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Vol I

general management plan
land protection plan
wilderness suitability review

BERING LAND BRIDGE



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BERING LAND BRIDGE

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SUMMARY

GENERAL MANAGEMENT PLAN

This combined document consists of the general management plan, the land protection plan, and the wilderness suitability review for Bering Land Bridge National Preserve. The purpose of the general management plan is to preserve, protect, and interpret the natural and cultural resources of the national preserve and to provide for continued subsistence uses and reindeer grazing, in accordance with the legislative mandates of the Alaska National Interest Lands Conservation Act (ANILCA). The land protection plan is concerned with the potential uses of nonfederally owned lands within the preserve, and the wilderness suitability review evaluates the suitability of designating lands within the preserve as wilderness.

The plan is the minimum action required to meet the legislative mandates, to protect natural and cultural resources, to continue subsistence uses and reindeer grazing, and to provide information, interpretation, and recreational opportunities. Research, survey, and inventory programs are recommended as the basis for future natural and cultural resource management actions. Access and circulation will continue according to the existing authorities of ANILCA and federal regulations. Headquarters will remain in Nome, and new district ranger stations will be established in Shishmaref and Deering. Serpentine Hot Springs will be maintained in its present condition. Essentially the preserve will be managed in the same manner as a national park except that the taking of fish and wildlife for both sport purposes and subsistence uses, as well as trapping, will be allowed under applicable state and federal laws and regulations (ANILCA, sec. 1313).

The high priority recommendations of the land protection plan are to acquire the group of mining claims adjacent to Serpentine Hot Springs if they are determined to be valid, and to develop a mutually agreeable land exchange if Serpentine Hot Springs is conveyed to the regional native corporation. Administrative office sites will be leased or acquired in Nome, Shishmaref, and Deering.

The wilderness suitability review finds that all federal lands (2,509,360 acres) within the preserve are eligible to be designated as wilderness. There are 180,819 acres where landownership has not been resolved, and wilderness suitability is pending for these lands.

PUBLIC REVIEW OF MARCH 1985 DRAFT PLAN AND DECEMBER 1985 REVISED DRAFT PLAN

The Draft General Management Plan / Environmental Assessment was released for public review in March 1985. Comments on the draft plan were made at public meetings in the five communities adjacent to the preserve as well as in Anchorage and Fairbanks. More than 50 detailed

written comments and more than 150 general written comments were received during the public comment period, which was extended twice to be a total of 120 days. The revised draft plan was released for public review in December 1985. During the 60-day comment period, 26 letters addressed issues specific to Bering Land Bridge and an additional 42 letters addressed general issues. (Summaries of public comments for the March 1985 draft and the December 1985 revised draft are included in the "Consultation and Coordination" section.)

The general management plan, land protection plan, and wilderness suitability review included in this document contain most of the material presented in the March 1985 Draft General Management Plan / Environmental Assessment and the December 1985 revised draft, with the exception of the environmental assessment (including alternatives considered and impacts of the alternatives). Minor changes have been incorporated. The major changes are listed below:

Major Changes Made to the March 1985 Draft Plan

NPS policy for amending the plan is explained, and future plans that will be needed are identified.

Visitor use projections have been revised to reflect lower use levels.

Several changes have been made to the access section: a detailed discussion of off-road vehicles (ORVs) has been added, landing strip maintenance has been clarified, and definitions have been added to the access table.

NPS policy is discussed regarding public use easements, Alaska Native Claims Settlement Act (ANCSA) section 17(b) easements, and transportation rights-of-way (Revised Statute 2477). Appropriate changes have been made in the plan and the land protection plan recommendations.

ORV use for subsistence activities is permitted only where it is shown to be a customary and traditional use. To date no ORV use in the preserve has been identified as traditional. If a traditional use is identified, the National Park Service will revise the policy for ORV use for subsistence activities, consistent with applicable laws and regulations.

The NPS policy for fish and wildlife management is clarified.

The NPS management intent with regard to navigability, tidelands, submerged lands, and water rights is clarified.

NPS policies for reindeer grazing are clarified.

Land protection recommendations have been revised to seek agreements with native corporations and individuals. If the mining claim groups are determined to be valid, the Park Service will seek to acquire the mining claim interests. If Serpentine Hot Springs is conveyed to the regional corporation, the Park Service will seek a mutually agreeable land exchange.

The plan has been modified to provide for the leasing of administrative space in Shishmaref and Deering.

Special events such as sled dog races are discussed.

The NPS policy for temporary facilities for sport hunting has been clarified.

The continued public use of the cabin at Serpentine Hot Springs has been emphasized.

The NPS policy toward the Alaska coastal management program has been clarified.

A summary of public involvement has been added.

Changes Not Made to the March 1985 Draft Plan

New access routes, roads, and airstrips are not proposed.

No wilderness designation is recommended by the plan.

No restrictions on sport hunting are proposed.

ORVs are not considered a traditional form of access to allotments.

Major Changes Made to the December 1985 Revised Draft Plan

Natural Resources. Clarification was provided on the management of fish and wildlife issues.

Public Involvement. A new section on public involvement in plan implementation was prepared and included.

A commitment was added to further communicate with local residents.

Access. The process was revised to determine whether ORVs are traditional for subsistence activities by allowing for opportunities to review additional data.

Clarification was provided on the maintenance of aircraft landing strips.

A commitment was added to inventory access routes and uses and to involve the public in future actions regarding access.

Serpentine Hot Springs. The plan has clarified that native access and use of the hot springs in accordance with the American Indian Religious Freedom Act will be protected.

The request for users to voluntarily notify the Park Service has been deleted.

Land Protection Plan. The two mining claim groups on Humboldt Creek were placed in the moderate priority category for protection.

The NEPA and ANILCA section 810 compliance requirements were clarified.

Wilderness. The suitability of potential RS 2477 rights-of-way for wilderness designation was clarified.

General Comments. "Traditional" has been defined.

Clarification was provided on temporary facilities in preserves, along with additional justification for determinations to not allow temporary facilities.

The management of unclaimed cabins on federal land was clarified.

A commitment was made to prepare a subsistence management plan.

Changes Not Made to the Plan Based on the
December 1985 Review Comments

The Park Service will not establish an advisory committee or a subsistence commission. Existing boards, councils, and committees will be used as forums for communication.

No native allotments have been proposed for acquisition. The Park Service will seek agreements with allotment owners to ensure continued compatible use of these areas.

No development of Serpentine Hot Springs is proposed except for a small administrative cabin that will be used to store supplies and equipment and as temporary quarters.

No additional boundary adjustments or land exchanges have been proposed.

Serpentine Hot Springs is still recommended for acquisition through a mutually agreeable land exchange if it is conveyed to the regional native corporation.

Lands suitable for wilderness have not changed based on the suitability criteria. Further studies to assess wilderness designation recommendations and an environmental impact statement will be prepared following the completion of the general management plan.

ORVs have not been shown to be a traditional form of access for subsistence activities. No new roads or landing strips have been proposed.

Helicopters may be permitted by the superintendent for general research and other purposes.

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ABBREVIATIONS

ACMP	- Alaska Coastal Management Program
ADF&G	- Alaska Department of Fish and Game
ANCSA	- Alaska Native Claims Settlement Act (43 USC 1601 et seq.)
ATV	- All-terrain vehicle (see ORV)
ANILCA	- Alaska National Interest Lands Conservation Act (16 USC 3101)
BLM	- Bureau of Land Management
BSNC	- Bering Straits Native Corporation
CFR	- <u>Code of Federal Regulations</u> (e.g., 36 CFR 13)
CRSA	- Coastal Resource Service Area
DM	- "Departmental Manual," U.S. Department of the Interior (e.g., 60 DM 4.2)
EA	- Environmental Assessment
EIS	- Environmental Impact Statement
EO	- Executive Order
FEIS	- Final Environmental Impact Statement
FWS	- Fish and Wildlife Service
NANA	- NANA Regional Corporation, Kotzebue
NPS	- National Park Service
ORV	- Off-road vehicle, any motor vehicle designed for or capable of cross-country travel on or immediately over land, water, sand, snow, ice, marsh, wetland, or other natural terrain, except snowmachines or snowmobiles (36 CFR 13.1), including all-terrain vehicles (ATVs)
RMP	- Resource management plan
SCS	- Soil Conservation Service
USC	- United States Code



INUKSUKS (STONE CAIRNS) ON RIM OF TWIN CALDERAS

The Bering Strait area is still commonly visualized as a narrow path or trail over which people hustled, in one direction, on their way to take up positions in which they would presently be discovered. . . . In fact, the Bering Land Bridge was an enormous continental area extending nearly 1,500 km from its southern extremity, now the eastern Aleutians, to its northern margin in the Arctic Ocean. It was an area that could accommodate many permanent residents, human and animal, and it endured for a longer time than that documented for the entire period of human occupancy in America.

William Laughlin

PURPOSE OF THE PRESERVE

Bering Land Bridge National Preserve was established by the Alaska National Interest Lands Conservation Act (ANILCA) on December 2, 1980. As stated in ANILCA, the purpose of Bering Land Bridge, as well as of the other conservation system units in Alaska, is

to preserve for the benefit, use, education, and inspiration of present and future generations certain lands and waters in the State of Alaska that contain nationally significant natural, scenic, historic, archeological, geological, scientific, wilderness, cultural, recreational, and wildlife values.

The primary purpose of Bering Land Bridge National Preserve is to protect and preserve for research and interpretation a portion of the 1,000-mile-wide land link that intermittently connected Asia and North America 14,000 to 25,000 years ago. The land bridge itself is now overlain by the Chukchi and Bering seas. Approximately 2.8 million acres are included in the national preserve, and these lands contain paleontological deposits that can be studied and analyzed to determine the climate and conditions that existed when plants and animals migrated between the North American and Asian continents. The preserve also has high potential for containing archeological evidence of early man's habitation in northwest Alaska.

Other management purposes of the national preserve, as summarized from ANILCA (sec. 201(2)), are

to protect and interpret arctic plant communities, volcanic lava flows and ash explosions, coastal formations, and other geological processes

to protect habitat for and populations of migratory birds and fish and wildlife (marine mammals, brown and grizzly bears, moose, and wolves)

to provide for archeological and paleontological study of plant, man, and animal migrations across the land bridge

to continue reindeer grazing, including necessary equipment and facilities

to protect the viability of subsistence resources

to provide for outdoor recreation and environmental education, including public access for recreation at Serpentine Hot Springs

to continue customary patterns and methods of winter travel, during periods of adequate snow cover, along an existing route from Deering to the Taylor Highway

Section 203 of ANILCA directs that the preserve be administered as an area of the national park system, pursuant to the National Park Service organic act of August 25, 1916, as amended and supplemented, and as appropriate to section 1313 and other applicable provisions of ANILCA. The organic act states in part that

The service . . . shall promote and regulate the use of . . . national parks . . ., which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.

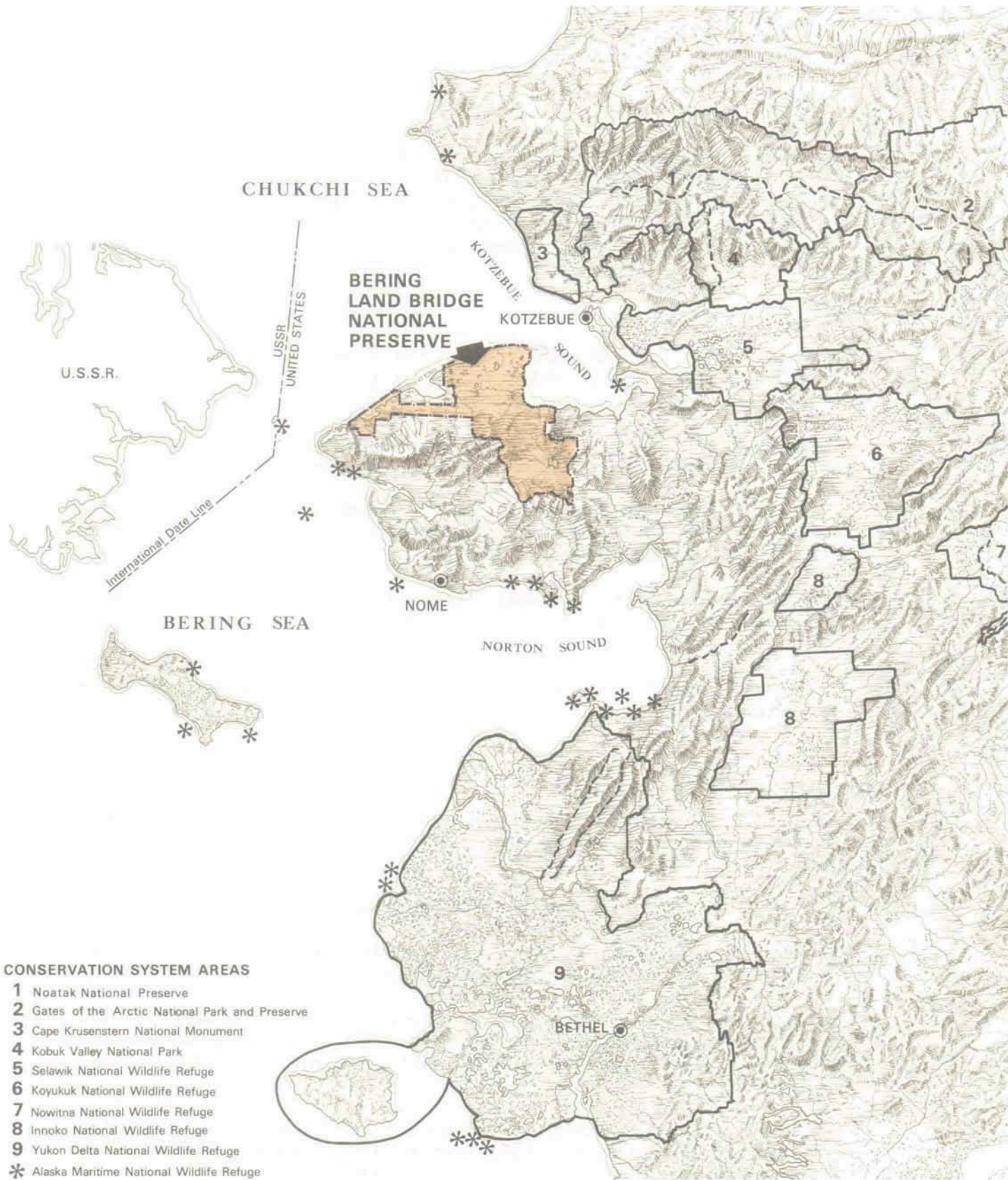
SIGNIFICANCE OF THE PRESERVE

The primary significance of Bering Land Bridge National Preserve is the opportunity to study the cultural, geographic, and climatic history, as well as the biological evolution, of northern North America. Numerous paleontological resources (pollen, fossils, animal remains, and plant parts) have been identified in the preserve. Through the study of paleontological and archeological resources, sites at Bering Land Bridge may provide critical documentation of plant, animal, and human migrations across the land bridge.

Significant natural resources in the preserve include areas of past volcanic activity in the high Arctic, dynamic coastal barrier beaches with interior lagoons, and a full representation of tundra varieties from sea level to 3,500 feet. There are two distinctly different volcanic areas--the lava flows of the Lava Lake and Imuruk Lake areas and the volcanic ash explosion areas of the Devil Mountain Lakes and the Killeak Lakes (see "Special Scenic and Scientific Resources" map). The broad river mouths, coasts, estuaries, and lagoons provide primary waterfowl nesting habitat as well as staging areas for fall migration, shorebird habitat. Some 112 migratory bird species (many of which are Asian forms rarely seen in North America) have been recorded.

