D-2183

draft wild and scenic river study

february 1984

PORCUPINE RIVER



ALASKA

DRAFT

WILD AND SCENIC RIVER STUDY

PORCUPINE RIVER
ALASKA

Abstract: The study finds that although the Porcupine River is eligible for the National Wild and Scenic Rivers System, it is nonsuitable for inclusion. The report describes and evaluates four alternatives, including the recommendation of no action.

Comments: Comments on this draft study are invited from all interested parties and should be forwarded to the following official no later than

Regional Director
Alaska Regional Office
National Park Service
2525 Gambell Street
Anchorage, Alaska 99503-2892

U.S. Department of the Interior / National Park Service

SUMMARY

Study of the Porcupine River to determine its eligibility and suitability for possible inclusion by Congress in the National Wild and Scenic Rivers System was mandated in the Alaska National Interest Lands Conservation Act of December 2, 1980 (PL 96-487).

The Porcupine River is a 472-mile-long free-flowing, unpolluted river that originates in Canada. The study area comprises the 212-mile segment from the Canadian-U.S. border to its mouth on the Yukon River. This entire river segment is eligible for inclusion in the National Wild and Scenic Rivers System. The river meets criteria for classification as wild from the border to the confluence with the Sucker River and as scenic from this point downstream to its mouth.

The Porcupine River is a legally defined navigable river. Therefore, the lands comprising the riverbed and both banks are owned by the state of Alaska. The adjacent lands are divided roughly into 70 percent federal ownership and 30 percent private (mostly native corporation).

The outstandingly remarkable values of the river corridor include the impressive scenery, recreational opportunities, geological significance, wildlife habitat, historic events, and cultural significance. The upper river area, generally known as the Ramparts, has the more impressive scenery, geologic interest, habitat for endangered peregrine falcons, and physical remains of historic events. Most of these values are closely associated with the cliffs along the upper river segments.

The Porcupine River serves as an essential water highway for local travel and commerce. There is extensive private ownership of lands along the river, particularly along its lower reaches, including numerous native allotments and native regional and village corporation lands. Portions of the river, particularly near its mouth, are extensively used by local people for travel, trapping, hunting, wood gathering, and other uses. There are no proposed water resource developments such as dams or diversions.

The following alternatives are analyzed in this report:

Alternative A (Proposal): No action (no designation)

Alternative B: Designation of 82-mile segment within Arctic National Wildlife Refuge

Alternative C: Designation of entire 212-mile study area, including extensive sections of the river crossing private (native corporation) lands

Alternative D: Designation of two separated segments totaling 148 river miles (the segment covered by alternative B, plus the federal lands along the river within Yukon Flats National Wildlife Refuge)

It is proposed that no portion of the Porcupine River be designated (alternative A), principally to avoid unnecessarily constraining future uses of the river for the transport of goods and people. Without strong support from the state of Alaska it is not deemed appropriate to designate this regionally important transportation route as a component of the National Wild and Scenic Rivers System. In the absence of designation, those segments of the river within the refuge currently receive a sufficient level of protection for fish and wildlife and other refuge values. Future management of federal lands along the Porcupine River will allow only those actions compatible with refuge purposes. The future character of the study area as a whole will also depend upon how the native corporation owners and the state manage their lands.

PUBLIC COMMENT

People living on the Porcupine River or in Fort Yukon and other nearby villages are concerned about the additional regulations or restrictions that might result from designation and prefer the no-action alternative. Doyon Limited, the regional native corporation, is opposed to wild river designation for the lower segment of the Porcupine River because it would result in increased restrictions on development; even if designation was restricted to federal lands, it might result in higher costs for developing access to Doyon lands.

The state of Alaska has expressed concern about the restrictions that designation might place upon continuation of reasonable access to private or state lands along the rivers, future development of transportation facilities, continuation of customary and traditional uses and activities, and programs for improvement of fish and wildlife habitat and species management.

The majority of comments provided during the study by residents of Anchorage, Fairbanks, and other communities in Alaska, and by interested persons from outside Alaska, favored designation of the Porcupine River. The reasons given were generally connected with assuring protection of the free-flowing character and associated values of the river.

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NOTE: Many of the maps contained in this report highlight the lower Sheenjek River (another wild and scenic river study area) in addition to the Porcupine River. The rivers are mapped together because their studies were originally combined in a single document.

PURPOSE OF THE STUDY

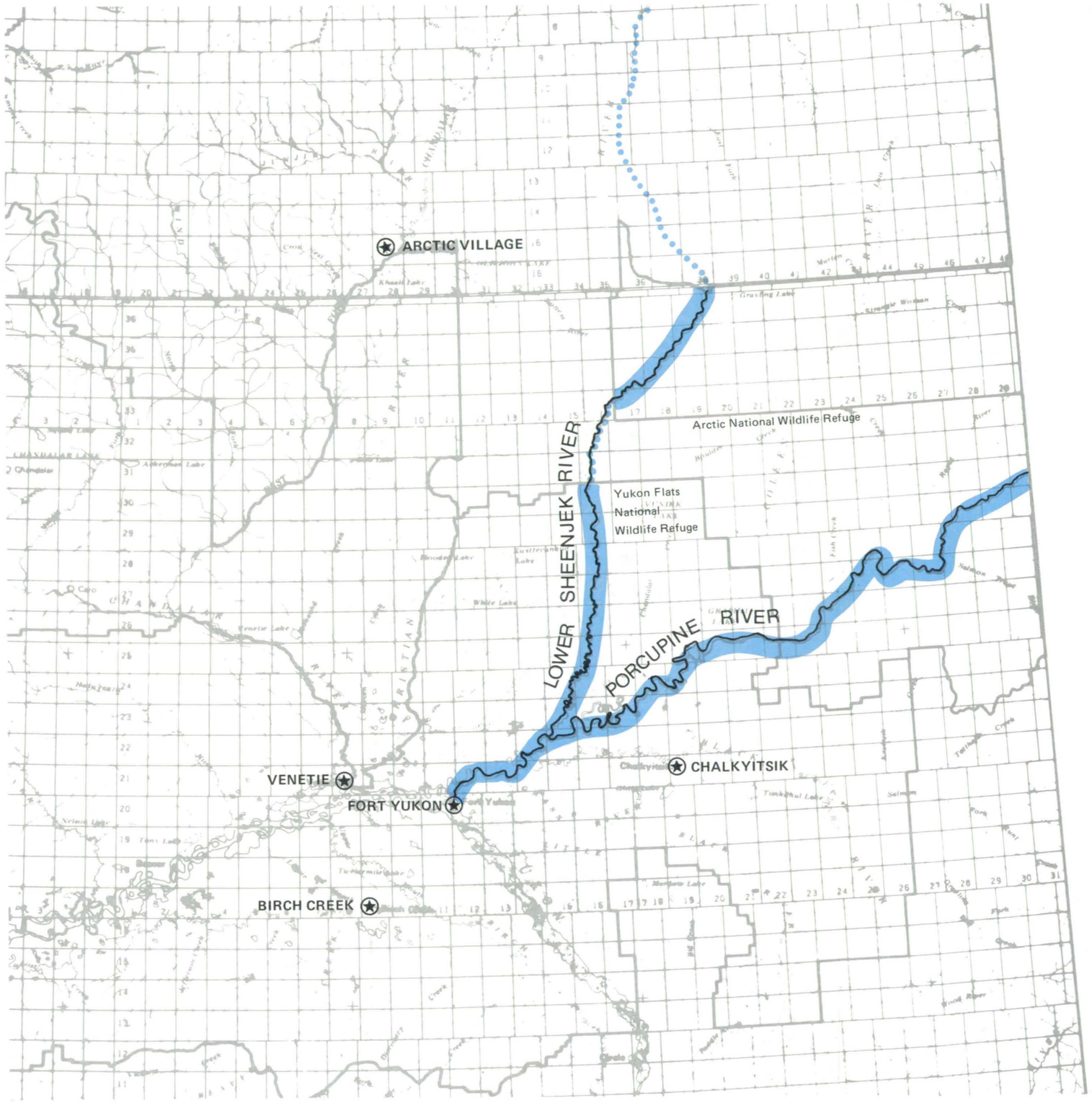
Study of the Porcupine River as a possible addition to the National Wild and Scenic Rivers System was authorized by section 604 of the Alaska National Interest Lands Conservation Act (PL 96-487, hereafter cited as ANILCA), which amended section 5(a) of the Wild and Scenic Rivers Act (PL 90-542). The intent of Congress in establishing a National Wild and Scenic Rivers System is defined in PL 90-542:

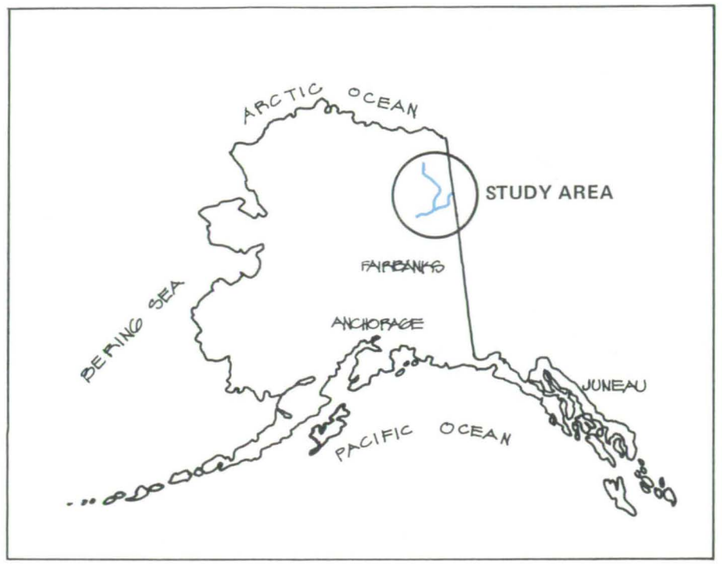
> It is hereby declared to be the policy of the United States that certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations. The Congress declares that the established national policy of dams and other construction at appropriate sections of the rivers of the United States needs to be complemented by a policy that would preserve other selected rivers or sections thereof in their free-flowing condition to protect the water quality of such rivers and to fulfill other vital national conservation purposes.

The Porcupine River was among 12 Alaskan rivers and river segments identified by Congress for study. The studies are to be completed and submitted to Congress by September 1984 as the basis for a congressional decision regarding the possible inclusion of these rivers in the national system.

The purposes of this study are (1) to determine if the river is eligible for inclusion in the National Wild and Scenic Rivers System, (2) if eligible, to determine the appropriate classification for the river, based upon its current condition, as either wild, scenic, or recreational, (3) if found eligible, to determine if the river is suitable for inclusion, and (4) to identify a proposal and the reasonable alternatives for designation and management.

Following the review of this draft report, the comments received will be analyzed and the report will be revised, as appropriate. The final report will then be submitted to the president by the secretary of the interior. The president will transmit the report to Congress with his recommendations.





STUDY CORRIDOR

DESIGNATED WILD RIVER

NORTH

0 10 20 MILES

0 10 20 30 KILOMETERS

STUDY AREA

PORCUPINE AND LOWER SHEENJEK RIVERS / ALASKA

UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

WSR-PLS	20002A
DSC	AUG 82

ON MICROFILM

EVALUATION PROCEDURES

ELIGIBILITY

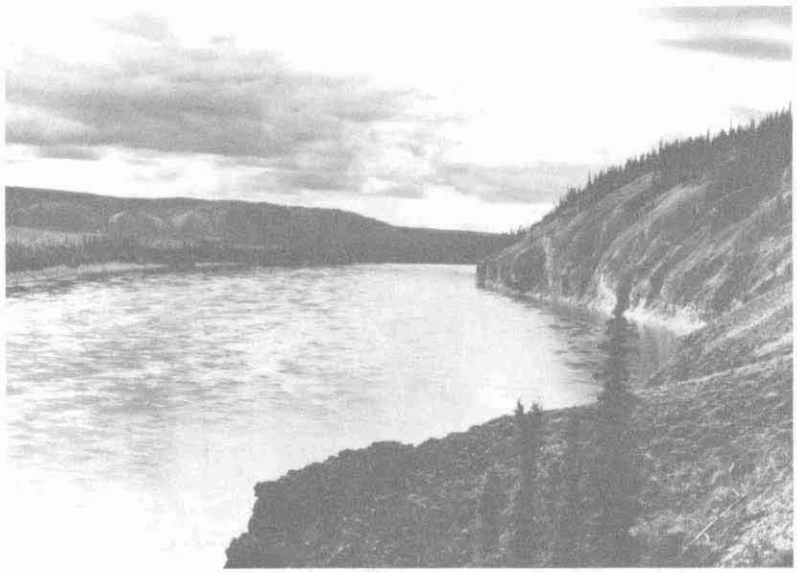
To be eligible for inclusion in the National Wild and Scenic Rivers System a river segment must meet two criteria (set forth in section 2(b) of the Wild and Scenic Rivers Act): It must be in a substantially free-flowing, natural condition, and it must possess at least one outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar value. A value is determined to be outstandingly remarkable when in the opinion of the study team that value is of sufficient merit to justify inclusion of the river area in the national system. The act further provides three potential classifications for eligible river segments--wild, scenic, or recreational--depending upon the condition of the river and adjacent land area at the time of designation. For the purposes of classification a river may be divided into segments.

