OPTIONAL FORM NO. 10
MAY 1962 EDITION
GSA FPMR (41 CFR) 101-11.6

UNITED STATES GOVERNMENT

Memorandum

FWCB
1468 / 1468 / 1469 / 1490

(W&SRS)

TO : Assistant Director Eastman

DATE: May 30, 1973

FROM : Alaska Task Force Leader

For your review & comment

SUBJECT: Tinayguk Wild and Scenic River Report.

Enclosed are two copies of a preliminary draft of Chapters IV and V of the subject report. A copy of this report has been provided to NWRO and BLM, BSF&W, NPS and FS planning teams in Anchorage. Chapter IV will be distributed to study team participants.

It is emphasized that the conclusions and recommendations are based upon a single aerial examination of June 14, 1972, and upon office review of available information. On-site field examination is scheduled for this summer.

Following field work, the preliminary draft will be revised as appropriate and the remaining portions of the report completed.

Jules V. Tileston

2 Enclosures

cc: WASO/Fred Strack

2010-106

TINAYGUK RIVER, ALASKA

A Wild and Scenic River Analysis

THIS REPORT WAS PREPARED PURSUANT TO PUBLIC LAW 90-542, THE WILD AND SCENIC RIVERS ACT. PUBLICATION OF THE FINDINGS AND RECOMMENDATIONS HEREIN SHOULD NOT BE CONSTRUED AS REPRESENTING EITHER THE APPROVAL OR DISAPPROVAL OF THE SECRETARY OF THE INTERIOR. THE PURPOSE OF THE REPORT IS TO PROVIDE INFORMATION AND ALTERNATIVES FOR FURTHER CONSIDERATION BY THE BUREAU OF OUTDOOR RECREATION, THE SECRETARY OF THE INTERIOR, AND OTHER FEDERAL AGENCIES.

Bureau of Outdoor Recreation
Alaska Task Force

PRELIMINARY DRAFT---
NOT FOR PUBLIC DISTRIBUTION OR PUBLIC USE
---SUBJECT TO REVISION

V. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The Tinayguk River meets the criteria for inclusion in the National Wild and Scenic Rivers System in that:

- The river is free-flowing
- The river and its immediate environment possess outstandingly remarkable values
- There is sufficient volume of water to permit full enjoyment of these values.
- The river is of sufficient length to provide a meaningful high quality recreational experience.
- Water quality is excellent
- The river and its immediate environment are capable of being managed to protect and interpret special values and protect the user.

The special values and resources of the Tinayguk River include the following:

- The 44 mile long river and its immediate environment are pristine and untouched in character. No habitation, lumbering, mining, or other development is presently taking place in the river area.
- Located amid the Endicott Mountains of the Central Brooks Range, the scenic qualities of the Tinayguk River valley are exceptional. Glacial features, rugged mountains

and a variety of rock and vegetation patterns and colors provide high aesthetic values.

- The river is exceptional for whitewater river floating and adjacent lands offer outstanding hiking opportunities.
- Big game animals, including grizzly bear and Dall sheep, are abundant in the river area.
- The wide variety of other vegetation types found along the river offers outstanding opportunities for scientific study.
- Aircraft presently is the only practical means of access to the river area.
- The entire river is presently owned by the federal government and managed by the Bureau of Land Management. A block of land surrounding the upper 30 miles is withdrawn under Section (d)(2) of ANCSA. The lower 14 miles is withdrawn under Section (d)(1) of ANCSA.
- No water resource projects have taken place or are proposed for the river.
- No potential for mining or lumbering development has been identified.
- Some subsistence hunting and trapping uses by Native peoples is taking place along the river.

Recommendations

- It is recommended that the entire 44 miles of the Tinayguk River be included in the National Wild and Scenic River System by Congress.

- It is recommended that the river segment be managed by the federal agency designated the manager of the adjacent lands.
- It is recommended that the river segment be classified as a "wild river area" as defined in Section 2(b)(1) of the Wild and Scenic Rivers Act:

  > "Wild River areas--those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines, essentially primitive and waters unpolluted. These represent vestiges of primitive America."

- It is recommended that boundaries of the wild river area be from the headwaters in T. 36 N., R. 16 W.., (Fairbanks Meridain), to its confluence with the North Fork in T. 32 N., R. 16 W. (Fairbanks Meridian). Precise lateral boundaries should be determined by the land manager within one year of inclusion of the Wind River segment in the national system by Congress. In general, lateral boundaries should not exceed an average of 1 mile to either side of the river.
- It is recommended that approximately 50,000 acres of the immediate river environment be included in the National System.
- Should all or a substantial portion of the recommended Tinayguk Wild River area be included in a component of the National Park System under the management of the

National Park Service, it is recommended that separate legislation to include the river in the National Wild and Scenic Rivers System not be pursued.

It is recommended that, subject to valid existing rights, the minerals in Federal lands which are made part of this wild river area be withdrawn from all forms of appropriation under the mining laws and from operation of the mineral leasing laws. Minerals (including oil and gas) have not been identified within the immediate river environment in commercially exploitable amounts. However, even small "try-your-luck" prospecting and extraction activities could seriously detract from the existing primitive values of the river environment.

