

Oil and Gas Leasing on Portions of the Wyoming Range in the Bridger-Teton National Forest

Final Supplemental Environmental Impact Statement
Volume 2: Appendix

Sublette County, Wyoming



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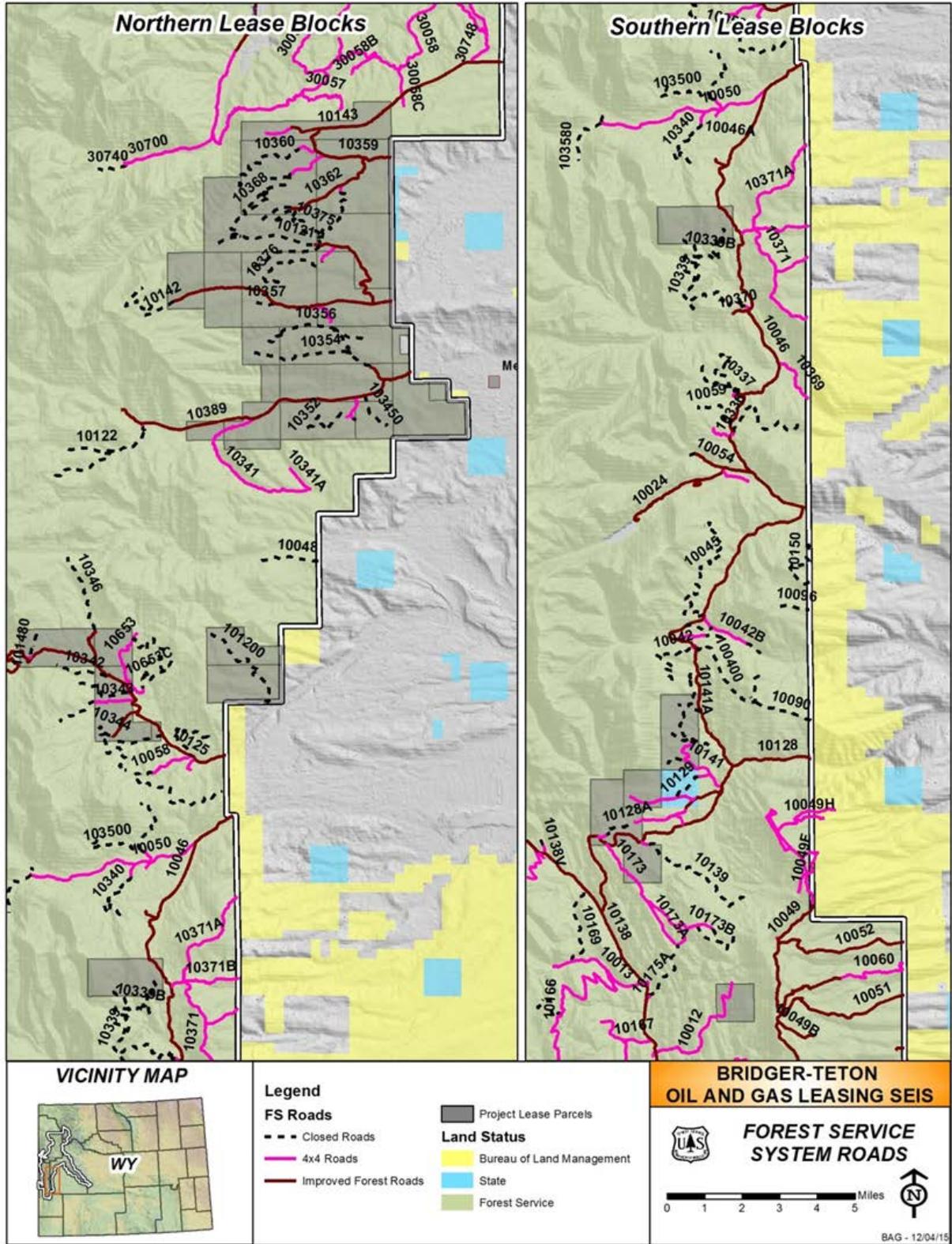


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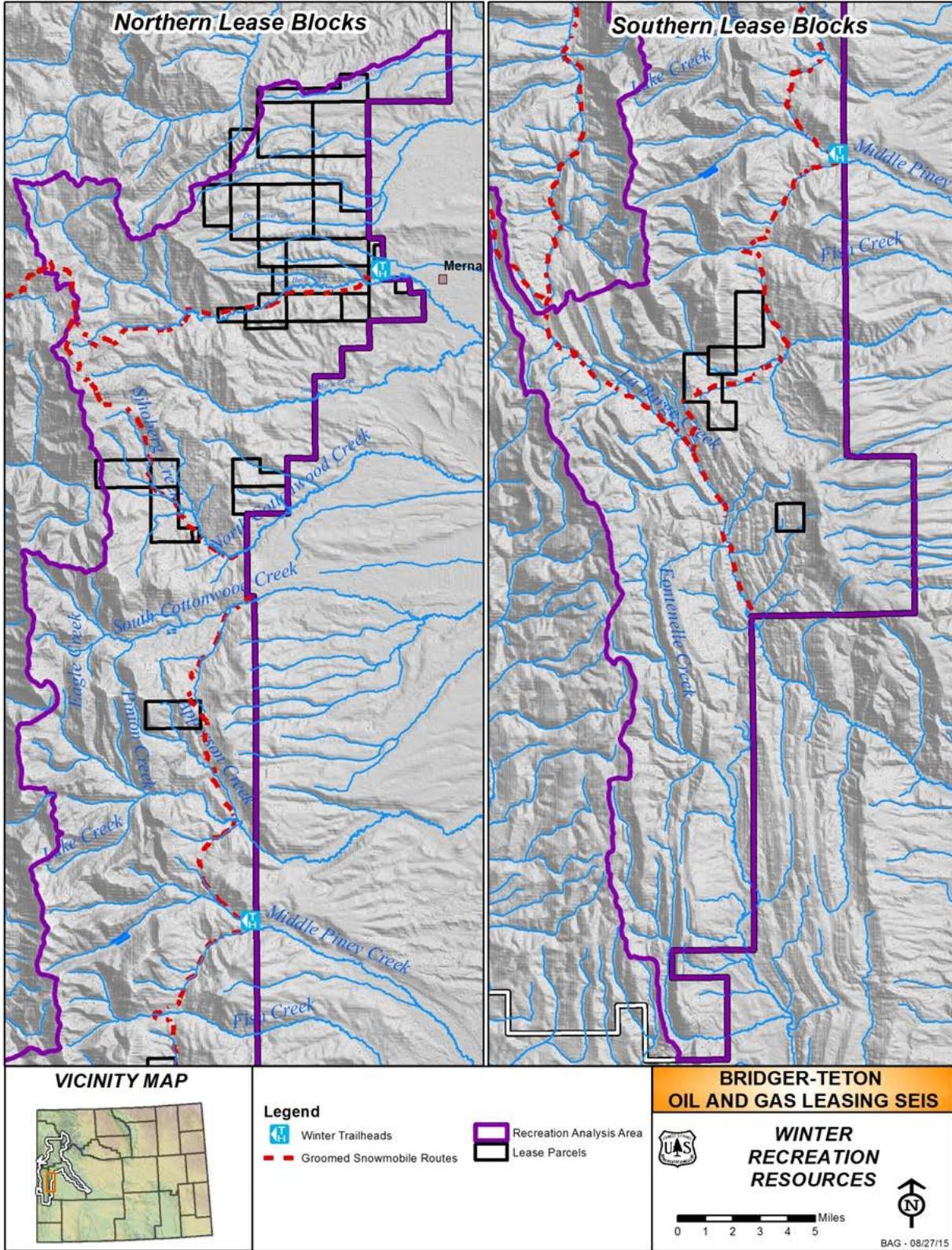


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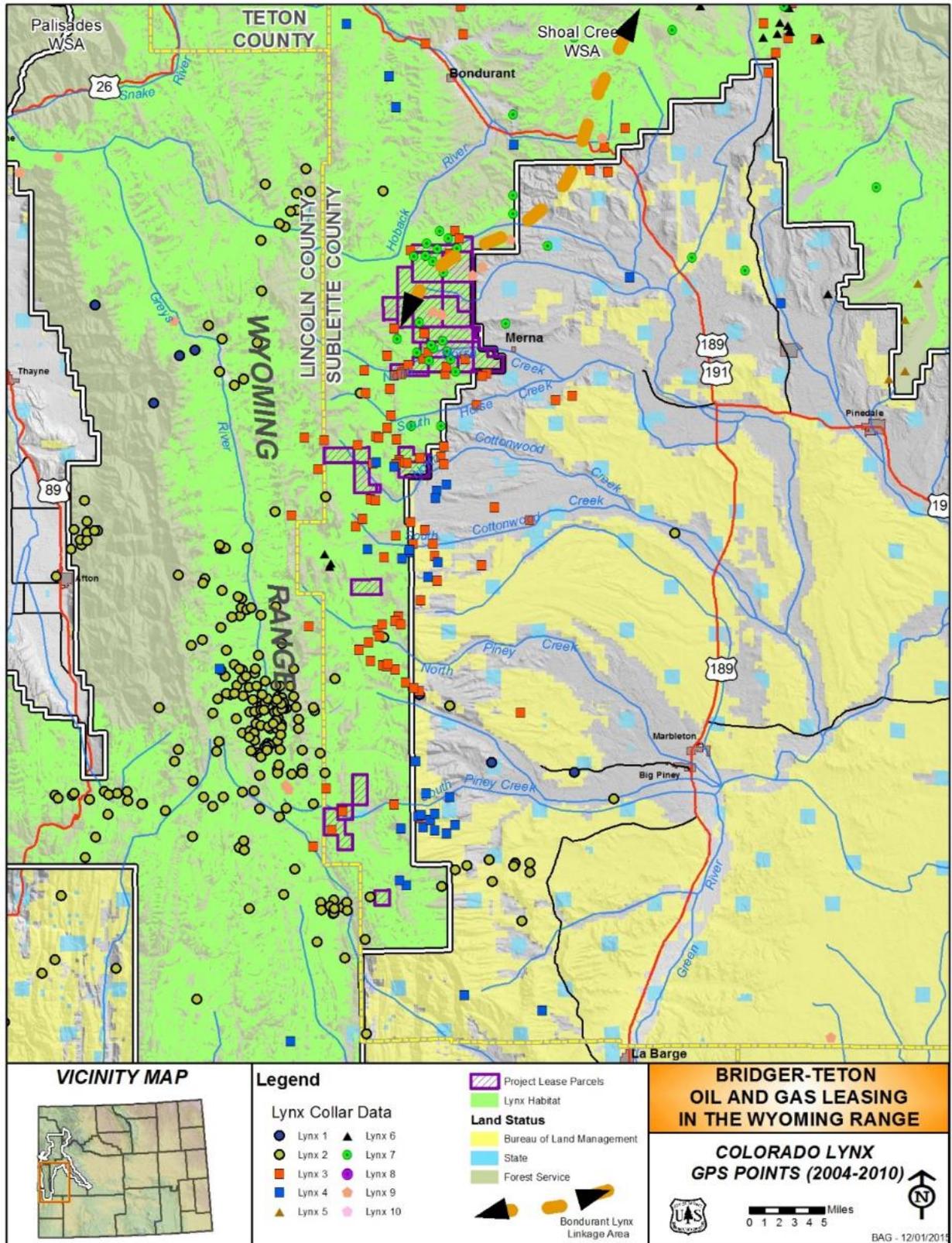


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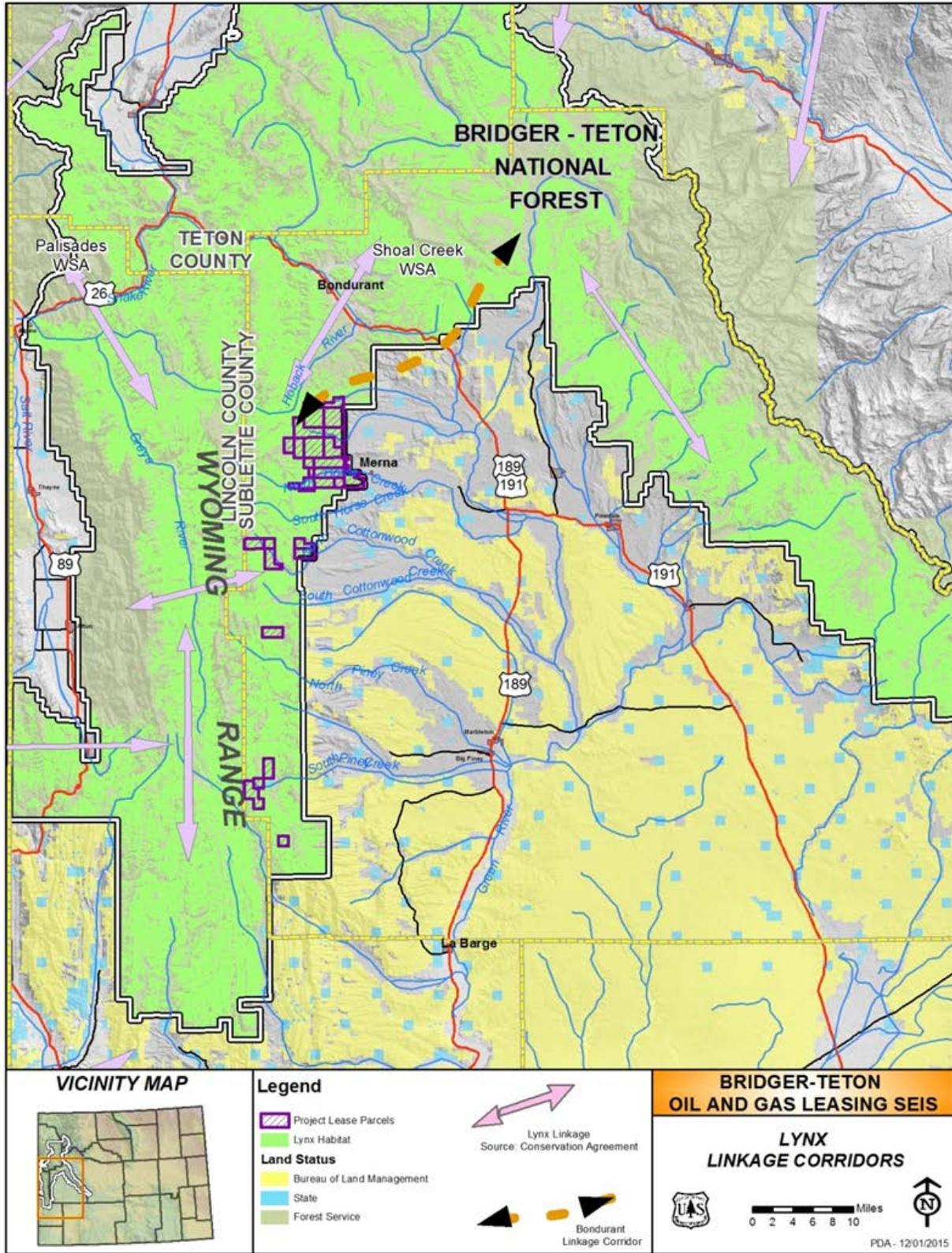


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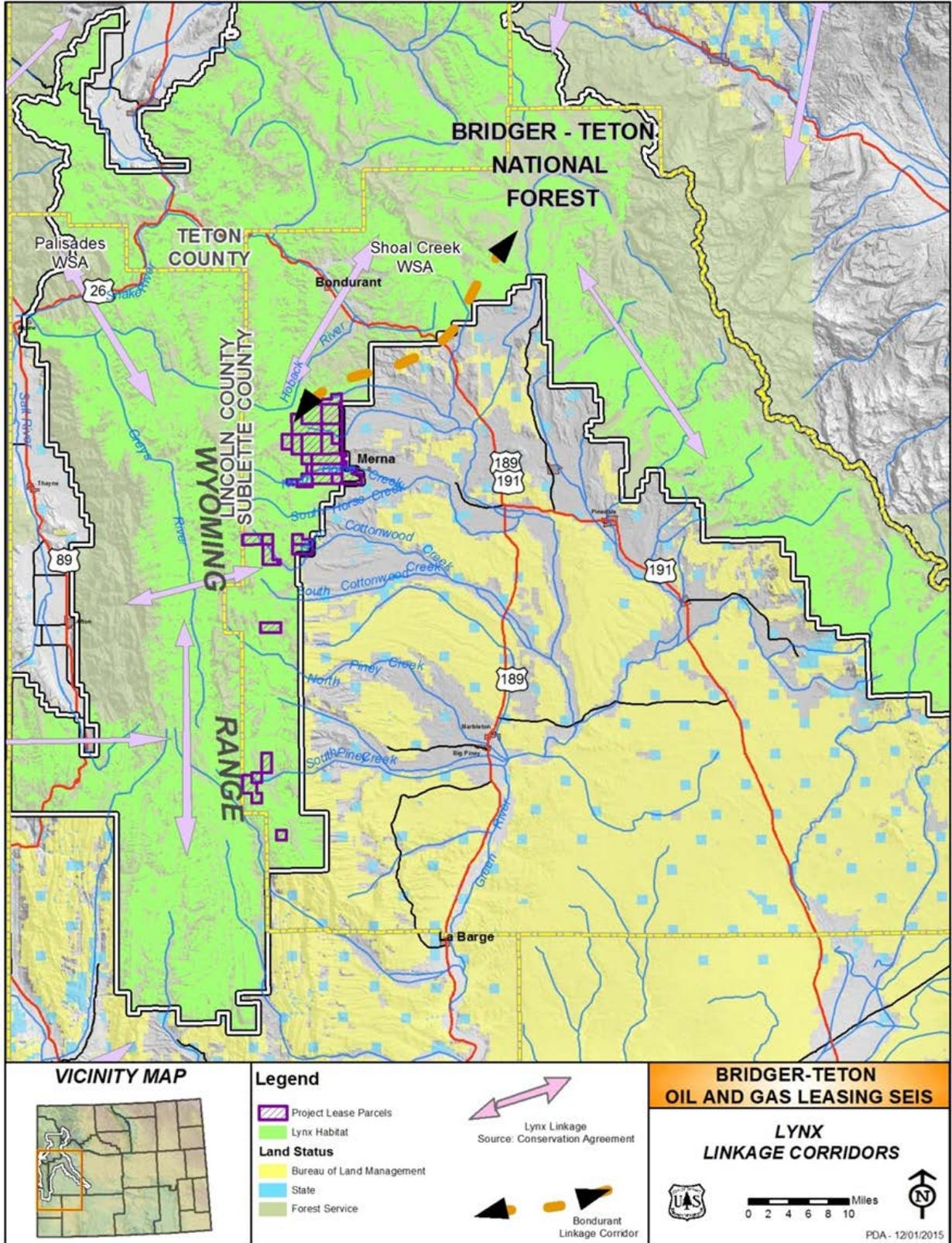


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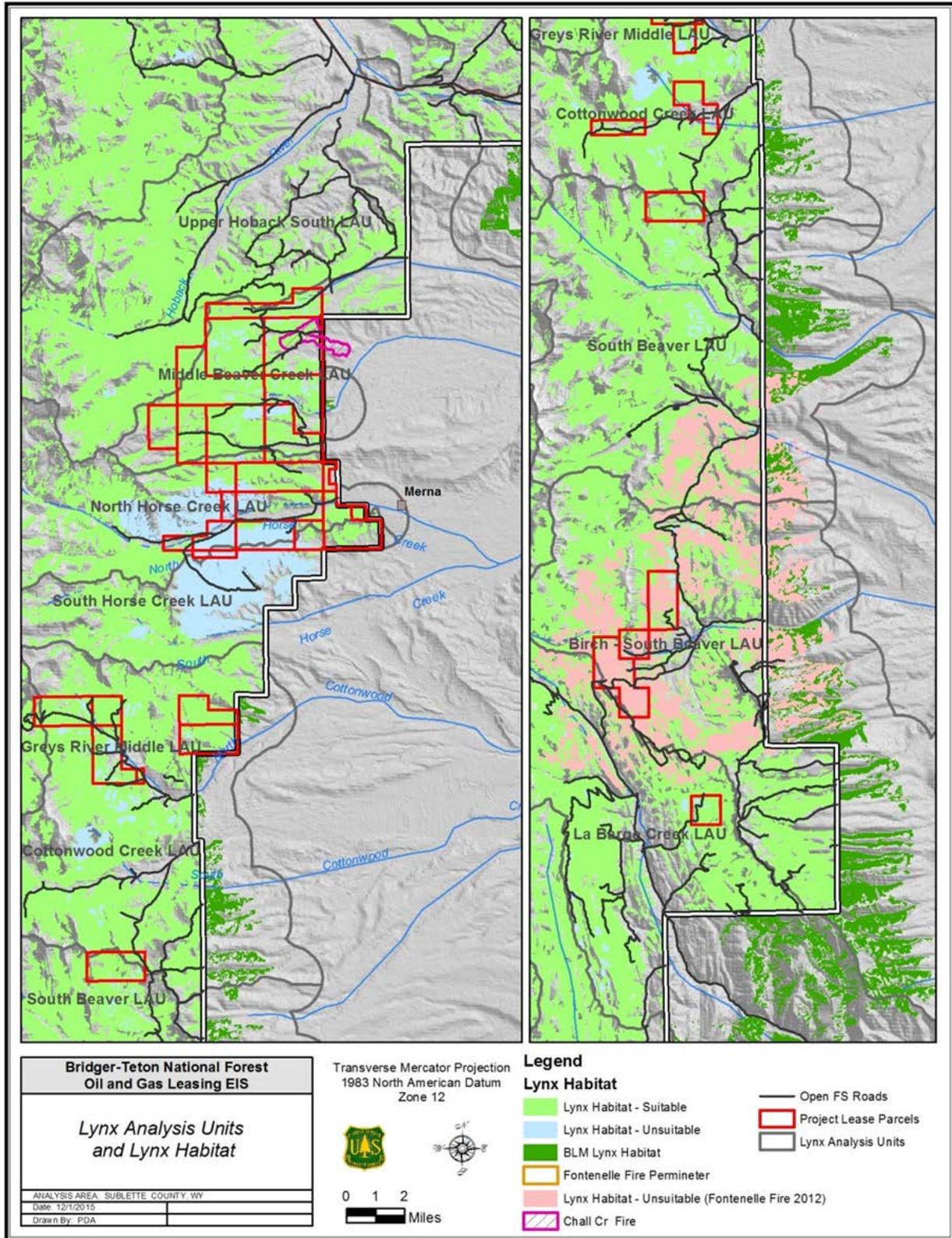


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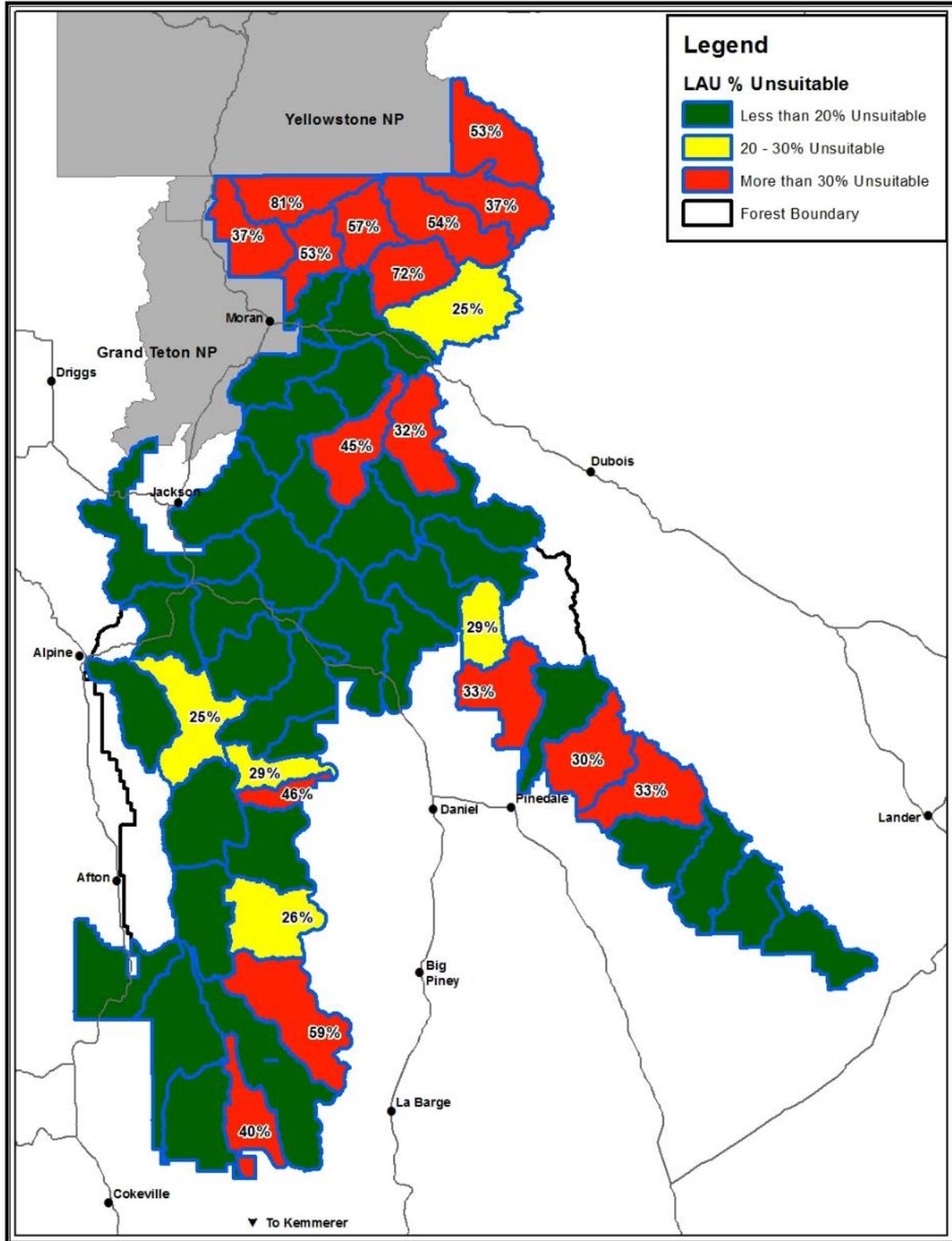


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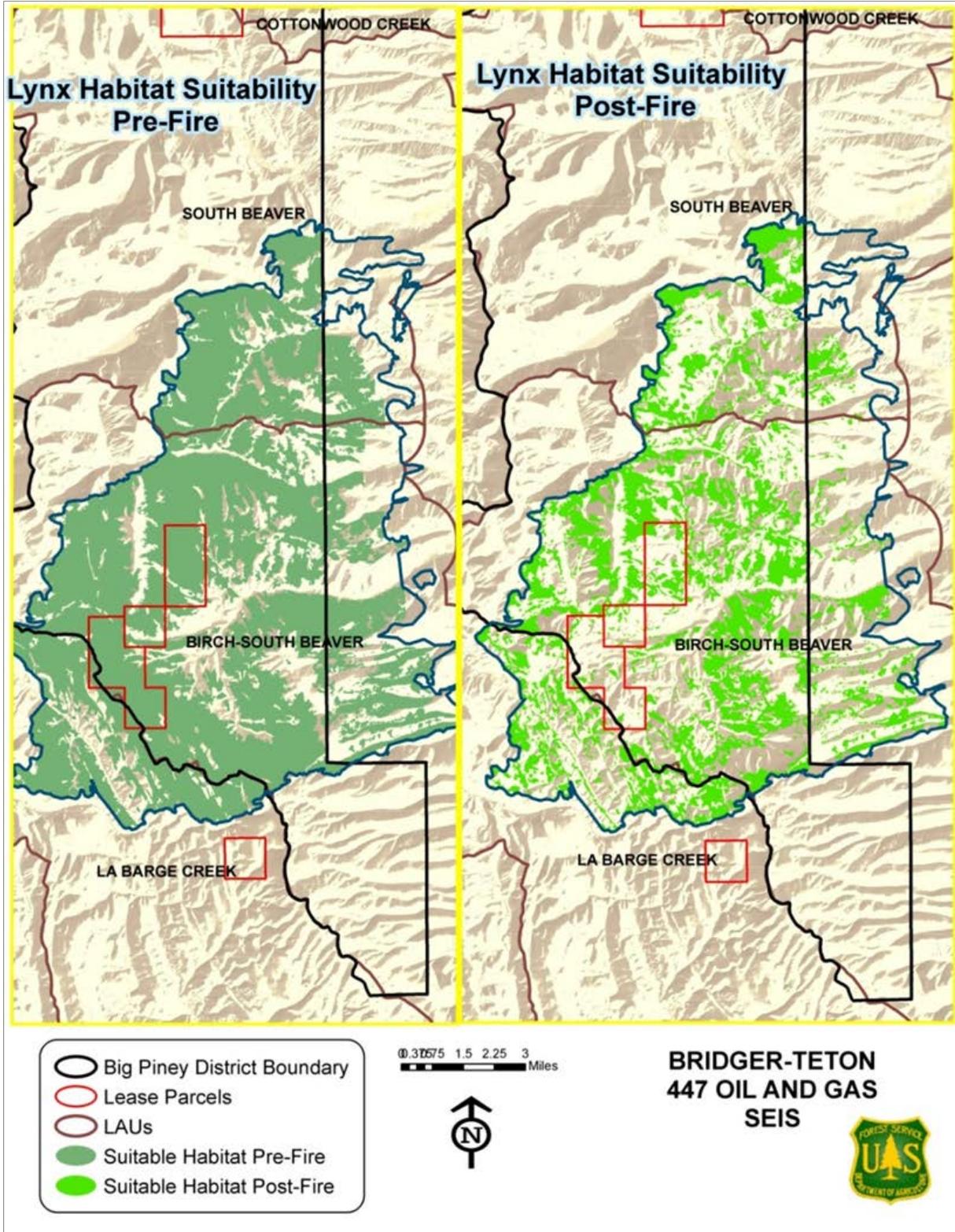


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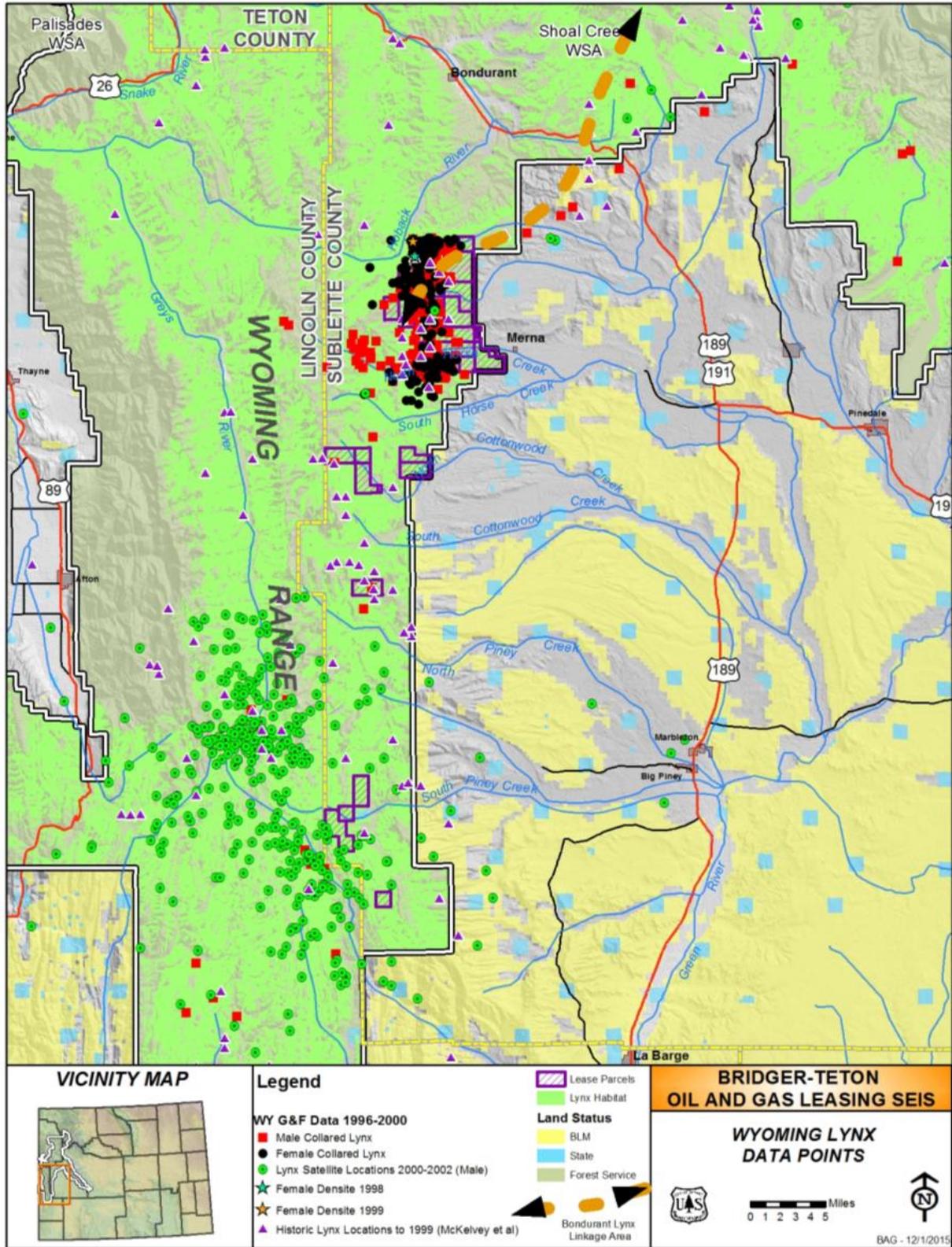


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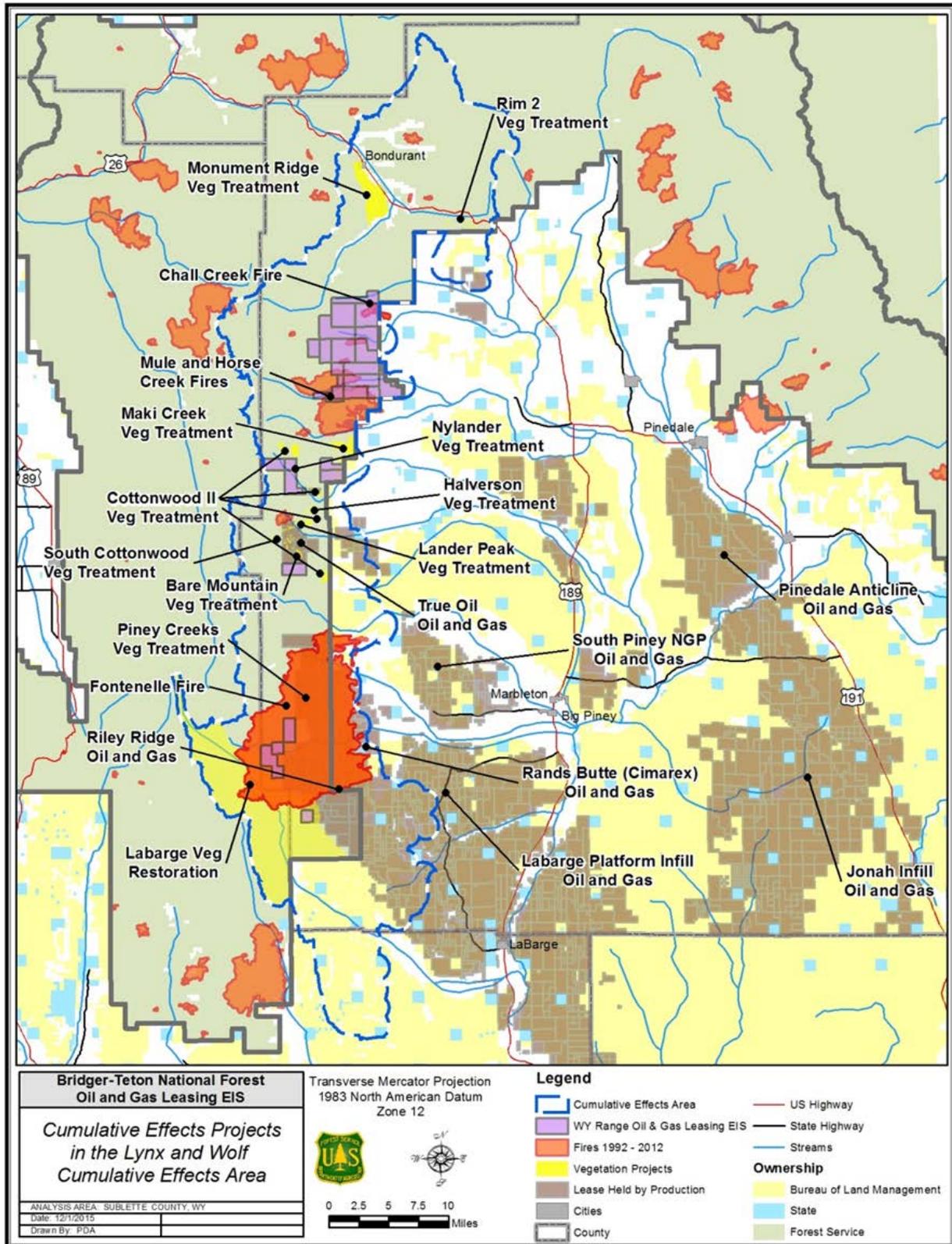


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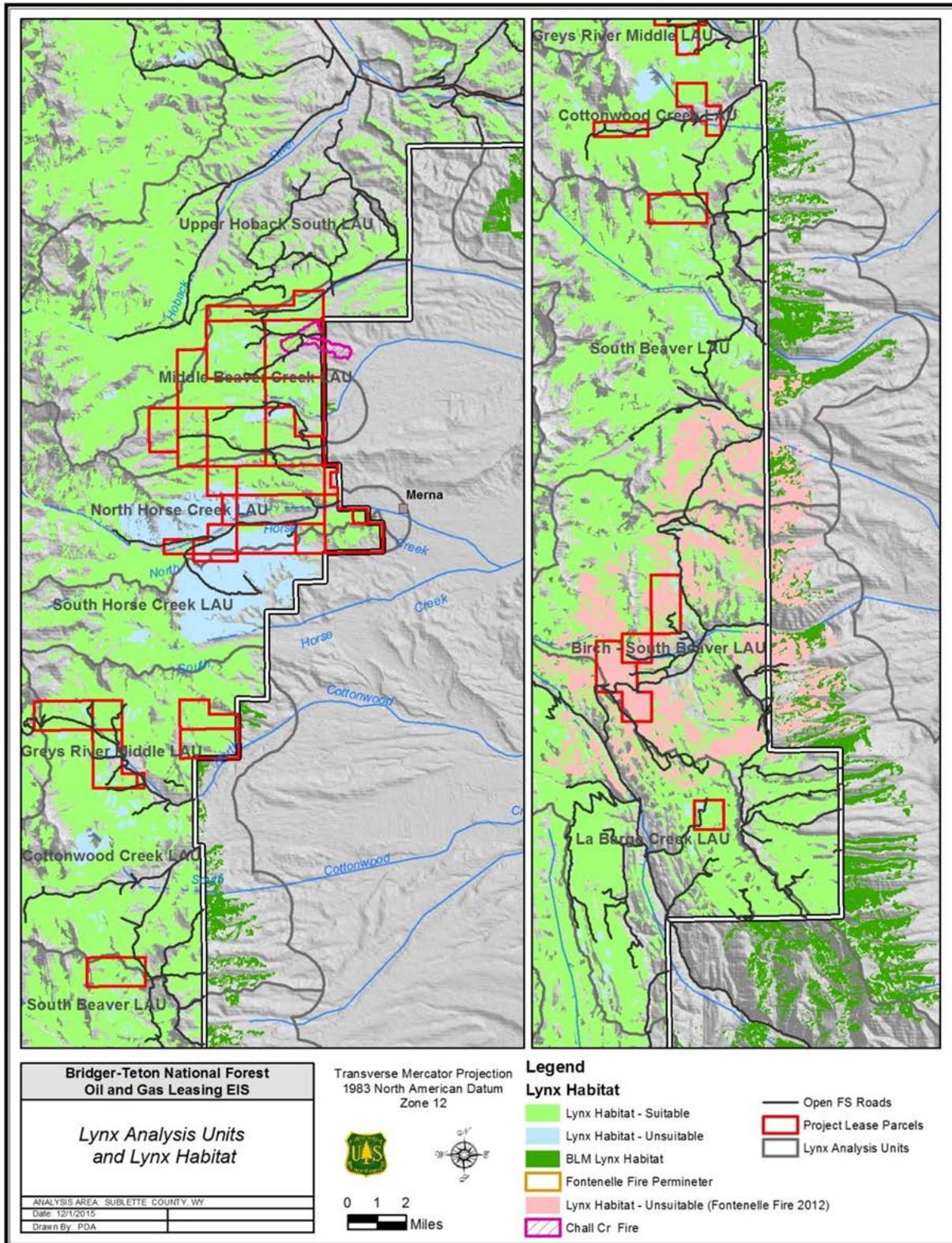


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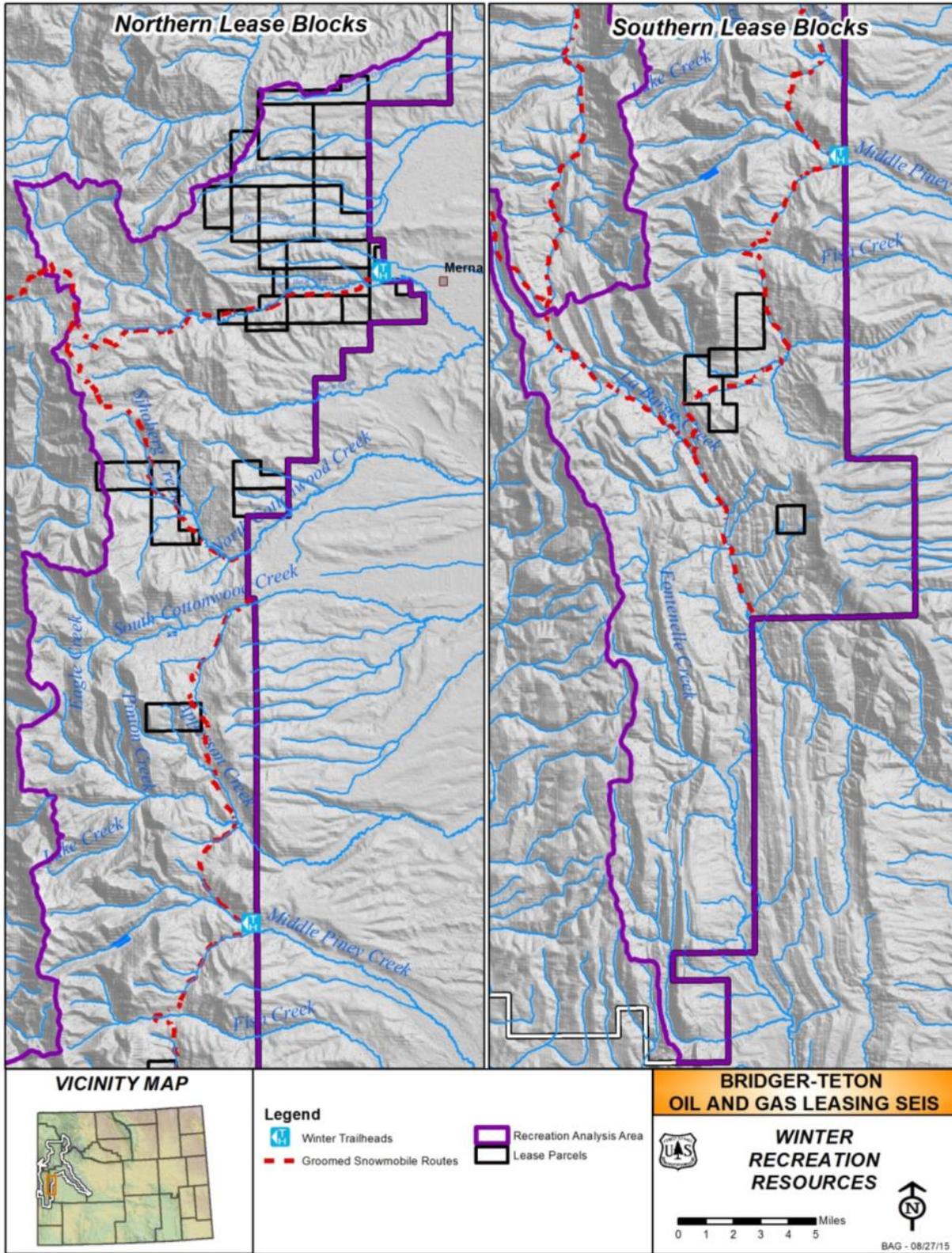


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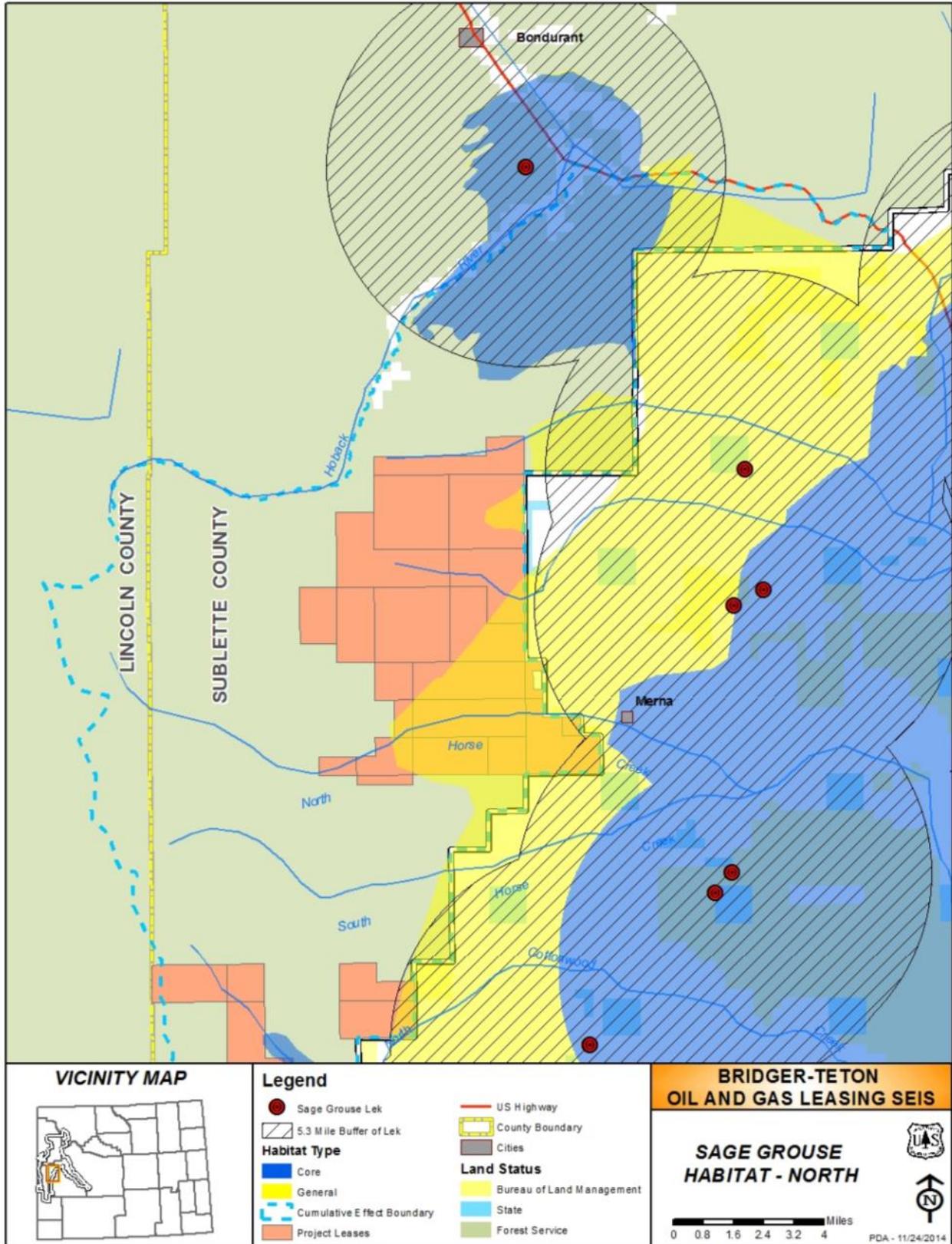


Figure A-14. Proposed "preliminary priority" and "preliminary general" sage-grouse habitat on Bridger-Teton National Forest lands, north