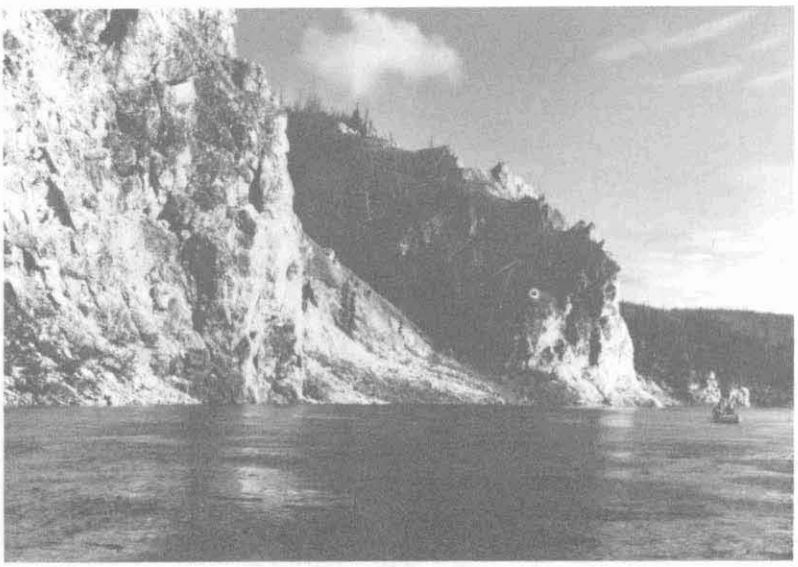
The Porcupine is a 472-mile-long free-flowing, unpolluted river that originates in Canada. The study area comprises the 212-mile segment from the Canadian-U.S. border to its mouth on the Yukon River. The lateral boundaries of the study area are 2 miles from the river. The entire study area possesses outstandingly remarkable values, but they are more prevalent, or at least more universally recognized, in the upper reaches, specifically in the areas known as the Upper Ramparts and Lower Ramparts and the stretch of river lying between these two canyons.

The geological features of the entire corridor, but particularly the area in the Ramparts, are interesting and perhaps unique as visual evidence of past catastrophic flooding action that carved much of the present canyon. The canyon walls in the Ramparts area provide habitat and nesting sites for numerous species of raptors, including documented nests of the endangered peregrine falcon.

Because of its remoteness and lack of roads, the area's wildness is virtually untouched by recent developments. The river affords excellent opportunities for recreation. The entire river is boatable (even by relative novices), affords the opportunity to travel for long distances through a pristine and sometimes scenic setting, offers numerous suitable sites for camping, and is fairly accessible by air. The river is expected to attract increasing numbers of recreationists, particularly with the recent provision of road access to the Porcupine River system via the Dempster Highway about 270 river miles above the Canadian-U.S. border in the Yukon Territory.

The study area is rich in history, particularly from the days of extensive fur trade. Because of its primitive setting, the river today provides a traveler the opportunity to experience the voyages of the explorers and fur traders of the mid-1800s, when the Porcupine River was the main corridor to Alaska's interior. Old Rampart and Burnt Paw were once Hudson's Bay Company trading posts. Other settlements and cabin sites scattered along the banks represent a period when the river was heavily traveled and these were frequent stopover places. The corridor likely





The scenic ramparts create a distinctive and geologically interesting landscape in the upper reaches of the Porcupine. The canyon walls provide habitat and nesting sites for numerous raptors.



The river affords the opportunity for a relatively easy boat trip through a pristine, scenic setting.



Barge and boat traffic is common on the Porcupine River.





Settlements and cabin sites scattered along the banks of the Porcupine testify to a time when the river was heavily traveled and there were frequent stopover places.



The lower several miles of the river pass through the spruce forests and often boglike terrain of the Yukon Flats.

possesses significant archeological resources, but they have not been thoroughly evaluated.

The Porcupine remains an important transportation corridor. The 1871 Treaty with Great Britain protects international navigation on the river. Usually one or more barges each year travel upriver to Old Crow in Yukon Territory. The river serves as the highway for local travel between villages and cabin sites. The river is of significant cultural value to local people who rely on it to reach traditional areas and to pursue a traditional way of life. Native regional and native corporations have selected lands along much of the lower third of the study area.

The Canadian government, in cooperation with its provincial and territorial governments, is developing a proposal for establishing a Canadian Heritage Rivers System. The Porcupine River in Canada has been identified as one of the possible initial components of the proposed system. The opportunity exists for further international agreement on the classification and protection of the Porcupine River.

CLASSIFICATION

The following criteria from section 2(b) of the Wild and Scenic Rivers Act were considered in determining an appropriate river classification:

> 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.
>
> Scenic river areas - Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.
>
> Recreational river areas - Those rivers or sections of rivers that are readily accessible by road or railroad, that may have undergone some development along their shorelines, and that may have undergone some impoundment or diversions in the past.

The Porcupine meets criteria for classification as wild from the Canadian-U.S. border down to the confluence with the Sucker River (a distance of approximately 202 river miles). Downstream from this segment the activity from Fort Yukon begins to have a substantial influence. A concentration of aircraft activity associated with the airport and an inconspicuous road from Fort Yukon disqualify the segment from the mouth of the Sucker River downstream to the confluence with the Yukon River (approximately 10 river miles) for classification as wild; however, this segment qualifies for classification as scenic.

SUITABILITY

If a river with its immediate environment is found eligible for addition to the national system, a determination is made as to whether the river corridor is suitable for addition. Generally, suitability is based on such factors as extent of public lands in the river area; costs required for acquisition, development, management, and operation; public, local, or state interest in acting to protect and manage the river; and the feasibility and timeliness of such action.

The Porcupine River is considered nonsuitable for inclusion in the National Wild and Scenic Rivers System for two reasons. First, the Porcupine River serves as an essential water highway for local travel and commerce, and there is concern that designation might possibly constrain future uses of the river for transportation purposes. Second, there is no support for designation from either the state of Alaska, which owns the bed (bank to bank) of this navigable river, or from private landowners, who have extensive holdings along the river, particularly along its lower reaches.

PROPOSAL AND ALTERNATIVES CONSIDERED

ALTERNATIVE A (PROPOSAL): NO ACTION

The proposal calls for no congressional action to provide additional protection of the 212-mile-long river corridor.

All of the federal lands within the study area are contained within the Yukon Flats and Arctic national wildlife refuges, which were established by Congress in late 1980. The preparation of comprehensive management plans for these refuges is underway, but they are not expected to be completed until 1985. It is assumed that these federal lands would be managed to maintain the present low levels of development and use far into the future. This assumption is based on two principal factors: First, the refuges were designated for the purpose of protecting, to the extent possible, ecological units and the processes that support entire habitats for diverse fish and wildlife resources. Second, the portions of the refuges that the Porcupine River passes through have not been suggested as highly favorable for the types of resource development that could be permissible within a refuge, such as oil and gas leasing and development. The sizes of the refuges suggest that there would be no need for intensive management or more than a few support facilities to maintain adequate habitat. Also, the need for private use cabins and other minor structures that are allowed under special use permits would probably remain small.

Development and use of private lands, which comprise more than 30 percent of the river corridor, would be expected to increase in the future. The individually owned parcels (native allotments) would probably receive increased use as seasonal or permanent residences, and the reestablishment of one or more of the privately operated "roadhouses" would be possible within the next 20 years. Increased residential or commercial use would result in more structures along the river on private property. It is assumed that subsistence use by local residents would remain at approximately the current level but that recreational use (sport fishing and hunting, boating, sightseeing) by people from outside the local area would increase at a projected rate of 5 percent per year. The assumption of increasing use by nonlocal residents is based upon the area's relative accessibility and attractiveness, increasing awareness of its recreational potential, and statewide and regional rates of growth in tourism. The staff of the Arctic National Wildlife Refuge estimate that visitor use on the river has been increasing by about 5 percent per year, and there is no reason to doubt that this trend would continue in the future under the no-action alternative.

It would be unlikely that the remaining buildings of possible historical value along the river, all of which are on native allotments, would receive management and maintenance at the level required to retard their continued gradual and natural deterioration. The river is cutting the bank closer to many of these structures each year. Others are deteriorating from lack of regular use and possibly some vandalism.

Doyon Limited and village corporation lands would also likely be used more intensively in the future. It is not possible to predict how much use and development would occur on corporation lands within the river corridor, but at a minimum it would be reasonable to expect increased harvest of timber along or near the river. If any marketable deposits of oil and gas or other mineral resources were found on private land, these would eventually be developed.

Development trends for the region do not indicate a need for expanded ground or water transportation within or through the study area in the foreseeable future. However, depending upon future discoveries of resources such as oil and gas or minerals, the Porcupine River might serve increased barge traffic, and a road might be constructed across or along the river corridor. Such development would probably not be seriously examined until at least 20 years from now. Additional land-based support facilities for barge traffic, if necessary, would probably be contained on private lands.

ALTERNTIVE B: DESIGNATION OF 82-MILE SEGMENT

This alternative calls for designation of an 82-mile segment of the Porcupine River and adjacent lands, from the Canadian-U.S. border to the boundary between the Arctic and Yukon Flats national wildlife refuges. The segment would be classified as wild. The U.S. Fish and Wildlife Service would have responsibility for administration of the designated river area.

Little change would be expected in the level of use and development or in the management described for alternative A, no action. There would be greater assurance that the comprehensive refuge plan for Arctic National Wildlife Refuge would stress maintenance of the present condition at least for those refuge lands along the 82-mile segment of the designated wild river. There would not be any future oil and gas leasing or development on federal lands along this section of the river. The possibility of additional barge traffic or road construction would probably not be affected. A wild river designation does not necessarily preclude either of these activities. Future transportation expansion involving the Porcupine River would probably be along the lower section of the river and not involve this upper segment. If proposed, a road across the wild river corridor would be located to minimize disturbance of scenic and other values and probably would not be allowed to travel for long distances within the designated corridor. Expected use and development of private lands would be the same as described for alternative A.

Increased managment attention would be given to the designated segment. As the proposed administering agency, the U.S. Fish and Wildlife Service would prepare a river management plan, closely coordinating its planning and management activities with the state of Alaska (owner of the submerged lands beneath this navigable river) and other adjacent landowners and managers, including Doyon Limited Regional Corporation and Gwitchaa Zhee and Chalkyitsik village corporations. The Fish and Wildlife Service would also work closely in planning and management with the Canadian government and the government of Yukon Territory.

Designation of a portion or all of the Porcupine River in Alaska would be complementary to a proposal underway in Canada and the Yukon Territory to establish a Canadian Heritage Rivers System and to include the Porcupine River in Canada as one of the initial components of that system.

Lateral boundaries for the designated river area would be established by the Fish and Wildlife Service after the river was added to the national system. As provided by section 606 of ANILCA, the designated river area would include only federal lands and not more than an average of 640 acres per river mile. Privately owned lands and submerged lands owned by the state would not be included. In the establishment of lateral boundaries, consideration would be given to protection of historic sites, areas of suspected archeological value, prominent tributary streams, such as Rapid River and Salmon-Trout River (approximately the lower half mile of such streams would be included within the boundary), peregrine falcon habitat, adjacent land features visible from the river, and other features.

Management of the wild river area would focus on preserving, enhancing, and making available for present and future use and enjoyment the outstanding qualities of the river corridor. The site-specific resources requiring special management efforts would be identified, and management practices would be devised for their protection. The following objectives would govern future management of the river segment as a component of the national system:

maintenance of the free-flowing condition and high water quality of the river

protection of the outstandingly remarkable values of the natural and cultural environments

continuation of existing uses in the river corridor, including but not limited to subsistence, trapping, riverboat and barge navigation, fish and wildlife habitat protection and enhancement, and recreation

control and management of recreational use of the area as necessary to protect natural, cultural, and recreational values and private property

appropriate interpretation of important archeological, historical, geological, wildlife, and other values

Visitor use would be expected to increase at a rate of 10 percent per year following designation. The plan would address issues such as increased conflicts among users, potential for trespass and vandalism on private property, need for providing better information to the public, and opportunities for education and interpretation. A program for the survey and protection of historic structures and other cultural resources would be developed in consultation with the Advisory Council on Historic Preservation.

The existing policy for granting nontransferable five-year special use permits for construction and replacement of cabins and other minor

structures needed to support ongoing allowable uses would remain in force; however, extra care would be required to ensure that development would not be obtrusive. The existing policy on the cutting of firewood and house logs might be modified to ensure that this use did not unnecessarily detract from the scenic values of the designated corridor.

The state's jurisdiction and responsibilities with respect to fish and wildlife, water quality, and similar interests would be unaffected.

No federal land acquisition or condemnation for acquiring scenic easements would be required (refer to sections 6(b) and 16(c) of the Wild and Scenic Rivers Act and sections 103(c) and 606 of ANILCA). Private or state lands along the river could be acquired with the consent of the owner through the purchase of fee title or easements or through trade. No such acquisitions are viewed as necessary for the purposes of this alternative.

Increased recreational use would not be expected to reach the point where recreational facilities were required. Additional federal costs would accrue only from planning and management for the river area. These costs would be estimated during preparation of the river management plan.