Significant known cultural resources include the Trail Creek caves archeological site, which has provided the earliest evidence (more than 10,000 years old) of humans in Alaska. Other resources are from former Eskimo village sites. More recent historical sites include remnants of early exploration and mining activities. Another cultural value is the continuation of present-day Eskimo lifestyles, which are similar to the lifestyles that have existed for generations.

Serpentine Hot Springs is a significant geothermal resource set in a strikingly scenic valley where granite spires and pinnacles rise to 100 feet. This area is important habitat for raptorial birds, such as gyrfalcons and rough-legged hawks. It is also a major recreational use area that is accessible by aircraft and on winter trails, and there is a public use cabin. The cultural significance of the area has long been recognized as a place used for native healing and as a training ground for shamans (spiritual leaders).



BERING LAND BRIDGE NATIONAL PRESERVE



REGION

BERING LAND BRIDGE NATIONAL PRESERVE

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MANAGEMENT OBJECTIVES

The following management objectives for Bering Land Bridge National Preserve have been developed to elaborate the general direction provided by ANILCA and the legislative history of the preserve. They are based on the preserve's "Statement for Management," a document that provides an overview of the purpose, objectives, and conditions affecting the preserve.

General

Manage Bering Land Bridge National Preserve in the same manner as a national park except allow subsistence uses, reindeer herding, fishing, trapping, and sport hunting as required by the legislation.

Minimize development or alteration of the natural environment except as necessary to meet legislatively authorized purposes.

Cooperate with affected organizations and landowners regarding management of the preserve to ensure that actions are mutually beneficial to the degree possible.

Develop cooperative working agreements where possible with organizations and agencies to help implement management programs for the preserve.

Use local expertise where possible to help manage preserve resources.

Natural Resources

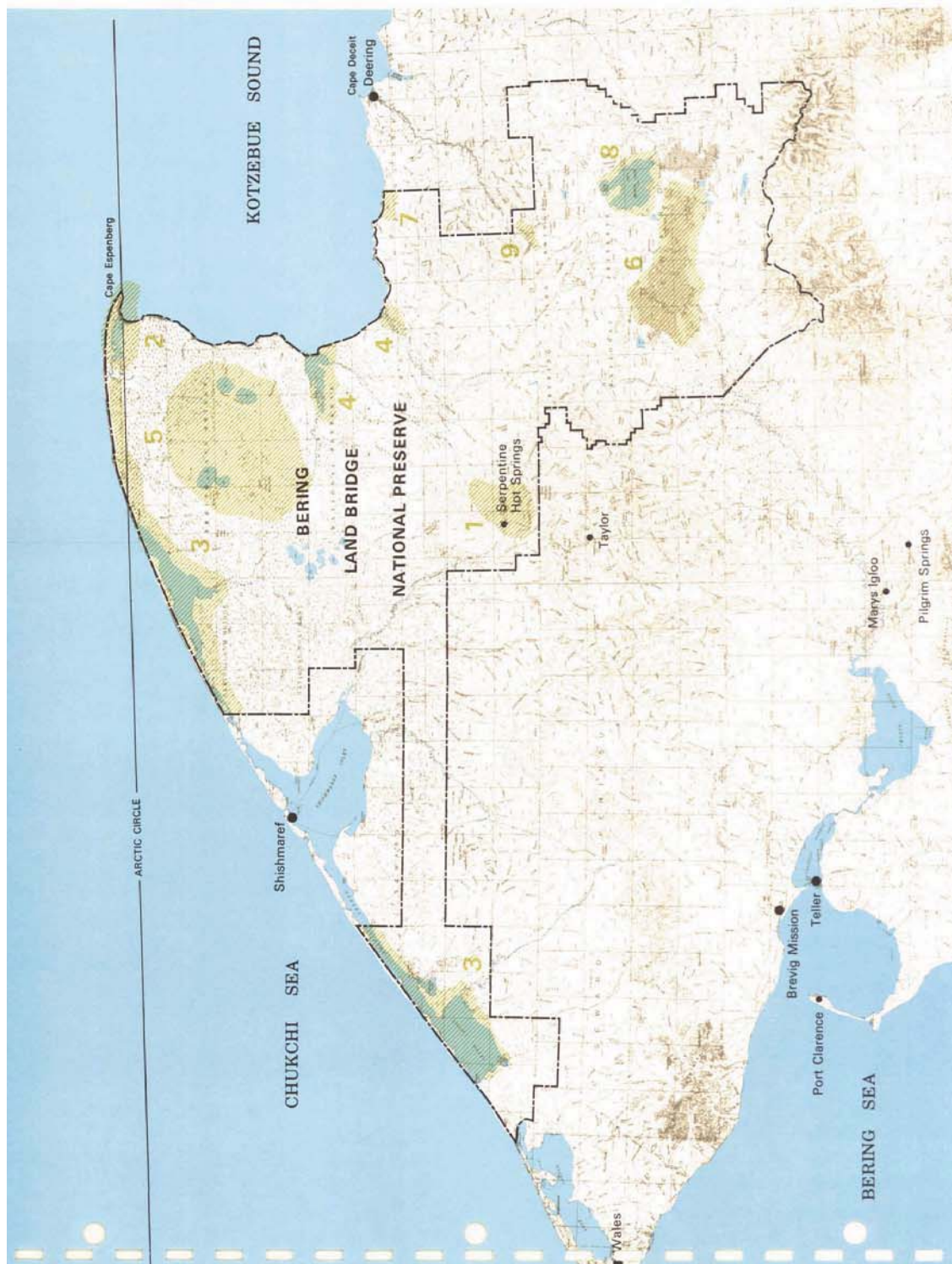
Protect and interpret natural ecosystems and their individual components, based on an understanding of the role played by natural processes, including fire.

Survey, identify, and evaluate the significance of natural resources.

Manage native plant, fish, and wildlife species in a manner consistent with the conservation of healthy populations.

Manage consumptive uses of natural resources and maintain habitats for healthy populations of wildlife through cooperative agreements with the Alaska Department of Fish and Game and the U.S. Fish and Wildlife Service.

Continue reindeer herding in the preserve, based on sound range management principles that take into account all species and habitats while recognizing the purposes of the preserve.



- 1 SERPENTINE HOT SPRINGS
- 2 CAPE ESPENBERG
- 3 COASTLINE AND INTERIOR LAGOON
- 4 RIVER MOUTH AND ESTUARY
- 5 MAAR LAKES AND VOLCANIC ASH
- 6 LOST JIM LAVA FLOW
- 7 SULLIVAN BLUFFS SEABIRD COLONY
- 8 IMURUK LAKE PALEONTOLOGICAL
- 9 TRAIL CREEK CAVES ARCHEOLOGICAL SITE



SPECIAL SCENIC AND SCIENTIFIC RESOURCES

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Cultural Resources

Survey, identify, and evaluate the significance of cultural resources.

Protect cultural resources such as archeological sites, artifacts, and historic structures on-site and in accredited museums and collections, when necessary.

Interpret cultural resources through cooperative programs of oral history, traveling exhibits, and similar outreach programs.

So that local collections are representative of the range of artifacts that have been found in the region, continue efforts to inventory artifacts removed from the preserve before its establishment, and retrieve them if they are not being used by present repositories.

Provide opportunities for ongoing traditional cultural activities.

Access

Provide reasonable access to inholdings (allotments, mining claims, and other nonfederal lands).

Subsistence

Provide opportunities for traditional means of access and activities necessary for subsistence uses.

Serpentine Hot Springs

Maintain the existing character of Serpentine Hot Springs.

PLANNING ISSUES AND MANAGEMENT CONCERNS

Specific issues and management concerns related to the preserve that are addressed in this document include the following:

The Land Bridge: The full significance of the land bridge in the spread of plants, animals, and early human groups from Asia to North America is still not known. A major purpose of the preserve is to provide opportunities to better understand this role. The scope of such research must be determined, and also how the research should be undertaken or encouraged.

Natural and Cultural Resource Management: The National Park Service is responsible for protecting natural and cultural resources within the preserve. Current or future uses in or near the preserve could affect these resources and result in conflicts with the

NPS protection mandate. It is important to anticipate these impacts and conflicts so that acceptable strategies to minimize them can be developed and implemented.

General Use: Current uses of the national preserve are subsistence-related activities; reindeer grazing; hunting, fishing, and trapping; and recreational and traditional activities at Serpentine Hot Springs. At present few visitors pursue nonconsumptive recreational activities such as camping, hiking, boating, bird-watching, and photography. The general use issues are how to accommodate and provide for a variety of uses and users while protecting the natural and cultural environment and minimizing conflicts among different user groups. General use issues can be subdivided into the following categories:

Access and circulation: Access to the preserve is difficult and costly except for those who live in nearby villages. The issue is whether to improve access or to maintain present access patterns and methods.

Subsistence activities: A large portion of the preserve is used by area residents for subsistence purposes. These uses are protected by ANILCA and NPS regulations. Other uses in the preserve may conflict with subsistence activities in the future. The issue is how to minimize any future conflicts resulting from other uses, such as recreation and sport hunting.

Reindeer grazing: Some 20,000 reindeer are now permitted to graze in the national preserve. Concerns about the grazing or handling of reindeer include the effects of reindeer grazing on the natural environment, the definition of sound range management, and the potential effects of various management practices within the preserve.

Serpentine Hot Springs: Serpentine Hot Springs is one of the major use areas on the Seward Peninsula. It is important to residents of villages in the NANA and Bering Straits regions and Nome as a place for recreation, healing, and spiritual revitalization. It is also used as a hunting base camp. Some interests would like the area to remain just as it is, and others would like to provide better access and additional facilities. Resolving the different views of local users, as well as considering any potential needs of future visitors from outside the area, is a major public use issue.

Information and interpretation: Providing information about the preserve's features and recreational opportunities and explaining or interpreting the significance of its resources are major functions of the National Park Service. Issues to be addressed are how much and what type of information should be provided, the emphasis of various interpretive themes, location of information and interpretive programs, and opportunities for cooperation and coordination.

Administrative Operations: Staffing needs and functions, as well as the location and type of facilities needed to implement the plan, must be determined. There are concerns about whether the staff should be located in the preserve and in local villages, or only in Nome.

Land Protection: Landownership on the Seward Peninsula is a mosaic of state, federal, native regional, native village, and private lands. To date the ownership of many lands has not been resolved, and large areas have been selected by both the state and native corporations. Landownership of the national preserve is primarily federal (2,690,179 acres, including 180,819 acres of selections by native corporations and individuals), with 94,781 acres of nonfederal land. Lands that need to be federally owned to ensure resource protection and to provide for visitor use must be identified, along with the best means of protection, whether it is by full fee acquisition, less-than-fee acquisition, cooperative agreements, or other means.

This plan addresses these issues and concerns. The first part of this document is a general description of the preserve. The general management plan is described in the second part, followed by the land protection plan and wilderness suitability review.

The general management plan for Bering Land Bridge National Preserve provides overall guidance and direction for the management of this national park system unit for the next five to 10 years.

PUBLIC INVOLVEMENT IN PLAN IMPLEMENTATION

The planning for and management of the units of the national park system in Alaska is an evolving and dynamic process. The general management plan provides overall guidance and direction for the management of the Bering Land Bridge National Preserve and announces the intent of the National Park Service to undertake a variety of actions pursuant to established law, regulation, and policy. Actions proposed in this plan, such as closures, use restrictions, boundary adjustments, major developments, and new or revised regulations do not become effective upon approval of the general management plan. Further information collection and analysis, and appropriate public involvement, are needed before these actions become final.

It is recognized that involving the public in the development of significant policies and management practices and in further planning for the preserve can result in more comprehensive and better proposals and actions by the National Park Service, as well as better public understanding of them.

This section outlines the means by which the National Park Service will ensure continued public involvement in the ongoing planning for and management of Bering Land Bridge National Preserve. Described here are the procedures that the National Park Service will use for public

involvement in the areas of policy development, action plans, closures, restrictions or openings, new or revised regulations, and amendments to this general management plan. The superintendent is expected to consult with all affected and interested parties as an integral part of the management of the area.

It is the policy of the Department of the Interior to offer the public meaningful opportunities for participation in decision-making processes leading to actions and policies that may significantly affect or interest them (301 DM 2.1). Accordingly, the National Park Service will integrate public participation and the decision-making process. Public participation activities will be scheduled with other elements of the decision-making process to ensure that the timing of information both to and from the public results in the expression of public comment at points in the decision-making process where it can make the greatest contribution. The overall public participation process, closely tied to the decision-making process, will be flexible enough that methods may be added or deleted as public input shows a new level of need or interest.

All public review documents will be submitted to the state of Alaska for coordinated state review. The National Park Service will maintain an active mailing list of groups, agencies, and individuals who have expressed interest in reviewing the documents. These groups, agencies, and individuals will be notified of the availability of public review documents and upon request, copies of such documents will be made available to them.

Policy Development

The National Park Service manages the parks, monuments, and preserves in Alaska for the national interest and recognizes that the policies and management practices implemented by the Park Service can be of great interest to the people of Alaska and the nation. These policies and practices can also affect the lives of individuals living in or near the areas and the public using the areas.

To the extent practicable, when a new policy or management practice that affects the public is to be developed or an existing policy or practice is to be revised, there will be public notification, ample opportunity for comment, and thorough consideration of comments received. If significant changes are made to the proposed policy or management practice as a result of public comment, there will be additional review prior to the policy or practice being adopted.

Action Plans

Several specific action plans are identified in this general management plan. Future plans include a resource management plan, reindeer management plan, wilderness recommendation, revisions to the land protection plan, a subsistence management plan, transportation and access

plan, and boundary adjustment recommendation. These plans and the required public involvement are described in the appropriate management sections of this document and the major ones are summarized in "Appendix G: NPS Planning Process." These more detailed plans will be initiated by the superintendent over the life of the general management plan. Although it is the intention of the National Park Service to initiate all of the implementing plans identified in the general management plan in a timely manner, the undertaking of these plans will depend on funding and other considerations that cannot be accurately forecast at this time.

As part of the ongoing planning and management for the area, internal planning documents will be prepared. These include an interpretive plan (prospectus) and a scope of collections statement. Formal public review of these types of plans and studies is not anticipated; however, parties expressing an interest in these plans will be involved as appropriate in their preparation and invited to comment on them before they are finalized. Copies will be available upon request from the superintendent.

Closures, Restrictions, and Openings

In cases where the closure of areas within the unit or restrictions on activities are proposed in the general management plan, the procedures of 36 CFR 1.5, 13.30 (13.46, 13.49, and 13.50 in the case of subsistence), and 43 CFR 36.11(h) must be followed before any proposed closures or restrictions take effect. These procedures also apply to any future proposals to open an area to public use or activity that is otherwise prohibited. The procedures of 36 CFR 1.5, 13.30, 13.46, 13.49, 13.50, and 43 CFR 36.11(h) are contained in appendix B.