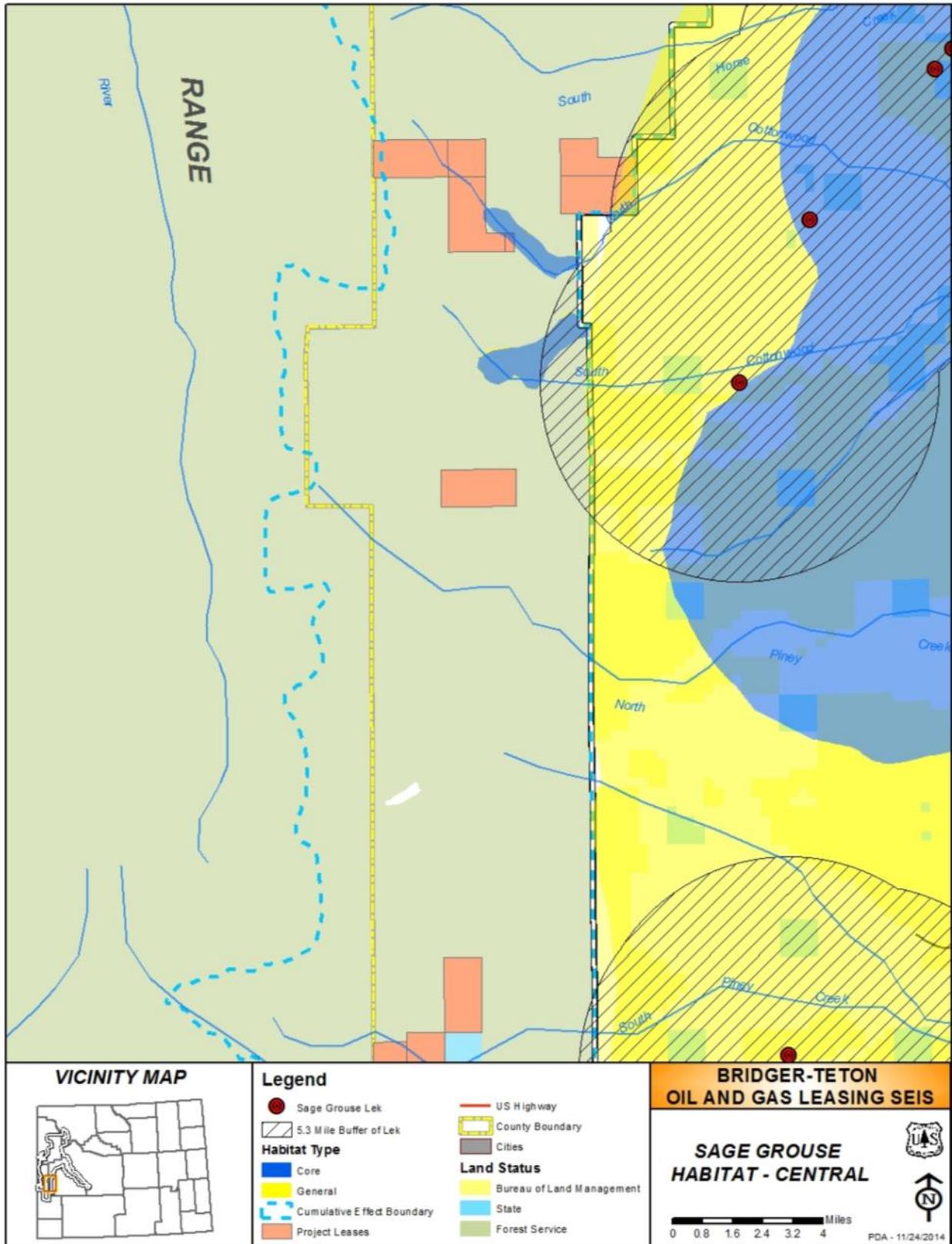


Figure A-15. Proposed “preliminary priority” and “preliminary general” sage-grouse habitat on Bridger-Teton National Forest lands, central

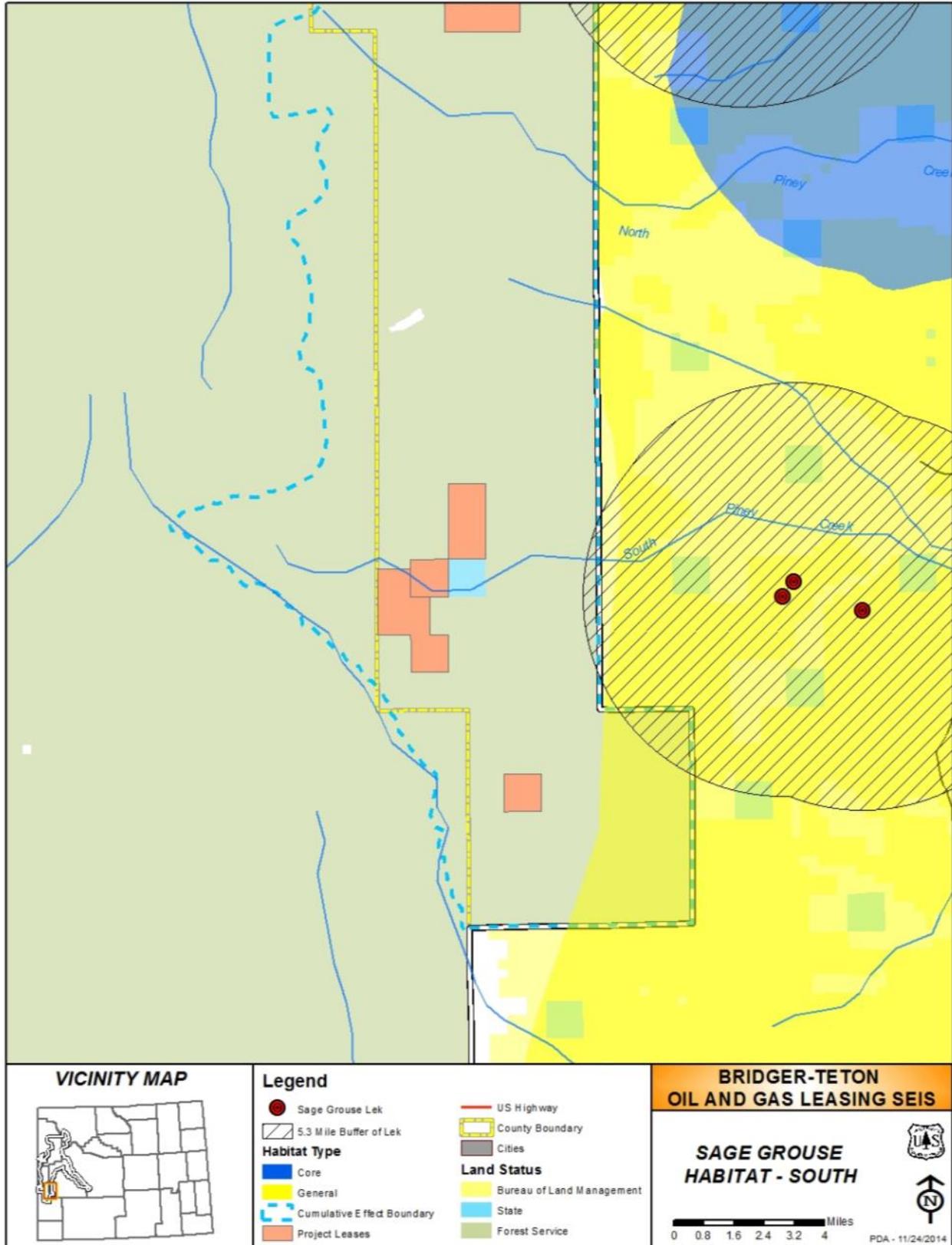


Figure A-16. Proposed “preliminary priority” and “preliminary general” sage-grouse habitat on Bridger-Teton National Forest lands, south

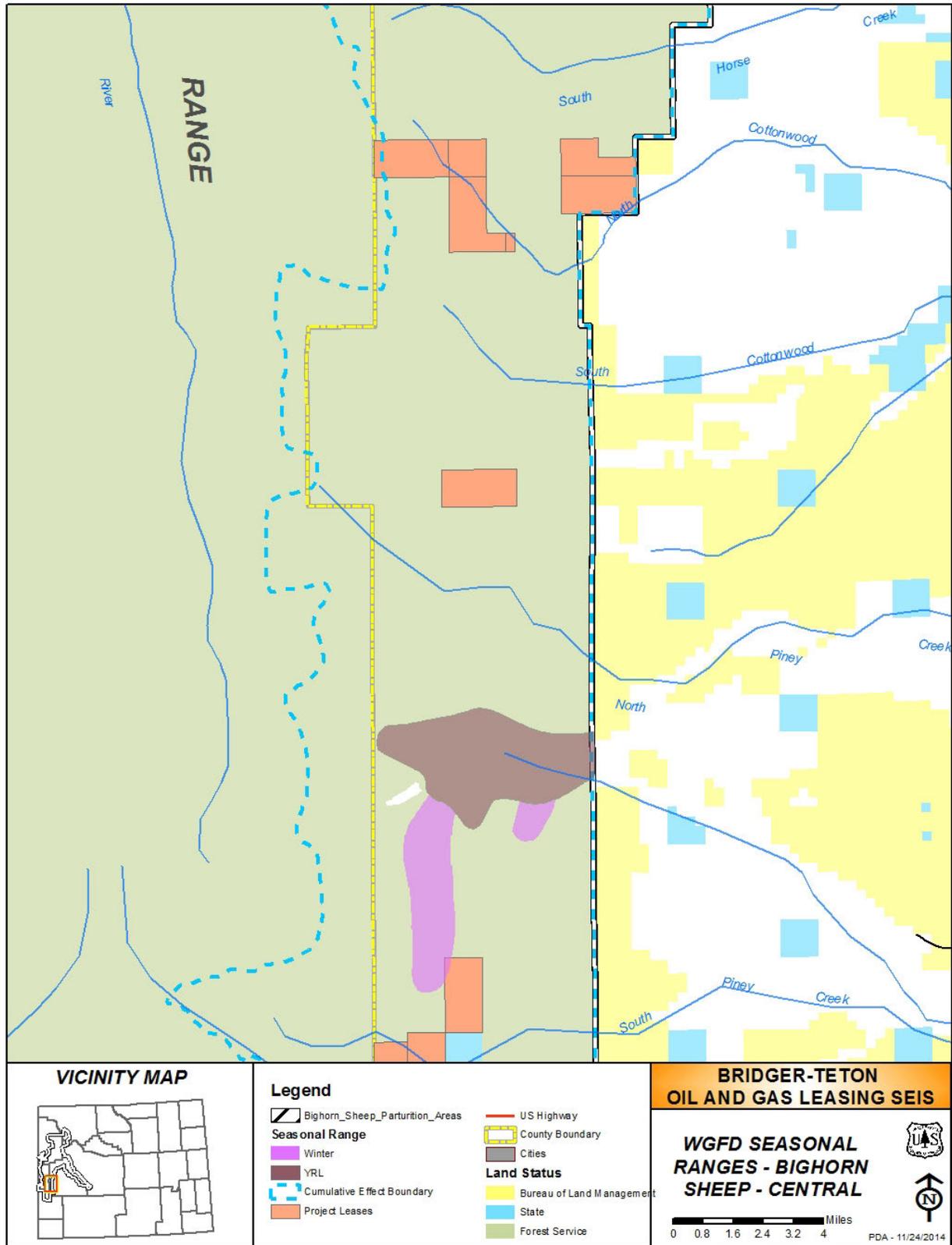


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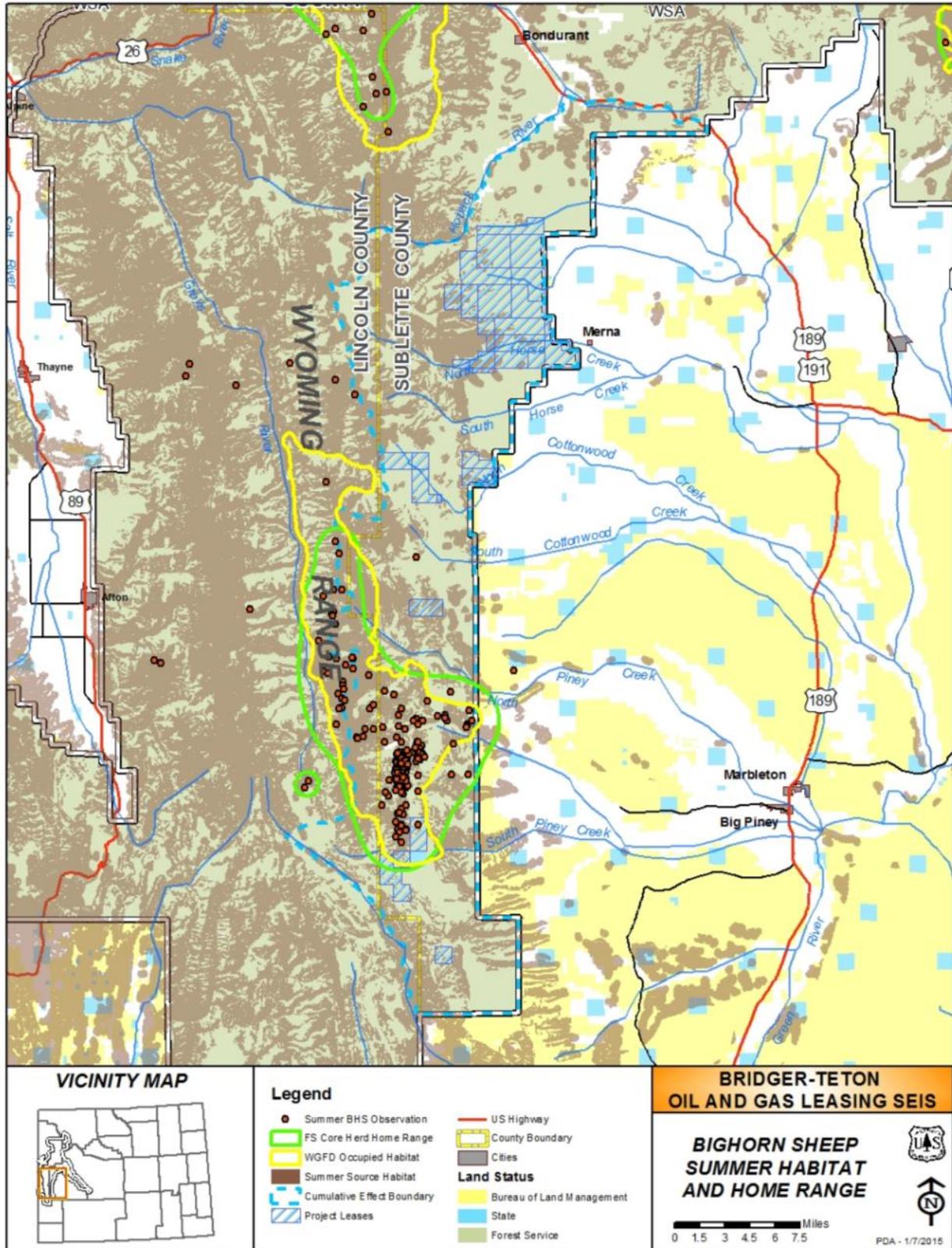


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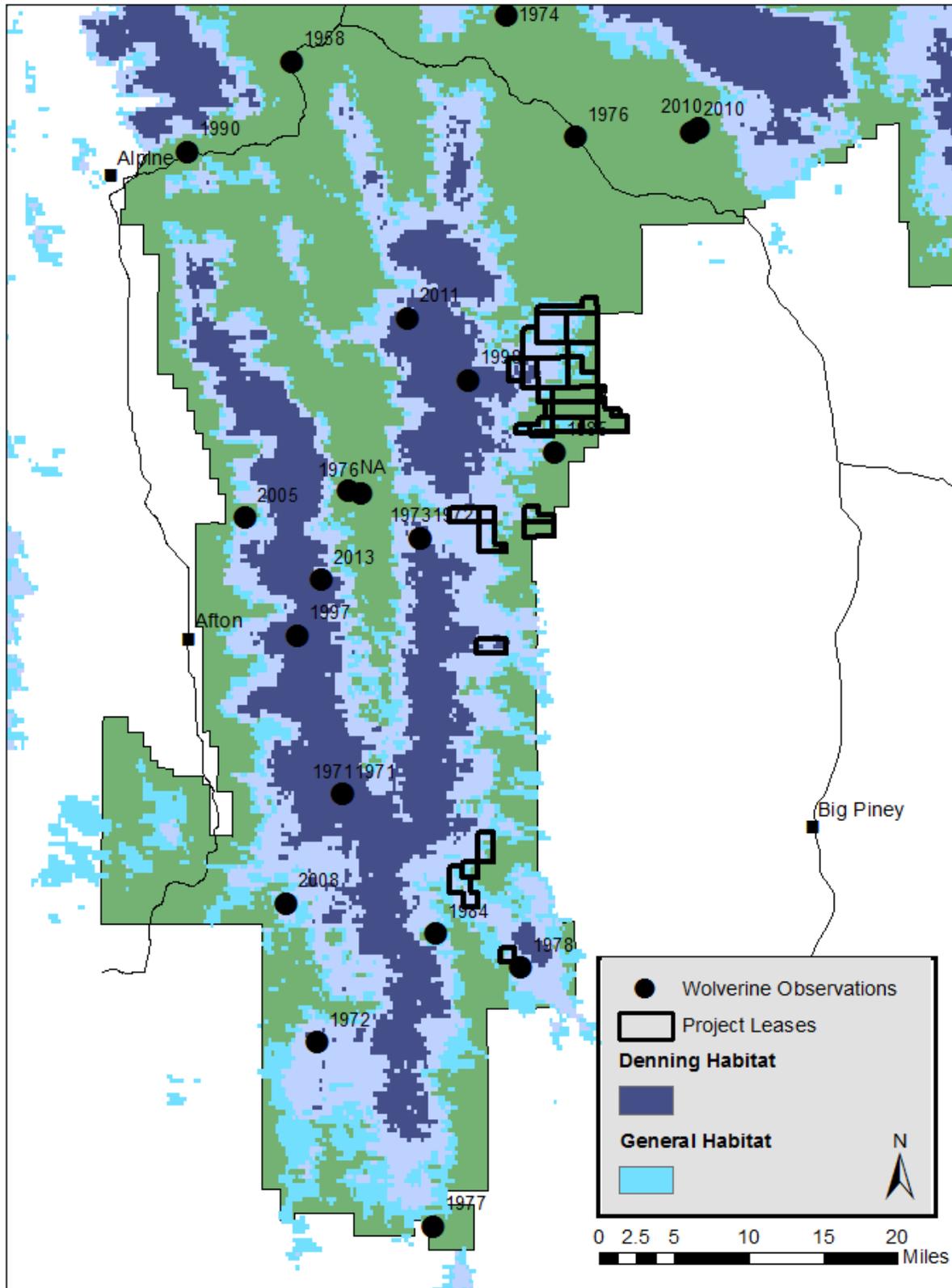


Figure A-19. Wolverine observations and habitat in relation to project leases in the Wyoming range

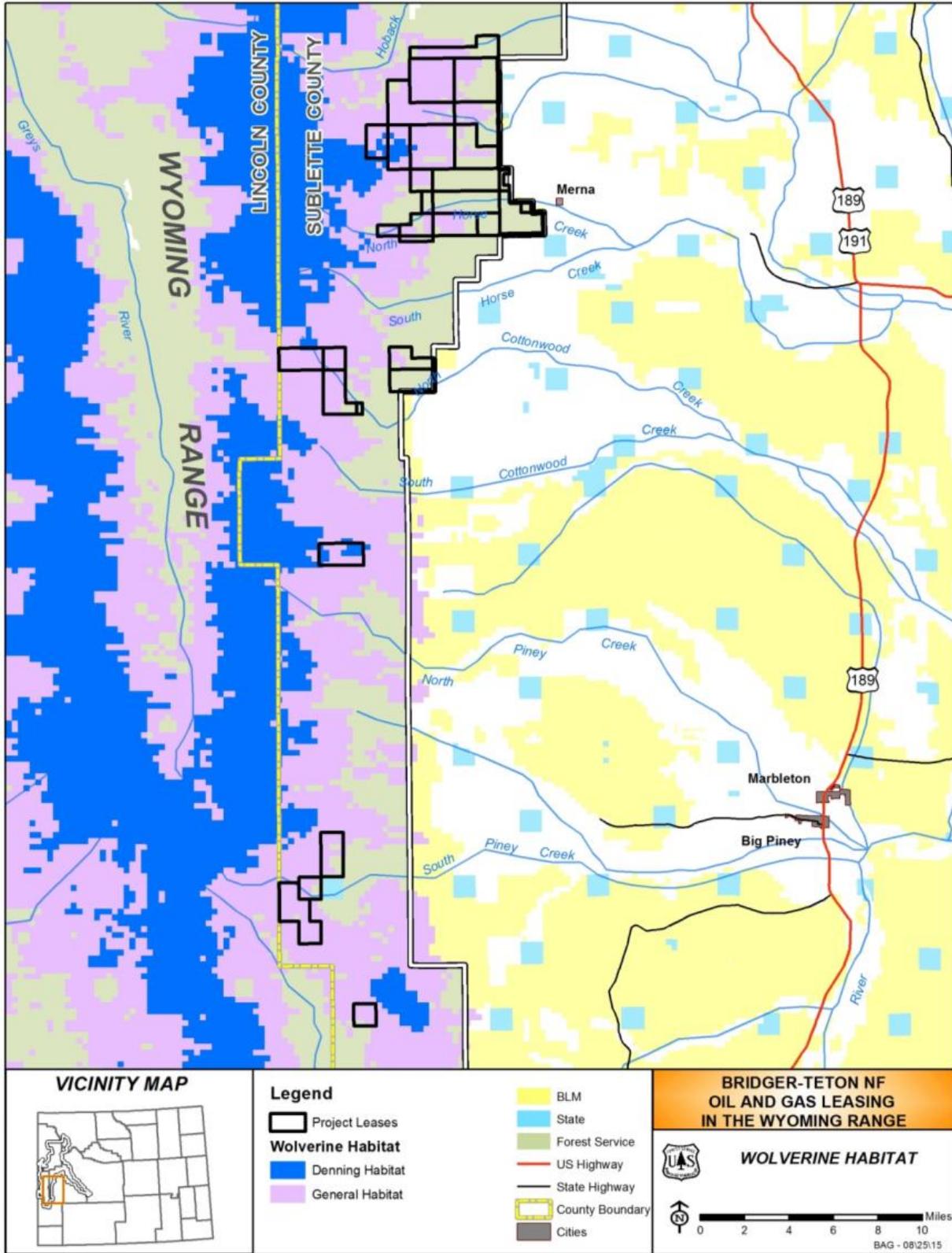


Figure A-20. Modeled wolverine habitat in the Wyoming Range

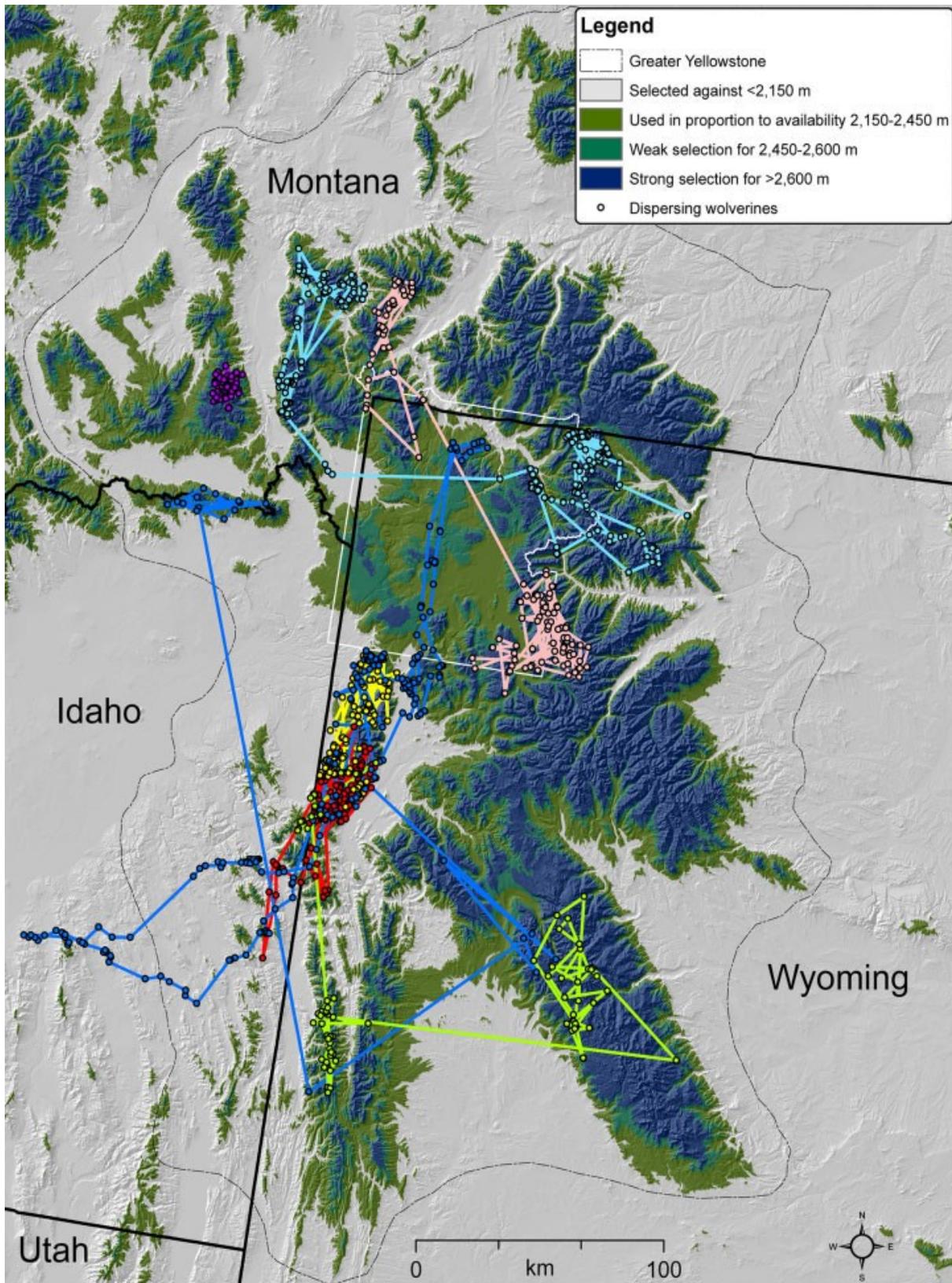


Figure A-21. Wolverine dispersal corridors

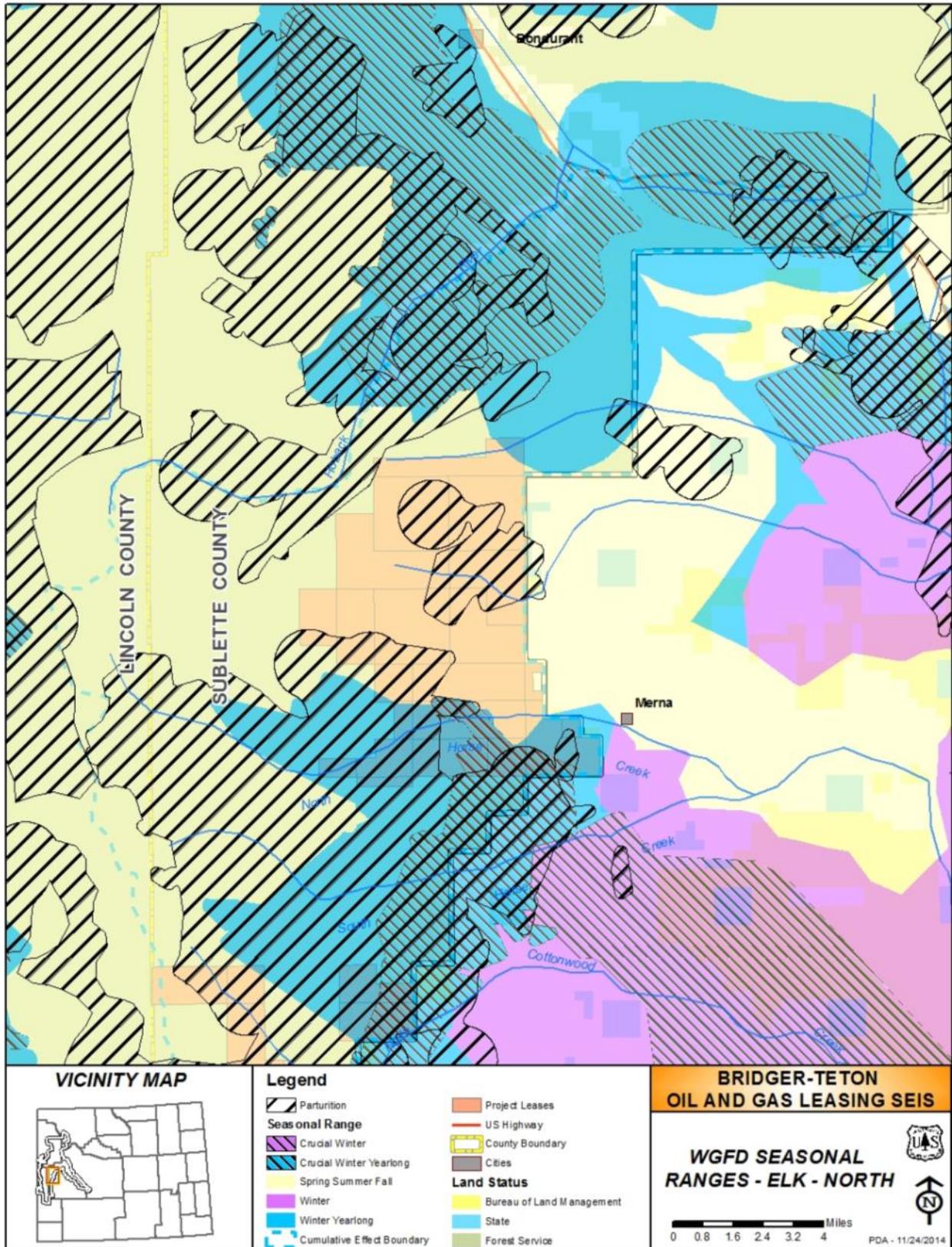


Figure A-22. Provisional seasonal range of elk, north

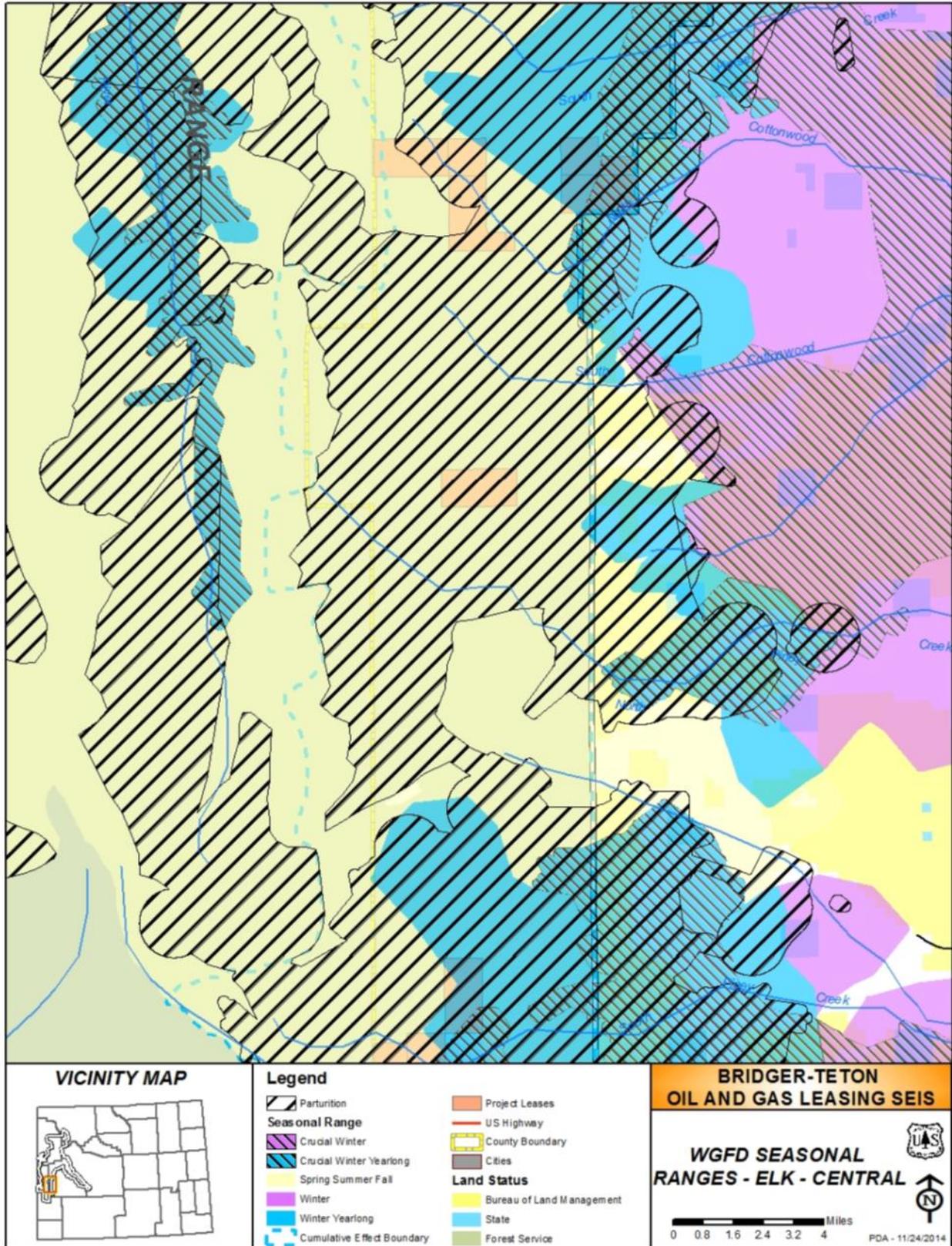


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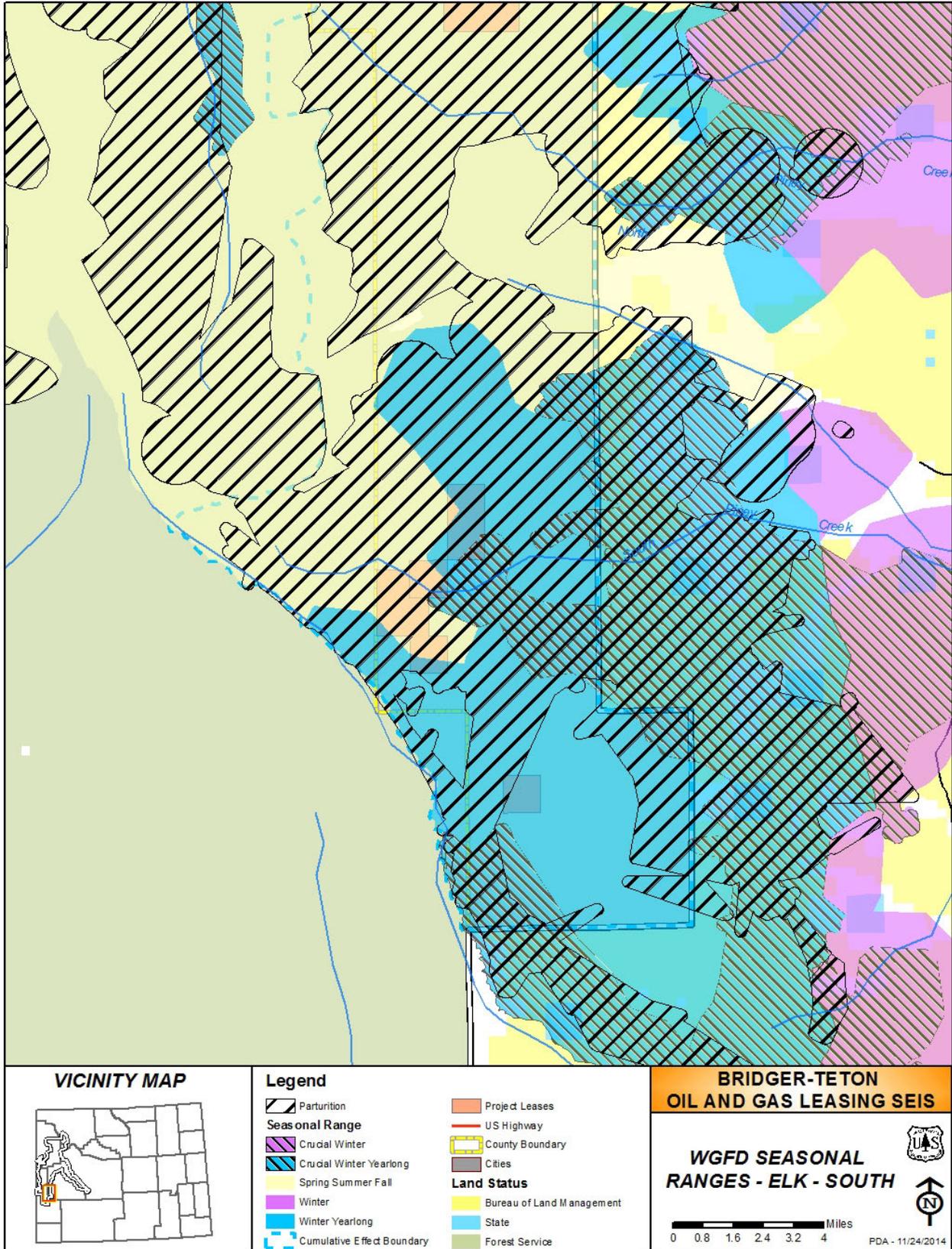


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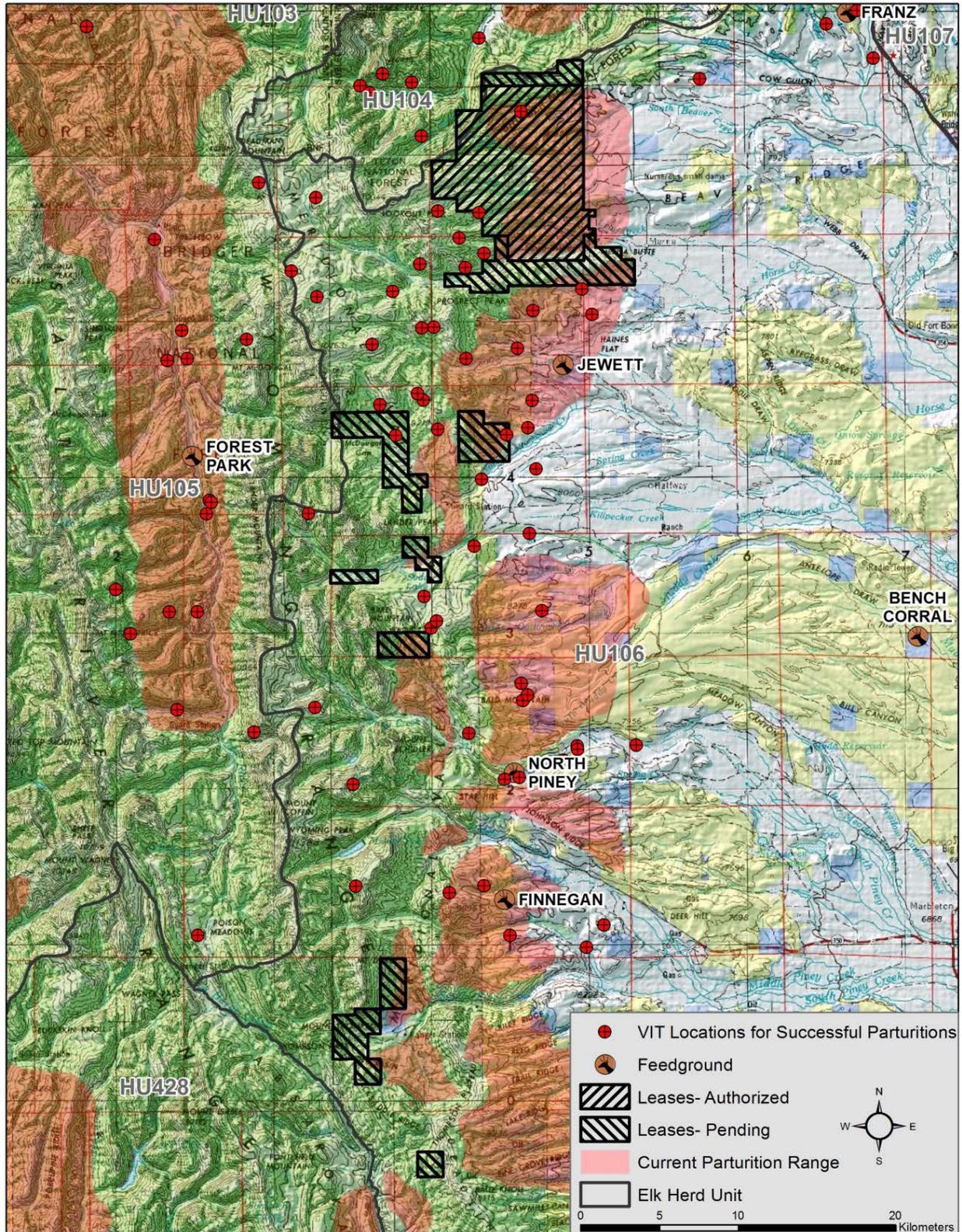


Figure A-25. Successful elk parturition locations (2006-2014)

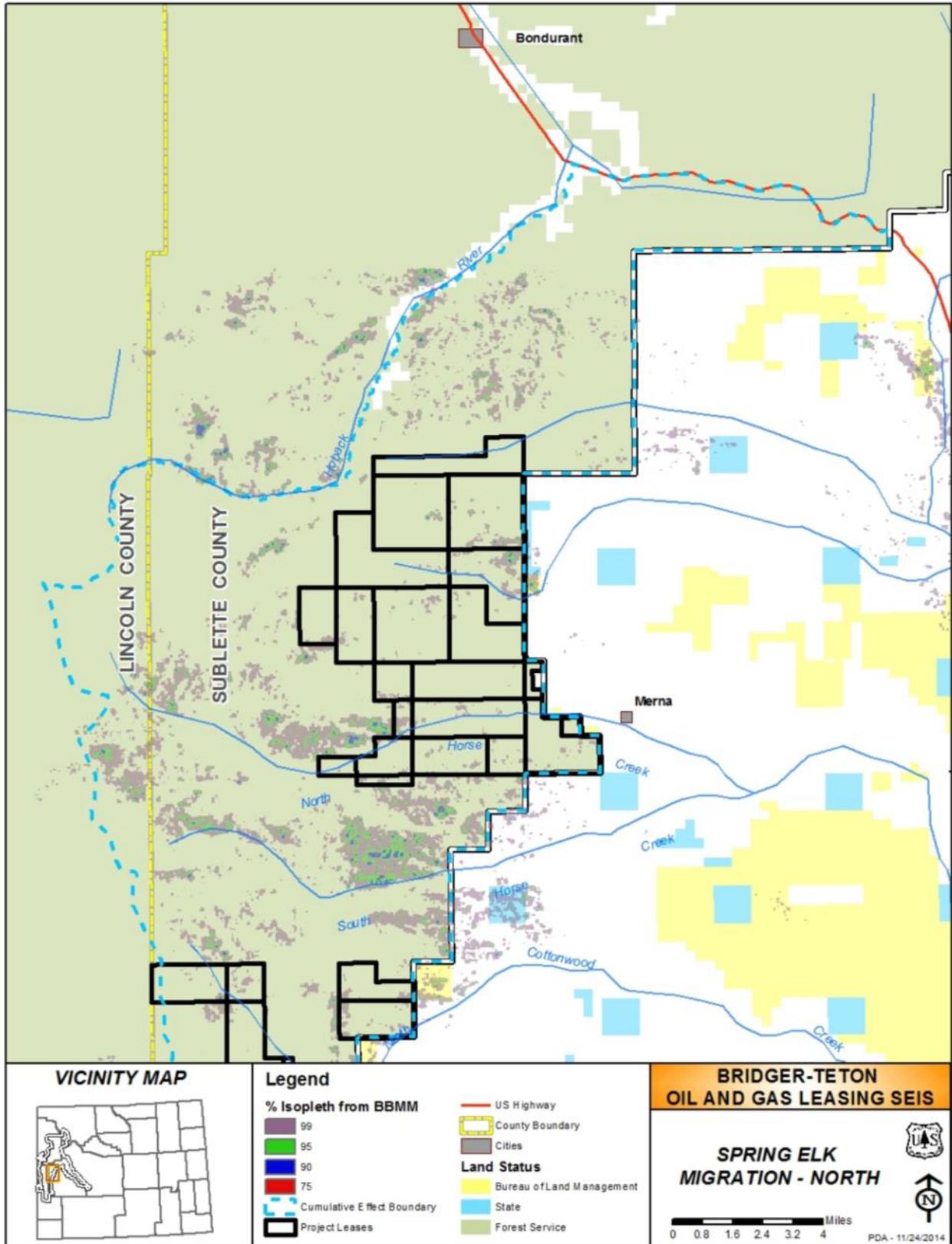


Figure A-26. Spring elk migration, north map

BBMM = Brownian Bridge Movement Models

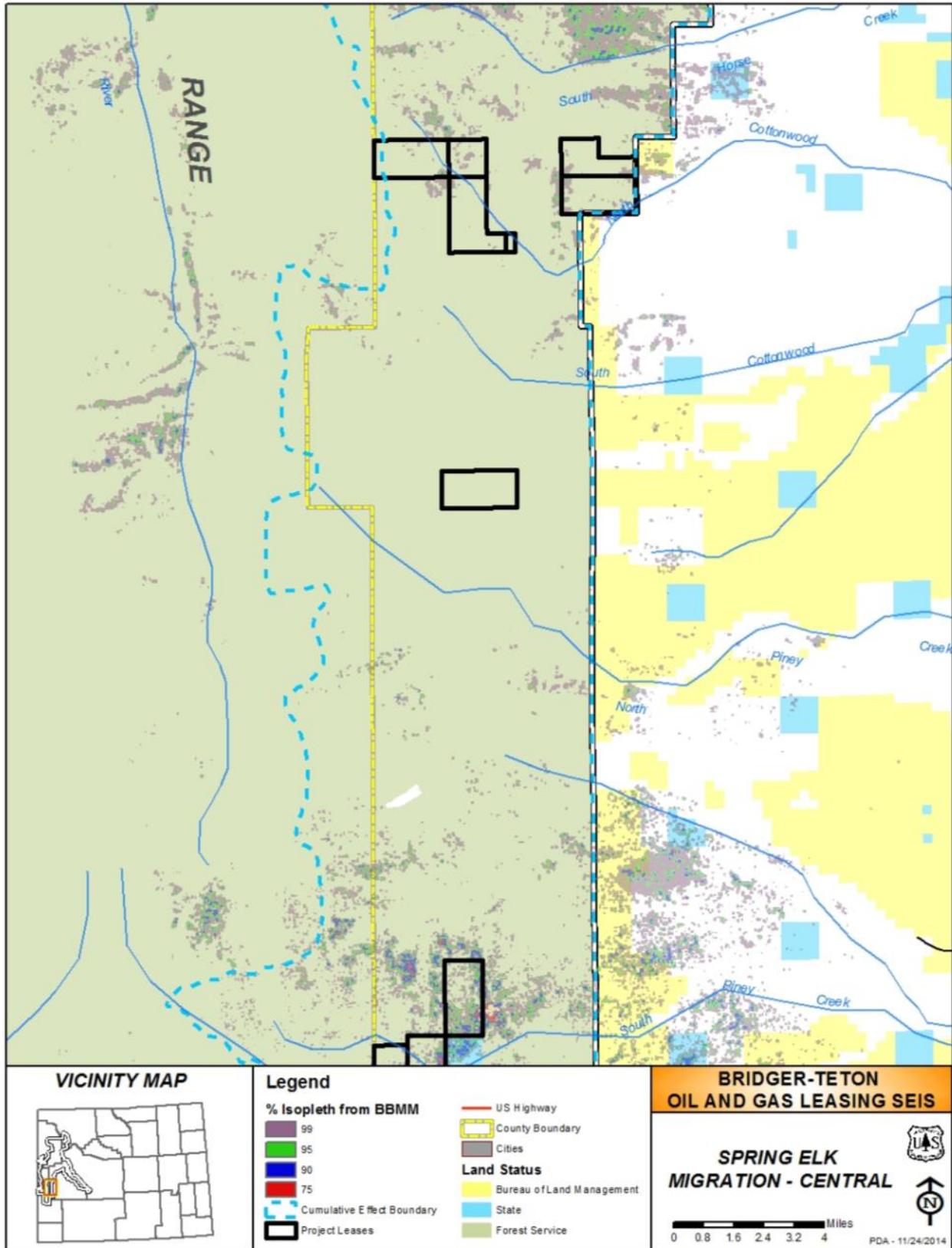


Figure A-27. Spring elk migration, central map
 BBMM = Brownian Bridge Movement Models