ALTERNATIVE C: DESIGNATION OF ENTIRE 212-MILE STUDY AREA

This alternative calls for designation of the Porcupine River from the Canadian-U.S. border to its confluence with the Yukon River, a distance of about 212 river miles. All the river would be classified as wild, except the lower 10 miles, which would be classified as scenic. The upper 82 miles of the river are within the Arctic National Wildlife Refuge, and the lower 130 miles are within the Yukon Flats National Wildlife Refuge. About one-half of the river within the Yukon Flats National Wildlife Refuge flows across private lands owned by Doyon Limited Regional Corporation and the Gwitchyaa Zhee and Chalkyitsik village corporations. In previous designations of Alaskan rivers to the National Wild and Scenic Rivers System, Congress has not included nonfederal segments. This would be a viable alternative only if the native corporations were to request that Congress include their lands when designating the Porcupine River a component of the national system. There would have to be assurance that the outstandingly remarkable values associated with these lands would receive permanent protection and management. A memorandum of agreement or similar formal agreement between the landowners and the designated managing agency might be the appropriate mechanism to provide for compatible use and management while protecting the natural and cultural values of the river area.

Management of the river would be similar to that described for alternative B, with the U.S. Fish and Wildlife Service having responsibility for overall administration and development of a river management plan. Nonfederal landowners would likely prepare a plan for their lands in the river area as part of a Fish and Wildlife Service cooperative plan. The state, as owner of submerged lands beneath the navigable waters of the Porcupine River, would be closely involved in planning and management.

All lands, federal and nonfederal, would be managed in a manner consistent with the Wild and Scenic Rivers Act.

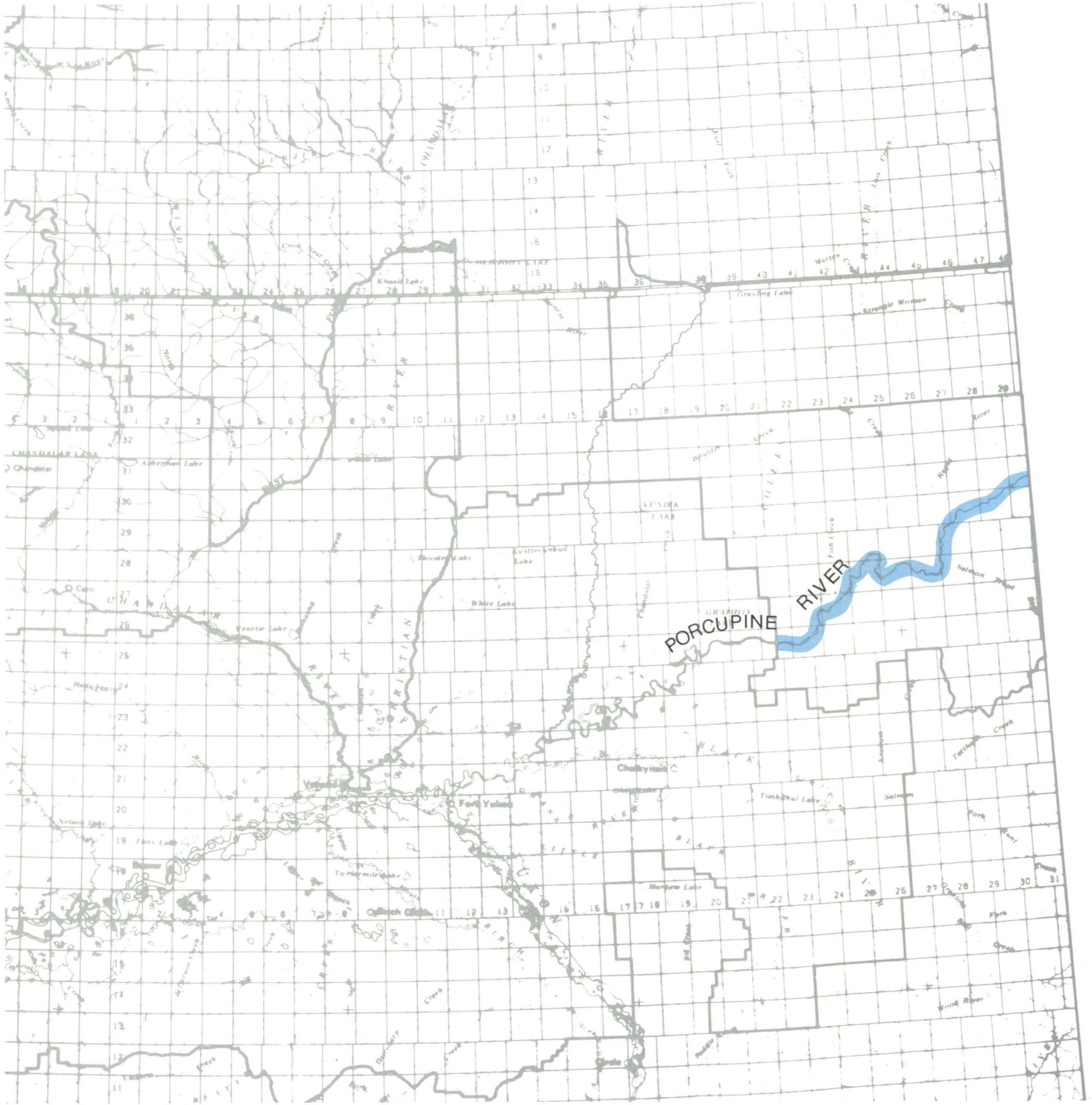
Future use and development within the river corridor would be expected to differ from alternatives A and B in three regards: First it would become more likely that the present uses and natural character of corporation lands, at least within one-half mile of the river, would remain unchanged in future years. For example, oil and gas leasing and commercial timber harvesting would probably not occur within the corridor, to avoid adversely affecting the natural scenery viewed from the river. Second, a future road or roads across the river corridor might be possible, but no road would likely be built parallel to and within one-half mile of the river for any extended distance. Third, where desired by the private owners, the possibility for government assistance in restoring and using some of the old structures along the river would be increased by their inclusion in the wild river corridor and by recognition of their possible historical value in a cooperative management plan.

The overall management costs for the U.S. Fish and Wildlife Service would be higher under this alternative than under alternative B, partly because of the additional miles of federal land included in the designation, but more importantly because of the increased management responsibility and assistance requirements of a cooperative river management plan.

ALTERNATIVE D: DESIGNATION OF TWO SEGMENTS TOTALING 148 MILES

This alternative calls for designation of two separate segments of the Porcupine River totaling about 148 river miles. The upper segment would extend for approximately 123 river miles from the Canadian-U.S. border to T 23 N, R 18 E, Fairbanks Meridian. The lower segment would extend for approximately 25 river miles from the western boundary of T 23 N, R 16 E to the eastern boundary of T 21 N, R 13 E. Sections of the river passing through the major blocks of lands selected by the Chalkyitsik and Gwitchyaa Zhee village corporations and Doyon Limited would be excluded from designation. Both river segments would be classified as wild and would be administered by the U.S. Fish and Wildlife Service. Management would be similar to that described for alternative B.

Future management, development, and use would be expected to differ from that described for alternative B in only one regard, future transportation development. The designation of about 40 additional miles of river in the Yukon Flats region, where future road construction is more likely than in the upper miles of the river corridor, would increase the potential for an effect on transportation planning. Under this alternative more than two-thirds of the length of the river corridor within Alaska would be kept free from any significant development that would change the present undeveloped character of the river and adjacent land.



(82 MILE SEGMENT)

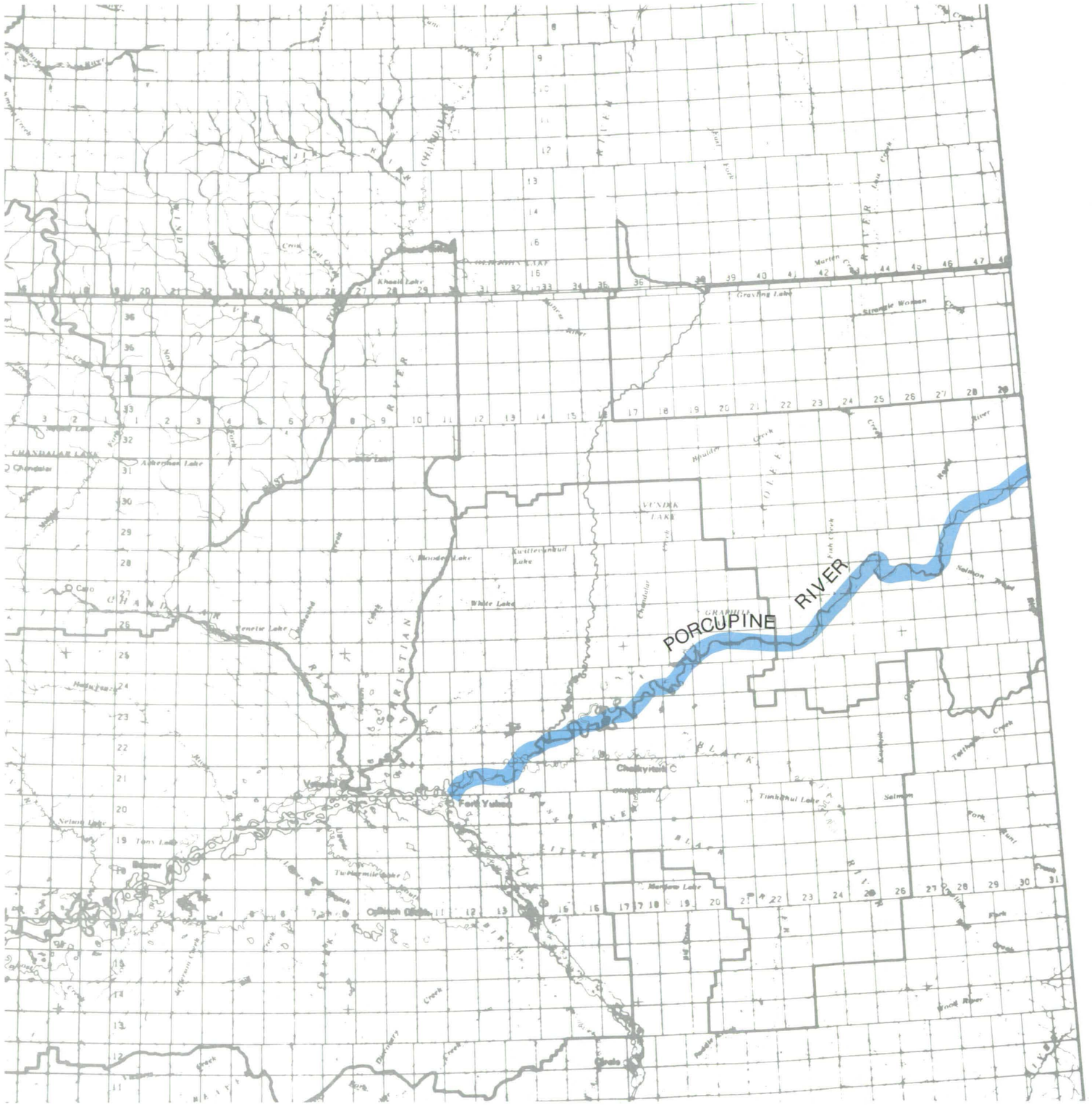
ALTERNATIVE B

PORCUPINE RIVER / ALASKA

UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

WSR–PLS	20004
DSC	SEPT 82

ON MICROFILM



(212 MILE STUDY AREA)

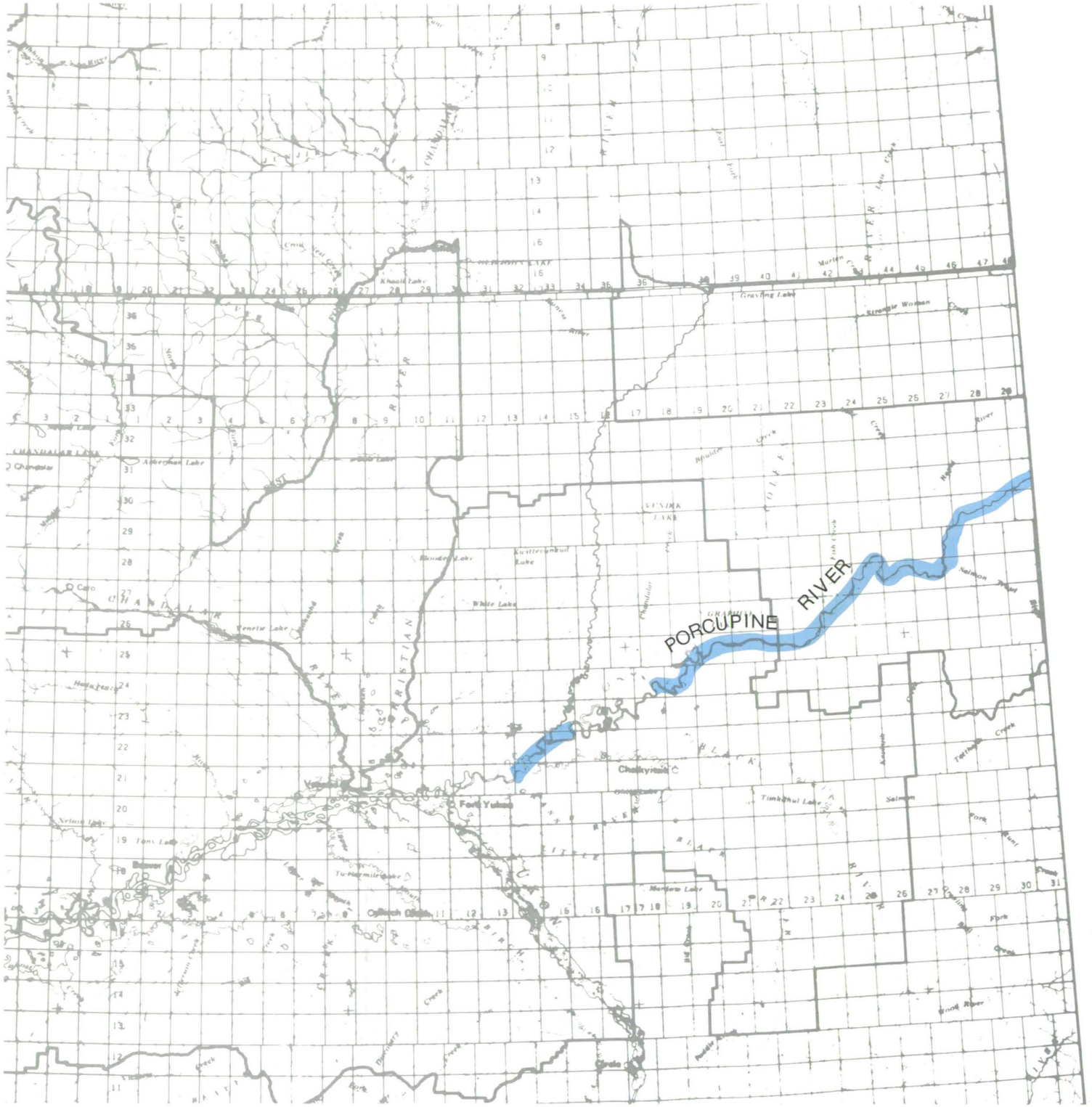
ALTERNATIVE C

PORCUPINE RIVER / ALASKA

UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

WSR–PLS	20005
DSC	SEPT 82

ON MICROFILM



(148 MILES - TWO SEGMENTS)