As stated in 36 CFR 1.5(c),

Except in emergency situations, prior to implementing or terminating a restriction, condition, public use limit or closure, the superintendent shall prepare a written determination justifying the action. That determination shall set forth the reason(s) the restriction, condition, public use limit or closure authorized by paragraph (a) has been established, and an explanation of why less restrictive measures will not suffice, or in the case of a termination of a restriction, condition, public use limit or closure previously established under paragraph (a), a determination as to why the restriction is no longer necessary and a finding that the termination will not adversely impact park resources. This determination shall be available to the public upon request.

Regulations

New regulations and revisions to existing regulations will be proposed in accordance with the requirements of the Administrative Procedure Act (5 USC 553). The National Park Service will provide a minimum 60-day comment period.

Amendment of the General Management Plan

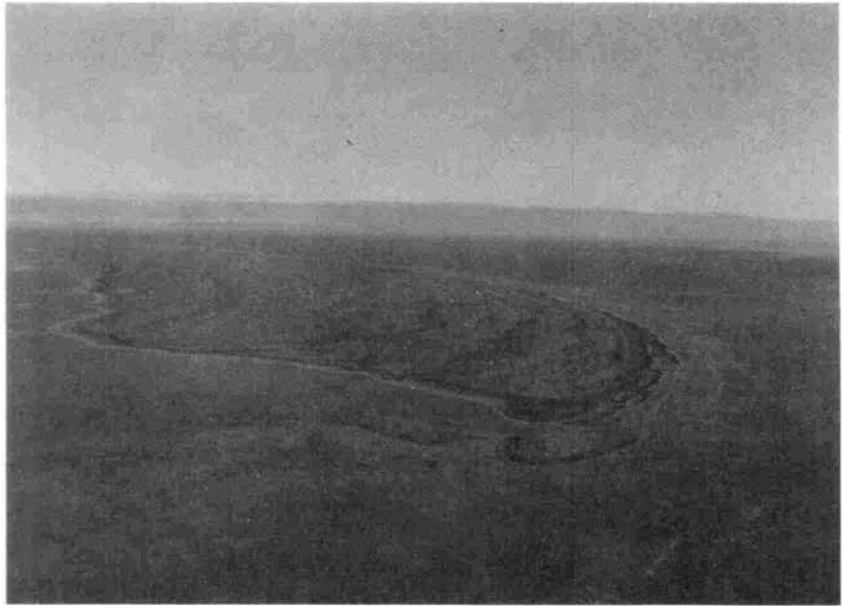
Specific parts of the general management plan may be amended to allow for changing conditions or needs, or when a significant new issue arises that requires consideration. Amendments of this general management plan will include public involvement and compliance with all laws, regulations, and policies. If the proposed amendments are minor and not highly controversial, public notice and a 60-day waiting period will take place prior to making decisions to incorporate the changes into the plan. If the amendments are significant or highly controversial, the public will be provided opportunities to participate in the development and review of alternatives and the proposed action. This will include a minimum 60-day public comment period and public meetings as necessary and appropriate. All amendments to the general management plan must be approved by the regional director.

In the future, changing conditions will warrant preparation of a new general management plan. The public will be involved throughout the development of a new plan.

PLANNING HISTORY

The initial interest in setting aside a portion of the Seward Peninsula to recognize the importance of the land bridge that once connected Asia and North America occurred with the preparation and passage of the Alaska Native Claims Settlement Act (ANCSA) in December 1971. Sections 17(d)(1) and (2) of that act withdrew unreserved public lands and where suitable allowed for their inclusion in a national park, forest, wildlife refuge, or wild and scenic river system. The reservation of these lands led to the preparation of a Master Plan for the Chukchi-Imuruk National Wildlands and an accompanying Environmental Impact Statement for the Chukchi-Imuruk National Reserve in December 1973. These documents analyzed various boundary alternatives, management schemes, and development concepts, and they described anticipated impacts of proposed actions.

During the 1970s Congress considered many proposals for the establishment of specific national parks, forests, wildlife refuges, and wild and scenic rivers in Alaska. In 1978 while these discussions were taking place, and the ANCSA 17(d)(1) and (2) withdrawals were due to expire, President Carter set aside from potential harm all proposed park lands in Alaska by designating them as national monuments. Among these park units was Bering Land Bridge National Monument. With passage of ANILCA in 1980, the status of this national park system unit was changed to a national preserve and its boundaries were modified. Planning for this general management plan began in January 1984. Planning efforts since that time are summarized in the "Consultation and Coordination" section.



CAPE ESPENBERG LOOKING WEST



TUNDRA POLYGONS OR PATTERNED GROUND



CAPE DECEIT

REGIONAL SETTING

OVERVIEW

Bering Land Bridge National Preserve occupies about one-third of the Seward Peninsula, which is about 500 miles northwest of Anchorage. The peninsula is approximately 200 miles from east to west, and the greatest north to south distance is 150 miles. The peninsula is the divide between the Pacific and Arctic oceans, with Norton Sound and Bering Sea to the south and Kotzebue Sound and Chukchi Sea to the north. The northernmost point of the peninsula, Cape Espenberg, extends just north of the Arctic Circle, and the westernmost point, Cape Prince of Wales, is only 55 miles from Siberia.

The Seward Peninsula consists of a mixture of coastal plain, plateau, and mountain range. The coastal plain may be as wide as 25 miles, with a variety of features along the sea: rocky headlands predominate in the south and west, while broad beaches, lagoons, offshore bars, inland wetlands, bays, and lakes are common along the north shore. Plateaus occupy a large portion of the interior of the peninsula, with elevations ranging from 600 to 3,000 feet. These areas have broadly rounded hills and irregular topography, but they lack a well-defined system of ridges. The principal mountain ranges are the Kigluaiks, known locally as the Sawtooths (elevation 5,000 feet) northwest of Nome, the York Mountains (elevation 2,400 feet) in the west, and the Bendeleben Mountains (elevation 3,700 feet) in the center of the peninsula. The latter range forms the southern boundary of the preserve.

The principal land uses on the Seward Peninsula are subsistence activities (hunting, fishing, and gathering), mining, and reindeer herding. Subsistence activities by area residents occur throughout the peninsula and at all times of the year. Mining has historically been a major activity, particularly near Nome and along Kougarok Road north of Nome, and this activity will continue to be important. Domestic reindeer herding has occurred on the Seward Peninsula since 1892, and most of the peninsula, including the preserve, is now under reindeer grazing permits.

Landownership on the Seward Peninsula is a mosaic of state, federal, native regional, native village, and private lands. To date the ownership of many lands has not been resolved, and large areas have been selected by both the state and native corporations. Landownership of Bering Land Bridge National Preserve is primarily federal (2,690,179 acres, including 180,819 acres of selections by native corporations and individuals), with 94,781 acres of nonfederal land.

POPULATION

Bering Land Bridge National Preserve lies primarily within the Nome census division, which encompasses most of the Seward Peninsula plus the

east side of Norton Sound. This area had a 1980 population of 6,537. The regional population grew at an average annual rate of 1.3 percent during the 1970s (Alaska Department of Commerce and Economic Development 1983).

Nome has a population profile distinct from that of other local communities. It is the largest community, housing over 35 percent of the region's residents. The city and adjacent residential areas had a 1983 population of 3,620 (Alaska Department of Community and Regional Affairs 1984). The city's nonnative population is much larger than that of the outlying villages--in 1980, 58 percent of its residents were Alaskan natives and 39 percent were white. The average age is 25 (Environmental Services 1981). The overall population trend for Nome has been slow, incremental growth since 1920. However, the population declined slightly from 1970 to 1980 (see table 1). One forecast projects an average annual growth rate of 2 percent through 1990 and then a drop to 0.5 percent from 1990 to 2000 (Environmental Services 1981); another source predicts a continued 2 percent per year increase through 2000 (Berger and Associates 1981). Nome's population fluctuates seasonally. The summer population swells as people come to fill temporary wage jobs. Movement also occurs for subsistence purposes. People leave the city to go to fishing and hunting camps.

Kotzebue, a regional population center for northwest Alaska, is about 40 miles northeast of the preserve. The 1983 population was 2,981, and 77 percent of the population were Alaskan natives. The projected annual growth rate for 1980 to 2000 is 3 percent (Dames and Moore 1983).

Villages near Bering Land Bridge National Preserve include Wales, Shishmaref, Brevig Mission, Teller, and Deering. Over 90 percent of the residents are Inupiaq. Projected growth rates are lower than those for Nome or Kotzebue (see table 1).

Table 1: Population Characteristics

<u>Community</u>	<u>1970 Population</u>	<u>1980 Population</u>	<u>Percentage Change</u>	<u>2000 Projected Population*</u>
Wales	131	133	+ 1.5	154
Shishmaref	267	394	+47.6	418
Brevig Mission	123	138	+12.2	166
Teller	220	212	- 0.9	261
Nome	2,357	2,301	- 2.4	3,578
Nome Census Division	5,748	6,537	+13.7	
Deering**	85	150	+76.5	144
Kotzebue**	1,696	2,054	+21.1	3,614

Source: 1970-80 population data, Bureau of the Census 1981.

* Berger and Associates 1981.

** Outside Nome census division.

ECONOMY

The regional economies of the NANA and Bering Straits regions may be characterized as a mixture of subsistence, wage employment, and other forms of income. Nome and Kotzebue serve as regional centers for government and as service and distribution centers. Rural residents rely extensively on subsistence activities to meet dietary and cultural needs. The region is cash poor as compared to the state, with much of the cash income and employment provided by the state and federal governments. The greatest employment opportunities are in Nome and Kotzebue. In Nome, 43 percent of the payroll is from the government sector. Major commercial activities in the region are services, retail trade, and air transport (see table 2). In Kotzebue, state and local governments contribute most to the economic base, followed by construction, trade, and private services (Darbyshire and Associates 1982).

Table 2: Annual Average 1983 Employment
Nome Census Area

Government	
Federal	157
State	243
Local	793
Private	
Construction	88
Services	511
Retail trade	294
Transportation, communication, utilities	172
Finance, insurance, real estate	80
Nondisclosed	<u>109</u>
Total	2,447

Source: Alaska Department of Labor

Except for Nome, employment on the Seward Peninsula is seasonal, and the work force is mobile. Year-round jobs are extremely limited except in Nome and Kotzebue. For these reasons, and because people want to participate in subsistence activities part of the year, most residents work only seasonally for wages. Residents of outlying areas may migrate to Nome or Kotzebue for temporary work. Other seasonal employment can be found in mining, construction, and commercial fishing. The unemployment rate may vary by nearly 5 percent from a peak in late spring or early summer to a low in September or October (see table 3). Seasonal fluctuations in Nome have been increasing since 1975 (Environmental Services 1981).

Table 3: Unemployment Percentages, Nome Census Area
1981-1984

	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>
January	15.6	12.3	13.3	12.9
February	14.2	10.9	12.0	14.4
March	14.8	12.8	13.4	14.3
April	13.3	10.8	13.6	16.2
May	12.4	10.9	12.2	12.9
June	15.0	12.0	12.6	15.8
July	12.0	10.6	12.6	11.6
August	9.8	10.1	12.1	11.1
September	7.7	6.5	8.4	10.6
October	8.0	7.4	7.7	7.3
November	9.2	9.7	10.2	9.1
December	10.1	12.3	13.1	8.2
Annual Average	11.7	10.5	11.7	12.1

Source: Alaska Department of Labor

The 1984 annual average unemployment rate for the Nome census area was 12.1 percent. For the Kobuk division, which includes the northeast portion of the Seward Peninsula and Kotzebue, it was 13.6 percent (Alaska Department of Labor). The Alaska statewide unemployment rate that year was 10.2 percent (Alaska Department of Labor). In a survey of the outlying villages that was conducted from April to June 1983, three out of five residents reported they were employed full-time, part-time, or seasonally (Bering Straits CRSA Board 1983).

Although incomes are increasing on the Seward Peninsula, they are still well below the state average. Incomes are also substantially lower in the outlying villages than in Nome or Kotzebue. Between 1975 and 1980 the per capita income for the Nome census division increased 48.2 percent to \$8,214. Per capita income that year for the Kobuk division was \$7,225 and for the state \$12,759 (Alaska Division of Budget and Management 1983). In 1978 village incomes were less than half the average wage of Nome, which was \$15,978 (Alaska Department of Revenue 1981).

Substantial incomes in some villages are earned through commercial fishing, reindeer herding, and arts and crafts. Commercial fishing occurs from May through August, primarily near Kotzebue and in eastern Norton Sound. Wales, Shishmaref, and Deering have reindeer herds numbering over 1,400 animals per herd. Most of the reindeer meat (80-90 percent) is consumed locally, while the antlers are sold to a highly variable and unpredictable Asian market. Arts and crafts, including ivory carving, also provide income to families.

Tourism is a relatively large and growing industry in Nome, and in 1980 approximately 10,000 tourists visited the city. This has generated 450 jobs and wages totaling \$8.2 million in visitor-related industries (Alaska Department of Commerce and Economic Development 1983). Some visitors come for sport fishing and hunting, but most come with tour groups, stay only a short while, and do not go outside the city of Nome. It is projected that Nome's economy will grow 2 percent per year from 1980 to 1990 and then drop to 0.5 percent (Environmental Services 1981). Trends indicate increases in mining, finance, insurance, real estate, services, and local government. Decreases are projected in construction, federal government, transportation, utilities, and communications.

SUBSISTENCE USE

Many residents of villages on the Seward Peninsula rely almost totally on subsistence hunting, fishing, and gathering to meet food needs. In these villages cash is limited and there are few alternative food sources. Subsistence also provides for individual clothing as well as furs and skins for trading or sale, and it contributes to cultural fulfillment.

In a recent survey, questions about subsistence were asked of 288 (about 25 percent) of the region's households, excluding Nome (Bering Straits CRSA Board 1983). Ninety-one percent of the respondents agreed that subsistence should be the number one priority if there are conflicts with land development. When asked which resources were harvested by the respondents or members of their households for personal or home use, the responses were as follows:

land mammals	83%
marine mammals	92%
waterfowl	95%
fish	98%
berries	96%

While subsistence harvesting takes place year-round, it is most intense during wildlife migration periods, spring through fall. Regional native residents outside Nome spend at least 30 percent of their income on subsistence activities and equipment (Bering Straits CRSA Board 1984, vol. 1).

NATURAL RESOURCES

CLIMATE

The climate of the Seward Peninsula and Bering Land Bridge National Preserve shows both maritime and continental influences. When surrounding marine waters are ice-free (mid June to early November), temperatures are moderate, humidity is high, and skies are typically cloudy, especially near the coast. Interior sections, even during this summer period, are somewhat drier and less cloudy, and therefore have greater heat buildup during daytime hours and a greater daily temperature change.

When offshore waters are frozen, both inland and coastal climates are more continental (i.e., drier, clearer, less windy). However, winter temperatures do not reach the extreme lows that are encountered in interior Alaska at this same latitude. Specific climatological records for the preserve are scarce. Information from a few coastal stations (Nome, Wales/Tin City, Shishmaref, and Kotzebue) has usually been used to characterize the preserve area. However, records from expeditions suggest somewhat colder winters (minimum January temperatures on the coast -10° to -20°F , inland -60°F) and warmer summers (maximum July temperatures on the coast lower 50s, inland mid 60s; see Melchior 1979).

Winds are moderate to strong year-round but are strongest during winter. Winter winds are predominantly from the east, whereas summer winds and storms approach from the south and southwest. Typical monthly average wind speeds are 8-12 miles per hour (mph) year-round, but during stormy periods winds of 50-70 mph are possible.