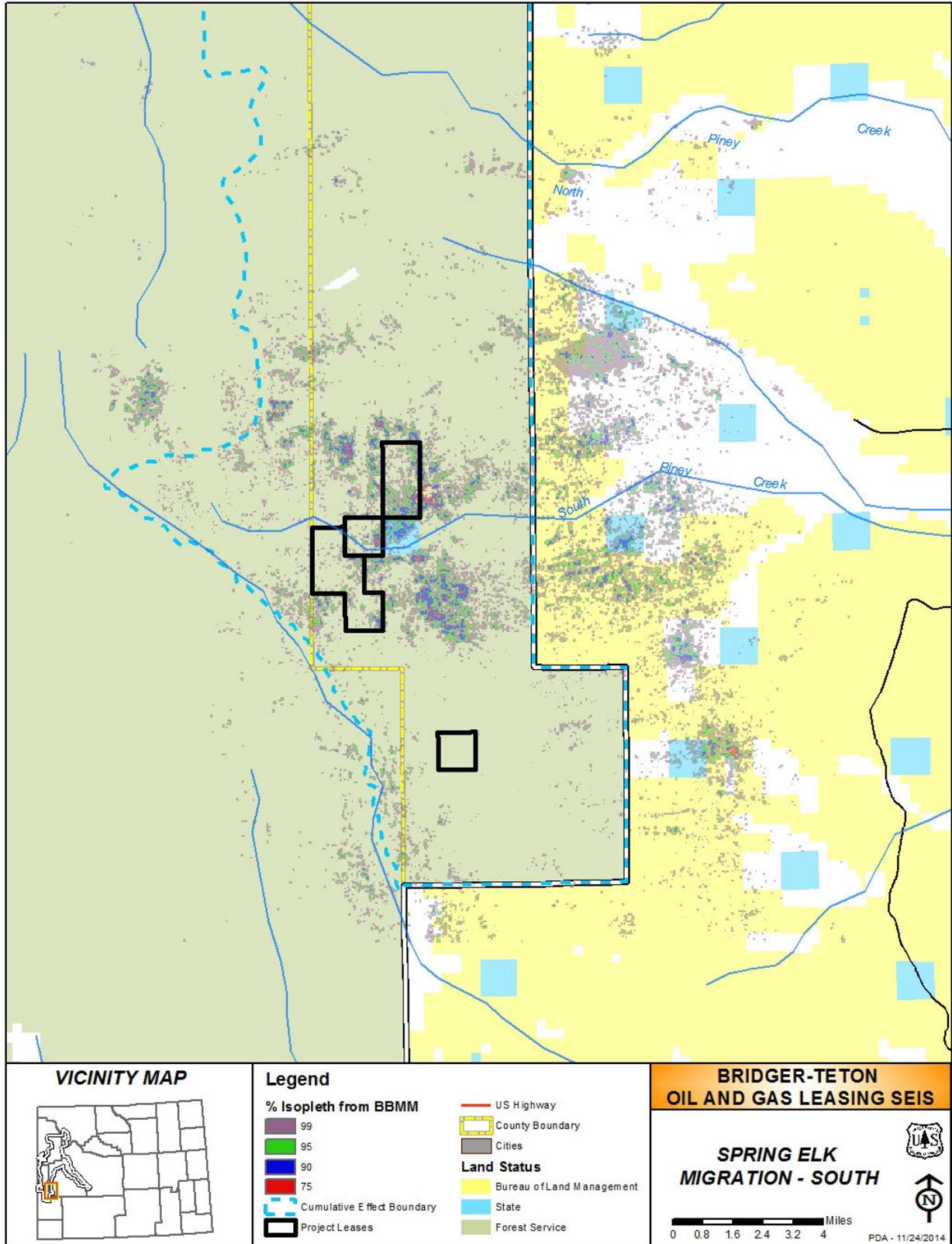


Figure A-28. Spring elk migration, south map
 BBMM = Brownian Bridge Movement Models

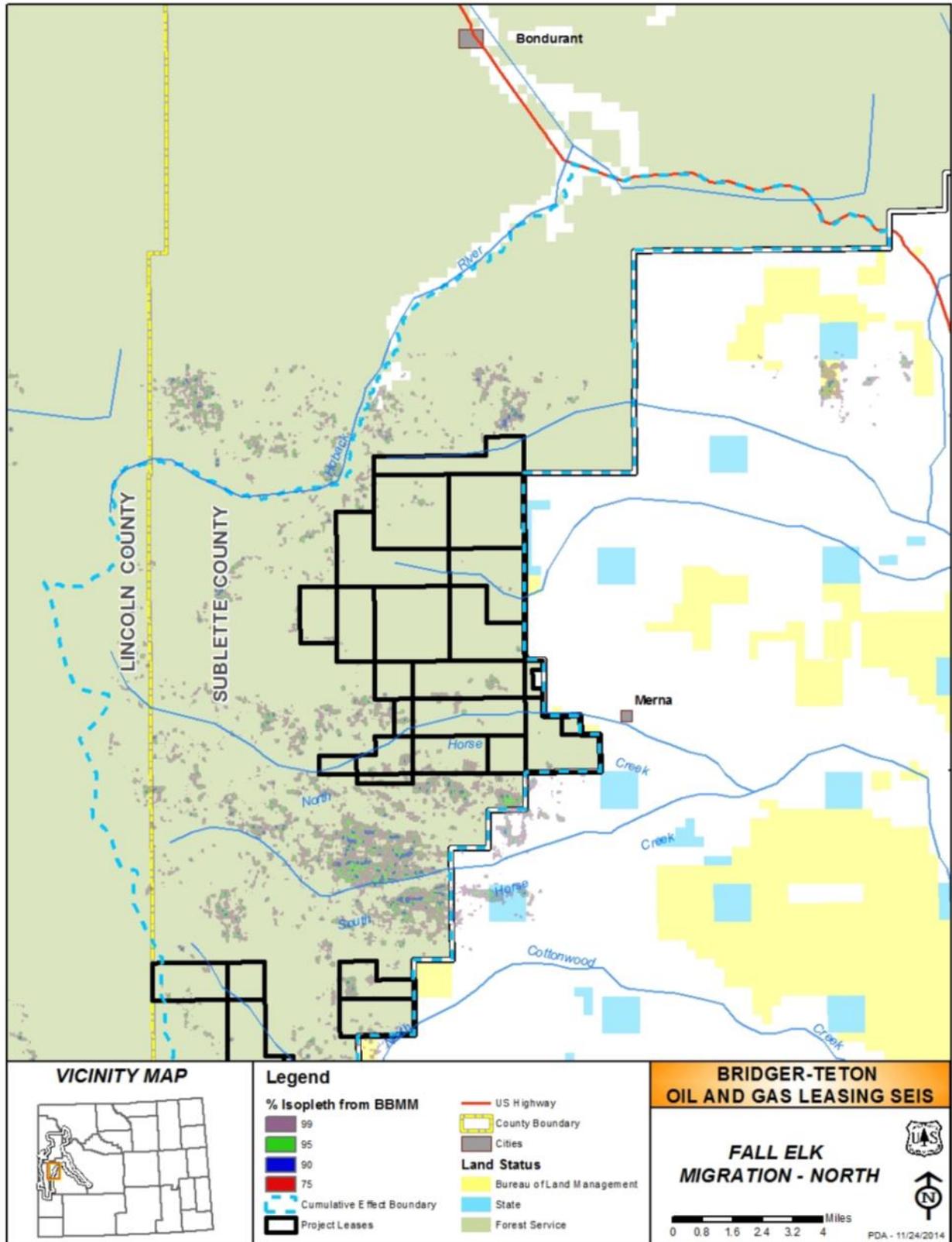


Figure A-29. Fall elk migration, north map
 BBMM = Brownian Bridge Movement Models

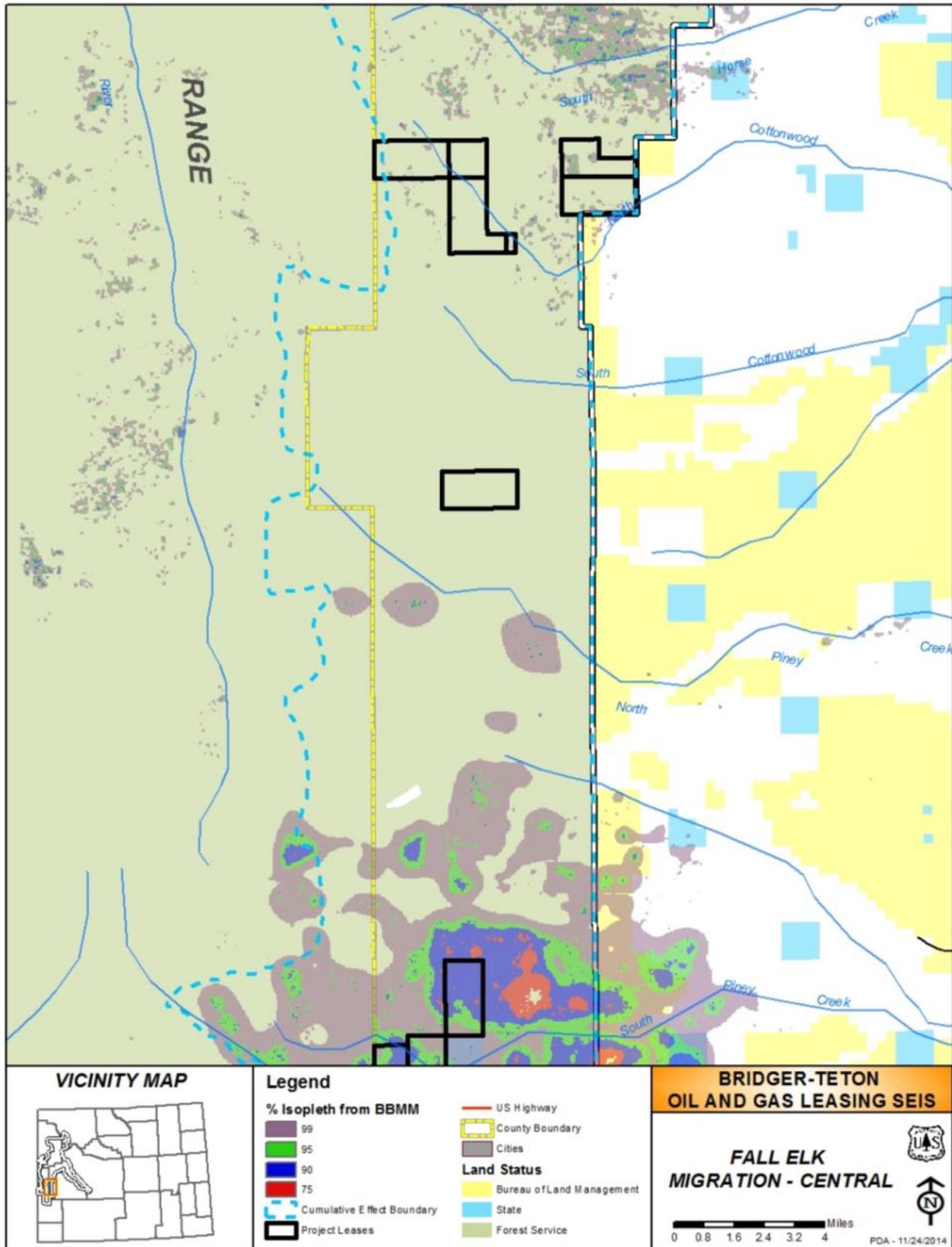


Figure A-30. Fall elk migration, central map
 BBMM = Brownian Bridge Movement Models

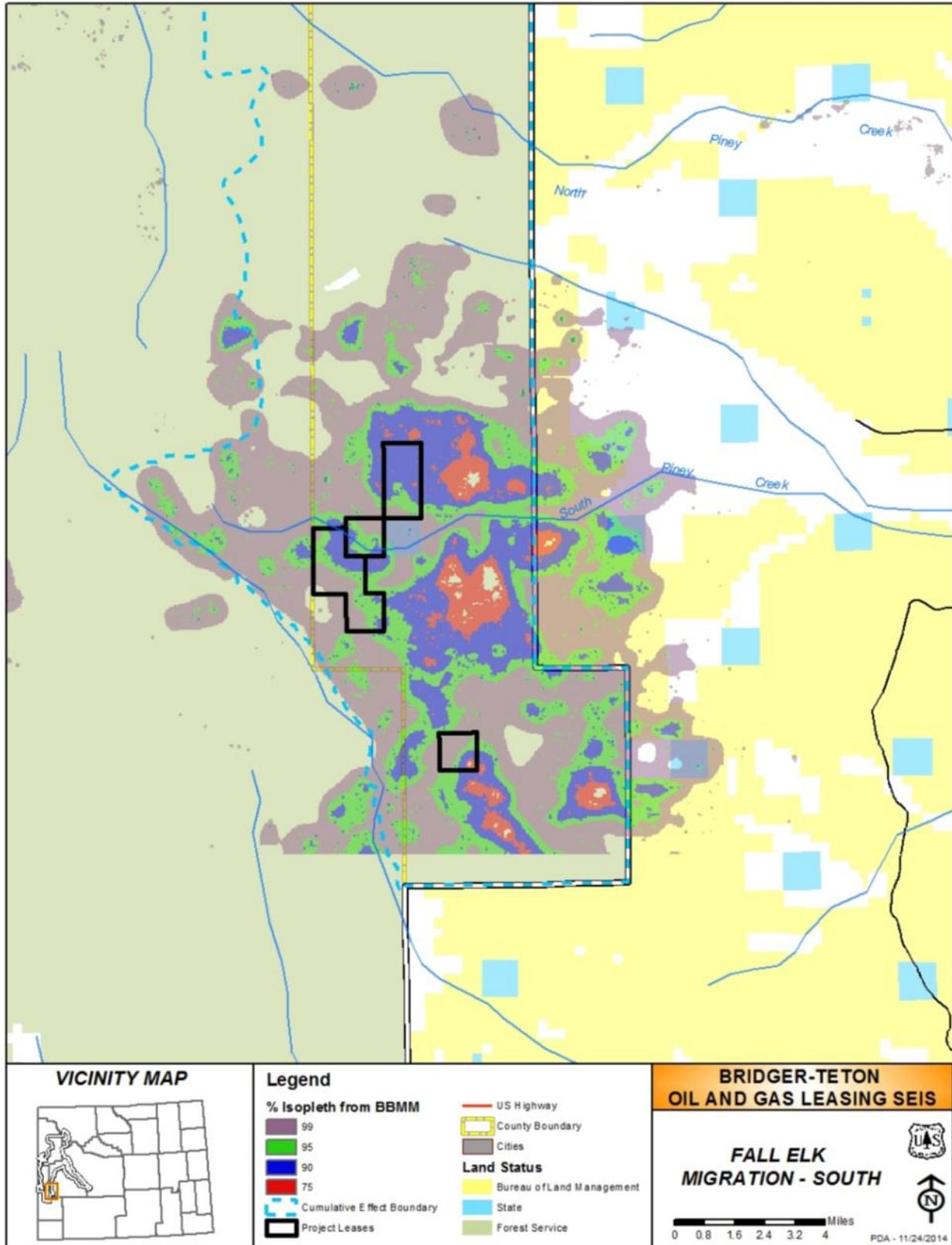


Figure A-31. Fall elk migration, south map
 BBMM = Brownian Bridge Movement Models

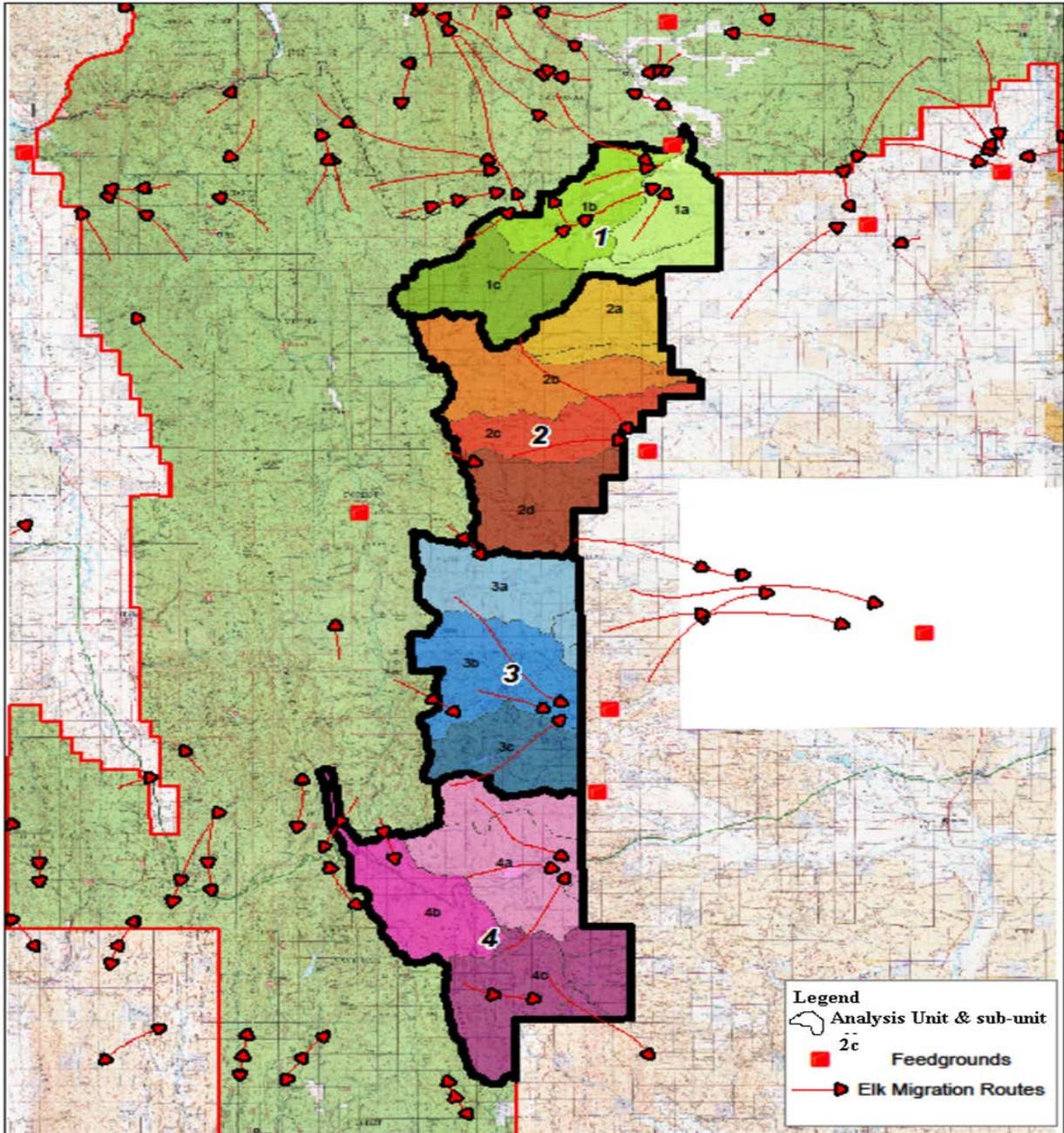


Figure A-32. Elk habitat analysis units and subunits for the Wyoming Oil and Gas project areas

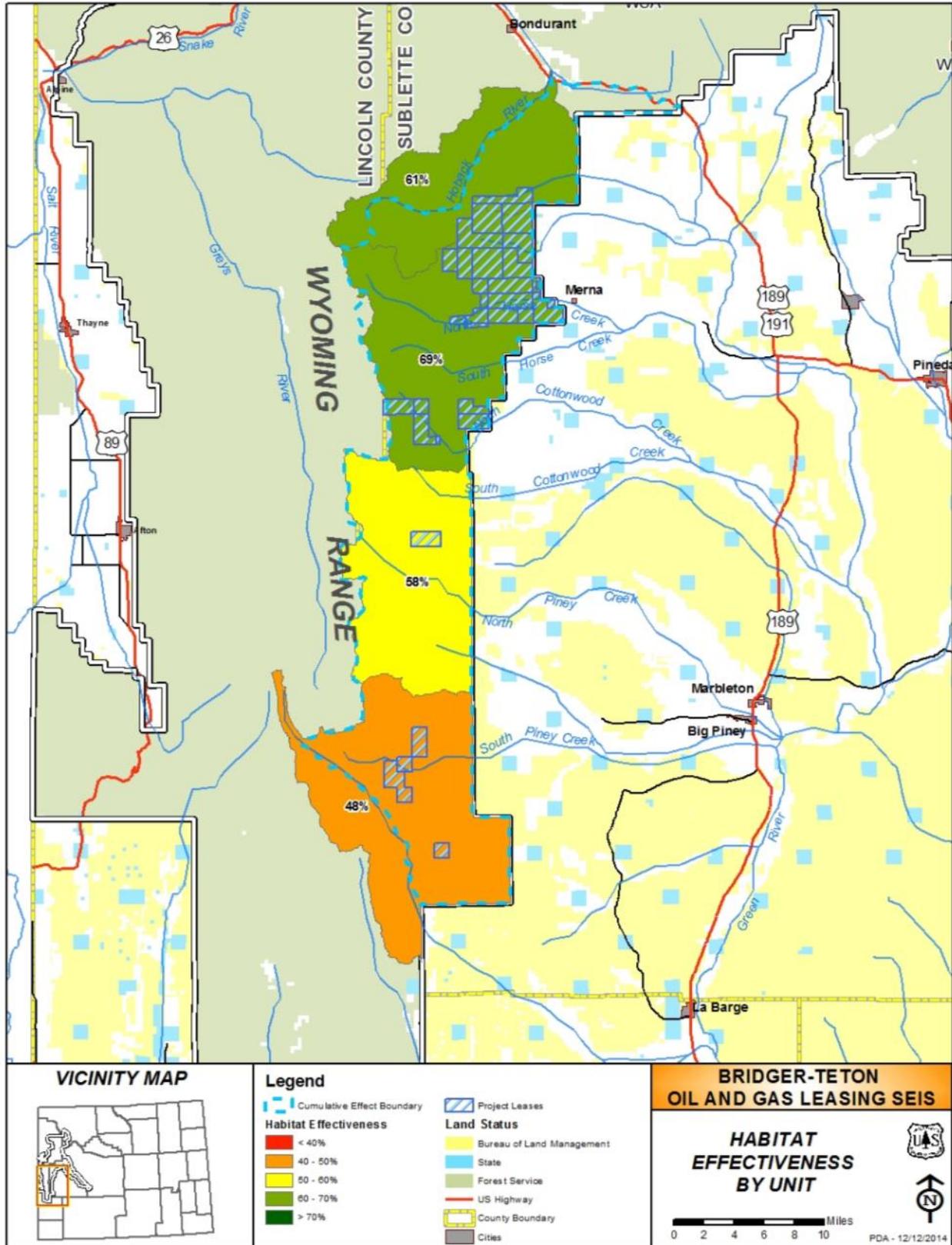


Figure A-33. Elk habitat effectiveness in habitat analysis units considering only open system roads

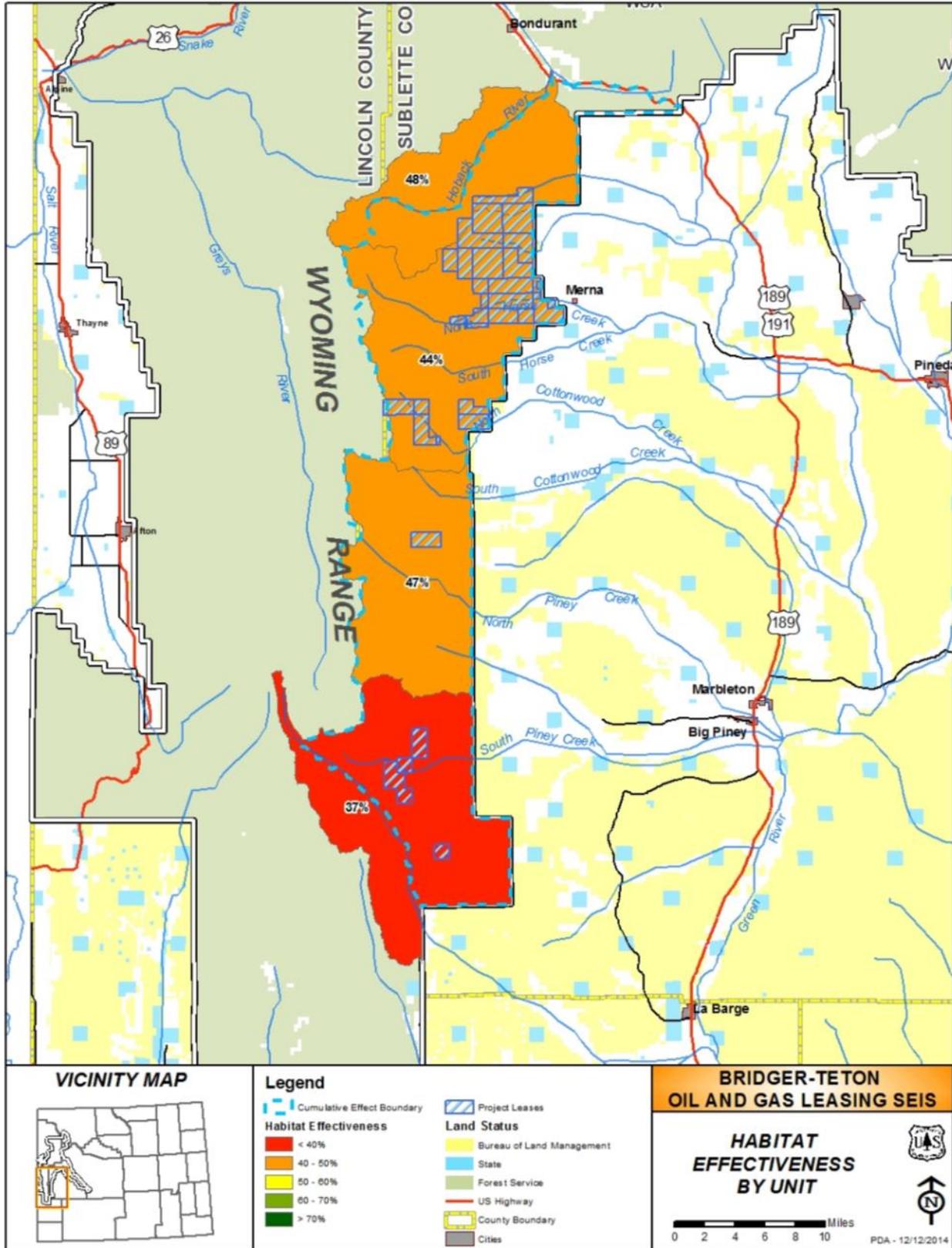


Figure A-34. Elk habitat effectiveness in habitat analysis units considering all roads

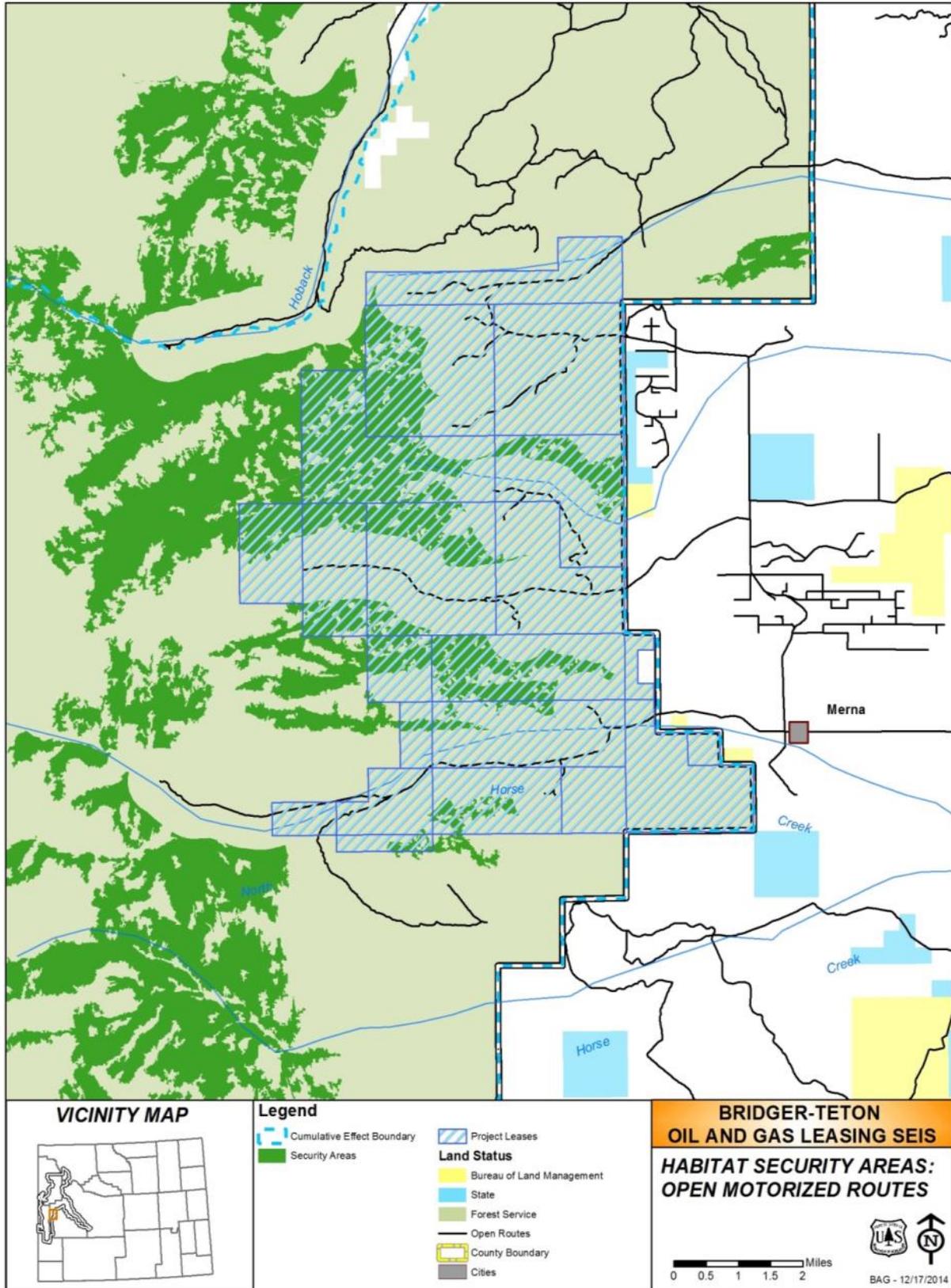


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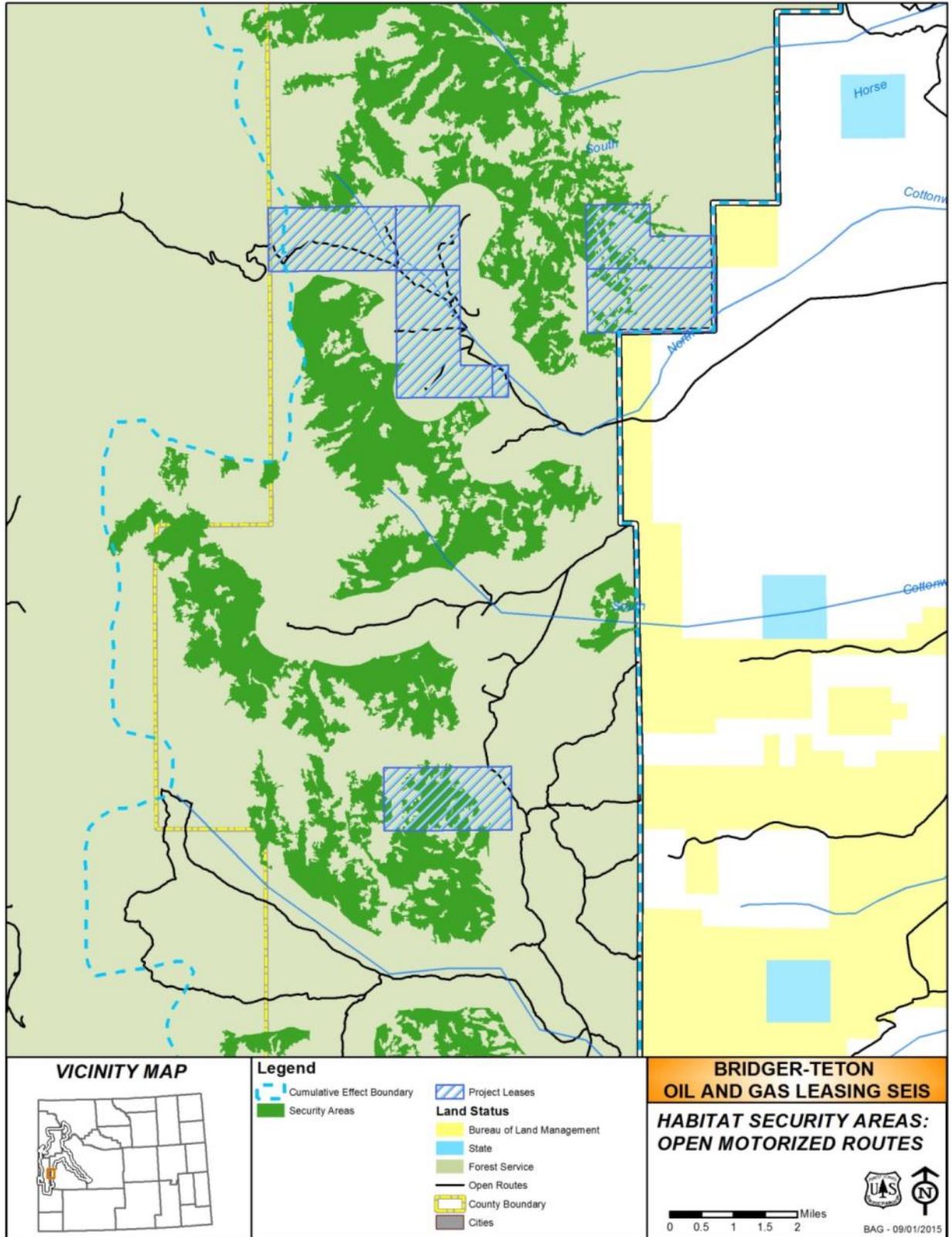


Figure A-36. Elk habitat security area in the habitat analysis unit subunits when considering only open system roads in the assessment, central map

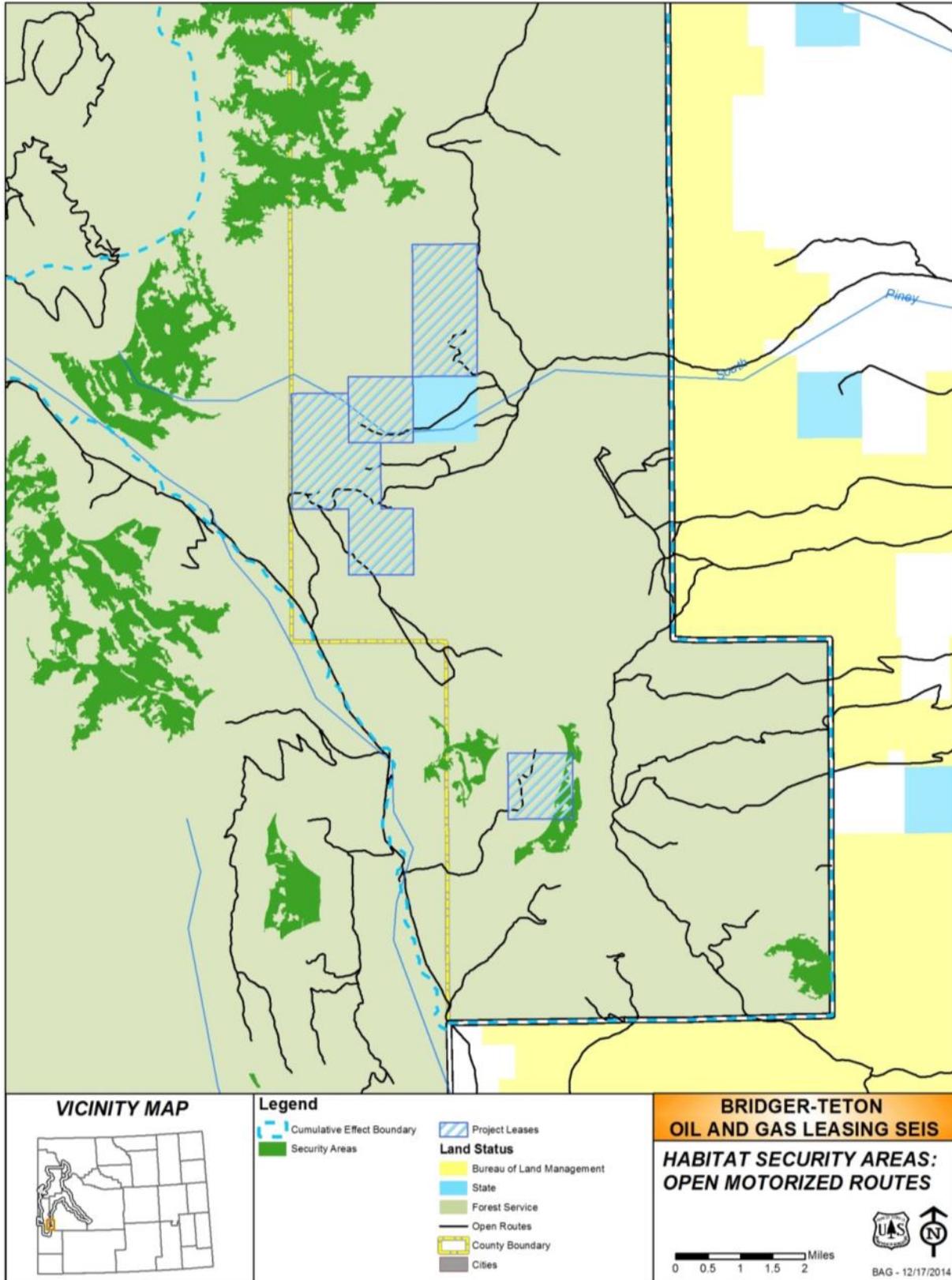


Figure A-37. Elk habitat security areas in the habitat analysis unit subunits when considering only open system roads in the assessment, south map

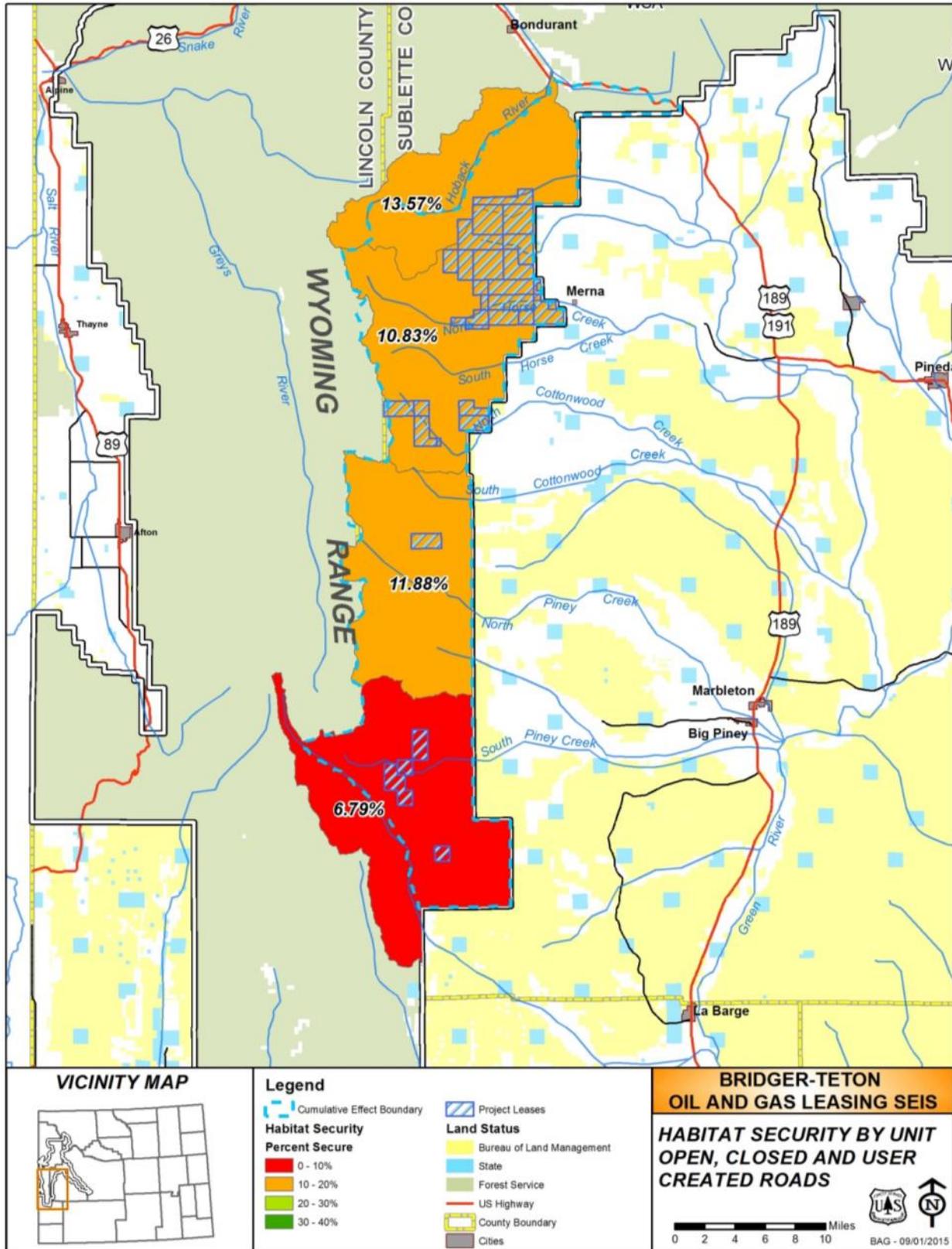


Figure A-38. Elk habitat security values by habitat analysis unit considering all roads in the assessment

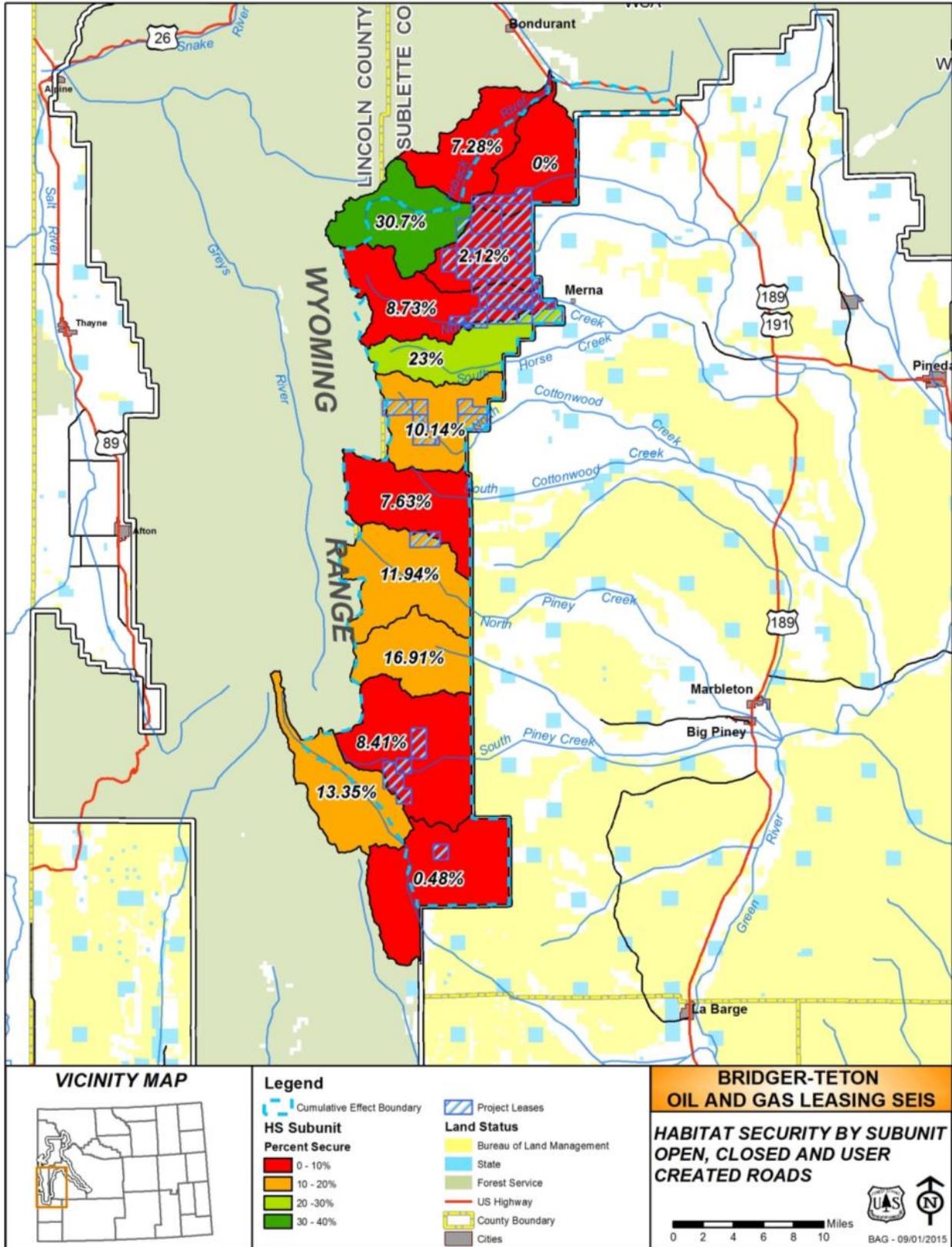


Figure A-39. Elk habitat security values by subunit considering all roads in the assessment

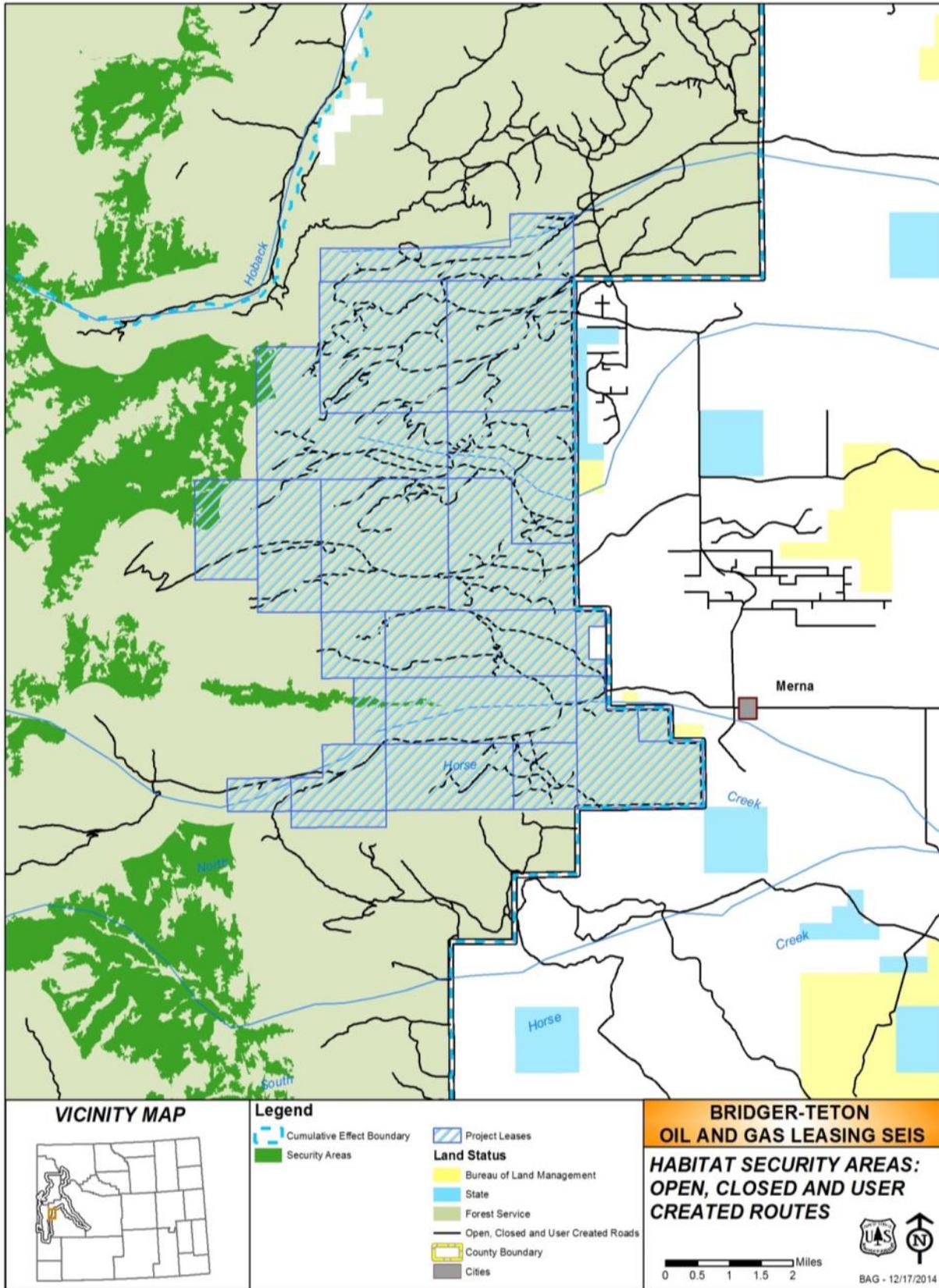


Figure A-40. Elk habitat security areas considering all routes in the assessment – northern map