ALTERNATIVE D

PORCUPINE RIVER / ALASKA

UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

WSR—PLS	20006
DSC	SEPT 82

ON MICROFILM

DESCRIPTION OF THE STUDY AREA

REGION

Physical Setting

The Porcupine region of Alaska is bounded by the Brooks Range to the north, the Yukon River to the south, the Christian River to the west, and the Canadian border to the east. The region includes three distinct physiographic provinces--alpine (eastern Brooks Range), piedmont (Porcupine Plateau), and flats (Yukon Flats). The alpine province is characterized by steeply sloped mountains with summits over 7,000 feet in elevation, evidence of extensive glaciation, alpine tundra, and scattered stands of stunted spruce trees. The piedmont province is an upland area with rounded summits up to 3,500 feet in elevation and mixed forests of spruce, poplar, willow, and birch. The flats province is a broad marshy floodplain containing thousands of thaw lakes, oxbows, and sloughs; its elevation varies from about 400 feet on the floor to 600 feet at the tops of the silt- and gravel-covered terraces. The Porcupine River and its major tributaries--the Sheenjek, Black, and Coleen rivers--drain the region. The river flows through the piedmont and flats provinces.

Climate

Climate of the region is generally classified as continental subarctic. It is a zone of great seasonal extremes of temperature and sunshine. For example, Fort Yukon holds Alaska's record high temperature of 100°F. and also comes close to the record low at minus 75°F. During summer there is almost continuous sunlight for more than three months. During the winter the sun is above the horizon only for about 3 hours each day, and the average length of daylight and twilight during winter is between 6 and 8 hours. Rainfall varies from 7 to 10 inches annually; consequently the region can technically be classified as a desert on the basis of low precipitation (University of Alaska 1978, pp. 11-1, 11-3).

Socioeconomic Characteristics

Even by Alaskan standards the region is sparsely populated. The total estimated 1975 population of the villages located near the Porcupine River (including Fort Yukon, Chalkyitsik, Artic Village, and Venetie) was close to 1,000. Over 60 percent of this population was located in Fort Yukon. During the past 30 years the total population has been relatively stable due to an overall balance between the natural increase (the excess of births over deaths) and net out-migration. The area populace is predominately native (close to 90 percent) and the overwhelming majority of natives are Athapascan Indians (University of Alaska 1978, p. 2-1) representing the Kutchakutchin, Natsitkutchin and Tranjikutchin tribes (Fairbanks Town and Village Association for Development 1979, pp. 9, 28, 56, 177).

The cash and subsistence economies of the region are closely interrelated, with most residents participating in both economies. Variations in lifestyles among residents mostly depend upon the degree to which they pursue subsistence activities as opposed to wage-earning activities. The principal sources for the cash economy are government jobs (such as in the school system), seasonal jobs provided by various construction projects, freight hauling, fire fighting, and goverment programs (such as unemployment compensation and social security benefits). Other sources of cash income in the region include sale of furs and arts and crafts (University of Alaska 1978, pp. 5-1 to 5-7).

Subsistence activities are extremely important in the region for the food and shelter they provide, and as cultural ties with the traditional way of life for the people of the region. Surveys taken in the region reveal that a significant proportion of the food for a large percentage of residents is provided by hunting, fishing, or gathering. Over 50 percent of the native households surveyed in the general area report that at least half of their food comes from subsistence activities. The proportion of food derived from subsistence for people living in Fort Yukon, however, is less than that of people living in the smaller villages (University of Alaska 1978, pp. 5-1 to 5-7). Local timber is an important source of fuel and house logs.

Land Use

Land use is generally characterized as "occasional and intermittent," including "recreation, sport hunting and fishing, subsistence, seasonal residences, and resource exploration." The exceptions are the small concentrations of residential, service, and industrial land use in Fort Yukon, Arctic Village, Chalkyitsik, and Venetie (Selkregg n.d., p. 292). A few families and individuals reside most of the year outside of the villages in pursuit of a subsistence-based lifestyle. Trapping is one of the principal subsistence activities in the region.

There is no commercial agricultural development; however, conditions are generally favorable for agriculture in some places within the region. A few large gardens (1 to 2 acres) in Fort Yukon are the extent of current or recent operations. Agricultural experiments in "nearby" Ramparts on the Yukon River during the early 1920s achieved some success in several crop varieties, particularly grains and legumes (University of Alaska 1978, p. 14-1).

Use of the region's forests is on a small scale. The most important present use is for fuel. The second important use is for house logs. The Pacific Northwest Forestry Sciences Lab has estimated that there are 1,597,000 acres of commercial forestland with an estimated volume of 611,931,000 cubic feet of timber within an area roughly corresponding to the subject region (USDA, Forest Service 1982).

This has not been a very active area for mineral or petroleum exploration or development, and no significant developments exist to date. Occurrences of tin, lead, and lead-zinc have been identified in pockets lying between the Rapid River and the Coleen River.

Gold and copper have been identified on the Sheenjek River, but no production has been recorded (University of Alaska 1978, p. 16-5). Based upon early general assessments, the upper Porcupine region was rated moderate as a potential petroleum province or basin. The Yukon Flats was rated high (Selkregg n.d., p. 127). There has been no development, however, and actual exploration has been sparse.

Recreational use of the region includes river travel, sport hunting and fishing, camping, and related activities. There are several rivers noted for their scenic beauty, primitive character, and suitable boating waters. Most of the area, except in the Brooks Range, is not well suited to long distance hiking. Moose and waterfowl are the primary objectives of sport hunters in the lowlands. Sheep are hunted in the Brooks Range. Grizzlies and caribou are also taken by sport hunters, but mostly in association with the hunting of other species (University of Alaska 1978, p. 18-2).

Landownership

The major existing and potential landowners in the region are the federal government, state of Alaska, and native corporations. The principal native owners are Doyon Limited (a regional corporation) and Gwitchyaa Zhee and Chalkyitsik (village corporations). Almost all the federal land is managed by the U.S. Fish and Wildlife Service through the Arctic National Wildlife Refuge and the Yukon Flats National Wildlife Refuge. Due to their undisputed status as navigable rivers, the submerged lands beneath the Porcupine River and Yukon River are owned by the state. Settlement of the question of navigability on other rivers may result in additional establishment of state ownership of lands beneath other rivers in the region. (Refer also to the Landownership map and the descriptions of the study area.)

STUDY AREA

Natural Values

River Setting. The Porcupine River is one of the largest tributaries of the Yukon River and the fifth longest river in Alaska. Originating in the Yukon Territory, Canada, the river flows northeast then west approximately 260 river miles from its headwaters in the Ogilvie Mountains to the Canadian-U.S. border. From the border the river flows southwest for approximately 212 river miles to its mouth on the Yukon River at Fort Yukon (see Study Area map). It is the latter segment, the portion within Alaska, which is the subject of this report.

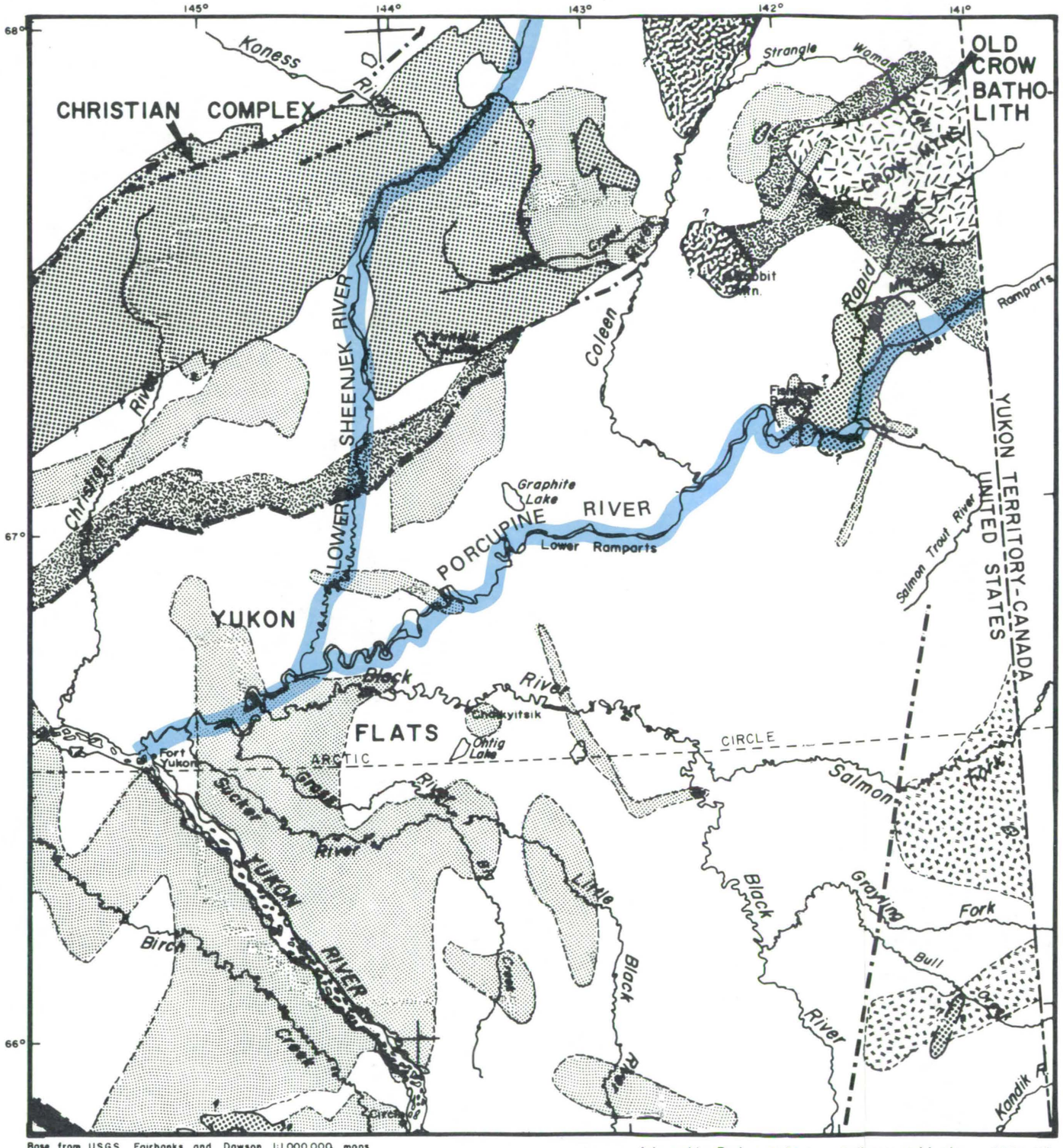
The upper portion of the river study area is an area referred to as the Upper Ramparts. For a distance of about 40 river miles beginning at the Canadian-U.S. border, this segment is characterized by nearly continuous wall cliffs which range from 250 feet to more than 500 feet in height above the water. The lower end of the Upper Ramparts segment is marked by a colorful, vertically walled canyon area known as Red Gate. From here for a distance downstream of about 35 miles the river crosses

an area of lowland and low hills where the gradient is noticeably less than in the Upper Ramparts. The hills beyond the floodplain are thickly covered with spruce. Leaving the lowlands, the river flows through a 15-mile stretch of limestone cliffs in an area known as the Lower Ramparts. This area is similar to the Upper Ramparts except the canyon walls are much lower, ranging in height from about 50 to 60 feet. This segment ends near John Herbert's Village. The remainder of the river lies within the Yukon Flats. Here the river consists of meandering water courses with numerous loops, turns, and channels flowing through heavily timbered and often boglike terrain.

