August 26, 2024

SUBMITTED VIA EMAIL: BLM_NPRA_SpecialAreas@blm.gov

Steven M. Cohn
State Director, Alaska
Bureau of Land Management

RE: Request for Information on Special Areas in the National Petroleum Reserve in Alaska, 89 Federal Register 58,181 (July 17, 2024)

Dear Mr. Cohn:

On behalf of our millions of members and supporters, we are pleased to submit this Special Areas Proposal in response to the Bureau of Land Management's Request for Information, 89 Federal Register 58,181 (July 17, 2024). The Request for Information explains that the Bureau of Land Management is seeking information to: identify whether in existing Special Areas of the National Petroleum Reserve in Alaska the significant resource values protected are comprehensive, whether additional values exist, and whether additional measures may be necessary to assure maximum protection of values; determine whether the agency should modify the boundaries or management of existing Special Areas based on the presence of significant resource values; identify whether new Special Areas should be designated; identify what additional maximum protection measures may be required to protect significant resource values; and, based on this information, determine whether to initiate a process to consider changes to the Special Areas identified in the current Integrated Activity Plan.[1]

With this Request for Information, the Bureau of Land Management is taking steps to implement Congress' directive from nearly 50 years ago to ensure maximum protection for important lands, waters, and wildlife in the National Petroleum Reserve in Alaska. At nearly 23 million acres, it is among the most ecologically intact places on the planet, globally significant for its numerous wildlife species, migratory birds, fish, and marine mammals. Protecting special areas in this incomparable landscape is vital for caribou migration and calving grounds, subsistence resources for North Slope communities, nesting grounds for millions of migratory birds, and much more.

This Proposal recommends modifying several existing Special Area boundaries based on the presence of significant resource values, such as caribou, fish, polar bear, and migratory bird habitat, among others. It also recommends several measures to assure maximum protection of these values, consistent with BLM's legal mandate under the Naval Petroleum Reserves Production Act. The recommendations result from and are supported by an accompanying scientific technical report (Appendix A).[2]

There are two areas warranting the most urgent prioritization for Special Area protections. First, the Teshekpuk Caribou Herd Migratory Pathways Expansion (Expansion A of the Teshekpuk Lake Special Area)—based primarily on the herd's critical migration corridors and vital subsistence values that support the Iñupiat people's way of life—would bridge the unprotected gap between the Teshekpuk Lake Special Area and the Colville River Special Area. Second, the Teshekpuk Caribou Herd Calving Grounds Expansion (Expansion B of the Teshekpuk Lake Special Area) would provide protection for an important part of the herd's crucial calving grounds that currently sits outside any existing Special Area. These two areas in particular merit initiation of a Special Areas process to modify the boundaries of the Teshekpuk Lake Special Area so that this irreplaceable, iconic species vital to North Slope communities receives the protection it needs and is due under the law.

For additional information, please contact:

Ben Tettlebaum
Director and Sr. Staff Attorney
The Wilderness Society
ben_tettlebaum@tws.org
(720) 647-9568

Layla Hughes
Policy Consultant
laylahughes@laylahughes.com
(907) 331-6461

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[1] Special Areas within the National Petroleum Reserve in Alaska, 89 Fed. Reg. 58,181, 58,181–182 (Bureau of Land Mgmt. July 17, 2024).
[2] Please note that the undersigned groups may submit additional materials before the end of the Request for Information comment period.

Thank you for considering our Proposal.

Respectfully,

Alaska Wilderness League
Audubon Alaska
Conservation Lands Foundation
Defenders of Wildlife
Earthjustice
Environment America
Friends of the Earth
Northern Alaska Environmental Center
Natural Resources Defense Council
Sierra Club
The Wilderness Society
Trustees for Alaska

Enclosures:

- Expansion_Boundaries_Spatial Data_Special Areas RFI_TWS et al. Special Areas Proposal
- Maximum_Protection_Measures_Spatial Data_Special Areas RFI_TWS et al. Special Areas Proposal
- Appendix A_Technical Report_TWS et al. Special Area Proposal
- Appendix B_File B-1_Technical Report Figures_TWS et al. Special Area Proposal
- Appendix B_File B-2_Technical Report Figures_TWS et al. Special Area Proposal
- Appendix B_File B-3_Technical Report Figures_TWS et al. Special Area Proposal
- Appendix C_PLSS Data_TWS et al. Special Areas Proposal
- Appendix D_File D-1_Proposal Figures_TWS et al. Special Areas Proposal
- Appendix D_File D-2_Proposal Figures_TWS et al. Special Areas Proposal

Special Areas Proposal

National Petroleum Reserve in Alaska

August 2024

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National Petroleum Reserve in Alaska

Executive Summary

The National Petroleum Reserve in Alaska is the nation's largest single unit of public land, spanning nearly 23 million acres, and among the largest intact landscapes remaining in the United States. It hosts an unmatched diversity of wildlife species, migratory birds, fish, and marine mammals. Iñupiat people living in the North Slope have relied on the resources of this region for millennia. With this Request for Information, the Bureau of Land Management is taking important strides to fulfill the mandate in the Naval Petroleum Reserves Production Act to assure maximum protection of the Western Arctic's irreplaceable resources.

This Proposal recommends six expansions to existing Special Areas in the National Petroleum Reserve in Alaska based on several identified significant resource values, along with recommended measures to assure their maximum protection. Because the Naval Petroleum Reserves Production Act requires the Bureau of Land Management to provide maximum protection from the adverse effects of oil and gas development and to mitigate the impacts of such activities,[3] the areas and the significant resource values most at risk from development impacts merit particular attention. Those areas are: (1) Expansion A – Teshekpuk Lake Special Area (Teshekpuk Caribou Herd Migratory Pathways Expansion); and (2) Expansion B – Teshekpuk Lake Special Area (Teshekpuk Caribou Herd Calving Grounds Expansion.

Figure 1 shows each of the six proposed expansion areas and lists the significant resource values meriting those expansions.[4]

[3] 42 U.S.C. § 6504(a) ("Any exploration within . . . areas . . . containing any significant . . . value[] shall be conducted in a manner which will assure the maximum protection of such surface value to the extent consistent with the requirements of this Act for the exploration of the reserve."); *see also id.* § 6506a(b) ("[Oil and gas] [a]ctivities . . . shall include or provide for such conditions, restrictions, and prohibitions as the Secretary deems necessary or appropriate to mitigate reasonably foreseeable and significantly adverse effects on the surface resources . . . .").
[4] Please refer to Appendix D (files D-1 and D-2) for high-resolution maps of the figures in this Proposal.

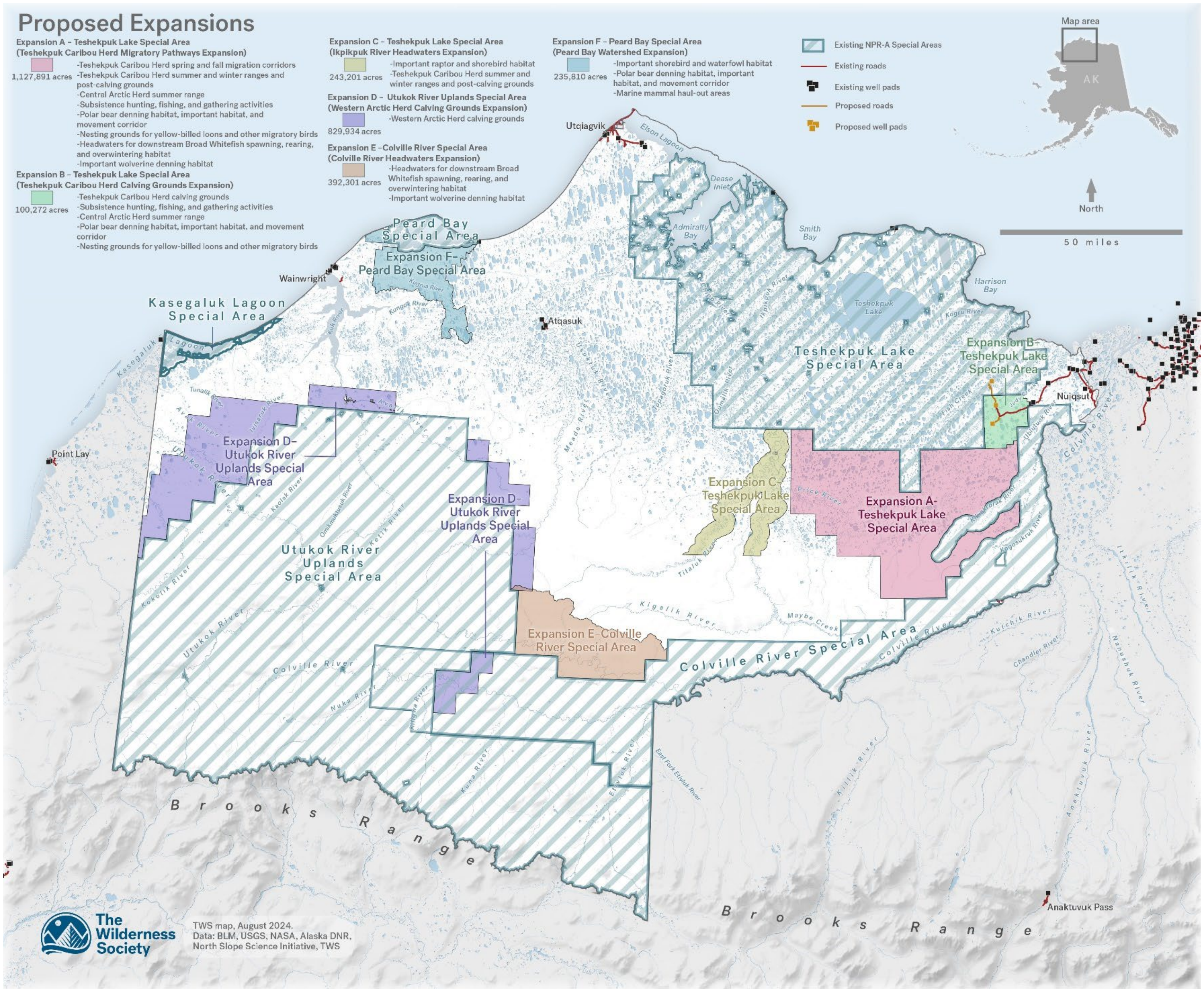

Figure 1. Proposed Special Area Expansions and identified significant resource values.

A summary of the recommended expansion areas and significant resource values in the expansion areas and existing Special Areas is as follows:

Expansion A – Teshekpuk Lake Special Area (Teshekpuk Caribou Herd Migratory Pathways Expansion) *(1,127,891 acres)*

Significant resource values:

- Teshekpuk Caribou Herd spring and fall migration corridors
- Teshekpuk Caribou Herd summer and winter ranges and post-calving grounds
- Central Arctic Herd summer range
- Subsistence hunting, fishing, and gathering activities
- Polar bear denning habitat, important habitat, and movement corridor
- Nesting grounds for yellow-billed loons and other migratory birds
- Headwaters for downstream Broad Whitefish spawning, rearing, and overwintering habitat
- Important wolverine denning habitat

Expansion B – Teshekpuk Lake Special Area (Teshekpuk Caribou Herd Calving Grounds Expansion) *(100,272 acres)*

Significant resource values:

- Teshekpuk Caribou Herd calving grounds
- Subsistence hunting, fishing, and gathering activities
- Central Arctic Herd summer range
- Polar bear denning habitat, important habitat, and movement corridor
- Nesting grounds for yellow-billed loons and other migratory birds

Expansion C – Teshekpuk Lake Special Area (Ikpikpuk River Headwaters Expansion) *(243,361 acres)*

Significant resource values:

- Important raptor and shorebird habitat
- Teshekpuk Caribou Herd summer and winter ranges and post-calving grounds

Expansion D – Utukok River Uplands Special Area (Western Arctic Herd Calving Grounds Expansion) *(829,934 acres)*

Significant resource values:

- Western Arctic Herd calving grounds

Expansion E – Colville River Special Area (Colville River Headwaters Expansion) *(392,301 acres)*

Significant resource values:

- Headwaters for downstream Broad Whitefish spawning, rearing, and overwintering habitat
- Important wolverine denning habitat

Expansion F – Peard Bay Special Area (Peard Bay Watershed Expansion)
(235,810 acres)

Significant resource values:

- Important shorebird and waterfowl habitat
- Polar bear denning habitat, important habitat, and movement corridor
- Marine mammal haul-out areas

Existing Colville River Special Area

New Significant resource values:

- Teshekpuk Caribou Herd spring and fall migration corridors
- Teshekpuk Caribou Herd summer and winter ranges
- Central Arctic Herd summer range

The two proposed areas with especially significant resource values at acute risk of harmful impacts from oil and gas activities are Expansion A – Teshekpuk Lake Special Area (Teshekpuk Caribou Herd Migratory Pathways Expansion) and Expansion B – Teshekpuk Lake Special Area (Teshekpuk Caribou Herd Calving Grounds Expansion). Active oil and gas leases threaten the values in these two expansion areas. For Expansion A, these values include but are not limited to the Teshekpuk Caribou Herd's spring and fall migration corridors, summer and winter ranges, and post-calving grounds, and subsistence hunting, fishing, and gathering activities. For Expansion B, the identified values include but are not limited to the Teshekpuk Caribou Herd calving grounds and subsistence hunting, fishing, and gathering activities.

Modifying the boundaries of the Teshekpuk Lake Special Area to include both these areas and their significant resource values and instituting the maximum protection measures recommended herein will help assure that these values are better protected from ongoing and future oil and gas activities. The other proposed expansion areas, though under less imminent threat from oil and gas activities, also contain significant resource values that should be afforded maximum protection.

Section I briefly discusses the National Petroleum Reserve in Alaska, its management, and the contents of this Proposal.

Section II explains the Bureau of Land Management's authority and duty under the Naval Petroleum Reserves Production Act to protect Special Areas within the National Petroleum Reserve in Alaska.

Section III presents the Special Area recommendations. These include the proposed expansion areas, the significant resource values meriting the expansions, and the recommended measures to assure maximum protection based on the best available scientific information, as presented in an accompanying technical report.[5]

Section IV explains the need for interim protection measures for several significant resource values in certain proposed expansion areas during the pendency of a Special Areas process.

Section V provides a brief conclusion.

[5] Assessment of ecological and cultural values within the National Petroleum Reserve – Alaska (Aug. 2024), App. A.

I. Introduction

The approximately 23-million-acre National Petroleum Reserve in Alaska (Reserve) is among the most ecologically intact places left on Earth.[6] The Reserve is globally significant for its numerous wildlife species, migratory birds, fish, and marine mammals. It is vital for the Iñupiat people, who have called the Reserve home and relied on its resources of the land and sea for millennia.

The northeast corner of the Reserve is also under active oil development, with about 2.5 million acres currently leased, hundreds of producing and abandoned wells, millions of current and planned vehicle trips on permanent gravel roads and seasonal roads, and tens of thousands of current and planned flights. When Congress transferred management of the Reserve and its petroleum exploration program to the Department of the Interior (DOI) in 1976, and later when Congress opened the Reserve to oil and gas leasing, it simultaneously recognized the importance of and need to protect the wildlife, fish, and other values in the Reserve. As a result, Congress mandated that oil and gas exploration be conducted to ensure protections for the Reserve's rich ecosystem and, in particular, assure maximum protection of significant resource values in Special Areas designated by the Secretary of the Interior.[7] But nearly 50 years later, there are still significant resource values in the Reserve that lack adequate protection.[8]

Building on previous Special Area proposals,[9] aligning with the Bureau of Land Management's (BLM) rationale for prior Special Area designations,[10] and aiming to fulfill the agency's statutory directives,[11] this Proposal recommends actions to fill that protection gap. Relying on the latest spatial data and best available scientific information, including Indigenous Knowledge, presented in an accompanying technical report, the Proposal identifies significant resource values not currently recognized, proposes modification of the boundaries of existing Special Areas to protect those identified values, and recommends measures to assure maximum protection of newly identified significant

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[6] Belote, App. A, Sec. 5a at 256.
[7] 42 U.S.C. §§ 6503(b), 6504(a), 6506a(b).
[8] *See* Fullman, App. A, Sec. 5d at 275–77.
[9] *E.g.*, Audubon Alaska, Habitat Conservation Strategy for the National Petroleum Reserve – Alaska (Jan. 2011), https://eplanning.blm.gov/public_projects/nepa/65817/89374/106881/Audubon_Alaska_GMT2_Scoping_comments_FINAL_29Sept2016_with_attachment.pdf.
[10] *See, e.g.*, BLM, Northwest NPR–A IAP/EIS Record of Decision (ROD) 4 (Jan. 2004), *available at* https://web.archive.org/web/20041204130751/http://www.ak.blm.gov/affairs/press/pr2003/Final_Northwest_NPR-A_ROD.pdf; BLM, NPR–A IAP ROD 4 (Feb. 2013), *available at* https://eplanning.blm.gov/public_projects/nepa/5251/42462/45213/NPR-A_FINAL_ROD_2-21-13.pdf; Designation of Additions to Special Areas in NPR–A, Alaska, 64 Fed. Reg. 16,747 (April 6, 1999); National Petroleum Reserve in Alaska Designation of Special Areas, 42 Fed. Reg. 28,723, 28,723 (June 3, 1977).
[11] 42 U.S.C. §§ 6504(a), 6506a(b).

resource values and several existing values, consistent with requirements of the Naval Petroleum Reserves Production Act (NPRPA).

II. Authority

The NPRPA requires the Secretary of the Interior to protect the Reserve's surface resources.[12] This reflects Congress's recognition of the Reserve's irreplaceable values, including "historic and current calving ground of the Arctic caribou herd," the "best waterfowl nesting area on the North Slope," and "highly scenic" landscape.[13] Congress was also clear that the Secretary should "take every precaution to avoid unnecessary surface damage and to minimize ecological disturbances throughout the reserve."[14] Across the entire Reserve, the Secretary is required to "provide for such conditions, restrictions, and prohibitions as the Secretary deems necessary or appropriate to mitigate reasonably foreseeable and significantly adverse effects on the surface resources" of the Reserve.[15]

Congress also recognized that some areas in the Reserve "contain significant subsistence, recreational, fish and wildlife, or historical or scenic value[s]," identified two such areas—Teshekpuk Lake and the Utukok River—and authorized the Secretary to designate the boundaries of those and any other areas.[16] It required the Secretary to assure "maximum protection" of the surface values within such special areas.[17]

BLM's new regulations reflect these longstanding congressional mandates and set out the process BLM will follow to ensure it meets its statutory requirements. In designating or otherwise changing the boundaries or management of Special Areas, BLM must rely on the best available scientific information, including Indigenous Knowledge, as well as the best available information about subsistence uses and resources.[18] As part of BLM's review process for the Special Areas, it must take into consideration whether to expand or designate new Special Areas, whether there are additional significant resource values that should be protected within Special Areas, and whether additional or strengthened measures are needed to provide maximum protection for significant resource values.[19] When BLM designates Special Areas or recognizes additional significant resource values in those areas, it must adopt measures to assure maximum protection of those values.[20]

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[12] *Id.* §§ 6503(b), 6504(a), 6506a(b).
[13] H.R. Rep. No. 94-81, pt. 1 at 8-9 (1975).
[14] H.R. Conf. Rep. No. 94-942 (1976).
[15] 42 U.S.C. § 6506a(b); Management and Protection of the National Petroleum Reserve in Alaska, 89 Fed. Reg. 38,712, 38,734 (May 7, 2024) (recognizing BLM must take action to protect surface resources in the Reserve by adopting "whatever conditions, restrictions, and prohibitions it deems necessary or appropriate to mitigate reasonably foreseeable and significantly adverse effects of proposed activities").
[16] 42 U.S.C. § 6504(a).
[17] *Id.* §§ 6504(a), 6506a(n)(2).
[18] 43 C.F.R. § 2361.30(a)(1).
[19] *Id.* § 2361.30(b)(1).
[20] *Id.* § 2361.30(b)(5).