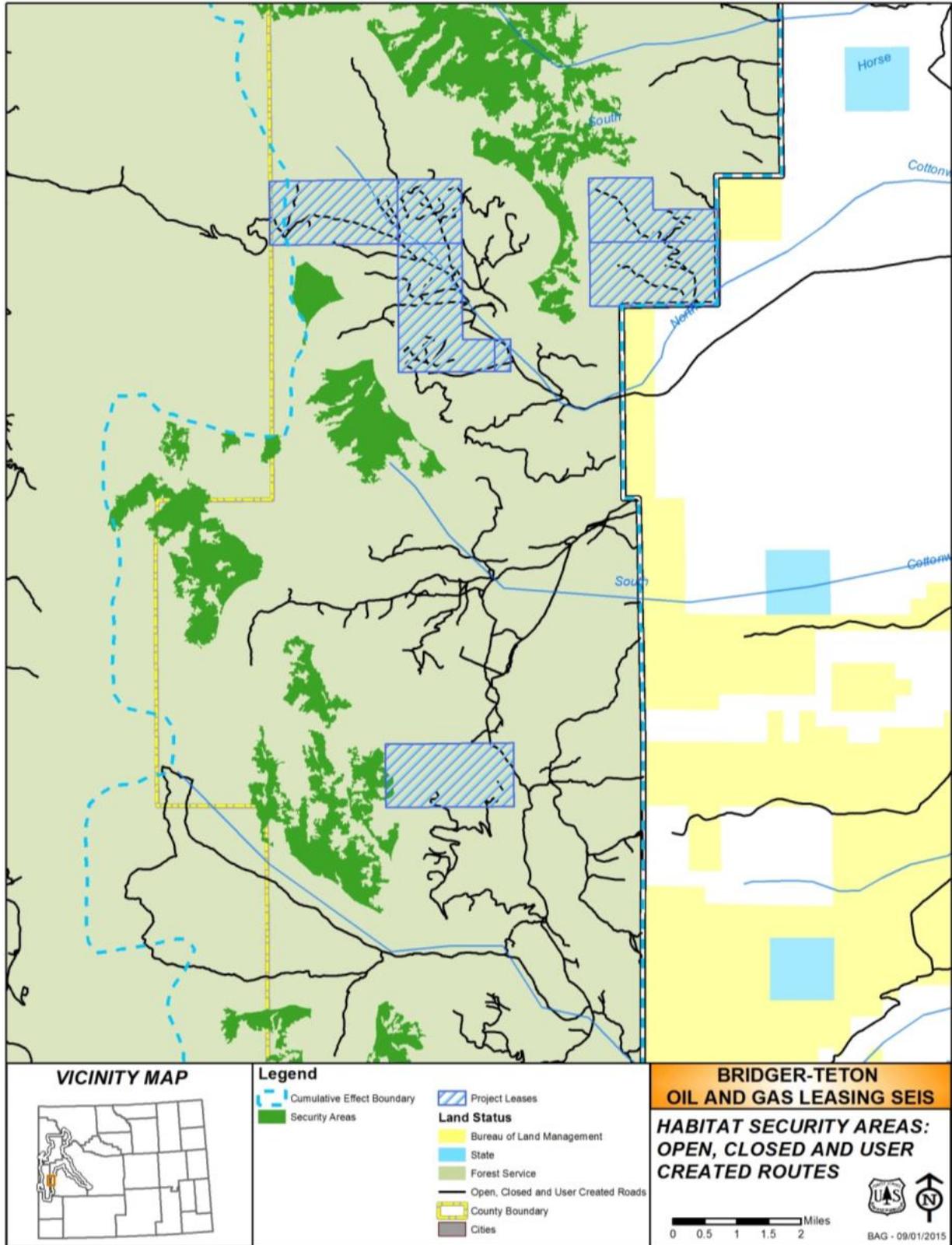


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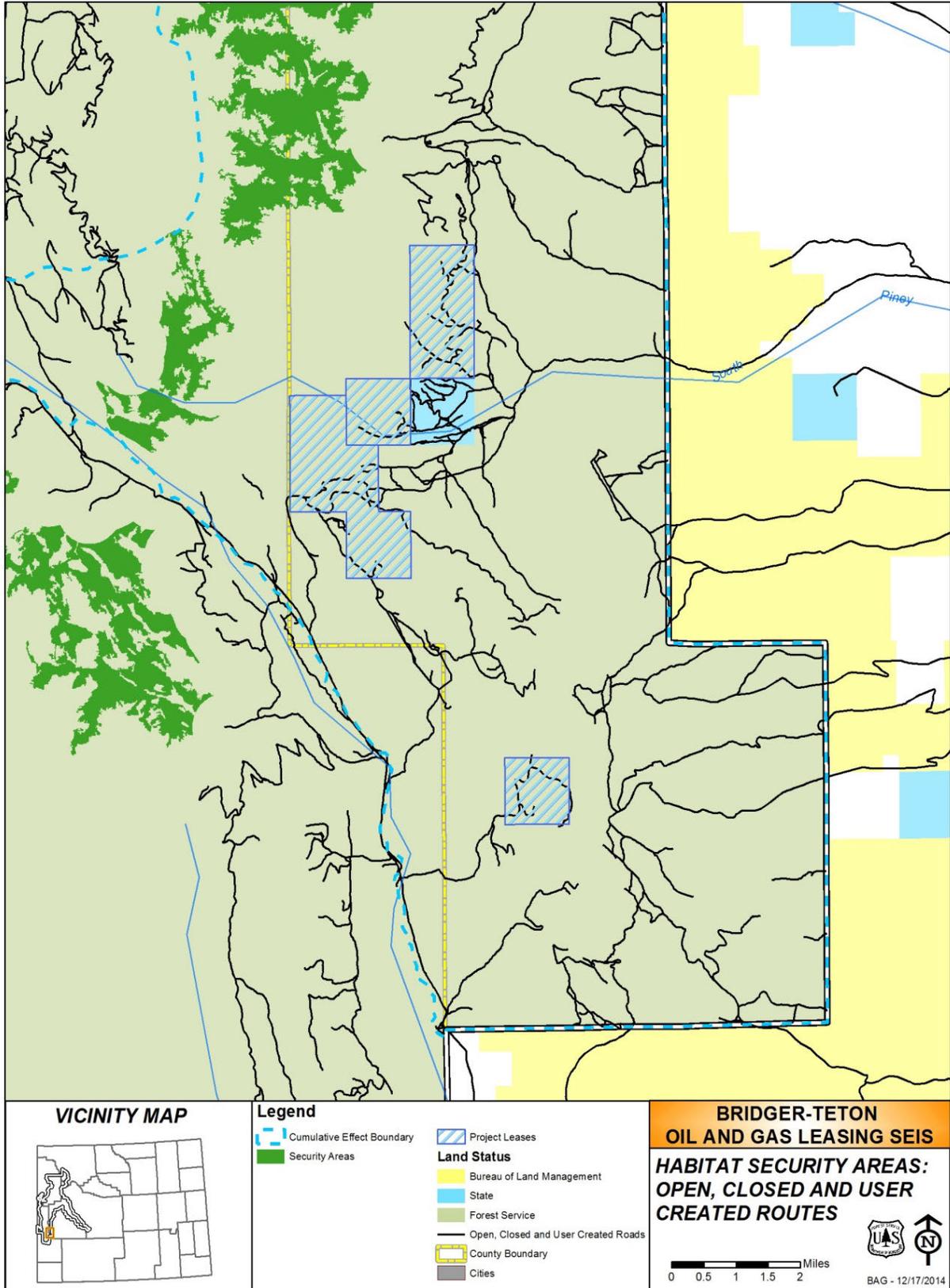


Figure A-42. Elk habitat security areas considering all routes in the assessment – southern map

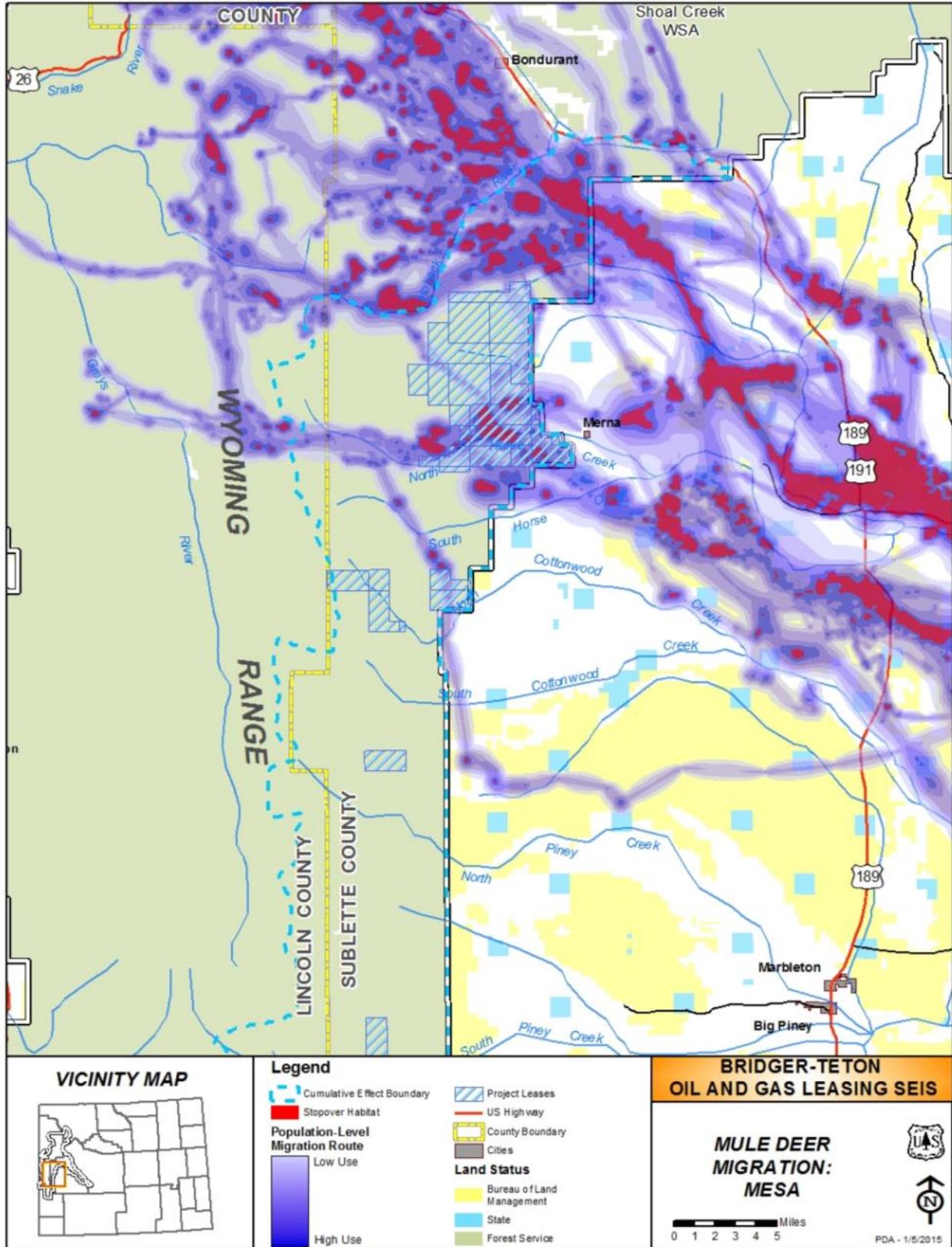


Figure A-43. Mesa mule deer migration routes and stopover areas

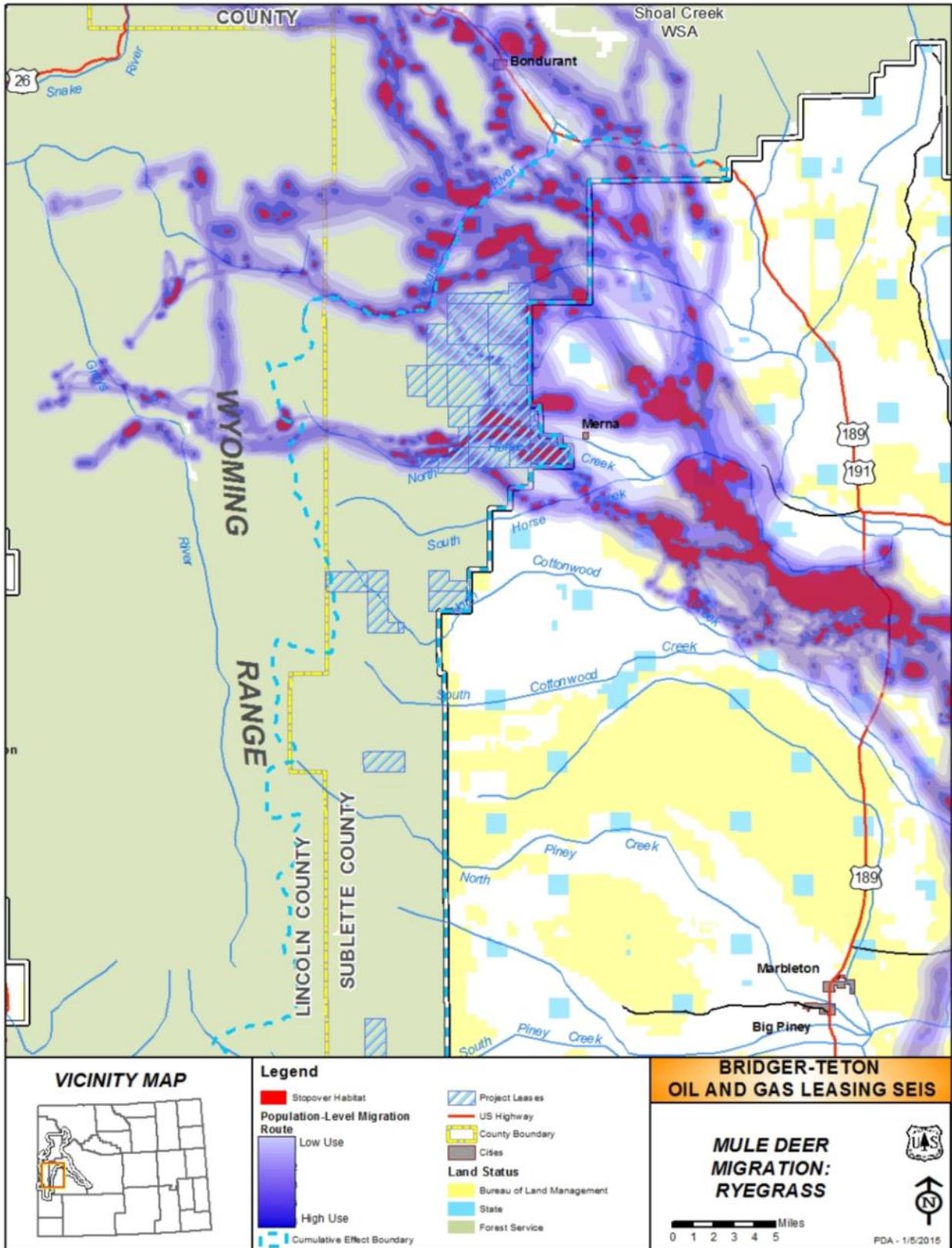


Figure A-44. Ryegrass mule deer migration routes and stopover areas

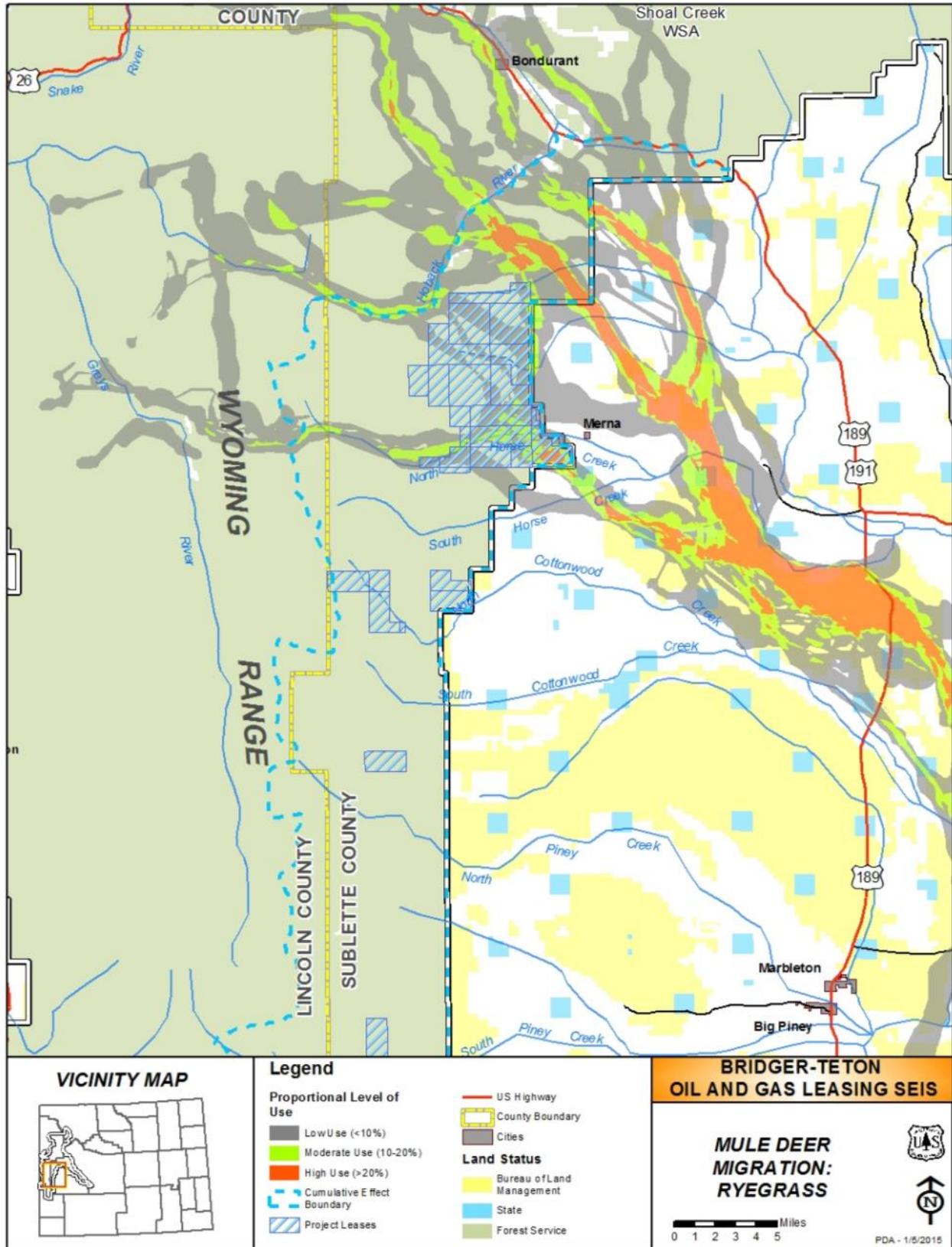


Figure A-45. Proportional level of use of migration routes by the Ryegrass mule deer population

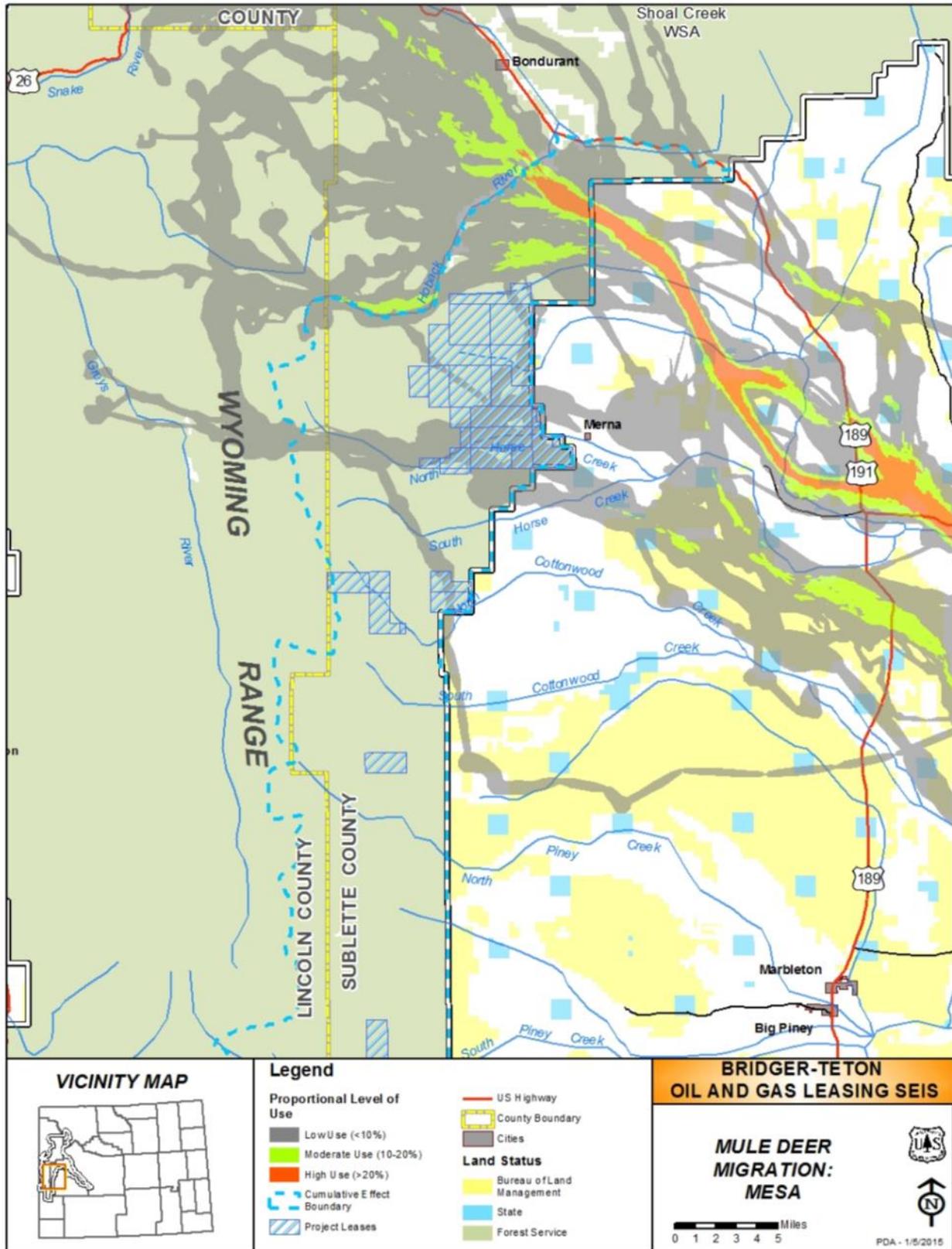


Figure A-46. Proportional level of use of migration routes by the Mesa mule deer population

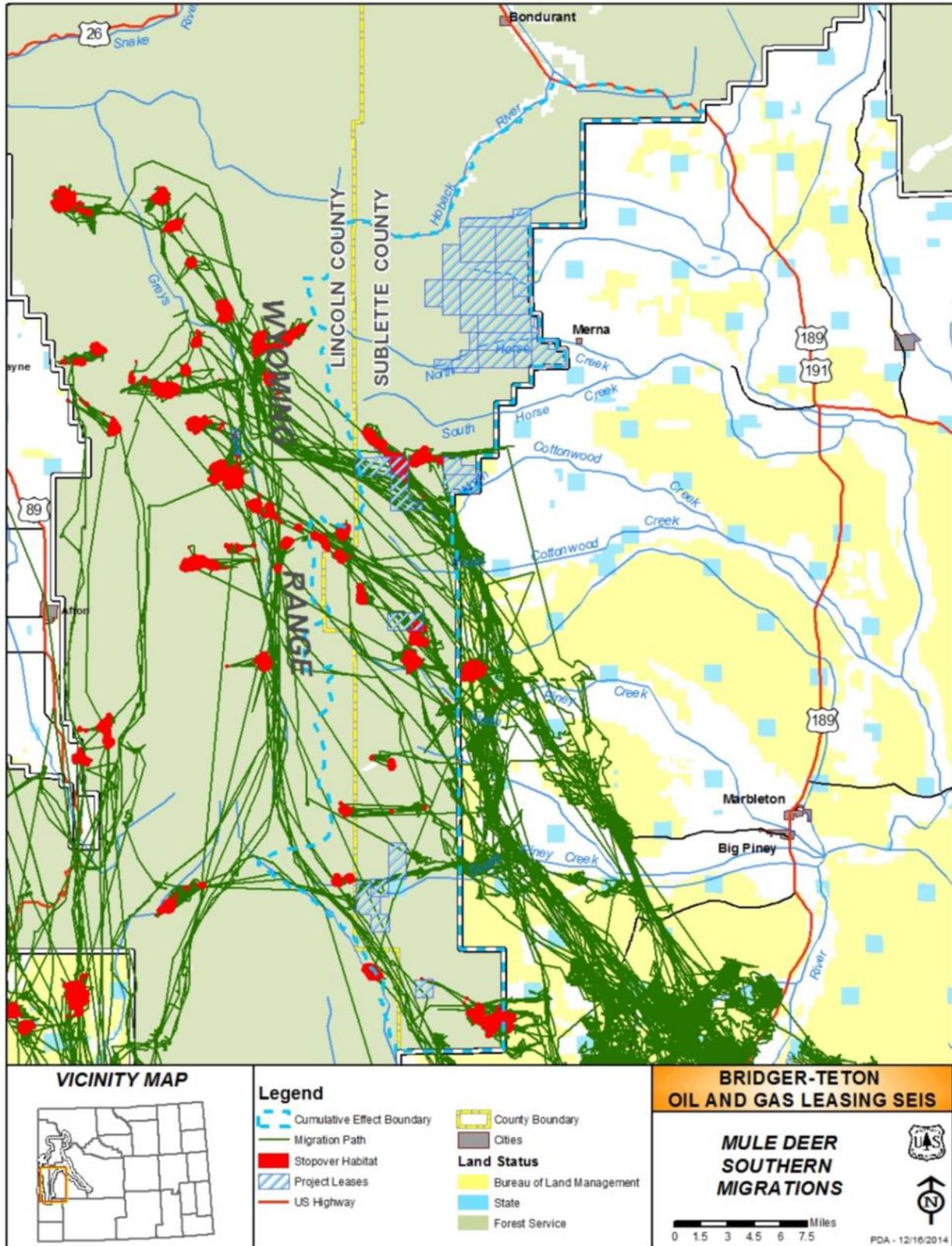


Figure A-47. Mule deer migration routes and summer ranges of the Calpet Road deer herd

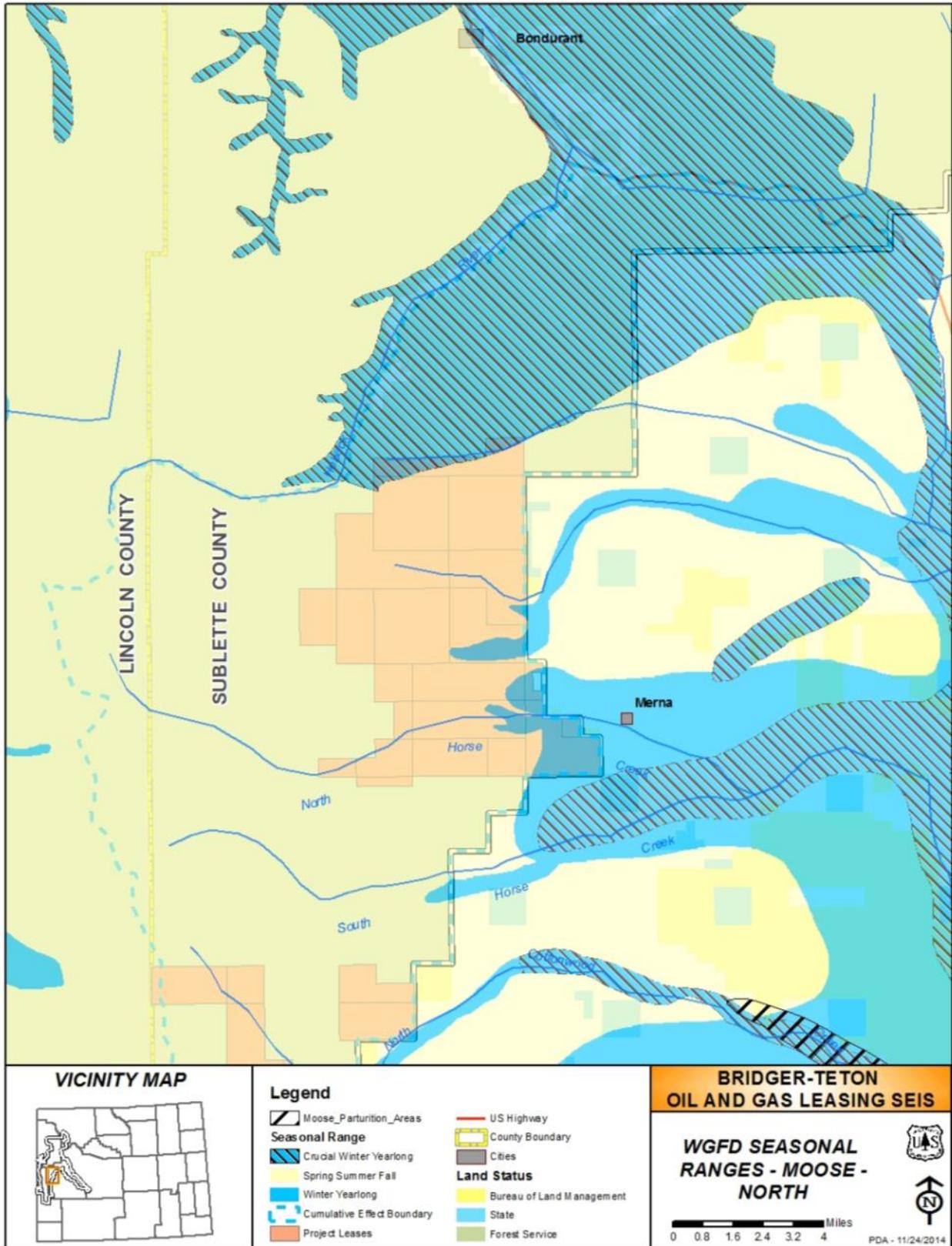


Figure A-48. Moose seasonal ranges relative to lease parcels in the northern and middle lease blocks (WGFD 2014)

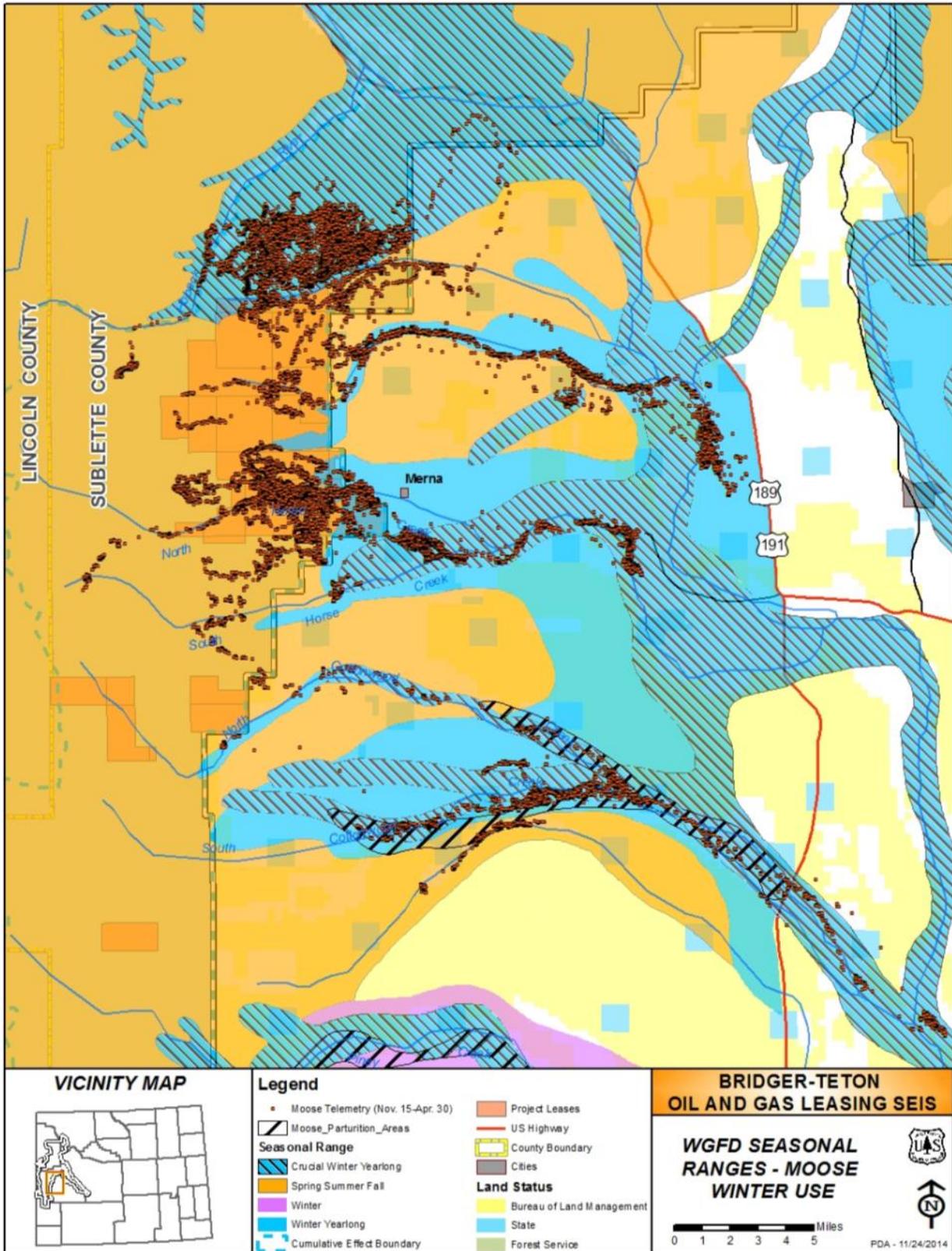


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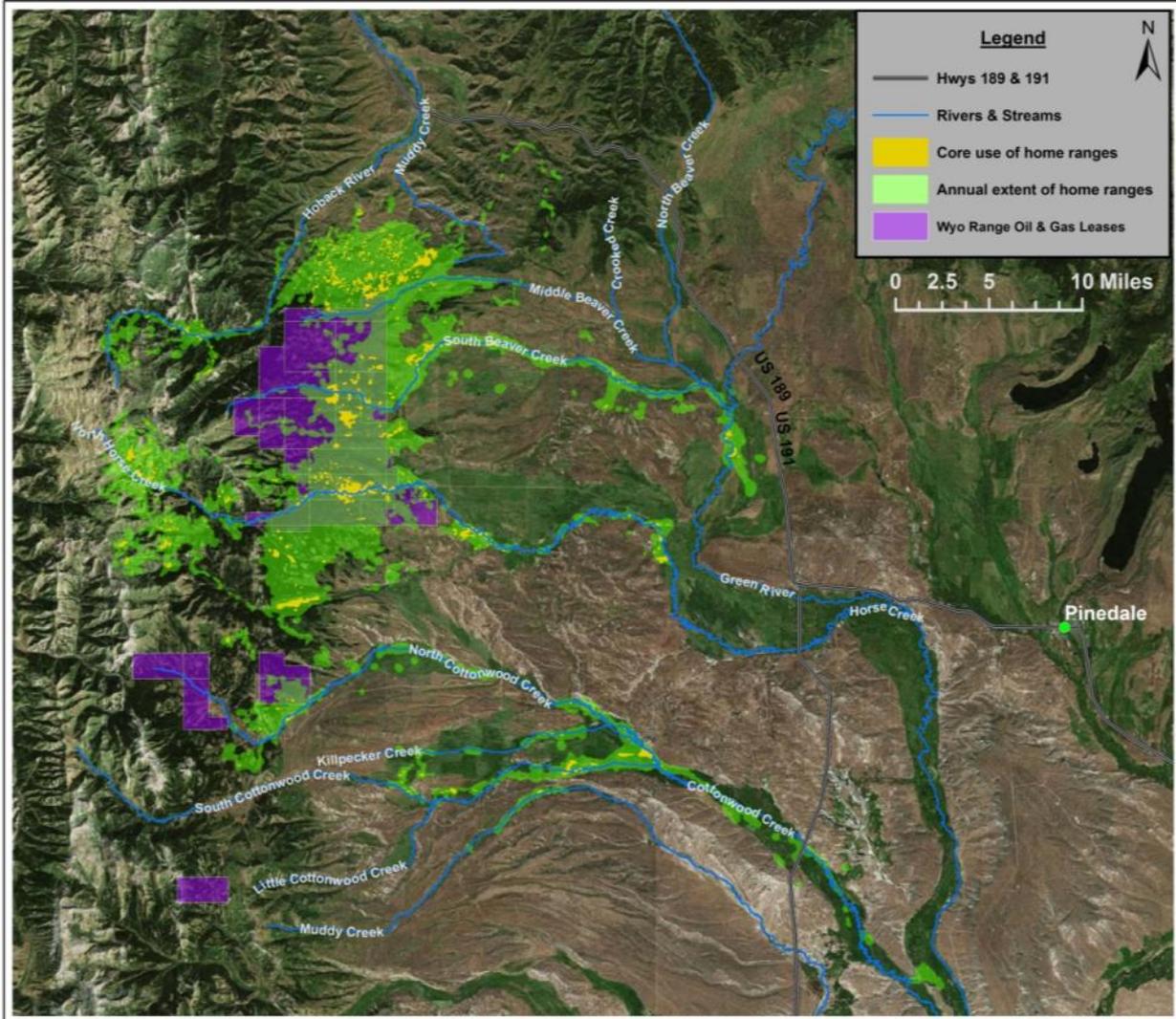


Figure A-50. Types of movement behavior exhibited by Sublette moose

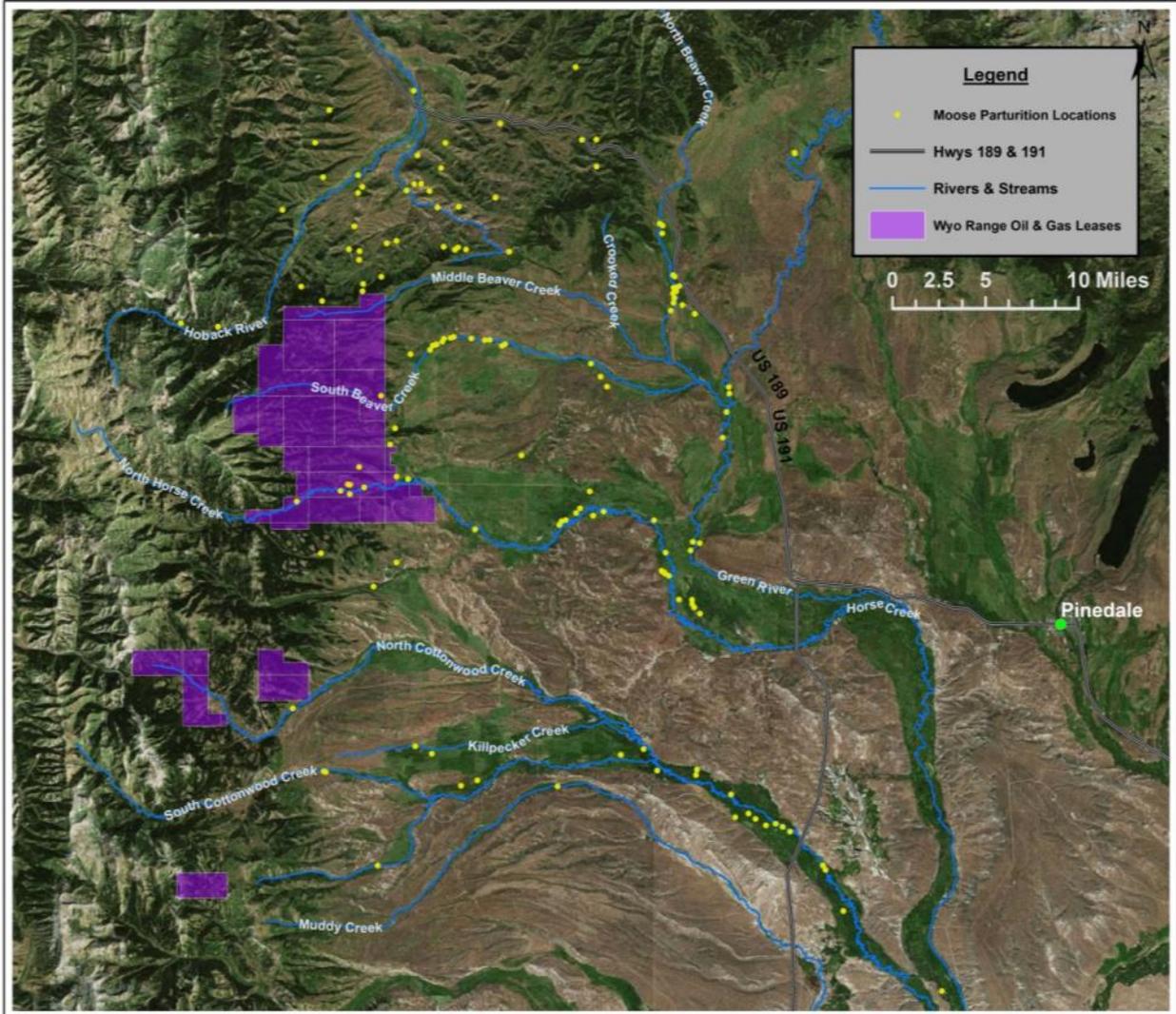


Figure A-51. Moose parturition locations in June and July 2013

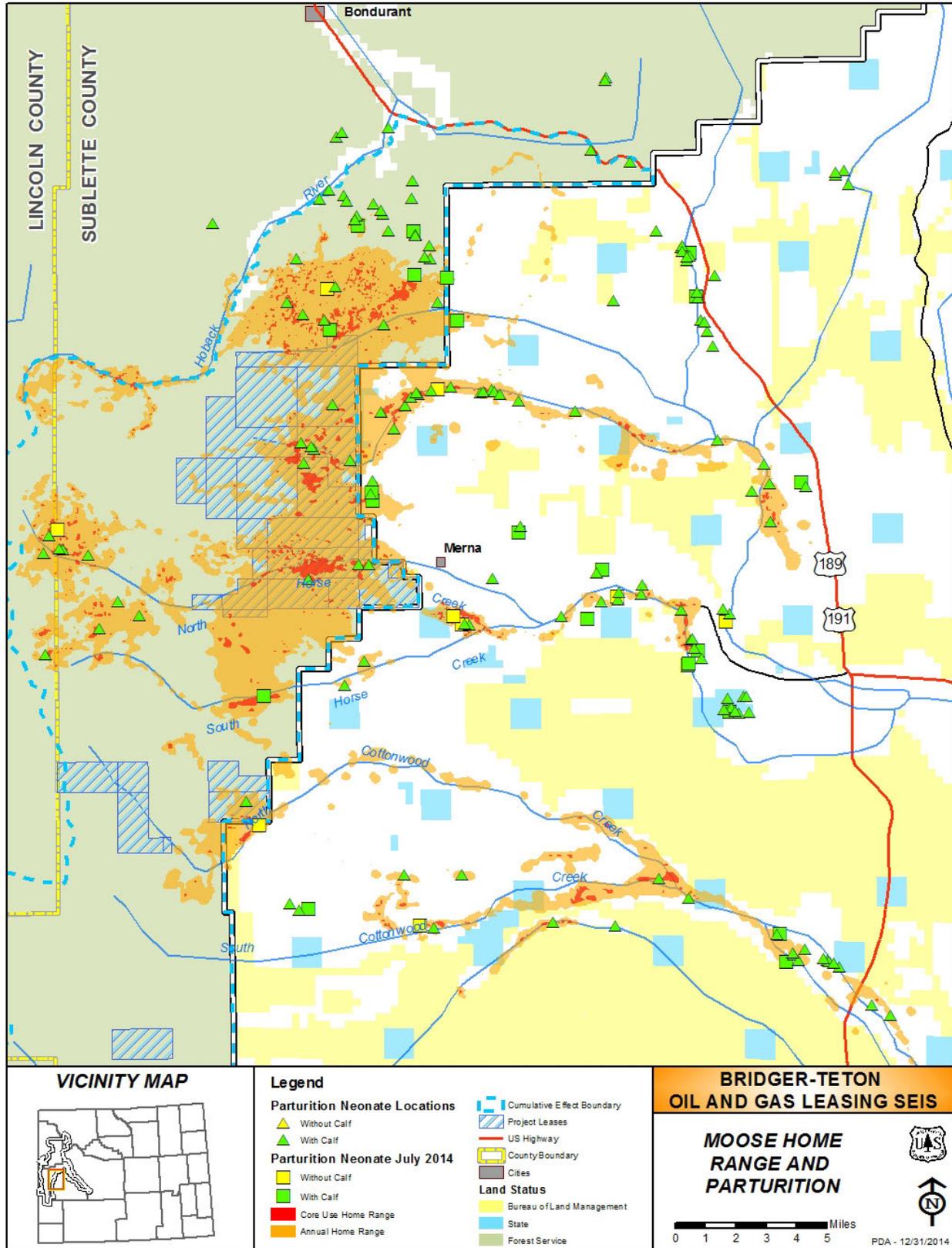


Figure A-52. Moose and neonate locations and parturition during the 4-year study (2011-2014)

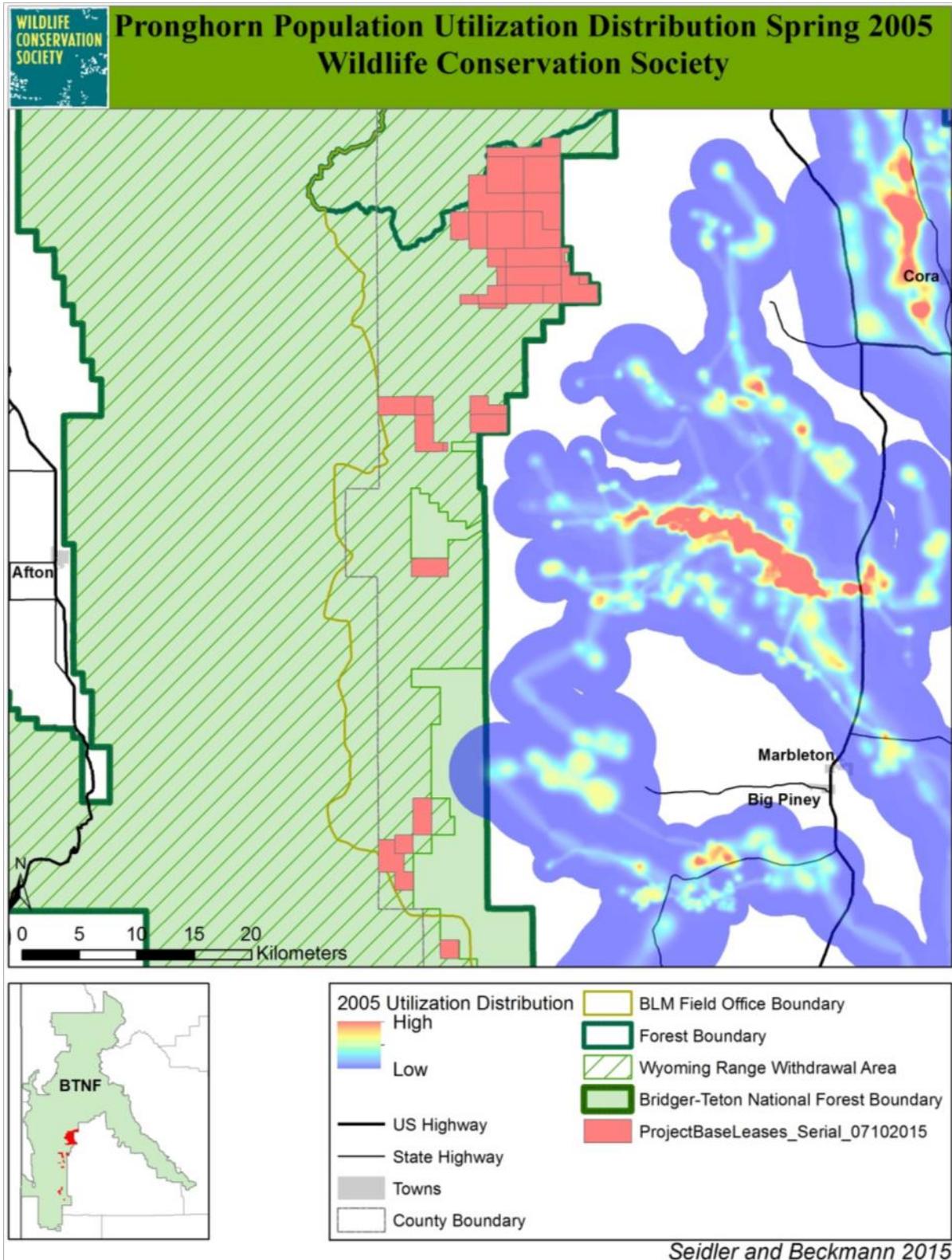


Figure A-53. Pronghorn population utilization distributions during spring migration in 2005