Geology. The river can be divided into five well-defined local areas, each with distinctive physiography, bedrock geology, and surficial sediments. In the Upper Ramparts, the river flows through a narrow V-shaped canyon, cut deeply into Precambrian and Paleozoic dolomites, quartzites, and shales. It is through this area of exposed and sometimes colorful bedrock that the river carves the steep canyon walls that add so much to the upper river's scenic appeal. In Howling Dog Canyon the river traverses a broad area of nearly horizontal Tertiary basalt flows that overlie irregularly eroded Paleozoic carbonate rocks. Fishhook Bend is a broad structural basin in which poorly consolidated and unconsolidated Tertiary alluvium and lacustrine sediment dip shallowly basinward. Above the Tertiary sediment is a uniformly thick mantle of Quaternary alluvium. In the Lower Ramparts, the river is incised steeply below a broad flat erosional valley floor that is developed into Paleozoic carbonates and carbonaceous rocks (limestone). The Yukon Flats consist of a broad expanse of flat-lying Holocene alluvial floodplain sediments beyond the westward limit of bedrock (Thorson and Dixon 1981, pp. 2-3).

Geological studies over the past decade suggest an interesting pattern of geological events in the Porcupine River valley and northern Yukon Territory. There are terraces in the valley that exhibit characteristics (such as coarse bouldery braided gravel surfaces and intense scouring) of a fast, deep, turbulent river. These characteristics are very unlike those created by a broad, relatively placid river, which is what the Porcupine resembles today. These terraces were likely formed at times when the Porcupine River at the Upper Ramparts acted as a meltwater outlet for glacially impounded lakes in northern Yukon Territory. Apparently at some time the river went through at least two periods of tremendous cutting and scouring. The upper Porcupine River appears to have been at one time only a medium-sized tributary to what is now the smaller Coleen River. A suggested simplified model of late Quaternary events is provided by Thorson and Dixon (1981, p. 1):

> Prior to late Wisconsinan time the Old Crow, Bluefish, and Bell Basins were gradually filling with fine alluvium as they drained eastward to the Mackenzie River. In late Wisconsinan time Laurentide ice advanced westward to the east flank of the Richardson Mountains and diverted pre-existing and meltwater drainage into the three large basins. Eventual blockage of eastward drainage at McDougall Pass by ice near its maximum limit caused the rapid growth of a large turbid glacial lake in each basin. Lake levels rose until the lowest west-draining stream divide, located at the Ramparts of the Porcupine River



Base from USGS Fairbanks and Dawson 1:1 000 000 maps

Adapted by Barker, 1981 from Beikman and Lathram, 1976, (3).

Exposed sedimentary rocks and surficial deposits

EXPOSED CRYSTALLINE ROCKS

Granitic intrusive rocks and migmatite

Mafic intrusive and extrusive rocks

Metamorphic rocks

CONCEALED CRYSTALLINE ROCKS INFERRED FROM MAGNETIC DATA

Granitic intrusive rocks

Mafic intrusive and extrusive rocks

Serpentine pods in schist and sedimentary rocks

Basement rocks of Precambrian(?) age or deep intrusive rocks

Flight lines 10-25 miles apart, flown 2,500-5,000 feet above sea level.

Fault
Inferred from magnetic data

Contact
Queried where doubtful

NORTH

0 10 20 MILES
0 10 20 30 KILOMETERS

GEOLOGY

PORCUPINE AND LOWER SHEENJEK RIVERS / ALASKA

UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

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ON MICROFILM

near the present Alaska-Canada border, was breached. As downcutting of the outlet proceeded, the lake shorelines were gradually lowered until the lakes disappeared completely. As later incision continued below the floor of the large basins, much of the glaciolacustrine and pre-glacial alluvial deposits were flushed westward via the enlarged Porcupine River, which by this time had permanently captured the drainage from much of northern Yukon Territory.

It appears that the Porcupine River is no longer rapidly cutting its channel and that the recent geologic period has been one of relative stability, as evidenced by the tremendous bulk of fine Holocene overbank sediments in the flats, the well-developed Holocene floodplain throughout the lower Porcupine River valley, and the lack of prominent riffles in the present channel (Thorson and Dixon 1981, p. 21).

Vegetation and Soils. There are two major plant communities along the Porcupine River valley. The upper portions of the river lie within a lowland spruce/hardwood forest ecosystem. This community consists of dense to open lowland forest of evergreen and deciduous trees, notably black spruce and tamaracks with a shrub layer of willow and resin birch and a ground layer of sphagnum moss, sedge tussocks, and grasses (USDI, Alaska Planning Group 1974). Higher areas within this community have mixtures of white spruce and successional stands of paper birch, aspen, and poplar. Understory plants here include willow, dwarf birch, lowbush cranberry, Labrador tea, ferns, lichens, and a thick cover of sphagnum and other mosses. Dense stands of black spruce and willow brush are found where fire has occurred (University of Alaska 1978).

As the river enters the Yukon Flats, the plant community bordering the river generally changes to bottomland spruce/poplar forest. A tall, relatively dense forest consisting primarily of white spruce covers the floodplains and low river terraces. These spruce may reach commercial size. Some cottonwood and balsam poplar invade the floodplains and valleys as earlier successional species, but these are replaced at maturity by the white spruce. The dense understory includes rose, alder, dogwood, and berry bushes. Grasses, ferns, fireweed, horsetails, lichens, and moss grow on the forest floor.

Thickets develop quickly along the extensive silt and gravel bars of the Yukon Flats floodplain. Willow and alder colonize these bars and may reach 30 feet in height. Associated vegetation includes dogwood, fireweed, and rose.

Forest fires have burned large areas of the Porcupine drainage at various times. Fire has been a dominant influence in the vegetation patterns of the region.

No forest inventory has been completed in the study area (refer to the general estimate of timber volume for the region in the regional land use section). The more productive forestlands lie adjacent to the rivers.

Based upon an estimate from the statewide Soil Conservation Service Exploratory Soil Survey map, 46 percent of the Porcupine River corridor

has class II and III soils. The soils in both classes are generally suited to cultivation and other uses, such as pasture, range, and woodland, with moderate to severe limitations that reduce the choice of potential crops and require special soil conservation practices. (The Soil Conservation Service classifies soils from I to VIII, with class I representing the best agricultural soil and class VIII, the worst.)

Streamflow and Water Quality. The entire Porcupine River, including the portion in Canada, drains an area of about 46,000 square miles (Selkregg n.d., p. 133). Discharge has been measured by the U.S. Geological Survey since 1964 from a gauging station at John Herbert's Village, where the drainage area is approximately 29,500 square miles. The average discharge at this station (15-year average) is 14,230 cubic feet per second (cfs), or 10,310 acre-feet per year. Maximum streamflow occurs from late May to early June as a result of spring breakup and snow melt. A maximum discharge of 299,000 cfs was recorded about May 24, 1973 (USDI, Geological Survey 1980, p. 217). Sudden and dramatic rises of several feet in the river level have been known to occur after summer rainstorms because of the large drainage area and the extensive areas of permafrost, which prevents much moisture absorption. Within the confining walls of the canyons such fluctuations can cause serious problems for boaters and campers.

From the Canadian-U.S. border to John Herbert's Village the river gradient averages a drop of almost 2 feet per mile. Across the Yukon Flats the river gradient averages less than 1 foot per mile. During the periods of normal summertime water levels, the Porcupine River rates as class I on the International Scale of River Difficulty used by river runners. Under certain water conditions, however, particularly under conditions of high winds in the confined canyon stretches, the conditions for individuals in small boats are much more challenging and potentially dangerous than the class I rating might otherwise indicate.

Water quality data are lacking. However, it is assumed that overall water quality is good. During May and June the river carries a substantial silt load as a result of spring runoff. By midsummer water is generally clear to moderately clear and remains so for the rest of the summer except for periods when rains wash debris into the river. All major and minor tributaries to the study segment are clearwater streams. However, several of the smaller streams and the Black River contribute water with a tea-like brownish cast as a result of flowing through extensive peat bog areas. This coloration does not affect normal water use. The village of Old Crow does not appear to contribute a significant amount of man-made pollution to the river. There are no commercial mining, lumbering, or agricultural operations in the area to contribute to the river's natural silt load.

Wildlife. The Porcupine River study corridor provides wildlife habitat for many species. Large mammals include moose, caribou, brown and black bears, wolf, and wolverine. Smaller mammals include many important furbearers. Bird life such as waterfowl, birds of prey, and upland game birds are also found adjacent to the river.

Moose are found throughout the region. Some of the most important moose habitat, especially during the winter, is the riparian willow shrub community found along major river courses. Moose are only occasionally seen along the Porcupine River, and sightings are more common in the Ramparts area than on the flats.

The winter range of the Porcupine caribou herd extends into the upper Porcupine River drainage. All or part of the herd occasionally crosses the river during spring and fall migrations, often near the Canadian border in Alaska or western Canada.

Brown bears are more common along the river corridor than elsewhere in the region, especially in spring and summer. Black bears also inhabit the area. Wolves roam the Porcupine drainage and use the river as a travel corridor, especially in winter. Coyotes may occur but are rare.

Lynx, wolverine, marten, red fox, and weasel are furbearers commonly found throughout the Porcupine River corridor. In addition, the river and associated aquatic habitats are especially important to beaver, muskrat, mink, and otter. Other small mammals that occur within the river corridor are the red squirrel, arctic ground squirrel, flying squirrel, porcupine, and snowshoe hare.

Waterfowl abound in the lower reaches of the Porcupine where it flows through the Yukon Flats. Waterfowl and other waterbirds such as grebes and loons nest, feed, and raise broods in the ideal habitat provided by oxbow lakes, ponds, and quiet stretches of river. The Porcupine River is also a waterfowl migration route during spring and fall migrations.

The cliffs in the Upper Ramparts portion of the river are considered critical habitat for peregrine falcons, which nest there. Golden eagles and Harlan's hawks also nest along the river. The river corridor also provides habitat for other raptors, such as kestrels, goshawks, merlins, sharp-shinned hawks, marsh hawks, osprey, and bald eagles.

Several species of upland game birds are found in the Porcupine River drainage, including ruffed grouse, spruce grouse, and willow ptarmigan. Ruffed grouse and ptarmigan utilize brush and willow areas along the river; spruce grouse may be found in spruce forests adjacent to the river. Sharptails and rock ptarmigan also occur, but uncommonly.

Fish. The Porcupine River offers three major habitat types for fish and other aquatic life: main channel, backwaters, and clearwater tributaries.

The main channel river in Alaska is wide, slow-moving, and often turbid; silt, sand, and gravel comprise its bottom and shores. Water level fluctuations during the open water season can be extreme, resulting in innundation or exposure of sand and gravel bars. Following high waters, gravel may be covered with silt, rendering it marginal for spawning by some fish species. Main channel areas provide the most diverse habitat and are most frequently used by fish for migrating, spawning, rearing, and overwintering.

Backwaters, such as sloughs, side channels, and oxbow lakes, occur mostly in the lower Porcupine, from its mouth upstream to the Lower Ramparts. These areas are characterized by static, lakelike waters with silt, mud, and sand bottoms. Extreme water level fluctuations may result in some backwaters being alternately connected and disconnected with the main channel. Biological productivity is generally highest in these waters--they are clearer, quieter, warmer, and richer in nutrients than other areas. Since backwaters support more plankton than other waters, they are important as rearing areas for young fish and as feeding areas for older ones.

Clearwater tributaries to the Porcupine, such as the Coleen and Salmon-Trout rivers, generally occur above the Lower Ramparts and into Canada. These are smaller, fast-flowing waters with sand, gravel, and rock bottoms. Water fluctuations are of less magnitude and shorter duration in these areas. Riffles, pools, and runs comprise the main habitat types, and fish use these areas primarily for rearing and spawning.

Studies by the Alaska Department of Fish and Game (ADF&G) indicate that the following fishes use one or more of the habitat types in the Porcupine River; occurrence in these habitats are suggested on the basis of both the ADF&G studies and general knowledge of species life history.

	Main Channel	Backwater	Clearwater Tributaries
Chinook salmon	X	X	X
Chum salmon	X	X	X
Coho salmon	X	X	X
Sheefish	X		X
Broad whitefish	X	X	
Humpback whitefish	X	X	
Least cisco	X		
Bering cisco	X		
Round whitefish	X		X
Arctic grayling	X		X
Northern pike	X	X	
Burbot	X	X	
Longnose sucker	X	X	X

The Porcupine River and Tanana River drainages are believed to be among the most important Alaskan fall chum salmon producing streams in the Yukon River system. Summer and fall chum salmon represent two major stock groupings; although less numerous than the summer run, the fall chum salmon are of higher quality and are important to both the commercial and subsistence fisheries. (The Porcupine River drainage is closed to commercial fishing; however the fish produced here contribute to the commercial fishery in the 1,002 miles of the Yukon River system downstream.) Fall chum salmon spawn in significant numbers in the Porcupine River drainage; aerial estimates of escapement by ADF&G

during 1973-80 ranged from 17,162 to 443,791 individuals per year and averaged 95,371. (The average for the Tanana was 73,949.) Most of these spawned in the Sheenjek River, Black River, and Fishing Branch River (Yukon Territory), all tributaries of the Porcupine, in areas that are spring fed and generally ice free during the winter.