Statistics on temperatures and wind velocities can be misleading, because it is frequently the combination of low temperatures and wind (the chill temperature) which has greatest biological significance. This creates conditions of great stress and limits the distribution of plants and animals as well as the activities of human inhabitants and visitors. January/February chill temperatures in villages such as Wales and Shishmaref quite often reach -68° to -80°F and even -100°F for extended periods. Severe weather conditions can occur in summer, with below-freezing temperatures, snow, and long periods of cloudy, windy, and rainy weather. These weather patterns can cause delays in ground and air transportation, making it sometimes difficult, time-consuming, and costly to plan an expedition.

Summer is the wettest period, with perhaps 3 to 4 inches of the 10 inches of annual precipitation being recorded. Snow, with a relatively low water content, averages about 50-60 inches per year. Although this is a relatively small total, windy conditions can cause extensive drifting in some areas while keeping others nearly bare. Local variation of this type can have a strong influence on animal distribution (e.g., reindeer or musk-oxen seeking snow-free lichen patches) as well as human winter travel routes.

Sea ice usually breaks up in early to mid June along the Chukchi Sea coast, although breakup can vary by several weeks. Even after breakup, ice lingers near the coast for a month or more and may be blown back to shore. Inland lakes and ponds thaw at varying times according to their depth, location, and exposure to winds. Some lakes important as floatplane access points may not thaw until early July and may only be open until October.

GEOLOGY AND SOILS

Volcanism

The surface geology of the preserve is dominated by recent volcanic lava and ash flows, and by unconsolidated wind- or water-borne sediments (see Geology and Paleontology map).

The five distinct lava flows around Imuruk Lake range in age from 65 million years (the Tertiary Kugruk volcanics) to as recently as 1,000 years (the Lost Jim flow). The older flows occurred on many separate occasions from a variety of vents and are now largely buried by the more recent flows as well as by wind-blown deposits of silt. The exposed volcanic rocks, all dark basaltic material, were originally rather smooth "pahoehoe" flows, but older flows have been severely shattered by frost action into large angular fragments. More recent flows are progressively less affected by frost fracturing and are little weathered, although virtually all exposed rock is covered by a nearly continuous mat of lichens.

This succession of relatively recent volcanic flows is rare in high arctic latitudes and provides an opportunity to study weathering and erosion as well as plant succession in this extremely harsh environment. The significance of these volcanic flows is cited in the legislation establishing the preserve (ANILCA, sec. 201(b)), and the flows were previously noted as being nationally significant in a national natural landmarks study (NPS 1967).

A distinctly different series of volcanic events that consisted of small but violent explosions of steam and ash and small quantities of lava occurred on the preserve's northern lowlands around Devil Mountain. These explosions created several large craters known as maars that are now filled with water. These features are rare at this latitude and differ from craters within volcanoes or calderas by having relatively low surrounding rims. The single or short-term explosions that created them simply blew out the original surface material, and there was no subsequent ash or lava to build up a cone or rim. The maars now known as the Devil Mountain Lakes and the Killeak Lakes are paired; the largest maar is White Fish Lake.

Other than the exposed volcanic features and some bare ridges of exposed bedrock, most of the preserve is covered by an unconsolidated layer of sediment, including gravels, sand, and silt. Nearest the coast are layers

of terrestrial sand and gravel and some marine sediments that represent a mix of river-borne materials and wind- and wave-transported beach materials left from earlier higher sea levels. Farther inland in the western part of the preserve are alluvial (river-borne) sediments derived from erosion of the higher mountainous regions south of the preserve. To the east, mantling the Imuruk volcanics and other bedrock, are extensive areas of fine wind-borne silts derived from Pleistocene glacial outwash plains now covered by the sea.

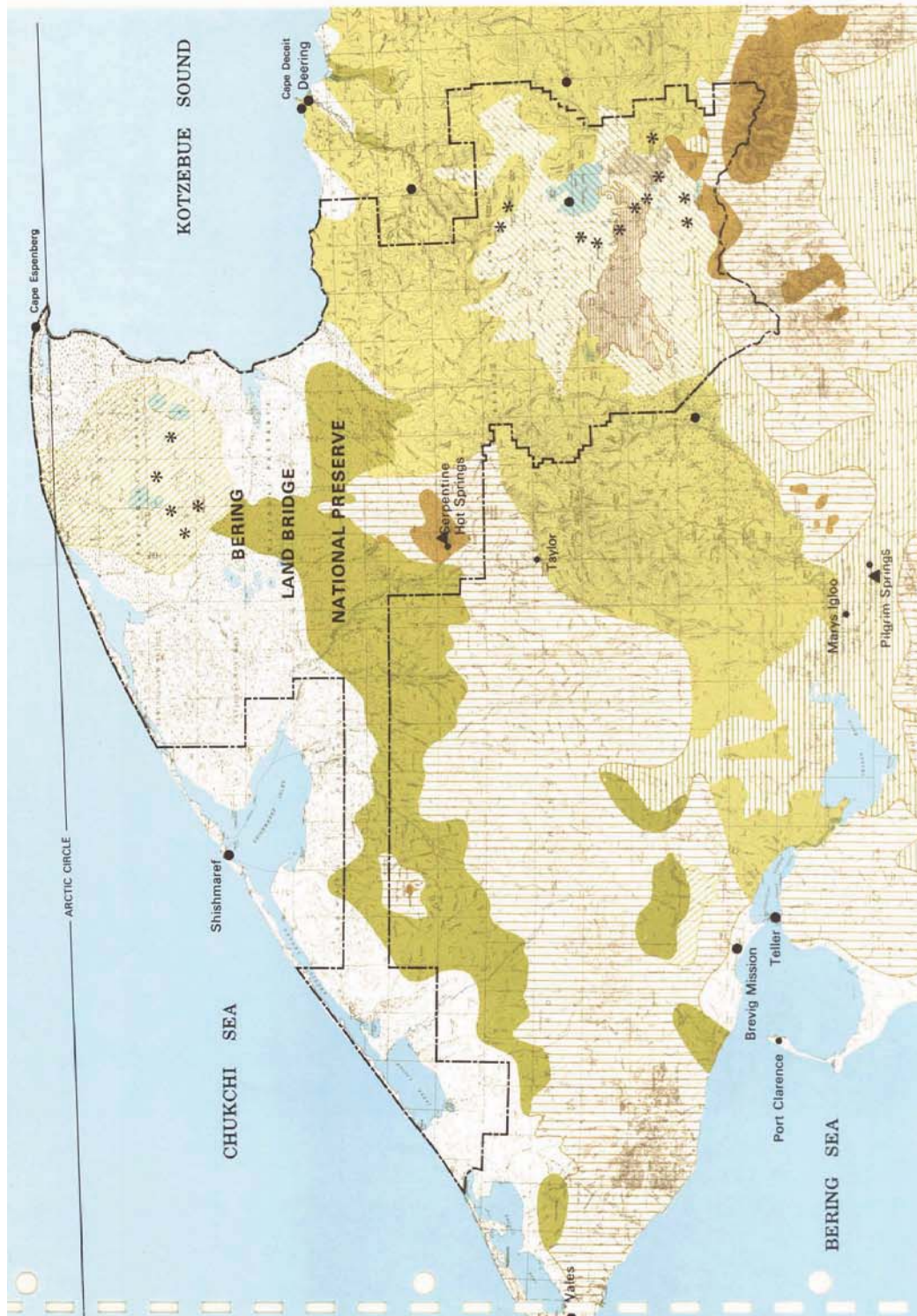
Glaciation and the Bering Land Bridge

The most significant geological history theme of the preserve is the land bridge itself, which has intermittently been a dryland connection between the continents of Asia and North America (see Bering Land Bridge map). The land bridge was the result of lowered sea levels during the great ice ages, when vast amounts of water were tied up in continental glaciers. The land bridge chronology is not well understood, and opinions differ as to the actual times and duration of the connections. There was probably a connection in very ancient times, long before recorded glacial periods and before modern flora and fauna evolved. At that time some ancient plants may have been exchanged between the two continents. However, it was only during later connections (in the past 30,000 years) that humans and recent Asian mammals migrated to North America, and some species migrated from North America to Asia. At times the land bridge may have lasted 5,000 years or more, and covered a very broad area over which plant and animal life slowly expanded.

Glaciers at the time of the land bridge did not completely cover the Seward Peninsula (see Bering Land Bridge map). The peninsula's mountains were covered by glaciers on several occasions, resulting in typical glacial sculpturing and glacially derived sediments washed down to the lowlands. However, many lowlands remained free of glaciers, and there is no evidence in the preserve of glacial sculpturing or moraines and isolated rock piles. This implies that substantial ice-free areas during the time that the land bridge existed could have been continuously occupied by modern plants and animals. This raises the likelihood that lowlands now in the preserve were an important element in the land bridge story. Further study of these particular areas might locate specific evidence of earlier human and animal occupancy. Although some permanent ice fields still occur in the Bendeleben Mountains, there are no major glaciers anywhere on the Seward Peninsula.

Serpentine Hot Springs Valley

One specific geologic feature of significance is the small area of intrusive rock of Cretaceous age around Serpentine Hot Springs. Dozens of granitic spires and outcrops called tors are exposed, providing one of the relatively few dramatic geologic landscapes in the otherwise rolling and gentle topography of the preserve.



UNCONSOLIDATED DEPOSITS

OLD COASTAL DEPOSIT OF MIXED TERRESTRIAL AND MARINE SEDIMENTS

ALLUVIAL (RIVER-BORNE) SAND AND GRAVEL

EOLIAN (WIND-BLOWN) SILT

GLACIAL MORaine, GRAVEL, AND SILT

BEDROCK

PRECAMBRIAN VOLCANIC AND METAMORPHIC ROCK

CRETACEOUS GRANITIC INTRUSION

PLEISTOCENE BASALTIC ASH

PLEISTOCENE BASALTIC LAVA FLOW -- IMURUK FLOW (PARTIALLY COVERED BY EOLIAN SILT DEPOSITS)

RECENT BASALTIC LAVA FLOW -- LOST JIM FLOW

HOT SPRING

VOLCANIC VENT (NOT ALL SHOWN)

KNOWN FOSSIL SITE (NOT ALL SHOWN)

SOURCES: U.S. GEOLOGICAL SURVEY 1963 AND SELKREGG 1977



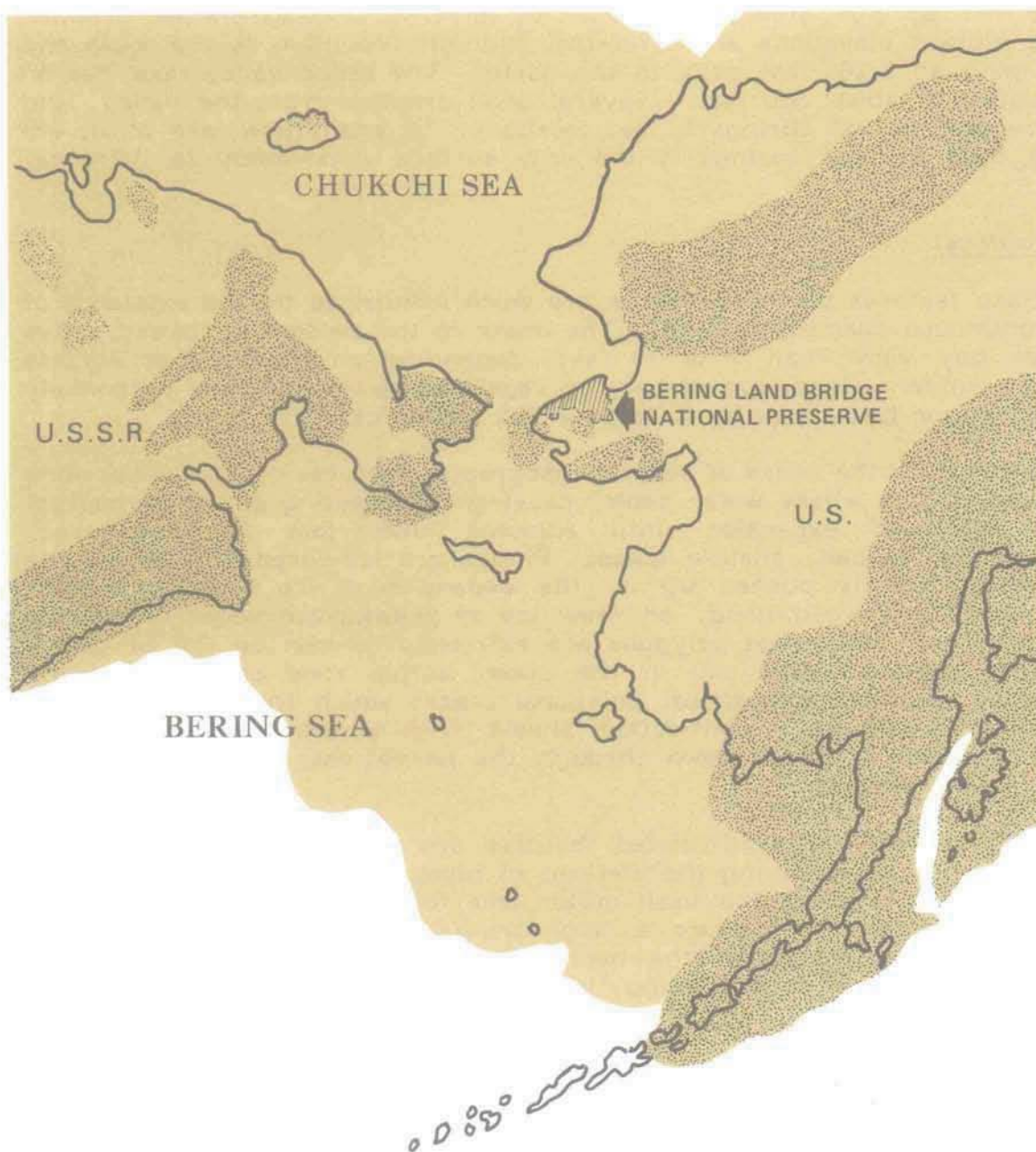
GEOLOGY AND PALEONTOLOGY

BERING LAND BRIDGE NATIONAL PRESERVE

United States Department of the Interior/National Park Service

DSC / MARCH 1985 / 182-20,000 A

ON MICROFILM



BERING LAND BRIDGE

BERING LAND BRIDGE NATIONAL PRESERVE

United States Department of the Interior /
National Park Service

DSC / MARCH 1985 / 182 - 20,026A

ON MICROFILM

The hot springs area is underlain by diverse, metamorphosed granite. The highest elevations are 2,720-foot Midnight Mountain to the south and an unnamed 2,066-foot peak to the north. The broad valley floor has an elevation of about 500 feet. Several small streams drain the valley, and there are thermal springs in two locations. A small thaw lake about 0.5 mile from the hot springs is the only surface water body in the area.

Permafrost

Surface features of the preserve are much influenced by the existence of a continuous permafrost layer. The depth of the seasonally thawed active layer may vary from 1 to 10 feet, depending on the type of surface (e.g., under a lake, gravel bar, or vegetated soil), while the perennially frozen layer below may be 15 to over 200 feet thick.