BLM must also provide the public and interested stakeholders with opportunities to participate and must engage in consultation with Tribes and Alaska Native Corporations with ties to the area.[21] The science- and Traditional Knowledge-driven process set out in the regulations is consistent with and in furtherance of BLM's statutory obligations to ensure the agency is providing maximum protection for significant resource values, as directed by Congress.[22]

[21] *Id.* § 2361.30(a)(2)–(3).
[22] 42 U.S.C. § 6504(a); 43 C.F.R. § 2361.30.

III. Recommendations

This section describes the proposed expansion areas, significant resource values meriting the expansions, and measures to assure maximum protection of the values. Scientific information leading to and supporting these recommendations is referenced throughout and presented in full in the attached technical report (Appendix A).[23]

A few notes are in order.

First, proposed expansion boundaries were determined based on the best available research and information about the location of the significant resource values warranting the expansion. Several values extend to acreage not included in the proposed expansion area. For example, based on the importance of caribou habitat and the shifting movements of the species in response to year-to-year fluctuations common to Arctic environments, the entire documented range of the Teshekpuk Caribou Herd qualifies for inclusion in a Special Area. However, to narrow the proposed expansions to the areas of greatest significance and need, the Proposal relied on the relative strength of the science and information showing the location of the significant resource value and the likely threat to the significant resource value (i.e., likelihood that the value would experience adverse effects).

Each of the identified significant resource values is found not only in the expansion area itself, but also in the existing Special Area it would be expanding and any additional Special Areas with which it overlaps. For example, polar bear denning habitat is a new proposed significant resource value for Expansion A and is also located within the current boundaries of the existing Teshekpuk Lake Special Area. The extent of the area where the significant resource value is located is: shown in a figure referenced in the technical report; described in narrative form in the respective subsection below; and/or illustrated in a map below depicting the coverage area for the relevant maximum protection measure (MPM).

The spatial data for the proposed expansion area boundaries is included as an attachment to this submission (folder name: "Expansion_Boundaries_Spatial Data_Special Areas RFI_TWS et al. Special Areas Proposal"). There are also several maps showing the coverage area for select MPMs. The spatial data for these boundaries is, likewise, included as an attachment to this submission (folder name: "Maximum_Protection_Measures_Spatial Data_Special Areas RFI_TWS et al. Special Areas Proposal").

For recommended Expansions A, B, and D, and the southern boundaries of Expansion C, the boundaries were drawn using Public Land Survey System (PLSS) townships or sections. The remaining boundaries of Expansion C (i.e., other than the southern boundaries) were drawn based on a 2-mile setback from the relevant portions of the Titaluk River and the

[23] Assessment of ecological and cultural values within the National Petroleum Reserve – Alaska (Aug. 2024), App. A.

Ikpikpuk River, corresponding with the recommended MPM. The “Meridian, Township, Range” (MTR) or “Meridian, Township, Range, Section” (MTRS) codes for each of these expansion areas is included in Appendix C. For recommended Expansion E, the boundaries were drawn based on the watershed, HUC 08 – 19060301, and for Expansion F, the boundaries were drawn based on the watershed, HUC 08 – 19060202.

Second, several recommended expansion areas overlap existing leases. The existence of a lease does not preclude Special Area designation. Indeed, the NPRPA calls for designating Special Areas based on the presence of significant resource values, not whether leases exist on the land at issue.[24] The presence of leases makes protection an even higher priority. Development on leases would lead to precisely the types of adverse effects the NPRPA intends to guard against by requiring maximum protection of values through Special Area designation. Designating Special Areas and adopting protective measures would allow BLM to plan for the future when a leaseholder may submit a project or plan application, providing greater certainty to all parties.

Third, MPMs are listed below the respective significant resource value to which they apply. For some but not all proposed MPMs, the recommended coverage area where the measure should apply is displayed in a figure accompanying the measure. Some measures apply to, and are thus repeated for, multiple significant resource values. As such, maps displaying a coverage area will show the coverage area for all the significant resource values to which that measure is intended to apply.

The determination of precisely what area is subject to an MPM should be based on the best available, most up-to-date science, to account for both current patterns and historical trends. Consistent, non-arbitrary, regularly updated science-based determinations are key to covering the proper area and therefore providing adequate protection. The figures below accompanying several recommended MPMs rely on these criteria.

Fourth, and finally, the proposed MPMs are meant to prescribe a hard ceiling. This is necessary to assure *maximum* protection as required by the NPRPA. An MPM should not, therefore, be subject to waiver or exception. Moreover, recommended MPMs are intended to be in addition to existing lease stipulations and required operating procedures (ROPs). They are not meant to replace stipulations and ROPs but rather overlay them. Until the stipulations and ROPs are updated, if a conflict exists with an MPM, the MPM should control.[25]

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[24] 42 U.S.C. § 6504(a).

[25] *See* BLM, NPR-A Integrated Activity Plan, App. A at A-5, A-6 (2022) (“[BLM] may authorize a modification to a lease stipulation only if she or he determines that the factors leading to the stipulation have changed sufficiently to make the stipulation no longer justified; the proposed operation would still have to meet the objective stated for the stipulation. . . . BLM . . . may establish additional requirements as warranted to protect the land, resources, and uses in accordance with the BLM’s responsibilities under relevant laws and regulations.”).

Historically, BLM has allowed the authorized officer to grant waivers or exceptions to lease stipulations or ROPs.[26] For example, for the Willow Project, BLM "would consider waivers" to the buffer zone around yellow-billed loon nesting sites "if no other feasible option exists."[27] Numerous exceptions were granted.[28] Waivers or exceptions are typically justified based on an applicant's statement that they are necessary. But if MPMs that are unwaivable and for which exceptions may not be granted are in place and widely noticed prior to preparation and submission of a project application,[29] the leaseholder can work with BLM in advance on a project plan knowing it must strictly adhere to the measures to comply with the law.

The efficacy of lease stipulations, such as those intended to protect caribou, are compromised by the availability of exceptions on a case-by-case basis.[30] Waivers and exceptions to stipulations and ROPs hamper BLM from providing maximum protection to, for example, caribou-related values.[31] Eliminating waivers and exceptions would increase certainty for caribou protection.[32]

Likewise, various ROPs related to, for example, fish-related values would generally protect aquatic ecosystems, but most allow exceptions for development infrastructure on a case-by-case basis.[33] Such piecemeal degradation leads to inadequate protection for fish and fish habitat,[34] undermining the intent of the ROPs.

The proposed MPMs are intended to help ensure that activities adhering to those measures will result in no more than minimal adverse effects to significant resource values. Therefore, this Proposal recommends that all MPMs BLM establishes disallow waivers or exceptions of the MPMs.

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[26] *E.g.*, BLM, Willow Master Development Plan: Supplemental Environmental Impact Statement, Record of Decision (ROD) 2 Table 1.2 (Mar. 2023) ("Anticipated Exceptions from National Petroleum Reserve in Alaska Lease Stipulations and Required Operating Procedures.").
[27] *Id.* at 4, Table 1.2.
[28] *E.g.*, *id.* at 2, 3, 4, 5 Table 1.2.
[29] *See* 43 C.F.R. § 2361.30(b)(5) ("When the authorized officer designates lands as Special Areas or recognizes the presence of additional significant resource values in existing Special Areas, the authorized officer must adopt measures to assure maximum protection of significant resource values. Such measures are not constrained by the provisions of the current IAP. Once adopted, these measures supersede inconsistent provisions of the IAP then in effect for the Reserve and will be incorporated into the IAP during the next revision or amendment.").
[30] Fullman, App. A, Sec. 3a at 34.
[31] *Id.*
[32] *Id.*
[33] Leppi, App. A, Sec. 3b at 82.
[34] *See id.*

Expansion A – Teshekpuk Lake Special Area (Teshekpuk Caribou Herd Migratory Pathways Expansion)

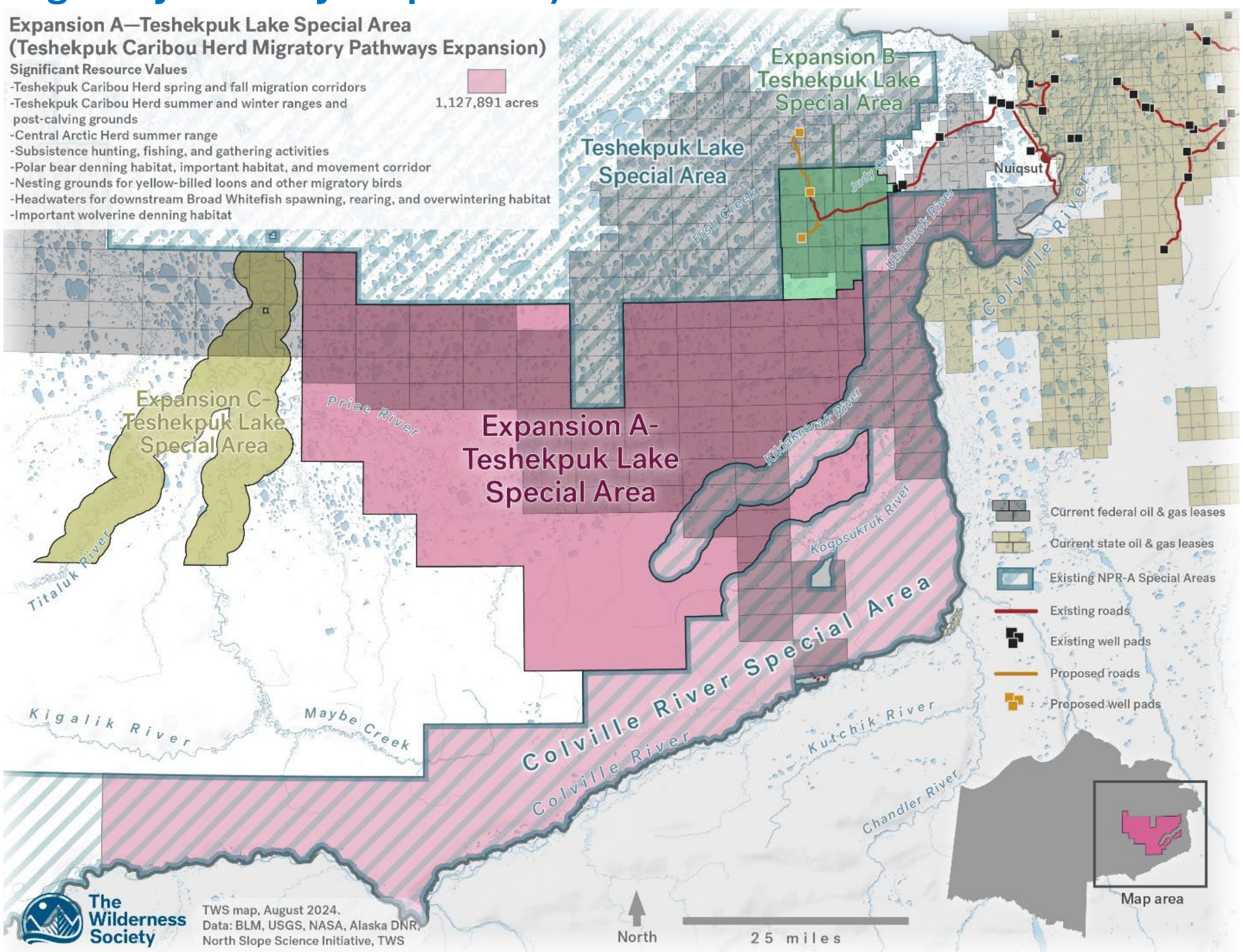

Figure 2. Expansion A – Teshekpuk Lake Special Area (Teshekpuk Caribou Herd Migratory Pathways Expansion).

The region nested between the southern to southeastern boundaries of the Teshekpuk Lake Special Area (TLSA) and the northwestern boundary of the Colville River Special Area (CRSA) provides critical movement corridors and habitat for the Teshekpuk Caribou Herd (TCH).[35] Yet, this acreage is currently outside any Special Area. The existing TLSA and CRSA

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[35] Fullman, App. A, Sec. 3a at 43 ("Currently there is a gap between the Teshekpuk Lake Special Area and Colville River Special Area that is heavily used by the TCH year-round, along with some use by the CAH and yet which has no restrictions on leasing or infrastructure (Figure 3a.3). Caribou use of and movement through these lands is an important part of their annual cycle and any development or other activities that disturb caribou use of these areas could have detrimental impacts upon the herds."); BLM, Willow Master Development Plan: Final Supplemental Environmental Impact Statement, Vol. 5, App. A.4, Figs. 3.12.3, 3.12.4, 3.12.5 (2023); BLM, NPR-A Integrated Activity Plan: Final Environmental Impact Statement, Vol. 2, App. A, Map 3-22 (2020).

cover only some of this significant caribou habitat value (and no caribou-related value is yet recognized in the CRSA). In addition to the TCH, the Central Arctic Herd depends on this area for part of its summer range.[36] Because of its importance, in particular, to caribou, along with subsistence activities, yellow-billed loon and other migratory bird nesting, headwaters for downstream Broad Whitefish spawning and rearing habitat, and polar bear denning, this area warrants Special Area protection. Expanding the existing TLSA to include this area would bridge the gap between the TLSA and CRSA and help maintain an ecologically intact landscape.

Large, connected, intact areas are crucial for barren-ground caribou, given their wide-ranging and variable nature, with animals covering hundreds to thousands of kilometers each year in some of the longest overland movements in the world (Fancy et al. 1989; Joly et al. 2019; Griffith et al. 2002; USFWS 2015; Joly et al. 2021a).[37] BLM recognized the need for vast, protected areas for caribou when it first designated the boundaries of the Utukok River Uplands Special Area based on its critical habitat for the Western Arctic Herd.[38] While the existing TLSA aims to protect some of the TCH's calving grounds and seasonal range, caribou use the Reserve year-round. Protections must span their entire annual cycle, including not only calving and post-calving periods and summer and winter ranges, but also spring and fall migratory movements *between* summer and winter ranges and back again.[39]

Caribou populations have seen sharp global declines across the majority of their range (Russell et al. 2018) due to a variety of factors, including climate and anthropogenic landscape changes (Vors and Boyce 2009; Russell et al. 2015; Mallory and Boyce 2018). These declines raise concerns about their future, amplifying the need for protecting existing populations. In the United States, Alaska is the only place left with wild caribou herds.[40] Of the three herds that use the Reserve, all have declined from their peak population numbers,[41] with the Western Arctic Herd showing a sustained decline over the last 20 years[42] and the Central Arctic Herd experiencing a decline starting in 2010, with a slight increase in the last two counts.[43] The TCH peaked in 2008 (Parrett 2021), lost half its size by 2013 (Parrett 2021), and is still below its peak population, despite seeing an increase since that time.[44] In light of the serious declines of caribou herds globally,

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[36] Fullman, App. A, Sec. 3a at 29 Figure 3a.3, 43; BLM, Ambler Road Final Supplemental EIS, Vol. 4, 32, Map. 3-20 (2024).
[37] Fullman, App. A at 14.
[38] National Petroleum Reserve in Alaska Designation of Special Areas, 42 Fed. Reg. 28,723, 28,723 (June 3, 1977) ("Because of the nomadic nature of the caribou, a large area encompassing approximately 4,032,000 acres is included within this area.").
[39] Fullman, App. A, Sec. 3a at 21–22.
[40] *Id.* at 15.
[41] *Id.* at 15–16.
[42] *Id.*
[43] *Id.*
[44] *Id.*

including to herds in neighboring Canada[45] and other herds in Alaska, the time is ripe for providing greater protections for North Slope caribou herds.

Caribou that use the Reserve are integral to communities across the North Slope and Western Alaska. They are the single most important terrestrial animal to Iñupiaq subsistence users (U.S. DOI 1979). In 2019, 98% of people in Nuiqsut participated in caribou hunting activities, with the area covered by this proposed expansion critical for caribou harvest (U.S. DOI 2023).

Protecting the TCH's migratory corridor and linking a larger extent of their habitat to provide unhindered movement are key to their long-term survival.[46] Species with small geographic range size face increased risk of extinction (Purvis et al. 2000). Fragmentation due to human activity leads to harmful effects on the herd. Decades of study have revealed persistent effects of development on caribou, leading them to avoid infrastructure with no clear evidence of habituation (Schaefer 2003; Vistnes and Nellemann 2008; Nellemann et al. 2010; Boulanger et al. 2012; Sawyer et al. 2017; Johnson et al. 2020).

Research demonstrates that caribou exhibit avoidance responses to infrastructure after more than four decades of exposure to development, and measures intended to mitigate adverse impacts have also proven unsuccessful (Johnson et al. 2020; Prichard et al. 2020). These studies suggest that maintaining large areas sufficiently far from roads and other development are key to offering maximum protection for caribou (Boulanger et al. 2012; Boulanger et al. 2021).

Expansion A also helps ensure landscape intactness and connectivity, a lynchpin of conservation and for the protection of wildlife, particularly migratory species found in the Reserve.[47] For example, many fish species require large portions of watersheds to reproduce, forage, and survive (Zimmerman et al. 2013; Brown et al. 2019; Leppi et al. 2022b). Fragmenting habitats or disrupting natural disturbance processes—by roads, culverts, bridges, and development pads—threaten fish populations (Penaluna et al. 2018; Duffy 2009; Schindler et al. 2010; Hellmair and Kinziger 2014; Meek et al. 2020). As noted above, vast landscapes allowing free movement are critical to caribou. Based on several assessments of human modification and compositional intactness, Alaska's Arctic landscape, including the Reserve, is presently among the most intact places left on Earth.[48] The TLSA and CRSA are currently separated by an expanse of land not protected in an existing Special Area. Based on the multitude of important migratory species that require unhindered movement among and between these two areas, modifying the boundaries to connect these regions is paramount.

[45] *Id.*
[46] *Id.* at 21.
[47] *See* Belote, App. A, Sec. 5a at 256.
[48] *Id.* at 256, 257 Figure 5a.1.

Significant Resource Value A-1: Teshekpuk Caribou Herd spring and fall migration corridors

Rationale[49]: The TCH and the Iñupiat people who rely on the caribou depend upon the herd's successful migration. In particular, communities such as Nuiqsut and Anaktuvuk Pass lying near migratory pathways depend on caribou movements for harvest opportunities.[50] The spring and fall migrations allow the TCH to take advantage of resources that change based on location and seasonality, such as moving to areas with greater winter food availability and shelter and then returning to calving grounds with lower predator density (Person et al. 2007; Dau 2011). But migration is costly, with one study showing that pregnant females may lose about 4 kg of body fat during spring migration (Fancy 1986). Unhindered movement is key (Russell and Gunn 2019).

During their annual movements, caribou contribute to larger ecosystem processes, as they alter vegetation and nutrient patterns through grazing and trampling (Stark et al. 2015; Heggenes et al. 2018). Predators, including brown bears (Reynolds and Garner 1987; Mowat and Heard 2006), wolves (*Canis lupus*) (Dale et al. 1994; Ballard et al. 1997), wolverines (*Gulo gulo*) (Magoun et al. 2018), and others, rely on them as prey.

Fall migration begins in September, with some members of the TCH migrating south and east to winter near Anaktuvuk Pass. Spring migration begins in April. Rugged terrain and rivers pose barriers to caribou movement (Leblond et al. 2016; Fullman et al. 2017), limiting potential crossing sites, such as that found in the southeastern portion of the TCH's migratory pathway in the Reserve along the Colville River. Maintaining the ability of caribou to have uninhibited movement along their migration route and to be able to cross barriers such as the Colville River at the limited number of key pinch points is critical to enabling the species to continue their historical migration paths.

The area of the TCH spring and fall migration pathway is partly displayed in Figures 3.12.3, 3.12.4, and 3.12.5 in Appendix A.4, Volume 5, of the Willow Final Supplemental Environmental Impact Statement and on Map 3-22 in Appendix A, Volume 2, of the Reserve Integrated Activity Plan (IAP) Final Environmental Impact Statement. However, BLM possesses the most recent caribou monitoring information and telemetry data that shows the TCH's migratory movements. BLM should make this data publicly available and base all management decisions on the most up-to-date data to ensure that the agency is meeting its statutory duties to protect values and resources in the Reserve. At the least, BLM should ensure that

[49] Fullman, App. A, Sec. 3a.
[50] *See* DeWitt, App. A, Sec. 4 at 243–44, 245 Figure 4.9.

maps it produces in relevant decision-making processes use the latest data, and the agency should ensure those maps are publicly available.