Extensive studies of sheefish, the largest species of the whitefish family, were conducted by ADF&G during 1970-73. The results indicate that sheefish in the Porcupine River are a distinct population from those of the Yukon River proper; these fish spawn, feed, grow, and overwinter in both Alaskan and Canadian reaches of the Porcupine, and are smaller and slower-growing than their Yukon River counterparts.

Trout-perch, slimy sculpin, and lake chub are small species that probably serve as prey for larger fish. However, they are not vulnerable to standard forms of fishing gear and not much is known of their abundance and distribution.

There are no fisheries enhancement/rehabilitation projects for the main stem of the Porcupine identified at this time by the state of Alaska. ADF&G's limited background data show that salmon runs in the Black River and Salmon-Trout River, tributaries of the Porcupine, have been depressed, and either of these areas may provide an opportunity for enhancement.

Cultural Values

History. The Porcupine River watershed is the traditional home of the Athapascan Indians. When the first European explorers arrived in the area, they found the Kutchin Athapascan people adapted to the harsh climate with a lifestyle of hunting, fishing, and trapping.

To the Europeans, the Porcupine River provided a natural trade route into the Yukon River valley, the heart of Alaska. The first European to see the river was John Bell, factor at Peel's River Post, who crossed from the Mackenzie River drainage in 1842. In response to Bell's reports and subsequent explorations, the Hudson's Bay Company directors sent Alexander Hunter Murray to establish a fur trading post at the confluence of the Porcupine and Yukon rivers. On June 25, 1847, Murray and his crew of ten began construction of Fort Yukon (Murray 1910).

From the 1840s through the 1860s, voyageurs paddled goods up the Rat River to a 9-mile portage over the Richardson Mountains, then down the Bell River to the headwaters of the Porcupine. Thirty-foot-long "Yukon boats" carried the trading goods downriver past LaPier's House and Kutchin villages to Fort Yukon. Here beads, cloth, metal tools, and trinkets were traded to the Kutchin for furs. Three and a half years would pass before the furs would reach London markets over the river and lake route to Hudson Bay. For the Hudson's Bay Company, the Porcupine River and Fort Yukon proved of marginal profit, but between 1847 and 1869 they were an important symbol of the British royal monopoly's farthest western reach (Dall 1870; Whymper 1869; Innes 1930).

Besides opening a trading route, the Hudson's Bay Company also provided the means of travel for scientists and ministers. Robert Kennicott of the Smithsonian Institution was a guest at Fort Yukon during 1861. Two years later the Church of England established a mission, the first in the interior, as an adjunct of the post. A series of dedicated ministers and lay readers served the natives of the Porcupine River and adjacent regions. One, Reverend Simms, lost his life during an epidemic and was buried near Howling Dog Rock in 1884. Travelers also followed the Porcupine River route into the region; best known were the later gold rush traders McQuesten, Mayo, and Harper (Kennicott 1942; Kirby 1864; Dall 1870; Stuck 1925).

A major shift in trade routes and decline in importance of the Porcupine River route occurred in 1869. That year the steamboat Yukon, the first to enter the Yukon River, brought American Capt. C. W. Raymond to Fort Yukon. Raymond ordered the Hudson's Bay Company to cease operations on U.S. soil, Alaska having been purchased from the Russians two years earlier (Raymond 1900). The company moved up the Porcupine River three times before finally relocating on Canadian soil. The first move, to Howling Dog Rock, lasted until 1887, when the company burned the post and relocated 12 miles up the Porcupine River at Old Rampart House near the mouth of Salmon-Trout River. In 1889, U.S. boundary surveyor J. Henry Turner found Old Rampart House still 33 miles west of the boundary and ordered the company's removal. The Hudson's Bay Company then moved to Rampart House, just east of the boundary. In 1894, the company abandoned the post (Wright 1976).

The Porcupine River became rarely used. In winter, crew members from the ice-bound whaling ships at Herschel Island in the Canadian Arctic made emergency trips to Fort Yukon via the Porcupine. Roald Amundsen followed this route to the telegraph office in Eagle to announce his navigation of the Northwest Passage in 1905. Prospectors entered the drainage, especially during the Klondike gold rush. During 1899-1900 a few hundred misguided stampeders arrived at Fort Yukon after two years of hardship following the old Hudson's Bay Company route from Edmonton to the Mackenzie, Porcupine, and Yukon rivers. Several stayed along the Porcupine River to prospect and to trap. One, Dan Cadzow, reopened the Rampart House trading post in 1904 (Berton 1959; USDI, Geological Survey 1944).

The Kutchin, the majority of the region's population, continued their subsistence lifestyle. After 1900 they were concentrated in villages at Fort Yukon and Rampart House, and following a 1920s epidemic at Rampart House many moved to Old Crow. After the gold rush, more white trappers entered the region, marrying into Athapascan families and sharing the hunting, fishing, and trapping lifestyle. Small villages--John Herbert's Village, Shuman House, Canyon Village--became permanent place names along the banks of the Porcupine (USDI, Geological Survey 1929, 1938, and 1944).

During this period steamboats, such as Dan Cadzow's 40-foot Rampart and the Side Streams Navigation Company's 85-foot Vindette, churned up the Porcupine River to as far as Rampart House. The international boundary survey hired the Northern Commercial Company's 110-foot Tanana to steam

to the border in 1910 with supplies, but most goods were brought into the region by gas-motor-powered riverboats. The use of these boats on the Porcupine and its tributaries and the trapping lifestyle of the early part of this century is retold by Carroll (1957), Stuck (1925), and Shore (1954).

Today, the Porcupine River's past is recalled by the historic cabins along its banks, the sites of former trading posts, and the names of various geographic features. Major sites include the former Hudson's Bay Company posts near Howling Dog Rock and the mouth of Salmon-Trout River, and the former individual trading posts and villages, such as Shuman House, John Herbert's Village, and Canyon Village. These historic sites are linked with other sites on the fringes of the study area, including the buildings of Old Rampart House and the historic structures of Fort Yukon.

More importantly, the Porcupine River trade route itself serves as a historic symbol of one of Alaska's major eras, the early fur trade. At one time the Porcupine River provided easy access to the Alaskan interior from outposts of civilization in Canada. During the 1840s, 1850s, and 1860s explorers, fur traders, and missionaries followed this lifeline connecting Hudson's Bay Company trading posts--the most significant river route after the Yukon. Today the river is in many ways as primitive as it was when first European contact and the gathering of information was begun. The Porcupine River thus offers the rare opportunity to experience a wild and scenic river along one of the earliest and most significant trade routes to Alaska's interior.

Archeology

In 1978, 1979, and 1980 archeologists from the University of Alaska conducted archeological surveys along the Porcupine River within the United States, searching primarily where natural caves, erosion, or subsurface disturbance occurred. They found 67 archeological sites, most of which possessed a panoramic view and had probably been used for hunting purposes. Lithic scatters, waste flakes, and other signs of prehistoric habitation were found on overlooks of caribou migration routes along the river. One site near Old Crow, Yukon Territory, may date to 27,000 years ago; the majority indicate habitation of the Porcupine River valley from 6,000 to 8,500 years ago (Dixon and Plaskett 1980; Andrews 1977).

Current and Potential Uses

Access/Transportation. Access to the river corridor is currently by aircraft and boats. There are no highways or railroads within or near the study area. Fort Yukon is served by scheduled air service from Fairbanks, and other communities have regularly scheduled service from Fort Yukon. In addition, charter air service is available from air taxi operators based in Fort Yukon and Fairbanks.

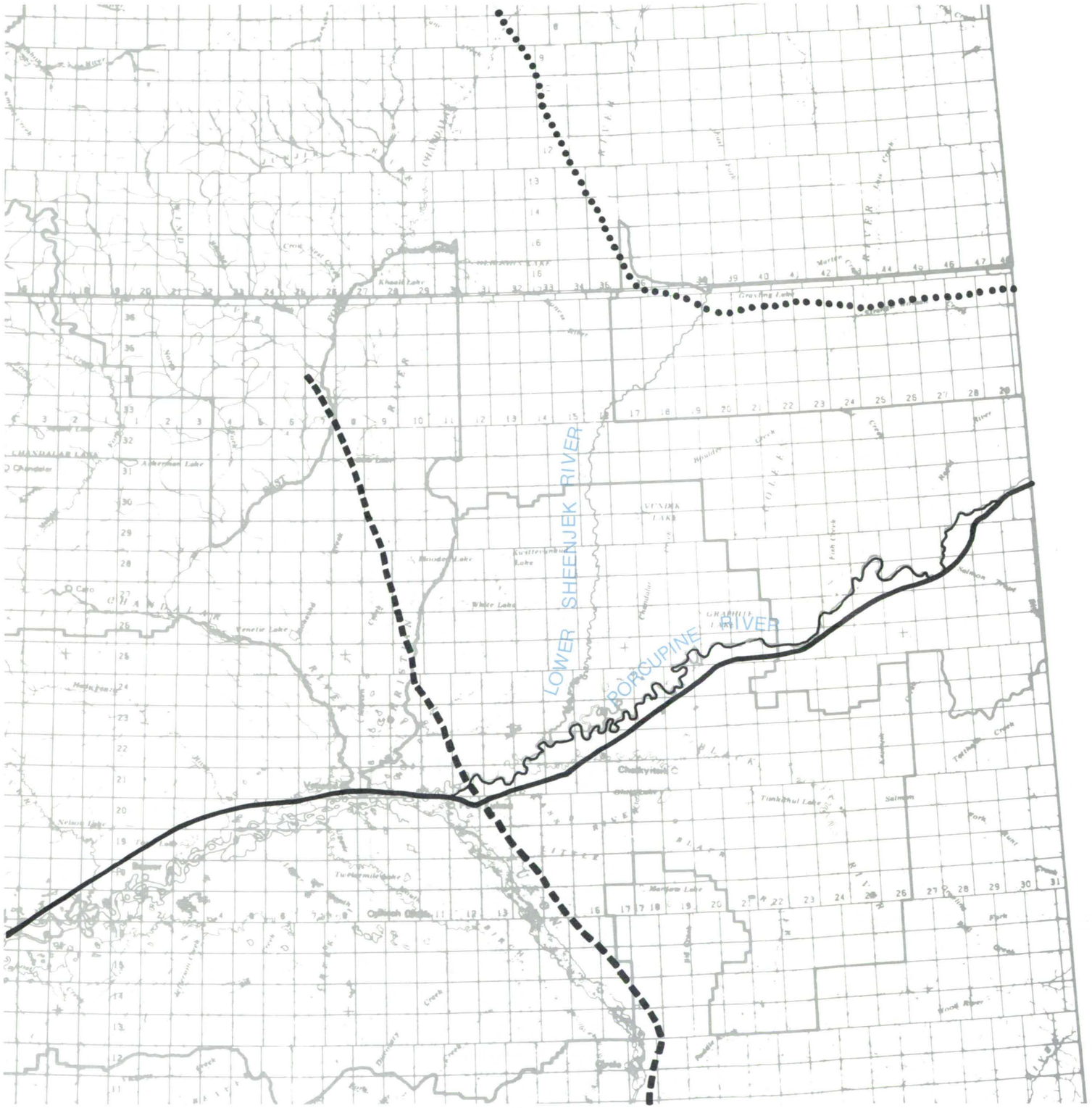
Compared to many Alaskan rivers, the Porcupine River is relatively easy to reach. Aircraft access is possible the year around from the nearby established airports in Fort Yukon, Circle, Chalkyitsik, and other villages in Alaska, and Old Crow in Yukon Territory. Float planes can land along most of the river, and except for periods of high water, there are several gravel bars accessible by wheeled aircraft. A typical put-in place for boaters is at the village of Old Crow, which is served by limited scheduled commercial air service. Road access ends outside the study area. The Steese Highway ends at Circle on the Yukon River, about 60 miles upriver from the mouth of the Porcupine. The Dempster Highway in Canada crosses the Eagle River, a tributary of the Bell River, which is a tributary of the Porcupine with its mouth about 270 river miles above the U.S.-Canadian border. From the put-in at the Dempster Highway bridge, it is a distance of about 475 river miles to Fort Yukon.

The Porcupine River is an important part of the regional transportation system. Boats with motors easily run up or down the entire length of the river within Alaska. The river is recognized as navigable, and continued navigation is guaranteed by the 1871 Treaty with Great Britain. This treaty says, in part, that navigation on the Porcupine River shall forever remain free and open for the purposes of commerce to the subjects of her Britannic Majesty and to the citizens of the United States. Barge transportation on the Porcupine River supplies the communities of Chalkyitsik on the Black River and Old Crow, Yukon Territory. About half of the total tonnage delivered to Chalkyitsik is by barge, with goods being transferred an average of two times per season; one to three trips per season are made to Old Crow. The Porcupine River is usually navigable by vessels drawing 3 feet or less, which probably means a payload of not more than 800 tons. The freight is primarily fuel, heavy equipment and construction material, since most groceries are transported by air (University of Alaska 1978, pp. 19-10 to 19-15).