Permafrost is the cause of several topographic features. Thaw lakes form in depressions where water pools, causing local melting of the permafrost and continued expansion until adjacent lakes join to form large, irregularly shaped, shallow lakes. Pingos are ice-cored hills where the overlying soil is pushed up by the expansion of ice when permafrost reinvades a drained pond, or when ice or pressurized water is injected from below. Ice wedge polygons are extremely common on flat or gently sloping ground where soil in the upper active zone contracts during freezing, leaving symmetrical polygonal cracks which then fill with snow and eventually ice. Solifluction sheets form where the upper active layer, unable to drain down through the permafrost, becomes saturated and slips downslope.

The permafrost and cold-related features are dynamic and may undergo changes noticeable during the lifetimes of human observers. For example, a pingo may crack and a small crater lake form in its summit, or a thaw lake may expand to capture a neighboring stream or pond within a few decades. Disturbance of the permafrost layer by driving over it can start a process of local thawing, in effect creating a thaw lake which can spread much farther than the original disturbance.

Soils

Soils throughout the preserve are the typical peaty and loamy surface layers of arctic tundra lands over permafrost, with some areas (windswept ridges or recent volcanics) having very shallow or no soil development. Virtually all tundra soil types are rated as having medium to high erosion potential if they are disturbed by roads, structures, or other activities like gardening or concentrated grazing of hoofed animals. No arable soils occur within the preserve.

Despite high erosion potential, dispersed grazing by caribou and reindeer is typically listed as an appropriate land use on tundra soils (Selkregg 1977). Specific sites in relatively well-drained gravelly sediments, particularly along the coastline, are less prone to erosion and more

appropriate to surface development. Permafrost engineering considerations still apply even in these better-drained soils (Melchior 1979).

Coastline and Interior Lagoons

Another dynamic geologic process at work in the preserve is the development of extensive barrier beaches and lagoons along the Chukchi Sea coast. Active deposition, erosion, and beach ridge formation are taking place from Cape Espenberg to Cape Prince of Wales. In addition to providing an active, self-repairing barrier to storm waves, the shallow inshore lagoons are productive waterfowl areas, and in some cases (for example, Shishmaref) they provide protected transportation routes. Significant biological resources include the largest seal haulout (resting) area in the Hope Basin (Cape Espenberg), seabird and waterfowl nesting areas, and fall waterfowl staging areas.

PALEONTOLOGY

The paleontology of the Seward Peninsula has not been extensively studied, but several sites have been found that contain pollens, wood and other plant parts, mammal bones, and animal structures ranging in age from Miocene (20 million years ago) up through the late Pleistocene (1 million years ago and later). Collectively, these records may prove to be of great significance in understanding climatic cycles and vegetation patterns as well as the spread of life-forms across the land bridge, even before the period of human migration.

Major known sites within or near the preserve are indicated on the Geology and Paleontology map and are described briefly below.

Kuzitrin Flats--A gravel formation known as Kougarok in this area spans Miocene through Pleistocene times. The older units contain fossil pollen and wood, indicating that the peninsula at one time supported a temperate forest of hardwoods and conifers. Younger Pleistocene fossils include extinct mammoth, bison, and horse. Evidence of beaver dams as well as fossils of typical warm- and cold-adapted plants demonstrate climatic cycles associated with glaciation in the Pleistocene.

Imuruk Lake--Core samples from Imuruk Lake have provided a rich fossil pollen record spanning the last 100,000 years. This record can aid in understanding vegetative changes during climatic cycles when the land bridge was alternately open and closed.

Inmachuk and Kugruk Rivers--Fossil plant materials in river gravel deposits found under Pliocene age lava confirm an earlier warm-adapted vegetation. Abundant fossil beetles of late Tertiary age are apparently the only such insect fossils yet discovered in Alaska.

Cape Espenberg and Cape Deceit--Both these coastal sites contain evidence of Pleistocene flora and fauna, particularly in marine sediments deposited during glacial cycles. Cape Deceit, just east of the preserve boundary, contains some of the earliest North American records of certain animals.

MINERALS, FOSSIL FUELS, AND GEOTHERMAL RESOURCES

Further mineral entry, mining, or fuel development on federal lands in the preserve is prohibited (except on valid existing claims). However, there is a potential for future development on private or selected lands inside the boundary as well as on state lands outside the preserve. The types of mineral resources that could be developed are discussed below.

Currently there are no operating mines within the preserve. There are two groups of unpatented placer claims and two groups of unpatented lode claims. Of these four groups, one group of placer claims and both groups of lode claims are currently under contest for lack of discovery. The remaining placer group has not been examined to date. These claims are indicative of the potential of mining for various metals such as tin and gold.

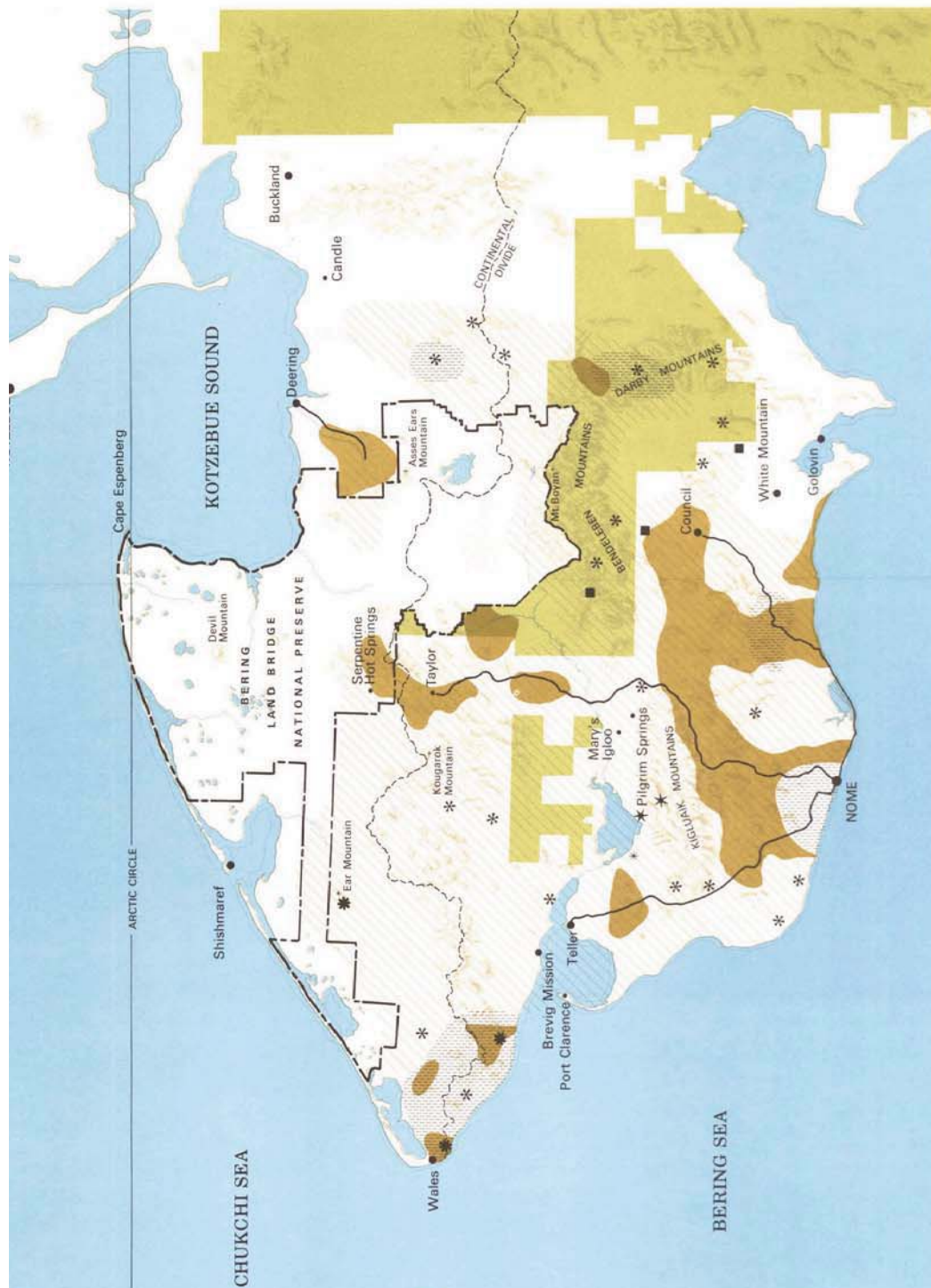
Metallic and Nonmetallic Minerals

The Seward Peninsula is one of the most highly mineralized areas in Alaska, but much of the area where occurrence is rated as high or very high is south of the preserve (see Mineral Resources and Mining Claim Areas map). Within the preserve, the substantial depth of unconsolidated materials and recent lava flows make most of the northeastern part of the preserve relatively low in mineral development potential.

Historically, the most active mining has been for placer gold, beginning in the 1890s and actively continuing until the 1930s. Some renewed interest in placer mining has recently occurred because of higher market prices for gold. A few small-scale or individual operations continue in areas outside the preserve (for example, Inmachuk River).

Other metallic minerals occurring on the peninsula include tin, copper, lead, tungsten, antimony, silver, and bismuth. However, only tin and to a lesser extent copper and tungsten have actually been produced from the mining districts in which the preserve is located. Tin production in the Lost River area northwest of Port Clarence is the most significant large-scale mining operation currently underway on the peninsula.

Extensive BLM-managed lands in the Kuzitrin Flats and Bendeleben Mountains (both areas are rated as having high occurrences of gold, lead, zinc, silver, barium, antimony, tin, and tungsten) have recently been opened to mining claims. Nonmetallic minerals on the peninsula include graphite, fluorite, mica, and garnet as well as gravel. Fluorite in the Lost River area is the most promising for commercial production.



MINERAL RESOURCES

- METALLIC MINERAL AREA -- HIGH OCCURRENCE
- METALLIC MINERAL AREA -- VERY HIGH OCCURRENCE

NONMETALLIC RESOURCES

- * FLUORITE
- * GARNET
- * GRAPHITE
- * MICA

MINING CLAIM AREAS

- AREA WITH NUMEROUS CLAIMS
- AREA WITH WIDELY SCATTERED CLAIMS

BLM LANDS OPENED TO MINERAL ENTRY NOV. 9, 1983

SOURCE: SELKREGG 1977








MINERAL RESOURCES AND MINING CLAIM AREAS

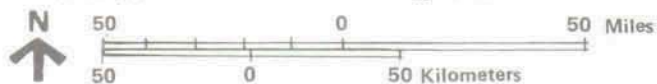
BERING LAND BRIDGE NATIONAL PRESERVE
United States Department of the Interior/National Park Service
DSC / MARCH 1985 / 128 20 007 A

ON MICROFILM



-  Oil and gas basin
-  Possible future state or federal oil / gas lease sale (* indicates location of existing lease)
-  Test well (drilled 1978)
-  Potential geothermal energy area (● hot spring)
-  Coal deposit (no commercial potential)

Sources: Fuels — Alaska Department of Natural Resources 1983, 1985; geothermal resources — Selkregg 1977.



FOSSIL FUEL AND GEOTHERMAL RESOURCES

BERING LAND BRIDGE NATIONAL PRESERVE

United States Department of the Interior /
National Park Service
DSC / MARCH 1985 / 182 - 20,006A

ON MICROFILM

Potential for commercial production of fluorite combined with current tin mining would make the Lost River area a probable future mining center. Extensive sand and gravel deposits in the preserve are mainly on federal lands and are not available for mining. Gravel deposits on state lands near Ear Mountain have been mentioned as a possible source for new or expanded village construction by Shishmaref.

Fossil Fuels and Geothermal Resources

Geophysical and other survey work necessary to evaluate potential petroleum reserves in and adjacent to the preserve is very sparse. Generalizations based on sediment type and age suggest that both the Kotzebue Sound (Selawik Basin) and Norton Sound (Norton Basin) have some potential for the occurrence of oil and gas deposits (Alaska Department of Natural Resources 1983). The Selawik Basin actually underlies preserve lands only in the Cape Espenberg area. A single test well was completed in 1978 by Standard Oil of California under agreement with the NANA Regional Corporation on a small parcel of interrimly conveyed land east of the Killeak Lakes. Results were apparently discouraging.

There is potential for exploration and development of petroleum resources in both the Selawik and Norton basins (see Fossil Fuel and Geothermal Resources map). The state has begun proceedings for the sale of oil and gas leases (sale 45, May 1989--Hope Basin) in Kotzebue Sound and within the state-owned 3-mile limit along virtually all of the preserve's Chukchi Sea coast. The state considers the petroleum potential in this area to be low (Alaska Department of Natural Resources 1983). The federal government has started similar proceedings for oil and gas leases in the Norton Basin outer continental shelf area (sale 100, October 1985). Socioeconomic and ecological impacts of these sales on the preserve are discussed in the "Land Protection Plan."

Minor amounts of coal occur in the preserve west of Deering, with some actual outcrops in the Immachuk River drainage. The coal is of low quality and has been used locally in the past.

Geothermal resources within the preserve include Serpentine Hot Springs. Discharge at the eastern spring is 35 gallons per minute. The surface water temperature has been measured at 140°F to 170°F (Book, Dixon, and Kirchner 1983). There is only a slight sulfur odor and little evidence of mineral precipitation, although the water from the hot springs is highly mineralized. There is also some potential for geothermal activity around Imuruk Lake. Several small springs at Pilgrim Springs are associated with an area of geothermal energy potential.

HYDROLOGIC RESOURCES AND WATER QUALITY

Extensive surface water is present in the northern half of the preserve, but the actual annual hydrologic budget is relatively small owing to

modest annual precipitation (10-15 inches). Because the permafrost is impermeable, very little surface water actually recharges groundwater supplies. Groundwater accumulates along streambeds and under larger lakes (particularly in gravelly soils) where permafrost is absent. These groundwater resources are important in maintaining at least a minimum flow in larger streams during periods of low precipitation, but overall the lack of large groundwater resources means that streams rise and fall quickly in direct response to precipitation.

Some major rivers of the area (the Serrentine, Cowpack, Nugnugaluktuk, Goodhope, and Noxapaga) have substantial drainage basins and flow long distances (10-40 miles) through the preserve. Others (the Inmachuk, Kugruk, Koyuk, and Kuzitrin) have only a portion of their headwaters within or along the boundaries. Floodplain determinations have not been formally made for these rivers. Localized flooding during ice breakup is likely to occur on all rivers because of ice dams.

The few available measurements of water quality indicate that the streams and rivers are essentially pristine. However, shallow, poorly drained lakes and ponds with concentrations of waterfowl or grazing animals like reindeer may well contain certain pathogenic microorganisms, including the protozoan Ghirardia lambii.

Most small streams and ponds at this latitude freeze solidly to the bottom in winter and therefore have no mid-winter flow; larger rivers and lakes do not ordinarily freeze solidly, so that there is some liquid water near the bottom. Surface waters in shallow thaw lakes and ponds with slow drainage may have an odor, taste, color, and high iron content that make the water unfit for human consumption.

In general, dependable year-round water supplies for local village residents, or for any potential preserve development, are special problems. Permafrost and annually frozen surface ground also pose special problems for waste disposal to ensure there is no contamination of drinking water.

The lack of water sources was a factor in placer gold mining on the peninsula. Large volumes of water were needed to wash gold-bearing soils from the surrounding gravels. Hundreds of miles of narrow canals, locally called ditches, were constructed in the early 20th century to supply placer mines throughout the southern and eastern Seward Peninsula. One of the ditches, the Fairhaven, led waters from the head of the Kugruk River at Imuruk Lake northward some 30 miles into a different drainage, where it served mines along the Inmachuk River. During their peak period of use, these diversions may have made differences in the flow pattern of several drainage systems. Today all the previous natural patterns have been reestablished.