Maximum Protection Measure A-1.1: *Within the Teshekpuk Caribou Herd migration corridors, new permanent gravel roads will be prohibited.*

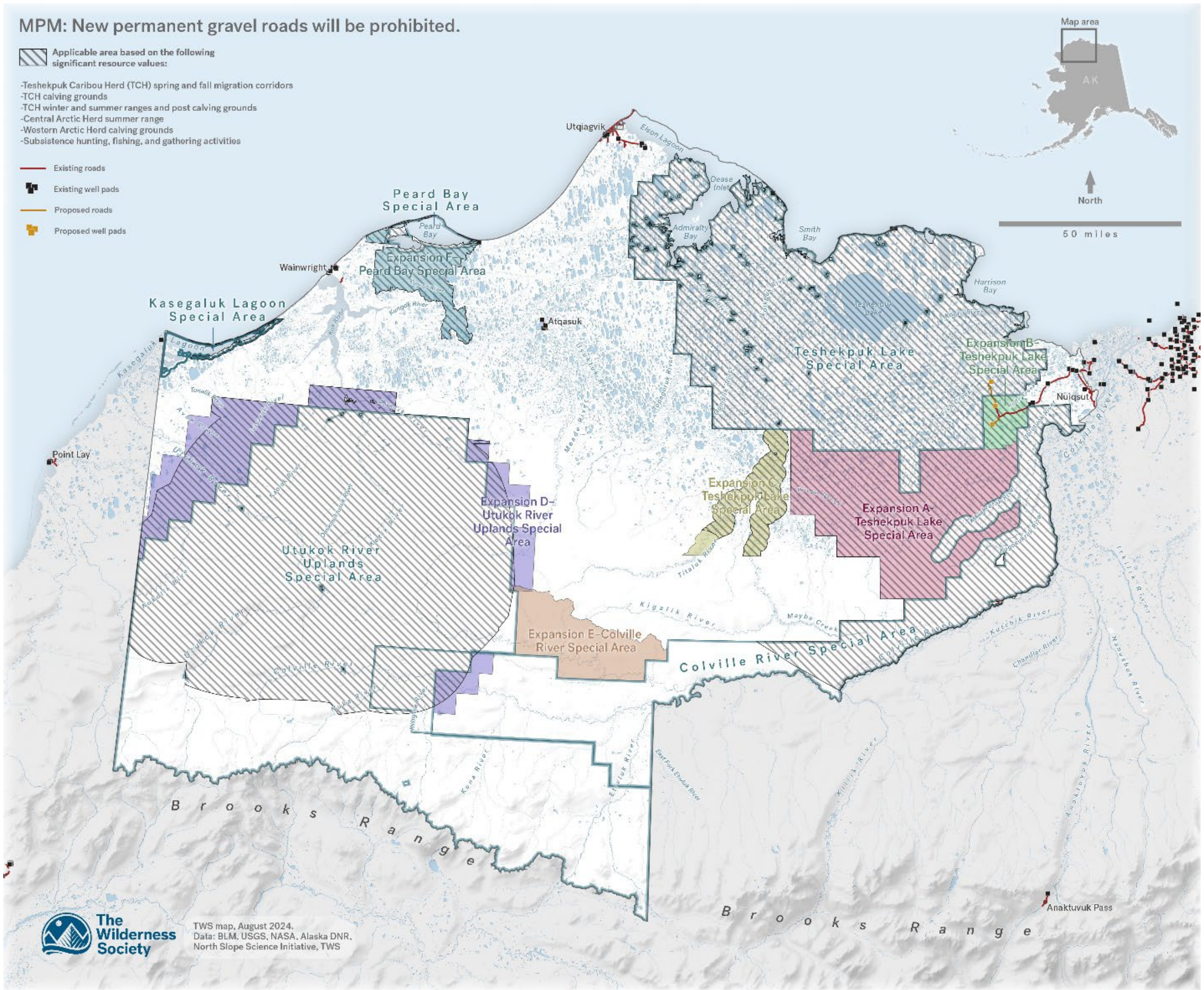

Figure 3. Approximate coverage area for MPMs A-1.1, A-3.1, B-1.4, B-2.1, B-3.1, and D-1.1.

Rationale[51]: Prohibiting construction of new permanent gravel roads is essential for ensuring that there are no more than minimal adverse effects to the TCH migration corridors and for achieving minimal disturbance to and hindrance of TCH migrations. Large areas of undeveloped critical habitat must be protected to safeguard caribou migrations and herd population (Joly et al. 2021a). Unhindered movement is the key to how caribou adapt to annual variations in their environment (Russell and Gunn 2019). Road

[51] Fullman, App, A, Sec. 3a.

impacts have been linked to declines in abundance within 3 miles of a road for over 90% of 204 species (Nellemann et al. 2003).

Decades of studies show that caribou migration can be delayed or otherwise altered by the presence of roads or other development (Carroll 2005; Panzacchi et al. 2013; Wilson et al. 2016; Fullman et al. 2021a; NPR-A Final IAP/EIS, Volume 1 at 54 (2020)). For example, approximately 30 percent of collared female Western Arctic Herd and TCH caribou that came within 9 miles of the Red Dog Mine road in northwestern Alaska during fall migration experienced long delays in crossing the road corridor, with delays of these “slow crossers” averaging 11 times longer than those of normal crossers (33.3 days vs. 3.1 days) (Wilson et al. 2016). “Declines in lichen cover have been detected up to 3,280 feet (1,000 meters) from gravel roads on the North Slope and in the Red Dog Mine area in northwest Alaska (Chen at al. 2017; Gill et al. 2014; Myers-Smith et al. 2006; Neitlich et al. 2017; Walker et al. 2022)” (Ambler Road Final Supplemental Environmental Impact Statement Volume 1 (2024) at 3-143). “[A] subset of Western Arctic caribou migrating past the DeLong Mountain Transportation System (DMTS) road exhibited changes in movement as far as 30 miles from the road (Dau 2023; Wilson et al. 2016)” (Ambler Road Final Supplemental Environmental Impact Statement Volume 1 (2024) at 3-142). Recent studies of Western Arctic Herd movements have shown that the current movements of the herd generally avoid the few existing roads in the area (Baltensperger et al. 2019; Fullman et al. 2021a).

Various measures employed to mitigate disturbance due to physical barriers created by oil development have not been determined to be successful (Lenart 2015). Caribou continue to avoid infrastructure during the calving, post-calving, and mosquito relief seasons despite decades of exposure and use of mitigation measures (Johnson et al. 2020). If human activities and development delay migration, this could have implications for calves later in their life, such as higher mortality risk (Vuillaume et al. 2023). During the Alpine Satellite Development Plan, BLM concluded: “The lack of roads with traffic . . . would minimize disturbance,” and that although “[t]here would be disturbance associated with increased air traffic and activity on pads, . . . the level across the Plan Area would be substantially reduced without roads. This would include less disturbance of calving caribou . . . .” (Alpine Satellite Development Plan Final EIS Volume 2: Part 2, at 999).

A 2017 report analyzing the ecological impacts of road-based versus aircraft-based access to oil infrastructure concluded: “Roadless development appears to be the least ecologically damaging mode of oil-field access on Alaska’s North Slope” (Audubon Alaska 2017).

Maximum Protection Measure A-1.2: *Within the TCH fall and spring migration corridors, from April 1 to May 30 and from August 15 to November 30, flights shall maintain a minimum altitude of 610 m (2000 ft), unless doing so would endanger human life or violate safe flying practices. The aircraft use plan, including information from monitoring and reporting flights, shall include a plan for adjustments based on monitoring results.*

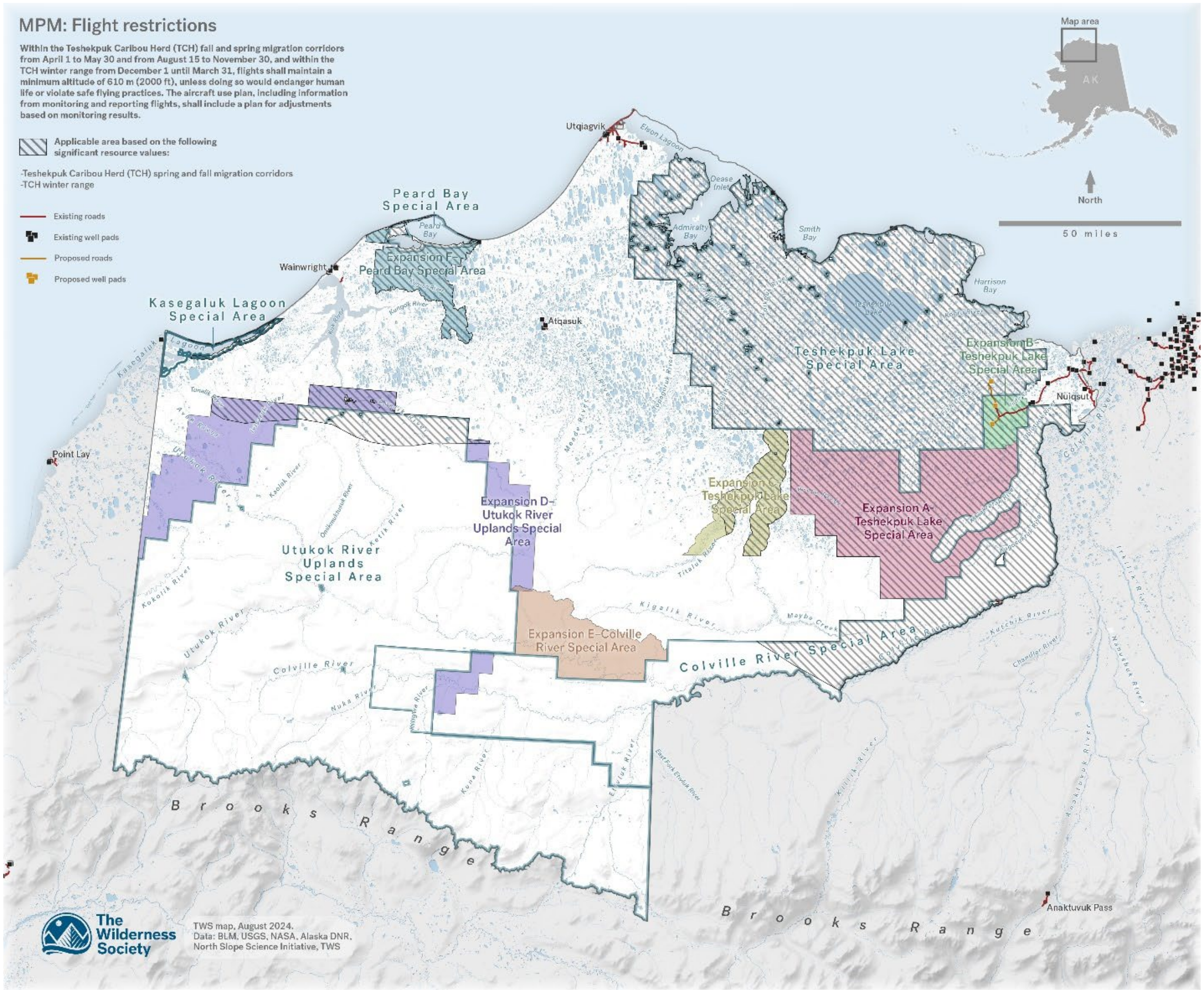

Figure 4. Approximate coverage area for MPMs A-1.2, A-2.2, and C-2.2.

Rationale[52]: Ensure minimal disturbance to and hindrance of TCH's spring and fall migrations. The impacts of aircraft on caribou movement have long been described by Alaska Native hunters (Georgette and Loon 1988; Halas 2015; Stinchcomb et al. 2019; Stinchcomb et al. 2020). Air traffic diverts caribou from their migratory routes (SRB&A 2009). If a leader of the migration is disrupted or displaced, the remainder of the herd will follow, leading to

[52] *Id.*

unpredictable caribou movement and behavior (SRB&A 2009). Oil and gas development to the east of Nuiqsut has already significantly affected caribou migration patterns (SRB&A 2018). The scientific literature also demonstrates the impacts of aircraft on caribou movement (Wolfe et al. 2000).

Disturbances from aircraft could affect the timing or location of TCH caribou arrival into fall and winter subsistence harvesting areas, such as Anaktuvuk Pass (NPR-A Final IAP/EIS, Volume 1 at 3-273 (2020)). The impacts would be significant because the community is highly dependent on caribou, which form a large portion of their annual subsistence harvest (Bacon et al. 2011; Martin 2015). Deflection or disturbance of these individuals during the spring would also cause serious impacts. Caribou use stored body fat and energy reserves to fuel their spring migration, which is energetically costly for pregnant females (Fancy 1986). Any extra expenditure of energy that caribou undertake due to flights is a concern, because inadequate body mass in female caribou leads to reduced reproductive success (Cameron et al. 2005; Albon et al. 2017; Veiberg et al. 2017). Delayed migration could also have detrimental impacts on calves later in life, such as higher mortality risk (Vuillaume et al. 2023).

Current stipulations are inadequate, such as the language in Stipulation K-14, which is tentative, indicating only that there “may” be restrictions (BLM 2022 p. A-20). Such tentative language without clarity on what conditions would trigger restrictions makes it uncertain whether protections for caribou would actually be implemented.

Significant Resource Value A-2: Teshekpuk Caribou Herd summer range, winter range, and post-calving grounds[53]

Rationale[54]: The TCH’s summer and winter ranges are significant for many of the reasons discussed above for Significant Resource Value A-1. Additionally, caribou show strong fidelity to calving and summer ranges (Cameron et al. 1986; Cameron et al. 2020; Joly et al 2021b). Caribou diets change throughout the year based on the forage available within different seasonal ranges (Russell and Gunn 2019). Lactating females require high quality, newly emergent forage that is highly digestible and high in nitrogen, such as tussock cottongrass (NPR-A Final IAP/EIS, Volume 1 at 3-181 (2020)). Sedges are the herd’s primary food during the summer. Calving success is determined by fall body condition, so acquiring reserves during summer and fall is essential. During the winter, caribou eat lichens. (NPR-A Final IAP/EIS, Volume 1 at 3-181 (2020)). Winter foraging habitat is crucial because caribou energy reserves are

[53] *Id.* at 29 Figure 3a.3.
[54] Fullman, App. A, Sec. 3a; Raynolds, App. A, Sec. 3g.

depleted (Barboza and Parker 2008; Parker et al. 2009; Taillon et al. 2013) and forage can be covered in snow.

> ***Maximum Protection Measure A-2.1:*** *Within the TCH calving and post-calving grounds and TCH summer and winter foraging habitat, a snow water equivalent (SWE) greater than 21.6 cm will be required before winter travel is permitted. SWE should be measured at least 15 times each along an "L" where each arm is 50 m long. These measurements should be repeated every 10 km of travel, or every 3 days, whichever occurs first, and will be repeated after rainfall, snowfalls, or windstorms. The measurement sites will be in areas representative of general conditions, and favor neither scoured nor drifted areas. Overland travel will be stopped in areas or at times when minimum snow conditions are not met.*

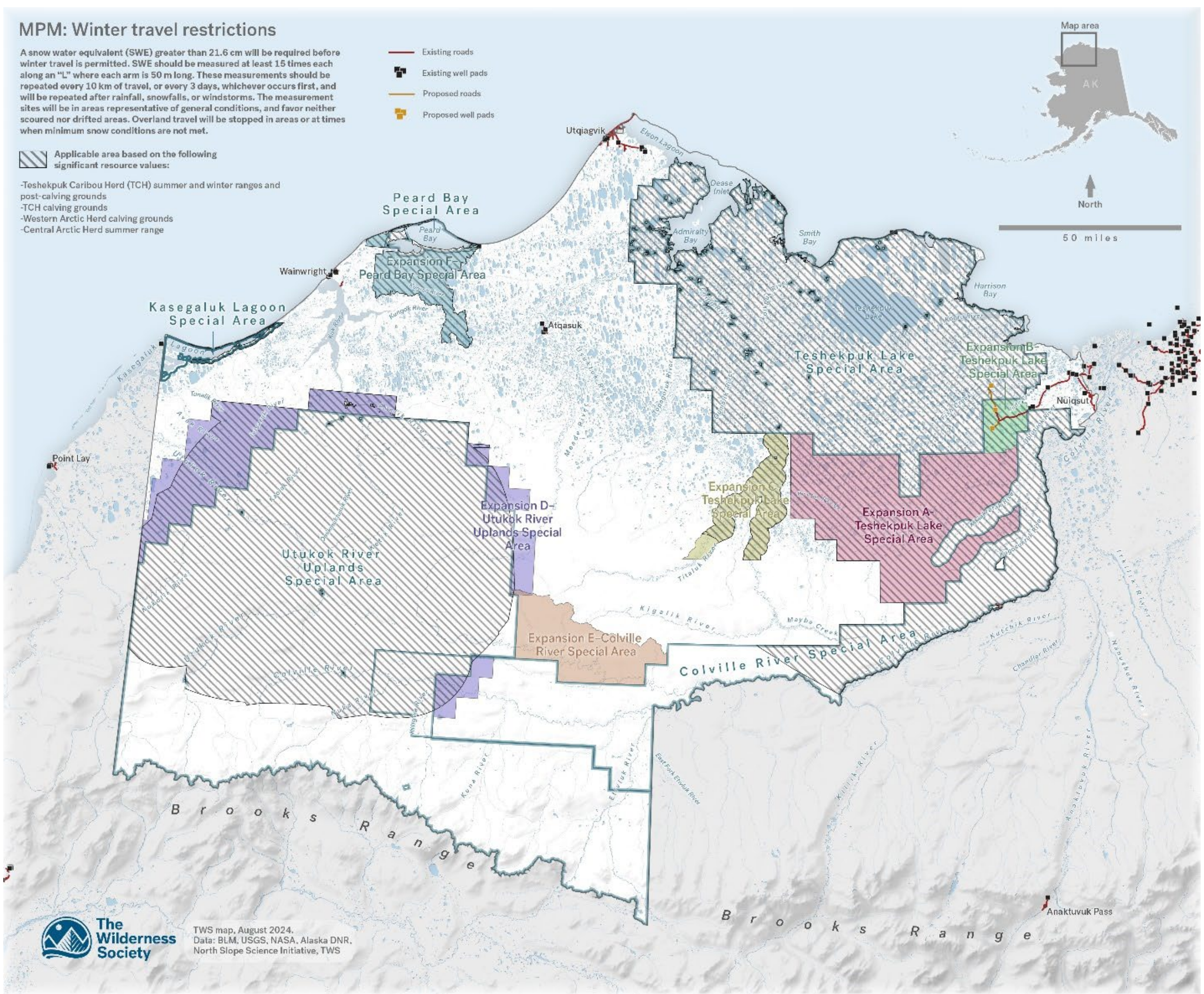

Figure 5. Approximate coverage area for MPMs A-2.1, A-3.2, B-1.2, B-3.2, and D-1.2.

Rationale[55]: Protect foraging in TCH summer and winter habitat. Sufficient quality forage is important during the summer period to enable caribou to regain body condition and support calf development. Failure to replenish their depleted body stores during the brief summer season can have strong consequences, as summer weight gain influences calf survival rate, the probability of conceiving in the subsequent fall, and the likelihood of successfully carrying that calf to birth the next spring (Cameron et al. 1993; Crête and Huot 1993; Cameron et al. 2005; Veiberg et al. 2017). In addition, access to greater digestible nitrogen in caribou forage during the early summer post-calving and insect relief periods increases the probability of a caribou having a calf the next year (Johnson et al. 2022).

Many plants are somewhat or highly sensitive to the impacts of winter tundra travel, including sedge-grass meadow and water sedges, which are abundant in the TLSA and the Expansion A area. Caribou rely on these plants.

