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Molly Cobbs
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December 16, 2015

Dear Ms. Cobbs:

Thank you for the opportunity to participate in the Bureau of Land Management's (BLM) process of developing a Regional Mitigation Strategy (RMS) in conjunction with development of the Greater Moose's Tooth 1 (GMT-1) production unit on the National Petroleum Reserve in Alaska (NPR-A). As you know, The Nature Conservancy (TNC) has partnered with BLM and others in ongoing development of several RMSs in the lower 48 for solar activities. Additionally, a recent [TNC paper¹](#) provides an excellent guide for applying the mitigation hierarchy, an essential part of this process and the eventual RMS. A copy is enclosed for your reference.

What makes this first RMS in Alaska particularly unique, and challenging, is the issue of subsistence uses by a primarily Alaskan Native village, the linkage of those subsistence uses to fish and wildlife species and their habitats, and how both subsistence and those species/habitats will be affected by development. Given the President's November 3rd Memorandum "[Mitigating Impacts on Natural Resources from Development and Encouraging Related Private Investment](#)," there is even more imperative to ensuring that impacts from development of GMT-1 and subsequent developments on the NPRA are addressed at a landscape level and are fully mitigated. Accomplishing that will likely require use of new and innovative mitigation options and approaches, while using the best available science, and in consideration of Traditional Ecological Knowledge (TEK). As the policy states, it is our "moral obligation" to balance development with conservation for future generations and recognize the important role of private investment in restoration.

We appreciate the open, participatory manner in which BLM has conducted the RMS Workshops (March/April in Fairbanks; September in Barrow), and other opportunities that have been available for sharing information and listening to recommendations of stakeholders such as Nuiqsut residents, the conservation community, and many others. Summaries of both Workshops have been comprehensive and are useful references as this process moves forward. Based on the September 24-25 Workshop Summary, it is clear that BLM is responding to messages articulated then. At the same time, we recognize the diverse views among the different residents, communities, and organized bodies on the North Slope. These present a considerable challenge for developing a fair RMS that is scientifically based, will appropriately protect the area's tremendous fish, wildlife, and subsistence resources and access for all, now and into the future, in balance with some very carefully designed and implemented oil development.

Many excellent points by Workshop participants are included in the Summary. Our comments focus on points we believe should be emphasized or additional suggestions as summarized below in terms of several key issues. These are expanded in the enclosed detailed comments.

¹McKenney, Bruce and Jessica Wilkinson. April 2015. "Achieving Conservation and Development: 10 Principles for Applying the Mitigation Hierarchy." The Nature Conservancy. <http://www.nature.org/ourinitiatives/applying-the-mitigation-hierarchy.pdf>

Boundary: The current boundary should be considered a guideline, with flexibility for future adjustments should important mitigation options be identified outside this area.

Data Sources: Use best available science, and consider and incorporate TEK and current information on subsistence use and access. We have provided a partial list of such sources.

Unavoidable impacts: Up-to-date maps, integration of data layers, quantification, and a discussion of subsistence use areas, resources, and activities need to be part of this analysis.

Mitigation goal: These need to be quantified, or at a minimum, qualified. The needed maintenance and protection could be better addressed around the four categories of - habitats and species; subsistence resources and uses/access; human health and safety; quality of life and tradition.

Mitigation actions: A clear, defensible, transparent process is needed for calculating and comparing impacts and the relative values of different mitigation actions.

Mitigation ranking criteria: Among the most important are relationship of the action to the impacts, magnitude or importance of the impact, and durability of the mitigation action.

We look forward to participating in the upcoming March workshop as well as this continuing process. Please note, one additional Workshop should be scheduled after allowing time for stakeholder review of the expected summer 2016 publication of a Draft RMS. This should be followed by BLM's review of input on the Draft and from the summer Workshop, before expected publication of the Final RMS in October 2016. If you have any questions about these comments or there are ways we can provide additional assistance in development of the RMS, please do not hesitate to contact me: arappoport@tnc.org or 907-865-5701.