It is recommended that any traditional Native subsistence uses of the river and its surroundings be protected by administering agency in order to help preserve the cultural heritage and lifestyle of local inhabitants.

In the course of this study it has become evident that the North Fork of the Koyukuk possesses outstandingly remarkable values similar, although distinct, from those attributed to the Tinayguk. In addition to the exceptional scenic qualities associated with the "Gates of the Arctic" straddling the North Fork, recreational values

are outstanding. Floatplane access and challenging whitewater contribute to the excellent wilderness floating potential of the river. It is recommended that the North Fork of the Koyukuk be given immediate study by the designated land manager(s) of lands adjacent the river for potential inclusion in the National Wild and Scenic Rivers System.

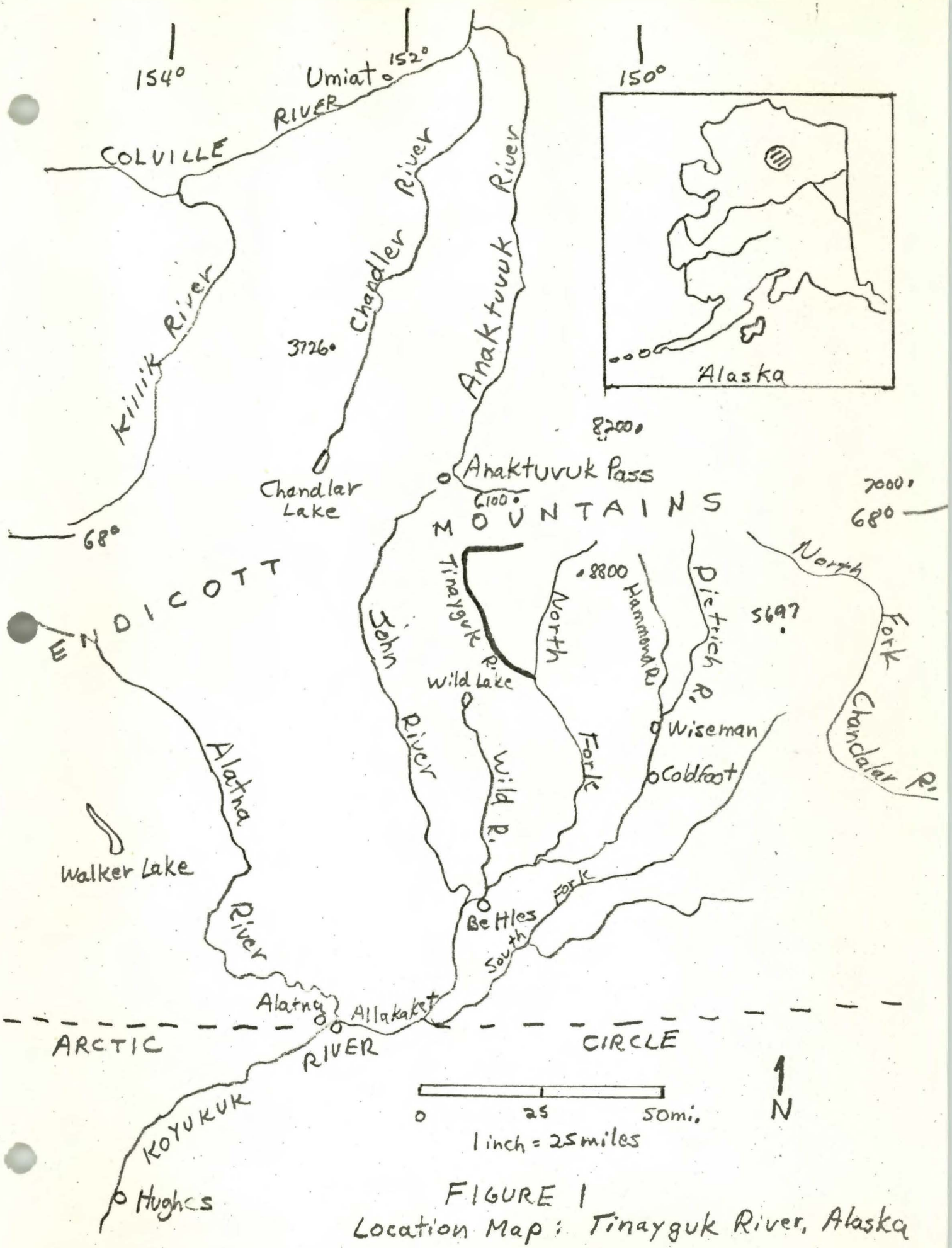

FIGURE 1
Location Map: Tinayguk River, Alaska

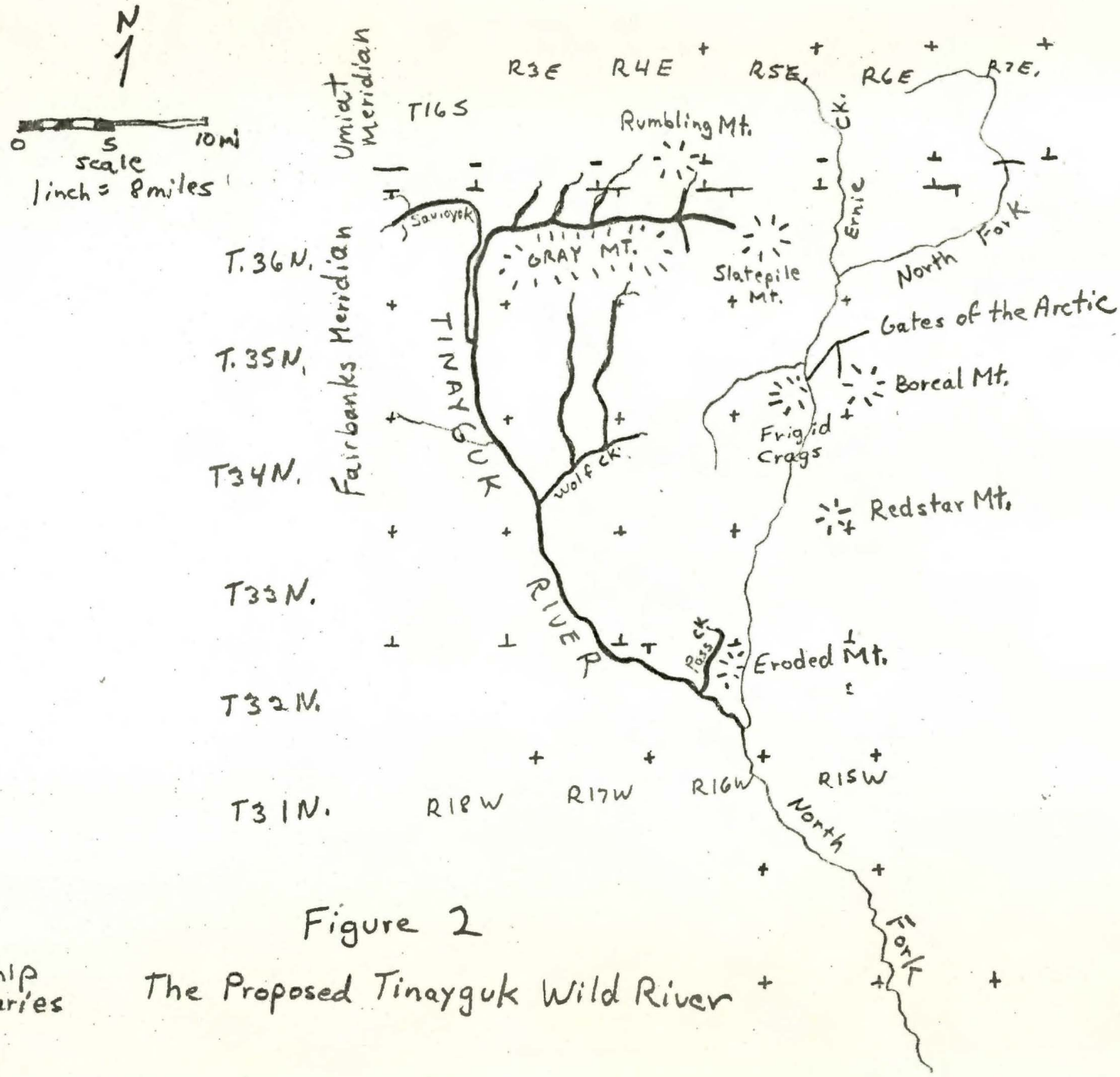

Figure 2

The Proposed Tinayguk Wild River

IV. DESCRIPTION AND ANALYSIS

The River and its Setting

> "The greatest remaining wilderness in North American, and perhaps in the world, is the Brooks Range which stretches some six hundred miles across arctic Alaska...The great expanse of mountain country with peaks sculptured by wind and water and ice, high cirques and hanging glaciers, waterfalls and precipices, steep-sided glacial valleys with untamed