Damage to vegetation can lead to permafrost thaw (Kade and Walker 2008). Studies of winter offroad traffic show that despite efforts to reduce impacts, such as requiring minimum snow cover and freeze depth, impacts continue to occur, resulting in some areas with permanent changes to landscape and vegetation (Bader 2006; Jorgenson et al. 2010; Orians et al. 2003; BLM 2008). The cumulative effects of the minor disturbance can result in long-term changes to species composition of vegetation communities over very large areas (Raynolds et al. 2014). It takes decades for vegetation to stabilize after disturbance by winter vehicle traffic (Jorgenson et al. 2010; Yokel and Ver Hoef 2014) and some areas never do.

ROP C-2(a) allows ground operations when “frost and snow cover are at sufficient depths to protect the tundra” and requires them to cease “when the spring snowmelt begins” with the exact dates determined by the authorized officer. This measure should be science based. Studies show that low-level disturbances occurred on trails with snow depths as high as 45 cm in tussock tundra and 72 cm in moist sedge-shrub tundra (Felix and Raynolds 1989). At 72 cm, SWE would be 21.6 cm.

Moreover, restoration-related ROPs, such as ROP G-1, include exceptions, and reclamation efforts of oil industry facilities in other areas, such as Prudhoe Bay, have not been successful in restoring original tundra conditions—they remain sparsely vegetated gravel areas rather than the original tundra (Jorgenson 1997).

[55] Fullman, App. A, Sec. 3a; Raynolds, App. A, Sec. 3g.

Maximum Protection Measure A-2.2: *Within the TCH winter range, flights shall maintain a minimum altitude of 610 m (2000 ft), from December 1 until March 31, unless doing so would endanger human life or violate safe flying practices. The aircraft use plan, including information from monitoring and reporting flights, shall include a plan for adjustments that would be made based on monitoring results.*[56]

Rationale[57]: Ensure minimal disturbance to and hindrance of TCH winter habitat. The impacts of aircraft on caribou movement have long been described by Alaska Native hunters (Georgette and Loon 1988; Halas 2015; Stinchcomb et al. 2019; Stinchcomb et al. 2020). This disturbance can cause serious impacts on caribou during the winter, which is a critical time. Foraging opportunities are limited during the winter, and caribou rely on body stores of fat and protein for survival and gestation (Barboza and Parker 2008; Parker et al. 2009; Taillon et al. 2013). Fitness costs are likely greater during winter, when individuals already exhibit a negative energy balance (Northrup et al. 2015). Further energetic costs at such a time may lead to loss of body mass and depletion of vital energy reserves (Bradshaw et al. 1998). Caribou are particularly vigilant and sensitive to aircraft during the winter. (Reimers et al. 2000; Wolfe et al. 2000). Any extra expenditure of energy that caribou undertake because of interaction with flights has repercussions, as lack of adequate body mass in female caribou leads to reduced reproductive success. (Cameron et al. 2005; Albon et al. 2017; Veiberg et al. 2017).

Existing Stipulations and ROPs are inadequate. For example, ROP F-1(b) does not specify the standards that determine winter habitat. These should be science-based, account for both current patterns and historical trends, and regularly updated.

Significant Resource Value A-3: Central Arctic Herd summer range[58]

Rationale[59]: The Central Arctic Herd's (CAH) summer range is significant for many of the reasons discussed above for Significant Resource Value A-1 and A-2. The CAH population peaked at about 68,500 in 2010 before declining to just over 22,500 in 2016 (Lenart 2021), though the population increased slightly to 30,000 in 2019 (ADFG 2020). Use of the Reserve by the CAH is most common during the summer, especially during the insect relief period and in late summer (Lenart 2021). Caribou show strong fidelity to summer ranges (Cameron et al. 1986; Cameron et al. 2020; Joly et al 2021b).

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[56] *See supra* Figure 4.
[57] Fullman, App. A, Sec. 3a.
[58] *See id.* at 29 Figure 3a.3; BLM, Ambler Road Final Supplemental EIS, Vol. 4, 32 Map 3-20 (2024).
[59] Fullman, App. A, Sec. 3a.

Maximum Protection Measure A-3.1: *Within the CAH summer range, new permanent gravel roads will be prohibited.*[60]

Rationale[61]: MPM A-3.1 is justified for many of the same reasons discussed above for MPM A-1.1. Additionally, the CAH has already been impacted by development at Prudhoe Bay and Kuparuk, which has caused decreased use of the area (e.g., Cameron et al. 1979; Cameron and Whitten 1979; Cameron and Whitten 1980; Whitten and Cameron 1983; Smith and Cameron 1985; Dau and Cameron 1986; Cameron et al. 1992; Smith et al. 1994; Cameron et al. 1995; Nellemann and Cameron 1996; Nellemann and Cameron 1998; Cameron et al. 2005; Johnson et al. 2020; Severson et al. 2023) and displaced calving habitat (Joly et al. 2006). Research about the CAH shows that when in large groups during insect harassment, the caribou "were relatively unsuccessful in crossing road/pipeline corridors" (Cameron et al. 2005 p.1). The herd continues to avoid infrastructure during the calving, post-calving, and mosquito relief seasons despite decades of exposure and use of mitigation measures (Johnson et al. 2020).

Maximum Protection Measure A-3.2: *Within the CAH summer foraging habitat, a snow water equivalent (SWE) greater than 21.6 cm will be required before winter travel is permitted. SWE should be measured at least 15 times each along an "L" where each arm is 50 m long. These measurements should be repeated every 10 km of travel, or every 3 days, whichever occurs first, and will be repeated after rainfall, snowfalls, or windstorms. The measurement sites will be in areas representative of general conditions, and favor neither scoured nor drifted areas. Overland travel will be stopped in areas or at times when minimum snow conditions are not met.*[62]

Rationale[63]: Ensure minimal disturbance to and hindrance of the CAH summer range. Please refer to the rationale above for MPM A-2.1.

Significant Resource Value A-4: Subsistence hunting, fishing, and gathering activities[64]

Proposed Expansion A overlaps with the area most used for all subsistence resources by the residents of Nuiqsut (NPR-A Final IAP/EIS, Appendix T, Map T-4

[60] *See supra* Figure 3.
[61] Fullman, App. A, Sec. 3a.
[62] *See supra* Figure 5.
[63] Fullman, App. A, Sec. 3a.
[64] *See* DeWitt, App. A, Sec. 4 at 245 Figure 4.9.

(2020); NPR-A Final IAP/EIS, Appendix E.16 at 2 (2020))[65]. In 2019, 98% of people in Nuiqsut participated in caribou hunting activities (U.S. DOI 2023).

As explained by BLM (Willow Final SEIS at 303):

> Subsistence is the cornerstone of the traditional relationship of the Iñupiat people with their environment. Residents of Nuiqsut and Utqiaġvik rely on subsistence harvests of plant and animal resources for nutrition and their cultural, economic, and social well-being. Activities associated with subsistence—processing; sharing; redistribution networks; cooperative and individual hunting, fishing, and gathering; and ceremonial activities— strengthen community and family social ties, reinforce community and individual cultural identity, and provide a link between contemporary Alaska Natives and their ancestors. These activities are guided by traditional knowledge based on a long-standing relationship with the environment.

Maximum Protection Measure A-4.1: *Within the area used by Nuiqsut for subsistence use,[66] no new permanent gravel roads, pipelines, or permanent facilities will be permitted.*

Rationale: Ensure minimal disturbance to and hindrance of Nuiqsut subsistence use. Disturbances to subsistence must be minimized to ensure the continuation of subsistence practices. Roads, pipelines, and permanent facilities disturb subsistence activities (Willow Final SEIS at 327–32; Willow Final SEIS, App. J at 42–45). Various measures employed to mitigate disturbance to subsistence have not been successful (Brower, Brower, Ahtuangaruak 2023). BLM recently concluded that the cumulative effects of oil and gas development on subsistence "may be highly adverse and would be disproportionately borne by populations from Nuiqsut, Utqiaġvik, Anaktuvuk Pass, Atqasuk, Point Lay, and Wainwright. These effects . . . would be long term and of high intensity" (Willow ROD at 22). This Proposal also supports the recommendation and reasoning in the proposal of Grandmothers Growing Goodness, Sovereign Iñupiat for a Living Arctic, and Native Movement to prohibit new permanent gravel roads, pipelines, and permanent facilities in the "Nuiqsut Subsistence Use Area."

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[65] *Id.*

[66] For the full coverage area that the Proposal recommends for this and other MPMs related to subsistence use, please refer to the proposed new "Nuiqsut Subsistence Use Area" Special Area in the Proposal submitted in response to this request for information by Grandmothers Growing Goodness, Sovereign Iñupiat for a Living Arctic, and Native Movement.

Maximum Protection Measure A-4.2: *Within the area used by Nuiqsut for subsistence use, only emergency and non-oil and gas exploration, development, or production-related flights will be permitted from June 1 through August 31. Flights shall maintain a minimum altitude of 610 m (2000 ft), unless doing so would endanger human life or violate safe flying practices.*

Rationale: Ensure minimal disturbance to and hindrance of Nuiqsut subsistence use. BLM has extensive information about the impacts of aircraft on subsistence, which reduces harvest access and success (e.g., NPR-A Final IAP/EIS Volume 2 at 441 (2012); NPR-A Final IAP/EIS, Volume 1 at 3-270 (2020); GMT-1, Volume 2 at 437 (2015); GMT-2 FEIS at 437–38 (2018); Willow Final SEIS at 328 (2023)). BLM has previously identified the prohibition of non-essential helicopter flights to protect peak caribou hunting as a Supplemental Best Management Practice (GMT-1 ROD at 45 (2015)). This measure should begin in June to protect other heavy subsistence uses of the area. This Proposal also supports the recommendation and reasoning in the proposal of Grandmothers Growing Goodness, Sovereign Iñupiat for a Living Arctic, and Native Movement to prohibit flights from June through August.

Maximum Protection Measure A-4.3: *Within the area used by Nuiqsut for subsistence use, BLM will ensure co-stewardship.*

Rationale: Any co-stewardship tools should be developed and considered in close collaboration with the Tribes in the Reserve. However, we recommend a Governing Commission with a role for Tribes in decision-making over subsistence harvests and land use management within the "Nuiqsut Subsistence Use Area" proposed by Grandmothers Growing Goodness, Sovereign Iñupiat for a Living Arctic, and Native Movement; the TLSA; and the CRSA. This would strongly elevate and help to ensure critical subsistence values are maintained.

Significant Resource Value A-5: Polar bear denning habitat, important habitat, and movement corridor[67]

Rationale[68]: "[T]here is no animal more emblematic of the Arctic than the polar bear" (Gehrke 2023:1). Critical Southern Beaufort Sea (SB) polar bear habitat under the Endangered Species Act, which is not included as a significant resource value in

[67] Rotterman, App. A, Sec. 3h at 197–98 ("The geospatial data needed to map polar bear maternal den habitat within the NPR-A is available from USGS (https://data.usgs.gov/datacatalog/data/USGS:ASC412) see also Figure 3h.3 and Durner et al. 2013), as are the locations of detected denning sites (Durner 2020; see also Figure 3h.2) and designated polar bear terrestrial denning habitat (https://catalog.northslopescience.org/dataset/1754)."); *see id.* at 184 Figure 3h.3.
[68] *Id.*

any Special Area, exists in the northeastern Reserve. Significant densities of mapped suitable denning habitat occur in the area between the TLSA and CRSA in the northeast portion of proposed Expansion A. Polar bears are listed as threatened throughout their range under the Endangered Species Act. The SB and Chukchi/Bering Sea (CS) populations both use the Reserve, with the SB population using the area subject to Expansion A. Key aspects of polar bear habitat and habitat use include: denning; foraging, including terrestrial food resources that become more important as supplements during increasingly long periods when they may be forced to be on land due to increases in the duration and extent of sea ice loss; and resting during forced fasting periods. Information increasingly demonstrates (e.g., Schliebe et al. 2008; Herreman and Peacock 2013) that as the duration and extent of sea ice retreat increase, use of land during the ice-free period is increasing (Wiig et al. 2015), including an increase in land use by SB bears. Since the late 1990s, "land-use behavior has become more prevalent" (Atwood et al. 2016:12), with the percentage of radio-collared females from the SB subpopulation that came on shore tripling from 2000–2014. This trend of increasing use of land by CS and SB polar bears is expected to continue due to anticipated continued reductions in summer sea ice due to greenhouse gas emissions. In most parts of their range, polar bears den primarily on land (Amstrup 2003). By forecasting sea ice loss based on a range of greenhouse gas emissions, Rode et al. (2022:1) estimated that, by 2040, "50–62% of SB and 79–88% of CS bears will spend 90–108 and 110–126 days onshore during summer in the SB and CS, respectively." Summer sea ice is expected to continue to decline in the Arctic, with anticipated continued effects on SB habitat use patterns and "the increasing importance of land as an alternative summer refuge" (Pagano et al. 2021:1). Data indicate that polar bears exhibit fidelity to regions and substrate types for denning (Ramsay and Stirling 1990; Amstrup and Gardner 1994). Hence, to ensure future denning habitat availability, strong protection needs to be in place to ensure future, not just active, denning habitat is not modified by human activities in such a way as to not be suitable for denning.

Several major stressors are severely threatening populations, including sea ice loss due to climate change, loss of denning habitat and access to prey, increased movements and resulting energy expenditure, and industrial development (USFWS 2019). Denning bears that are exposed to human activities have sometimes abandoned their dens, risking the survival of their cubs (Woodruff et al. 2022). Conservation of polar bears must broadly consider steps to afford the species the opportunity to obtain nutrition during periods when they are forced to be onshore due to the reduction of sea ice needed for foraging. As the duration of land use increases—and as "[i]ncreased durations on land can only be accommodated if bears come onshore in sufficient body condition to withstand longer periods of food deprivation, or obtain increased access to food while on shore" (Rode et al. 2015)—management of habitat should seek to facilitate and protect such access.

Maximum Protection Measure A-5.1: *Comply with requirements from the 2021–26 Beaufort Sea Incidental Take Regulations (ITRs) for the activity in question, and with the following additional requirements and standards. No permanent oil and gas infrastructure or seismic exploration will be permitted within designated terrestrial denning critical habitat. No permanent oil and gas infrastructure or seismic exploration will be permitted within 1 mile (1.6 km) of suitable polar bear denning habit as identified by Durner et al. 2013 within areas identified as high and medium density for maternal dens, as identified by USFWS 2022 Final Biological Opinion for Integrated Activity Plan.[69] Before undertaking activities in suitable polar bear denning habitat during the denning season (approximately November 1 to April 30), aerial infrared surveys (AIR), required under the ITRs, must be conducted when the local weather is documented as being clear, calm, and cold. If there is blowing snow, any form of precipitation, or other sources of airborne moisture, use of AIR detection will not count toward the required number of surveys. Trained marine mammal monitors on the site of the activity will be required aboard terrestrial vehicles or at the location of industry facilities to monitor the impacts of oil and gas industry activity on polar bears. To assure maximum protection, BLM shall require monitoring and reporting. The required trained observers must be approved by the BLM and file reports within 48 hours of polar bear observations with the BLM and FWS including, but not limited to, the following information:*

(i) Date, time, and location of observation;
(ii) Number of bears;
(iii) Sex and age of bears (if known);
(iv) Observer name and contact information;
(v) Weather, visibility, and other relevant conditions at the time of observation;
(vi) Estimated closest distance of bears from personnel and facilities;
(vii) Industry activity at time of sighting;
(viii) Possible attractants present;
(ix) Bear behavior;
(x) Description of the encounter;
(xi) Duration of the encounter; and
(xii) Mitigation actions taken.

[69] As noted above, the determination of what area will be subject to an MPM should be based on the best available, most up-to-date science, to account for both current patterns and historical trends, particularly in light of climate change effects. To ensure proper coverage area, this MPM cites to and would require using the area identified in the referenced studies. However, BLM should periodically evaluate the coverage area to ensure a consistent, non-arbitrary, regularly updated science-based determination.

Rationale[70]: The SB population in particular is considered among the most imperiled sub-populations globally. Due to insufficient data to support a current population estimate, U.S. Fish and Wildlife Service presently uses a minimum population estimate of 2,000 CBS bears (USFWS 2019). SB bears are increasingly using terrestrial habitat for denning, traveling, and foraging due to the loss of sea ice habitat (Willow Biological Opinion at 81–83 (2023)). More SB bears now den on land than on sea ice, and den distribution has shifted westward toward the Reserve (Patil et al. 2022). With shrinking populations and until further sea ice loss is stopped, management of other stressors such as industrial development near dens may serve to slow the transition of populations to progressively worsened outcomes and improve the prospects for their long-term persistence (Atwood et al. 2016). Development activity, including gravel mining and blasting, gravel and ice road construction and use, airstrip construction and helicopter and fixed-wing flights, exploratory drilling and associated camps and movements, and drill pads, buildings, and other oilfield infrastructure and use can all harass bears.

Significant Resource Value A-6: Nesting grounds for yellow-billed loon and other migratory birds[71]

Rationale[72]: The yellow-billed loon is the rarest loon species in Alaska and throughout the world. More than 91% of the breeding range of the yellow-billed loon in Alaska is located within the northern half of the Reserve (Earnst 2005), and more than 75% of the approximately 1,000 pairs breeding in the Reserve occur along a broad coastal band of tundra lakes and rivers from Point Lay to the Colville River extending inland to encompass the TLSA (Mallek et al. 2006; Uher-Koch 2020; Parrett 2023). Some of the highest breeding densities near Teshekpuk Lake include an area southeast of the lake to an area near the Kikiakrorak River (Earnst et al 2005; Earnst et al. 2006). Breeding success and population viability of this species in Alaska is dependent upon the ecological integrity of this landscape and its preferred breeding lakes (North 1994; Earnst 2004; Earnst et al. 2005; Earnst 2006; Schmutz et al. 2014; Johnson et al. 2019; Uher-Koch 2020; Parrett et al. 2022; Parrett 2023). Availability of preferred lakes and this landscape are likely limiting this species' population numbers and are therefore of the utmost importance to the population viability of the yellow-billed loon in Alaska (Uher-Koch 2020).

Maximum Protection Measure A-6.1: *There shall be a minimum 1-mile no-infrastructure buffer around high-density nesting habitat in persistent high*

[70] Rotterman, App. A, Sec. 3h.
[71] *See* McKinley, App. A, Sec. 3c at 105 Figure 3c.1.
[72] McKinley, App. A, Sec. 3c.

concentration areas using the latest density data across at least 10 years[73] *and around all individual recorded nest sites.*

Rationale[74]: Available nesting habitat for the yellow-billed loon is likely limiting the breeding population in Alaska resulting in recruitment balancing mortality (Earnst 2004; Earnst et al. 2005; Schmutz 2014). Relatively low population numbers in Alaska and worldwide relative to the other four species of loon make this animal vulnerable to extinction. Yellow-billed loons have high nest-lake fidelity (Johnson, Wildman et al. 2019; Schmutz, Wright et al. 2014). As a result, "they likely would not move to other lakes and could be impacted by withdrawals if they were to occur at nesting lakes" (Willow SEIS at 207 (2023)). The major impediment to reproductive success is reduced attendance at the nest by incubating adults leading to compromised egg viability, outright abandonment, and predation (Parrett et al. 2023). Nesting yellow-billed loons are highly sensitive to all types of disturbance during the breeding season and disturbed nests have been found to have up to 30% lower nest survival compared to nests where adults are not disturbed (B.D. Uher-Koch et al. 2015). Unoccupied lakes with suitable nesting habitat are scarce in the region, making it unlikely that disturbed nesting sites would be re-built elsewhere (T. Haynes et al. 2014). Infrastructure provides habitat for predators. High-density nesting habitat should be defined to include potential nest sites and lakes that are currently unoccupied.