AIR QUALITY

No local information on air quality exists for the preserve. Extremely cold, calm winter days with temperature inversions occasionally result in trapped air pollutants. Few point sources of pollution exist in the area except for occasional tundra fires. Summer offshore breezes near the coast probably provide substantial mixing.

The preserve is a class II airshed under the federal Clean Air Act. This classification allows some deterioration of air quality, for example, that associated with moderate industrial and population growth.

VEGETATION

The plant life of the preserve is an extremely rich assortment of arctic species. Collectively, the vegetation is known as tundra, but within that broad classification are many subdivisions and transitional types (see the diagram of generalized plant communities). The preserve contains one of the most extensive and complete sequences of tundra types in North America.

Over 350 vascular plants and 60 lichens have been collected from the preserve. None of these species is found exclusively in the preserve, but about a fourth of them appear to be forms that have originally evolved in the region and subsequently radiated westward to Asia or eastward into northern Canada and the United States.

Various attempts have been made to classify groups of tundra plants into communities (see Melchior 1979). But the classification is complex because of the diversity of groups and the variety of species found at different elevations or on various soils. Plant communities are generally described below and indicated on the Vegetation map.

Basic Tundra Types

The continuum in tundra types is based largely on soil moisture and degree of drainage. Alpine tundra is the driest and best-drained. It occurs in mountainous areas and along well-drained rocky ridges where the soil is coarse, stony, and dry. These windswept sites encourage low, flattened growth of the same tundra plants that are taller and leafier in wetter, less exposed areas. The typical appearance of alpine tundra is scattered very low willows, mats of lichens and crowberry, and a few grasses and ferns in a gravel matrix. This type frequently grades into nearly barren sites where exposure and lack of soil do not support rooted plants. Here only flattened lichens and mosses can survive.

Moist tundra occurs extensively at intermediate elevations on the upland plateaus that separate mountains from coastal lowlands. In some cases tundra is also found in these lowlands where local topography allows better drainage.

INCREASINGLY WETTER MARITIME CLIMATE

Barren (rocks and snow-covered fields)

Throughout foothills moist tundra predominates usually as tussock grass but with shrubs in patches; shrub thickets along river courses

Throughout lowlands wet tundra is common, but moist tundra occurs on drier hills and slopes as tussock grass, with some shrubs around thaw and maar lakes

Brackish / salt marsh grasslands occur in estuaries and around lagoons; drier grasslands on sandy seashore dunes

Tundra succession on lava is mostly lichens and mosses

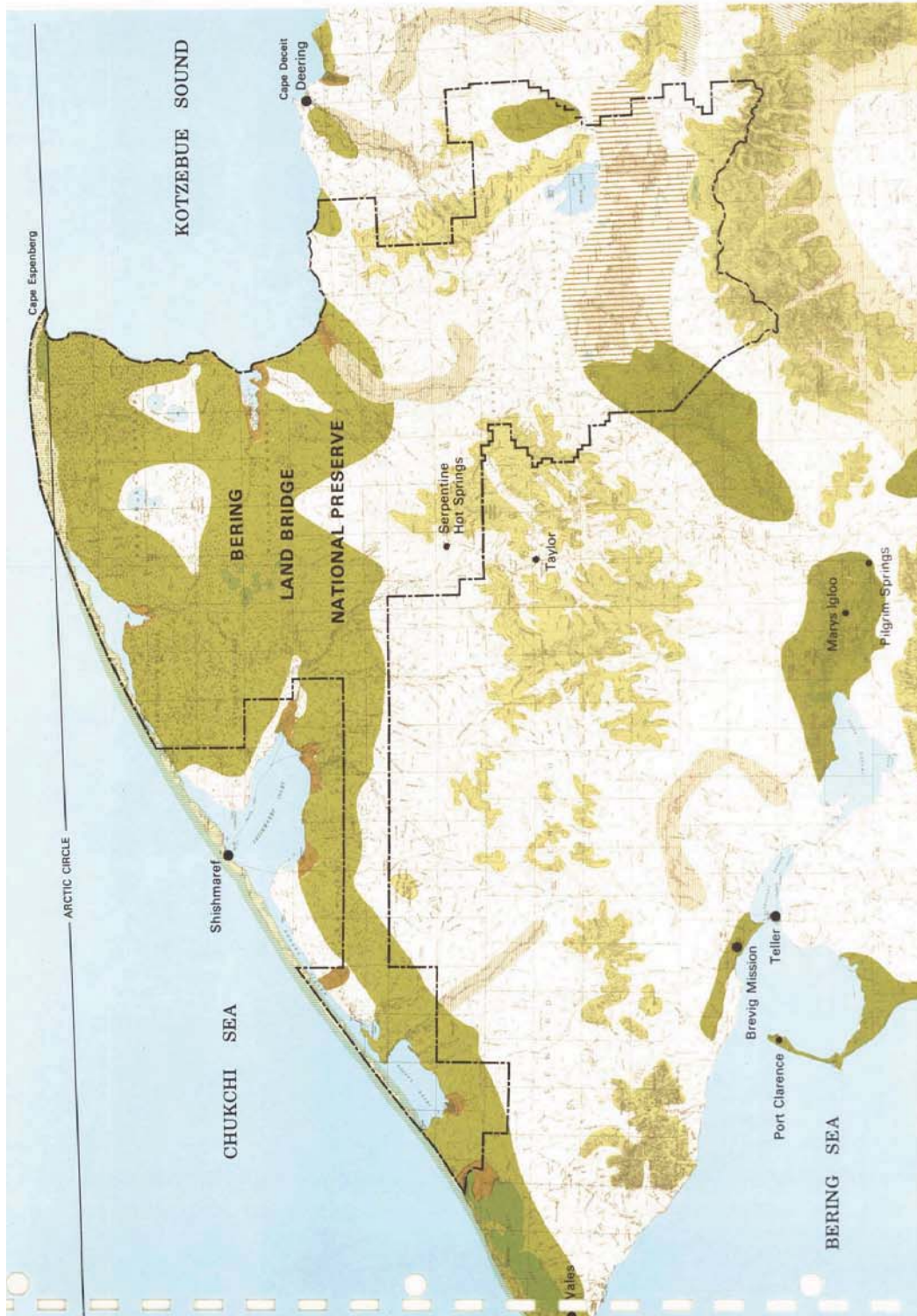
3500'

SEA LEVEL



GENERALIZED PLANT COMMUNITIES
BERING LAND BRIDGE NATIONAL PRESERVE

United States Department of the Interior / National Park Service



- WET TUNDRA
- MOIST TUNDRA
- ALPINE TUNDRA
- SHRUB THICKET
- SPRUCE WOODLAND WITH SHRUBS
- SILTY ESTUARY GRASSLAND/MARSH
- TUNDRA SUCCESSION ON LAVA FLOWS
- SANDY SEASHORE GRASSLAND/DUNE VEGETATION

SOURCES: SELKREGG 1977 AND NATIONAL PARK SERVICE 1973a



VEGETATION

BERING LAND BRIDGE NATIONAL PRESERVE
United States Department of the Interior/National Park Service
DSC / MARCH 1985 / 182-20.00A

ON MICROFILM

Moist tundra is commonly dominated by tussock-forming (bunch) sedges and grasses. The soil is usually saturated; lichens and mosses occur in the wet channels between tussocks. Local variations in soil type or moisture may lead to invasion of shrubs like dwarf birch and various willows.

Wet tundra occurs where the soil is continuously saturated during the summer growing season. It is typically interspersed with standing water in lakes, ponds, and sluggish streams. The predominant grasses and sedges are mostly mat-forming on a peaty (high organic) shallow soil. Moisture-tolerant mosses are favored over most lichens. Local variations in wetness can occur in association with the high and low centers and edges of frost polygons.

Grasslands

Seashore grassland occurs along the Chukchi Sea coast on sandy, well-drained beach berms and ridges. These areas may occasionally be flooded by storm tides, but they are not true tidal marshes. Silty estuary grasslands are more marshlike, being regularly inundated by 2- to 4-foot tides at the mouths of estuaries like the Nugnugaluktuk, Goodhope, and Serpentine rivers. This habitat is especially important for bird species such as the black brant and emperor goose.

Shrub Thickets

Along the floodplains on new alluvial soils, willow floodplain thickets with some alder develop. Another shrub thicket type, the birch/alder/willow thicket, is a transitional community between treeless tundra and boreal forest. Although no true forest occurs within the preserve, these shrub thickets are found on the uplands nearest the only sparse woodlands near the eastern boundary. Shrub thickets of this general composition can also be found locally in patches within moist or alpine tundra. These thickets form the principal cover and food for moose.

Forest and Woodlands

The true boreal white spruce forest that dominates interior Alaska does not extend into the preserve. Its westernmost limit lies just south and east of the boundary. Only the uppermost drainage of the Kugruk and Koyuk rivers east of Kuzitrin Lake supports white spruce in a scattered woodland growth form. This transition zone between forest and tundra adds greatly to the botanical significance of the preserve. Study of present vegetation patterns can provide valuable information that can be used in understanding the fossil record of temperate forests that covered the peninsula during earlier warmer periods.

Lava/Tundra Succession

A specialized plant community composed almost entirely of lichens and mosses is found on the relatively fresh lava flows of the Imuruk Lake area. Sometimes called rock deserts, the older substrates are covered with varying thicknesses of silt, but a large amount of the newer bare rock is now colonized by lichens and mosses. This succession between bare lava and lichen-mantled rock is especially valuable in botanical research because very few examples of fresh lava being colonized by lichens and mosses are available in the high arctic.

WILDLIFE

Birds

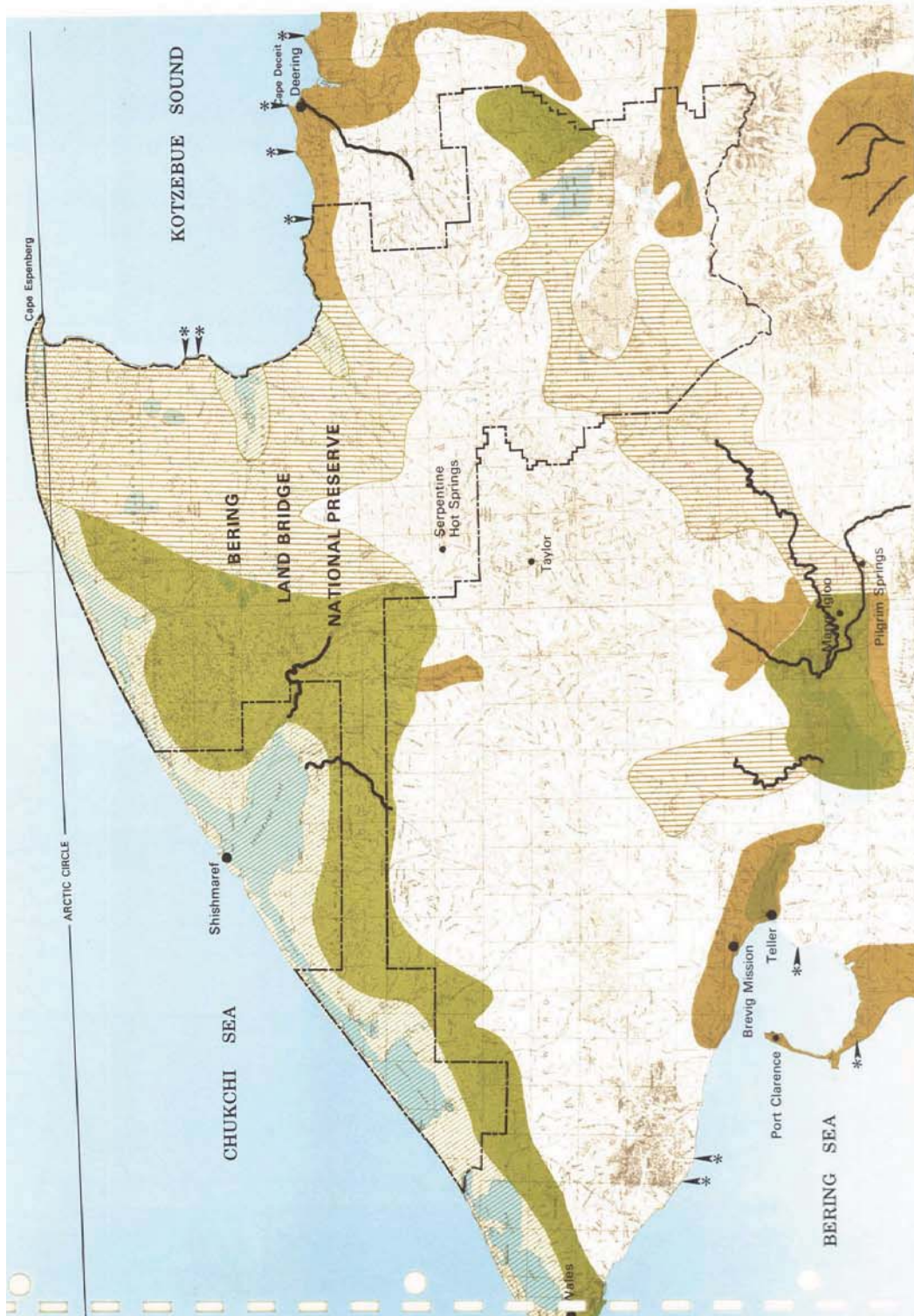
The Seward Peninsula is an extremely rich and diverse area for birds. Of the more than 350 species known in Alaska, at least 170 are known from the Seward Peninsula and some 108 species have been recorded in and around the preserve (Melchior 1979). This diversity is related in part to the preserve's nearness to Asia and also to the occurrence of three distinctive habitats--marine/estuarine, tundra, and boreal forest (see the Seabird/Waterbird Habitat and Salmon Streams map). The Asian birds include some species that regularly migrate across the Bering Strait to breed on the peninsula. Some North American species go the opposite direction to Siberia or farther to breed. Because of the harsh winter conditions, only five or six species can be found throughout the winter season.

The marine/estuarine habitat, together with extensive freshwater ponds and lakes, provides resting, nesting, feeding, and molting grounds for large populations of migratory geese, ducks, and shorebirds. Many of the waterfowl species are important in local subsistence use. The salty grasslands and marshes at the mouths of the Nugnugaluktuk, Pish, and Goodhope rivers and Cape Espenberg are especially important for waterfowl adapted to estuarine conditions.

Colonies of seabirds are also found within the preserve, with the most important being on the Sullivan Bluffs and Cape Deceit west of Deering. A large number of pelagic seabirds, including various species of gulls, can be found in the waters immediately off the Chukchi Sea coast.

The estuarine habitat along the preserve's Chukchi Sea coast and in the river deltas is very important for migrating and nesting waterfowl. These lagoons and estuaries are used as resting areas during northward and southward migrations.

The tundra habitat supports the majority of the preserve's passerine birds, as well as hawks, owls, and other predatory birds. Relatively few boreal forest birds are found within the preserve, but such species as the varied thrush, American robin, and an assortment of warblers are sometimes seen along the eastern boundary where "stringers" of white spruce forest extend near the preserve.