rivers, northland wildlife, and plants ranging from lichens to sedges to spruce, all added to a wild magnificence and untrammelled beauty not altered by man since the dawn of time." (George Marshall, Introduction to the Second Edition of Alaska Wilderness by Robert Marshall, 1970)

The unique wilderness environment of the Brooks Range is perhaps best characterized in the Endicott Mountains of the Central Brooks Range. The Tinayguk River lies in the heart of these mountains near the famed "Gates of the Arctic" on the North Fork of the Koyukuk.

The Tinayguk (also called the Savioyak by the Eskimo people of Anaktuvuk Pass) rises against the south slope of the Arctic Divide and flows first west and then south for 44 miles to its confluence with the North Fork of the Koyukuk River, a tributary of the Yukon River. The river is located approximately 80 air miles north of Bettles, Alaska and 230 miles north of Fairbanks, Alaska. To the north and in the Arctic Ocean drainage (the North Slope) lies the inland Eskimo village of Anaktuvuk Pass approximately 20 air miles from the headwaters of the Tinayguk.

The entire river is under study from its headwaters in T. 36 N., R. 16 W. (Fairbanks Meridian) to its confluence with the North Fork in T. 32 N., R. 16 W. (Fairbanks Meridian). The confluence lies approximately 20 miles downstream from Frigid Crags and Boreal Mountain, the "Gates of the Arctic" as named by Robert Marshall in 1929 on his explorations up the North Fork.