Maximum Protection Measure A-6.2: *In yellow-billed loon high-density nesting habitat in persistent high concentration areas using the latest density data across at least 10 years,*[75] *no water withdrawals and no ice roads will be permitted.*

Rationale[76]: It is critical for the water level around yellow-billed loon nest sites to remain unaltered so as not to inundate the nest, nor isolate it by receding lake levels. As BLM has explained, "Because yellow-billed loons have high nest-lake fidelity (Johnson, Wildman et al. 2019; Schmutz, Wright et al. 2014), they likely would not move to other lakes and could be impacted by withdrawals if they were to occur at nesting lakes" (Willow SEIS at 207 (2023)). BLM found that "[l]arge water removals from lakes could have negative impacts on nesting habitats of many species of waterbirds, including loons, eiders, and other waterfowl if lakes fail to recover through annual recharge" (NPR-A Final IAP/EIS IAP at 3-152 (2020)). Water withdrawals potentially impact fish in the water body subject to the

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[73] *See id.* at 105 Figure 3c.1.
[74] McKinley, App. A, Sec. 3c.
[75] *See id.* at 105 Figure 3c.1.
[76] McKinley, App. A, Sec. 3c.

withdrawal, nest site selection, and the timing of lake melting, all of which harm yellow-billed loon habitat. In addition, pulses of meltwater from ice roads may impact nest site establishment or cause abandonment (Earnst 2004; Arp 2019).

Significant Resource Value A-7: Headwaters for downstream Broad Whitefish spawning, rearing, and overwintering habitat

Rationale[77]: A diversity of fish, particularly Broad Whitefish, are a key subsistence and cultural resource for Arctic Iñupiat North Slope communities (Craig 1989; Berkes 1990; Fall et al. 2017). These fisheries contribute significantly to food security in the Arctic by providing substantial and reliable food resources (Fall 2016; Lysenko and Schott 2019; Carothers et al. 2019). Next to marine mammals and large land mammals, fish resources are the most utilized wild food resource for Arctic Coastal Plain communities (Brown et al. 2016). Important habitats such as spawning and rearing areas are limited in the Arctic for certain fish species, such as Broad Whitefish, with the Colville River watershed providing important habitats, including the potential to provide overwintering habitat, and thus far being the only identified Broad Whitefish spawning area in the Reserve. The TLSA also provides overwintering habitat (Morris et al. 2006). Current major habitat stressors to freshwater ecosystems include oil and gas development, mineral resource extraction, pollution, and climate change. Developing durable watershed protections that maintain a suite of Broad Whitefish spawning and rearing habitats is essential for the conservation of Arctic subsistence fish resources.

Maximum Protection Measure A-7.1: *Within Broad Whitefish spawning and rearing habitat, no case-by-case sand and gravel mining will be authorized for Lease Stipulations K-1 or K-2. A Broad Whitefish Protection Plan shall be added to Lease Stipulation K-1.*

Rationale[78]: The siting of infrastructure in streams and lakes within the floodplain threatens Broad Whitefish spawning and rearing habitats. Arctic oil and gas infrastructure such as roads and pipelines fragments and disrupts aquatic ecosystems along linear paths (Cott et al. 2015), which can further introduce stressors to juvenile and adult fishes (Trombulak and Frissell 2000; Cott et al. 2015), such as increased sedimentation (Chapman 1988; Burkhead and Jelks 2001; Sutherland and Meyer 2007; Chapman et al. 2014; Kjelland et al. 2015), modifications of streamflow (Flowers et al. 2009), obstructions to passage (Gibson et al. 2005; Price et al. 2010; MacPherson et al. 2012), acoustic disturbances (de Jong et al. 2018, 2020; Mickle and Higgs

[77] Leppi, App. A., Sec. 3b.
[78] *Id.*

2018; Popper and Hawkins 2019), reduced instream habitat quality (Maitland et al. 2016), and pollution (Kime 1995). The prohibitions on infrastructure in streams and lakes in K-1 and K-2 are necessary to provide maximum protection for spawning and rearing fish habitat. Excessive water withdrawals also threaten fish habitat (e.g., NPR-A Final IAP/EIS at 377 (2020)). BLM noted that, "Despite predicted increases in precipitation, increasing evaporation and transpiration, along with losses in permafrost, have resulted in tundra drying and reduction in areal extent and number of ponds (Andresen and Lougheed 2015) and lakes (Hinzman et al. 2005). This process is expected to continue although the outcome is uncertain given the complexity of interactions (SNAP 2011)." (NPR-A Final IAP/EIS at I-148 (2020)). A Broad Whitefish protection plan should be added to LS K-1 to maintain important spawning, rearing, foraging, and overwintering habitat with the goal of providing durable and lasting protection.

Maximum Protection Measure A-7.2: *Within all rivers and streams and their active flood plain, sand and gravel removal is prohibited.*

Rationale[79]: Sand and gravel removal from streams threatens fish habitat by altering the floodplain and drainage paths and impacting adjacent streams (Brown et al. 1998; Meador and Layher 1998; Packer et al. 2005). ROP E-8, which requires a mine site design and reclamation plan, does not require the plan to consider negative impacts to fish habitat. To protect Broad Whitefish spawning and rearing habitat, sand and gravel removal should not be permitted from streams or within their active flood plains.

Significant Resource Value A-8: Important wolverine denning habitat[80]

Rationale[81]: A snow-dependent species requiring large expanses of habitat in rugged montane or tundra landscapes, wolverines have a high probability of occupancy in the proposed Expansion A area, the CRSA, and the Utukok River Uplands Special Area. In 2023, the U.S. Fish and Wildlife Service designated wolverines in the contiguous United States as a threatened species under the Endangered Species Act "due primarily to the ongoing and increasing impacts of climate change and associated habitat degradation and fragmentation."[82] While unlisted, the Alaskan population of wolverines is increasingly threatened by similar challenges—the Arctic is undergoing much faster warming than the contiguous United States, with warming increases four times that of the global average (Rantanen et al. 2022). Based on its importance as a subsistence resource and

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[79] Leppi, App. A. Sec. 3b.
[80] *See* Heun, App. A, Sec. 3e at 137 Figure 3e.1.
[81] Heun, App. A, Sec. 3e.
[82] 88 Fed. Reg. 83,726, 83, 726 (Nov. 30, 2023).

increasing stressors on the wolverine, it should be recognized as a significant resource value.

Maximum Protection Measure A-8.1: *Within wolverine habitat, no permanent oil and gas infrastructure will be permitted within 1 mile of a known or suspected den site. To assure maximum protection, BLM shall require monitoring and reporting, including to evaluate the effectiveness of mitigation measures and the effects of activities on wolverines and the subsistence use of this species. From January 1 to May 15, before undertaking activities in known or suspected denning habitat, efforts must be made to locate occupied dens within and near areas of planned operation, utilizing aerial infrared surveys (AIR) with all observed or suspected wolverine dens reported to the BLM and FWS within 48 hours of observations, and the BLM must then approve initiation of any activity.*

Rationale[83]: According to the Guidelines for Winter Recreation near Wolverine Dens in Montane Western North America, "wolverines are sensitive to disturbance at a very low intensity of use and are at greatest risk when disturbances are dispersed and unpredictable. The risks of human presence near den sites are that female wolverine may shift den sites or indirectly lose access to habitat, thereby compromising reproductive output. High risk occurs during den selection, parturition, and natal development from January to mid-May. Moderate risk occurs May to July while the family is using rendezvous sites. Low risk occurs July through December when kits are mobile and nutritionally independent" (Hausleitner et al. 2024). Development projects can limit wolverine passage between areas of suitable snow habitat. Compared to the other northern large carnivores, wolverines are considered to be the most sensitive species with regard to habitat changes and human disturbance (May et al. 2006). Dens keeping females and young reliably sheltered from disturbance, thermally insulated, and with adequate access to food are most likely to successfully reproduce (Jokinen et al. 2019).

*   *   *   *   *

[83] Heun, App. A, Sec. 3e.

Expansion B – Teshekpuk Lake Special Area (Teshekpuk Caribou Herd Calving Grounds Expansion)

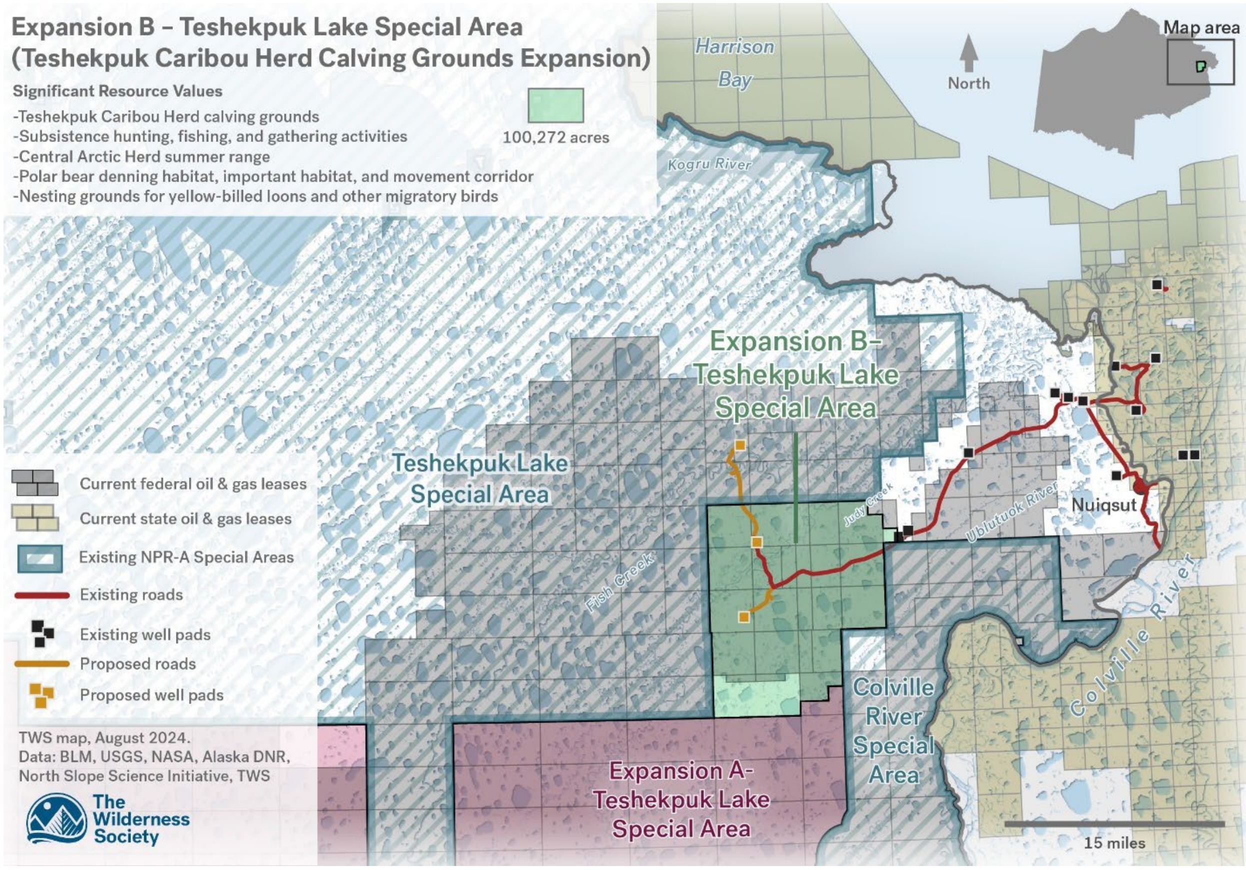

Figure 6. Expansion B – Teshekpuk Lake Special Area (Teshekpuk Caribou Herd Calving Grounds Expansion).

This area of proposed Expansion B is just outside the southeast portion of TLSA and comprises a segment of the TCH's calving grounds but is not part of the existing Special Area. Conserving caribou calving grounds was among Congress' primary intentions in mandating protection of values in the Reserve.[84] Survival of caribou offspring is likely a crucial factor affecting population dynamics (Gaillard et al. 2000). As such, protecting calving grounds is recognized as a key component of caribou management and conservation both by scientists (e.g., Festa-Bianchet et al. 2011; Taillon et al. 2012) and by Indigenous-led advisory groups (e.g., WACHWG 2019). Additional especially significant resource values in this area include subsistence hunting, fishing, and gathering activities, Central Arctic Herd summer range, polar bear denning habitat, and nesting grounds for yellow-billed loons and other migratory birds. Proposed Expansion B merits Special Area designation for many of the same reasons discussed above for proposed Expansion A.

[84] H.R. Rep. No. 94-81, pt. 1 at 8-9 (1975).

As with the proposed Expansion A area, proposed Expansion B overlaps existing leases. It also overlaps existing development. As explained above, the NPRPA mandates maximum protection of significant resource values from oil and gas activities. Thus, modifying the boundaries of a Special Area to cover an area of active development with significant resource values present is precisely the intent of and consistent with the NPRPA. There is already existing infrastructure in the Expansion B area. This Proposal does not suggest removing it. Rather, it proposes MPMs that seek to mitigate the effects of this development.

Significant Resource Value B-1: TCH calving grounds[85]

Rationale[86]: The TCH calves primarily in the northeastern Reserve around Teshekpuk Lake (Carroll et al. 2005; Person et al. 2007; Wilson et al. 2012). Much of this calving area overlaps the Teshekpuk Lake Special Area, but a portion of the calving grounds lies just outside the current boundaries of the TLSA and corresponds to proposed Expansion B. Caribou prefer this area based on its abundant quality food sources, protection from predators, and relief from insects. Most adult female caribou give birth to a single calf in late May or early June. Caribou show a high degree of fidelity to their calving grounds, returning to the same general areas year after year (Lent 1964; Skoog 1968; Gunn and Miller 1986; Cameron et al. 2020; Joly et al. 2021b). Barren-ground caribou exhibit gregarious calving behavior, with pregnant females coming together in larger numbers to have their calves in a relatively short span of time (Lent 1964). This is thought to be a predator defense mechanism (Bergerud 1996). Specific calving areas can somewhat vary year to year based on snow and vegetation (Griffith et al. 2002; Cameron et al. 2020; Severson et al. 2021). As a result, calving areas used less frequently may still be of great importance to the ability of a caribou herd to survive and thrive. For these reasons, recognizing the full extent of the TCH's known calving grounds as a significant resource value in the TLSA is important and warranted.

Maximum Protection Measure B-1.1: *Within the full extent of the TCH calving grounds, only emergency and non-oil and gas exploration, development, or production-related flights will be permitted from May 20 to June 30. Flights shall maintain a minimum altitude of 610 m (2000 ft), unless doing so would endanger human life or violate safe flying practices.*

[85] Fullman, App. A, Sec. 3a at 30 Figure 3a.4.
[86] Fullman, App. A, Sec. 3a.

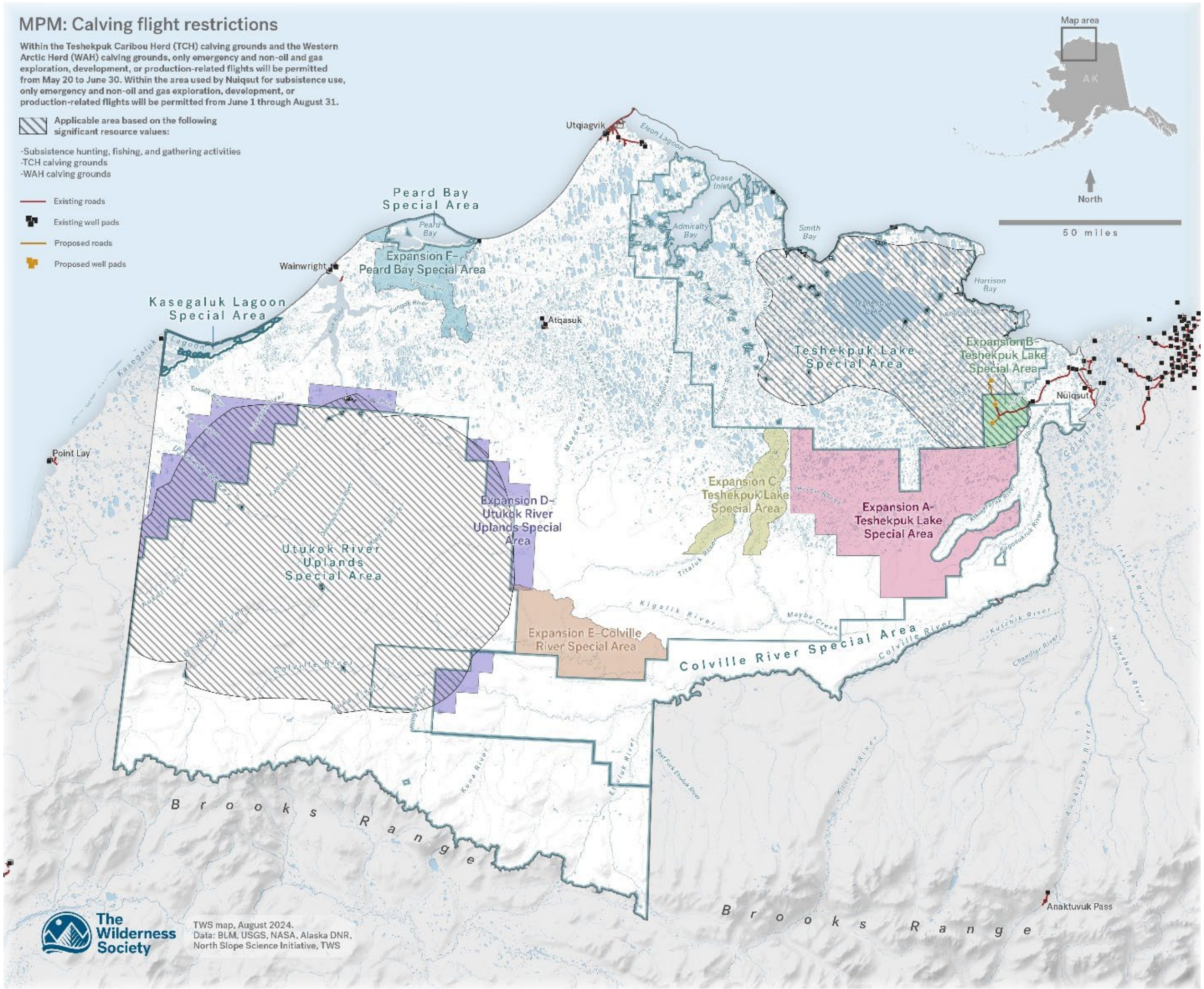

Figure 7. Approximate coverage area for MPMs B-1.1 and D-1.3.

__**Rationale**__[87]: Ensure protection of cow/calf pairs during calving and post-calving. Caribou during calving and post calving are especially sensitive to aircraft (Wolfe et al. 2000). Caribou require specific habitat for their foraging needs during calving and post-calving. Disturbance to cow/calf pairs can reduce reproductive success by forcing them to abandon preferred feeding areas and reducing nutritional status and increasing energy expenditure, leading to reduced calf size and potential population-level effects (Willow SEIS at 239).

Maximum Protection Measure B-1.2: *Within the TCH calving grounds, a snow water equivalent (SWE) greater than 21.6 cm will be required before winter travel is permitted. SWE should be measured at least 15 times each along an "L" where each arm is 50 m long. These measurements should be*

[87] *Id.*

repeated every 10 km of travel, or every 3 days, whichever occurs first, and will be repeated after rainfall, snowfalls, or windstorms. The measurement sites will be in areas representative of general conditions, and favor neither scoured nor drifted areas. Overland travel will be stopped in areas or at times when minimum snow conditions are not met.[88]

Rationale: Ensure protection for foraging female caribou and their calves. Please refer to the rationale above for MPM A-2.1.