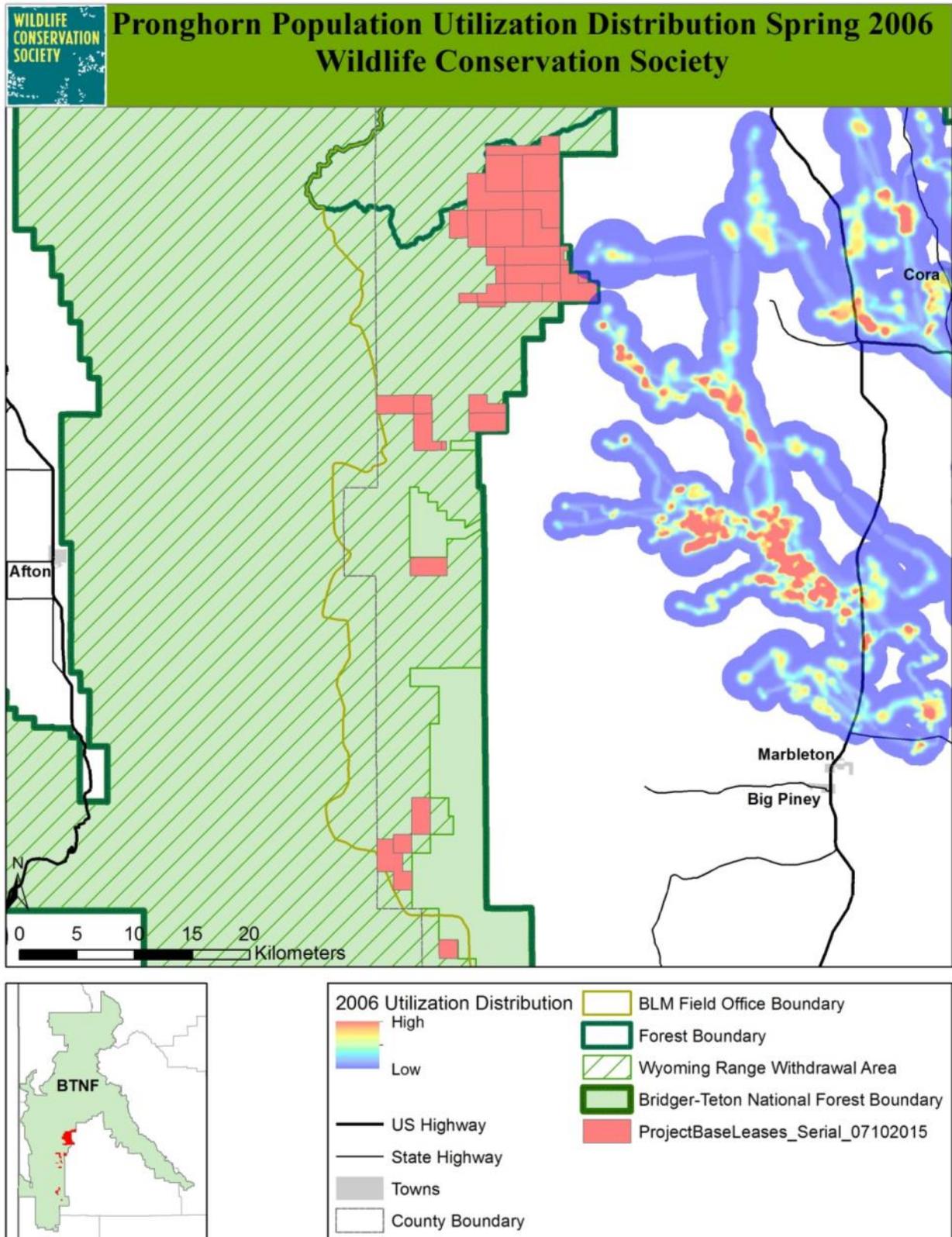


Figure A-54. Pronghorn population utilization distributions during spring migration in 2006

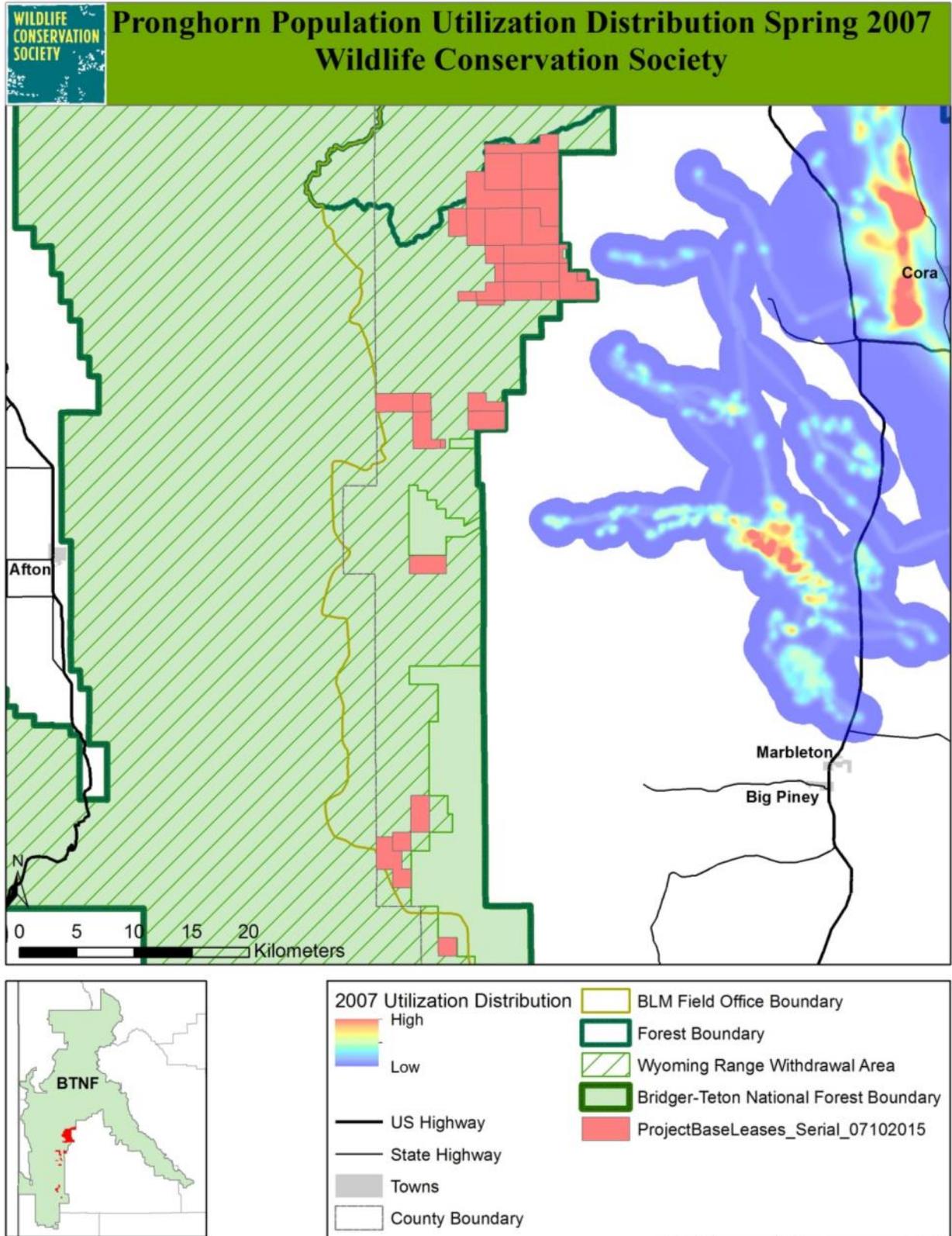


Figure A-55. Pronghorn population utilization distributions during spring migration in 2007

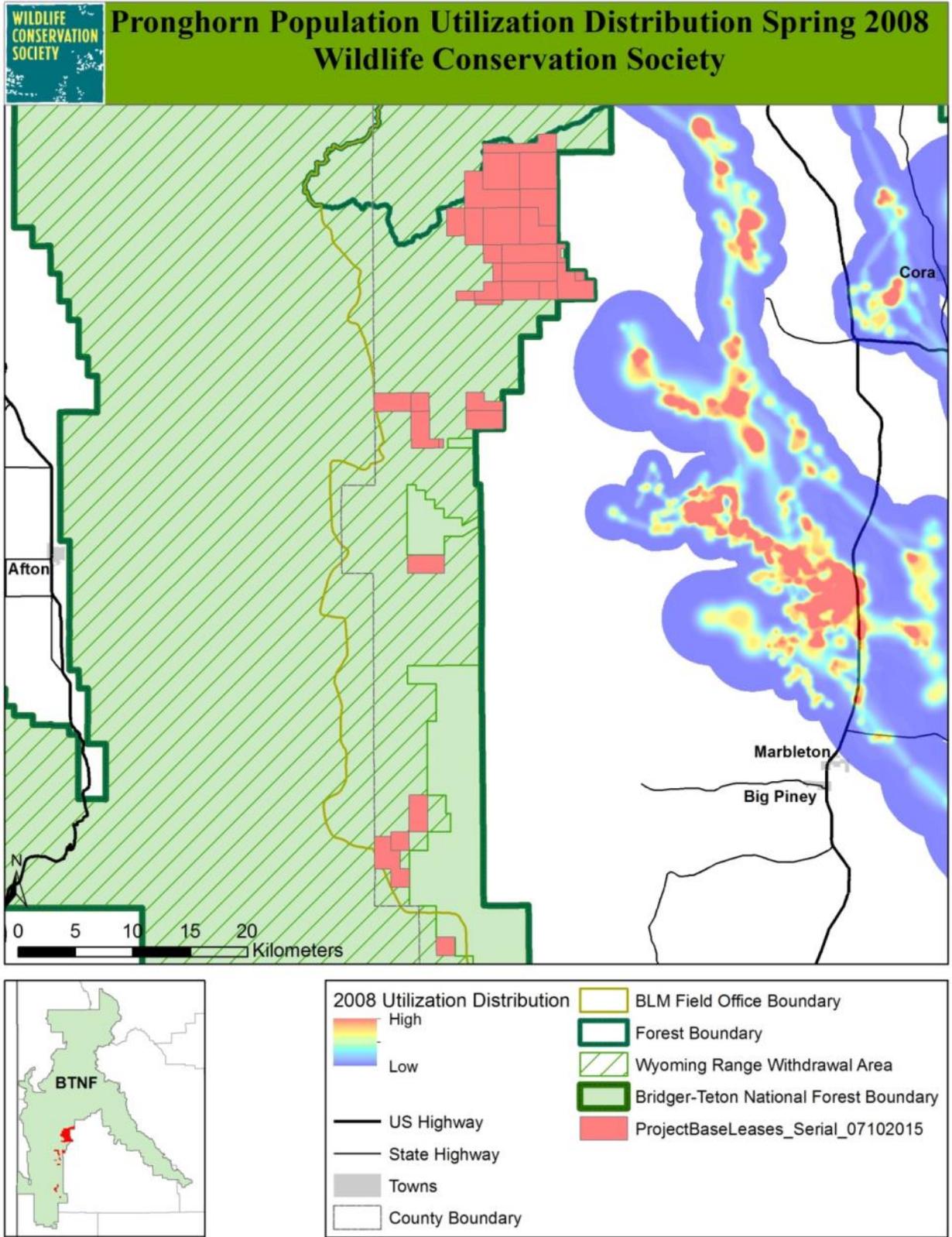


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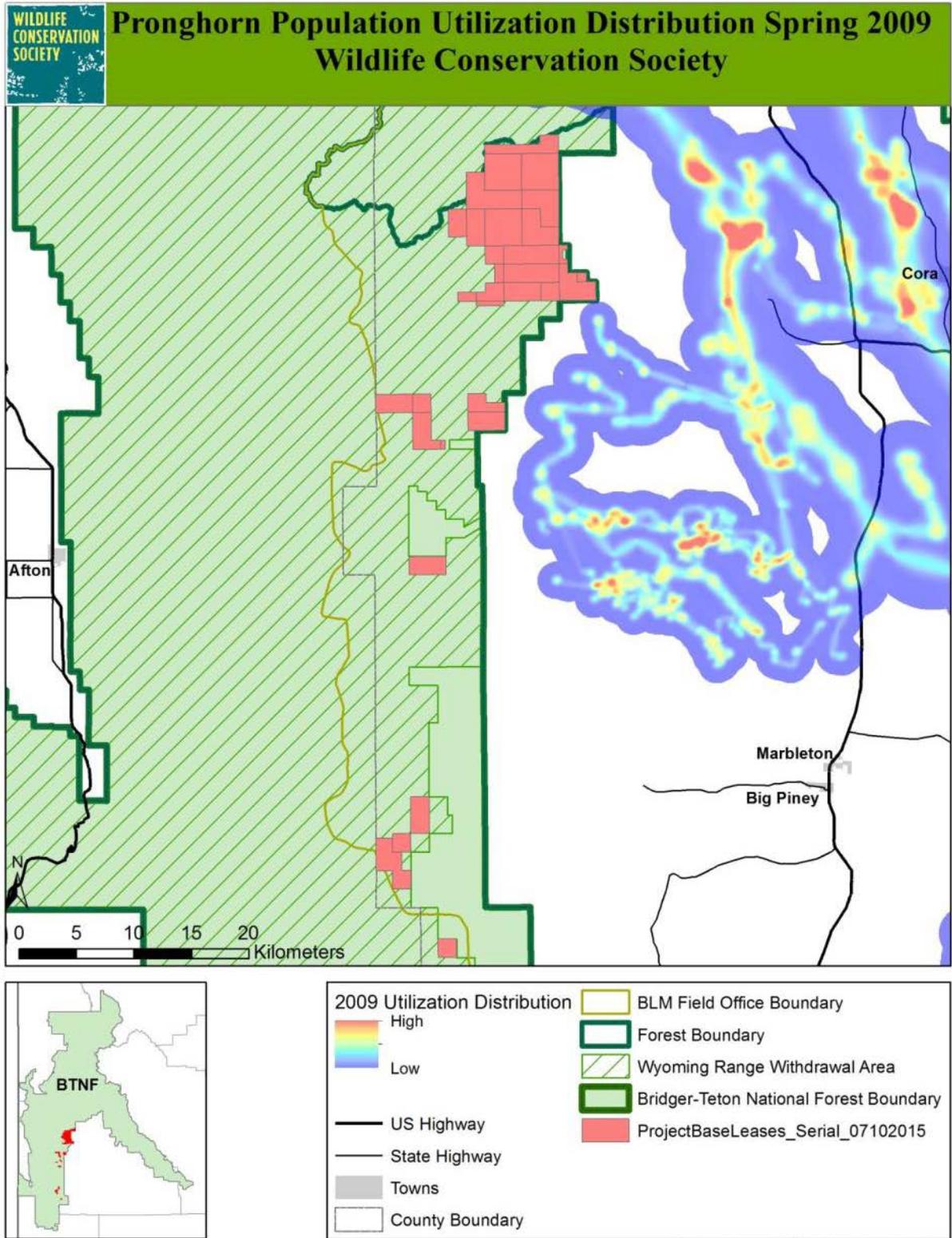


Figure A-57. Pronghorn population utilization distributions during spring migration in 2009

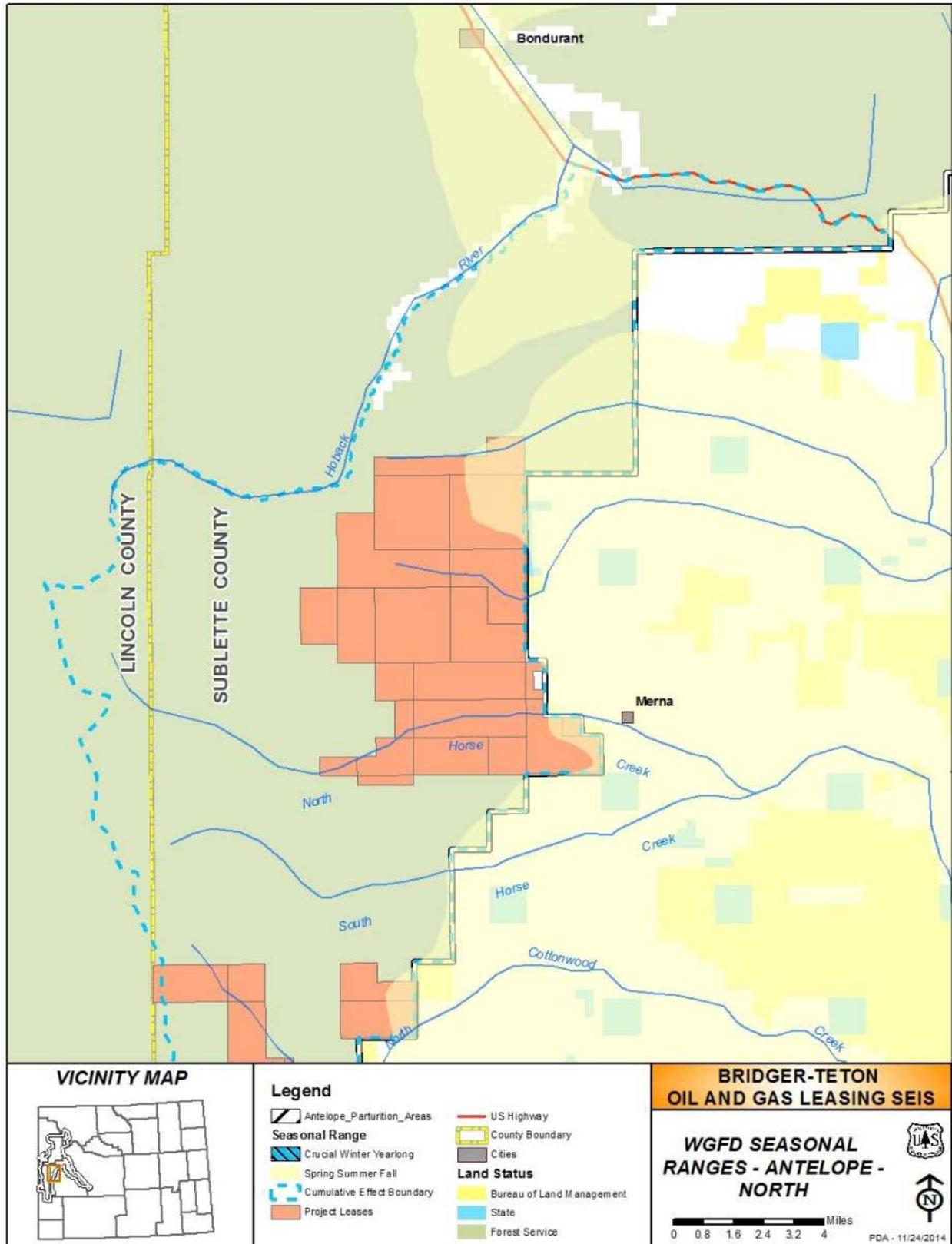


Figure A-58. Antelope seasonal ranges, north map

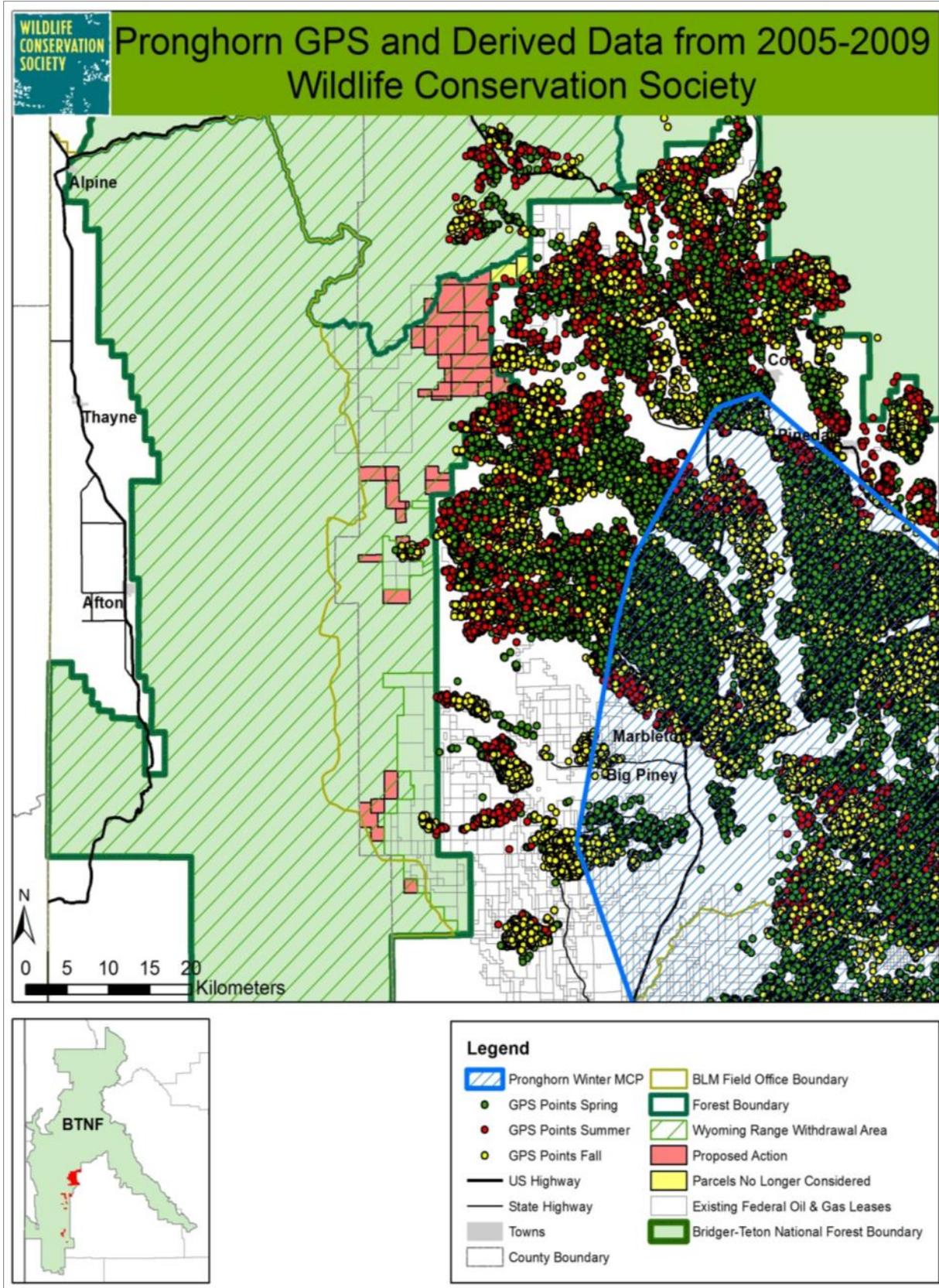


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Introduction

Scoping and public involvement for this supplemental environmental analysis began in 2008. The Forest Supervisor issued a news release and sent preliminary scoping letters to interested parties on January 28, 2008, notifying them of the proposed action in the analysis area and inviting them to comment. On February 4, 2008, the Forest Supervisor published a notice of intent in the Federal Register ([73 FR 6453](#)) with the title, “Notice of Intent To Prepare a Supplemental Environmental Impact Statement to Analyze and Disclose New Information Relative to Oil and Gas Leasing of 44,720 Acres on the Big Piney Ranger District.” A revised notice of intent was published in the Federal Register on March 28, 2008 ([73 FR 16621](#)) to extend the scoping comment period.

In February 2010, a draft supplemental environmental impact statement was released for public review and comment. In January 2011, a final supplemental environmental impact statement ([76 FR 7844](#)) and record of decision were released. In May 2011, the record of decision was withdrawn to allow further evaluation of several key issues and consideration of new information.

On March 21, 2014, a corrected notice of intent was published in the Federal Register ([79 FR 15723](#)) to announce the intent to prepare a supplemental environmental impact statement for this project. This notice of intent updated the original February 4, 2008 notice and the revised notice of intent from March 2008. Extensive public involvement efforts were conducted with the 2008 scoping period. In addition, public involvement associated with forest plan revision efforts identified public issues and concerns relevant to this project. Because extensive public comments covering the range of relevant issues for the analysis were received in the 2008 scoping period and in the comment period on the 2010 draft supplemental environmental impact statement, an additional scoping period was not conducted. Scoping for a supplemental environmental impact statement is not required (40 CFR 1502.9(c)(4)).

Scoping comments on the 2010 draft supplemental environmental impact statement from the public, other agencies, and tribes were considered by the interdisciplinary team in developing a list of issues to address. A summary of public concern statements and how they were addressed was included in appendix B of the draft supplemental environmental impact statement.

The purpose of this current analysis is to evaluate new information and to correct deficiencies in previous analyses to ensure the potential effects are fully considered before a final decision is made as to whether leasing is appropriate on lands in the project lease parcels. On April 8, 2016, the legal notice announcing the draft supplemental environmental impact statement was available for comment was published in the Casper Star Tribune; the 45-day comment period closed on Monday, May 23, 2016.

Distribution of the Draft Supplemental Environmental Impact Statement

The draft supplemental environmental impact statement was distributed or made electronically available to individuals and groups who expressed interest during public involvement opportunities. In addition, copies were sent or made electronically available, to Federal agencies, elected officials, federally recognized tribes, State and local governments, and organizations that requested to be involved in the development of this analysis. Due to the number of people, agencies, and organizations, a complete listing has been omitted from this final supplemental environmental impact statement but is available upon request.

Content Analysis Process for the Draft Supplemental Environmental Impact Statement

During the comment period for the draft supplemental environmental impact statement, a total of 62,632 letters were received. Of these letters, 535 were designated as unique letters and 1,809 were designated as

duplicate submissions. A total of 60,288 form letters were received from five different form letters efforts, of which 95 included additional substantive comments.

The letters were reviewed, and 639 comments were assigned a subject or category code, which allowed similar comments to be grouped by subject and category. Public concern groups were then developed, which summarized the similar comments in each category. Every coded comment was associated with a public concern. A total of 45 public concerns were written for the 639 coded comments.

Mail was managed from emails received and from letters entered directly into the Comment Analysis and Response Application (CARA) comment database form by the commenter. Hard-copy mail received by the forest was scanned into portable document format (PDF) documents and entered into the database.

Unique letters, master form letters, and forms plus letters with one or more additional unique and substantive comments were coded in the database. A report of all coded comments is available in the project record. Once the unique and substantially different comments were coded, concerns raised by different commenters on the same subject and with the same intent were grouped by subject and category code, which captured the essence of those similar concerns. This allowed multiple similar comments to be sent to respective resource specialists for review and consideration. The content analysis process ensured that every comment was read, analyzed, and considered. Public concern groups were prepared with the comment and letter number provided under each statement; this detailed report is in the project record.

Due to limitations with the CARA program, site-specific codes were unable to be used to their full potential. All attempts were made to group similar comments in specific areas to be addressed by the interdisciplinary team.

Individual letters and the list of commenters are not included in this report, but they can be viewed online, in the CARA public reading room for this project at <https://cara.ecosystem-management.org/Public/ReadingRoom?project=48737>.

Public Concerns with Responses

The following section contains the public concern statements developed from grouping and summarizing similar comments. Each concern area has a general title summarizing the comments. Following the concern statement, you will find examples of associated comments and the response(s) to the concern.

Concern 1: The Forest Service should not allow oil or gas leasing in the Wyoming Range to protect the resources and provide opportunities for people to experience an unspoiled place intact with its natural beauty and wildlife. Support for alternative 1.

Associated Comments:

I am absolutely opposed to any oil or gas leasing in the Wyoming Range in the Bridger-Teton National Forest. It is wrong for government agencies to lease public lands. These lands have been set aside to preserve nature and wildlife for future generations. Oil and gas companies destroy our lands by drilling, polluting air and water, and destroying nature. Their only thought is for profit. Please do not issue any permits to oil and gas companies.

This constant incremental encroachment on wild places by 'exploration' has got to stop. First it is in an area which is one of the Last places of habitat for the Colorado River Cutthroat a sport fish species which has had its range of habitat diminished to just a small percentage of its original range.

The Forest Service made the right decision by proposing Alternative 1/no drilling. There is no credible argument to the contrary. I respectfully request that Alternative 1/no drilling, be the final decision of the Forest Service, thereby allowing the many people from Wyoming and across the nation and beyond, the opportunity to continue witnessing this unspoiled place intact with its natural beauty and wildlife.

I am opposed to any oil or gas drilling or leasing of land in the Wyoming Range.

Response:

Support for alternative 1, no action/no leasing is noted.

The indirect and cumulative effects of leasing under the analyzed alternatives were summarized at the end of chapter 2 and disclosed in chapter 3 of the draft supplemental environmental impact statement by resource area. The project area does not overlap with designated wilderness areas. The Omnibus Public Land Management Act of 2009 (also referred to as the Wyoming Range Legacy Act) is discussed in chapter 1 of the supplemental environmental impact statement. Ongoing uses, past, present, and reasonably foreseeable activities were noted in the draft supplemental environmental impact statement at the beginning of chapter 3 and in appendix E.

Concern 2: The Forest Service should disclose impacts to air quality.

Associated Comments:

My next concern is going to be over pollution. Having my residence along with several others located directly east of the proposed lease location I, we are going to be directly down wind of exhaust fumes, chemical fumes, and dust from the activities associated with oil and gas development. I have worked within the oil and gas industry and I am fully aware of what goes on a daily basis on locations and you not only have to deal with some of the types of pollutions I mentioned earlier in this paragraph but noise pollution as well. Noise pollution from vehicle traffic and noise from equipment running on location is something that all the residents and recreation users within that area are going to be affected by. Which brings to mind another point is the infrastructure for access roads adequate enough to support the amount of heavy truck traffic needed to develop locations. The roads that are currently in place see a large amount of traffic from residential users and recreationists and then combined with heavy equipment is surely going to pose problems both financially and with personal safety.

Air quality would also surely suffer in the area, which presently has some of the most pristine air quality in the state of Wyoming. Ground water would be depleted during well completion, possibly to the extent that stream flows were seriously impacted.

From an air quality standpoint, there used to be a Wyoming Department of Air Quality station on the Jim Bridger estates and would give the best baseline of air quality. Unfortunately the Wyoming Department of Air Quality removed the station which begs the question why?

Air Quality. We who live in the Pinedale area are already adversely effected by oil and gas activities that have increased ozone and other pollutants in the air we breathe. No additional leasing, or post-leasing activities, especially in the Wyoming Range should occur, unless and until technology can assure that those that breathe air, can do so safely. The cumulative effects of existing air quality issues, with potential new production facilities would not meet standards. The No Action/No Leasing Alternative would best meet this requirement.

Response:

Anticipated effects to air quality based on the reasonably foreseeable development scenario are disclosed in chapter 3 of the analysis. Under the action alternatives, additional analyses would occur at the application-for-permit-to-drill stage for site-specific proposals, and measures would be identified to ensure activities comply with applicable State and Federal laws (for example, the Clean Air Act). Under the action alternatives, if development occurs, one may encounter some dust and chemical and exhaust fumes if downwind from the lease parcels. As mentioned in the air quality section, exhaust fumes and dust will be minimized by equipment controls and watering the roads and pads. Roads will be upgraded as needed for proposed activities, with safety of residents and the public in mind. Noise from increased vehicle traffic and well development may be noticeable.

Wyoming Department of Environmental Quality - Air Quality Division had a monitor at Bridger Estates to monitor transported pollutants entering the Upper Green River Basin from the west. It started monitoring in 2011 and was shut down in November 2013. This site was found to be redundant with the Danial South site, which is used for long-term monitoring. Equipment from the Bridger Estates site, were used to outfit a monitoring station at Big Piney.

Concern 3: The Forest Service should disclose impacts to backcountry recreation opportunities.

Associated Comments:

The Wyoming Wilderness Association supports Alternative 1, as the Leasing Alternatives could all result in substantial changes to the backcountry recreation setting, detracting from the quality of existing recreation opportunities in the area. The existing qualities of the area, such as the outstanding wild landscape, large, remote backcountry areas, relatively low visitor use, and 177.5 acres of Inventoried Roadless Areas within the proposed project boundaries, provide valued opportunities for backcountry recreation and solitude. The Leasing Alternatives would alter recreation settings and may displace existing recreation trends as 1,664-3,040 acres could be converted to roaded recreation classes (SDEIS: 49). Furthermore, the potential for additional off-highway vehicle use (both on and off designated routes) in currently remote areas is of concern to many who value the non-motorized backcountry of the Wyoming Range (SDEIS: 16). Area locals and tourists alike value the existing qualities of the Wyoming Range and "bring essential tourism dollars to the state, fueling a critical diversification of Wyoming's economy" (SDEIS: 16). The Preferred Alternative is the only option that will not result in a negative effect on the quality of the existing values, and the economic sustainability of recreation experiences within the Wyoming Range.

Additionally, the thousands of snowmobilers who use the Horse Creek area every winter would be largely displaced, because there is no practical location for the snowmobile trail except the presently used and only road. If development were permitted, the road would necessarily be utilized for heavy truck and machinery use, rendering the road unusable as a snowmobile trail. There is no feasible alternative route for a snowmobile trail, given the valley is largely a very wet riparian area with numerous willows, flanked by timbered hillsides. The character and beauty of the area would be severely compromised, making it a less desirable tourist destination for snowmobiling, as well as hurting the businesses of local outfitters who rely upon the pristine nature of the area to induce clientele to patronize their businesses. There is no doubt that area tourist based businesses would be harmed if energy development occurs in this area, and hunting outfitters would be effectively put out of business.

The DEIS states that there will be minor effects from changes in recreation, hunting, etc... due to the fact that there is substantial federal lands available. What if the area that you have hunted, fished and hiked for many years happens to be the Horse creek, Beaver creeks and Chall creek area? Oil and gas comes in

and you have to leave? Where is multiple uses in that philosophy? Or am I to read between the lines and know that there will be locked gates only accessible to the lease holder's authorized personnel?

Response:

Support for alternative 1, no action/no leasing, is noted.

The “Affected Environment” section of the draft supplemental environmental impact statement described winter recreation (page 131) and important winter recreation opportunities in each management area, including the Horse Creek area (pages 140 through 145). Figure 32 showed groomed snowmobile routes in proximity to the lease parcels. Anticipated effects to recreation opportunities are disclosed in chapter 3 of the draft supplemental environmental impact statement under the reasonably foreseeable development scenario. Chapter 3 also disclosed potential impact to winter recreation, including displacement (pages 148 and 153). Impacts to outfitters and winter recreation were also discussed (pages 99 and 148).

Access mitigation and activity coordination mitigation were discussed on page 154 as a means to reduce potential impacts to recreation. Potential effects on the backcountry recreation setting and special areas were disclosed in chapter 3 of the draft supplemental environmental impact statement. The potential for conversion of areas from a semi-primitive backcountry to a roaded setting is disclosed in the final supplemental environmental impact statement (pages 147 and 152). Additional site-specific analyses would occur at the application-for-permit-to-drill stage. Site-specific proposals would be analyzed and appropriate mitigation measures would be identified to reduce impacts to recreation opportunities.

The importance of the Wyoming Range and its sense of place, including historic uses, grazing, and unroaded backcountry recreation settings and opportunities, were disclosed in chapter 3 of the draft supplemental environmental impact statement. The potential for conversion of areas from a semi-primitive backcountry to a roaded setting were disclosed in the draft supplemental environmental impact statement (pages 147 and 152). This information, and a comparison of the potential impacts of each alternative under consideration, will be available to the deciding official during preparation of the record of decision.

Concern 4: The Forest Service should disclose impacts to terrestrial wildlife and aquatic wildlife.

Associated Comments:

The wildlife resources would also suffer if any alternative other than Alternative 1 is implemented, and declining mule deer herds would suffer further stress as the proposed development area is critical summer and fall habitat for this species. This area is extremely popular with elk hunters from early September through most of November. Only implementation of alternative 1 would result in the many hunters continuing to utilize this area for elk hunting, as elk tend to leave areas of habitat broken up by development in search of intact habitat areas, and no one wants the experience of the sights, sounds, and smells of industrial development while sitting around an evening elk camp fire. The lynx and rare native cutthroat trout would be at tremendous risk.

Another concern I have is effects on wildlife. Species which are known to live in, migrate through, and give birth in areas located right through the center of the proposed lease area could be severely impacted. Mule deer which are already dwindling in the Wyoming range use this area as a major migratory corridor. There is a feed ground for elk to the south and to north of the proposed lease area which means hundreds of elk migrate through to reach those feed grounds and then return each spring to calve. A very substantial moose population also resides in this location as well. During the summer months large groups of sage grouse can be located along side county road 23-112 and all along both sides of the road leading into dry

beaver. I would be concerned about the amount of activity from location development and its effects on migration patterns, birth locations, feeding patterns, and stress on wildlife.

Wyoming Wilderness Association supports Alternative 1, as the Leasing Alternatives would result in physical impacts to wildlife populations, habitat, and migration routes. The Leasing Alternatives would result in changes to 177.5 acres within various Inventoried Roadless Areas, which would negatively impact wildlife populations through physical disturbance, habitat alteration or loss. The development of new roads increases the potential for introduction and spread of noxious weeds and indirect loss of habitat as well. Terrestrial wildlife that could be affected includes threatened, endangered, sensitive, and management indicator species' habitats and populations. Because of the rate and extent of energy development in nearby areas, the Wyoming Range, including the subject leases, is viewed as a haven for wildlife. The Preferred Alternative is the only option that will not negatively impact the significant wildlife populations and robust habitat that people from around the world come to Wyoming to experience.

Response:

Support for alternative 1, no action/no leasing, is noted.

Effects of leasing were summarized at the end of chapter 2. Table 6 (draft supplemental environmental impact statement, pages 38 through 41) included stipulations to protect big game species habitats, including controlled surface use, timing limitations, and no surface occupancy. Under the action alternatives, additional environmental analysis would occur at the application-for-permit-to-drill stage when site-specific proposals are received. Appropriate mitigation measures would be identified at that time and may include the mitigation noted at draft supplemental environmental impact statement on pages 42 through 43.

Effects on moose, mule deer, and antelope were discussed in the draft supplemental environmental impact statement chapter 3 under management indicator species (pages 302 through 304, 312 through 323, 331 through 340). These discussions note the impacts of roads and roads open to motorized use under the various species discussions. Effects to other terrestrial wildlife, including threatened, endangered, sensitive, and management indicator species' habitats and populations; aquatic species; and recreation opportunities, were also disclosed in chapter 3 of the draft supplemental environmental impact statement.

Under the action alternatives, additional environmental analysis would occur at the application-for-permit-to-drill stage when site-specific proposals are received. Appropriate mitigation measures would be identified at that time and may include the mitigation noted at draft supplemental environmental impact statement on pages 42 through 43.

Concern 5: The Forest Service should disclose impacts to grizzly bear

Associated Comments:

The Project Area is Occupied Grizzly Bear Habitat - We strongly support the preferred alternative 1, not to lease USFS lands in the project area for oil and gas exploration and development because this alternative will avoid adversely affecting grizzly bears and their habitat. It is clear that this area, currently absent oil and gas development, is capable of supporting grizzly bears. "The project area is currently occupied habitat (IGBST 2015); . . . Portions of the project area provide suitable habitat for, and are occupied by grizzly bears . . ." (DSEIS: 203) "The area currently has low grizzly bear density, however foraging and secure denning habitat is present, and the area is slowly being repopulated with ongoing population recovery in the Greater Yellowstone Ecosystem." (DSEIS: 238) "Grizzly bear occurrences have been confirmed in the project area, such as Horse Creek and Middle Piney Creek drainages, where

they occur at low levels as they gradually repopulate their historic range (Casper Star Tribune 2009, WGFD grizzly bear conflict database 2014). Recently, Wyoming Game and Fish Department personnel photo-documented a grizzly bear along with a black bear, visiting a black bear bait site in Mickelson Creek area in 2014 (no conflict occurred), (A. Hymas, WGFD, pers. comm.)." (DSEIS: 2013) The DSEIS describes some of the benefits that accrue to the grizzly bear by managing for protected suitable habitat. "Maintaining secure habitat requires minimizing mortality risk and displacement from human activities by providing sufficient habitat to allow the population to benefit from the secure habitat and respond with increasing numbers and distribution. This allows the population to increase or recover in numbers and distribution as lowered mortality results in greater reproduction and survival, population size, and increasing range." (DSEIS: 205)

The Value of Roadless Areas to Grizzly Bears - Roadless areas are the most secure, safe, habitats for grizzly bears. "The most suitable habitat (for grizzly bears) is in areas with large tracts of undisturbed territory containing a minimum of human disturbance (Schwartz et al. 2002). (DSEIS: 203 parentheses added). Additionally, "The most effective habitat management tool for reducing grizzly bear mortality risk is managing motorized access to ensure bears have secure areas away from humans." (USFWS: 13178) In its Draft 2016 Wyoming Grizzly Bear Management Plan, the Wyoming Game and Fish Department recognized the importance of maintaining intact roadless areas: "The Department advocates maintenance of roadless areas where they currently exist within occupied grizzly bear habitat." (WGFD: 16) More than 1.4 million acres on the Bridger-Teton National Forest are Inventoried Roadless Areas, and vast areas of the Wyoming Range and the Salt River Range are managed as Roadless Areas (BTNF 2000: Map of Inventoried Roadless Areas). With very few exceptions, these areas are to be managed for their roadless and other primitive undeveloped characteristics. "(T)hese are the roadless areas of record to which the 2001 Roadless Area Conservation Rule applies." (DSEIS: 135) Five Roadless Areas (IRAs) exist within the project analysis area (DSEIS: 135). The five IRAs, Riley Ridge, North Mountain, Little Cottonwood, South Wyoming Range, and Grayback total 423,561 acres (DSEIS: 135-139) The bulk of the proposed lease parcels are adjacent to the 315,647 acre Grayback Inventoried Roadless Area 3007 (DSEIS: 139) It is apparent that grizzly bears are attracted to this vast roadless area.

Response:

Support for alternative 1, no action/no leasing, is noted.

Effects to grizzly bear food sources and secure habitat and inventoried roadless areas were discussed in chapter 3. Alternatives 2, 3, and 4 received the effects determination; "may affect, not likely to adversely affect (page 240, draft supplemental environmental impact statement)."

If an action alternative is selected, this determination results in informal consultation with the U.S. Fish and Wildlife Service. The U.S. Fish and Wildlife Service would review the biological assessment and either concur with the determination or move towards formal consultation if they believe the selected alternative may have adverse effects.

Concern 6: The Forest Service should disclose the threat of wildfire

Associated Comments:

The DEIS not take seriously the threat of wildfires either natural or manmade and what affect they would have on oil & gas facilities or homeowners. The timber in this area of the forest is affected dramatically by beetle kill and downfall that would provide a very significant fuel source for any type of fire.

How will the lease holder protect its facilities from wildfire? How will lease holder try to reduce the possibility of manmade fire from the equipment utilized in this project? What fire fighting personnel is

available to fight a fire at either a well site, compressor facility, or a processing plant? The resources in Sublette County in the vicinity are not adequately prepared for such a fire in the proximity of so much dead timber!

Response:

There are two fire threats. The first is a wildland fire that advances and affects the industrial facilities. The other is a fire that starts at the industrial facilities and spreads onto adjacent forested lands. In both scenarios, fuels treatments may be recommend adjacent to the facilities to mitigate or reduce the threats and impacts. Treatments may also be included as mitigation based on the vegetation types present. Fuels treatment recommendations can be provided when the locations of industrial facilities are known (for example, at the application-for-permit-to-drill stage) and after site-specific environmental analyses has been conducted.

Forest Service personnel are not trained or equipped to fight fires involving industrial facilities or equipment and would only respond to wildland fires. Forest Service personnel would not respond to fires at any industrial facilities nor can we analyze the potential impacts of industrial fires.

Concern 7: The Forest Service should disclose impacts to water resources

Associated Comments:

First off of my concerns are going to be with surface and ground water issues. All of the drainages in this location are tributaries to the Green River. And many of the tributaries are home to cutthroat trout and other species of fish which can be a very sensitive to water temperature and water quality. The creeks and drainages serve as a riparian habitat for many species located in the vicinity and any contamination to these areas could have huge impacts on species of animals that rely on these riparian areas. Another concern would be the end users of those tributaries and that is mainly ranchers who rely heavily on the water for irrigation purposes and for their livestock. Also through the use of fracking techniques I am concerned about underwater aquifers and springs. It has been proven that fracking techniques have huge impacts on natural springs and underground aquifers that supply water to wells for residents. Having my property located directly east of the proposed lease location I am deeply concerned about impacts from fracking that might have on not only my well but those residents who reside in the area as well and the longevity of springs to naturally produce water. These are just a few of my concerns on this topic.

I am also concerned with what drilling in these leases would have with my two water wells on my property. We rely on the quantity and quality of this water in using our property.

And what about water - something none of us can do without. Twenty to thirty percent of cementing jobs fail. I am talking about the cement barrier failing over the years potentially exposing the aquifer to harmful contamination from chemicals, subsurface well-fluids, and/or hydrocarbons. These well bores can easily fail simply through geologic events such as earthquakes. In my opinion the Mesa and Jonah drilling operations have already contaminated the underlying aquifer.

Response:

Support for alternative 1, no action/no leasing, is noted.

The draft supplemental environmental impact statement chapter 3 discussed surface water and groundwater (pages 340 through 390). Additional background geology information has been added to the final supplemental environmental impact statement. Additional site-specific analysis will occur at the application-for-permit-to-drill stage should these leases be issued and development proposed. Appropriate protection measures to meet State and Federal laws would also be identified at the application-for-permit-

to-drill stage. According to the low-level petroleum hydrocarbon compound study performed in the Pinedale anticline project area, there is no widespread contamination of groundwater from oil and gas activities (http://www.blm.gov/wy/st/en/field_offices/Pinedale/anticline/water/IP-GWreports.html). It should be noted that the geology and structure of the Pavilion area oil fields are different from the lease areas considered in this analysis.

The “Water Quality” section (page 351 of the draft supplemental environmental impact statement) states,

"GIS data available from the Environmental Protection Agency for the State of Wyoming indicates that the latest 2012 assessment of waters show no 303(d)-listed streams within or immediately downstream from the project area (WDEQ 2012)."

This means all waters in, and downstream from, the project area are currently meeting the Clean Water Act. The fact that surface water quality in, and immediately downstream of, the project area is in acceptable condition, as determined by the State of Wyoming, gives us no indication these parcels should not be carried forward for further analysis. The decision from this analysis would authorize leasing of these parcels. A site-specific analysis would be conducted at the application-for-permit-to-drill stage when road and well locations are proposed. At that time, the analysis would determine the effects of the proposed activities to surface water quality. Watershed mitigation measures (draft supplemental environmental impact statement, chapter 2, page 43) and best management practices (draft supplemental environmental impact statement, chapter 3, pages 343 through 344) would be prescribed to protect surface water quality.

Concern 8: The Forest Service should consider information provided in attachments

Associated Comments:

Attachments including a photo, previous comment letters and other documents were submitted for consideration by the interdisciplinary team.

Some attachments questioned the rationale for the supplemental environmental analysis.