Sincerely,



Ann Rappoport
Director of Conservation

Enclosures [Detailed Comments and TNC's 10 principles on mitigation paper]

cc: Bud Cribley
Steve Cohn
Serena Sweet
Stacie McIntosh
Stacey Fritz
Tahnee Robertson
Jan Caulfield
Mike Dwyer
Bob Sullivan
Jason Taylor
Josh Hanson
Matt Preston

ENCLOSURE

Detailed Comments: BLM's Barrow Workshop 9/24-25 and Emerging Regional Mitigation Strategy

Boundary: The current boundary should be considered a guideline, with flexibility for future adjustments should important mitigation options be identified outside this area, and to accommodate the dynamic nature of the natural resources, their environment, and development impacts over time. Given the landscape scale nature of the RMS and need to account for impacts from developments throughout the broader region over time, rather than each development as it occurs, the RMS will need to involve several watersheds in the Northeastern portion of the NPR-A and likely beyond. It needs to be large enough to encompass ecosystem functions and the extent of subsistence use areas by the Native Village of Nuiqsut (NVN), as well as mitigation options for developments within the region, not just the immediate GMT-1 development. At the same time, it should not be so large as to dilute the applicability of mitigation actions to the watersheds and communities that will be affected by GMT-1 and subsequent developments in that region.

We concur with inclusion of state and Native Corporation lands within the RMS boundary, and disagree with those comments that the boundary includes too much area. While land owners other than BLM may not be willing to include their lands in recommended mitigation options, state, corporation, village, and additional federal and other lands adjacent to NPR-A will also be affected by GMT-1 and subsequent developments. Given their proximity to GMT-1 and current development potentials, these lands could provide important opportunities for mitigation. A land ownership lens eliminating lands when landowners are unwilling to participate can be applied later. Moreover, the willingness of other landowners to involve their lands as mitigation options could change over time, with RMS implementation occurring over many years as development proceeds.

We suggest consideration of a dashed rather than solid line as a better way to present the "boundary" to acknowledge factors such as climate change and the pace and extent of continuing development within the region. This would help accommodate concerns raised at the Barrow workshop, and acknowledge the landscape and watershed approach of the RMS by presenting the boundary as a guideline. The RMS should fully account for impacted areas, locations of future impacts as development proceeds, high value conservation and subsistence areas that could be designated as offset areas, and ecosystem/species/subsistence shifts with climate change. It may need to be adjusted to include mitigation options that may be subsequently developed outside this area, but that are responsive to mitigation goals and ranking criteria that will be established. For example, current subsistence use areas have been mapped outside the suggested boundary. At a minimum, the dashed line should be expanded to the southeast portion of NPR-A to include NVN subsistence resources such as caribou and subsistence use areas there, along with oil and gas leases around Umiat to better account for likely near-term development across this landscape/watershed.

Data Sources: The Environmental Impact Statements for the GMT-1 project and 2012 Integrated Activity Plan for NPR-A contain a wealth of information on the biological, cultural and subsistence resources of the area. BLM's recent North Slope Rapid Ecoregional Assessment provides further useful information for development of the RMS. As we heard at the Barrow workshop, it appeared that Heritage Program researchers were just beginning to integrate many of their data layers to develop key analyses and projections important for identifying and valuing potential mitigation options, relative to likely impacts from not only GMT-1, but subsequent prospective development throughout the Greater Mooses Tooth and adjacent Bear Tooth units, and beyond. Climate is certainly an important factor that will need to be

integrated into the identification of lands that may be considered for avoidance and compensatory mitigation. For example, consideration needs to be given to how the habitat and subsistence use/access of lands may increase or decrease over time under potential climate change scenarios.

As documented in the GMT-1 EIS, likely development impacts will be most detrimental to subsistence resources and their use/access by residents of the NVN; extrapolating continuing development throughout the northwest region of NPR-A means impacts will subsequently increase and expand to other North Slope communities. It will be essential to apply the best available science and analytical methods regarding ecological and physical aspects of the landscape, and change agents such as climate, in development of the RMS. It is also imperative that BLM obtain and analyze the most recent information on subsistence uses, and work closely with NVN and other communities to account for TEK. As development proceeds, monitoring will be essential to provide a feedback loop and opportunities to modify and improve implemented and future mitigation options in accord with real world conditions over time.