Maximum Protection Measure B-1.3: *Within the TCH calving grounds, no industry traffic will be permitted on existing roads from April 20 to June 30. From July 1 to August 20, traffic shall be limited to less than five vehicles per hour. No major construction activities using heavy equipment will be permitted from May 20 to August 20.*

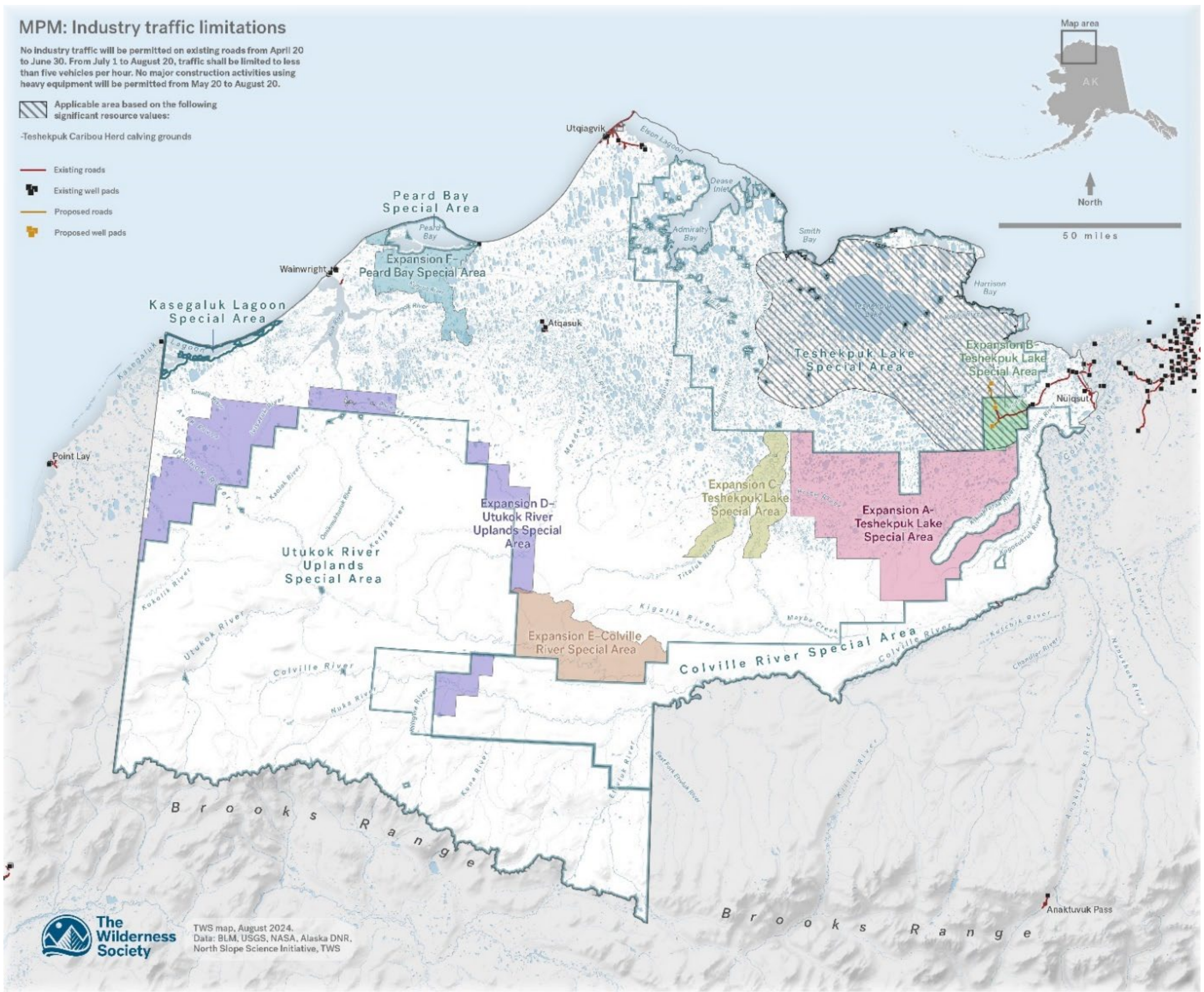

Figure 8. Approximate coverage area for MPM B-1.3.

[88] *See supra* Figure 5.

Rationale[89]: Ensure protection for female caribou and their calves. In a recent study of the impacts of a mining road on caribou, only around half of the collared caribou in the vicinity of the mining road crossed the road when any level of traffic was present (Smith and Johnson 2023). Roads can alter caribou behavior and slow crossing of roads at least 15 km away (Wilson et al. 2016; Boulanger et al. 2024). Caribou movement is significantly influenced by the volume of traffic. A recent study showed that adult female caribou select areas with lower traffic volumes throughout the summer, with the greatest selection probabilities when traffic was greater than 5 vehicles per hour (Severson et al. 2023). The relative probability of a caribou crossing the road fell to nearly zero when traffic rates were 50 vehicles or more in the eight hours prior to crossing (Severson et al. 2023). Maternal caribou avoid roads during calving even with traffic levels less than 8 vehicles per day and despite convoying to increase gaps between traffic (Prichard et al. 2022; Willow SEIS, Volume 16, Appendix J at 46 (2023)). After construction of roads and infrastructure by the Kuparuk oil field, calving density of the Central Artic Herd shifted further south and declined within 4 km of active roads (NPR-A Final IAP/EIS, Volume 1 at 183 (2020).

BLM found that "[c]urrent or planned development east of Teshekpuk Lake may also limit the options for alternative calving areas available for the TCH, requiring TCH caribou to use areas of lower quality; thus, the magnitude of the negative consequences resulting from calving displacement, if it occurs, is unknown but potentially large" (NPR-A Final IAP/EIS at I-196 (2020).

Lease Stipulation K-9(e)(2)(a) requires traffic to be stopped to allow 10 or more caribou to cross, and "sections of the road will be evacuated whenever an attempted crossing by a large number of caribou appears to be imminent." Using pre-agreed criteria in a decision tree, caribou numbers and group size and proximity of satellite-collared caribou should trigger increasing mitigation, from speed restrictions to daily closures.

Maximum Protection Measure B-1.4: *Within the Teshekpuk Caribou Herd calving grounds, new permanent gravel roads will be prohibited.*[90]

Rationale: Ensure protection for foraging female caribou and their calves. Please refer to the rationale above for MPM A-1.1.

[89] Fullman, App. A, Sec. 3a.

[90] *See supra* Figure 3. This measure is not intended to impact roads already authorized as part of the Willow Project.

Significant Resource Value B-2: Subsistence hunting, fishing, and gathering activities

Proposed Expansion B overlaps with the area most used for all subsistence resources by the residents of Nuiqsut (NPR-A Final IAP/EIS, Appendix T, Map T-4 (2020); NPR-A Final IAP/EIS, Appendix E.16 at 2 (2020)). As discussed above for Significant Resource Value A-4, subsistence is vital to Inupiat health, identity, culture, and well-being.

> ***Maximum Protection Measure B-2.1:*** *Within the area used by Nuiqsut for subsistence use, no new permanent gravel roads, pipelines, or permanent facilities will be permitted.*
>
> **Rationale**: Ensure minimal disturbance to and hindrance of Nuiqsut subsistence use. Please refer to the rationale above for MPM A-4.1.
>
> ***Maximum Protection Measure B-2.2:*** *Within the area used by Nuiqsut for subsistence use, only emergency and non-oil and gas exploration, development, or production-related flights will be permitted from June 1 through August 31. Flights shall maintain a minimum altitude of 610 m (2000 ft), unless doing so would endanger human life or violate safe flying practices.*
>
> **Rationale**: Ensure minimal disturbance to and hindrance of Nuiqsut subsistence use. Please refer to the rationale above for MPM A-4.2.
>
> ***Maximum Protection Measure B-2.3:*** *Within the area used by Nuiqsut for subsistence use, BLM will ensure co-stewardship.*
>
> **Rationale**: Ensure minimal disturbance to and hindrance of Nuiqsut subsistence use. Please refer to the rationale above for MPM A-4.3.

Significant Resource Value B-3: Central Arctic Herd summer range[91]

Please refer to the discussion above for Significant Resource Value A-3.

> ***Maximum Protection Measure B-3.1:*** *Within the CAH summer range, no new permanent gravel roads will be permitted.*[92]

[91] *See* App. A, Sec. 3a at 29 Figure 3a.3; BLM, Ambler Road Final Supplemental EIS, Vol. 4, 32, Map 3-20 (2024).
[92] *See supra* Figure 3.

Rationale: Ensure minimal disturbance to and hindrance of the CAH summer range. Please refer to the rationale above for MPM A-3.1.

Maximum Protection Measure B-3.2: *Within CAH summer range, a snow water equivalent (SWE) greater than 21.6 cm will be required before winter travel is permitted. SWE should be measured at least 15 times each along an "L" where each arm is 50 m long. These measurements should be repeated every 10 km of travel, or every 3 days, whichever occurs first, and will be repeated after rainfall, snowfalls, or windstorms. The measurement sites will be in areas representative of general conditions, and favor neither scoured nor drifted areas. Overland travel will be stopped in areas or at times when minimum snow conditions are not met.*[93]

Rationale: Ensure minimal disturbance to and hindrance of the CAH summer range. Please refer to the rationale above for MPM A-2.1.

Significant Resource Value B-4: Polar bear denning habitat, important habitat, and movement corridor[94]

Please refer to the discussion above for Significant Resource Value A-5.

Maximum Protection Measure B-3.1: *Comply with requirements from the 2021–26 Beaufort Sea Incidental Take Regulations (ITRs) for the activity in question, and with the following additional requirements and standards. No permanent oil and gas infrastructure or seismic exploration will be permitted within designated terrestrial denning critical habitat. No permanent oil and gas infrastructure or seismic exploration will be permitted within 1 mile (1.6 km) of suitable polar bear denning habit as identified by Durner et al. 2013 within areas identified as high and medium density for maternal dens, as identified by USFWS 2022 Final Biological Opinion for Integrated Activity Plan.*[95] *Before undertaking activities in suitable polar bear denning habitat during the denning season (approximately November 1–April 30), aerial infrared surveys (AIR), required under the ITRs, must be conducted when the*

[93] *See supra* Figure 5.
[94] Rotterman, App. A, Sec. 3h at 197–98 ("The geospatial data needed to map polar bear maternal den habitat within the NPR-A is available from USGS (https://data.usgs.gov/datacatalog/data/USGS:ASC412) see also Figure 3h.3 and Durner et al. 2013), as are the locations of detected denning sites (Durner 2020; see also Figure 3h.2) and designated polar bear terrestrial denning habitat (https://catalog.northslopescience.org/dataset/1754)."); *see id.* at 184 Figure 3h.3.
[95] As noted above, the determination of what area will be subject to an MPM should be based on the best available, most up-to-date science, to account for both current patterns and historical trends, particularly in light of climate change effects. To ensure proper coverage area, this MPM cites to and would require using the area identified in the referenced studies. However, BLM should periodically evaluate the coverage area to ensure a consistent, non-arbitrary, regularly updated science-based determination.

local weather is documented as being clear, calm, and cold. If there is blowing snow, any form of precipitation, or other sources of airborne moisture, use of AIR detection will not count toward the required number of surveys. Trained marine mammal monitors on the site of the activity will be required aboard terrestrial vehicles or at the location of industry facilities to monitor the impacts of oil and gas industry activity on polar bears. Due to its own obligation to assure maximum protection for SRVs, monitoring and reporting to the BLM shall be required. The required trained observers must be approved by the BLM and file reports within 48 hours of polar bear observations with the BLM and FWS including, but not limited to, the following information:

(i) Date, time, and location of observation;
(ii) Number of bears;
(iii) Sex and age of bears (if known);
(iv) Observer name and contact information;
(v) Weather, visibility, and other relevant conditions at the time of observation;
(vi) Estimated closest distance of bears from personnel and facilities;
(vii) Industry activity at time of sighting;
(viii) Possible attractants present;
(ix) Bear behavior;
(x) Description of the encounter;
(xi) Duration of the encounter; and
(xii) Mitigation actions taken.

Rationale: Ensure minimal disturbance to polar bear denning habitat. Please refer to the rationale above for MPM A-5.1.

Significant Resource Value B-5: Nesting grounds for yellow-billed loon and other migratory birds[96]

Please refer to the discussion above for Significant Resource Value A-6.

Maximum Protection Measure B-5.1: *There shall be a minimum 1-mile no-infrastructure buffer around high-density nesting habitat in persistent high concentration areas using the latest density data across at least 10 years[97] and around all individual recorded nest sites.*

Rationale: Ensure minimal disturbance to nesting grounds. Please refer to the rationale above for MPM A-6.1.

[96] *See* McKinley, App. A, Sec. 3c at 105 Figure 3c.1.
[97] *See id*.

Maximum Protection Measure B-5.2: *In yellow-billed loon high-density nesting habitat in persistent high concentration areas*[98] *using the latest density data across at least 10 years, no water withdrawals and no ice roads will be permitted.*

Rationale: It is critical for the water level around yellow-billed loon nest sites to remain unaltered so as not to inundate the nest, nor isolate it by receding lake levels. Please refer to the rationale above for MPM A-6.2.

*   *   *   *   *

[98] *See id*.

Expansion C – Teshekpuk Lake Special Area (Ikpikpuk River Headwaters Expansion)

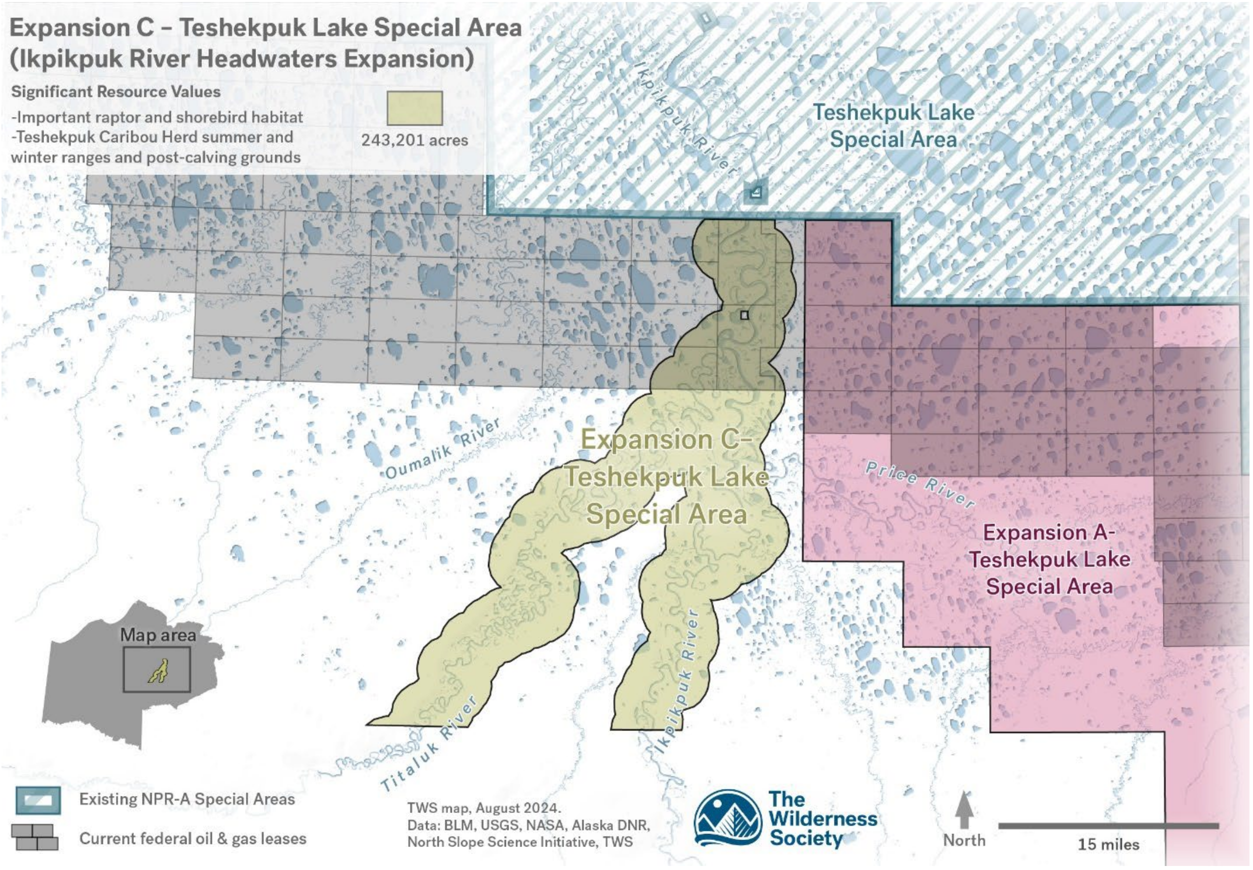

Figure 9. Expansion C – Teshekpuk Lake Special Area (Ikpikpuk River Headwaters Expansion).

This region of proposed Expansion C is along the Southern Ikpikpuk River, and its western tributary, the Titaluk River. The area is replete with peregrine falcon and rough-legged hawk nesting habitat (USFWS 1997; BLM 1999; Wildman and Ritchie 2000). Other important values include nesting habitat for the Arctic tern, long-tailed duck, scaup, greater white-fronted goose, yellow-billed loon, and various shorebirds (USFWS 1992–2008). It also hosts American Goldenplover, Black-bellied Plover, Bar-tailed Godwit, Semipalmated Sandpiper, Sharp-tailed Sandpiper, and Long-billed Dowitcher (Alaska Shorebird Group 2008). Of all Arctic Coastal Plain breeding shorebirds, about 72% nest in the Reserve (Bart et al. 2012; Bart et al. 2013).

Significant Resource Value C-1: Important raptor and shorebird habitat

The southern half of the Ipikpuk River abuts the current boundary of the TLSA. The Ikpikpuk and its tributary, the Titaluk River, host a high density of nesting Peregrine Falcons. The Ikpikpuk River is an anadromous fish stream and also has been identified as providing significant shorebird habitat (Alaska Shorebird Group 2008). Please refer to the discussion above for Significant Resource Value A-6.

Maximum Protection Measure C-1.1: *There will be a 2-mile no-surface occupancy buffer along the Ikpikpuk and Titaluk rivers (as shown in the area designated on the map for Expansion C).*

Rationale[99]: Ensure minimal adverse effects to important bird and bird nesting habitat. North American shorebirds are declining, including almost all of the species that breed in the Reserve, which is of worldwide importance to breeding shorebirds, with some of the highest densities and diversity in the circumpolar Arctic. Within the Reserve, the TLSA supports the highest diversity and density of shorebirds. Oil infrastructure and development may adversely impact shorebirds and raptors through habitat loss, which can affect the prey base, while disturbance may cause nest abandonment or failure (BLM 1999). Building roads and facilities and other structures associated with oil development can directly cover and decrease habitat available for breeding birds (e.g., Troy and Carpenter 1990 p. 29), and oil spills have consequences for shorebird populations. Studies have also shown impacts of increased predator populations on breeding shorebirds due to oil development activities (e.g., Liebezeit et al. 2009; McGuire et al. 2023).

Significant Resource Value C-2: Teshekpuk Caribou Herd summer and winter ranges and post-calving grounds[100]

Rationale: Please refer to the discussion above for Significant Resource Value A-2.

Maximum Protection Measure C-2.1: *Within the TCH summer and winter foraging habitat, a snow water equivalent (SWE) greater than 21.6 cm will be required before winter travel is permitted. SWE should be measured at least 15 times each along an "L" where each arm is 50 m long. These measurements should be repeated every 10 km of travel, or every 3 days, whichever occurs first, and will be repeated after rainfall, snowfalls, or windstorms. The measurement sites will be in areas representative of general conditions, and favor neither scoured nor drifted areas. Overland travel will be stopped in areas or at times when minimum snow conditions are not met.*

Rationale: Protect foraging in TCH summer and winter habitat. Please refer to the rationale above for MPM A-2.1.

[99] Warnock, App. A, Sec. 3d.
[100] Fullman, App. A, Sec. 3a at 29 Figure 3a.3.

Maximum Protection Measure C-2.2: *Within the TCH winter range, flights shall maintain a minimum altitude of 610 m (2000 ft), from December 1 until March 31, unless doing so would endanger human life or violate safe flying practices. The aircraft use plan, including information from monitoring and reporting flights, shall include a plan for adjustments that would be made based on different results of the monitoring.*[101]

Rationale: Ensure minimal disturbance to and hindrance of TCH winter habitat. Please refer to the rationale above for MPM A-2.2.