Response:

The interdisciplinary team reviewed the attachments and considered the information. Previously submitted comments were considered with this analysis. Alternative stipulations were developed to address resource concerns.

The importance of the recreation settings is disclosed in the “Affected Environment” section of the draft supplemental environmental impact statement. Visual impacts mitigation is discussed on page 154. Additional analyses would occur at the application-for-permit-to-drill stage to analyze site-specific proposals, and appropriate mitigation measures would be identified to reduce impacts to recreation settings.

The rationale for supplemental environmental analysis and the basis for a potential decision to cancel issued leases and not issue deferred leases are found in chapter 1 of the draft supplemental environmental impact statement (pages 1 and 9 through 10). Note especially the period February 2004 through September 2006.

Concern 9: The Forest Service should consider information provided in literature

Associated Comments:

Several commenters provided literature for the interdisciplinary team to consider in their analyses.

Response:

The interdisciplinary team reviewed and considered literature submitted in comments on the draft supplemental environmental impact statement. Some literature was relevant, and analyses have been updated to incorporate it. Some was similar to other literature considered in the analysis, and the submitted literature may not have been cited. Other literature was not relevant to the analysis. The literature review is available in the complete comments-and-responses spreadsheet located on the project website. The following are examples of literature submitted for consideration:

Heinemeyer and Squires – In the Teton study area, one male wolverine was captured. The male that was monitored travelled through the winter use recreation areas. Effects to the wolverine are discussed in chapter 3 of the draft supplemental environmental impact statement under sensitive species (pages 265 through 272, 296 through 298). The wolverine analysis was updated in the final supplemental environmental impact statement to include Inman et al. 2015.

Bjornlie et al. 2013 references grizzly bear occupation and possible future expansion into the project area. This information is similar to what is already provided on page 203 of the draft supplemental environmental impact statement and utilizes the following references: Interagency Grizzly Bear Study Team 2015 and Wyoming Game and Fish Department grizzly bear conflict database 2014.

Kasworm and Manley (1990) and Mace et al. 1996 references impacts of roads and trails on bears. Impacts of roads on grizzly bears is covered in detail in chapter 3, pages 204 through 205 (draft supplemental environmental impact statement). The motorized access model (Tyers and Landenburger 2015), was used to analyze the effects of roads and amount of secure habitat available.

Reserve pit issues (for example, surface and groundwater and soil contamination, livestock and wildlife mortality), best practices (for example, liners, leak detection systems) and alternatives (for example, closed-loop drilling) identified in this reference are recognized in the 1990 Bridger-Teton National Forest Land Resources Management Plan (as amended) and The Gold Book-Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development (U.S. Forest Service and Bureau of Land Management), which are both referred in this analysis (draft supplemental environmental impact statement, chapter 2, page 44).

References pertaining to the social cost of carbon were helpful in conducting additional analysis on greenhouse gases, climate change, and the social cost of carbon. These topics were further analyzed and added to the air quality discussions in chapter 3 of the final supplemental environmental impact statement. The draft supplemental environmental impact statement included a discussion on greenhouse gases in chapter 3, page 456 and based on the reasonably foreseeable development scenario acknowledged under the action alternatives. Any natural gas or condensate produced as a result of this alternative would further contribute to the release of greenhouse gases through processing, transmission, storage, and distribution of products and through commercial, industrial, and residential product end use, adding to concerns of global climate change (draft supplemental environmental impact statement pages 469, 472, 477).

Concern 10: The Forest Service should disclose the impacts the project would have on lynx.

Associated Comments:

The FEIS should discuss and analyze how lynx movement through the project area would be affected by the Project, and what impacts to lynx travelling to other areas would see. Particular attention should be given to both official lynx linkage areas as well as other known travel corridors in the project area. The FEIS should fully discuss the effects of the construction of temporary roads, the recommissioning of

previously closed roads, and the construction of new roads on lynx and fragmentation of lynx habitat, as well as snow compaction and the potential for recreational use of those roads.

The FEIS should also take a hard look at the indirect and cumulative impacts to lynx, and specifically how the project will, in conjunction with other activities (private, state, and federal), climate change (now a significant threat to the species under the 2013 LCAS), and other natural events cumulatively impact lynx in the immediate area of the project and the larger sub- population in the surrounding region.

Response:

Support for alternative 1, no action/no leasing, is noted.

Indirect and cumulative impacts to lynx and lynx critical habitat associated with habitat fragmentation, snow compaction, roads, linkage areas, and travel corridors were discussed in the draft supplemental environmental impact statement chapter 3. Detailed maps associated with the lynx analysis were located in the draft supplemental environmental impact statement in figures A-3 through A-13 (appendix A). We do not map at the level of denning, foraging, and winter habitat. Mapped suitable habitat in the lynx analysis unit is considered to provide both denning and foraging habitat on the Bridger-Teton National Forest.

Concern 11: The Forest Service overstates the negative impacts on lynx and the analysis is unsupported by research.

Associated Comments:

Canada Lynx - The impact analysis for the Canada Lynx in the DSEIS contains many of the same material deficiencies that were present in the 2011 SEIS. The analysis overstates the potential impacts of oil and natural gas leasing on the species, and fails to take into account mitigation measures available to avoid or minimize impacts. The DSEIS is based on speculation and unsupported conclusory assumptions without reference to credible information. Most importantly, even if minor negative impacts may occur to the lynx, that is insufficient justification for canceling existing leases or rejecting the high bids on leases offered at previous sales, especially when measures to mitigate those small impacts are identified.

The Canada Lynx Impact Analysis is Factually Misleading, Scientifically Unsupportable, and Does Not Justify Cancelling Leases. The impact analysis for the Canada lynx in the 2016 DSEIS contains many of the same material deficiencies that were present in the 2011 SEIS. First, the lynx impact analysis overstates the potential impacts of oil and gas leasing on the Canada lynx and fails to take into account mitigation measures available to avoid or minimize impacts. Second, the impact analysis is based on speculation and unsupported conclusory assumptions without reference to credible information. Third, and most importantly, even if minor negative impacts may occur to the lynx, which is highly unlikely in and of itself, there is insufficient justification for cancelling existing leases or rejecting the high bids on leases offered at previous sales. Finally, the doctoring of evidence connected to the Canadian Lynx Impact Analysis, as discovered in 2002, calls into question the objectivity of the Forest Service's analysis and conclusions.

Linkages - The fourth category of impacts are to Canada lynx linkages, or travel corridors, connecting mountain ranges or larger areas of habitat. The one linkage near the project area is the Hoback Rim. 2016 DSEIS, pg. 214. The Northern Rockies Lynx Management Direction prohibits the construction of new roads in this linkage area. Id.; see also Northern Rockies Lynx Management Direction, Attachment 1, at 7. One Forest road currently exists bisecting this linkage and the concern is that increased traffic on this existing road could "increase the amount of traffic and impede future lynx use." 2016 DSEIS, pg. 214. However, mitigation measures are available to reduce the impacts of increased road use, including remote

monitoring of well sites and bussing of crews to project sites during development to reduce traffic through the linkage. Other mitigation measures could include limits on vehicle traffic and even seasonal closures during sensitive denning periods. None of these measures is considered in the 2016 DSEIS and in fact, there is an overall lack of discussion of effectiveness for any of the mitigation measures mentioned, despite Stanley's good faith efforts to engage in such discussions.

Response:

Support for alternative 2 is noted.

The final supplemental environmental impact statement analyzes three alternatives that would authorize leasing – alternatives 2, 3 and 4 – in addition to alternative 1, the no action/no leasing alternative. Chapter 3 of the final supplemental environmental impact statement discloses the anticipated effects on lynx and lynx critical habitat for all alternatives while considering the incorporated stipulations such as no surface occupancy and controlled surface use as described in chapter 2 and appendix C.

At the leasing stage, locations of ground-disturbing activities (for example, roads) are not known. Page 42 of the draft supplemental environmental impact statement includes possible mitigation measures for wildlife protection. Also noted in draft supplemental environmental impact statement, page 43, is the following:

"If and when exploration and development projects are proposed, the appropriate environmental protection measures (such as best management practices, mitigation, and standard operating procedures) and reclamation measures would be identified through a site-specific environmental analysis process."

The Forest Service recognizes specific research on oil and gas development impacts on lynx are lacking, but research does exist on the associated activities required for oil and gas development such as road construction and improvement, human disturbance, and vegetation removal (pages 188 through 190; draft supplemental environmental impact statement). As stated on page 211 of the draft supplemental environmental impact statement,

"human activity at various stages of exploration and development may induce some level of disturbance and displacement of lynx."

This is further explained in the paragraph and includes the following statement:

"Once the development phase has passed, if the vegetation structure remains intact, and adequate prey are available, lynx may use habitat adjacent to the developed site."

In regards to suitable habitat in the lynx analysis units, as stated on page 211 of the draft supplemental environmental impact statement,

"The amount of potential habitat conversion to unsuitable that would occur if alternative 2 is implemented would be relatively small compared to the amount of habitat remaining in the Wyoming Range, but the local effects in and around burn areas in the Wyoming Range East Front could be significant because the habitat that burned was considered 'high quality' based on lynx use ..."

Past, present, and reasonably foreseeable vegetation management actions, grazing, recreation, wildfire, and oil and gas actions in the cumulative effects area were considered in the analysis in chapter 3 of the draft supplemental environmental impact statement. These actions were summarized in appendix E of the draft supplemental environmental impact statement. Page 188 of the draft supplemental environmental impact statement cited Ruediger et al. 2000 with the statement

"Human developments including oil and gas exploration and development may affect lynx by changing or eliminating vegetation and contributing to fragmentation (Ruediger et al. 2000)."

Chapter 3 of the draft supplemental environmental impact statement outlines the historical occurrence of lynx throughout the project area as well as dispersing lynx moving through the area, indicating habitat is present in the project area and there would be impacts to that habitat as described in the analysis. Although the last documented occurrence of lynx in the project area occurred in 2010, this does not mean lynx are not there currently or would not be in the area in the future. The project area and surrounding habitat has been occupied by lynx in the past, thus it provides some form of desirable habitat. Page 216 of the draft supplemental environmental impact statement notes the habitat is of very high value to lynx but the amount represents a relatively minor percentage of the 9,500-square-mile habitat unit in the Greater Yellowstone Area.

The importance of the project area to lynx is well documented and supported by peer-reviewed research and personal communication with scientists who have studied the species in Wyoming (page 191, draft supplemental environmental impact statement). Additionally, historic lynx collar location data is provided in figures A-3 and A-10 (draft supplemental environmental impact statement) and historic lynx presence in the project area is detailed throughout chapter 3.

Chapter 3 describes the effects of roads on lynx and recognizes the probability of a vehicle collision is low. Prior instances of lynx mortality associated with vehicle collisions are discussed on page 189 of the draft supplemental environmental impact statement:

"...and recent information documents that 30 percent of the 98 mortalities of these reintroduced lynx were related to collisions with vehicles (CDOW 2008)."

However, there are other impacts from roads that could affect the species: the potential for incidental shooting, poaching, incidental trapping, competition, and predation by competing carnivores.

Snow compaction is recognized as a possible threat to lynx but as explained on page 189 of the draft supplemental environmental impact statement,

"research has provided no conclusive evidence that snow compacted routes adversely affect lynx or their habitats..." (USFWS 2007a).

Since then, research on this topic has had varying results (Kolbe et al. 2007 and Burghardt-Dowd 2010). Kolbe (et al. 2007) concluded that compacted snow routes did not seem to influence prey competition with coyotes in deep snow areas within their study area. However, research by Burghardt-Dowd (2010) in the Togwotee Pass area indicates that coyotes use compacted snow trails more than expected. New research was taken into account and analyzed with the recognition that it is not conclusive.

The analysis discloses the impacts on lynx, lynx travel corridors or linkage, and lynx critical habitat would be relatively minor as stated in the "Rationale for Determination" section on page 232 (draft supplemental environmental impact statement). Although each leasing alternative could result in disturbance and/or habitat alteration in lynx habitat, the amount of disturbance is minor when analyzed at the landscape scale. Alternative 2 has the potential to disturb a total of 88 acres of lynx habitat in the lease parcels. There are currently 23,346 acres of lynx habitat distributed throughout these parcels. If all 88 acres were to be developed, that results in 0.37 percent of the available lynx habitat being affected. All alternatives would meet the objectives, standards and guidelines outlined in the Northern Rockies Lynx Management Direction.

Stand initiation structural stage is defined in chapter 3, page 188 (draft supplemental environmental impact statement), where it states

"Lynx habitat in an unsuitable condition is defined as -lynx habitat in the stand initiation structural stage where the trees are generally less than ten to 30 years old and have not grown tall enough to protrude above the snow during winter. Stand replacing fire or certain vegetation management projects can create unsuitable conditions."

We added a sentence to help define suitable habitat under lynx analysis units (page 193; draft supplemental environmental impact statement) where it now says

"Defined primary vegetation types that provide lynx habitat on the Bridger-Teton National Forest are subalpine fir habitat types dominated by cover types of spruce/fir, seral lodgepole pine, and aspen (USDA Forest Service 2007a). These vegetation types in the absence of disturbance are classified as habitat in a suitable condition."

Data on stand initiation habitat (unsuitable) and suitable habitat in lynx analysis units are provided in the draft supplemental environmental impact statement in tables 58, 65, and 66 and figures A-6, A-7, and A-8.

The discussion on the Fontenelle fire (pages 194 through 195, draft supplemental environmental impact statement) is an explanation of the lynx analysis unit habitat suitability condition and the impact of the fire on that habitat. Page 193 of the draft supplemental environmental impact statement recognizes that "large high-intensity wildfires are occurring at higher frequencies, and additional such wildfires are likely to occur over the next 40 year period," which will affect lynx habitat into the future.

All action alternatives received the same the determination: "may affect, not likely to adversely affect." This is the appropriate conclusion when effects on listed species are expected to be discountable, insignificant, or completely beneficial. The determination was based on the assumption that all stipulations identified for the alternatives would be included in leases and implemented during oil and gas development, and that Northern Rockies Lynx Management Direction recommendations for minimizing effects of any new roads ..." Refer to page 232 (draft supplemental environmental impact statement) under "Rationale for Determination".

The lynx analysis information is provided along with the rest of the resource analyses, and a comparison of the potential impacts of each alternative under consideration is available to the deciding official for preparation of the record of decision.

Concern 12: The Forest Service should disclose the negative impacts on mule deer

Associated Comments:

Nearly the entire project area (all except seven acres of the 39,490 according to Table 85) offers spring, fall, summer range and/or transitional habitat for mule deer. Id. at 315. Of the deer that use the contested lease acres, 85 percent belong to either the Wyoming Range Herd Unit or the Sublette Herd Unit. Id. at 313. "Gas field development"-resulting in direct and indirect habitat loss on the Mesa where the Sublette herd winters-"has and will continue to impact deer numbers in this herd unit." Id. at 314. Because "[s]tudies have demonstrated that [these] deer [have] avoid[ed] areas with intensive winter gas development," it is of the utmost importance to protect the non-winter seasonal ranges and transitional habitat the herd relies on in the Wyoming Range. Id. The EIS provides important data regarding the Mesa and Ryegrass herds' use of migration corridors and stopover areas in "all" the leases in the northern block around Horse Creek and Beaver Creek. Id. at 316. The Mesa herd also uses the middle block of leases around North and South Cottonwood Creeks. Id. The Calpet Road herd uses the middle and southern blocks of leases for transition and summer habitat. Id. Thus, all of the contested oil and gas leases have an

important role to play in supporting mule deer. The no leasing alternative is the one that will best protect mule deer habitat in the range; it is also the one that will best maintain wildlife viewing and hunting opportunities into the future.

Mule Deer Only the No Action/No Leasing alternative would have negligible effects on the health and population of mule deer in the area. The Wyoming Range is part of an important migration route for mule deer that is only recently being recognized for its length, value and importance in sustaining this critical herd. As shown in Table 85, nearly the entire project area is important habitat for mule deer throughout the year (DSEIS p.315). Studies conducted in the nearby Pinedale Anticline gas field development have shown negative impacts on mule deer populations. Sublette and the Wyoming Range herd units are the two main units which would be impacted by oil and gas development in the project area. The Sublette herd unit has had a decline in population of 30 percent (DSEIS p. 314) and "studies have demonstrated that deer avoid areas with intensive winter gas development, resulting in less forage available.

We have concerns that the action alternatives will result in increased human activities on parturition and transition ranges that will negatively impact this deer population.

Response:

Support for alternative 1, no action/no leasing, is noted.

Effects to deer are discussed in the draft supplemental environmental impact statement in chapter 3, under the "Management Indicator Species" section (pages 302 through 304, 312 through 316, 331 through 340; appendix A, figures A-43-47). Alternative 3 incorporated controlled surface use, timing limitations, and no-surface-occupancy stipulations to enhance resource protection, including protection for wildlife. Alternative 4 would incorporate no-surface-occupancy stipulations and would not allow surface disturbance in the project leases. Alternative 1, no action/no leasing, protects project lease parcels from disturbance.

Concern 13: The Forest Service should disclose impacts on elk

Associated Comments:

Eighty-four percent of the project area (i.e. the 39,490 contested lease acres) provides habitat during some time of the year for elk. The Piney Elk Herd Unit (the area in which nearly all of the project area is found) provides "crucial winter, winter, spring parturition, summer and transitional habitat" for elk. EIS at 306. "Crucial winter range occurs in nine lease parcels totaling 3,507 acres. Winter/yearlong habitat is found in 17 lease parcels totaling 7,909 acres and parturition habitat occurs in 29 lease parcels totaling 21,799 acres." Id. at 307. Two southern lease parcels (WYW-173279 and WYW-173280) provide crucial winter range and show the highest use of any of the lease parcels in the spring and fall transition periods. See Figures A-28 and A-31; EIS Appendix A at 32, 35. The wildlife values are extremely high in this southern lease area; and as a result, it's a popular hunting destination. Increased road density and motorized traffic that accompanies oil and gas development poses a significant threat to elk. As the EIS explains, elk are particularly sensitive to the motorized use of roads, which has been documented to cause decreased habitat effectiveness (i.e. the measure of habitat functionality) for elk. EIS at 306, 308. Most of the 39,490 acres contains beneficial elk summer habitat-retaining "high" (70 percent) or "moderate" (50 percent) elk use. Id. at 310-11. In the southern portion of the leased area, there is a slightly lower level (48 percent)-as was documented in certain sub-groups of the leases. "High open road densities within these areas are directly related to low habitat effectiveness values." Id. at 311. A no leasing decision-a decision that would involve no new well pads and associated infrastructure and no new roads or increased traffic on existing roads-would pose the least threat to habitat effectiveness and would offer the highest benefit to elk.

The project area also encompasses important parturition range for the Piney elk herd. Elk are known to use the project area as parturition range based on the post-partum site specific locations of radio-collared elk. We referenced the importance of this area as an elk calving area and provided preliminary elk seasonal range data to the Forest Service during the analysis of the original 44-7 oil and gas leasing zone.

We referenced the importance of this area as an elk calving area and provided preliminary elk seasonal range data to the Forest Service during the analysis of the original 44-7 oil and gas leasing zone.

Response:

Support for alternative 1, no action/no leasing, is noted.

Elk seasonal range data, along with other updated habitat information from the Wyoming Game and Fish Department, was considered during this analysis. Alternative 3 incorporated controlled surface use, timing limitations, and no surface occupancy stipulations to enhance resource protection, including protection for wildlife. Alternative 4 would incorporate no-surface-occupancy stipulations and would not allow surface disturbance in the project leases. Alternative 1, no action/no leasing, protects project lease parcels from disturbance. Effects to elk are discussed in chapter 3 of the draft supplemental environmental impact statement, under the "Management Indicator Species" section (pages 302 through 312, 331 through 340; appendix A, figures A-22 through A-42).

Concern 14: The Forest Service should disclose impacts on moose and wolverine

Associated Comments:

The Wyoming Range is home to more than half (56 percent) of all the Shiras moose in the State of Wyoming. EIS at 317. As Table 87 illustrates, all but six acres of the 39,490 acres of contested oil and gas leases provide either critical winter range, winter/yearlong range or spring/summer/fall habitat for moose. Id. at 319. The "core of the Sublette Moose Herd Unit" falls within the northern block of contested leases in the South Beaver, North Horse and Cottonwood drainages. Id. As the EIS states, "These watersheds provide yearlong habitat for moose, highlighting the need to maintain and conserve their seasonal migratory routes and ranges." Id. at 318. As with elk and mule deer, whose ranges often overlap with moose in the Wyoming Range, the no leasing alternative provides the highest level of habitat protection for moose.

Wolverine - The No Action/No Leasing alternative has the least impact on wolverines. Human infrastructure can negatively impact wolverines, and wolverines are less likely to occur at sites with land management impacts such as logging, oil and gas exploration, and infrastructure development (Banci 1994, May et al. 2006, Squires et al. 2007, Krebs et al. 2007, Bowman et al. 2010, Fisher et al. 2013). A recent study has shown that there is spatial variability in wolverine behavior, and that this variability corresponds to increases in human footprint (Stewart et al. 2016). They concluded that wolverines' behavioral shift in association with human footprint is additional evidence implicating landscape development as one of several mechanisms of population decline and range contraction (ibid). Roads threaten wolverine populations by causing direct mortality and limiting dispersal (Inman et al. 2007; Krebs et al. 2004) and roads have indirect impacts on wolverine habitat and on individuals' movements, as wolverines appear to avoid roads (Packila et al. 2007; Dawson et al. 2010; Squires et al. 2006; Austin 1998). Since the No Action/No Leasing alternative does not add more roads and human infrastructure unlike the other alternatives, it will have less impacts to wolverines and thus we support it. Below, we have provided references to two new studies that can help inform the BTNF on this and other efforts. In the DSEIS, it does not appear a recent Wyoming wolverine monitoring study was included in analysis (Inman et al. 2015) (attached). This effort found wolverines relatively near the Wyoming Range in the Wind River Range, Gros Ventre, and Southern Absarokas in 2014-2015. While a wolverine was not found

in the Wyoming Range itself, wolverine habitat certainly occurs there as modeling efforts show and as discussed in the DSEIS. Additionally, wolverines travel vast distances. Since it does not include the newest best available science of that recent study, the DSEIS incorrectly dismisses the potential effects to wolverines; "Their presence in the project area is considered extremely unlikely due to its location on the extreme southern end of their current distribution, the paucity of recent and historic documented occurrences in the area, and the very low population density that is indicative of wolverines" (p.268). The DSEIS goes on to note "The parcels are outside the current distribution boundary for the breeding population of wolverine in the northern Rocky Mountains and Cascade Mountains in Washington" and includes that distribution boundary map (Figure 50 in the DSEIS p. 272) referenced to Inman et al. 2013, yet Inman led the more recent Wyoming study that recently found wolverines outside of that 'current' distribution boundary he had made. There is every reason to believe the Wyoming Range to be a part of the current wolverine distribution. Wolverines have been found very nearby and thus there is every likelihood they could occur within the parcels. Another study (attached) provides more up to date information on wolverines in the Grand Tetons than the data presented in the DSEIS. After two seasons of intense monitoring (460 trap nights, 10 traps), only one wolverine was found and it was the same male (=13 years old) that was captured in that same location in 2002 (Heinemeyer and Squires 2015). If another wolverine were to be present, "it would be expected that he should have been displaced by a younger, prime-age male if one were present" (ibid). This is worrisome, as previously, it was assumed that all territories in the Tetons were occupied (Inman et al. 2007 as cited in DSEIS). With this new information, the BTNF should reexamine impacts to wolverines from Alternatives 2- 4 if the No Action/No Leasing alternative is not selected.

Moose - The No Action/No Leasing alternative has the least impact on moose. Moose population size and distribution are declining in Wyoming and moose are a species of greatest conservation need within the state (DSEIS p. 316). According to the WGFD, 56% of all moose counted in the state were a part of the Sublette Moose Herd. (DSEIS p. 317). Like other big game species in the area, almost all of the project areas are critical, seasonal, yearlong or some mixture thereof habitat to moose populations (Table 87, DSEIS p. 319). Moose were observed using the lease parcels in the northern and middle blocks for calf parturition and rearing (DSEIS p. 321). Moose are in decline in most of western Wyoming for reasons that have yet to be fully understood which has resulted in significant license quota reductions over the past several years¹. However, the Sublette moose herd seems to be more resilient to these factors and has remained relatively stable in comparison to moose in the Jackson, Lincoln and Uinta herds. This stability should not be confused with resiliency to increased development, but rather should be conserved with enhanced protections because of its regional significance. This area is particularly valuable to moose and recreational opportunities related to wildlife watching and moose hunting. Because of the riparian drainages that contain critical, seasonal, or yearlong moose habitat, it is likely that any increase in development would exacerbate impacts on moose along these riparian corridors. To demonstrate the value of moose to the local residents of the area, hunters wait 12-17 years to draw coveted moose hunting licenses in the project area (HA 24).²

Response:

Support for alternative 1, no action/no leasing, is noted.

Effects to moose are discussed in chapter 3 of the draft supplemental environmental impact statement, under the "Management Indicator Species" section (pages 302 through 304, 316 through 321, 331 through 340; appendix A, figures A-48 through A-52). The 2015 study by Inman was added to the wolverine discussion in the final supplemental environmental impact statement.

Concern 15: The Forest Service should disclose impacts on wildlife

Associated Comments:

The DSEIS provides an enormous amount of information on individual wildlife species, much of it seemingly superfluous or moot to the possible effects associated with the project. For instance, for bald eagles, the DSEIS concludes on page 273 that "there are no large bodies of water capable of supporting nesting bald eagles in the project area." That statement alone makes eagles a non-issue for the project. It is disclosed that eagles may winter in the Wyoming Range, but the small scale of the project does not include anything that might be identified as a major source of potential winter mortality (i.e. wind generating plants and utility lines). The DSEIS discloses on page 299 that "under the reasonably foreseeable development scenario for Alternative 2, it is estimated that up to 218 acres of wintering habitat for bald eagles... could be lost or altered, but concludes that eagle winter ranges are so extensive that impacts to winter range within the lease parcels likely have little influence on the overwinter survival of bald eagles." That discussion justifies the "May Impact Individuals biological determination." Unfortunately, it takes the DSEIS four pages of dialogue in the Affected Environment section and four more pages in the Environmental Consequences section to reach that biological determination. Included in the eight pages of dialogue are recommended buffers around nests (irrelevant since there is no nest habitat in the project area) and discussion on a century of illegal shooting trends (again, not relevant to project-related effects). We request that the existing condition and potential effects be more accurately portrayed based on the points raised above.

Impacts of alternatives to wildlife resources The No Action/No Leasing alternative will create the least negative impacts to wildlife resources. As is documented in detail in the DSEIS, the Wyoming Range including the project area represents important habitat, migration routes and use for a variety of wildlife species including gray wolf, moose, mule deer, elk, pronghorn antelope, Canada lynx, wolverine, black bear, grizzly bear, and many others. In general, we agree with the DSEIS findings supported by research that there are; "no positive benefits to native species of wildlife, fish, or rare plants have been identified from increases in road and trail access. Direct and indirect effects on species that have been identified in the literature indicate negative impacts to all studied species as motorized, mechanized, and other travel uses increase (DSEIS p. 337)." Therefore, to fulfill the BTNF's mission of protecting the wildlife resources that depend on the area, the No Action/No Leasing alternative is the best alternative. Oil and gas development in all phases can have harmful impacts to wildlife. Road development and subsequent increases in human motorized activity can have myriad negative impacts on wildlife including increased wildlife-vehicle collisions, increased illegal take of wildlife, habitat alteration and/or loss, potential for introduction and spread of noxious weeds. Noxious weeds are already present in the project area and their spread through project activities could negatively affect rare and native plant habitat and the wildlife who depend on them (DSEIS p. ix). While all of the species present in the project area could be impacted by alternatives 2-4, these comments will focus specifically on the following species: Canada lynx, wolverines, grizzly bears, moose, mule deer and elk.

There is a plethora of moose, mule deer, and sage-grouse radio telemetry data which highlights this area as critically important to wildlife for breeding grounds, migration routes and stopover areas. We asked that serious consideration be given to these values as well.

There are biologists trying now to build a corridor of habitat, of lands that wildlife such as Bison, Elk, and Grizzly can migrate and travel from Yellowstone thru to Glacier, and on to the Parks in Canada all the way up to the Arctic. These populations of wildlife in Yellowstone cannot survive as only an island ecosystem. These animals need further and wider protection to ensure the gene pools and the viability of their future generations.

Response:

Support for alternative 1 and agreement with the draft supplemental environmental impact statement analysis is noted.

Effects to bald eagles were discussed in chapter 3 of the draft supplemental environmental impact statement for the alternatives considered in detail. The draft supplemental environmental impact statement discussed bald eagle habitat and documented occurrences on page 274 under "Habitat and Species Presence in the Project Area". Although the paragraph states there are no large bodies of water capable of supporting nesting bald eagles in the project area, it continues to discuss known eagle nesting data from the Wyoming Game and Fish Department (2014a) (see draft supplemental environmental impact statement, table 77 at top of page 275), and global positioning system (GPS) locations of bald eagle use within, and near, the southern lease parcels (Bedrosian et al. 2013) (see draft supplemental environmental impact statement, figure 51 on page 275). Disclosing known information is appropriate for this analysis. Due to the documented bald eagle locations in and near the project lease parcels, the recommended buffers around nests provide habitat protection for any winter roosts and nests discovered prior to, or during, exploration activities.

The draft supplemental environmental impact statement considered updated data provided by the Wyoming Game and Fish Department in the analysis for moose and mule deer under management indicator species (pages 312 through 321, 331 through 340; appendix A, figures A-43 through A-52) and sage-grouse under sensitive species (pages 243 through 251, 276 through 284; appendix A, figures A-14 through A-16).

The draft supplemental environmental impact statement chapter 3 "Terrestrial Wildlife" section discussed habitat and the effects of this project on grizzly bear under endangered and threatened species (pages 201 through 209, 237 through 240) and elk under management indicator species (pages 304 through 312, 331 through 340).

Concern 16: The Forest Service should disclose impacts to water resources

Associated Comments:

We did not find a detailed discussion for pipeline crossing for streams. Will pipeline be bored or trenched. Overall the potential impacts of pipelines, storage areas, water facilities, etc. have not been adequately analyzed.

Chapter 2 - Table 14: Stream Channel Crossings: Alternative 3 has the same amount of impact as Alternative 2. However in the affected environment section of DSEIS it states that there will be no stream channel crossings because of the NSO and the 500 + buffers. Table 14 indicates that there will be stream crossings. This is confusing and we ask that the section be reviewed.

Page 353 - Stream Flow Characteristics 2. Comment: The DEIS notes that no USGS stream gage stations are available within the project area. However, the SEO maintains a network of stream gage stations that have real-time streamflow data available via this link: <http://seoflow.wyo.gov/>. A basic search of this geospatial rendering of discharge points indicates that there are a number of stations within the HUC6 watershed boundaries of the project area. These include Middle Piney Creek, North Piney Creek, South Cottonwood Creek, and North Horse Creek. Although the DEIS indicates that no detailed streamflow or sediment modeling will be conducted, the data from these stream gages could be useful to consider when discussing stream flow characteristics and the environmental consequences for each alternative starting on page 357.

Response:

Water quality and quantity were discussed in chapter 3 of the draft supplemental environmental impact statement. The error in the table 14 has been corrected in the final supplemental environmental impact statement; no stream channel crossings are anticipated under alternative 3. A map of the past, present, and reasonably foreseeable projects considered in the cumulative effects analyses was provided in figure 11, near the beginning of chapter 3. The past, present, and reasonably foreseeable projects were summarized in volume 2, appendix E.

The analysis of site-specific, ground-disturbing activities is beyond the scope of this document (draft supplemental environmental impact statement, chapter 1, pg. 12 through 13 and page 22). If surface use plans are received, further analysis would be undertaken and appropriate protection measures would be identified; for example, a closed-loop system could be required so no reserve pits would be used. Data provided regarding streamflow (real-time streamflow data available via this link: <http://seoflow.wyo.gov/>) would be useful during site-specific analysis after road and leasing infrastructure locations are made available.

We believe our evaluation of “functioning at risk” is correct. After field review, we determined the majority of the riparian and floodplain function in these watersheds was not impacted by the fires. They still have functioning floodplains and riparian areas with recovering uplands slopes. The burned hillslopes are recovering with understory growth. Abundant coarse woody debris has fallen on hillslopes to provide roughness and increased stability. There have been localized areas of post-fire debris flows and flooding within these watersheds but not to the point where function of the entire watershed has been compromised.

Under the action alternatives, at the application-for-permit-to-drill stage, a site-specific environmental analysis would occur, with a more detailed analysis of the watersheds. If recovery has not been achieved and road and infrastructure locations would affect overall watershed function, those units would have mitigations proposed to protect surface water quality, best management practices would be prescribed, or parcels would be dropped if surface water quality could not be protected. The site-specific analysis would include a cumulative effects analysis to assess all potential effects in each impacted watershed.

Potential effects from future disturbance would depend on how much disturbance is proposed in these drainages and the location of the disturbance. For example, significant watershed impacts would be unlikely if 10 acres of pad and 0.2 miles of new road were proposed on flat ground, away from streams, on stable soils, in an unburned area.

Concern 17: The Forest Service should disclose impacts to groundwater resources

Associated Comments:

Groundwater resources The EIS outlines scenarios in which groundwater could become contaminated from oil and gas drilling or production operations. EIS at 382-83. Pipeline and well casing failure, the processes of well drilling and improper construction, and management of open fluid pits and production facilities all pose risks to groundwater resources. Id. at 382. This is especially concerning in the Wyoming Range due to documented “high aquifer sensitivity” where many of the contested lease parcels are located. Id. at 373, 375. It is also of concern because, as the EIS states, “based on reports from other national forests with active oil and gas production, minor spills and leaks of gas are a common occurrence.” EIS at 147. The no leasing alternative is the only one that ensures groundwater resources will not be contaminated from new oil and gas drilling and production in the Wyoming Range.

As demonstrated by the Forest Service's discussion of unavoidable adverse effects, implementation of the leasing alternative will result in very minor and localized impacts. As far as groundwater resources are concerned, the 2016 DSEIS identifies only "minor effects on watershed resources," which can be considerably reduced through "the use of appropriately designed site -specific mitigations at the [APD] stage of planning." 2016 DSEIS, pg. 484.

Page 369 - Laws, Regulations and Other Direction Relevant to Groundwater Resources 4. The same regulatory framework stated in comment #1 above applies to groundwater resources.

Response:

Support for alternative 1, no action/no leasing, is noted.

The draft supplemental environmental impact statement discussed effects to groundwater in chapter 3 (pages 368 through 390). The anticipated post-leasing activities were discussed in draft supplemental environmental impact statement on pages 43 through 44, which note the appropriate environmental protection measures and reclamation measures would be identified throughout a site-specific environmental analysis process. This includes following best management practices in the construction of well pads and access roads, drilling, completions, production, and reclamation. The summary section notes implementation of best management practices and operators spill prevention countermeasure and control procedures and requirements for construction, material containment, and reclamation would reduce potential impacts.

Wyoming statute information was added to the final supplemental environmental impact statement chapter 3 listing of laws, regulations and other direction relevant to surface water. This information is also relevant to groundwater.

Concern 18: The Forest Service should disclose impacts to surface water resources

Associated Comments:

I have concerns about the water sources in these areas. Without a big river flowing thru the area and creeks running only during the spring runoff the wildlife is dependent on the many springs and seeps in the forest. I worry that drilling would harm these spring.

Chapter 2 - Table 14: Water depletion is listed as 35 acre-feet. The document does not identify where this surface water depletion will occur (what streams will they be pulling water from).

Page 342 -- Laws, Regulations and Other Direction Relevant to Surface Water Resources 1. Comment: Title 41 of the Wyoming Statutes establishes the authority for the SEO to administer and regulate water within the State of Wyoming. The agency regularly develops policies, procedures, rules, and orders that directly govern the use of water in the state. This statutory authority should be included in the list of laws and regulations concerning water resources in this section of the DEIS.

Although the DSEIS appears to adequately analyze potential impacts of the alternatives on many other resources, from a water quality standpoint, the analyses in the DSEIS are inadequate to make an informed decision regarding leasing these parcels or selecting an alternative. The DEIS appears to underestimate surface disturbances if the parcels are leased. Although the Forest Service apparently has considerable site specific data that could provide valuable input into the suitability of leasing in each parcel, that data was summarized and applied at such a broad scale that informed decisions cannot be made.

Response:

The draft supplemental environmental impact statement noted (page 3) that offering Federal lands for leasing does not authorize any development. This analysis was based on the reasonably foreseeable development scenario as discussed in the draft supplemental environmental impact statement, chapter 1, pages 22 through 24. Site-specific locations of potential future actions are not known at the leasing stage.

Further site-specific environmental analysis and a decision must occur if ground-disturbing proposals are received on leases that may be issued (draft supplemental environmental impact statement page 43). If exploration and development projects are proposed and locations known, the site-specific proposal will undergo an environmental analysis and comments on the specific proposals will be sought. Appropriate environmental protection measures (such as best management practices, mitigation measures, and standard operating procedures) and reclamation measures would be identified in the site-specific environmental analysis process to ensure compliance with applicable laws, regulations, and policy.

Table 14 provides a summary of effects (draft supplemental environmental impact statement, chapter 2). Water depletion was considered and disclosed (draft supplemental environmental impact statement, chapter 3, page 386). The Wasatch Formation aquifer generally recharges in the lease area; that is, it receives some infiltration from precipitation. Depletion of the Wasatch Formation aquifer could decrease local contribution to flow in streams or springs down gradient of the lease area. Groundwater flow typically supplies a minimum base flow throughout the year, and depletion of groundwater flow could reduce flow in streams or springs. Reduction in surface flow is unlikely because the volumes of groundwater projected to be pumped from the Wasatch Formation is small (50,000 to 880,000 gallons per well). This equates to an estimated 2.7 acre-feet per well (USDI BLM 1999). As such, no short-term or long-term significant impacts are expected from implementation of any of the leasing alternatives.

The 35 acre-feet of water depletion (discussed in table 116 on page 410) is a general estimate of the water usage. Locations of water usage are not known at the leasing stage.

The Forest Plan includes mitigation to protect watershed resources, including seeps and springs, (see draft supplemental environmental impact statement chapter 2 page 43) and best management practices (see chapter 3 pages 343-344). These would be prescribed to protect watershed resources, including water flows and seeps and springs. We recognize several of the watersheds are functioning at risk based on water quantity. Under the action alternatives, if site-specific actions are proposed at the application-for-permit-to-drill stage, an environmental analysis would determine effects to water resources in the area. A cumulative effects analysis would be conducted at the site-specific stage to determine if additional water withdrawals would be detrimental to aquatic habitat.

Corrections were made in the “Surface Water” section of the final supplemental environmental impact statement. Designated uses were corrected in table 98. Mitigation measures 8 and 9 were corrected to refer to the access and watershed measures (listed on pages 42 and 43 of the draft supplemental environmental impact statement). The State direction has been added to the “Laws, Regulations and Other Direction Relevant to Surface Water Resources” section.

The draft supplemental environmental impact statement noted the following about riparian mapping (pages 353 -356):

"For analysis purposes, riparian vegetation as mapped for the 30 parcels proposed for this project. The acres (approximately 2,962 acres), by 6th-field watershed are shown in table 99, figure 55 and figure 56."

The riparian map was created for determining where the no-surface-occupancy stipulation would be located within the project lease parcels. Riparian areas outside the parcels were not mapped. The 106 miles of riparian area not assessed are related to the Wyoming habitat assessment methodology conducted for certain streams in the project area unrelated to this project. Only areas where data was collected were presented.

The draft supplemental environmental impact statement lists the Lower Horse Creek-Green River watershed in as the only project area watershed that is functioning at risk due to issues with riparian condition (chapter 3, page 349). If 14 of 15 watersheds do not have riparian concerns, riparian habitat conditions are generally in good overall condition. Further, appropriate mitigation measures and best management practices would be implemented to protect riparian resources.

Concern 19: The Forest Service should disclose impacts to recreation, particularly backcountry recreation opportunities

Associated Comments:

The EIS considers existing uses and the ways in which those uses could be impacted if another use-in this case oil and gas development-were to be authorized. To name only a few examples, recreational users would be displaced (e.g. higher spring, summer and fall traffic on access roads associated with oil and gas operations, and plowed roads in winter displacing snow machine recreation); wells and drilling operations would require miles of new roads impacting quiet, backcountry settings and wildlife habitat; and lights from operations would impose an industrial feeling at night in what is now a remote place with dark night skies. There is simply no doubt that oil and gas development on any of the contested leases in the Wyoming Range would dramatically and negatively change the current undeveloped character, the stunning scenery, feeling of remoteness, opportunities for solitude and the recreational enjoyment people appreciate about this place. Managing for multiple use is the Forest Service's responsibility. Doing so requires thoughtful decisions about the highest and best uses for any given landscape. Not all of the conceivable uses can take place simultaneously on every acre. Some uses are simply incompatible with others. We urge the Forest Service in this case, to adopt the no leasing preferred alternative as its final decision.

Recreation: Recreation in many forms-hiking, fishing, camping, hunting, mountain biking, ATV riding, skiing, snowmobiling, wildlife watching, horse packing, backpacking-is available in the Wyoming Range. The EIS is correct to highlight a unique niche that the Wyoming Range in the Bridger-Teton National Forest occupies within the larger National Forest System. Namely, unlike many other forests where one must choose between extremes, e.g. designated wilderness settings or roaded, developed settings, the Wyoming Range's dispersed recreation opportunities, specifically its abundance of roadless backcountry, is truly special. EIS at 127. Moreover, there are quite a few opportunities for dispersed camping free of charge where folks can "get off by themselves" outside formal campgrounds, but with easy access for individuals and families with tents and camping vehicles. Id. There is something for everyone in the Wyoming Range. Social surveys conducted in surrounding counties are informative and give a snapshot of the values people attribute to the Bridger-Teton National Forest. EIS at 124-25. The contested oil and gas leases are entirely within Sublette County, and since the county is a cooperating agency in this process, it is of particular interest to review the results from Sublette County. When asked to assign a monetary value to various attributes, Sublette County respondents gave the highest value (83 out of a possible 100) to "recreation." Id. at 124, Table 40. This is second only to Teton County (89 out of 100) and higher than Fremont, Lincoln and Park (74, 76, 71 out of 100 respectively). Id. The attribute that received the lowest value from Sublette County residents was "economic" (36 out of a possible 100).⁵ Id. It was also the lowest value among all of the counties surveyed. Id. Fremont, Lincoln, Park and Teton attributed higher values to economic: 59, 43, 51 and 44 out of 100 respectively). Id. After recreation, the

other two categories that received the highest numerical values in Sublette County were "aesthetic" (75) and biological diversity (75). Id. When asked specifically about preferences about oil and gas leasing on the Bridger-Teton National Forest, 51 percent of respondents from Sublette County said they would prefer "not to have any leases" on the forest. Id. at 125, Table 41. This is significantly higher than respondents from Fremont, Lincoln, Park and Teton, of whom 23 percent, 28 percent, 19 percent and 35 percent (respectively) preferred no oil and gas leases on the forest. Id. When asked whether oil and gas leasing should be expanded on the forest, only 5 percent of Sublette County respondents agreed. Id. In contrast, 19 percent of Fremont, 20 percent of Lincoln, 23 percent of Park and 9 percent of Teton respondents favored expansion of leasing on the Bridger-Teton. Id. It is evident that recreation is of the highest importance to the people who enjoy the Wyoming Range-especially to the people who live in Sublette County. A no leasing decision ensures that an incompatible use (oil and gas development) does not adversely affect a use (recreation) that is valued above all others.

We should be focusing primarily on conservation and sustainable development, we do not have infinite amounts of back-country at our disposal. Let's do the right thing!

Response:

Support for alternative 1, no action/no leasing, is noted.

The Omnibus Public Land Management Act of 2009 (also referred to as the Wyoming Range Legacy Act) is discussed in chapter 1 of the final supplemental environmental impact statement. Potential effects on the backcountry recreation setting, special areas, recreation opportunities, and the values of people in surrounding communities are disclosed in chapter 3 of the draft supplemental environmental impact statement.

All potential impacts discussed in the draft supplemental environmental impact statement are considered indirect effects because a decision to offer federal land for leasing does not authorize any development. Further site-specific environmental analysis and a decision must occur if ground-disturbing proposals are received on leases that may be issued (draft supplemental environmental impact statement page 3). Additional site-specific analyses would occur at the application-for-permit-to-drill stage to analyze site-specific proposals and appropriate mitigation measures would be identified to reduce impacts to recreation.

Concern 20: The Forest Service should disclose impacts from roads and trails

Associated Comments:

The proposal also states that road work would be part of the actions associated with the proposed activities (oil and gas extraction), and proposes approximately 10.8 miles of road construction or reconstruction. The agency states that roughly 50 percent of the road miles would be reconstruction and 50 percent would be newly constructed roads. The agency should provide specifics about these activities.

The FEIS should also explain whether these roads would be closed to the public, how long they will be left on the landscape, how they will be decommissioned, what specific funding will be used to decommission and obliterate roads, what risk of unauthorized use of those roads by the public would be, and what funding exists to prevent unauthorized use of those roads.

B. The Forest Service should accurately define the official road network as the baseline for the NEPA analysis. On many past projects, the Forest Service considers the baseline and no-action alternative one and the same. But that does not have to be the case. See, e.g., FSH 1909.15, 14.2; CEQ's Forty Most Asked Questions (1981), #3 (explaining "[t]here are two distinct interpretations of 'no action'; one is 'no

change' from current management direction or level of management intensity," and the other is if "the proposed activity would not take place"). If current management direction continued on a forest, the Forest Service would continue not to recognize decommissioned roads and unauthorized roads as part of the road system. Of course, these roads would still have impacts. Disclosure of the number and location of decommissioned routes and unauthorized routes, as well as the impacts of those routes, is a necessary component of the no- action alternative. But it is separate and distinct from the identification of the baseline open route system. The official open Forest Service road network should be the only system considered as the baseline open route system for an action. The baseline should not include decommissioned routes or unauthorized routes.

Response:

Addressing forest roads and travel management is beyond the scope of this analysis.

Support for alternative 1, no action/no leasing, is noted.

The reasonably foreseeable development scenarios in alternatives 2, 3, and 4 consider off-site drilling, directional drilling, reconstruction of existing roads, and the use of road rights-of-way for pipeline disturbance (draft supplemental environmental impact statement, chapter 1, page 24 and chapter 2, pages 25 through 36).

The analysis of site-specific, road-building activities is not possible because locations of potential future actions are not known at the leasing stage. If surface use plans are received, further analysis would be undertaken. This analysis was based on the reasonably foreseeable development scenario as discussed in the draft supplemental environmental impact statement chapter 1 on pages 22 through 24. The effects of roads are considered in the "Affected Environment and Environmental Consequences" chapter (draft supplemental environmental impact statement, chapter 3, pages 59 through 485).

Federal regulations at 36 CFR 228 and 43 CFR 3160 require reclamation and the 1990 Bridger-Teton National Forest Land Resources Management Plan (as amended) includes a reclamation standard. All are referenced in the analysis (draft supplemental environmental impact statement, chapter 2, pages 43 through 44).

A section discussing greenhouse gases, climate change and the social cost of carbon has been added to the final supplemental environmental impact statement. Expected greenhouse gases have been quantified.

Mitigation in the form of road closures used to meet established road density standards is considered (draft supplemental environmental impact statement, chapter 2, page 42).

Concern 21: The Forest Service should disclose impacts to aquatic species

Associated Comments:

Increased sediment loads will have negative impacts to the hydrologic, geomorphic and ecological processes that directly affect streams, stream processes, and fish, macro-invertebrates and amphibian habitats. Oil and gas developments further increase the potential to introduce pollutants through discharges, chemical spills and surface runoff. Wyoming Game and Fish Department comments on True Oil, LLC Lander Peak Exploratory Proposal in Sublette County, Nov. 25, 2015 at 4. Given the values of the area, the Department said that it "should be given high priority and protection..." Id. A portion of the contested oil and gas leases (in and around North and South Cottonwood Creeks) surround the leases held by True Oil, LLC. In making a no leasing decision on these contested leases-and on all of the contested leases in the range-the Forest Service would avoid future management challenges of attempting to

mitigate harm that would accompany drilling proposals in what is arguably the last, best stronghold for Colorado River cutthroat trout.

Chapter 2 - Page 43: Mitigations Common to Alternative 2, 3, and 4: Watersheds ..."limiting or halting construction activities during spring runoff, or during spawning periods for fisheries; halting construction activities when materials are frozen;" We could not find where spawning stipulations have been listed in the document.