The topography of the river area is almost exclusively mountainous. The Tinayguk flows through a wide U-shaped glacial valley averaging two miles across. In contrast to the relative flatness of the valley floor, sheer slopes and mountain peaks tower above the river to either side. Relief is great with elevation differences between the valley floor and the surrounding peaks averaging 2500-3000 feet. Tributaries are small in terms of water volume, but intersecting streams are often accompanied by extremely broad and deep intersecting valleys. These old routes of recently receeding glaciers expand vistas from the river tremendously and heighten the aesthetic qualities of the topography.

The Tinayguk draws its initial waters from the melting snows of several 6000-7000 foot peaks of the Endicott Arctic Divide. One of the most prominent of these is Slatepile Mountain named by Robert Marshall after his ascent in 1929:

> "The view from the summit was the finest yet. The hour and twenty mintues I spent on the top of Slatepile were easily worth the entire journey to Alaska. In

every direction rose mountains higher than mine. I seemed to be on a pedastal in the center of a great towering amphitheater with precipitous and lofty walls. There was variety as well as grandeur..." (Robert Marshall, Alaska Wilderness)

In contrast to all other rivers draining to the south in the Central Brooks Range, the Tinayguk parallels the east-west strike of the Endicott Mountains in its upper reaches. For over 15 miles the river flows west against the looming craggy peaks of the Arctic Divide.

The river begins forming at 3000 feet in elevation. The confluence is slightly less than 1200 feet in elevation resulting in an average gradient of over 40 feet per mile. However, over the first 12 miles, the river drops 1000 feet--an average gradient of over 80 feet per mile. The gradient over the 32 miles downstream is more uniform, averaging 25 feet per mile. The current is swift over much of the river's length, often exceeding 6 miles per hour.

A spruce forest tongue protrudes up the valley about half the river's length. From the confluence area where the forest is thick and of moderate size, trees become progressively smaller and sparser as one proceeds up the river valley. Finally, dwarf spruce and willow thickets merge into the sweeping tundra of the upper river landscape.

The Tinayguk River is a nonglacial river with very clear waters. Becasue the river flows over old glacial till and because of active erosion in adjacent mountain areas, spring

run-offs and heavy summer rains can temporarily cause heavy amounts of sediment in the river, thus lessening the transparency of the waters. The bottom is generally gravelly to stoney in character. Several large rapids exist in the extreme headwaters and occassional boulders and rocks cause intermittant "whitewater" over much of the river's length. No falls exist along the river.

In the upper reaches the river averages 10-15 yards wide with depths of less than a foot. Near its confluence the river averages 20-30 yards wide with depths of 1-2 feet. The river generally flows in a single channel and meanders only slightly over much of its length.

The river is relatively small in comparison to other Alaskan rivers and other rivers in the Brooks Range. It drains an area of less than 350 square miles. The largest tributary, Wolf Creek, joins the Tinayguk from the east roughly 20 miles from the North Fork confluence. At its confluence Wolf Creek is approximately ___ yards wide and ___ feet deep. Another tributary of slightly less size, the Savioyak (as named by U.S.G.S.) joins the river roughly 18 miles from its headwaters.

No stream flow characteristics have been measured, but maximum discharge of the river is usually reached after spring break-up in mid to late May and also sometimes after heavy summer showers. With the light rainfall of the area and with a landscape sealed by permafrost, base flow rates are low in proportion to the size of the drainage area.

However, because the permafrost prevents water absorption, flooding is common. The flooding, eroding, and silt carrying capacities of arctic rivers have been estimated to be nearly four times as great as those experienced in temperate areas.

Water temperatures range from near 32° F. during the winter to around 55° F. in July. Water temperatures vary greatly from day to day and from day to night. Ice beings forming in September, and by mid-winter the river is frozen to the bommon in many places.

Water Quality

No water quality studies have been done on the Tinayguk River. However, there are presently no known sources forsewage or chemical pollution in the drainage that could significantly degrade water quality. Thus, the river's waters are believed to be of exceptionally high quality.

Low temperature conditions have been reported to be conducive to prolongation of the life of pathogenic bacteria. Although present low use of the river area appears to pose no health problems, indiscriminate disposal of wastes by larger numbers of river users would lead to health risks in the future.

Land Use

The entire river flows through an extremely primitive environment showing almost no evidence of man. Very little human use is presently taking place in the river drainage.

A small amount of hunting and trapping occurs in the river area. At least one registered guide operates in the area, flying in several sport hunters a year. Moose, bear, and Dall sheep are the primary hunting targets for these sport hunters. Eskimo hunters and trappers from Anaktuvuk Pass are also reported to use the upper Tinayguk river area for subsistence pruposes.

In their search for caribou and game animals, a few people from Anaktuvuk Pass occasionally cross the Tinayguk River area in traveling between the John River Valley and the North Fork of the Koyukuk. The crossing point is in the middle section of the river where Wolf Creek enters the Tinayguk.

No year-round habitation, farming, lumbering, grazing, mining, or similar land uses are known to exist along the river and no signs of such activity in the past are evident. One cabin reportedly built and used by Ernie Johnson in the 1920's and 1930's for trapping is still standing along the middle section of the river. This cabin is reported to be used occasionally by Native hunters and by a hunting guide operating in the area. Another cabin of Ernie Johnson's is reported to be near the Tinayguk confluence with the North Fork.