WATERFOWL HABITAT

SIGNIFICANT ESTUARINE NESTING AREA

HIGH-DENSITY AREA

MEDIUM-DENSITY AREA

LOW-DENSITY AREA

NOTE: PRIMARILY IN WET TUNDRA AND FRESHWATER LAKES

NOTE: GENERALLY ALONG FRESHWATER STREAMS

SEABIRD HABITAT

COLONY (MURRE, KITTIWAKES, GULLS, AND OTHERS)

SALMON STREAM

MAJOR STREAM

NOTE: PINK AND CHUM MOST ABUNDANT

SOURCE: SELKREGG 1977

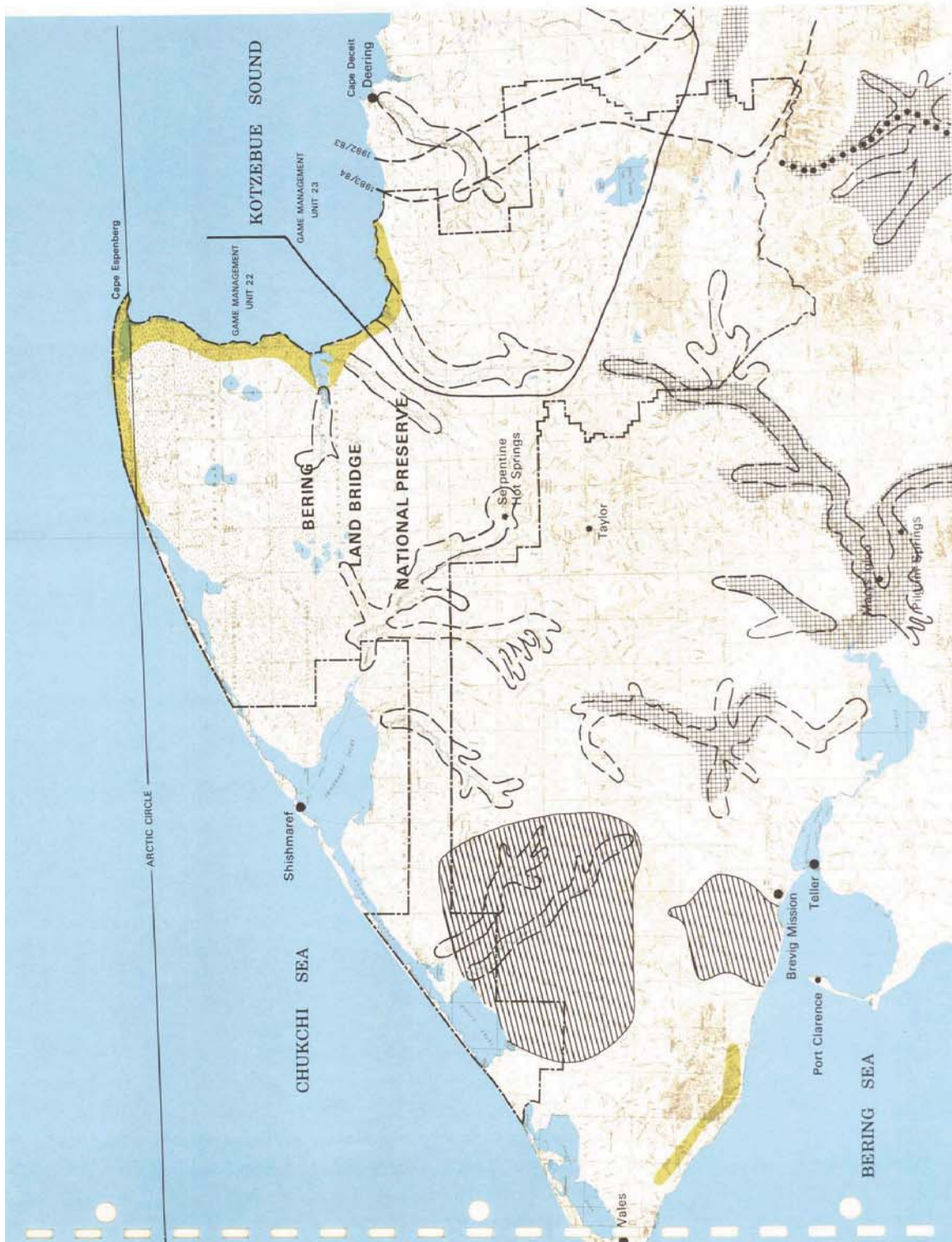
NOTE: RAPTORS, INCLUDING GOLDEN EAGLES AND GYRFALCONS, OCCUR IN MOUNTAINS AND FOOTHILLS; PASSERINE BIRDS OCCUR ON DRIER TUNDRA AND ALONG STREAMS



SEABIRD/WATERFOWL HABITAT AND SALMON STREAMS

BERING LAND BRIDGE NATIONAL PRESERVE
United States Department of the Interior/National Park Service
DSC / MARCH 1985 / 182-20.013 A

ON MICROFILM



- STATE GAME MANAGEMENT UNIT BOUNDARY
- - - CARIBOU: WESTERN EXTENT OF WINTER RANGE
- MOOSE
- WINTER CONCENTRATION
NOTE: WIDELY DISPERSED IN SUMMER, SPRING, AND FALL
- MUSK-OXEN
- PRIMARY HERD CONCENTRATIONS
NOTE: INDIVIDUALS, SMALL GROUPS WIDELY DISPERSED THROUGHOUT THE PENINSULA
- GRIZZLY BEARS
- INTENSIVE FALL USE
- INTENSIVE SPRING USE
- BEAR CONCENTRATION ALONG STREAMS
NOTE: MAY BE FOUND THROUGHOUT AREA
- SOURCE: SELKREGG 1977 AND ADF&G, NOME



LARGE MAMMAL HABITAT

BERING LAND BRIDGE NATIONAL PRESERVE
United States Department of the Interior/National Park Service
DSC / AUGUST 1985 / 192 20.01B

ON MICROFILM

Routine surveys of distribution and abundance are conducted (Fish and Wildlife Service 1983a). Seasons and bag limits are determined by local regulations. Management plans have been prepared by the Alaska Department of Fish and Game (ADF&G) for raptors and seabirds, and a site-specific gyrfalcon plan has also been prepared for Serpentine Hot Springs (ADF&G 1984d). None of these bird species is being actively managed. Seabird eggs from the colonies at Sullivan Bluff are sometimes taken by local residents of Deering as a traditional subsistence resource (Fish and Wildlife Service 1982, 1983b).

Large Mammals

Grizzly bears occur generally throughout the Seward Peninsula and in the preserve (see Large Mammal Habitat map). Harsh long winters and a relatively short summer season when the availability of food protein is limited account for bears being smaller in size and fewer in number than in more productive southern parts of the state. Black bear, a more forest-oriented species, is not found in the preserve.

Grizzlies typically tend to use river valleys or coastal areas after emerging from their upland winter hibernation dens. At this time they feed on carrion left from winter kills, on moose and reindeer calves, and on berries that stayed on the plants over the winter. In the summer bears may move to coastal lowlands to graze on grasses and sedges or to concentrate along salmon streams. Berries are important to their fall diet before hibernation.

The majority of the preserve is located in state game management unit 22, with the remainder in unit 23 (see the Large Mammal Habitat map). In 1976 the state considered the grizzly population as low to moderate, and individuals were about as numerous regionwide as they ever were (ADF&G 1976). Some local areas, however, may have shown some declines. Few attempts have been made to specifically estimate the number of grizzlies within the preserve. Most reported hunting for grizzly bears on the Seward Peninsula during spring and fall hunting seasons is concentrated outside the preserve along the three road systems originating in Nome and along major rivers accessible by boat. Reported 1984 harvest in game management unit 22 was 54, and this was primarily outside the preserve.

The wolf was known to range over the Seward Peninsula in historic times. But the introduction of reindeer herds and a long history of predator control and bounties (lasting through the 1960s) has probably resulted in low wolf numbers in the preserve. ADF&G staff in Nome estimate that the wolf population on the peninsula in 1983 was 100 to 200, up from 40 or 50 in the early 1970s. Most wolves are reported in the eastern part of the peninsula within spruce forest areas, which provide better cover than the open tundra. Wolf tracks were occasionally seen by NPS survey teams in the 1970s, and it is believed that wolves are sometimes shot by reindeer herders. Some wolves may still be taken legally through subsistence and sport hunting or trapping.

Caribou occur in large free-ranging herds to the north and east of the Seward Peninsula, but they do not currently occur within the boundaries of the preserve. Historically caribou occupied most of the peninsula until about the 1870s. These animals were associated with the western arctic herd, whose winter range is south of the Brooks Range. In earlier times the Seward Peninsula apparently served as winter caribou range during periods of high populations. The herd may now be approaching such a high, as suggested by 1984 estimates that are nearly three times the size of estimates in the late 1970s (200,000 versus 70,000). The trend for caribou movement seems to be to continue to the west, into the central Seward Peninsula. The potential therefore exists for a winter caribou migration extending to the central Seward Peninsula, possibly resulting in competition with reindeer herds (see Reindeer Range map in the "General Use and Development" section). The "Western Arctic Caribou Herd Strategic Management Plan" for the area recommends monitoring caribou migrations and recognizes the potential for conflict (ADF&G 1984e).

Musk-oxen also originally ranged over the Seward Peninsula, but they were locally eliminated by the early 1900s. The state of Alaska has reintroduced the musk-oxen into their former range--36 animals were introduced on the peninsula in 1970 and 35 animals in 1981. These introduced animals have produced two herds totalling about 250 animals, plus a few small groups not associated with the main herds. The observed high annual growth rate (16-20 percent) is probably due to the lack of competition from other grazers, low predation rates, and the protective behavior patterns of musk-oxen. Although the main herds are now concentrated outside the preserve, individuals or small groups range widely throughout the peninsula. A continued increase in the musk-oxen population could result in herds or individuals moving into the preserve, possibly competing with reindeer or other animals. The musk-ox population on the peninsula is being closely monitored by the Alaska Department of Fish and Game to identify any problems due to rapid growth and expansion of the herds (for example, habitat destruction or interaction with other species). No controls are now being applied, and no hunting is allowed, but limited hunting may eventually be allowed.

Before the 1950s moose were generally absent throughout northwestern Alaska, but in the past 30 years moose range has expanded dramatically. As many as 3,000 animals have recently been estimated as being resident on the Seward Peninsula. Moose concentrate in winter along watercourses where they browse on willows in the riverine shrub thickets. Although shrub thickets may occur outside these river valley areas, the lower growth and deeper snows make these inaccessible to moose. During summer and fall moose may be more broadly distributed, but they still feed on willows in both lowlands and uplands. Moose on the peninsula have quite large home ranges, and they may frequently move into and out of the preserve. Within the preserve moose have been seen or their presence noted in all the major drainages (Melchior 1979), but generally not along the coast. Although not all experts agree, the major factor limiting future population growth will likely be the availability of willow browse, rather than wolf or grizzly predation or hunting. An increase in moose harvest for both subsistence and recreational use has paralleled the

expansion of moose populations on the peninsula. To some extent moose are being harvested rather than marine mammals, and they may also be a partial substitute for the caribou which are no longer available. Reported harvest is considered lower than actual harvest because some moose taken for domestic use are not reported. No reliable estimates of the total harvest within the preserve are available; for the entire peninsula the total harvest may be as high as 500 animals annually.

Furbearers and Other Small Mammals

Small mammals considered furbearers by the state (that is, those providing commercial or subsistence skins through trapping or hunting) are not particularly abundant in the preserve. Scarce but favored animals like wolverines are taken if the opportunity arises. Red fox, arctic fox, muskrats, arctic ground squirrels, and short-tailed and least weasel are the preferred species where trapping does occur. Fox populations are somewhat cyclic, with higher densities occurring during years that small mammal populations (Microtine) are high.

Harvest of furbearers in the preserve is controlled under the "Draft Greater Alaska Furbearer Management Plan" (ADF&G 1984b). The occurrence of attractive furbearers is low within the preserve, and little survey or management is taking place. Reported harvest is very low, which does not necessarily reflect furbearer densities. The low reported harvest may be explained by the local use of furs, which means there is little incentive to report the harvest.

Fish

The freshwater and anadromous fish of the preserve have not been well studied. Known salmon streams are indicated on the Seabird/Waterfowl Habitat and Salmon Streams map. The fish species now known are representative of those found on the peninsula. Small fishes such as the nine-spined stickleback are abundant enough to be an important food source for birds and larger fishes. Salmon, grayling, char, and other species are locally important for subsistence. Although these larger species are present in the preserve, fishing opportunities are considered greater outside the preserve. Salmon runs are reported in the lower parts of the Arctic and Serpentine rivers in the preserve, and also in the Immachuk. Salmon runs in the lower Kuzitrin and Koyuk rivers apparently do not extend into their respective headwaters within the preserve.

No ADF&G fishery management projects are currently underway in the preserve, and no commercial fishery exists. However, the Department of Fish and Game does monitor salmon runs, and commercial fishing does occur in Kotzebue Sound (ADF&G 1974). Potential for a herring fishery in Shishmaref Inlet has been identified. Whitefish and anadromous fish, including pink and chum salmon, have been surveyed in nearshore marine waters, the lagoons, and the lower reaches of the Serpentine River. The

Inmachuk River has been studied for its potential to sustain a limited commercial harvest of chum salmon. The potential for local commercial fisheries development is very limited. Further investigations would be needed before any fishery development occurred (Kneupfer 1984).

Marine Mammals

The preserve does not actually include marine waters off its shores, although it does include several small islands southeast of Cape Espenberg. These areas, as well as the Cape Espenberg beaches, are important seal haulout areas.

Marine mammals are an important element in the subsistence lifestyle of local villagers. Walrus, bowhead whale, and seals (bearded, ringed, and spotted) are taken most often, but other whales (including beluga) and seals are also found offshore. Polar bears are found along the Chukchi Sea coast in winter, where they move into the area with the pack ice.

Although marine mammals do not actually spend much time on preserve lands, there are hunting camps and transportation routes within the preserve that are used in the traditional taking of these and other marine species. Polar bears and walrus are managed by the U.S. Fish and Wildlife Service, and seals and whales are managed by the National Marine Fisheries Service. Endangered whale species that can be found north of the Bering Strait are bowhead, gray, humpback, and right. The harvest of all species of marine mammals is controlled by provisions of the Marine Mammals Protection Act of 1972. Among other regulations, this act provides for certain subsistence harvest by native Alaskans but forbids recreational hunting.

ENDANGERED SPECIES

The endangered arctic peregrine falcon, Falco peregrinus tundrius, likely passes through the preserve but is not known to nest there. No other endangered or threatened animals are known in the preserve. Two plant species, Artemisia senjavinensis (a composite shrub) and Carex jacobipeteri (Anderson sedge), are now being considered for future listing as threatened or endangered.

CULTURAL RESOURCES

HISTORY

It was across the land bridge and later across the Bering Strait itself that successive cultural groups entered northwest Alaska. Eventually these people spread throughout North and South America, although some groups explored, settled, and adapted to Alaska and the Arctic. The prehistoric record of the Seward Peninsula contains part of the story of this process. However, knowledge of the prehistory of the preserve itself is hampered by the lack of information, and little of the area has been thoroughly investigated. Most of the current knowledge about the prehistory of the region is based on data from sites outside the preserve (Onion Portage and Cape Krusenstern).

The archeological record reveals several main periods of cultural development and adaptation in the region (see Archeological Cultural Sequence in Northwest Alaska). The earliest known people (Paleo-arctic tradition) arrived in the region 8000 B.C. or earlier, and there are few traces of their presence. They probably came from northern Asia and were nomadic hunters and gatherers, living off the land and traveling in small groups. These early people depended on caribou and other land animals for their subsistence.