We recognize that BLM may already be working with some of the key data sources identified below. However, we wanted to provide as comprehensive a list as possible of recommended contacts and data sources on subsistence and continuing development that should be incorporated into the RMS, including:

- 1) Dr. Todd Brinkman, Assistant Professor, University of Alaska–Fairbanks, tjbrinkman@alaska.edu 907-474-7139. Dr. Brinkman has been working on a National Science Foundation, Experimental Program to Stimulate competitive Research ([NSF EPSCoR](#)) project in the Nuiqsut area involving equipping Nuiqsut hunters with GPS units to take pictures of environmental changes they observe while out hunting. He is initiating a soundscape study to look at the level of aircraft use and how it is affecting subsistence resources/uses. At both the Fairbanks and Barrow workshops we heard extensive comments from Nuiqsut and other North Slope residents about disturbance from aircraft and how it negatively affects wildlife movements and people’s ability to access wildlife for subsistence. Given the lack of federal agency information on this issue, Dr. Brinkman’s study could provide critical clarification on how aircraft noise is affecting subsistence resources and their use, and a basis for determining potential mitigation for this impact.
- 2) North Slope Borough, Department of Wildlife Management, particularly:
Qaiyaan Harcharek, Subsistence Research Coordinator, qaiyaan.harcharek@north-slope.org 907-852-0350. Qaiyaan has also outfitted North Slope subsistence hunters with GPS units showing the extent of their hunting travel, critical information for confirming impacts and mitigation options.
- 3) Dr. Jamie Trammel, Landscape Ecologist, University of Alaska – Anchorage, Natural Heritage Program, ejtrammell@uaa.alaska.edu 907-786-4865. Continue work with Dr. Jamie Trammel and his associates at the Heritage Program to further integrate and analyze data layers from their recent Rapid Ecoregional Assessment of the North Slope which looks at existing species and habitats and how and why they are changing over time. At the Barrow Workshop, it appeared they were just starting to integrate different aspects of their data, including changes over time with climate change. There is strong applicability of this work to the RMS.
- 4) Development scenarios such as those presented in previous EISs for North Slope developments. This would include the 2004 Alpine Satellite Development Plan, Final EIS, particularly Figure 2.2.3-1, Locations of Proposed Facilities (CPAI and Full-Field Development Plans). Another helpful reference

is "[A Synthesis of Existing, Planned, and Proposed Infrastructure and Operations Supporting Oil and Gas Activities and Commercial Transportation in Arctic Alaska](#)," by Kevin Hillmer-Pegram of the University of Alaska Fairbanks, 2014.

5) [North Slope Science Initiative's Scenarios project](#): <http://northslope.org/scenarios/>

6) A [Development by Design](#) approach as developed by The Nature Conservancy and used in development of RMSs for solar developments in the lower 48 could be applied by BLM scientists and Argonne contractors to comparatively identify and quantify geographic impact areas, avoidance areas, and options for compensatory mitigation, regardless of land ownership. This type of analysis could also be used to run climate models, for example, working with those from the [Scenarios Network for Alaska + Arctic Planning](#) program to consider changing habitats and potential changes in species uses that will directly impact subsistence uses as well.

7) [TNC's Alaska-Yukon Arctic Ecoregional Assessment and Conservation Blueprint](#) is comprised of 12 updates, published in 2004-2005. This compilation of biological data layers includes an analysis across North Slope sites that could be a helpful model for addressing impacts and mitigation options, when updated to reflect more recent data and assessments in conjunction with the lens of projected changes due to climate and development factors. The assessment concluded with a "Portfolio of Areas of Biological Significance." Because these updates are not readily available online, we will send a copy under separate cover to the Alaska State Office of BLM.

8) [Traditional Ecological Knowledge](#) from residents of Nuiqsut and other North Slope subsistence users – some of this will come from the first two data sources listed above. However that information, in conjunction with continued refinements from working with local residents as maps and analyses are developed, will be critical to ensure the RMS incorporates a comprehensive and accurate portrayal of impacts and potential mitigation around subsistence resources and uses. A helpful model for integrating species, habitat, and TEK, along with pertinent information as development may proceed to the west, is TNC's 2008 report developed in partnership with the Wainwright Traditional Council, "Wainwright Traditional Use Area Conservation Plan."