Water Resources Developments

No dams, channel inprovements, or stream diversions have taken palce or are proposed on the Tinayguk River.

Land Ownership

The entire river drainage is owned by the Federal Government and is presently managed by the Bureau of Land Management. There are no known mining claims or mineral leases in the river drainage.

The enitre drainage of the upper 30 miles of the river has been withdrawn from all forms of appropriation under section 17 (d)(2) of the Alaska Native Claims Settlement Act (ANCSA, P.L. 92-203). The lower 14 miles of the river has been withdrawn from all forms of appropriation except metaliferous mining claims under Section 17 (d)(1) of ANCSA. The entire river area is being studied by both the National Park Service and the Forest Service for potential inclusion in a component of the National Park System and National Forest System, respectively.

Water Rights, Navigability and Riverbed Ownership

No rights to water in the Tinayguk River have been applied for or granted by the State of Alaska.

Under the Alaska Statehood Act, the State owns the river bottom of all "navigable" streams and rivers. The question of which streams are "navigable" has not yet been determined in Alaska. However, under criteria being developed by the State of Alaska to determine riverbed ownership, the Tinayguk would appear to be "navigable" most of its length.

It is certain the river has never been used as a "navigable" stream in terms of trade or the movement of goods. The swift current and extremely shallow nature of the river preclude any motorized and/or upriver travel. Downstream travel is limited to canoes, kayaks, or small rafts.

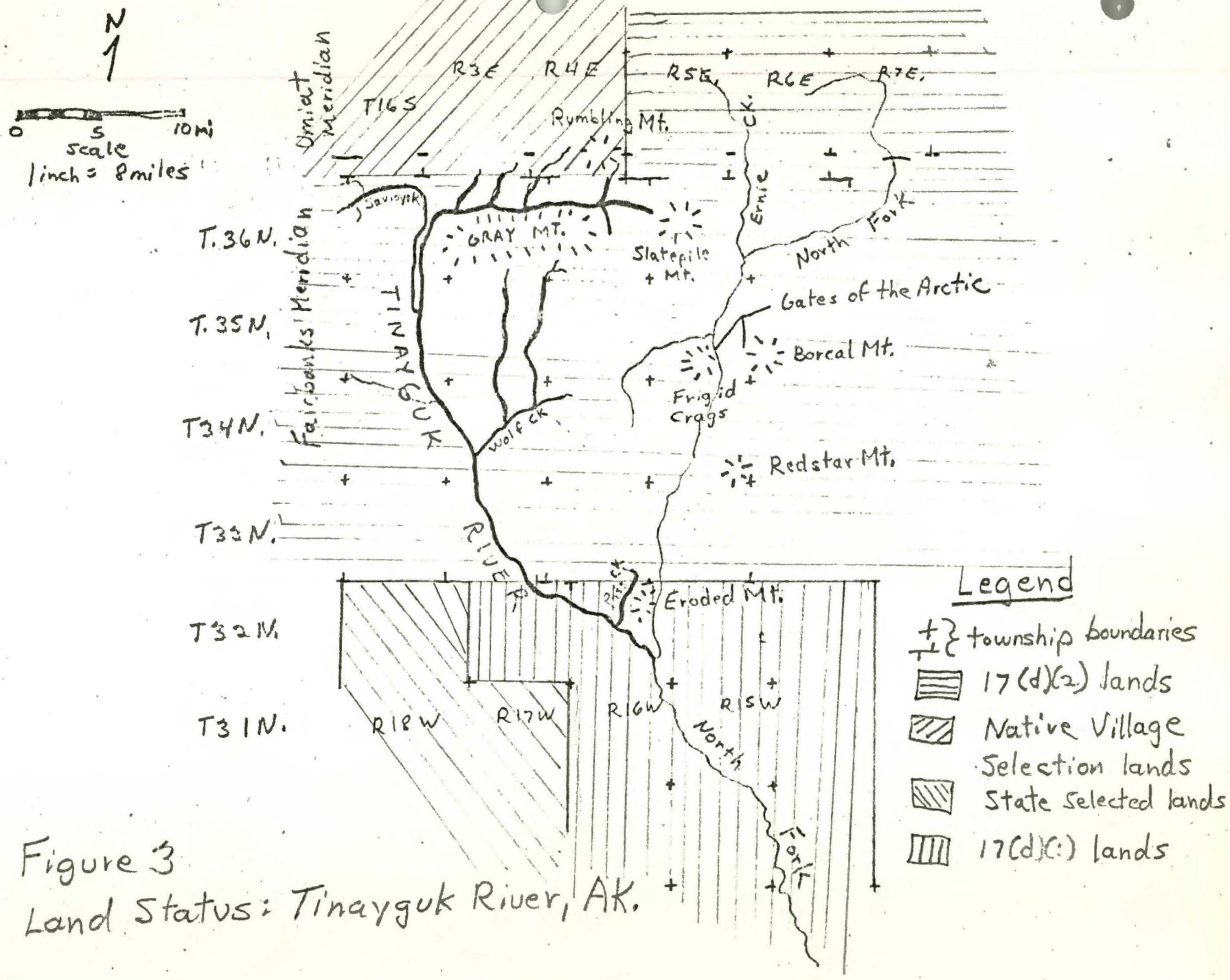

Figure 3
Land Status: Tinayguk River, AK.