The next wave of people apparently moved into the region from the forested regions to the south and east. These Northern Archaic folk arrived about 4500 B.C. and had a distinctively different material culture, apparently depending on caribou and freshwater fish for their livelihood. These people stayed inland and near the trees most of the time. Because of their interior origin, many archeologists consider that these people represent an Indian culture, rather than an Eskimo culture.

Around 2200 B.C., Arctic-oriented cultures again appeared in northwest Alaska. Either a new wave of people or new ideas swept into Alaska from Asia, repeating the usual pattern of influence. Known as the Arctic Small-Tool tradition, named after their finely made stone tools, this was a dynamic tradition, with the people adapting to make efficient use of a variety of arctic resources. The earliest part of this tradition spread as far south as Bristol Bay and as far east as Greenland, and both interior and coastal areas were occupied. These people were the first to spread throughout arctic Canada, and their long timespan (the tradition lasted over 1,000 years) shows that they were adept at using both coastal and interior resources.

By about A.D. 500 people of the Norton and the later Ipiutak traditions shifted much of their emphasis to coastal living and marine resources. There are some indications that whaling had begun and was gaining in importance. Interior resources, such as caribou, from the tundra and the forest were still sought and used extensively. Norton settlements sprang up in most good coastal locations from the Alaska Peninsula north to a point east of the U.S.-Canadian border. Fishing with seine nets

became a primary activity for food. The later Ipiutak people developed an advanced art style based on ivory carving.

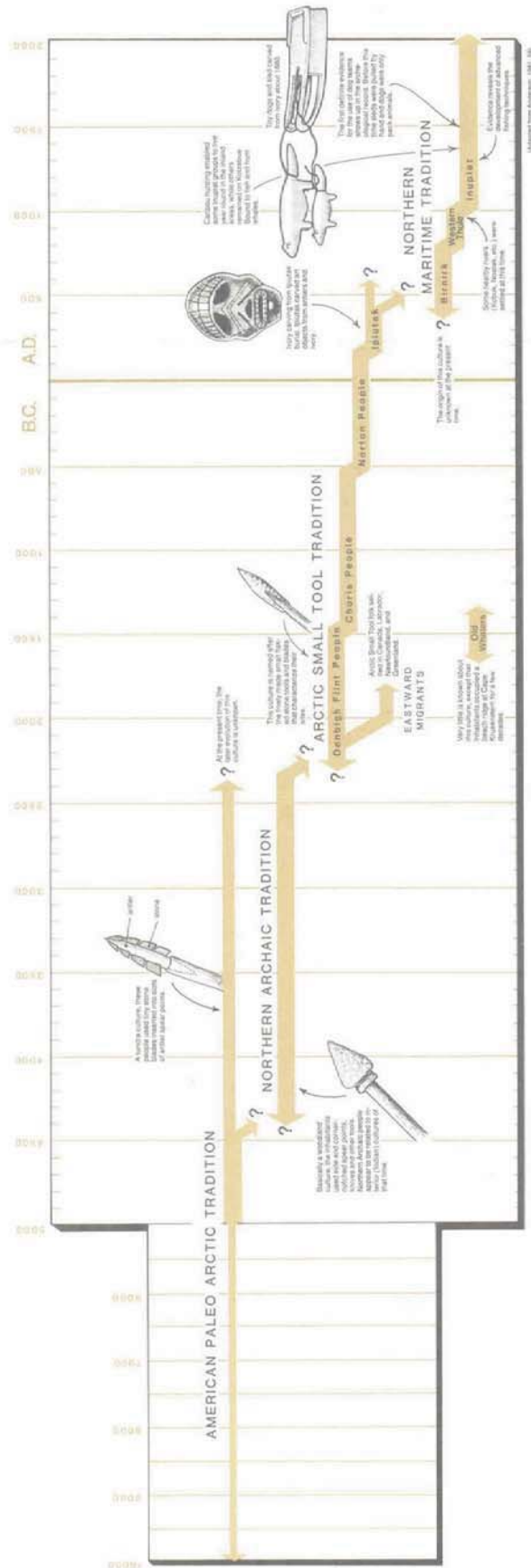
Around the same time as the previous cultural shift (A.D. 500), a new cultural group appeared--the Northern Maritime tradition. It is not known whether these people came from Asia or were descendants of earlier arctic peoples in Alaska. They developed the present Eskimo lifestyle, using marine resources such as seal, walrus, and whale plus inland resources such as caribou and musk-oxen. They developed from the Birnirk culture into the Western Thule culture, which spread all across the Arctic from Norton Sound to Greenland. From the Western Thule culture came the modern Inupiaq (identifiable in the archeological record by around A.D. 1200). The Inupiaq developed or used advanced fishing and hunting techniques such as the drag float and the sinew-backed bow. The first archeological evidence for the use of dogs to pull sleds shows up by A.D. 1500. Before this sleds were pulled by people, and dogs were used as pack animals. Some people moved inland; others moved to the rivers (e.g., represented by the Arctic Woodland culture on the Kobuk River northeast of the preserve) and developed more specialized lifestyles. However, extensive trading networks and communications were maintained over northwest Alaska and the Seward Peninsula.

Cultures on the Seward Peninsula were also influenced by the Bering Sea cultures to the west. Best known from St. Lawrence Island, the Old Bering Sea/Punuk maritime cultures are similar to Inupiaq and could have influenced the later development of the Thule culture on the Seward Peninsula. The degree of influence on the preserve itself is an important area for further study.

European exploration and development began in the 1700s when Russian and then English explorers mapped the Bering Strait and the land to the north. According to early reports, there were five native groups on the Seward Peninsula speaking different dialects of the Inupiat language.

The traditional lifestyles of the Inupiaq remained fairly stable until the mid-19th century. Although Russian trade goods had reached northwest Alaska during the 1700s through trade with Siberian peoples across the Bering Strait, trade did not significantly affect local people. Eskimo culture began to change significantly in response to outside contact after 1850.

In the 1860s natives of the peninsula were aware of and involved with the few white men in the area and their whaling, trading, and exploring activities. During this time the fur trade expanded in economic importance, and the use of sophisticated dogsledding methods became common. These concurrent developments provided greater mobility and resulted in people spreading out over larger areas in winter and abandoning many of the larger villages in northwest Alaska. Not until schools, post offices, and trading posts were set up around 1900 were large villages established (Anderson 1981:57).



**ARCHEOLOGICAL
CULTURAL SEQUENCE
IN NORTHWEST ALASKA**

United States Department of the Interior / National Park Service

In the late 1890s the gold rush in the southern portion of the peninsula attracted thousands of miners, who quickly spread over the peninsula to search for gold. Mining camps were set up at Deering, Taylor, and Serpentine Hot Springs, among other sites. The Alaska Road Commission marked cross-peninsula trails, and remnants of shelter cabins built along these trails still exist within the preserve. Villages such as Mary's Igloo became supply stations for the miners. Mining continued at a high level on the peninsula until the 1920s. Evidence of mining activity within the preserve includes the Fairhaven ditch, which was constructed in 1906 to divert water from Imuruk Lake for hydraulic mining operations on the Pinnell River, a tributary of the Inmachuk River.

Throughout this time natives continued to depend on natural resources for subsistence, although there were changes in technology and material needs. In 1917-18 flu epidemics decimated families and villages and strained social organization in the remaining villages. Some natives began to participate in the mainstream of the Euro-American economy during World War II when the peninsula became an important base of operations and there was another major influx of nonnatives into the area. The war, post-war military construction, and recent oil and gas booms have all affected Seward Peninsula residents.

CULTURAL RESOURCES OF THE PRESERVE

The Seward Peninsula is especially important for archeological and paleontological studies because its record of the past was not disturbed by the great ice ages. To date 85 prehistoric and historic sites have been recorded within the preserve. These sites range from one that is more than 10,000 years old (Trail Creek caves) to sites of the historic period (Fairhaven ditch). The Trail Creek caves site is one of the oldest known sites in Alaska (Larsen 1968). More such sites will likely be found as further investigations are conducted within the preserve. Later archeological sites abound in the preserve, including caribou hunting sites around Imuruk Lake, stone cairns on many of the hills in the region (Powers et al. 1982), and many sites along the coastline (Giddings 1973).

Many cultural resource sites are located in the Imuruk Lake area, from Cloud Lake to Kuzitrin Lake. In this area rocky outlines remain, marking seasonal campsites and old village sites. Other features are rock cairns, hunting blinds, and shelters on ridges or hilltops. The function of these cairns is not well known; some probably served as landmarks to guide parties in bad weather, while others may have been used as shelters and lookouts or to channel caribou into preferred passes.

Another area with high potential for archeological resources is Cape Espenberg. The succession of dune ridges may provide information on human migration and habitation similar to the information collected from Cape Krusenstern.

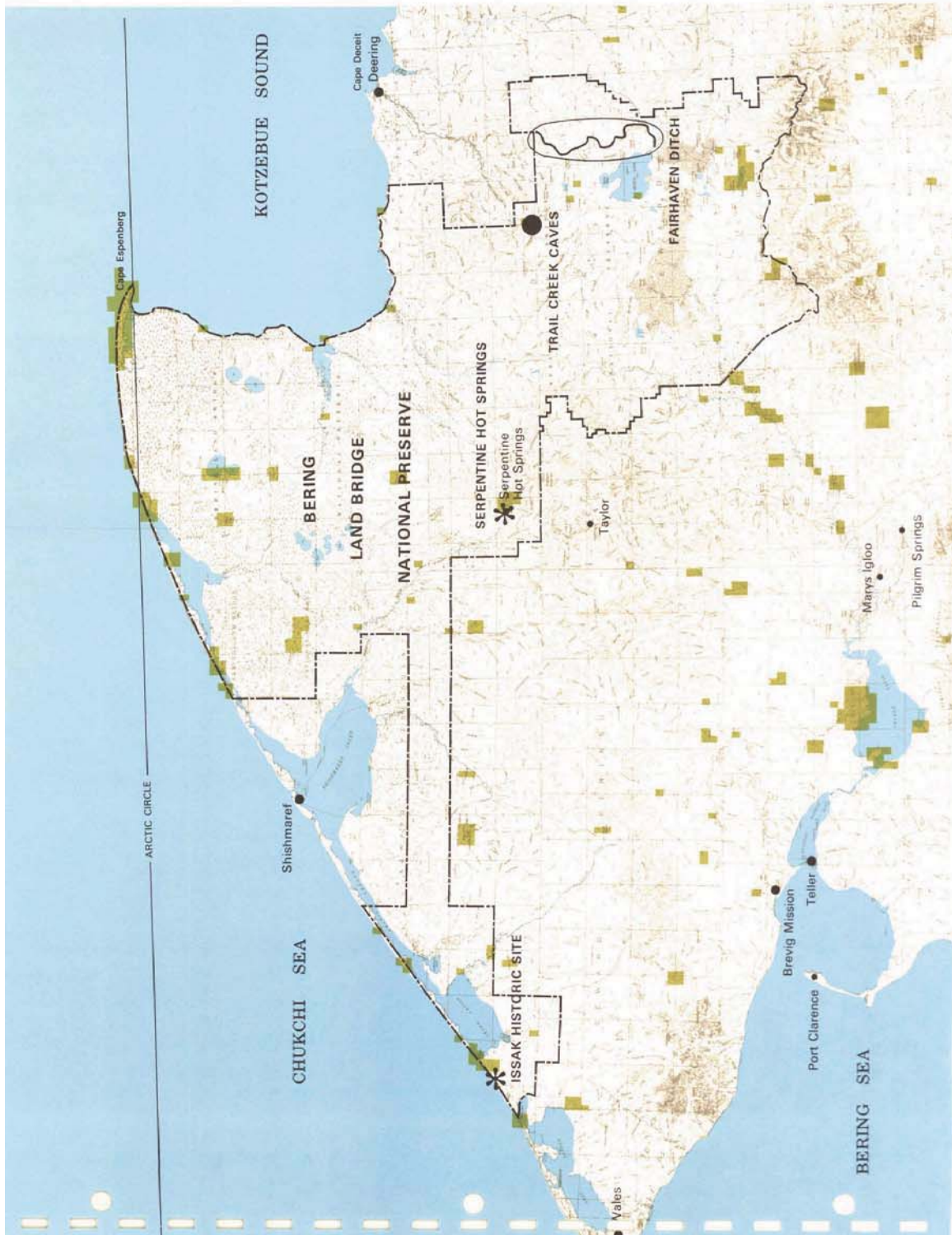
One of the most important cultural sites within the preserve is Serpentine Hot Springs, which has long been recognized by natives for its spiritual

and medicinal values. (The Inupiat name for the springs is Iyat, which means cooking pot.) The Serpentine River valley has traditionally been used as the training ground for shamans in northwest Alaska, and the hot springs were known as the site where the area's most powerful shaman spirits lived. Eskimos continue to use the springs for traditional cultural and medicinal purposes. According to a discussion of native healing in Alaska, "the therapeutic value of the hot springs is enhanced by the interplay of cultural, social, and spiritual components" (Book, Dixon, and Kirchner 1983). The springs were associated with a small gold-mining settlement in 1901, and prospectors built a cabin near the upper spring and a bathhouse over a bathing pool (Geological Survey 1971).

A brief survey of the Serpentine Hot Springs area by NPS cultural resource staff in 1983 found no physical evidence of prehistoric sites. About 0.5 mile to the north and downstream of the existing development is the site of a former cabin, a wood-lined pool in the hot springs, several depressions, and unvegetated rectangular areas that could have been tent sites or garden areas. There are also remains of broken bottles and rusty metal. Evidence of historic use and additional artifacts may be found by further field review.

The present structures at the hot springs are not significant historically. The existing cabin is a 20-foot by 54-foot, modular "knock down" World War II army structure. It is believed that the cabin was towed on a sled and reassembled at its present location around 1949 as part of an Alaska Road Commission project.

The Cultural Resources map shows the location of cemetery and historic sites that have been applied for under ANCSA, section 14(h)(1), and the locations of other known cultural resources within the preserve. To date the significance of only two 14(h)(1) sites, Serpentine Hot Springs and the Issak historic site, have been evaluated by the Bureau of Indian Affairs. Both sites were found to contain values that make them eligible for conveyance to native corporations. Serpentine Hot Springs has been recognized for its significance as a spiritual and healing place for the natives of the region; the Issak site has been certified as a significant abandoned prehistoric village that has also been in continuous use as a seal hunting camp. The Bureau of Land Management has determined that the Issak site is eligible to be conveyed as a cemetery site and historical area and that the Serpentine Hot Springs is not eligible to be conveyed because of prior claims on the site.



- CEMETERY SITE AND HISTORIC AREA APPLIED FOR BY REGIONAL CORPORATION - SIGNIFICANCE NOT YET DETERMINED
- * CEMETERY SITE AND HISTORIC AREA CERTIFIED BY BUREAU OF INDIAN AFFAIRS AS SIGNIFICANT
- OTHER KNOWN SIGNIFICANT SITE

NOTE: THIS MAP DEPICTS KNOWN CULTURAL RESOURCES. MOST OF THE PRESERVE HAS NOT YET BEEN INVENTORIED SO DISTRIBUTION AND SIGNIFICANCE OF ALL CULTURAL RESOURCES IS NOT YET KNOWN.



CULTURAL RESOURCES

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