9) [Steven R. Braund and Associates](#) for specific shape files and data from his extensive work on subsistence on the North Slope (e.g., 2008-2014 Caribou Subsistence Monitoring Project under contract to ConocoPhillips for the Alpine Satellite Development, work on GMT-1 for BLM, 2009-2014 project on Nuiqsut area mitigation for the Bureau of Ocean Energy Management). Recognizing the proprietary nature of his data, could either ConocoPhillips or individuals from Nuiqsut assist in providing approvals or access to that data which has been summarized in NPRA EISs and elsewhere?

Unavoidable/residual impacts:

A number of residual, that is, unavoidable impacts were identified at the Barrow Workshop. Given concern about use of the word "residual" impacts as used on Workshop handouts, we recommend use of the term "unavoidable" for those impacts that cannot be avoided or minimized. This is more consistent with traditional discussions around application of the mitigation hierarchy and the identification of compensatory measures for those impacts that are unavoidable.

We recommend that the RMS include sufficient maps, the most up-to-date maps, quantifications, and a discussion of the subsistence use areas, resources, and activities that have been repeatedly identified as the major unavoidable impacts expected with oil and gas development on GMT-1 and beyond. We

provided several such data sources, above. Undoubtedly there will be limits to the extent that subsistence and some other unavoidable impacts can be offset and those will need to be fully acknowledged in the RMS. Additional measures that could be taken to better avoid or minimize those impacts should be identified, along with the trade-offs.

In the discussion of “Environmental Justice” impacts, it would be helpful to include a definition for “Environmental Justice” in the RMS, e.g., it is a disproportionate suffering of impacts by certain groups, in this case, the NVN, and other North Slope residents. That term was not on the RMS Glossary provided at the Workshop. While the Workshop handout indicated that economic benefits “are a countervailing positive impact,” it should be noted that they do not outweigh negative impacts of GMT-1 and subsequent developments, particularly as many of the economic benefits will accrue to individuals and businesses not based in Nuiqsut or on the North Slope, nor who consider that area their home.

Mitigation goals: This is a key part of the RMS as it will set the bar against which the mitigation hierarchy will be applied and expected outcomes of compensatory mitigation should be measured. The initial list discussed at the Workshop and included in the Summary identifies the big picture on resources and uses (e.g., habitats, subsistence uses, health and safety, culture, etc.) that will be negatively affected by GMT-1 and subsequent developments within the region. However, general statements to maintain, protect and restore or enhance these resources do not provide a bar against which to measure, rank or determine ultimate mitigation options. Nor do they distinguish the level or goal for mitigation to avoid or minimize impacts, as compared to compensation for unavoidable impacts. These terms will need to be defined as the RMS is developed. While not an easy task, we recommend that this is where a quantitative spatial analysis such as Development by Design could clarify existing conditions and how different options on development and mitigation could provide and define the desired protection. Additionally:

Goal #1 should be expanded to acknowledge ecosystem/watershed functions across the landscape, in keeping with the landscape approach of the RMS. This should accommodate the importance of connectivity between habitats, including for maintaining critical wildlife migration corridors. Where linear infrastructure features are proposed, current information and innovative approaches will be essential in their design and use (e.g., times when use is allowed, magnitude of use, etc. could all effect how well the impacts of certain development features are avoided or minimized).

Goal #2 on subsistence uses should be strengthened and expanded to address the continuation of traditional and customary rights and uses. This should include the teaching, sharing, and opportunity to fully participate in a subsistence culture or way of life to younger and subsequent generations. TEK should be tapped in defining this goal and measures for meeting it.

As noted in the summary, Goal #3 should be deleted. Because previously disturbed sites predate current activity, other funding sources or responsible parties should be tapped to cover their cleanup.

Goal #4 needs to be defined, including setting a baseline around current and expected levels for identified indicators of health and safety.

An additional goal around maintenance of core habitats within the NPR-A that are sufficient in size to support ecosystem functions, subsistence, and cultural values of the area would be useful. This would help ensure that pertinent mitigation options are durable through time, and there is a balance to land management across the broader region.

There should be a summary approach for how the different goals will be prioritized or applied to the RMS analysis. It may be more logical to lump the goals into four categories around the ideas of: 1) maintaining functioning habitat and viable species populations, 2) maintaining subsistence resources/uses-access, 3) ensuring human health and safety; and 4) maintaining and enhancing the quality of life, traditions, cultural resources, and landscape of the area's first residents.