Access

There are no roads or maintained tracts to or near any point of the river. The nearest segment of the state highway net lies south of the Yukon River over 150 air miles away.

Primary access to the river is by aircraft. Although there are no developed airstrips, gravel bars provide natural landing strips for small planes at several locations along the river. Although no sites exist for floatplane landings in or near the Tinayguk, several lakes adjacent the North Fork near the confluence can be used.

Small boats have been taken up the North Fork from Bettles in the past (Robert Marshall). However, such an operation takes many days of poling, dragging and virtually carrying a boat over many shallow riffles and rapids. From a practical standpoint, access to the mouth of the Tinayguk by boat up the North Fork is not possible.

Access during the winter by snowmachines, ATV's or dog sled is possible.

No roads are proposed in this river area.

Soils

The severe winters, short growing and decaying season, and low year-round temperatures of the Tinayguk River area result in extremely thin and fragile soils. Except immediately adjacent the river and on some south-facing slopes the entire area is underlain by permafrost.

Atop the permafrost lies a thin layer of peaty ground that is thawed in summertime. This mantle varies from six inches to several feet in depth and is crammed with a dense tangle of roots and stems. The tight mat of plant material tends to hold thawing silt beneath it in place, or at least slows and modifies its movement. When the overlying mat is altered or removed, the melting silt can display marked mobility, and slippage of soil and siltation of streams can be severe even on seemingly slopeless terrain.

Because permafrost reduces absorption of rainfall and snowmelt, flooding can be rapid and severe and the water silty. In spring, ice jams can aggravate the flooding. Flood waters, racing down steep gradients can cause heavy channel erosion and scouring.

Alluvial deposits are the principal aquifers for ground water, which is greatly restricted by permafrost. When under pressure from the forst, ground water has bursts to the surface in places, forming conical hills of mud and debris called pingos.

Vegetation/Timber

Major vegetation types identified for the river area include closed spruce-hardwood forests, moist tundra and alpine tundra (Alaska Trees and Shrubs, U.S. Department of Agriculture, Forest Service, Handbook No. 410).

Fires are a dominant influence on vegetative types in Interior Alaska; millions of acres being burned over every summer. Because of extensive burns, large areas of the interior are in various stages of forest succession. The succession that follows fire is varied and depends upon topography, previous vegetation, severity of burn, and available seed source at the time of burn. Although the Tinayguk River area has not experienced any significant fires in the recent times, the vegetation still reflects historic burns due to the slow plant growth under the harsh climatic conditions.

The boreal forest of Alaska reaches one of its most northerly points along the Tinayguk River. The closed spruce-hardwood forest covers the valley floor along the lower half of the river. As the elevation increases on sideslopes and up river, the forest cover becomes markedly sparser and trees become smaller. The dominant tree of this forest is white spruce but other tree types include paper birch, quaking aspen, balsam poplar, and black spruce. Common shrubs associated with these trees include several varieties of berries, willows, alders, and roses. Treeline extends generally from 2000-2500 feet in elevation.

The best stands of white spruce are found in the warm, dry southfacing hillsides and adjacent to the river where drainage is good and permafrost lacking. Some of the larger spruce may average 10-20 inches in diameter. Following

fire and willow stage, fast-growing aspen stands develop in upland areas on southfacing slopes. The aspen mature in 60-80 years and are eventually replaced by white spruce, except in excessively dry sites. Paper birch is the common invading tree after fire on east and west-facing slopes and occassionally on north slopes and flat areas. Balsam poplar are sparsely located in the river floodplain and may reach 20 inches in diameter. On north-facing slopes and in poorly drained lowlands open black spruce occassionally break the white spurce forest. These trees are slow growing and seldom exceed 8 inches in diameter and are widely separated by thick mats and hummocks of sphagnum mosses, sedges, and grasses.

Some of the white spruce, paper birch and balsam poplar may be considered of commercial size. However, the extremely small stands of such trees and the remoteness of the area preclude any economic marketing of these trees.

Moist tundra is found on the valley floor and on the slopes of west of the river along the middle reaches of the Wind River. This type consists of continous developed cottongrass tussocks with sparse growth of other sedges and dwarf shrubs. Willow and alder thickets are found immediately adjacent the river.

The upper sections of the river area are covered by alpine tundra. Much of this type consists of barren rocks, but interspersed between these rocks and rubble are low mat plants, both herbaceous and shrubby. Low mats of white mountain-avens

cover extensive areas along with moss-campion, black oxytrope, arctic sandwort and several grasses and sedges up to elevations of 3000-4000 feet.

Geologic and Mineral Resources

An extremely small amount of geologic work has been done in the Tinayguk River area. The U.S. Geologic Survey has mapped the geology of the area by photo-interpretation and aerial reconnaissance.

Structurally, the Central Brooks Range is an elevated geanticline squeezed into tight folds and sliced by faults into sheets that have been shuffled together, and which thrust toward the north and strike west. Its backbone is composed of limestone, quartzite, and metamorphic rocks dating back to the Silurian, Devonian, and Mississipi periods. The younger rocks flanking the range include sandstone, conglomerate, and shale. The valley floor is largely Quaternary stream alluvium, glacial till, and reworked glacial debris.