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[101] *See supra* Figure 4.

Expansion D – Utukok River Uplands Special Area (Western Arctic Herd Calving Grounds Expansion)

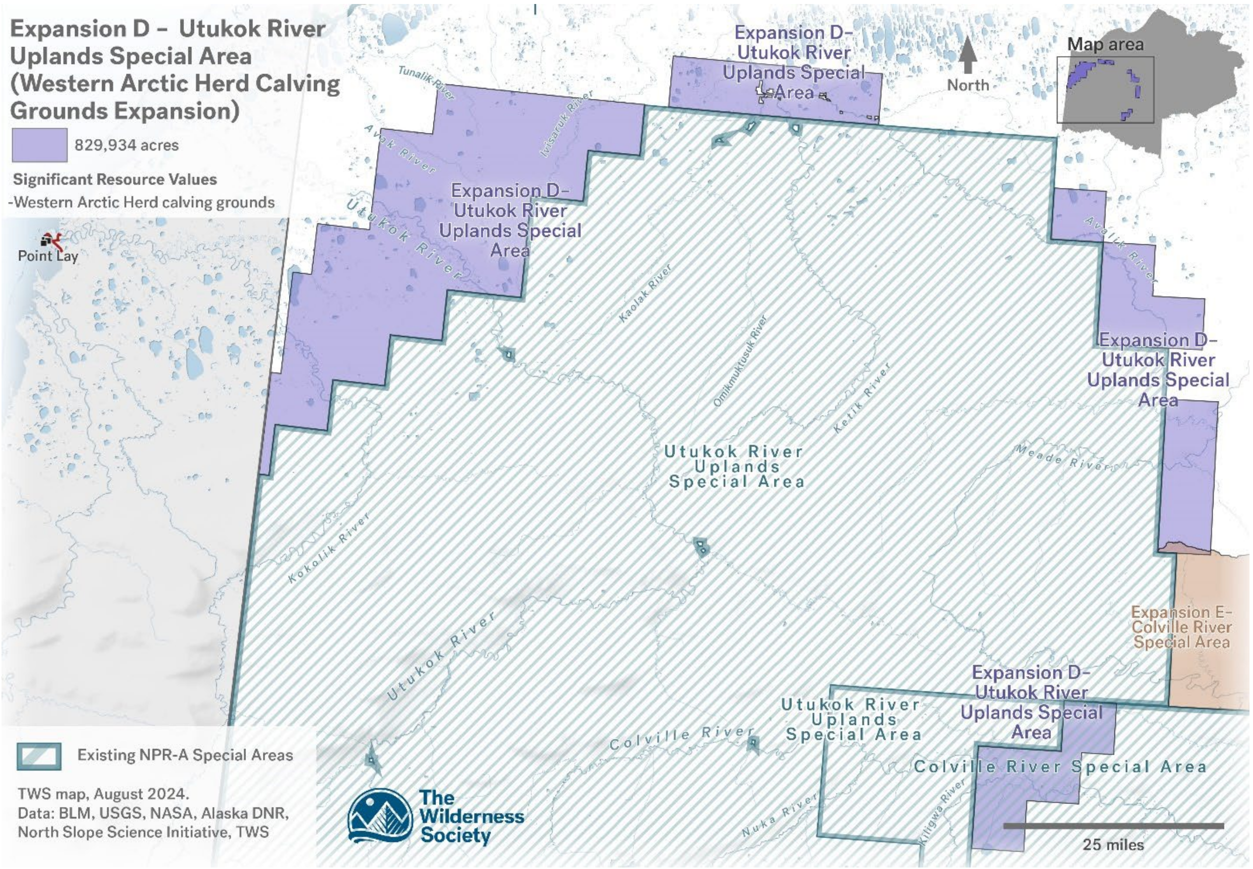

Figure 10. Expansion D – Utukok River Uplands Special Area (Western Arctic Herd Calving Grounds Expansion).

The area of proposed Expansion D is just outside the northeastern, northern, and northwestern portions of the Utukok River Uplands Special Area (URUSA) and comprises a segment of the Western Arctic Herd's (WAH) calving grounds but is not part of the existing Special Area. Conserving caribou calving grounds was one of Congress' explicit intentions in mandating protection of the URUSA.[102] Survival of caribou offspring is likely a crucial factor affecting population dynamics (Gaillard et al. 2000). Protecting calving grounds is recognized as a key component of caribou management and conservation both by scientists (e.g., Festa-Bianchet et al. 2011; Taillon et al. 2012) and by Indigenous-led advisory groups (e.g., WACHWG 2019).

Significant Resource Value D-1: WAH calving grounds[103]

[102] H.R. Rep. No. 94-81, pt. 1 at 8-9 (1975).
[103] *See* Fullman, App. A, Sec. 3a at 33 Figure 3a.5.

Rationale[104]: The WAH calves primarily in the area covered by the existing URUSA, consistently using the foothills of the Utukok Uplands in the southwestern portion of the Reserve (Cameron et al. 2020; Joly and Cameron 2023). Much of this calving area overlaps the existing URUSA, but a portion of the calving grounds lies outside the current boundaries, corresponding to proposed Expansion D.[105] Most adult female caribou give birth to a single calf in late May or early June. Caribou show a high degree of fidelity to their calving grounds, returning to the same general areas year after year (Lent 1964; Skoog 1968; Gunn and Miller 1986; Cameron et al. 2020; Joly et al. 2021b). Barren-ground caribou exhibit gregarious calving behavior, with pregnant females coming together in larger numbers to have their calves in a relatively short span of time (Lent 1964). This is thought to be a predator defense mechanism (Bergerud 1996). Specific calving areas can somewhat vary year to year based on snow and vegetation (Griffith et al. 2002; Cameron et al. 2020; Severson et al. 2021). As a result, calving areas used less frequently may still be of great importance to the ability of a caribou herd to survive and thrive. For these reasons, recognizing the full extent of the WAH's known calving grounds as a significant resource value as part of the URUSA is important.

Maximum Protection Measure D-1.1: *Within the Western Arctic Herd calving grounds, new permanent gravel roads will be prohibited.*[106]

Rationale[107]: Ensure protection of cow/calf pairs during calving and post-calving. Caribou require specific habitat for their foraging needs during calving and post-calving. Disturbance to cow/calf pairs can reduce reproductive success by forcing them to abandon preferred feedings areas and reducing nutritional status and increasing energy expenditure, leading to reduced calf size and potential population-level effects.

Prohibiting construction of new permanent gravel roads is essential for helping ensure there are no more than minimal adverse effects to the WAH calving grounds and for achieving minimal disturbance to and hindrance of caribou. Road impacts have been linked to declines in abundance within 3 miles of a road for over 90% of 204 species (Nellemann et al. 2003), including adverse effects to forage.

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[104] Fullman, App. A, Sec. 3a.

[105] To determine the proposed expansion boundaries, we focused on the upper half of reported years of overlap for WAH calving from Cameron et al. 2020 (5+ years). We strongly urge additional and ongoing scientific study to determine the level of overlap needed to sufficiently protect caribou populations and to ascertain non-arbitrary biological justifications.

[106] *See supra* Figure 3.

[107] Fullman, App. A, Sec. 3a.

Various measures employed to mitigate disturbance due to physical barriers created by oil development have not been determined to be successful (Lenart 2015). Caribou continue to avoid infrastructure during the calving, post-calving, and mosquito relief seasons despite decades of exposure and use of mitigation measures (Johnson et al. 2020). If human activities and development delay migration, this could have implications for calves later in their life, such as higher mortality risk (Vuillaume et al. 2023). During the Alpine Satellite Development Plan, BLM concluded, "The lack of roads with traffic . . . would minimize disturbance," and that although "[t]here would be disturbance associated with increased air traffic and activity on pads, [ ] the level across the Plan Area would be substantially reduced without roads. This would include less disturbance of calving caribou . . . ." (Alpine Satellite Development Plan Final EIS Volume 2: Part 2, at 999).

A 2017 report analyzing the ecological impacts of road-based versus aircraft-based access to oil infrastructure concluded: "Roadless development appears to be the least ecologically damaging mode of oil-field access on Alaska's North Slope" (Audubon Alaska 2017).

Additionally, the northernmost reaches of the WAH calving grounds lie outside of the area in which oil and gas leasing and infrastructure are prohibited.[108] A simulation study examining the impacts of plausible future development under different land management alternatives found that extending leasing and infrastructure protections to include the full northern portion of the Utukok River Uplands Special Area boundary significantly reduced projected losses of high-quality calving habitat for the WAH (Fullman et al. 2021b). This underscores the importance of reducing infrastructure in calving habitat.

Maximum Protection Measure D-1.2: *Within the WAH calving grounds, a snow water equivalent (SWE) greater than 21.6 cm will be required before winter travel is permitted. SWE should be measured at least 15 times each along an "L" where each arm is 50 m long. These measurements should be repeated every 10 km of travel, or every 3 days, whichever occurs first, and will be repeated after rainfall, snowfalls, or windstorms. The measurement sites will be in areas representative of general conditions, and favor neither scoured nor drifted areas. Overland travel will be stopped in areas or at times when minimum snow conditions are not met.*[109]

[108] *See* Fullman, App. A, Sec. 3a, Figure 3a.5.
[109] *See supra* Figure 5.

Rationale: Ensure protection for foraging female caribou and their calves. Please refer to the rationale above for MPM A-2.1.

Maximum Protection Measure D-1.3: *Within the WAH calving grounds, only emergency and non-oil and gas exploration, development, or production-related flights will be permitted from May 20 to June 30.*[110] *Flights shall maintain a minimum altitude of 610 m (2000 ft), unless doing so would endanger human life or violate safe flying practices.*

Rationale: Ensure protection of cow/calf pairs during calving and post-calving. Please refer to the rationale above for MPM B-1.1.

*   *   *   *   *

[110] *See supra* Figure 7.

Expansion E – Colville River Special Area (Colville River Headwaters Expansion)

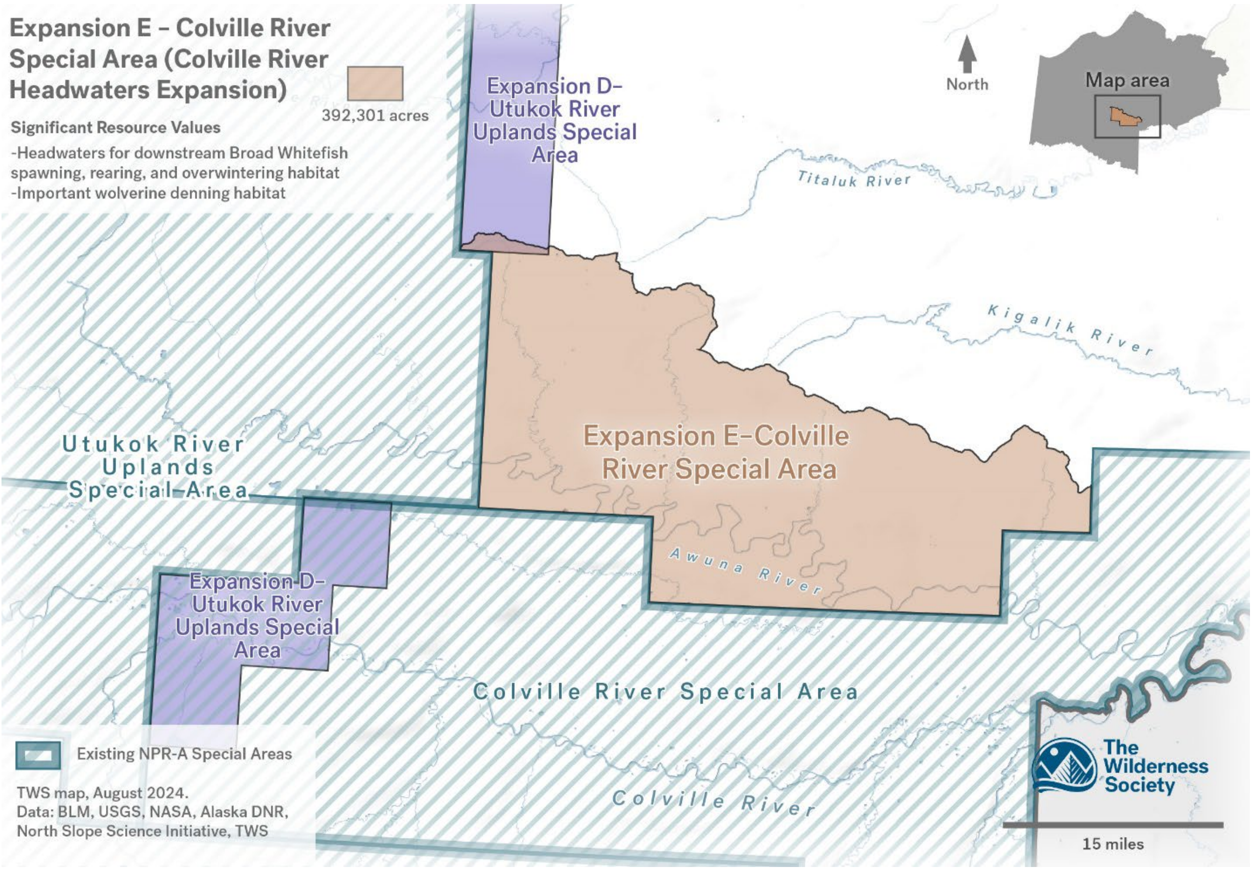

Figure 11. Expansion E – Colville River Special Area (Colville River Headwaters Expansion).

The area of proposed Expansion E would expand the southwestern boundaries of the Colville River Special area to match the watershed boundary.[111] Expanding the CRSA to include headwaters of sub-watersheds would help buffer against future development impacts that could impact important headwaters of the Colville River, adversely affecting critical spawning, rearing, and overwintering habitat downstream. To balance the impacts of future development on freshwater ecosystems and fish populations, it is important to plan at the watershed scale. Headwater streams and wetlands perform important ecological functions that support downstream habitats and fish species (Meyer et al. 2007; Colvin et al. 2019).[112] Adverse anthropogenic effects upstream could impact sediment

[111] Alternatively, we encourage BLM to expand the CRSA boundaries to include those portions of HUC 08 codes = 19060301, 19060302, 19060304 within the NPR-A. The CRSA boundary should also overlap with the Utukok River Uplands Special Area because the Etivluk River and other are important headwater rivers that are in the Colville River watershed and not in the Utukok River watershed. The Colville River is a unique landscape feature in the Arctic. It is important to durably protect its features to maintain the processes that create spawning and rearing habitat.
[112] Leppi, App. A, Sec. 3b.

delivery, water flow, and nutrients to downstream waters.[113] Watershed processes foster myriad habitat types (Resh et al. 1988), providing diverse habitats for fish species and girding against changing environmental conditions (Stanford et al. 2005).[114] Protecting at the watershed scale will help buffer populations from both climate and anthropogenic impacts (Schindler et al. 2015).[115]

Significant Resource Value E-1: Headwaters for downstream Broad Whitefish spawning, rearing, and overwintering habitat[116]

Rationale: Please refer to the discussion above for Significant Resource Value A-7.

Maximum Protection Measure E-1.1: *Within Broad Whitefish spawning and rearing habitat, no case-by-case sand and gravel mining will be authorized for Lease Stipulations K-1 or K-2. A Broad Whitefish Protection Plan shall be added to Lease Stipulation K-1.*

Rationale: Ensure minimal adverse effects to important Broad Whitefish spawning and rearing habitat. Please refer to the rationale above for MPM A-7.1.

Significant Resource Value E-2: Important wolverine denning habitat[117]

Rationale: Please refer to the discussion above for Significant Resource Value A-8.

Maximum Protection Measure E-2.1: *Within wolverine habitat, no permanent oil and gas infrastructure will be permitted within 1 mile of a known or suspected den site. To assure maximum protection, BLM shall require monitoring and reporting, including to evaluate the effectiveness of mitigation measures and the effects of activities on wolverines and the subsistence use of this species. From January 1 to May 15, before undertaking activities in known or suspected denning habitat, efforts must be made to locate occupied dens within and near areas of planned operation, utilizing aerial infrared surveys (AIR) with all observed or suspected wolverine dens reported to the BLM and FWS within 48 hours of observations, and the BLM must then approve initiation of any activity.*

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[113] *Id.*
[114] *Id.*
[115] *Id.*
[116] The significant resource value meriting the expansion is important headwaters of the Colville River needed to protect downstream Broad Whitefish spawning and rearing habitat. But the proposed MPM here is for Broad Whitefish spawning and rearing habitat across the Colville River Special Area.
[117] *See* Heun, App. A, Sec. 3e at 136 Figure 3e.1.

Rationale: Ensure minimal adverse effects to important wolverine habitat. Please refer to the rationale above for MPM A-8.1.

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Expansion F – Peard Bay Special Area (Peard Bay Watershed Expansion)

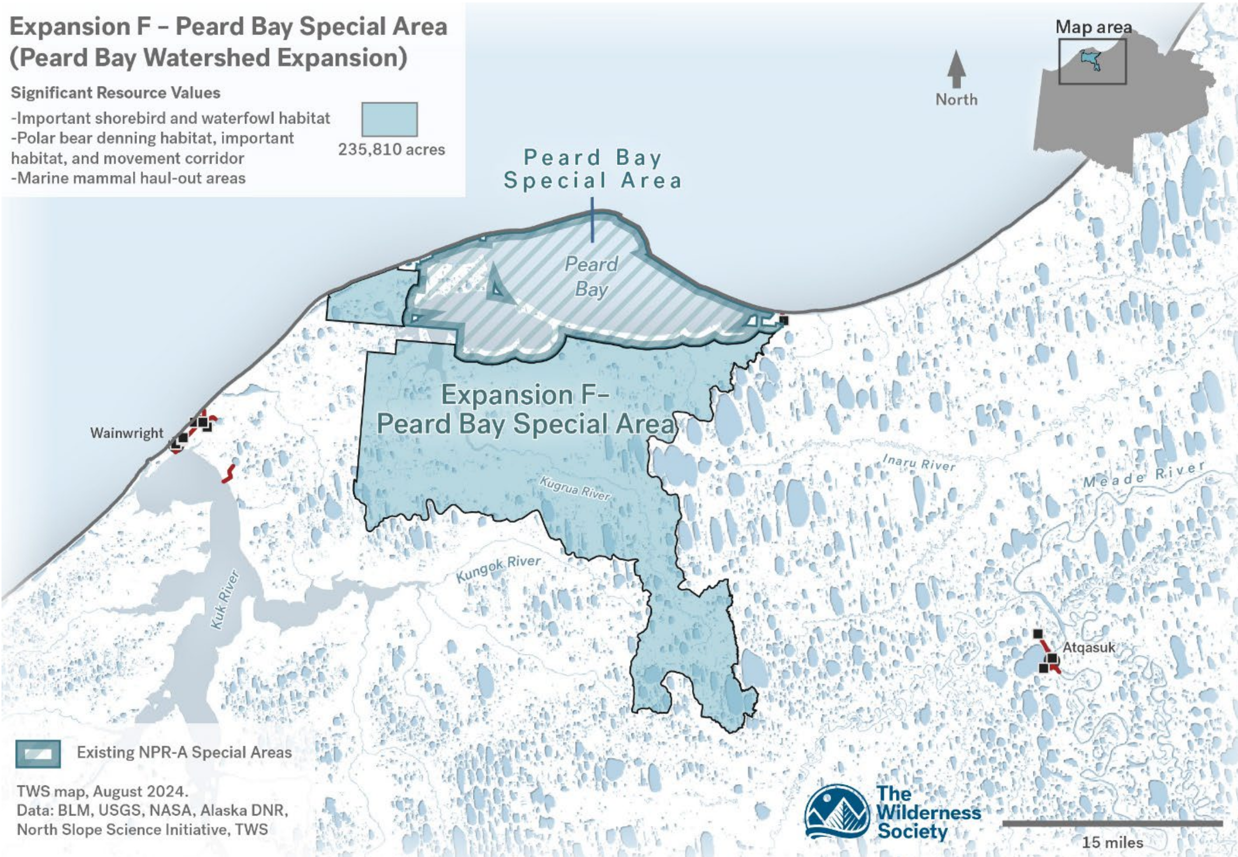

Figure 12. Expansion F – Peard Bay Special Area (Peard Bay Watershed Expansion).