Mitigation actions: We recognize that the Barrow meeting was early in BLM's process of developing the RMS. One particular process suggestion with which we strongly concur is that BLM should develop a clear, defensible, and transparent process and set of rules for determining compensatory mitigation for impacts from GMT-1 and subsequent developments in the region. A key need here is a mechanism for calculating and comparing impacts and the relative values of different mitigation actions. Where clear measurements are not available, indicators could be used, and would need to be carefully documented. For example, quality of life and health determinations could include factors such as education levels, cancer rates, employment opportunities, opportunities for intergenerational sharing (e.g., a cultural center or culture camps), satisfaction expressed by local residents in surveys, etc.

To compare current habitat values with those that will be lost with development of GMT-1 and projected future developments in the region, a spatial analysis should be undertaken, with the same analysis applied to lands identified for protection as mitigation. One challenge will be how to quantify and quality the additional value from protecting lands that have been off-limits to leasing/development infrastructure under previous or current management plans, if more durable protections are applied as mitigation. Again, Development by Design offers a useful model. It could also be the basis for mapping and evaluating alternative scenarios on how subsistence access and uses will be affected by development, and alternative mitigation options. As discussed at the Workshop, an additional step that needs to be articulated and reviewed is how mitigation dollars will be calculated for future developments and how mitigation options will be monetarily assessed, or how some other scale (e.g., habitat value, or debits and credits as used in wetland mitigation evaluations) can be systematically used to compare and value impacts and mitigation options.

All established protection, restoration, or enhancement measures must be of a durable nature. Their compensatory value should not be diminished by continuing developments in the region, for at least as long as project impacts last. Monitoring and adaptive management also need to be part of any implemented mitigation measures, in order to ensure the outcome or results are as planned, or whether measures need to be modified, or additional measures added if the expected results do not occur with implementation of mitigation measures. Adaptive management will also be necessary to respond to environmental changes resulting from a changing climate.

A large and diverse list of potential Mitigation Actions was presented at the Barrow workshop. Tying each proposal to the goals was helpful and this chart should be refined and expanded, to include input and the updated goals that will result from the current review period, as well as a quantification or qualification to tie potential mitigation to expected impacts. There are several needed emphases and additional options that BLM should consider and evaluate as to their contribution in achieving mitigation goals, including:

- Ensure that protections for any lands on which conservation easements or rights-of-ways are prescribed are durable, at least for the full life of the project impacts, if not in perpetuity. This may require use of innovative or new types of agreements as have been discussed among BLM, TNC, and other groups for solar developments in the lower 48. Management plans should be

developed and regularly updated for these areas, affirming their conservation purposes, and prohibited and allowed activities, while tracking and accounting for climate or other changes over time.

- Consider creativity in land management plans and agreements to allow third party management that could better protect subsistence resources and access to them (e.g., U.S. Fish and Wildlife Service).
- Training and funding to incorporate local employment opportunities into responsibilities for monitoring, reporting, and enforcement, as appropriate, on fish, wildlife, environmental conditions, subsistence uses, environmental compliance, and the implementation and effectiveness of required mitigation. This should include some real-time monitoring with feedback to industry and mechanisms for implementing alternative operation plans during specific time windows to minimize disturbance impacts – e.g., a major caribou migration, possibly in conjunction with concentrated hunting.
- Co-management or third party agreements with adjacent landowners or landowners of lands that can be managed for conservation purposes as mitigation, e.g., involve tribal entities, Native Corporations, land trusts, and/or the State.
- Funding for monitoring to ensure mitigation measures are achieving desired outcomes and adaptation where needed.
- Options for compensating or otherwise subsidizing local hunters for greater hunting costs or lost opportunities – e.g., for food, fuel, transport farther from Nuiqsut and over a longer period of time; should access for hunters from outside the North Slope region be restricted? Work with the Alaska Department of Fish and Game, and Boards of Fish and Game may be required.
- Work with industry to design appropriate controls on road access, and to provide greater opportunities for access to subsistence resources within the industrial area.
- Coordinate with industry and the Federal Aviation Administration on flight patterns and timing options to better minimize impacts from aircraft use to subsistence uses. Can supplies and staffing at GMT-1 be stockpiled during some specific time windows to minimize flights and thus better minimize disturbance to hunters?
- Facilitate coordination between industry and residents to identify potential industry employment opportunities, needs for resources such as gravel, and to prioritize opportunities for NVN or other North Slope communities to fill those needs.
- Lease buybacks and lease deferrals on lands identified as high priority for protection for subsistence resources and uses.
- Providing and maintaining community freezers to support food security and sharing with other communities.
- Considering innovative options for partnering or collaborating with other agencies such as Federal Aviation Administration, Alaska Department of Health and Human Services, and Alaska Department of Fish and Game to address mitigation options that are outside BLM's areas of expertise and authority.