The entire drainage was subjected to at least three glacial advances and retreats during the Pleistocene epoch. Much of the existing geologic features refect the recent carving and scouring by ice and the disposition of the suspended sediment.

On the basis of a projection of favorable geology, parts of the lower half of the Tinayguk river are included in two metallogenic provinces (gold and copper)(Clark, et.al, 1972

"Metal Provinces of Alaska." U.S. Geological Survey Open-File Report). These provinces include the formerly productive mining areas of Chandalar, Wiseman, Wild Lake, and others. No mining has taken place along the Tinayguk and no deposits of any minerals have been reported in the river area.

Almost all creeks and rivers in the region were prospected rather thoroughly for precious metals (principally gold) during the Wiseman and Chandalar gold rushes at the turn of the century. Thus, there is little likelihood of such deposits along the Tinayguk. In addition, because the river valley was scoured by glaciers, the potential for placer precious metals is very low even if a source is present.

From a recreationist's standpoint, the Tinayguk area is perhaps one of the best examples of the unique geology of the Brooks Range. Craggy mountain spires illustrate the awesome tetonic forces of the earth. The U-shaped valley with its sheer side walls and scour markings, high cirques, rock glaciers, and other features stand as evidence to the recent ice invader.

In the upper reaches, numerous rock formations protrude from the slopes of the surrounding mountains. These exposed formations exhibit many striking shades of grey, olive, white, brown, and buff contrasting with the

lush green of tundra plants. The unusual coloration of one mountain which dominates the landscape of the upper Tinayguk area was noted by Robert Marshall in his exploration along the John River in 1931:

> " . . . we enjoyed the vast panorama of the Brooks Range with its black summits and sparkling green slopes tumbled around in a wild confusion as far as we could see in every direction - endless mountains rising and falling as if the waves of some gigantic ocean had suddenly become frozen in full motion. One mountain to the east was of such striking gray contrast we could not resist giving it the trite name Gray Mountain . . . " (Robert Marshall, Alaska Wilderness, p. 107).

In addition to the scenic values provided by the area's geologic background, the various features lend themselves to interpretation and study.

Wildlife and Fishery Resources

Wildlife

Big game animals are abundant and varied in the river area. Grizzly bear, black bear, moose, Dall sheep, caribou and wolves are all found.

The Alaska Department of Fish and Game has identified the North Fork of the Koyukuk as a major caribou migration route between North Slope summering grounds and wintering areas south of the Brooks Range (Alaska's Wildlife and Habitat, 1973). The John River valley to the west is also a major route and some animals occasionally migrate between the drainages across the Tinayguk River valley.

The presence of two species of bears further indicates the differing eco-zones present along the river. Whereas black bear reach their northernmost range in the spruce forests of the lower Tinayguk, grizzly bear are found almost exclusively in the shrub and tundra vegetation above the treeline.

Furbearing animals common to the river include wolves (also a big game animal), wolverine, lynx, beaver, marten, mink, weasel, red fox, and others.

While no bird studies have been done in the Tinayguk River area (or any flora or fauna studies, for that matter), 74 species of birds have been reported in the Anaktuvuk Pass area. Only nine species may be considered year-round residents. Game birds reported in the river area include willow and rock ptarmigan, spruce grouse, ducks, and geese.

Rare and Endangered Species

The following wildlife species associated with the Tinayguk River area are listed in the Department of the Interior's 1968 "Red Book of Rare and Endangered Species":

Timber wolf (Canius lupus lycon) - endangered (only in conterminous 48 states)

Grizzly bear (Ursus arctos) - endangered (only in conterminous 48 states)

Wolverine (Gulo luscus) - status undetermined

Canada lynx (Lynx candensis) - status undetermined

Fishery

No fish counts or sampling has been reported for the Tinayguk River. However, grayling, arctic char, whitefish, and possibly burbot are common in the region and are believed to be present in the river.

Historical and Archeological Resources

It is assumed that both Athabascan and Eskimo peoples hunted, trapped, and traveled on occasion along the Tinayguk for hundreds if not thousands of years. However, no archeological work has been done in this river area and no evidence of early man has, as yet, been found here.

The first white man entered the region around the turn of the century searching for gold. The boom town of Wiseman located on the Middle Fork of the Koyukuk was roughly 30 air miles southeast from the confluence of the Tinayguk with the North Fork. Another gold settlement grew up around Wild Lake located approximately 12 miles south of the Tinayguk. From these settlements gold seekers, hunters, and trappers explored and traveled the mountains and valleys of the Central Brooks Range.

One of the routes used by some of these early "sourdoughs" followed the lower 15 miles of the Tinayguk River in traveling between Wild Lake and Wiseman. Not many persons are believed to have used this route and no historic evidence of this travel can be seen along the river.

As related by Robert Marshall in his explorations with him (Alaska Wilderness) Ernie Johnson was the earliest known white man to see and experience the grandeur and solitude of the North Fork drainage near the Arctic Divide. He was also the first known white man to explore the upper area of the Tinayguk. Two of Ernie Johnson's trapping cabins dating back to the early 1900's are still evident along the Tinayguk, one in the middle section and one near the confluence.

