocks previously covered by vegetation. The only object found in the burned areas which could possibly be an artifact was a flat piece of white quartz with sharpened edges (scraper?). The above objects were not visible during our 1973 visit to these stone-lined pits.

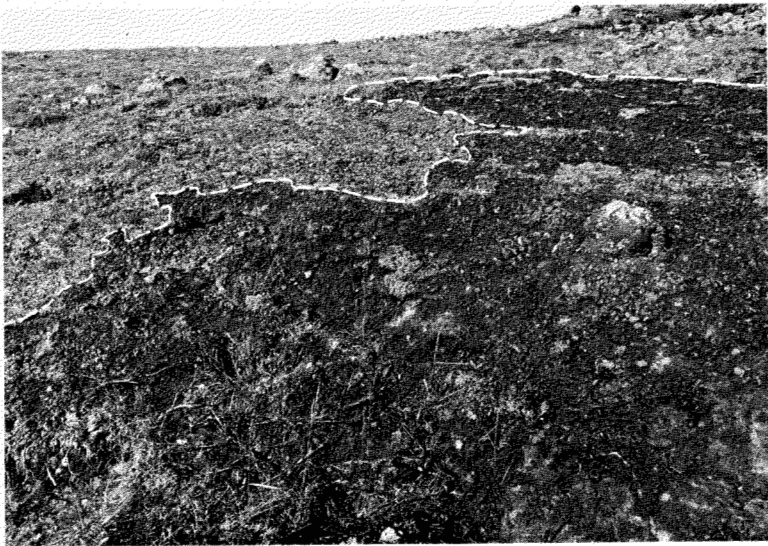


FIG. 2. Dry, rocky tundra on a knoll east of Imuruk Lake with darker patches of burned vegetation (outlined by dashed line - - -) in the lower right. Stone-lined pits are on the hill top near the upper right hand corner.

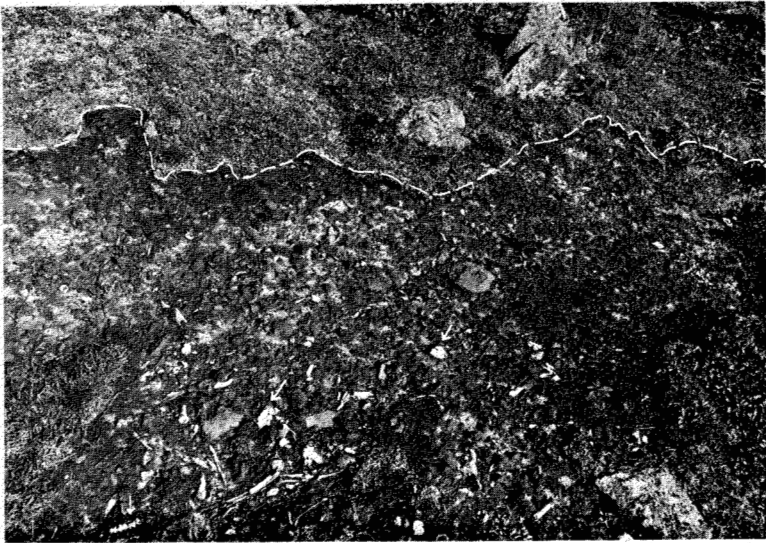


FIG. 3. Close-up of burned (lower foreground) and unburned (separated by dashed line - - -) tundra surface showing abundant bone fragments (indicated by arrows) uncovered by the fire.

The 1977 tundra fire had also burned the dwarf shrubs and tussock sides which covered the flat bench just above the cache pit dug into the shoreline bluff along Granite Bay. Here, we found an *ulu* (Eskimo woman's knife) with a slightly charred wooden handle and rusted steel blade, a rusted 1 m length of

stove pipe, and a rusted and pitted metal bowl. Although these objects could have been placed here after our 1973 visit, their deteriorating condition suggests that they were there then but hidden by the covering vegetation. Their position immediately above the cache pit also suggests some association with it.

DISCUSSION AND CONCLUSIONS

A 1977 tundra fire in the Seward Peninsula removed the vegetation mats surrounding and covering two archaeological sites on the east shore of Imuruk Lake. Bones and artifacts, which had been covered by and incorporated into these vegetation mats, were strikingly revealed *in situ*. None of these objects were visible or could be found during brief reconnaissance of these sites in 1973 before the tundra fires. Our post-tundra fire visit to these sites hence supplied new information concerning these pit structures. Although interpretation is beyond the expertise of the authors and the scope of this paper, we suggest that the post-fire observations of these Imuruk Lake sites modifies the original interpretation of these sites; the finding of an *ulu*, metal stovepipe and bowl adjacent to the cache pit suggest a fairly recent origin or use of this pit. The abundance of animal bones in the vicinity of the stone-lined pits strengthens the original argument that these were dwellings.

Tundra fires appear to be an effective and valuable archaeological aid which allows quick reconnaissance of an area to locate potential sites of interest. By removing the tundra vegetation mat, fire performs a type of excavation which may reveal artifacts and/or bones. We wonder whether the same degree of excavating precision, even if feasible, could be achieved by hand removal of the vegetative overburden. Apparently in the cases reviewed here the tundra fire never burned hot enough at the level of the bones and artifacts to destroy them. This would be the case particularly on drier sites where the organic mat is thin. We suggest that arctic archaeologists make an effort to locate and examine archaeological sites in areas of relatively recent tundra fires.

ACKNOWLEDGEMENTS

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