Mitigation ranking criteria: Establishing criteria for ranking mitigation options is particularly challenging, as different criteria will be more or less important to the various involved stakeholders. As was obvious in Workshop comments and BLM's summary, while the proposed ranking criteria did get at big picture issues such as feasibility, or whether benefits accrue to local stakeholders, the final ranking criteria will need to be fine tuned to the specifics of this particular RMS. For example, which mitigation actions will address the specific needs of local stakeholders, and how do those actions rank relative to other actions pertinent to local and other stakeholders? An important ranking lens will be a scientific approach to

comparatively value both impacts and the various options that could be adopted as offsets. Where the impacts involve social and less quantifiable factors like disturbance, this will be more complicated. One approach would be to have a tiered system. First, determine how well a proposed option will offset a specific impact, secondarily, add a tier to consider factors such as feasibility and durability which could increase or decrease the rank of the option. We believe the following criteria are among the most important:

- Relationship of the action to the impacts – how well will an action mitigate (avoid, minimize, or offset) an impact? Does it mitigate more than one impact?
- What is the magnitude or importance of the impact? - How important are these impacts, and the mitigation to be gained, to maintain ecosystem functions? To stakeholders? And to which stakeholders?
- Durability of the mitigation action – it should be at least for the life of the project impacts.

Additional key considerations will be feasibility (ensuring that selected options CAN be effectively implemented); effectiveness (likelihood the mitigation can be implemented and maintained, and will result in the desired offset; how it could be affected by future development; how it might facilitate future mitigation actions, or build resilience to prevent the need for future mitigation actions); and proximity (of results from the mitigation action to local stakeholders and/or the broader region).

As discussed at the Workshop, it is not so much the proximity of a mitigation action to the area affected by development, as it is the relevance to the affected area, people, and resources that is of utmost importance. We concur with the small group discussions that emphasized the importance of ensuring priority mitigation actions will be of the most benefit to local stakeholders. Who those local stakeholders are may change over time and with subsequent mitigation actions, as development proceeds across the region.

Specific comments on the mitigation criteria as amended in the Workshop summary are:

“5. Is the proposed action feasible?” The RMS should describe why a recommended action is not feasible, or is less feasible than others (e.g., political factors, cost, lack of local support, BLM lacks authority, etc.).

9. This criteria should not be limited to the geographic proximity of the mitigation to development. We suggest it be revised to: “Are the proposed benefits of the mitigation action sufficiently related to the area or issues affected by the development?”

Additional issues:

Cumulative impacts: Consideration should be given to identifying the point at which cumulative impacts are so significant and mitigation options are so inadequate that development should not proceed.

Schedule and Public Process: One additional Workshop should be scheduled after allowing time for stakeholder review of the expected summer 2016 publication of a Draft RMS. This should be followed by BLM’s review of input on the Draft and from the summer Workshop, before expected publication of the Final RMS in October 2016.

The overall process should be proactive and ongoing, and include opportunities for all to come back to the table should there be significant unforeseen impacts or impacts that are significantly greater than anticipated.

Funding should be provided to cover time and travel for key NVN members and NPR-A Working Group members to fully participate in development and implementation of the RMS. This support will facilitate the development of the RMS but is not mitigation itself, so it should not be covered by either current or future funds designated for mitigation actions. Instead it should come from other sources, e.g., a fund could be established with contributions from BLM, industry, and the North Slope Borough so there would be greater buy-in and attention from the major entities with land management, use, and financial options in the area.