The Bureau of Land Management, in a 1974 conceptual analysis of transportation corridors throughout Alaska, identified a route for a pipeline and a highway alongside the southern side of the Porcupine River from Fort Yukon into Canada (see Identified Potential Transportation Corridors map). The identified purpose for this corridor was transportation related to possible development of potential oil and gas reserves in the Kandik Basin. The route was selected only on the basis of topographic maps, resource overlays, and aerial reconnaissance (USDI, BLM 1974, pp. 100-101), and it is not being actively studied. The river itself was recognized in the analysis as a water transportation route. Development of new barge facilities, or expansion of existing ones, may be desired in the future.

The state of Alaska, under the provisions of revised statute 2477 (43 USC, section 932) has a trail right-of-way (winter tractor trail) running generally north-south along the Coleen River and crossing the study area about 6 miles downriver from John Herbert's Village.

Subsistence. The Porcupine River is an integral part of the land-and-water resource base for the subsistence economy of residents of the Yukon Flats, particularly those of Fort Yukon and Chalkyitsik. Approximately 25 trappers maintain traplines within the river corridor.



PORCUPINE FLATS
(PIPELINE AND HIGHWAY)

PORCUPINE RIVER
(EXISTING MARINE)

PRUDHOE-FORT YUKON
(PIPELINE AND HIGHWAY)

ARCTIC GAME RANGE BOUNDARY
(PIPELINE AND HIGHWAY)

NORTH

0 10 20 MILES

0 10 20 30 KILOMETERS

IDENTIFIED POTENTIAL TRANSPORTATION CORRIDORS

PORCUPINE AND LOWER SHEENJEK RIVERS / ALASKA

UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

WSR-PLS	20000
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Source: Bureau of Land Management, "Multimodal Transportation Utility Corridor Systems in Alaska" (November 1974)

Most of them have worked their lines for many years and are likely using lines trapped by their parents. Near Fort Yukon there are several additional traplines worked by people who leave town just for the day to check their lines.

By far the most important subsistence fishery on the Porcupine River is the harvest of salmon. Records maintained by ADF&G during 1961-81 show that annual catches of chinook salmon ranged from 0 to 2,000, and catches of chum salmon from 100 to 21,630; these are minimum estimates. Most of the subsistence harvest has been at Old Crow, Yukon Territory, with lesser amounts taken at Canyon Village, Chalkyitsik, and scattered fishing camps. Most salmon are taken in late summer and early fall; the size of the catch is related, among other things, to the caribou harvest. Whitefish, including sheefish, and burbot are also caught for subsistence, but are not as important as salmon.

Many local people combine several uses or activities into a single trip on the river. For example, when people from Fort Yukon travel up the river by boat, perhaps looking for black bear and moose, they may also pick berries, set fish nets, and sport fish. Caribou, duck, geese, grouse, ptarmigan, and porcupine are hunted also.

The river corridor is an important local source for house logs and firewood. Most log cutting occurs within 25 miles of Fort Yukon on native-owned lands. Wood and log cutting on those traplines located many miles from the villages also occurs mainly on native allotments; however, some line cabins are located on refuge land and consequently require wood cutting on refuge land.

The Porcupine River is an important travel corridor for local people. Small motorized barges and motorboats are frequently used on the lower river to transport people, supplies, and equipment to fish camps, trapping cabins, campsites, or the village of Chalkyitsik, and they occasionally travel up the Porcupine River as far as Old Crow, Yukon Territory.

In considering local use patterns in the region it is important to keep in mind that a primary motive for many trips relates to an individual's or family's desire to maintain their cultural ties with an area or way of life with which they have identified all their lives. Thus, a hunting or fishing trip up the Porcupine provides a familiar context in which to maintain traditional skills and family associations away from town. Additionally it is difficult to identify the purpose of many trips as many people remain opportunists and will take whatever fish or game presents itself, or may decide to do some work on a trapping cabin, pick berries, or just enjoy the day.

Recreation. The overall wilderness character of the Porcupine region and its diversity of landforms and wildlife provide for a variety of recreational opportunities, including hunting, fishing, trapping, boating, hiking, photography, wilderness enjoyment, and nature study. Most people combine several activities during a recreational trip on the river.

People planning to float downriver generally put in at Old Crow, Yukon Territory, although some floaters enter the system from the Dempster Highway in Yukon Territory, or from Fort McPherson by traveling up the Rat River and down into the Bell River. Many residents of Old Crow and Chalkyitsik own motorboats, and these boats may occasionally be for hire to visitors. Other riverboats are trailered to Circle on the Yukon River and are run downriver to the mouth of the Porcupine.

Sport hunting is currently one of the principal recreational uses of the river corridor. Moose is the primary target for hunters, although some seek waterfowl, brown or black bear, and caribou. River float trips are also a popular form of recreation on the Porcupine. Campsites are generally easy to find on large gravel or sand bars. The Porcupine runs fairly wide and deep from the Canadian-U.S. border to Fort Yukon with only minor riffles and, in low water conditions, a few fast stretches of water. The river is therefore suitable for all usual types of rivercraft, although unmotorized rafts are not an efficient means of travel because of the frequent wind. The river is relatively safe and is suitable for novice boaters familiar with traveling in the wilderness.

Two commercial river/fishing guides operate in the wildlife refuges under special use permits granted by the U.S. Fish and Wildlife Service. Although a few commercial hunting guides may use the river for transportation, the state has not assigned the area along the Porcupine River to any specific hunting guide.

It is difficult to statistically distinguish some local subsistence-related uses of the river from purely recreational uses. Most local people's trips combine several activities, and there are certain recreational values inherent in subsistence-related activities as well as the meat, fish, or cultural benefits gained.

The nature of the river--its size, regular cleaning of the shoreline by scouring action, and the numerous gravel bars--suggests that it could physically absorb a considerable increase from the present level of recreational use. All lands except the privately owned lands within the corridor are available for public recreation. The private lands are not open to public use except by prior approval from the owner(s).

Recreational use of the river corridor can be expected to increase. Recreational boating is on the increase statewide, probably as a corollary to general increases in statewide tourism and increases in Alaska's urban population. A river such as the Porcupine will probably attract a significant share of the increased use because of its length, lack of severe rapids, canyon scenery, well-known history, wilderness quality, and relative accessibility, particularly with the Dempster Highway crossing in the Yukon Territory.

Water Resource Development. A potential hydroelectric site about 12 miles below the Canadian border was identified by the Alaska Power Administration in 1966 as part of a power site inventory. The project is not an active proposal, however, and a feasibility study has never been authorized. Among the reasons the project has not been actively pursued are the remoteness of the project site, the difficulties arising from a

project involving and impacting two countries, the treaty assuring navigation on the Porcupine River, the lack of demonstrated need in the immediate area for the large amount of power that would be generated by such a project, and the costs and difficulties associated with transferring the power long distances. The project was envisioned as a concrete arch dam with its crest 320 feet above the river in the constricted canyon of the Upper Ramparts. The resulting reservoir with normal maximum water surface at elevation 975 feet would provide 100 percent regulation of the estimated average annual flows of the Porcupine River. With a 480,000-kilowatt power plant at the toe of the dam, the project would produce 265,000 kilowatts of continuous power.

No navigation or bank stabilization studies are known to have been made on the Porcupine River.

Mining/Mineral Leasing. No mineral production has been reported in the study area or nearby, and there are no active mineral claims. Six gold placer claims exist on the Coleen River, well outside the study area; the records of the U.S. Bureau of Mines indicate that these claims were last active in the late 1950s. Another claim, last active in 1900, is situated at a mineral springs near Old Camp, downstream from Salmon-Trout River.

The minimal mineral explorations conducted in the general area have identified rock units that are parts of broader metallogenetic provinces which can be traced into Canada (see Geology map). Mineral exploration and development in the Yukon Territory has resulted in a number of significant discoveries in the Canadian portions of these trends. The tentative conclusion from the small amount of exploration is that at least portions of the general area have high favorability for mineralization. Based upon known associations, potential elements of interest in the general area include tin, tungsten, uranium, copper, lead, zinc, silver, barium, beryllium, niobium, tantalum, and molybdenum (USDI, Bureau of Mines 1981, pp. 14, 125-28).

All lands in federal ownership within the Arctic and the Yukon Flats national wildlife refuges are withdrawn, subject to valid existing rights, from filing of new mineral claims. These same lands are not specifically closed, however, to mineral (such as oil and gas) development controlled by the mineral leasing laws.

Landownership

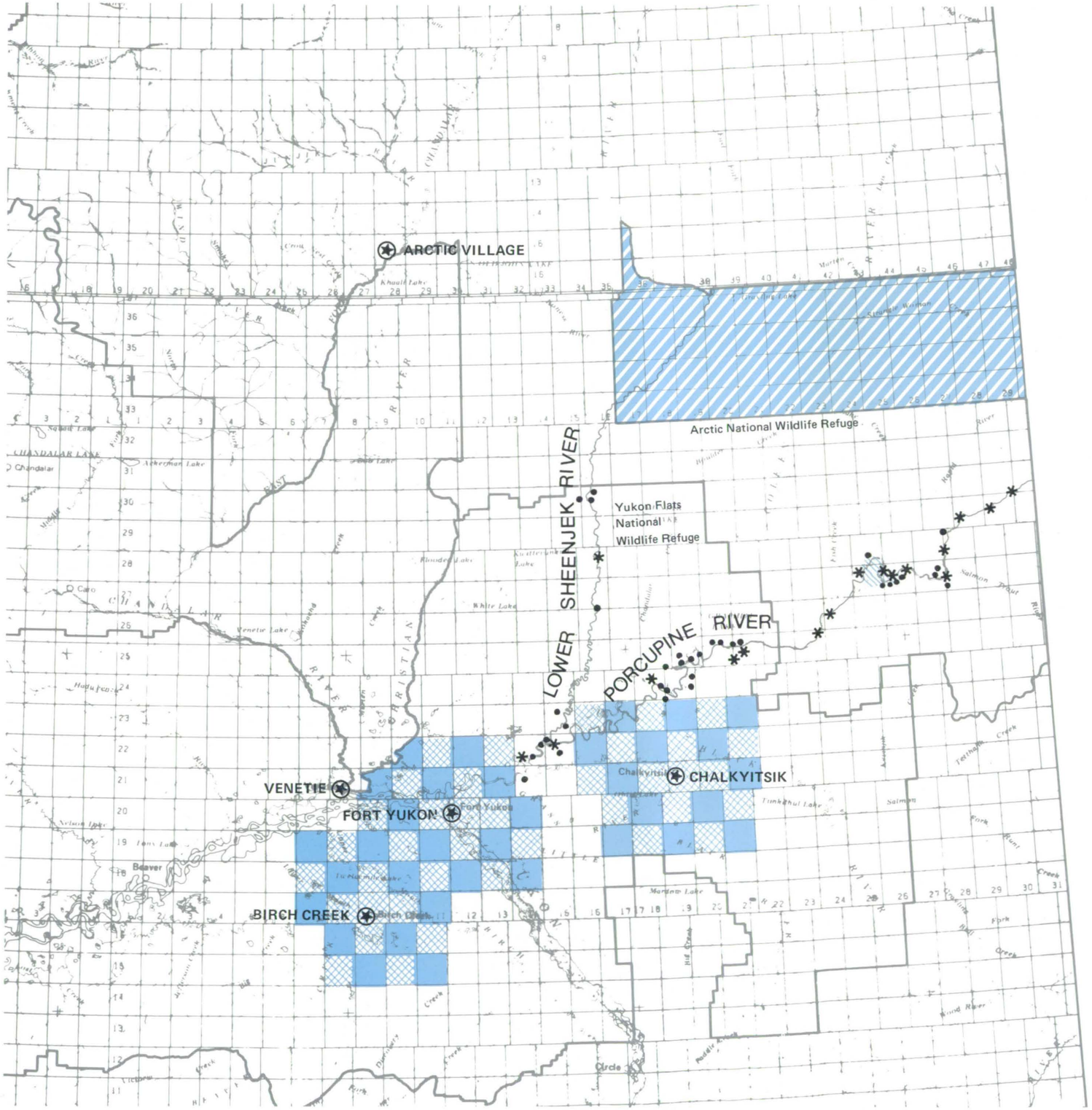
Landownership within the study area is divided among federal, state, and private (see the Landownership map). Since the entire length of the Porcupine River within the United States is legally recognized as a navigable river, the state owns the riverbed up to the mean high-water line under provisions of the Alaska Statehood Act (PL 85-508) and of the federal Submerged Lands Act of 1953 (PL 83-31).

The major private landowners in the study area are Doyon Limited (a native regional corporation) and Gwitchyaa Zhee and Chalkyitsik Village corporations (native village corporations). About 64 miles of the study area are contained within these regional and village land selections. In

addition there are a native group selection site of about 14,000 acres at Canyon Village, a number of individual regional historic place selections (authorized by section 14(h) of the Alaska Native Claims Settlement Act), and individual allotments located within the study corridor.

The remaining lands are federally owned and administered by the U.S. Fish and Wildlife Service as part of the Arctic National Wildlife Refuge and the Yukon Flats National Wildlife Refuge.

Presidential proclamations in 1908 and 1912 reserved 60 feet along the U.S.-Canadian border to aide in the preservation of the boundary line and better enforcement of the customs and immigration laws of the United States. The International Boundary Commission of the United States and Canada is charged with maintaining a clear and effective boundary line between the two countries at all times, which involves periodic maintenance of the boundary monuments and the reclearing of a 20-foot boundary strip.