The Peard Bay Special Area was established in part because of its importance to staging shorebirds (NPR-A Final IAP/EIS ROD at 4 (2013)). It is particularly important to thousands of Red Phalaropes that use the site in the summer and fall, partly because of its beach habitat and gravel spit (Connors et al. 1981; Taylor et al. 2011; Alaska Shorebird Group 2019). Peard Bay is also a significant haul-out area for marine mammals.

The area of proposed Expansion F would extend the current Special Area to match much of the watershed boundary, protecting important wetlands and the watershed complex that feeds into Peard Bay. This area would also cover an additional portion of the coast westward to protect haul-out areas.

Significant Resource Value F-1: Important shorebird and waterfowl habitat

Rationale[118]: Given recent declines in shorebirds, habitat protection is imperative. The total number of shorebirds have declined by 37% in a summary of trends of North American breeding birds from 1970 to approximately 2018 (Rosenberg et al. 2019). Local and regional declines of North American wintering populations of shorebirds reached as high as 66% (Warnock et al. 2021). A more recent analysis from 1980 to 2019 of shorebird migration monitoring data from across North America shows that 26 of 28 (93%) shorebird species declined, with declines accelerating in recent years (Smith et al. 2023). The Reserve is critical for nesting. Of Arctic Coastal Plain breeding shorebirds, about 72% nest in the Reserve (Bart et al. 2012; Bart et al. 2013). Current data on the status and trends of shorebirds suggest that almost all of the species that use the Reserve are declining in at least parts of their distribution—and these declines may be accelerating (Piersma et al. 2016; Ruthrauff et al. 2021; Warnock et al. 2021; Smith et al. 2023).

> ***Maximum Protection Measure F-1.1:*** *There shall be a minimum 1-mile no-infrastructure buffer around high-density nesting habitat using the latest density data across at least 10 years*[119] *and around all individual recorded nest sites.*
>
> **Rationale**: Ensure minimal adverse effects to important shorebird habitat. Building roads and facilities and other structures associated with oil development can directly cover and decrease habitat available for breeding birds (e.g., Troy and Carpenter 1990 p. 29). The most robust study to date examined nest survival in the Prudhoe Bay field from 2003–2019 in relationship to proximity to facilities and roads and found that birds that nested closer to high-use facilities had significantly lower nest survival than those farther away (McGuire et al. 2023). Dunlin, Semipalmated Sandpiper, Stilt Sandpiper, and Pectoral Sandpiper, among others, have been found to avoid roads (TERA 1993). Within Prudhoe Bay, road dust was shown to affect the composition of plants next to the road, especially small forbs, mosses, and lichens, and habitat types around the area (Walker et al. 2022). Roads and other gravel structures like drilling pads can cause water to impound, thermokarsting, and other environmental changes resulting in significant habitat changes for breeding birds (Meehan and Nickles 2002; Raynolds et al. 2014; Bergstedt et al. 2023).

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[118] *See* Warnock, App. A, Sec. 3d.
[119] *See id.* at 105 Figure 3c.1, 117 3d.1.

Significant Resource Value F-2: Polar bear denning habitat, important habitat, and movement corridor[120]

Rationale[121]: Critical Chukchi/Bering Sea (CS) polar bear habitat under the Endangered Species Act exists in the region in and around Peard Bay and recommended Expansion F. Voorhees et al. (2014, citing Sodikoff 2012:7) identified the CS polar bear subpopulation as a "cultural keystone species" to Indigenous villagers within and along the northern Bering Sea and Chukchi Seas. For further rationale, please refer to the discussion above for Significant Resource Value A-5.

> ***Maximum Protection Measure F-2.1:*** *Comply with requirements from the 2021–26 Beaufort Sea Incidental Take Regulations (ITRs) for the activity in question, and with the following additional requirements and standards. No permanent oil and gas infrastructure or seismic exploration will be permitted within designated terrestrial denning critical habitat. No permanent oil and gas infrastructure or seismic exploration will be permitted within 1 mile (1.6 km) of suitable polar bear denning habit as identified by Durner et al. 2013, within areas identified as high and medium density for maternal dens, as identified by USFWS 2022 Final Biological Opinion for Integrated Activity Plan.*[122] *Before undertaking activities in suitable polar bear denning habitat during the denning season (approximately November 1–April 30), aerial infrared surveys (AIR), required under the ITRs, must be conducted when the local weather is documented as being clear, calm, and cold. If there is blowing snow, any form of precipitation, or other sources of airborne moisture, use of AIR detection will not count toward the required number of surveys. Trained marine mammal monitors on the site of the activity will be required aboard terrestrial vehicles or at the location of industry facilities to monitor the impacts of oil and gas industry activity on polar bears. Due to its own obligation to assure maximum protection for SRVs, monitoring and reporting to the BLM shall be required. The required trained observers must be approved by the BLM and file reports within 48 hours of polar bear observations with the BLM and FWS including, but not limited to, the following information:*

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[120] Rotterman, App. A, Sec. 3h at 197–98 ("The geospatial data needed to map polar bear maternal den habitat within the NPR-A is available from USGS (https://data.usgs.gov/datacatalog/data/USGS:ASC412) see also Figure 3h.3 and Durner et al. 2013), as are the locations of detected denning sites (Durner 2020; see also Figure 3h.2) and designated polar bear terrestrial denning habitat (https://catalog.northslopescience.org/dataset/1754)."); *see id.* at 184 Figure 3h.3.

[121] Rotterman, App. A, Sec. 3h.

[122] As noted above, the determination of what area will be subject to an MPM should be based on the best available, most up-to-date science, to account for both current patterns and historical trends, particularly in light of climate change effects. To ensure proper coverage area, this MPM cites to and would require using the area identified in the referenced studies. However, BLM should periodically evaluate the coverage area to ensure a consistent, non-arbitrary, regularly updated science-based determination.

(i) Date, time, and location of observation;
(ii) Number of bears;
(iii) Sex and age of bears (if known);
(iv) Observer name and contact information;
(v) Weather, visibility, and other relevant conditions at the time of observation;
(vi) Estimated closest distance of bears from personnel and facilities;
(vii) Industry activity at time of sighting;
(viii) Possible attractants present;
(ix) Bear behavior;
(x) Description of the encounter;
(xi) Duration of the encounter; and
(xii) Mitigation actions taken.

Rationale[123]: Ensure minimal adverse effects to CS polar bear denning habitat. In a recent study based on data from 408 radio-collared polar bear adult females in both the SB and CS, Rode et al. (2022:13) found that "[s]ince the mid-1980s, declines in sea ice were correlated with increases in the percent of bears summering onshore from an average of . . . ~10% to ~50% by 2017 in the CS . . . . Increases in duration onshore during the same period were notably similar for the two subpopulations starting with averages ~20–30 days in the 1980 s that increased to ~70 days by the 2010s." This trend of increasing use of land by CS (and SB) polar bears is expected to continue due to anticipated continued reductions in summer sea ice due to greenhouse gas emissions. By forecasting sea ice loss based on a range of greenhouse gas emissions, Rode et al. (2022:1) estimated that by 2040, "50–62% of SB and 79–88% of CS bears will spend 90–108 and 110–126 days onshore during summer in the SB and CS, respectively."

Significant Resource Value F-3: Marine mammal haul-out areas

Rationale: Peard Bay contains important areas for marine mammal haul out, including Pacific walrus and spotted seal, along with nearshore concentrations of ringed and beard seals along Point Franklin and across the marine waters (NOAA 1988; Lowry et al. 1998). In designating Peard Bay initially as a Special Area, BLM explained (NPR-A Final IAP/EIS, Volume 1 at 350 (2012)):

> Walrus are generally found along the pack ice margin, where ice concentrations are less than 80 percent. They feed primarily on clams and other invertebrates found on the seafloor; and, although capable of diving to greater depths, walrus usually feed in waters less than 80

[123] Rotterman, App. A, Sec. 3h.

meters deep over the continental shelf, where their prey is more abundant and easier to obtain (Fay 1982, Fay and Burns 1988, Jay et al. 2001). Walrus rest between feeding trips on sea ice or land. Sea ice provides walrus with a resting platform, access to offshore feeding areas, and seclusion from humans and predators.

Maximum Protection Measure F-3.1: *No case-by-case sand and gravel mining will be authorized for Lease Stipulation K-5.*

Rationale: Ensure minimal adverse effects to marine mammal haul-out areas. Disturbance events can cause walruses to stampede into the water and have been known to result in injuries and mortalities, and the risk of stampede-related injuries increases with the number of animals hauled out (Ovsyanikov 1994). Calves and young animals at the perimeter of these herds are particularly vulnerable, and trampling-related injuries and mortalities have been reported at coastal walrus haul-outs used by adult females and young (Fay and Kelly 1980; Ovsyanikov 1994; Kavry et al. 2008). Spotted seals exhibit high sensitivity to aircraft within 1.25 miles and are sensitive to human disturbances at their haul outs (Quakenbush 1988; Frost et al. 1992; Frost et al. 1993).

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Colville River Special Area

This section recommends adding three significant resource values to the existing CRSA: Teshekpuk Caribou Herd spring and fall migration corridors; Teshekpuk Caribou Herd summer and winter ranges and post-calving grounds; and Central Arctic Herd summer range. Important caribou habitat is not presently recognized as a significant resource value in the CRSA.[124] Yet, the TCH rely on the northwestern region of the CRSA for its spring and fall migrations, along with summer and winter forage and habitat, and the CAH rely on this area for part of its summer range.[125] The same reasons discussed above for Expansion A – Teshekpuk Lake Special Area (Teshekpuk Caribou Herd Migratory Pathways Expansion)[126] justify recognition of these values for the CRSA.

Significant Resource Value: Teshekpuk Caribou Herd spring and fall migration corridors

Rationale: Please refer to the discussion above for Significant Resource Value A-1.

Maximum Protection Measure: *Within the Teshekpuk Caribou Herd migration corridors, new permanent gravel roads will be prohibited.*[127]

Rationale: Ensure protection of migrating caribou. Please refer to the rationale above for MPM A-1.1.

Maximum Protection Measure: *Within the TCH fall and spring migration corridors, from April 1 to May 30 and from August 15 to November 30, flights shall maintain a minimum altitude of 610 m (2000 ft), unless doing so would endanger human life or violate safe flying practices. The aircraft use plan, including information from monitoring and reporting flights, shall include a plan for adjustments based on monitoring results.*[128]

Rationale: Ensure minimal disturbance to and hindrance of TCH's spring and fall migration. Please refer to the rationale above for MPM A-1.2.

Significant Resource Value: Teshekpuk Caribou Herd summer range, winter range, and post-calving grounds

Rationale: Please refer to the discussion above for Significant Resource Value A-2.

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[124] 43 C.F.R. § 2361.20(a) (listing currently recognized significant resource values in the CRSA).
[125] *See* Fullman, App. A, Sec. 3a at 29 Figure 3a.3.
[126] *See supra* pp. 13–15.
[127] *See supra* Figure 3.
[128] *See supra* Figure 4.

Maximum Protection Measure: *Within the TCH summer and winter foraging habitat, a snow water equivalent (SWE) greater than 21.6 cm will be required before winter travel is permitted. SWE should be measured at least 15 times each along an "L" where each arm is 50 m long. These measurements should be repeated every 10 km of travel, or every 3 days, whichever occurs first, and will be repeated after rainfall, snowfalls, or windstorms. The measurement sites will be in areas representative of general conditions, and favor neither scoured nor drifted areas. Overland travel will be stopped in areas or at times when minimum snow conditions are not met.*[129]

Rationale: Protect foraging in TCH summer and winter habitat. Please refer to the rationale above for MPM A-2.1.

Maximum Protection Measure: *Within the TCH winter range, flights shall maintain a minimum altitude of 610 m (2000 ft), from December 1 until March 31, unless doing so would endanger human life or violate safe flying practices. The aircraft use plan, including information from monitoring and reporting flights, shall include a plan for adjustments that would be made based on monitoring results.*[130]

Rationale: Ensure minimal disturbance to and hindrance of TCH winter habitat. Please refer to the rationale above for MPM A-2.2.

Significant Resource Value: Central Arctic Herd summer range

Rationale: Please refer to the discussion above for Significant Resource Value A-3.

Maximum Protection Measure: *Within the CAH summer range, new permanent gravel roads will be prohibited.*[131]

Rationale: Ensure minimal disturbance to and hindrance of the CAH summer range. Please refer to the rationale above for MPM A-3.1.

Maximum Protection Measure: *Within the CAH summer foraging habitat, a snow water equivalent (SWE) greater than 21.6 cm will be required before winter travel is permitted. SWE should be measured at least 15 times each along an "L" where each arm is 50 m long. These measurements should be repeated every 10 km of travel, or every 3 days, whichever occurs first, and*

[129] *See supra* Figure 5.
[130] *See supra* Figure 4.
[131] *See supra* Figure 3.

will be repeated after rainfall, snowfalls, or windstorms. The measurement sites will be in areas representative of general conditions, and favor neither scoured nor drifted areas. Overland travel will be stopped in areas or at times when minimum snow conditions are not met.[132]

Rationale: Ensure minimal disturbance to and hindrance of the CAH summer range. Please refer to the rationale above for MPM A-2.1.

Significant Resource Value: Broad Whitefish spawning, rearing, and overwintering habitat

Please refer to the discussion above for Significant Resource Value A-7.

Maximum Protection Measure: *Within Broad Whitefish spawning, rearing, and overwintering habitat, no case-by-case sand and gravel mining will be authorized for Lease Stipulations K-1 or K-2. A Broad Whitefish Protection Plan shall be added to Lease Stipulation K-1.*

Rationale: Ensure minimal adverse effects to important Broad Whitefish spawning, rearing, and overwintering habitat. Please refer to the rationale above for MPM A-7.1.

* * * * *

[132] *See supra* Figure 5.

Teshekpuk Lake Special Area

This section recommends a maximum protection measure for the Pik Dunes within the existing boundaries of the TLSA.

The Pik Dunes are south of the eastern end of Teshekpuk Lake within the TLSA and currently designated an Emphasis Area. This small, unique area, only about 15 square miles in size, is geologically and botanically of great scientific interest and has high recreation values.

The area has rare or uncommon plants endemic to the area (e.g., Murray 2017), is used by yellow-billed loons and other waterbirds and shorebirds (e.g., eBird records), and has scenic and recreational value. Within the dunes are five lakes. The integrity of these lakes, including one of the deepest lakes in all the Reserve (Shaftel et al. 2018), should be protected. The area is extensively used by caribou throughout the year (NPR-A Final IAP/EIS at Map 3-22 (2020)) and especially serves as important insect relief habitat for caribou[133] (NPR-A IAP ROD, Appendix A at A-18 (2022)) as caribou seek to escape biting insects on the windy, barren slopes of the dunes. Because the dunes are largely bare or have only sparse vegetation, they are especially prone to disturbance.

Existing Significant Resource Value: Pik Dunes

Maximum Protection Measure: *Within Pik Dunes, infrastructure, pipelines, sand or gravel extraction, and water use will be prohibited.*

Rationale: Ensure protection of Pik Dunes. Under the 2022 IAP ROD, the Pik Dunes are closed to oil and gas leasing. However, new infrastructure and the mining of sand and gravel or water use are not prohibited. Pik Dunes should be closed to fluid mineral leasing, new infrastructure, and other activities, including gravel mining and water use, which could damage this unique area.

[133] *Id.* at 37.

IV. Interim Measures

Several proposed expansion areas and the associated significant resource values face the threat of impacts from development on existing leases. As discussed above, the NPRPA mandates maximum protection for significant resource values from the adverse effects of oil and gas activities. Interim protective measures are recommended to safeguard the identified significant resource values during the pendency of any initiated Special Areas process in order to limit harm until a final decision is made and maximum protection measures are finalized.

Most importantly, BLM should impose interim measures to protect the TCH's habitat and Nuiqsut's subsistence activities. The TCH faces imminent and serious threats. Their migratory corridors, winter habitat, and calving grounds overlap with existing oil and gas leases, ongoing permitted activities, and confirmed prospects.[134] ConocoPhillips called the Willow Project "the next great Alaska hub" and identified up to 3 billion barrels of nearby prospects that could leverage Willow's infrastructure. North Slope Exploration estimated that the Reserve could hold between 20 to 30 billion barrels of recoverable oil.[135] Nuiqsut's heaviest subsistence use area for all resources also overlaps with active leases and industry's plans for expansion.

During the Special Area designation and amendment process, it is essential that further harm does not occur. Allowing activity that fails to assure maximum protection without adequate mitigation would violate the agency's statutory mandates for protecting the Reserve's resources. BLM has both the authority and obligation to implement interim protection measures.[136]

Although BLM has identified caribou habitat as a significant resource value, the agency has not clearly identified or protected the full extent of that habitat. Thus far, it has only protected some calving and insect relief habitat and provided only minor protections for the TCH's winter habitat. As a result, existing Special Areas do not completely encompass or protect the herd's habitat. Imposing interim measures now to ensure no additional harm to caribou habitat and other significant resource values while BLM is considering whether to expand existing Special Areas is consistent with Congress' directive.[137]

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[134] AKDNR, North Slope Discoveries and Prospects, https://dog.dnr.alaska.gov/Document/Download/5C59442790B34675AF96FA3B82F72D1/North%20Slope%20Discovery%20and%20Prospect%20Map.pdf.
[135] North Slope Exploration, LLC and North Slope Energy, LLC v. U.S. Dep't of the Interior, Case 3:24-cv-00143-SLG, Complaint at 12 (July 3, 2024).
[136] *See* 42 U.S.C. §§ 6503(b), 6506a(b); 43 C.F.R. § 2361.30(b)(4).
[137] *See* 42 U.S.C. §§ 6503(b), 6506a(b).

To protect TCH habitat and subsistence activities, BLM should refrain from issuing new permits[138] until it makes a final determination in a Special Areas process. BLM should also impose measures that prohibit new gravel roads and restrict flights, similar to the respective MPMs recommended above, in these proposed Special Areas, and the agency should prohibit any waiver of or exception to existing lease stipulations and ROPs.[139]

BLM can impose these measures now, without revising the IAP, because they are consistent with the governing management prescriptions in the IAP—they do not change the IAP's leasing or infrastructure designations. An interim commitment to enforce the IAP's Lease Stipulations and ROPs without waivers would reinforce those measures. And to the extent that these interim measures would override existing measures to protect caribou and subsistence activities from the impacts of roads and air traffic, they would be consistent with the IAP since the agency may impose additional requirements to meet the objectives of any stipulation, "if the AO considers that such requirements are warranted to protect the land and resources, in accordance with the BLM's responsibility under relevant laws and regulations."[140]

[138] Permits for a new well on an existing pad, for environmental monitoring, and for scientific research could be exempted.
[139] We recommend that these interim measures apply to both new, and also approved, permits.
[140] NPR-A IAP ROD at A-5 (2022).

V. Conclusion

The significant resource values identified in this Proposal are facing multiple threats, most prominently from oil and gas development and the increasing impacts of climate change. In particular, the Teshekpuk Caribou Herd's migratory pathways, important seasonal habitat, and calving and post-calving grounds warrant swift Special Area protection by modifying the boundaries of the TLSA according to the proposed Expansion A – Teshekpuk Lake Special Area (Teshekpuk Caribou Herd Migratory Pathways Expansion) and Expansion B – Teshekpuk Lake Special Area (Teshekpuk Caribou Herd Calving Grounds Expansion). Protecting this region would benefit a host of significant resource values, create an intact, connected Special Area ecosystem, and safeguard vital subsistence resources and Indigenous ways of life. The scientific information and Indigenous Knowledge supporting recognition of these values, the recommended Special Area boundary modifications, and measures to assure maximum protection counsel promptly initiating a Special Areas process.

Thank you for considering this Proposal.

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