Recreation

Resources

The lack of man's presence, the remoteness of the area, and the pristine environment of the Tinayguk make this a true wilderness area. Its value from a wilderness recreational standpoint is exceptional - even in Alaska. The recreational resources of the river and immediate environment include the magnificent alpine scenery, the excellent whitewater characteristics of the river, the abundant wildlife, the variety of vegetative eco-systems, the interesting geology, and other natural qualities.

The recreational activities best suited to the Tinayguk River environment are notably wilderness-oriented where primary focus is on observation of the natural features and plant and animal communities rather than consumptive use of these resources. These would include

hiking, whitewater boating, nature and geological study, photography, primitive camping, and others.

For the hiker or river floater the river provides an experience of wilderness isolation. Towering mountains rise above the river valley creating a small inner world untouched and untrammeled by man. Moose, bear, Dall sheep, and other game can be observed in their natural environments. A wide range of plant communities can be observed by the recreationist, each corresponding to the changing eco-zones found from the headwaters to the mouth of the river and from the riverbanks across the valley floor, and up the adjacent alpine slopes.

The river itself offers an outstanding whitewater experience for the intermediate and advanced boatman. The headwater reaches are generally too shallow to float but the upper section soon grows to accommodate canoes, rafts, or kayaks. There are numerous sections of Class III water in the upper 15 miles (see Appendix A, International whitewater rating). Beyond this point the water is generally Class II although occasional Class III water is present. The current throughout the river is swift and paddling optional. Fishing is excellent and firewood (below tree line) and campsites are abundant.

Hiking is generally good along the slopes because vegetation is sparse and rocks are small. However, along

the river thickets and tussocks can make walking more difficult.

The presence of Ernie Johnson's cabins also adds to the recreational experience. The connection of past and present with no visible intervening environmental changes provides a rare glimpse of oneself transposed to a previous era.

Existing Use

The occasional hunting of bear, sheep, or moose probably constitute the only recreational activity presently occurring in the area. Fewer than 20 trips per season into the area probably are taking place.

Some hikers and canoeists are presently utilizing the North Fork of the Koyukuk above and below the Tinayguk confluence. Some hiking may take place up the Tinayguk or into its headwaters in connection with use on the North Fork.

Future Use

Because of the remoteness of this area and the lack of access, large numbers of recreationists are not expected to use this area in the future. However, the growing awareness of the public of the unique wilderness resources in the Brooks Range and particularly the "Gates of the Arctic" area will contribute to the increase in user numbers. Much of this use can be expected to focus in the

North Fork drainage including the Tinayguk River. Activities will include hiking, canoeing, kayaking, rafting, nature study, and photography. In addition, sport hunting can be expected to increase in the area.

Also contributing to the increase is the relative proximity of Bettles and Anaktuvuk Pass, Alaska which are served by commercial air service. Bettles is rapidly becoming an air hub for northern Alaska. Charter service is available from Bettles into the Brooks Range. Anaktuvuk can be expected to have charter services in the near future.

In recent years more remote areas of Alaska have been frequented by aircraft and off-road vehicles in increasing numbers. As the frontier is pushed further and further from population centers, modern-day explorers travel further and further into the "bush." It can be expected that the Tinayguk River area will be subject to increased numbers of aircraft landings and off-road vehicle penetrations in future years.

Future plans by the State call for a road to be built through Bettles to the North Slope oil fields roughly following the proposed pipeline. Although this road passes the Tinayguk River over 30 miles to the east, more people will be able to come within "recreational striking distance" of the river area with the construction of such a road.

Limitations to Recreation

Higher levels of recreation use are primarily limited by access. Presently, aircraft is the only practical method of access to the river. Air transportation is expensive and few people can afford to be flown into the area by charter aircraft from Bettles, Alaska.

Because there are no water bodies suitable for float planes along the river, canoes or other craft that must be carried under a small aircraft on floats would be difficult to bring into the area. Thus, rafts or fold-boats would be the only practical means of floating the river.

Other limitations are due to the harsh sub-arctic climate. A "summer" season from June through August allows only a brief period of time for most recreational uses. Freezing temperatures can occur in all months of the year. Water temperatures remain cool all summer, prohibiting any prolonged body contact. Frequent fog and cloud covers obscure visibility and reduce safe aircraft travel time significantly. Winters are extremely severe with cold cool temperatures (down to -60 degrees and lower) and deep snows (60 to 80 inches) limiting winter sports use.

Because of permafrost soils, much standing water is present in the area. These waters give use to hordes of mosquitoes and flies which at times can seriously limit

recreational use because of the great intensity of the winged attack.

Because permafrost soils contribute to rapid run-off, floods as well as periods of low water are common. Both condition can preclude floating of the river.

Future recreational activities are also limited by the natural conditions. Off-road vehicle uses may be limited by soil conditions especially in times of no snow cover. Description of the thin soil can cause surface damages which may persist for long periods of time. Most surface damages occur during summer thaw periods.

Potential limitations to recreation include the users themselves. It is quite possible that larger numbers of recreationists in the river area would degrade or destroy the pristine environment and the primitive experience of the users. The most outstanding recreational value of the river areas could be lost through overuse. Unregulated increases in sport hunting could also detract from the wildlife values of the river. Local populations of game could be altered, and the "visibility" of animals could be affected by increased hunting pressures.