Response:

Support for alternative 1, no action/no leasing, is noted.

The draft supplemental environmental impact statement page 42 explained mitigation measures are not addressed in lease stipulations; however, they may be required as conditions of approval for project -level authorizations. The draft supplemental environmental impact statement (page 43) noted

"If and when exploration and development projects are proposed, the appropriate environmental protection measures (such as best management practices, mitigation, and standard operating procedures) and reclamation measures would be identified through a site-specific environmental analysis process. All measures would be incorporated in each surface use plan of operation and development plan."

At the leasing stage, site-specific information is not available to analyze. Site-specific analysis will occur at the application-for-permit-to-drill stage when specific actions are proposed and their locations known.

The existing conditions have been updated with the more recent information. Impacts of past grazing were added.

Restrictions to timing of instream work during cutthroat trout spawning periods is identified in the mitigation measures. Mitigations measures (draft supplemental environmental impact statement, chapter 2, page 43) would be carried through and applied to a development proposal.

Construction below the high-water mark is regulated by the Army Corps of Engineers through the 404 permitting process and instream work is not permitted in trout streams during the spawning period (<http://www.nwo.usace.army.mil/Media/Fact-Sheets/Fact-Sheet-Article-View/Article/487706/wyoming-nwp-general-conditions/>). Because this is already sufficiently regulated and protected, it was not included as a stipulation for this project.

Concern 22: The Forest Service overstated anticipated impacts on aquatic species

Associated Comments:

Other Species - The DSEIS concludes that "negative effects" on the Colorado River Cutthroat Trout, Boreal Toad, and the Columbia Spotted Frog would occur under Alternative 2. SEIS p. 419. It states that the primary concerns stem from increased risk to aquatic habitat from surface disturbance, chemical contamination, sedimentation, and vehicular mortality. Id. But those conclusions are not supported by the facts.

Aquatic Species Impacts Are Overstated. The 2016 DSEIS concludes that "negative effects" on the following sensitive species would be expected under Alternative 2: the Colorado River cutthroat trout, boreal toad, and the Columbia spotted frog. 2016 DSEIS, pg. 415. The Forest Service states that the primary concerns stem from increased risk to aquatic habitat from surface disturbance, chemical contamination, sedimentation, and vehicular mortality. Id. But the Forest Service's conclusions are controverted by the facts. For instance, the Forest Service identifies Management Areas 24, 25, 26, and 12

as containing the majority of wetlands and riparian acreage for cutthroat trout within the project area. 2016 DSEIS, pg. 402. Of the 38,678 leasehold acres within those Management Areas, only 2,243 acres are considered riparian and wetland acreage. *Id.* This represents less than 5.8 percent of the project area containing cutthroat trout aquatic habitat and constitutes a relatively small portion of the project area. Out of the 39,490 acres within the project area, 22,194 acres would be covered by no surface occupancy restrictions and 14,914 acres would be subject to controlled surface use or timing limitation under Alternative 2. 2016 DSEIS, pg. 408. Moreover, the amount of road construction or reconstruction accounts for only 9.6 miles. *Id.* And the 2016 DSEIS states that "riparian areas and stream crossings would be avoided if possible." *Id.* These facts all lead to the conclusion that impacts to aquatic habitat for the cutthroat trout would be extremely small. In another example, the Forest Service concludes that boreal toads and the Columbia spotted frog will experience "negative effects" due to aquatic habitat impacts, but the 2016 DSEIS contains no discussion regarding the amount of aquatic habitat available for those species. 2016 DSEIS, 396-98. Instead, the habitat acreage for the cutthroat trout is used in the Forest Service's primary discussion of habitat available for all aquatic species within the project area. *Id.* at 402-04. The Forest Service admits that "[l]ittle information is available that describes conditions of aquatic habitat within the analysis area." *Id.* at 402. But absent such information, the Forest Service's conclusions regarding "negative effects" to the boreal toad and Columbia spotted frog are overstated and speculative, at best. Any impacts to aquatic species and their habitats will be minimal and can be adequately mitigated through best management practices during the application for permit to drill ("APD") process, as recognized by the Forest Service. See 2016 DSEIS, pg. 410 (water depletion and chemical contaminant impacts can be minimized during the APD process); *id.* at 411 (cumulative effects can be minimized through "effective design criteria, best management practices, and reclamation procedures").

Response:

Effects to sensitive aquatic species for all the action alternatives was determined to be adverse impacts to individuals and habitat, but not likely to result in a loss of viability in the planning area, nor cause a trend to federal listing or a loss of species viability rangewide (see table 14, summary determinations for sensitive and management indicator aquatic species).

At the leasing stage, locations of ground-disturbing activities are not known. The analysis for aquatic species was based on the reasonably foreseeable development scenario. The aquatic species analysis focused on the presence and importance of aquatic populations, the mechanisms of potential impacts, and the likely intensity and significance of those impacts.

The project area has important habitat for maintaining populations of Colorado River cutthroat trout and boreal toad at the Forest scale. The mechanisms of potential impact included surface disturbance, risk of chemical contamination, sedimentation, and mortality from vehicles.

All action alternatives would pose a risk of negative effects on aquatic habitats and species (draft supplemental environmental impact statement, pages 408 through 419). The intensity and significance of those impacts was put into the appropriate context and compared among the alternatives. The analysis of aquatic indicators demonstrated the impacts at the landscape level would result in modest departures from existing conditions, while identifying the potential risks and the potential for negative impacts at the local scale.

Alternative 2 had the greatest level of reasonably foreseeable development and lacked the no-surface-occupancy stipulation buffering streams and wetlands. As a result, it was identified as the alternative with the greatest relative impact to the aquatic resource.

Concern 23: The Forest Service should disclose impacts on cutthroat trout

Associated Comments:

The importance of the contested lease acres in the Wyoming Range to native trout species-particularly Colorado River cutthroat trout-cannot be overstated. The historic range of stream miles occupied by Colorado River cutthroat trout has been reduced to just 11 percent of what it once was. *Id.* at 394. Of its designated conservation population habitat remaining today on the Bridger-Teton (217 stream miles) 82 percent (178 stream miles) is located within the contested lease acres.² *Id.* at 415. North Cottonwood Creek, North Horse Creek, Lead Creek, South Beaver Creek and Chall Creek are particularly important habitat. Oil and gas development and its associated impacts threaten the stream conditions native trout require. Stream sedimentation from increased road access, potential chemical contamination, as well as depletion of water quantity needed for energy development all have the potential to negatively affect trout. The Forest Service should include in its analysis the recent study entitled, "The effects of oil and natural gas development on water quality, aquatic habitat, and native fish in streams along the Wyoming Range."³ The thesis study, by (then) University of Wyoming graduate student Carlin Girard, documented the elimination of Colorado River cutthroat trout from the Dry Piney Creek drainage as a result nearby development in the LaBarge oil and gas field. In an interview Mr. Girard explained, "We found that streams within the developed drainages had degraded ecological conditions as indicated by the lack of sensitive macro-invertebrates, less willow cover along stream banks, predominantly run habitat and increased proportions of fine sediment." *Stream Suffers Oil Field Fallout*, Jackson Hole News and Guide, May 13, 2015. South Beaver Creek was a reference stream he sampled- one without adjacent oil and gas development. In contrast to Dry Piney Creek, South Beaver Creek "had consistently good water quality, intact macro-invertebrate communities, more riparian vegetation, more pool and riffle habitat and higher proportions of gravel." *Id.*

Colorado River cutthroat trout CRCT in the project area represent an exceptionally valuable segment of the overall CRCT population and genetic diversity. The USFS and WGFD are well-positioned to improve both the condition of local CRCT conservation populations and the overall status of CRCT through the No Action/No Leasing Alternative, which avoids new oil and gas development in the project area. The Colorado River Cutthroat Trout Conservation Team produced a publication (Hirsch et al. 2013) that discusses several climate-based threats to CRCT, which are applicable to the other sensitive species and aquatic habitats. The document shows that drought risk and wildfire risk factors are high in most of the project area and moderate risk in much of the remaining land area. Drought and wildfire on their own increase sedimentation and thermal impairments that are causes of aquatic habitat loss and deterioration. Oil and gas development activities are likely to compound the effects of these risks.

Chapter 3 - Aquatics, Page 403: "Lead Creek and South Horse Creek support the healthiest populations of Colorado River cutthroat trout in Management Area 24, perhaps because they had the best riparian and aquatic habitat conditions. Wyoming Game and Fish Department (2003)". This is from more recent information collected by WGFD. "North Horse Creek accounted for 51% of the estimated CRC and South Horse Creek accounted for 26%" (Rhea 2016 draft administrative report).

Response:

Support for alternative 1, no action/no leasing, is noted.

The existing conditions have been updated with the more recent information.

The Wyoming Range streams are important to maintain Colorado River Cutthroat trout. The mechanisms for potential affects listed in the comment are consistent with those we analyzed in the "Aquatic Wildlife" section of the final supplemental environmental impact statement.

The Girard 2015 study had little bearing on our analysis for the following reasons:

- The intensity of oil and gas development in the watersheds in the Girard study were substantially greater than what is anticipated in the reasonably foreseeable development scenario under any of the alternatives analyzed. This project more closely resembled the development intensity in the Girard's control watershed.
- Our analysis includes mitigation measures and stipulations designed to address the impacts that occurred in the development watersheds in Girard's study. Girard's study analyzed high-intensity development with little stream and watershed protection.

Girard documented some risks and detrimental effects of oil and gas development and watershed disturbance on the aquatic ecosystem and contributed to a better understanding of the types of impacts that should be mitigated. We also note the Girard study found Dry Piney Creek did not have cutthroat present in the developed watershed, but the connection between development and the absence of cutthroat did not substantiate a causative relationship, particularly given the natural hydrological conditions in the study area (low summer flow and intermittent channels) and other human-caused impacts such as grazing and road construction.

Concern 24: The Forest Service should disclose impacts to air quality

Associated Comments:

Air Quality Due to increased oil and gas development in the last decade, the area has seen a marked overall decrease in air quality, including ozone levels exceeding national ambient standards. The increase in development has led to adverse effects in the areas of human health, visibility, lake chemistry and overall air quality. Air quality impacts from the proposed projects and developments must be examined in the context of its cumulative impact with industry growth in the Jonah field and Pinedale Anticline and in relationship to its proximity to wilderness. Lakes in the Wind River Mountains are demonstrating negative impacts, including negative chemical changes associated with poor regional air quality. We agree with the BTNF's analysis that: "When combined with other emissions in the basin, dust, emissions and particulates from alternatives 2, 3 and 4 would likely contribute to ongoing visibility issues in the Bridger, Popo Agie, Washakie, Teton, North Absaroka, and Gros Ventre wilderness areas as well as Grand Teton National Park and the Wind River Roadless area...[and] may contribute to ozone formation in the basin" (DSEIS p. 57). Similar to the other issues raised in this comment letter, our organizations along with our conservation partners have commented on air quality issues related to oil and gas development surrounding the Wyoming Range for over a decade and we ask the BTNF to review our previous concerns as well as look to the comments on this issue submitted by Wyoming Outdoor Council et al. during this comment period.

The EPA has outlined concerns in previous comment letters regarding the potential for significant impacts to air quality, water quality and wildlife if a leasing alternative were selected for proposed oil and gas development. Should the No Action/No Leasing Preferred Alternative change during the NEPA process to one of the action alternatives that authorizes leasing, the EPA would provide further detailed recommendations at that time, particularly for air quality analyses including greenhouse gas emissions and climate change.

Response:

Support for alternative 1, no action/no leasing, is noted.

A section discussing greenhouse gases, climate change, and the social cost of carbon has been added to the final supplemental environmental impact statement. Expected greenhouse gases have been quantified.

The Upper Green River Basin has undergone changes in ozone concentrations, deposition of nitrogen, and lake chemistry related to oil and gas drilling and production. With the current lull in gas drilling, reductions in ozone concentrations have been noted.

Concern 25: The Forest Service overstates anticipated impacts to air quality

Associated Comments:

Air Quality - The DSEIS provides no justification for USFS to cancel the leases on the basis of air quality. USFS is in effect stating that it may cancel leases for projects that are not likely to adversely impact air quality because there are other projects nearby. The federal government cannot break contracts with the lessees because there are other projects with other companies unrelated to the contracts. The quantitative modeling cited in the DEIS shows, "[b]ecause the direct impacts under each alternative are so small, the project will not contribute significantly to any cumulative air quality impacts." 2016 DSEIS, pg. 449; that statement says it all.

The only other identified unavoidable adverse impact is related to air quality. The Forest Service admits that oil and gas development under Alternative 2 would not result in any state or federal air quality standard exceedances and concludes that "some changes in visibility might be noticeable." *Id.* (emphasis added). But as discussed above, the 2016 DSEIS overstates the air quality impacts under the leasing alternative and relies solely on cumulative impacts from other oil and gas development projects. Thus, even under the Forest Service's exaggerated assessment, the potential impacts from oil and gas leasing in the Bridger-Teton National Forest would be minor, at best, and would be very limited in nature. As such, cancellation of Stanley's leases is not warranted.

Any air quality impact from any wells added to develop these two disputed leases could be addressed in the permitting process. Air quality concerns can be addressed in timing stipulations and monitoring activity, much of which is already handled by the nearby Rands Butte Gas Plant on the Riley Ridge Unit by Denbury.

Any air quality impact from any wells added to develop these two disputed leases could be addressed in the permitting process. Air quality concerns can be addressed in timing stipulations and monitoring activity, much of which is already handled by the nearby Rands Butte Gas Plant on the Riley Ridge Unit by Denbury.

Response:

The rationale for supplemental environmental analysis and the basis for a potential decision to cancel issued leases and not issue deferred leases are found in chapter 1 of the draft supplemental environmental impact statement (pages 1 and 9 through 10). Note especially the period February 2004 through September 2006.

The impacts to air quality are described in chapter 3 of the draft supplemental environmental impact statement. Comparisons of this proposed project to larger nearby projects in southwest Wyoming were meant to show how small this project is compared to the larger projects in the area.

The cumulative effects analysis for air quality is discussed in the draft supplemental environmental impact statement on pages 469-471, 476, and 477. Cumulative effects analyses are required per the

National Environmental Policy Act for federal actions. Appendix E summarizes the past, present, and reasonably foreseeable actions considered in the analysis.

Mitigation techniques are evolving and would be identified in the site-specific analysis that occurs at the application-for-permit-to-drill stage.

Concern 26: The Forest Service should address climate change impacts

Associated Comments:

Here, for alternatives 2-4, the Forest Service did not fully disclose direct, indirect, and cumulative greenhouse gas emissions, and failed to conduct any analysis and assessment of climate impacts using readily available methodologies, namely the social cost of carbon protocol. This is disturbing as recent reports indicate that federal oil and gas production in the U.S. is responsible for 10% of all U.S. greenhouse gas emissions, not an insignificant amount.

The DEIS does not disclose reasonably foreseeable greenhouse gas emissions that would result from the implementation of leasing alternatives. This appears to be a significant and inexplicable oversight, particularly given that the Forest Service did analyze the reasonably foreseeable emissions of other pollutants, such as nitrogen oxides and particulate matter, that would result from implementation of leasing alternatives. See DEIS at 473-475. It is unclear why the Forest Service did not quantify reasonably foreseeable greenhouse gas emissions, particularly given that the Bureau of Land Management ("BLM"), as well as the Forest Service itself, have regularly disclosed the reasonably foreseeable greenhouse gas emissions associated with oil and gas leasing.

And what would the drilling be for anyway? More new sources of oil and gas that we cannot afford to burn, because 2/3 of proven fossil fuel reserves must be LEFT IN THE GROUND to prevent absolutely catastrophic climate change. How important, then, are new deposits of fossil fuels?

Climate change is largely fueled by oil and gas and those byproducts. Please make sure the Wyoming Range is never subject to drilling--not in our lifetime or our children's lifetime.

Besides, we signed the Paris Climate agreement, didn't we? Was it just another government lie?

Response:

Support for alternative 1, no action/no leasing, is noted.

A section discussing greenhouse gases, climate change, and the social cost of carbon has been added to the final supplemental environmental impact statement. Climate change impacts are discussed in various resource sections in chapter 3 of the draft supplemental environmental impact statement.

The proposed leasing is for oil and gas extraction. The Forest Service is mandated to consider the leasing and potential development of National Forest System lands identified as suitable and available for oil and gas leasing.

Concern 27: The Forest Service should address lease payments

Associated Comments:

- Impact Energy Resources, LLC along with 4 other parties paid for the above reference leases, our money was accepted, checks were cashed, and the terms were set by the Bureau of Land Management. The government entered into a contract and by the action of the BLM and the Forest Service is now

unilaterally voiding this contract. All funds are currently being held by the government and have been for the past 10 years.

Exploration GeoConsultants, Inc. along with 4 other parties paid for the above reference leases, our money was accepted, checks were cashed, and the terms were set by the Bureau of Land Management. The government entered into a contract and by the action of the BLM and the Forest Service is now unilaterally attempting to void this contract. All funds are currently being held by the government, and have been for the past 10 years.

* Laramie & Associates along with four (4) other parties paid for the above reference leases. Our money was accepted, checks were cashed, and the terms were set by the Bureau of Land Management. The government entered into a contract and by the action of the BLM and the Forest Service is now unilaterally voiding this contract. All funds are currently being held by the government and have been for the past 10 years.

Response:

The rationale for supplemental environmental analysis and the basis for a potential decision to cancel issued leases and not issue deferred leases is found in chapter 1 of the draft supplemental environmental impact statement (pages 1 and 9 through 10). Alternatives 2, 3 and 4 would authorize leasing.

Decisions related to this analysis have not yet been made.

Concern 28: The Forest Service should discuss the legal authority to cancel or not cancel leases

Associated Comments:

There is no heightened standard the Forest Service must meet to "justify" a no leasing decision. In response to the prior EIS, one high bidding company argued that the analysis lacked adequate justification for canceling the leases improperly issued. This misrepresents the nature of the decision to be made. Despite the unique fact that roughly half of the 39,490 acres of leases were issued to high bidders, these are not valid leases. Rather, because the leases were issued improperly and suspended as a result, they are voidable based upon further review. This is a pre-leasing analysis, and as such, the Forest Service has the discretion not to lease. There is no heightened standard the Forest Service must meet in order to "justify" its discretionary decision. The Forest Service does not need to show impacts would be catastrophic to a species, or to a resource. Nor does it need to show that mitigation measures would be wholly ineffective in order to choose the no leasing alternative. It is well within the agency's legitimate discretion to decide not to authorize even mitigated impacts associated with oil and gas development activities. It need only show that it conducted a thorough review and that its decision is well informed.

While indeed the remedy for that is additional NEPA, that NEPA cannot likewise arrive at the same unlawful conclusion. The proper remedy is performance of additional NEPA analysis to determine if any additional mitigation measures should be included on future authorization of exploration and development activities on the leases. Rather than doing so, USFS has engaged in flawed analysis, identified mild or speculative impacts to other resource values such as wildlife species and air quality, overlooked the measures available to mitigate those impacts, and arrived at a pre-determined conclusion to cancel the leases.

The intention to cancel leases also violates the National Environmental Policy Act (NEPA). NEPA is a procedural statute and it is well established that the proper remedy on remand for procedural violations of

NEPA is only procedural, such as performing more NEPA analysis to inform whether to include additional mitigation measures or conditions of approval regarding specific resources of concern.

The DSEIS Alternative 1 is unlawful because a retroactive cancellation of these leases has no legitimate legal basis. Further, Alternative 1 violates the most basic tenets of property and contract law. Cancellation of these leases would also be contrary to USFS's regulations issued with 30 C.F.R. § 228.102, and the DOI Solicitor's unequivocal legal opinion that once an oil and gas lease has been issued and property right vests, the Secretary cannot cancel that vested right.

Response:

Several comments were received both challenging and supporting the legal authority to cancel leases that have already been issued.

The rationale for this supplemental environmental analysis, and the range of options for a decision based on this supplemental analysis, are discussed in chapter 1 of the draft supplemental environmental impact statement (pages 1 and 9 through 10). The analysis considers a range of alternatives that were developed to address substantial issues that were raised in public comments and identified by the environmental analysis.

Concern 29: The Forest Service should provide maps of proposed permanent and temporary roads

Associated Comments:

The map included in the DEIS identifies the location and type of roads that currently exist, but provides limited information about proposed road activities.

The Forest Service should clearly present road location information in the FEIS, including tables showing, by drainage, (1) the miles of road that would be decommissioned in advance of temporary roads, (2) the miles of temporary road with subsequent decommissioning with a timeline, and (3) the location and miles of proposed road maintenance work, with a timeline.

III. The Forest Service should identify which roads will be permanent and which will in fact be temporary, in light of their very real adverse impacts on the landscape. While the DEIS refrains from labeling roads involved in the project as temporary or permanent, we are particularly concerned about any proposal to construct temporary roads. Temporary roads must be closed within 10 years of completion of a project, per 16 U.S.C. 1608(a), unless the Forest Service re-evaluates the road and determines it to be necessary for the MRS. This project proposes that 10.8 miles of access roads are necessary to access the oil and gas: approximately half of the access roads would be existing roads, the other half would be newly constructed roads. The Forest Service's maps fail to identify the specific location of these roads.

Response:

The analysis of site-specific, road-building activities is not possible because locations of potential future actions are not known at the leasing stage. If surface use plans are received, further analysis would be undertaken. This analysis was based on the reasonably foreseeable development scenario as discussed in the draft supplemental environmental impact statement chapter 1 on pages 22 through 24. The effects of roads are considered in the "Affected Environment and Environmental Consequences" chapter (draft supplemental environmental impact statement, chapter 3, pages 59 through 485).

Federal regulations at 36 CFR 228 and 43 CFR 3160 require reclamation and the 1990 Bridger-Teton National Forest Land Resources Management Plan (as amended) includes a reclamation standard. All are

referenced in the analysis (draft supplemental environmental impact statement, chapter 2, pages 43 through 44).

Concern 30: The Forest Service should follow multiple use management

Associated Comments:

In comments on the last draft EIS from 2010, one high bidding company asserted that if the Forest Service withdrew its consent to lease (leading BLM to cancel contested leases) it would violate its multiple use objective and would be contrary to the direction set forth in the Bridger-Teton National Forest's 1990 forest plan. This is wrong. Although oil and gas development is a recognized use of national forest lands, there is no mandate that lands legally available for lease in a forest plan actually be leased. Although some final decisions are made in forest plans, suitability and availability determinations do not authorize or mandate any action on the part of the agency. See *Ohio Forestry Ass'n, Inc. v. Sierra Club*, 523 U.S. 726 (1998) (holding that a challenge to a timber suitability determination in forest plan was not ripe for review). Lands that are administratively available for oil and gas leasing on the Bridger-Teton have the potential to be leased, but are not required to be leased.

PAW Opposes the Removal of Multiple Use Lands from Leasing: PAW opposes the removal of multiple use lands from leasing and believes the lease parcels being considered in the SEIS need to be made available for oil and gas exploration and development. The BTNF stated in the SEIS that, "The Mineral Leasing Act of 1920 and other laws, support making mineral resources on Federal lands available for production and to encourage development of mineral resources to meet national, regional, and local needs." (Chapter 1, Purpose and Need, pg. 1) We remind the BTNF that Federal lands include Forest System lands. Also, the U.S. Forest Service website touts that its "...mission is to achieve quality land management under the sustainable multiple-use management concept." (<http://www.fs.fed.us/about-agency/what-we-believe>). By removing the lease parcels being considered in the SEIS from availability, the BTNF is sending a clear message that it is not interested in being consistent with the Mineral Leasing Act of 1920, and is no longer interested in being a multiple use agency.

Finally, post leasing impacts mentioned in the DEIS report including post leasing effects of: changing the back country recreation; impacting wildlife habitat, threatened endangered species and populations of large game species; increased sedimentation, chemical contaminants, and dewatering that could impact surface water quality, etc.; groundwater removal sedimentation and contaminants; surface disturbance from roads, well pads and pipeline construction impacts to rare plants, etc.; and impacts on air quality all mentioned in the DEIS may all be mitigated by technologies currently in use by the petroleum industry in other producing areas such as horizontal drilling which negates new surface disturbances for well pads and roads, closed loop drilling that mitigates water contamination, and increased air monitoring techniques to ensure low impact operations. Utilizing existing pipelines and right of ways for further build-out if necessary further minimizes surface disturbances and impacts. Therefore the factors mentioned in the DEIS are not prohibitive to development of the leases.

Response:

The decision maker will consider all comments when rendering a decision for this project.

The Forest Plan includes management direction that supports multiple uses on the National Forest System lands. Although alternative 1 reflects no action/no leasing, alternatives 2, 3, and 4 address leasing the parcels. Alternatives 2, 3, and 4 also include stipulations that would be applied to the project lease parcels.

The 1990 Bridger-Teton National Forest Land and Resource Management Plan provides management direction in the form of goals and objectives, desired future conditions, management emphasis, and

resource prescriptions, standards, and guidelines. The draft supplemental environmental impact statement (chapter 1, “Forest Plan Direction” section) summarizes direction for the areas encompassing the subject lease parcels. For those areas, the desired future conditions emphasize commodity resource development. Multiple commodities are listed: wood fiber, livestock grazing, and energy. Forestwide standards and guidelines also apply to the subject lease parcels. These standards and guidelines provide needed resource protection that may limit the operations that produce commodities. They include standards and guidelines for fish passage, sensitive travel routes, natural drainage channels, soil management, streamside roads standards (Forest Plan pages 121 through 144) and road density standards (Forest Plan pages 153 through 246). The fact that an area is identified as available for oil and gas leasing in the Forest Plan does not mandate that the area be leased. At the same time, not leasing for oil and gas does not create de facto wilderness because the leasing decision has no bearing on other multiple uses.

Concern 31: An environmental impact statement was not the appropriate analysis document and the purpose and need statement should incorporate multiple-use

Associated Comments:

The purpose and need for the DSEIS is very generally framed around the procedural aspects of the NEPA process, and completely disregards the purpose and need for oil and natural gas development under USFS's multiple-use mandate, which was the initial reason for leasing the 39,940 acres at issue in the DSEIS. A proper statement of purpose and need for the DSEIS should include reference to USFS's multiple-use mandate, the availability of lands for leasing under the MLA, and the national policy encouraging the development of domestic energy resources and reducing the reliance on foreign supplies of oil and natural gas. It should highlight the Forest Plan's directive prior to the Wyoming Range Legacy Act to make the area available for leasing. The purpose and need statement cannot include an action that the Forest Service is not legally authorized to take, i.e. retroactively changing its authorization to lease the BLM.

No rationale has been provided as to why an environmental impact statement (EIS) was required in this matter. The SEIS is analyzing 30 lease parcels sold in 2005 and 2006 that make up a total of approximately 39,490 acres, with 24 projected wells under Alternative 2. Based on the number of wells and the level of impact, this project should not have risen to the EIS level. Further, nothing in the BTNF resource analysis within the SEIS indicates this project will have a level of significant impact, including to air quality. As such, an environmental assessment (EA) would have been the appropriate mechanism for analysis. The time and rework associated with this entire process clearly illustrates why the NEPA process on Forest System lands is broken. It is unacceptable that these lease parcels in an area that was determined to be suitable and available for oil and gas development are still undeveloped and a good majority of the leases remain unissued 10 years after being sold, and those leases that were issued have remained suspended for just as long.

Response:

The decision maker identifies the purpose and need for analyses. Chapter 1 of the draft supplemental environmental impact statement includes background discussions for the analysis leading to the purpose and need (pages 3 through 13).

This supplemental environmental analysis has been prepared in response to the Interior Board of Land Appeals orders that the environmental analyses relied upon by the Bureau of Land Management and the Forest Service in their 2004 through 2006 decisions were likely not adequate. This analysis considers other analyses for activities in the region for the evaluation of cumulative effects (see chapter 3 cumulative effects discussions in the resource sections, references and citations).

Concern 32: The Forest Service should allow oil and gas leasing in the Wyoming Range in support of multiple-use management. Support Alternative 2

Associated Comments:

We oppose USFS's preferred Alternative 1, under the misnomer of "No Action Alternative," and urge USFS to adopt Alternative 2 which would lift the suspensions of issued leases, and issue those leases for which high bids were accepted.

As such, Stanley strongly urges the Forest Service to honor the lessees' binding property and contract rights in the 39,490 acres under review by adopting Alternative 2, the "Proposed Action" Alternative, in the 2016 Final SEIS. Please consider and include Stanley's comments in the administrative record for the 2016 Final SEIS.

PAW supports Alternative 2 in the SEIS and strongly believes that multiple use lands must not be removed from leasing. PAW further encourages the Forest Service to make these parcels available for lease in order for environmentally responsible oil and gas exploration and development to occur.

PAW supports Alternative 2 in the SEIS. While we certainly respect the unique nature of the Wyoming Range, the BTNF needs to respect that the area containing the lease parcels were analyzed and determined to be suitable and available for oil and gas leasing in the 1990 record of decision for the Bridger-Teton's Land and Resource Management Plan. Since then, this area has undergone three environmental assessments, as well as analysis through one supplemental environmental impact statement. Furthermore, the area contains 12 active well pads and the lease parcels being considered are a part of projects that have already been initiated. The BTNF needs to also take into consideration that under Alternative 2, of the approximately 39,490 acre total, 22,194 acres are categorized as no surface occupancy (NSO) and 14,914 acres are subject to controlled service use (CSU) and timing limitation (TL) stipulations. As such, there are significant stipulations in place to protect the resource values allowing for responsible oil and gas exploration and development.

Given the extensive environmental and impact analysis repeatedly conducted over this area, WOP believes Alternative 2 should be the preferred alternative.

I don't support the agency's preferred alternative: Yes Leasing, please protect the Wyoming Range. Since most of you have never been to the Wyoming Range you don't know that they already drill and have pumping stations already in place. I hunt and fish and have never had a problem with the oil companies there.

Response:

Support for alternative 2 is noted.

The rationale for supplemental environmental analysis is found in chapter 1 of the draft supplemental environmental impact statement (pages 1 and 9 through 10). No decision has been made.

Concern 33: The Forest Service should consider leasing on some or all leases with stipulations

Associated Comments:

We do not intend to challenge the no leasing designation identified for the northern portion of the project area under the Preferred Alternative. However, our preference for that area is a No Surface Occupancy (NSO) designation. We feel that leaving the gas in the ground while technology continues to develop and

improve is a reasonable approach. We would like to leave resources "on the table" instead of removing all options for the future.

The southern area of the project area, south of North Piney Creek, has current leases, roads, and well pads; consequently, we think it reasonable to keep the leasing options open. We would like to see controlled surface use or timing limitation leasing options for this area, especially since any potential impacts would be further analyzed and mitigated in the future with the required project-level NEPA.

We appreciate the Forest Service's (USFS) efforts to incorporate our concerns in Alternative 3. Leasing with surface occupancy may still result in adverse impacts to mule deer populations, Colorado cutthroat trout, and other natural resources. We support the no leasing designation identified for the northern portion of the project area under the Preferred Alternative. We could also support a No Surface Occupancy (NSO) designation however we realize that this might require a forest plan amendment. The southern portion of the project area, south of North Piney Creek, has current leases, roads, and well pads and potential migration corridors. It is our recommendation that the USFS apply an NSO to the proposed leases. This will leave large areas of habitat unaffected by new lease activity and minimize additional impact to wildlife.

Old wells also should be gradually closed, and monitored for leakage regularly.

Let's look for more efficient ways (wind, solar, other renewables).

Response:

Alternative 1 analyzes no leasing on the project leases and alternatives 2, 3, and 4 include leasing with associated stipulations. Alternative 4 addresses no surface occupancy on the leases. The decision maker may select portions of various alternatives analyzed in the environmental document.

At the leasing stage, locations of ground-disturbing activities are unknown. Page 43 of the draft supplemental environmental impact statement includes a possible mitigation measure for watershed protection. Page 43 also notes the following:

"If and when exploration and development projects are proposed, the appropriate environmental protection measures (such as best management practices, mitigation, and standard operating procedures) and reclamation measures would be identified through a site-specific environmental analysis process."

Under the action alternatives, if a ground-disturbing proposal is received at the application-for-permit-to-drill stage, additional environmental analysis would occur.

The opinion on the effectiveness of mitigation is noted. Effects from the reasonably foreseeable development scenario are discussed in chapter 3 of the analysis.

Concern 34: The Forest Service should include additional protection for aquatic species in Appendix C

Associated Comments:

Appendix C - Stipulations for Alt 2 and 3: A spawning stipulation needs to be added.

Appendix C - Table 117: This table contradicts the previous statements that Alternative 3 will have no increase in stream crossings due to the additional protection to perennial and ephemeral streams and wetlands areas.

Appendix C - Alternative 3: Fish Passage Standard - "On those streams with a fisheries resource, culvert installations will be designed to facilitate fish passage. Due to the 500- foot no-surface-occupancy buffer on streams, there would be no new stream crossings, so this alternative would meet the standard." This contradicts statements above where the document indicates that there will be an increase in stream channel crossings.

Response:

As noted in the draft supplemental environmental impact statement at page 43, "If and when exploration and development projects are proposed, the appropriate environmental protection measures (such as best management practices, mitigation, and standard operating procedures) and reclamation measures would be identified through a site-specific environmental analysis process."

The error in the table 117 (appendix C) has been corrected. There would be no stream channel crossings added under alternative 3.

Concern 35: The Forest Service should consider technologies currently in use by the petroleum industry to mitigate impacts to natural resources

Associated Comments:

Lake Ridge Unit can best be developed via access through Section 10 where there is existing utilities, roads, pipelines and processing facilities. Horizontal drilling technology is sufficient to drill and complete a Madison gas well on WYW-17328 in the subsurface of NE Section 17 without disturbing the surface in Section 17 or the adjacent sections. This negates the arguments against development detailed in the DEIS compiled by the Forest Service and BLM.

Finally, post-leasing impacts mentioned in the DSEIS including post-leasing effects of: changing the back country recreation; impacting wildlife habitat, threatened endangered species and populations of large game species; increased sedimentation, chemical contaminants, and dewatering that could impact surface water quality, etc.; groundwater removal, sedimentation and contaminants; surface disturbance from roads, well pads and pipeline construction impacts to rare plants, etc.; and impacts on air quality all mentioned in the DSEIS may all be mitigated by technologies currently in use by the petroleum industry in other producing areas such as horizontal drilling which negates new surface disturbances for well pads and roads, closed loop drilling that mitigates water contamination, and increased air monitoring techniques to ensure low impact operations. Utilizing existing pipelines and right of ways for further build-out if necessary further minimizes surface disturbances and impacts. Therefore the factors mentioned in the DSEIS are not prohibitive to development of the leases.

Will pipeline be bored or trenched. Overall the potential impacts of pipelines, storage areas, water facilities, etc. have not been adequately analyzed.

In reading the current Draft Supplemental EIS, we see very little new information that wasn't available to reviewers in 2005, 2006, 2008, 2010, 2011, 2014 and 2016. WOP strongly disagrees with the conclusions that a complete prohibition of leasing in the Wyoming Range Withdrawal Area ("WRWA") is the only solution to address the concerns raised in the DSEIS.

The economics of our acquired leases have changed and have become more valuable since the sale. Technology advances with well completion, horizontal drilling, air control monitoring, closed loop drilling and 3D seismic has allowed us to extract oil and gas much more efficiently, cleaner, and in a cost-effective manner with a much smaller foot print on the ground than in years past.

Response:

Current information about the area's oil and gas activity was considered in the analysis of the reasonably foreseeable development scenario and the effects to the reasonably foreseeable development from each of the alternatives (draft supplemental environmental impact statement, chapter 1, pages 22 through 24). The reasonably foreseeable development scenarios in alternatives 2, 3, and 4 considered the potential for off-site drilling, directional drilling, reconstruction of existing roads, and the use of road rights-of-way for pipeline disturbance (draft supplemental environmental impact statement, chapter 1, page 24 and chapter 2, pages 25 through 36).

In addition to alternative 1 no action/no leasing, the draft supplemental environmental impact statement analyzed three action alternatives (alternatives 2, 3, and 4). Alternative 4 specifically addresses the use of no-surface-occupancy stipulations for all project leases.

Mitigation and environmental protection measures (draft supplemental environmental impact statement, chapter 2, pages 42 through 43) and the use of existing roads and rights-of-way (draft supplemental environmental impact statement, chapter 1, page 24 and chapter 2, pages 25 through 36) are considered in the analysis. Chapter 3 discloses the cumulative effects on the environment from past, present, and reasonably foreseeable actions in the analysis area. The cumulative effects of ground disturbance outside the project leases was considered and discussed by resource topic in chapter 3. The supplemental environmental impact statement discloses potential impacts from future development of these lands for oil and gas.

Concern 36: The Forest Service should correct errors in the analysis

Associated Comments:

Chapter 2 - Table 14: Stream Channel Crossings: Alternative 3 has the same amount of impact as Alternative 2. However in the affected environment section of DSEIS it states that there will be no stream channel crossings because of the NSO and the 500 + buffers. Table 14 indicates that there will be stream crossings. This is confusing and we ask that the section be reviewed.

5. Chapter 3 - Figure 11, Page 60: Not sure of the criteria used to determine which foreseeable projects were listed. The USDA website did not have any projects listed for this area, but WGFD is aware of at least two known to WGFD as: The North Horse Creek triple culvert replacement and the South Cottonwood recreational road project.

Response:

The error in table 14 has been corrected. There are no stream channel crossings anticipated under alternative 3.

As noted in the draft supplemental environmental impact statement on page 59, past, present, and reasonably foreseeable future actions relevant to the alternatives considered were displayed in figure 11 and summarized in volume 2, appendix E.

A lease notice will be added to prevent the spread of aquatic invasive species; see chapter 2 of the final supplemental environmental impact statement.

Concern 37: The Forest Service should consider public comments

Associated Comments:

We started an online petition last month to give people an easy way to show their support. To date, 268 people have signed the petition to support no leasing and many more have commented directly to the Forest Service. This petition can be found at: <https://www.change.org/p/bridger-teton-national-forest-protect-our-legacy-in-the-wyoming-range/c>

Please see the comments submitted on this project by Wyoming Outdoor Council, Sierra Club, Jackson Hole Conservation Alliance, and others for more on the relevant and important information that frames the history and context of this preferred No Action/No Leasing alternative and related action by our organizations and others.

We have provided comments relative to this proposal in our letters dated May 26, 2005, June 2, 2005, and August 7, 2006. These comments describe our concerns regarding oil and gas development along the east slope of the Wyoming Range and our comments specific to crucial big game and Colorado cutthroat trout habitats and are still relevant.

Response:

Support for alternative 1, no action/no leasing, is noted.

The March 21, 2014 corrected notice of intent published in the Federal Register (79 FR 15723) states:

"Extensive public involvement efforts were conducted with the 2008 scoping period. Because extensive public comments covering the range of relevant issues for the analysis were received in the 2008 scoping period and in the comment period on the 2010 Draft SEIS, an additional scoping period is not being conducted. Scoping comments and comments on the Draft SEIS previously submitted will be considered in preparation of the new SEIS. Scoping for a supplemental environmental impact statement is not required [40 CFR 1502.9(c)(4)]. The public will have another opportunity to comment on this project when the new Draft SEIS is released. A draft Record of Decision will be released with the new Final SEIS, and will be subject to the pre-decisional (objection) administrative review process [36 CFR 218]. Individuals and entities who submitted timely, specific written comments regarding this project during the 2008 scoping period and the 2010 Draft SEIS comment period and those who submit comments on the new 2014 Draft SEIS will be eligible to file objections."

The Forest Service considered previous comments in the development of alternatives. Along with alternative 1, no action/no leasing, the draft supplemental environmental impact statement includes action alternatives with stipulations for habitat protection. Alternative 2 incorporates measures to meet Forest Plan direction. Alternative 3 incorporates additional stipulations (no surface occupancy, controlled surface use, and timing stipulations) to enhance resource protection. Alternative 4 incorporates no surface occupancy on all lease parcels to reduce potential impacts. Effects to big game and Colorado cutthroat trout habitat are discussed in chapter 3 of the draft supplemental environmental impact statement.

The Forest Service recognizes the strong public interest, industry interest, and the resource values associated with these lands. Interested individuals with internet connection had access to the project website to provide comments. All comments received have been considered.

Concern 38: The Forest Service should consider impacts to geology

Associated Comments:

Isn't it uncomfortably close to the seismically active Yellowstone basin? All those pipelines, waste injection facilities, compressor stations, tanks, separators, flares, etc., wouldn't fare well in an earthquake, in my opinion. Some risks are best not taken.

It's of ultimate importance to NOT DRILL or FRAC anywhere near one of the largest supervolcano sites in this country. Geologic study ALONE should be enough for the oil companies to realize an area with such a large and unstable lava core should be left alone.

I also feel that there could be disastrous repercussions from tampering with the mega volcano which lies under this area. I understand that there have already been some warning signs from it. It is also my understanding that activities such as "fracking" have caused minor earth quakes, and we certainly can't afford to do anything which might tend to awaken this volcano!

Response:

The opinion about seismic hazards is noted. Additional analysis of seismic risk has been added to the "Groundwater Resources" section of the final supplemental environmental impact statement.

The Yellowstone hot spot is not located within the geographic scope of this analysis (draft supplemental environmental impact statement, chapter 1, page 12). In addition, site-specific analysis of down-hole geologic hazards would be undertaken by the Bureau of Land Management if they receive an application for permit to drill in the future.

Concern 39: The Forest Service should analyze social and economic impacts

Associated Comments:

The economic benefit to the communities in Sublette and surrounding counties would be negligible at best, as the proposed 180 or so wells planned for this project would amount to a tiny fraction of wells presently developed in Sublette County, and even this large number of present gas wells is inadequate to sustain a strong local economy, evidenced by numerous layoffs and insolvency of energy related businesses struggling during the industry wide downward spiral. If this area is developed it will be indisputably trading a few short term jobs and even fewer long term jobs, for a pristine area cherished by outdoor enthusiasts of many stripes, and the impacted wildlife.

As a landowner that will be affected by the constant traffic, noise, and dust I take exception to the minimalization in the DEIS on the impact this development will have. Nobody asked the landowners along the Merna-North Beaver road what our concerns were if the amount of industrial vehicle traffic is dramatically increased.

Outdoor Recreation provides a 637\$ Billion dollar economic benefit to the US economy. Oil and gas development has had its way in Wyoming for the past 66 years of my lifetime. The sustainable economic benefit of preservation, restoration and protection far outweighs the inevitable destruction from short term benefits of industrial resources extraction

Response:

Support for alternative 1, no action/no leasing, is noted.

On page 3, the draft supplemental environmental impact statement states

"It is important to note that offering Federal lands for leasing does not authorize any development. Further site-specific environmental analysis and a decision must occur if or when ground-disturbing proposals are received on leases that may be issued."

On page 43, the draft supplemental environmental impact statement states

"If and when exploration and development projects are proposed, the appropriate environmental protection measures (such as best management practices, mitigation, and standard operating procedures) and reclamation measures would be identified through a site-specific environmental analysis process."

Meaningful comparisons of the positive economic impacts of oil and gas development and production phases on jobs and income and the negative economic impacts on recreation cannot be made without site-specific, ground-disturbing proposals. If site-specific, ground-disturbing proposals are made, these comparisons can and will be made. Impacts to quality of life and outfitters and guides' economic activity has been identified as an attention item for site-specific, ground-disturbing proposals if those proposals are made. Impacts to public land access and the resulting impacts to quality of life for Sublette County cannot be adequately analyzed without site-specific proposals for development. Based on the comment, we have included quality of life and recreation access as an attention item for the environmental analysis that will occur if site-specific proposals are submitted.

More discussion of the potential negative impacts of oil and gas development on traffic, quality of life, recreation, hunting, and the associated economic sectors in Sublette County has been included in the socioeconomic section of the environmental impact statement. Estimates of the dollars spent by people recreating in the Bridger-Teton have also been included there, along with information about revenue from commercial recreation on the Bridger-Teton.

Impacts to tourism and recreation economic activity have been identified as an attention item for the analysis of site-specific, ground disturbing proposals if they occur. Costs associated with remediation and clean-up will be analyzed during site- and project-specific analysis if ground-disturbing proposals are submitted. Lumping recreation with arts and entertainment is a standard set by the North American Industry Classification System. In practice, such lumping should be more inclusive of the positive economic impacts of tourism within an economy than by splitting recreation out alone.

Analyzing the impacts of the oil and gas development and projection phases on residents along the Merna-North Beaver road and applying appropriate mitigation measures will occur if a ground-disturbing proposal that utilizes the road is received.

Qualitative and quantitative descriptions of the socioeconomic existing conditions and impacts uses existing and available data. The data to which the commenter refers comes from a July 2015 report titled, "A Sublette County Profile: Socioeconomics" by Nelson et al. Please see that paper for the methods used. At this time, we are unaware of a dataset that does not lump recreation with arts and entertainment.

The description of the socioeconomic affected environment and the socioeconomic impacts of the alternatives uses existing and available data. For example, table 26 on page 90 of the draft supplemental environmental impact statement describes the total earnings in the accommodations and food services industry and the arts, entertainment, and recreation industry. This was the best available data for tourism spending (including hunters and fishermen) for the project area.

Regarding the "temporary" socioeconomic impact of alternative 2 on jobs and income, this analysis estimated

"5.8 full-time jobs would be supported each year over a 15 year period during the development phase. The development phase under this alternative would indirectly support an average of 2.3 full-time jobs each year within Sublette County and would induce another 1.4 full-time jobs. The production phase of wells under alternative 2 would directly support an additional 4.1 jobs, on average, every year across the 15-year period. The indirect effect, on average, would support 1.6 jobs each year and the induced effect would support 1.1 jobs each year. Therefore, the total effect on employment during the production phase of alternative 2 would be 6.8 jobs" (pp.98-99).

This analysis also states that the average total effect of the development phase on labor income would be \$859,638 per year and the total average yearly effect of the production phase on labor income would be \$703,026 per year (page 97). An estimate of the difference between the positive values of selecting this alternative and the negative is dependent on several site and project specific variables that are unknown at this time.

Estimates of the impact of oil and gas development and production phases under alternative 2 on government revenues are located in chapter 3 of the draft supplemental environmental impact statement, starting on page 99, as are estimates of impacts on income. Estimates of impacts of alternative 2 on jobs begin on page 98.

Important recreational values within the analysis area are disclosed in the draft supplemental environmental impact statement, chapter 3, "Recreation and Related Resources" section, as noted in the comment. The social survey information included in the draft supplemental environmental impact statement (pages 124 through 125) will be available to the decision maker.

The draft supplemental environmental impact statement chapter 3 "Social and Economic Conditions" section discusses jobs, traffic and crime:

"For the sake of quantitative analysis, if the existing condition of 10,041 residents in Sublette County persists and the ratio of number of jobs to number of residents persists, then the 16.3 full and part-time jobs created by the selection of this alternative would result in 12.3 new residents, which would be a 0.12 percent increase in population as a result of the selection of this alternative"" (page 98).

"Based on the location of the parcels for leasing, alternative 2 would have the most impact on the traffic running through the town of Daniel, where the existing traffic condition consists of 400 heavy trucks daily. The Recreation and Related Resources Specialist Report says that, on average, 70 to 75 truckloads of equipment will need to be moved to a site to drill a well and once drilling is completed, that same 70 to 75 truckloads will need to be move off the site. The moving of the 70 to 75 truckloads onto and off the drill site will occur within a few weeks, according to the Recreation and Related Resources Specialist Report, therefore 75 trucks represents the maximum possible number of trucks moving through Daniel in a day, per well being drilled. This would represent a maximum increase of truck traffic in Daniel of 18 percent. If, on average, two wells are drilled each year under this alternative, that would represent an 18 percent maximum increase in heavy truck traffic in Daniel during four days every year across the 15 year period"" (page 100).

"In 1995, with relatively little oil and gas activity, there were 125 arrests made. By comparison, in 2007, with relatively high levels of oil and gas activity, there were 475 arrests made. If the existing condition for crime persists in Sublette County, where increases in oil and gas rig activity is highly correlated with exponential increases in serious or felony crimes, then it is possible that the selection of alternative 2 could increase crime. But based on an average of two wells drilled per year across 15 years, alternative 2 would add, on average, two rig months per year. Sublette County's crime webpage (accessed December 2015) predicts that an increase of 500 rig months per year is correlated with a 24 percent increase in the crime rate and they suggest that the relationship between rig months per year and crime rates is exponential. Therefore, two rig months per year will have little to no measurable effect on crime rates"" (pages 100-101).

This socioeconomic analysis uses a reasonably foreseeable development scenario of a maximum of 24 wells being developed over a 15-year period under alternative 2. The maximum development alternative; the projects you suggested we review, fall well outside this reasonably foreseeable development scenario.