- NATIVE ALLOTMENT
- NATIVE HISTORICAL PLACE SELECTION (DOYAN) 14 (h)(i)
- STATE SELECTION (THIS LAND SELECTION WAS RELINQUISHED BY THE STATE IN OCTOBER 1983; THE LANDS WERE ADDED TO THE ARCTIC NATIONAL WILDLIFE REFUGE)
- VILLAGE SELECTION (VILLAGE SURFACE/DOYAN SUBSURFACE)
- DOYON (REGIONAL) SELECTION (SURFACE AND SUBSURFACE)
- NATIVE GROUP SITE SELECTION

NORTH

0 10 20 MILES

0 10 20 30 KILOMETERS

LANDOWNERSHIP

PORCUPINE AND LOWER SHEENJEK RIVERS / ALASKA

UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

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REVIEWING AGENCIES AND ORGANIZATIONS

Federal Agencies

Department of Agriculture
- Forest Service
- Soil Conservation Service

Department of Commerce
- National Marine Fisheries Service
- National Oceanic and Atmospheric Administration

Department of Defense
- Army Corps of Engineers

Department of Energy
- Alaska Power Administration
- Energy Research and Development Administration
- Federal Energy Regulatory Commission

Department of Health and Human Services
Department of Housing and Urban Development
Department of the Interior
- Bureau of Indian Affairs
- Bureau of Land Management
- Bureau of Mines
- Bureau of Reclamation
- Fish and Wildlife Service
- Geological Survey
- Minerals Management Service
- National Park Service
- Office of Surface Mining, Reclamation and Enforcement

Department of Transportation
- Federal Aviation Administration
- Federal Highway Administration

Environmental Protection Agency
Department of State
International Boundary Commission

Alaska State Agencies (through the conservation system unit coordinator)

Alaska Power Authority
Department of Administration
Department of Commerce and Economic Development
Department of Community and Regional Affairs
Department of Education
Department of Environmental Conservation
Department of Fish and Game
Department of Health and Social Services
Department of Law
Department of Labor
Department of Military Affairs
Department of Natural Resources
Department of Public Safety
Department of Revenue
Department of Transportation and Public Facilities
Division of Fish and Wildlife Protection
Division of Policy Development and Planning

Local Agencies

City of Fort Yukon
Village of Arctic Village
Village of Chalkyitsik
Village of Venetie

Canadian Agencies

Parks Canada
Yukon Territory Parks and Historic Resources Branch

Interested Groups

Alaska Center for the Environment
Alaska Chamber of Commerce
Alaska Coalition
Alaska Conservation Society
Alaska Federation of Natives
Alaska Historical Commission
Alaska Historical Society
Alaska Land Act Coordinating Committee
Alaska Legal Services
Alaska Miners Association
Alaska Native Foundation
Alaska Oil and Gas Association
Alaska Professional Hunters
Alaska Sportsmen's Council
Alaska Wilderness Council
Alaska Wildlife Federation
American Mining Congress
American Petroleum Institute
Arctic Environmental Information and Data Center
Association of Village Council Presidents
Audubon Society
Chalkyitsik Village Corporation
Doyon Limited
Federation of Western Outdoor Clubs
Friends of the Earth
Gwitchyaa Zhee Corporation
Institute of Arctic and Alpine Research
National Wildlife Federation
Sierra Club
Soil Conservation Society of America
Tanana Chiefs Conference, Inc.
Wilderness Society
Wildlife Management Institute
Wildlife Society

Individuals

Mailing will be made to individuals included on mailing list located at the National Park Service, Alaska Regional Office, Anchorage.

APPENDIX: SUMMARY OF PUBLIC INVOLVEMENT

During May 1981 letters were mailed to the governor of Alaska, individual state agencies, individual federal agencies in Alaska, and native regional and village corporations and organizations with lands or interests in the study areas. These letters announced the beginning of the study and specifically invited participation in the study process.

On July 17, 1981, a news release was sent to local and statewide newspapers announcing the initiation of the study, requesting information on the study area and identification of issues, and requesting interested persons or organizations to contact the National Park Service if they wanted to be kept personally informed on the progress of the study. At the same time letters requesting the same input were mailed to individuals and organizations in Alaska and in the Lower 48 whom the National Park Service perceived might be interested in the studies.

During August and September 1981 follow-up letters were mailed to state agency heads and leaders of native organizations with lands or other direct interests in the study area. These letters again requested information and invited direct participation.

On September 24, 1981, a follow-up to the July 17 letter was mailed to individuals and organizations in Alaska and in the Lower 48. This follow-up letter included a form individuals could return if they wished to be placed on a mailing list.

On November 20, 1981, a "Notice of Intent to Prepare Report/Environmental Impact Statement and To Hold Public Meetings" was published in the Federal Register.

On January 4, 1982, a public information brochure was mailed to state and federal agencies, affected native organizations, and individuals and groups on the mailing list, explaining the studies, presenting the findings of the study team, and describing the alternatives. Responses were requested.

On January 14, 1982, a news release was sent to local and statewide newspapers announcing availability of the public information brochure and announcing the schedule of public meetings.

Public meetings to discuss the Porcupine and lower Sheenjek wild and scenic river studies were held in Anchorage on January 20, in Fairbanks on January 26, and in Fort Yukon on March 4. The public meetings were held primarily to provide information on the study, to answer questions about the study findings, and to gather additional information on the area. Some expression of support for or against potential designations was also received. Little comment was provided in the Anchorage meetings. In Fairbanks the comments were mixed, but the majority were in favor of designation of the river area. In Fort Yukon the expression was almost 100 percent in favor of the no-action (nondesignation) alternative.

A total of 38 written comments were received primarily in response to the public information brochure. The origins of written comments were Anchorage (6), Fairbanks (13), Fort Yukon area (1), other Alaska communities (5), Lower 48 (11), and unknown (2). From this total, 31 favored designation of all or portions of the study river and 7 favored the no-action (nondesignation) alternatve.

Following is a summation of the questions and comments offered in the public meetings and in the written responses. Some of the comments refer to the lower Sheenjek River, since both it and the Porcuping River were discussed in the same meetings.

PUBLIC MEETINGS

Anchorage

How will the preferred alternative be selected by the study team? (Concern expressed that the composition of the study team would influence the decision more than any other factor.)

The wild and scenic river study should be a part of the comprehensive refuge plans rather than being completed prior to the completion of the comprehensive plans.

Fairbanks

Grizzly bears concentrate in significant numbers on the lower Sheenjek in spring to feed on spawned chum salmon from the previous year. Archeological sites probably occur on the river because local people have long known where the chum salmon concentrate in pools within the lower river area.

There should have been better publicity for this meeting, including posting of notices on the university campus.

How would river designation affect subsistence?

What additional protection would designation provide?

How would water quality be affected by designation?

What additional protection would be given to protect resources from expected additional recreational use?

Will there be a public meeting in Fort Yukon?

Will designation affect commercial barge operations on the Porcupine River?

What provisions are there for access to mineral claims and future development of such claims?

Are there provisions for government condemnation of private lands within a wild and scenic river area?

Has there been any coordination with Canada on the Porcupine River study?

Are there any Department of Transportation road rights-of-way or corridors in the study area?

What are the congressional deadlines for completing these studies?

Public meetings should be held in Fort Yukon, Chalkyitsik, and Circle.

How will designation prevent vandalism? (Concerned about the addition of more visitors to the river and possible cabin break-ins.)

Information brochures on wild or scenic rivers might be useful to build a better rapport between floatboaters and local people

Wouldn't the management plan address the question of if and how information brochures should be prepared and distributed?

River use in Alaska is going to increase with or without designations.

The government should not advertise rivers with publication of brochures.

Encouraging more people to get out and enjoy the use of rivers is not necessarily bad if the agencies properly manage the resources.

The river report/EIS needs to address the problem of vandalism of cabins and other private property.

What other rivers in Alaska are under study as potential additions to the national system?

What provisions are made for continued access to traditional use areas and for continuation of ongoing uses?

What is the difference between "wild," "scenic," and "recreational" classifications and how are these classifications decided?

There should be more research and collection of data associated with these studies, particularly that involving interviews with local people to collect subsistence and traditional use data.

Is it an option to recommend wilderness designation rather than wild river designation?

What are the benefits of wild river designation for rivers within national wildlife refuges?

How would designation contribute to protection of private lands and property along the river?

Since the state owns the submerged lands of navigable rivers, how would these lands be affected by river designation?

Fort Yukon

Why do these rivers need extra protection?

What additional protection would wild river designation provide?

If designated, would these corridors be closed to hunting, camping or use of motorboats?

Why did Congress designate these particular rivers for study?

Won't designation result in a lot more restrictions on uses and activities in the corridors?

Would timber cutting be permitted?

What evidence is there that these rivers are even eligible? What outstanding values do they possess?

Are these rivers going to be open to recreational uses if designated?

If these rivers are not designated this time, how long until they again will be considered for designation?

What provisions are being made for local people to go back to Washington, D.C., to testify on these river proposals?

What authorities will the secretary of the interior have to condemn private land to acquire access and scenic easements?

Who would manage the lands after designation?

Would mineral exploration and development be allowed?

Would designation restrict seismic exploration for oil and gas?

After designation the secretary of the interior or Congress can change the regulations or the law so that local people's uses are affected.

Designation could result in increased management, research activities and regulation of the corridors so that existing uses such as trapping, subsistence gathering, and hunting could be restricted. (Reference made to section 13(a) of the Wild and Scenic Rivers Act and fear expressed that the secretary of the interior could restrict hunting in the river corridors if they were designated.)

What effects would designation have on future development of transportation, that is, roads, landing strips, and docking facilities?

What will happen if these river corridors are not designated?

"Outside pressure groups" would have more influence on management of designated rivers than on nondesignated rivers.

WRITTEN RESPONSES

Both the Porcupine and lower Sheenjek rivers warrant designation as wild rivers.

Designation of the Porcupine and lower Sheenjek rivers will help ensure the cultural viability of residents of the region.

The resources and present uses of the Porcupine and lower Sheenjek rivers would best be served by no designation of either of these two river areas.

Decisions on these river areas should be delayed.

Favor designation of the upper 82 miles of the Porcupine River. Favor no designation on lower segment of Porcupine River.

Managing agencies should control introduction of new sources of noise pollution in these river areas.

Given the limitation of opportunities to protect rivers in this country, the opportunity to protect these two outstanding river areas should be taken.

All of both the Porcupine and lower Sheenjek rivers should be designated.

Corridors for the rivers, if designated, should be at least one mile on each side.

These rivers should not be designated. Official designation does more to harm the river areas (destroying wilderness and recreation opportunities) than it does to protect them.

There is currently no real threat to either the Porcupine River or the lower Sheenjek River.

The wilderness qualities and recreational opportunities offered by these two river areas should be preserved for future generations.

Support designation of the rivers because of the protection offered by such action. However, the local native population, the ones who have lived close to these rivers for generations, should have final say.

Favor designations; we must preserve as many wild places as completely as we can, as long as we can, for future generations.

Management emphasis should be on maintaining water quality and the pristine undeveloped character of the shorelines.

The managing agency should do nothing that purposely advertises or promotes these river areas.

Subject to protection of prior existing rights these rivers should be designated.

The state of Alaska, once it receives title to land along the Sheenjek River, should take steps to have that segment of river designated.

Wild river status will maintain the free-flowing quality which is of critical importance to the native and other rural people.

Year-round transportation uses of these rivers will be guaranteed by their designation.

All of the Sheenjek River should be designated in order to preserve all of the ecological system.

Due to the lack of glaciation in the Porcupine Valley during the last ice age, the area should have important archeological sites.

Although not threatened by development (dams or sources of pollution) now, history has shown that such a condition can change. Therefore protection is necessary to ensure that present and historic uses can continue, and new uses are not introduced.

If included in the national system, management should be directed to educating and regulating recreational users to reduce possible impacts on local users.

Transportation corriders should be permitted into these river areas only if restrictions can be enforced in order to minimize impact on identified river values.

I oppose designation of either of the rivers because I fear future rules against those activities (such as building cabins, cutting trails, cutting firewood, hunting, trapping and fishing) that I have been doing. Also fear restriction against my children being able to do these things along these rivers.

Existing protection of these river areas is adequate.

Relative to other rivers in Alaska, these rivers are not outstandingly remarkable.

Motorboats should be restricted on Sheenjek River.

Special protection of the Porcupine River in Canada should be encouraged.

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LIST OF PREPARERS

PREPARER/CONSULTANTS

This report was prepared by

Jim Morris, Outdoor Recreation Planner, National Park Service, Alaska Regional Office

Primary consultants on the project where

Abby Arnold, Tanana Chiefs Conference, Inc.
Louis Barton, Alaska Department of Fish and Game
Phil Berrian, Doyon Limited
Bartz Englishoe, Gwitchyaa Zhee Corporation
Mike Kramer, Alaska Department of Fish and Game
Jim Kowalsky, Tanana Chiefs Conference, Inc.
Judy Liedberg, U.S. Fish and Wildlife Service, Arctic National Wildlife Refuge
Jim Reynolds, University of Alaska, Alaska Cooperative Fishery Research Unit
Mitchell Sheldon, U.S. Fish and Wildlife Service, Yukon Flats National Wildlife Refuge
Robert Spude, National Park Service, Alaska Regional Office
Averill Thayer, U.S. Fish and Wildlife Service
Joe Wehrman, Alaska Department of Natural Resources
Curt Wilson, U.S. Fish and Wildlife Service

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