Thank you for submitting forest-wide data on hunting, fishing, and outfitting and Wyoming Range specific socioeconomic data. We have identified your comment as an attention item and will make the best use of hunting, fishing, and outfitting data for impact analysis, if site-specific, ground-disturbing proposals are submitted.

We identified the paper by Clement and Cheng 2008 as an attention item for incorporation into any future analysis of site-specific, ground-disturbing proposals.

Sublette County, Wyoming was the area of impact used in this socioeconomic analysis.

"The spatial boundary for analyzing the direct and indirect effects to social and economic resources is Sublette County, because the majority of direct and indirect impacts to social and economic resources resulting from the implementation of any of the alternatives will occur within the county's boundary and data for use as measures are readily available at the county scale" (page 83).

"During scoping for public comments, issues and resource concerns were identified. The issue of social and economic well-being of local communities and the quality of life for residents is best addressed through social and economic analysis ... Other concerns identified, such as indirect impacts to recreation businesses, lend themselves to social and economic impact analysis, provided there is sufficient information available about the direct impacts to the recreation setting" (page 79).

More discussion of the existing condition of the recreation economy, at the national forest scale, has been incorporated into the socioeconomic section of the environmental impact statement. Addition discussion of boom and bust cycles and the possible negative impacts of oil and gas development on quality of life and recreation and tourism has been included in the socioeconomic section as well.

Data submitted with comments will be useful for evaluating site-specific, ground-disturbing proposals if they are proposed at the application for permit to drill stage. If those proposal are made, meaningful comparisons of the negative impacts to the jobs and industries you cited could be weighed against the positive impacts of cited in this socioeconomic analysis. We will recommend incorporation of the data you provided into any site-specific analysis of ground-disturbing proposals.

The draft supplemental environmental impact statement included a discussion on greenhouse gases in chapter 3, page 456 and based on the reasonably foreseeable development scenario acknowledged under the action alternatives

"Any natural gas or condensate produced as a result of this alternative would further contribute to the release of greenhouse gases through processing, transmission, storage and distribution of products and through commercial, industrial, and residential product end use, adding to concerns of global climate change." (draft supplemental environmental impact statement pages 469, 472, 477).

The socioeconomic analysis of the selection of this alternative and reported in the draft supplemental environmental impact statement used existing and available data regarding industry development efficiencies. Updating the socioeconomic analysis with current figures has been identified as an attention item for site-specific, ground-disturbing proposals if they are made.

Concern 40: The Forest Service should disclose the impacts on jobs and income

Associated Comments:

Establishment of production is good for the State of Wyoming and the country as a whole. Production will add considerably to the local county and state revenues. These revenues will benefit schools, roads, and county infrastructure and provide numerous good paying jobs to the State of Wyoming.

My primary concern is not to the Natural beauty, or the safely and well being of the environment but rather to the people and communities that are impacted by a competitive industrial undertaking. Should the ultimate scale of the operations equal or exceed the present Jonah Field we should expect to see a similar influx of population, which results in the demise of opportunity for all to prosper

Response:

As stated in the draft supplemental environmental impact statement,

"the direct economic effects of this alternative on Sublette County would include increases in employment and wage and salary incomes related to the development phase and the production phase of the wells... The indirect economic effects on Sublette County would occur through the spending of those wages and salaries. Businesses involved in the indirect effects then hire and spend within Sublette County, creating the induced effect" (pg. 96).

Therefore, the positive effects to which you refer are not exclusive to the oil and gas sector and refer to income and job creation in general.

Without site-specific, ground-disturbing proposals, the negative impacts of oil and gas development on jobs in other sectors cannot be meaningfully analyzed. The negative impacts of site-specific, ground-disturbing proposals on jobs and income should be analyzed in detail if those proposals are submitted. The sentences to which you referred (page 101 of the draft environmental impact statement) have been updated in the final supplemental environmental impact statement to state,

"Through direct, indirect, and induced effects, the selection of this alternative will have the greatest positive impact on jobs, income, and population of the alternatives. If the development and production phases from this alternative result in greater ground disturbance it could have another set of positive and negative effects on recreation, which could have measurable socioeconomic impacts. An estimate of the difference between the positive values of selecting this alternative and the negative is dependent on several site and project specific variables that are unknown at this time."

The socioeconomic analysis at this leasing stage was unable to determine the negative socioeconomic impacts of the selection of this alternative on the recreation and service sectors due to the lack of site-specific and project specific variables.

An analysis of the socioeconomic impacts of each alternative is reported in the draft supplemental environmental impact statement chapter 3 (pages 77 through 115), including analysis of government revenues generated by alternative. Estimates of the impact of oil and gas development and production phases on government revenues are located in the "Environmental Consequences" section of the draft supplemental environmental impact statement, starting on page 99.

Alternative 2, which would have the highest level of development of the alternatives in the draft supplemental environmental impact statement, would result in 24 wells (page 70). For comparison, the Jonah Infill final environmental impact statement estimated 3,100 new wells.

Concern 41: The Forest Service should protect special areas

Associated Comments:

Please do not drill in cottonwood drainage

Protect the wilderness! Do NOT drill in the wilderness areas!

We spend countless hours in the forest in the Snyder Basin/McDougal Gap/Horse Creek/Beaver Creek areas. We have been marking the 70 mile Wyoming National Scenic Recreational Trail as volunteers for the Forest Service, that runs from Snyder Basin to near Jackson. Because we have been traversing by horseback all the access trails in that area to reach the Wyoming National Trail we have probably been many places in that special area that most people never see. We also fish in the area. That area is teeming with wildlife and ecological and geological diversity. It is an amazing place and one that needs protection from industrial disturbance.

Response:

Support for alternative 1, no action/no leasing, is noted.

There are no designated wilderness areas in the project area.

The Wyoming Range National Recreation Trail is included in the description of the affected environment (draft supplemental environmental impact statement page 121). Wildlife, ecological, and geological resources are discussed in their respective sections of chapter 3 of the draft supplemental environmental impact statement.

All comments received within the comment period will be considered prior to making the final decision.

Concern 42: National Environmental Policy Act requirements

Associated Comments:

As a professional geologist, it is my opinion based on the petroleum geology of the area that lease WYW-173278 should have been included in the Federal BLM Lake Ridge Unit.

The preferred alternative (Alternative 1) as indicated by the BTNF appears to have no logical connection to the NEPA analysis contained in SEIS. PAW questions why the analysis was needed if the BTNF already determined it was not going to make these parcels available for lease.

The reference tracts are in an area of current drilling and production for oil and gas. One lease (WYW-173278) is located within one mile from an existing producing well in a major producing BLM unit. * All of the reference lease tracts are located in an area where established roads, trails, and clear-cut logging operations have been conducted. Look at the surface and aerial photos of the area. * Tracts are located along the eastern boundary of the Forest Boundary nearby Federal BLM Units.

Response:

The professional opinion in regard to lease WYW-173278 is noted.

The draft supplemental environmental impact statement chapter 1, page 12 discusses the purpose and need for action:

"The purpose of this analysis is to evaluate new information and to correct deficiencies in previous analyses to ensure the potential effects are fully considered before a final decision is made as to whether leasing is appropriate on lands in the project lease parcels."

Alternative 1, no action/no leasing was analyzed along with three action alternatives.

The draft supplemental environmental impact statement discussed the reasonable foreseeable development scenario at pages 22 through 24. If site-specific activity is proposed, it would require additional environmental analysis and technical review prior to authorizing any ground disturbance.

The surface water resources section in chapter 3 of the draft supplemental environmental impact statement discussed the analysis methodology. At the leasing stage, the site-specific location of activities is not known; therefore, it is reasonable to use a generally accepted analysis area, such as 6th-level watersheds. If activity is proposed, additional, site-specific, environmental analysis and technical review would be required. The site-specific analysis is the appropriate place to consider redefining effects boundaries.

The location of tracts is noted. The draft supplemental environmental impact statement chapter 1 pages 20 through 22 discussed the Omnibus Public Land Management Act and the Wyoming Range. The comment pertains to the leases meeting the exception noted on page 22.

Concern 43: The Forest Service should incorporate comments from consultation with other agencies

Associated Comments:

The USDA Forest Service (Rocky Mountain Region and Intermountain Region) and the Wyoming Department of Environmental Quality have a Memorandum of Understanding (MOU) to "promote effective cooperation between the Forest Service and WDEQ in protecting water quality and designated uses..." The WQD was disappointed to not have been invited by the Forest Service to be a cooperator early in the development of this SEIS. The WQD did review an administrative draft of the DSEIS and provided comments; however, those comments were not incorporated into the DSEIS. Our comments on the ADSEIS are still relevant and should be incorporated into the FEIS.

Since the DSEIS assumes all 30 parcels would be leased, the analysis should assume at least 30 wells would be drilled, because that would be the minimum number of wells required to hold the leases if they are not unitized; the 30 well minimum should also assume all 30 wells would be conventional wells and not coal bed methane (CBM) wells, since interest in CBM is very low, as discussed in the DSEIS.

Response:

The Forest Service is required to consult with the U.S. Fish and Wildlife Service only on the selected alternative and only if that alternative results in a "may affect" call for federally listed threatened and endangered species. The Forest Service submits a biological assessment to the U.S. Fish and Wildlife Service and requests informal or formal consultation depending on the effects determination. Consultation is not required for "no effect" determinations.

The State of Wyoming is one of the cooperating agencies for this analysis. Previous comments were reviewed. Those pertaining to site-specific information were not incorporated since site-specific information is not available at the leasing analysis stage. This analysis is based on the reasonably foreseeable development scenario as discussed in draft supplemental environmental impact statement chapter 1 (pages 22 through 24) and in chapter 2 for the alternatives (page 26).

Concern 44: The Forest Service should expand analysis of impacts on cultural resources

Associated Comments:

The cultural section was adequate, but I thought could use some bolstering. Due to the sensitivity of the locations of cultural sites and Native American sensitive sites, perhaps a Cultural Resources Technical Report would help. For example, I'd like to see more information on viewshed analysis concerning the Indian Trail 48SU3287, that courses past the Sherman Guard Station 48SU1769 and runs North/South along the eastern slopes of the Wyoming Range. Relatedly, I assume Native American consultation has occurred with potentially affected Tribal groups, such as the Shoshone, but also the Bannock, the Gros Ventre, the Flathead, the Nez Pierce, the Crow, the Arapaho, the Utes, to name several. I personally know of rock alignment sites such as tipi rings, cairns located on adjacent BLM lands that strongly suggest presence of similar site types on the BT and within the proposed lease areas. What of the Stanford Trail, aka the Jordan Trail, Cattle Drive lines in the area? Keep in mind that the Green River Drift was recently nominated to the National Register and is considered a Wyoming Ranching Traditional Cultural Property. If I understand the Lander Trail management strategy correctly (and I may be in error here) a Y4 mile NSO "buffer" to protect Trail resources I would consider inadequate for the Lander Trail, which is part of the congressionally designated National Historic Trail system. Trail viewshed analysis, comprehensive historical research along the Trail corridor, ethnohistoric and ethnographic research to determine both EuroAmerican and Native American presence and use of the area is desirable. Really in the twenty first century true Landscape Analysis is normative when evaluating large tracts of land for industrialization, such as portions of the Northern Wyoming Range. Lacking such a comprehensive analysis only begs for selection of the No Action Alternative, that of No Leasing.

Response:

Conducting viewshed analysis for the Indian Trail or the Lander Cut-off would be premature at this time because the locations of future ground-disturbing activities related to oil and gas development are unknown. Site-specific analysis, including viewshed analysis, will occur at the application-for-permit-to-drill stage when specific activities are proposed.

A 1991 Forest Plan Amendment established the ¼-mile, no surface occupancy for the Lander Cut-off.

The specialist report prepared for this draft supplemental environmental impact statement utilized existing data on previously recorded sites within the analysis area. There are no previously recorded rock alignment sites, tipi rings or cairn alignment sites in the analysis area, but these site types could be present. Cattle drives were not discussed in the draft supplemental environmental impact statement because this site type has not been recorded in the analysis area.

Concern 45: The Forest Service should consider no-surface occupancy for the southernmost parcels that have potential for helium resources.

Associated Comment:

The southernmost parcels (Lease numbers WYW 173044, WYW 173279, WYW 173280, and WYW 173278) are adjacent to or near lease parcels held by production with existing disturbance - roads, well pads, pumps and tanks, for example. Some of these parcels contain helium resources, a recognized strategic natural resource. Helium, a non-renewable resource, is found in recoverable quantities in only a few locations around the world, many of which are being depleted. The U.S. has an important economic and national security interest in ensuring a reliable supply of helium. On these parcels, which are subject to drainage, I request the U.S. Forest Service (USFS) allow for leasing subject to no surface occupancy

stipulations. The pristine nature of the area can be upheld while allowing development of this important resource through stipulations and mitigation for air quality concerns.

Response:

The extraction and production of helium is not a right held by the lessees. Federal oil and gas leases specifically exclude helium, which is reserved to the Federal Government. Oil and gas lease holders may negotiate a federal helium sales contract with the BLM managed U.S. Helium Reserve Program. The right to produce and sell helium is granted only by the U.S. Helium Reserve Program and is not granted on a lease-by-lease basis.

The analysis does consider the potential loss of recovery of mineral resources under the alternatives analyzed. Information regarding the potential for helium, assuming that a sales contract was put in place and that the product could actually be developed and transmitted to market, has been included under “Mineral Resources” in chapter 3. Further analysis of this resource is considered speculative and cannot be analyzed further; existing infrastructure for capturing and processing helium is only available at the Shute Creek Plant. The Shute Creek Plant is operated by an entity that is not the purchaser/high bidder for any of the subject parcels; the plant is currently at production capacity, with remaining excess capacity. The existing Rands Butte Project, despite being authorized in 2009, has never gone into production and remains shuttered. BLM nor the Forest Service can speculate as to when or if, it will become operational, or if the plant could capture production from any gas wells drilled on these parcels.

Agency Letters



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 8

1595 Wynkoop Street
Denver, CO 80202-1129
Phone 800-227-8917
www.epa.gov/region08

May 23, 2016

Ref: 8EPR-N

Patricia O'Connor, Forest Supervisor
c/o Donald Kranendonk, District Ranger
Big Piney Ranger District
Bridger-Teton National Forest
10418 South U.S. Highway 189, P.O. Box 218
Big Piney, Wyoming 83113

Re: April 2016 Draft Supplemental Environmental Impact Statement for Oil and Gas Leasing in Portions of the Wyoming Range in the Bridger-Teton National Forest; CEQ # 20160073

Dear Supervisor O'Connor:

The U.S. Environmental Protection Agency Region 8 has reviewed the U.S. Department of Agriculture Forest Service's (USFS's) second Draft Supplemental Environmental Impact Statement (SEIS) for Oil and Gas Leasing in Portions of the Wyoming Range in the Bridger-Teton National Forest (Forest). The Draft SEIS is being prepared in cooperation with the Bureau of Land Management (BLM) to analyze and disclose the effects of authorizing the BLM to offer leasing on all or part of approximately 39,490 acres of the Forest. This area on the eastern slope of the Wyoming Range was previously identified in the Bridger-Teton National Forest Land and Resource Management Plan (Forest Plan) as suitable and available for oil and gas leasing. Our review was conducted in accordance with the EPA's responsibilities under section 102 of the National Environmental Policy Act (NEPA), and Section 309 of the Clean Air Act (CAA).

Project Background

The purpose of the Draft SEIS is to inform decision makers on whether leases should be issued for the parcels which were previously sold at competitive oil and gas lease sales. According to the Draft SEIS, the supplemental analysis evaluates new information and corrects deficiencies in previous analyses. Since the 1990 record of decision for the Forest Plan, there have been several attempts to offer parcels of lands for lease with supplemental environmental analysis, resulting in leasing being offered, decisions being appealed, and leases being suspended or cancelled upon request.

There are four alternatives considered in the Draft SEIS:

- Alternative 1, No Action/No Leasing, proposes that the USFS would withdraw consent to lease the project parcels for oil and gas development. The No Action/No Leasing alternative is identified as the Preferred Alternative.
- Alternative 2 authorizes the leasing of the 30 lease parcels under analysis. Stipulations are applied, including approximately 22, 194 acres subject to no-surface-occupancy (NSO) stipulations and approximately 14,914 acres subject to controlled-surface-use (CSU) and timing limitation stipulations.

- Alternative 3 authorizes the same 30 lease parcels but provides enhanced resource protection through additional stipulations for resources including but not limited to big game habitat, migratory birds, greater sage-grouse, and aquatic habitats. NSO, and CSU and timing-limitation stipulations are applied to 31,917 acres and 7,541 acres respectively.
- Alternative 4 authorizes the leasing of the 30 lease parcels, but all parcels would be subject to NSO stipulations for drilling activities.

Currently the level of NEPA analysis is sufficient to support the No Action/No Leasing Preferred Alternative. We offer the following comments for your consideration as you continue through the NEPA process.

Comments

The EPA has outlined concerns in previous comment letters regarding the potential for significant impacts to air quality, water quality and wildlife if a leasing alternative were selected for proposed oil and gas development. Should the No Action/No Leasing Preferred Alternative change during the NEPA process to one of the action alternatives that authorizes leasing, the EPA would provide further detailed recommendations at that time, particularly for air quality analyses including greenhouse gas emissions and climate change.

With the existing substantial oil and gas development in the Upper Green River Basin (UGRB), ambient air quality monitored violations of the CAA's 2008 8-hour ozone NAAQS (75ppb) resulted in the UGRB area being designated as non-attainment (*see* 77 FR 30088, May 21, 2012 and 40 CFR 81.351). Therefore, if an action alternative were to be selected, the UGRB's nonattainment designation requires that the General Conformity provisions of the Wyoming Department of Environmental Quality's Wyoming Air Quality Standards and Regulations Chapter 8, Section 3 (as approved by the EPA 78 FR 49685, August 15, 2013) would need to be considered and addressed as appropriate by the USFS in cooperation with the BLM. Further, many of the proposed lease areas are also in close proximity to the Bridger Wilderness Area. The Bridger Wilderness Area is a federal Class I Area under the CAA, requiring special protection of air quality and air quality related values, such as visibility.

Other new information since the previous 2010 Draft SEIS includes the effects of the Fontenelle Fire of 2012. The fire burned approximately 64,084 acres in the Wyoming Range, including 47,874 national forest acres. It is unclear in some areas of the document if the effects analysis includes updated field data for all resources affected by the fire. However, the Draft SEIS appears to provide conservative assumptions regarding potential impacts to key resources such as aquatic resources and wildlife, including Canada lynx habitat, which is sufficient to support the Preferred Alternative.

Given the high quality of surface water, wetlands and riparian areas within the project area watersheds, protected airsheds within the Bridger Wilderness Area and UGRB, and critical habitat for wildlife that the Wyoming Range supports, the Preferred Alternative alleviates the need for additional analysis and also addresses concerns regarding potential impacts to these highly valued resources. We support the USFS' decision to provide the greatest level of protection to these valuable resources within the project area.

EPA Rating

Consistent with Section 309 of the CAA, it is the EPA's responsibility to provide an independent review and evaluation of the potential environmental impacts of this project. Based on the procedures the EPA uses to evaluate the adequacy of the information and the potential environmental impacts of the Preferred Alternative, the EPA is rating the Draft SEIS as Lack of Objections (LO). The EPA's rating is based on the USFS' Preferred Alternative, No Action/No Leasing. The LO rating indicates that the EPA's

review has not identified any potential environmental impacts requiring substantive changes to the selected proposal. A description of the EPA's rating system can be found at:

<https://www.epa.gov/nepa/environmental-impact-statement-rating-system-criteria>.

We appreciate the opportunity to participate in the review of this project, and are committed to working with you as you prepare the Final SEIS. If we may provide further explanation of our comments during this stage of your planning process, please contact me at 303-312-6704, or your staff may contact Melanie Wasco, Lead NEPA Reviewer, at 303-312-6540.

Sincerely,



Philip S. Strobel
Director, NEPA Compliance and Review Program
Office of Ecosystems Protection and Remediation

MATTHEW H. MEAD
GOVERNOR

THE STATE



OF WYOMING

2323 Carey Avenue
CHEYENNE, WY 82002

Office of the Governor

May 23, 2016

Donald Kranendonk, District Ranger, Big Piney Ranger District
U.S. Forest Service, Bridger-Teton National Forest
P.O. Box 218
Big Piney, WY 83113

Re: Draft Supplemental Environmental Impact Statement for Oil and Gas Leasing on Portions of the Wyoming Range in the Bridger-Teton National Forest

Dear Ranger Kranendonk,

I appreciate the opportunity to comment on the Draft Supplemental Environmental Impact Statement (DSEIS) for Oil and Gas Leasing on Portions of the Wyoming Range in the Bridger-Teton National Forest.

Wyoming is a place that values and depends on its extractive resources, beautiful vistas, clean water and air and its fish and wildlife resources. We believe and have demonstrated that these values can work in harmony. The area under analysis is important to Wyoming citizens - it provides wildlife habitat, a strong sense of place and history, recreational opportunities and economic benefits.

The southernmost parcels (Lease numbers WYW 173044, WYW 173279, WYW 173280, and WYW 173278) are adjacent to or near lease parcels held by production with existing disturbance - roads, well pads, pumps and tanks, for example. Some of these parcels contain helium resources, a recognized strategic natural resource. Helium, a non-renewable resource, is found in recoverable quantities in only a few locations around the world, many of which are being depleted. The U.S. has an important economic and national security interest in ensuring a reliable supply of helium. On these parcels, which are subject to drainage, I request the U.S. Forest Service (USFS) allow for leasing subject to no surface occupancy stipulations. The pristine nature of the area can be upheld while allowing development of this important resource through stipulations and mitigation for air quality concerns.

Considering the nature of the property, I support continued review of the no leasing alternative on the remaining leases, which can be more thoroughly explored between the DSEIS and the final decision. These areas are not adjacent to leases held by production and may not offer the

Ranger Kranendonk

May 23, 2016

RE: Draft Supplemental Environmental Impact Statement for Oil and Gas Leasing on Portions of the Wyoming Range in the Bridger-Teton National Forest

Page 2

same opportunities for development or contain resources of national interest as the previously discussed leases.

I expect considerable interest in this decision and that the USPS will receive input from a wide spectrum of interests. This input, including this letter, will require additional conversations on these areas of development and resource protection before a Final EIS and Record of Decision are released. My suggestion for additional conversations is an attempt to reach a balanced resolution on the parcels that recognize public interest, industry interest, and the resource values on these lands.

Thank you for your consideration.

Sincerely,



Matthew H. Mead
Governor

MHM:dh

cc: The Honorable Michael Enzi, U.S. Senate
The Honorable John Barrasso, U.S. Senate
The Honorable Cynthia Lummis, U.S. House of Representatives
Patricia O'Connor, Forest Supervisor, Bridger-Teton National Forest

MEMORANDUM

To: Donald Kranendonk, District Ranger, Big Piney Ranger District, U.S. Forest Service, Bridger-Teton National Forest

From: Joel Bousman, Sublette County Commissioner

Date: May 19, 2016

Re: Oil and Gas Leasing in Portions of the Wyoming Range in the Bridger-Teton National Forest – Comments on Draft Supplemental Environmental Impact Statement

As a Cooperating Agency, we valued working with Bridger-Teton National Forest (BTNF) staff to review the administrative copy of the Draft Supplemental Environmental Impact Statement (DSEIS). We appreciate that many of our comments made during that review period have been addressed and that the DSEIS has been revised to include additional science and data to support the effects analysis and conclusions. We believe that this extra level of effort reduces the risk that unsupported assumptions may set standards that would have lasting ramifications on a myriad of public and private activities.

The Sublette County Commissioners appreciate the opportunity to provide additional comments on the DSEIS for Oil and Gas Leasing in Portions of the Wyoming Range in the BTNF. Sublette County is committed to being a productive participant in the National Environmental Policy Act (NEPA) process. We support many of the revisions performed during the review process and offer the following brief comments on the DSEIS.

Alternatives

We do not intend to challenge the no leasing designation identified for the northern portion of the project area under the Preferred Alternative. However, our preference for that area is a No Surface Occupancy (NSO) designation. We feel that leaving the gas in the ground while technology continues to develop and improve is a reasonable approach. We would like to leave resources “on the table” instead of removing all options for the future.

The southern area of the project area, south of North Piney Creek, has current leases, roads, and well pads; consequently, we think it reasonable to keep the leasing options open. We would like to see controlled surface use or timing limitation leasing options for this area, especially since any potential impacts would be further analyzed and mitigated in the future with the required project-level NEPA.

General Wildlife Comments

The DSEIS provides an enormous amount of information on individual wildlife species, much of it seemingly superfluous or moot to the possible effects associated with the project. For instance, for bald eagles, the DSEIS concludes on page 273 that “there are no large bodies of water capable of supporting nesting bald eagles in the project area.” That statement alone makes eagles a non-issue for the project. It is disclosed that eagles may winter in the Wyoming Range, but the small scale of the project does not include anything that might be identified as a major source of potential winter mortality (i.e. wind generating plants and utility lines). The DSEIS discloses on page 299 that “under the reasonably foreseeable development scenario for Alternative 2, it is estimated that up to 218 acres of wintering

habitat for bald eagles... could be lost or altered, but concludes that eagle winter ranges are so extensive that impacts to winter range within the lease parcels likely have little influence on the overwinter survival of bald eagles.” That discussion justifies the “May Impact Individuals biological determination.” Unfortunately, it takes the DSEIS four pages of dialogue in the Affected Environment section and four more pages in the Environmental Consequences section to reach that biological determination. Included in the eight pages of dialogue are recommended buffers around nests (irrelevant since there is no nest habitat in the project area) and discussion on a century of illegal shooting trends (again, not relevant to project-related effects). We request that the existing condition and potential effects be more accurately portrayed based on the points raised above.

Canada Lynx

We agree with the biological determination for lynx by identifying effects as a percent of the whole landscape, recognizing the role of mitigation, and focusing on the major research findings and de-emphasizing the contrary findings. However, we remain concerned that the over-emphasis on the minutiae and contrary research findings in the Affected Environment section is likely to increase the risk of litigation for forthcoming projects in the area.

After reviewing the Existing Condition section for Canada lynx, we found an over-emphasis on relatively insignificant variables. For instance, the DSEIS (p.188) states that “Forest roads and trails in general, are not considered a primary threat to resident lynx populations in and of themselves (USFWS 2007a). Vehicle speeds on forest roads are relatively slow in comparison to highways or other public roads due to topography, substrate, and road conditions. Thus, the potential for lynx mortality or injury due to collisions with vehicles is probably low on forest roads.” These are all logical conclusions we would support. If road densities were low and likely to remain low, as the road density data disclosed on page 196 indicate, we should conclude that roads are not a significant threat to lynx; however, the DSEIS goes on to conclude that...“Lynx could be especially vulnerable to collision caused mortality considering that they don’t seem hesitant to cross even highways during their travels. From 1999–2001, a male Canada lynx was found to have crossed several two-lane highways, one was crossed at least four times, during yearly exploratory movements from his home range in the Wyoming Range, across the greater Yellowstone area. This male lynx followed a similar path each year from the Wyoming Range near Big Piney, Wyoming, to as far as the Henry’s Lake Mountains, west of West Yellowstone, Montana (Squires and Oakleaf, 2005). Lynx were also documented commonly crossing the highway at Togwotee Pass prior to highway expansion and before tree clearing occurred along the road edge. One lynx regularly walked up and down the road and bedded down in the thickets of small trees just off the highway (Berg, pers. comm.)”. So whereas roads should be discounted as a significant threat to lynx based on the small footprint of new roads in a largely road-less landscape and the behavior of lynx which tend to ignore roads, is made to appear significant. We request that the effects section be modified to portray the small amount of disturbance and minor increase in road density.

The discussion on snow compaction further confuses the analysis. For instance, the DSEIS states (p. 189) that “It has been hypothesized that roads and compacted snow routes may negatively impact Canada lynx through facilitating the movement of competing carnivores, primarily coyotes, and predators, such as mountain lions, along snow compacted routes into lynx habitat during winter (Ruediger et al. 2000 and Aubry et al. 2000a), likely contributing to lynx starvation and reduced recruitment... The U.S. Fish and Wildlife Service (USFWS) Final Rule listing the lynx (65 FR 16052) concluded [in 2007] that there is

currently no evidence that compacted snow trails are negatively affecting lynx at the population-level scale by facilitating competition from coyotes, bobcats, or mountain lions and that “research has provided no conclusive evidence that snow compacted routes adversely affect lynx or their habitats...” (USFWS 2007a)”. The conclusion of the USFWS that “there is currently no evidence that compacted snow trails are negatively affecting lynx” should have been the end of the discussion, especially considering that snowmobiling in the Wyoming Range is somewhat limited by its low road density. Unfortunately, the DSEIS (p.189) further concludes that “research by Burghardt-Dowd (2010) in the Togwotee Pass area indicates that coyotes use compacted snow trails more than expected. Numerous studies have shown that coyotes regularly prey on snowshoe hares, to the point of their population dynamics being controlled by hare abundance in northern areas (Prugh 2005; O’Donoghue et al. 1997).” Once again, the DSEIS takes what should be a non-issue and suggests it is a possible significant threat to lynx. We ask that this assumption be removed.

The DSEIS concludes on p.190 that “human presence for the most part has not been shown to impact lynx habitat use (Aubry 2000 as cited in Ruediger et al. 2000)... McKelvey (et al. 2000) found that “narrow, forest roads at the relatively low densities that characterized (their) study area”, did not appear to affect lynx habitat use.” Again, based on the Wyoming Range’s low road density, it would appear that human disturbance is a non-issue regarding lynx. Yet, the DSEIS further concludes that, “(an) exception to this may be activities around den sites (Ruediger et al. 2000; Ruggiero et al. 2000 p. 453; Oakleaf, pers. comm. 2009)... there may be a certain level, pattern, or intensity of disturbance that would affect lynx behavior or habitat use.” Once again, the seemingly conflicting statement added to the end of what should have been a solid conclusion (i.e. isolated human disturbance has no effect on lynx) obfuscates the analysis and adds doubt to the findings.

A lengthy discussion is also provided in the DSEIS about the Fontenelle Fire (p.194-105) which resulted in substantial increased acres of unsuitable habitat and a loss of suitable habitat. The discussion infers that lynx habitat in the Wyoming Range is at risk from wildfires caused by a century of fire suppression and a lack of vegetation management.

In addition, the DSEIS states (p.194) that “a large percentage of the North and South Horse Creek Lynx Analysis Units are in the stand initiation structural stage condition, which means the habitat is in the beginning stages of succession and not currently providing snowshoe hare habitat. This is largely the result of the 2007 Horse Creek Fire, which burned over 9,000 acres in the north and south Horse Creek drainages, reducing what was previously highly utilized and occupied lynx habitat”. The term “stand initiation” should actually be “unsuitable” according to the Northern Rockies Lynx Management Direction (NRLMD). The term “stand initiation” should refer to dense seedling-sapling stands where the canopy is above winter snow depths (i.e. stands generally greater than 20 years old).

The term “suitable” habitat is used repeatedly, but is not a term used in the NRLMD. According to the DSEIS (p.197), one of the primary constituent elements is the “presence of snowshoe hares and their preferred habitat conditions, including dense understories of young trees or shrubs (presumably stand initiation habitat as defined in the NRLMD) ...and mature multistoried stands (presumably multi-storied habitat as defined in the NRLMD) with conifer boughs touching the snow surface”. The term multistory also shows up in Table 61 (p.197). While the DSEIS acknowledges the importance of both stand initiation

and multi-storied habitat as important to lynx, the terms are not used consistently in the DSEIS. Rather they appear to be lumped under the term “suitable”.

While the NRLMD defines both stand initiation and multi-storied habitat in general terms, the exact definitions of those terms regarding tree heights, stem densities, in-stand structure, and age following disturbance, is left up to individual forests, with input from lynx research biologists, assuming that species mixes, growth rates, and snow depths vary by forest. The DSEIS does not define either term. Per acre hare density disclosed in Table 61 infers that 30-60 year old stands might be equivalent to stand initiation, but no further definitions are provided regarding tree heights or stem density. The term multi-storied habitat is never defined in the DSEIS. Changes in unsuitable habitat, stand initiation habitat, and multi-storied habitat resulting from human activity provide a basic means of identifying effects on lynx. The DSEIS discloses current levels of unsuitable habitat (Table 59, p.195) but provides no current data or mapped locations on stand initiation habitat or multi-storied habitat. Thus potential effects from leasing would be easier to substantiate with better data and habitat classification.



WYOMING GAME AND FISH DEPARTMENT

5400 Bishop Blvd. Cheyenne, WY 82006

Phone:(307) 777-4600 Fax: (307) 777-4699
wgfd.wyo.gov

GOVERNOR
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DIRECTOR SCOTT
TALBOTT
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May 23, 2016

WER 1 1335.00f
USDA Forest Service
Bridger-Teton National Forest
Draft Supplemental Environmental Impact Statement
Wyoming Range Oil and Gas Leases

Donald Kranendonk
Big Piney District Ranger 10418 South US Highway
P.O. Box 218
Big Piney, WY 83113

Dear Mr. Kranendonk:

The staff of the Wyoming Game and Fish Department (WGFD) has reviewed the Bridger-Teton National Forest Draft Supplemental Environmental Impact Statement on Wyoming Range Oil and Gas Leases (DSEIS). We offer the following comments for your consideration.

We have provided comments relative to this proposal in our letters dated May 26, 2005, June 2, 2005, and August 7, 2006. These comments describe our concerns regarding oil and gas development along the east slope of the Wyoming Range and our comments specific to crucial big game and Colorado cutthroat trout habitats and are still relevant.

We appreciate the Forest Service's (USFS) efforts to incorporate our concerns in Alternative 3. Leasing with surface occupancy may still result in adverse impacts to mule deer populations, Colorado cutthroat trout, and other natural resources. We support the no leasing designation identified for the northern portion of the project area under the Preferred Alternative. We could also support a No Surface Occupancy (NSO) designation however we realize that this might require a forest plan amendment.

The southern portion of the project area, south of North Piney Creek, has current leases, roads, and well pads and potential migration corridors. It is our recommendation that the USFS apply an NSO to the proposed leases. This will leave large areas of habitat unaffected by new lease activity and minimize additional impact to wildlife.

Donald Kranendonk
May 23, 2016
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Terrestrial Considerations:

The Wyoming Game and Fish Department has collected multiple years of site specific telemetry data on elk and mule deer in this vicinity and the seasonal wildlife movements through this area underscore the importance of these habitats for wildlife during migration and parturition.

In recent years the Sublette and Wyoming Range Mule deer herds have been unable to sustain population growth, and the herds continue to remain below the desired population objective of 32,000 and 50,000 deer, respectively (Monteith et al. 2012). We believe the inability of these populations to reach desired population objectives is due primarily to reduced fawn production and over winter survival. Reduced recruitment can be directly related to physical condition of pregnant doe deer, the nutritional value of seasonal range browse and the ability of animals to access forage during key times of the year. We have concerns that the action alternatives will result in increased human activities on parturition and transition ranges that will negatively impact this deer population.

The project area also encompasses important parturition range for the Piney elk herd. Elk are known to use the project area as parturition range based on the post-partum site specific locations of radio-collared elk. We referenced the importance of this area as an elk calving area and provided preliminary elk seasonal range data to the Forest Service during the analysis of the original 44-7 oil and gas leasing zone.

Aquatic Considerations:

1. Chapter 2 - Page 43: Mitigations Common to Alternative 2, 3, and 4: Watersheds ... "limiting or halting construction activities during spring runoff, or during spawning periods for fisheries; halting construction activities when materials are frozen;" We could not find where spawning stipulations have been listed in the document.
2. We did not find a detailed discussion for pipeline crossing for streams. Will pipeline be bored or trenched. Overall the potential impacts of pipelines, storage areas, water facilities, etc. have not been adequately analyzed.
3. Chapter 2 - Table 14: Stream Channel Crossings: Alternative 3 has the same amount of impact as Alternative 2. However in the affected environment section of DSEIS it states that there will be no stream channel crossings because of the NSO and the 500 + buffers. Table 14 indicates that there will be stream crossings. This is confusing and we ask that the section be reviewed.

Donald Kranendonk
May 23, 2016
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5. Chapter 2 - Table 14: Water depletion is listed as 35 acre-feet. The document does not identify where this surface water depletion will occur (what streams will they be pulling water from).
5. Chapter 3 - Figure 11, Page 60: Not sure of the criteria used to determine which foreseeable projects were listed. The USDA website did not have any projects listed for this area, but WGFD is aware of at least two known to WGFD as: The North Horse Creek triple culvert replacement and the South Cottonwood recreational road project.
6. Chapter 3 - Surface Water, Page 343: Until site-specific information is available (that is, exploratory well sites, road locations or details garnered from an application for permit to drill) it is difficult to determine site-specific effects upon surface water by watershed (such as tons of sediment, location and number of stream crossings, location of roads, exact acres and location of wetlands and riparian areas disturbed, and so forth). Available information is limited to the reasonably foreseeable development scenarios including the projected number of exploratory and development wells and pads and miles of new or reconstructed road for the entire project area not within no-surface-occupancy areas or within 1 mile from the edge of no-surface-occupancy areas.

It is very difficult for WGFD to provide adequate comments on the analysis of the effects when the information is not available. Many of the streams in the project area are flow limited and any additional withdrawal of water from them has the chance of being detrimental to the aquatic system. As indicated in a different analysis, a fair number of the streams have been determined to be "functioning at risk".

7. Chapter 3 - Surface Water: Lander Creek is listed as 3B. It should be listed as 2AB as it does support fish (game and nongame fish 2007 data). Buck Creek should be listed as 3B and it supports nongame fish (abundant) and occasionally trout. Dry Beaver Creek should be listed as 2AB and is 3B.
8. Chapter 3 - Surface Water, Page 353: "Due to the programmatic scale of this analysis, no detailed streamflow or sediment modeling was conducted. Therefore, detailed flow values (2, 5, 10, 25, 50, and 100-year flow events) for these drainages are unnecessary for analysis in the "Environmental Consequences" section of this report".

Streamflow and sediment modeling are important parts of completely analyzing the EC of the alternatives. It is very difficult for the Department to provide adequate comments on the analysis of the effects when the information is not available.

9. Chapter 3 - Figure 55 and 56: Surface Water: Riparian area map. It appears that this map is incomplete. If it is based on where data has been collected, that would explain why it is incomplete and should be disclosed this in the section. It states it later that 106 stream miles have not been assessed but it doesn't explain that in the figures presented.

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May 23, 2016
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10. Chapter 3 - Surface Water Resource: Throughout this section, the DSEIS mentions mitigation measures 8 & 9 (starting on page 359). However, we could not find a description of mitigation measures 8 & 9.
11. Chapter 3 - Surface Water: Page 361. "Because of this, we anticipate negligible impacts to an area where riparian resources are in good condition". A lot of speculations throughout this entire section. The statement is probably true if the riparian habitat was in good condition. However previously the document states that these watersheds are "functioning at risk".
12. Chapter 3 - Aquatics, Page 392: "Oil and gas development requires water during construction of roads, pipelines and well pads, well drilling, well completion, and hydrostatic testing of pipelines. An average drilling operation requires about 2.7 acre-feet (880,000 gallons) and may require up to a year to complete a well and enter into production (Table 111)." No indication where this water will be pulled from (surface or ground) which makes it difficult to actually determine the environmental impacts. They do a fine analysis with speculation but in the end, if the pull this from the many small flow limited streams, there will be more impacts to the aquatic system.
13. Chapter 3 - Aquatics, Page 403: "Lead Creek and South Horse Creek support the healthiest populations of Colorado River cutthroat trout in Management Area 24, perhaps because they had the best riparian and aquatic habitat conditions. Wyoming Game and Fish Department (2003)". This is from more recent information collected by WGFD. "North Horse Creek accounted for 51% of the estimated CRC and South Horse Creek accounted for 26%" (Rhea 2016 draft administrative report).
14. Chapter 3 - Aquatics, Page 403: "Habitat surveys in the drainage found riparian conditions to be relatively favorable, but upland conditions to be impaired due to widespread conifer encroachment (WGFD 2009)". There is information available that indicates the contrary - that upland conditions are impaired due to past sheep grazing in the headwaters of these drainages (North Horse, South Horse, and Cottonwoods). This information should be in the USFS files from the 1990s and 2000s when habitat conditions were assessed during the years prior to the WRAC and Triple Peak buyouts. The USFS also has data from the mid-2000s until present that assess the tall forb communities.
15. Appendix C - Stipulations for Alt 2 and 3: A spawning stipulation needs to be added.
16. Appendix C - Table 117: This table contradicts the previous statements that Alternative 3 will have no increase in stream crossings due to the additional protection to perennial and ephemeral streams and wetlands areas.

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17. Appendix C - Alternative 3: Fish Passage Standard - "On those streams with a fisheries resource, culvert installations will be designed to facilitate fish passage. Due to the 500-foot no-surface-occupancy buffer on streams, there would be no new stream crossings, so this alternative would meet the standard." This contradicts statements above where the document indicates that there will be an increase in stream channel crossings.

18. The following will need to be added as Common to All Alternative:

Preventing the spread of aquatic invasive species (AIS) is a priority for the State of Wyoming, and in many cases, the intentional or unintentional spread of organisms from one body of water to another would be considered a violation of State statute and Wyoming Game and Fish Commission Regulation. To prevent the spread of AIS, the following is required:

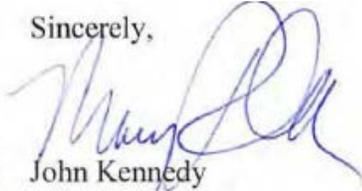
- a. If equipment has been used in a high risk infested water [a water known to contain Dreissenid mussels (zebra/quagga mussels)], the equipment must be inspected by an authorized aquatic invasive species inspector recognized by the state of Wyoming prior to its use in any Wyoming water during all times of year.
- b. Any equipment entering the state by land from March through November (regardless of where it was last used), must be inspected by an authorized aquatic invasive species inspector prior to its use in any Wyoming water.
- c. If aquatic invasive species are found, the equipment will need to be decontaminated by an authorized aquatic invasive species decontaminator.
- d. Any time equipment is moved from one 4th level (8-digit Hydrological Unit Code) watershed to another within Wyoming, the following guidelines are recommended:
DRAIN: Drain all water from watercraft, gear, equipment, and tanks. Leave wet compartments open to dry.
CLEAN: Clean all plants, mud, and debris from vehicle, tanks, watercraft, and equipment.
DRY: Dry everything thoroughly. In Wyoming, we recommend drying for 5 days in summer (June - August); 18 days in Spring (March - May) and Fall (September - November); or 3 days in Winter (December - February) when temperatures are at or below freezing.
- e. Any equipment used in a Wyoming water that contains AIS, must be inspected before use in another water. Species currently found in Wyoming waters include New Zealand mudsnail, Asian clam, and curly pondweed. Information on currently affected waters can be found at:
http://wgfd.wyo.gov/web2011/Departments/Fishing/pdfs/AIS_WYWATER_MONITOR130005236.pdf.

*A list of high risk infested waters and locations in Wyoming to obtain an AIS inspection can be found at: [wgfd.wyo.gov/ AIS](http://wgfd.wyo.gov/AIS).

Donald Kranendonk
May 23, 2016
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If you have any questions or concerns please contact Doug Brimeyer, 307-733-2323 or Gary Fralick, 307-883-2887 in the Jackson & Pinedale Regional Offices and Hilda Sexauer, Pinedale Region Fisheries Supervisor, at 307-367-4347.

Sincerely,


John Kennedy
Deputy Director
JK/mf/ns

cc: USFWS
Doug Brimeyer, WGFD, Pinedale Region
Gary Fralick, WGFD, Jackson Region
Hilda, Sexauer, WGFD, Pinedale Region
Chris Wichmann, Wyoming Department of Agriculture, Cheyenne
Scott Smith, WGFD, Cheyenne



State Engineer's Office

HERSCHLER BUILDING, 4-E CHEYENNE, WYOMING 82002
(307) 777-6150 FAX (307) 777-5451

MATTHEW H. MEAD
GOVERNOR

PATRICK T. TYRRELL
STATE ENGINEER

May 23, 2016

Donald Kranendonk, District Ranger
Big Piney Ranger District
Bridger-Teton National Forest
10418 South U.S. Highway 189, P.O. Box 218
Big Piney, WY, 83113

Submitted electronically via email to: dkranendonk@fs.fed.us

To Mr. Kranendonk,

The Wyoming State Engineer's Office (SEO) appreciates the opportunity to comment on the Bridger-Teton National Forest Oil and Gas Lease Draft Environmental Impact Statement (DEIS).

The role of the SEO and State Board of Control is to provide statutory supervision of the waters of the state, and of its appropriation, distribution, and application to beneficial use as provided under the prior appropriation doctrine. The SEO and BOC can refuse to issue permits or allow changes to water rights if such an issuance proves detrimental to the public interest or adversely affects users.

We have reviewed the DEIS and provide the following comments for consideration.

Chapter 3:

Page 342 -- Laws, Regulations and Other Direction Relevant to Surface Water Resources

1. *Comment:* Title 41 of the Wyoming Statutes establishes the authority for the SEO to administer and regulate water within the State of Wyoming. The agency regularly develops policies, procedures, rules, and orders that directly govern the use of water in the state. This statutory authority should be included in the list of laws and regulations concerning water resources in this section of the DEIS.

Page 353 – Stream Flow Characteristics

1. *Comment:* The DEIS notes that no USGS stream gage stations are available within the project area. However, the SEO maintains a network of stream gage stations that have real-time streamflow data available via this link: <http://seoflow.wyo.gov/>. A basic search of this geospatial rendering of discharge points indicates that there are a number of stations within the HUC6 watershed boundaries of the project area. These include Middle Piney Creek, North Piney Creek, South Cottonwood Creek, and North Horse Creek. Although the DEIS indicates that no detailed streamflow or sediment modeling will be conducted, the data from these stream gages could be useful to consider when discussing stream flow characteristics and the environmental consequences for each alternative starting on page 357.

Surface Water
(307) 777-7354

Ground Water
(307) 777-6163

Interstate Streams
(307) 777-6150

Board of Control
(307) 777-6178

Wyoming State Engineer's Office
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Page 365 – Cumulative effects analysis (surface water)

1. *Comment:* Although it has been determined that a detailed streamflow assessment is not necessary given the scope of this programmatic EIS, we recommend including some sort of assessment of indirect impacts on surface water flows. The consumptive use associated with proposed lease activities, whether within a project area boundary or the vicinity, has the potential to impact springs, wells, and surface water flows. Although there are very few surface water rights within the proposed project area lease parcels, the State Engineer's Office does have on record designated instream flow water rights on several segments within the HUC6 watershed boundaries outlined in the DEIS. They include segments on North Piney Creek, South Piney Creek and LaBarge Creek with priority dates ranging from 1989 to 1991.

Page 369 – Laws, Regulations and Other Direction Relevant to Groundwater Resources

2. The same regulatory framework stated in comment #1 above applies to groundwater resources.

Thank you for the opportunity to comment. Please don't hesitate to contact our office should you have any questions.

Regards,

Beth Ross
Water Planning Coordinator

CC:
Jeff Geyer, SEO Natural Resources Analyst

WYOMING OFFICE OF STATE LANDS AND INVESTMENTS

122 West 25th Street
Cheyenne, WY 82002
Phone: 307.777.7331
Fax: 307.777.3524
slfmail@wyo.gov



MATTHEW H. MEAD
Governor

BRIDGET HILL
Director

May 2, 2016

SENT ELECTRONICALLY VIA: <http://www.fs.usda.gov/project/?project=24734>

Donald Kranendonk, District Ranger
Big Piney Ranger District
Bridger-Teton National Forest
10418 South U.S. Highway 189, P.O. Box 218
Big Piney, Wyoming 83113

**Re: OSLI Project Number 2014-015
Draft Supplemental Environmental Impact Statement (DSEIS)
Oil and Gas Leasing in Portions of the Wyoming Range in the
Bridger-Teton National Forest**

To Whom It May Concern:

The staff of the Office of State Lands and Investments (OSLI) has reviewed the captioned document and offers the following comments insofar as it pertains to the mission of this office.

Upon admission to the Union, Congress granted the State of Wyoming certain lands, in surface and mineral, for the benefit of Wyoming institutions, primarily the public schools. These lands were granted to and accepted by the State of Wyoming for the specific purpose of income production. The Wyoming Constitution and statutes mandate that OSLI and the Board of Land Commissioners manage these trust assets for both short- and long-term returns to the public schools and other designated beneficiaries. Accordingly, we are interested in and view cautiously any action that would impede our ability to protect the underlying value of, or derive revenue from, our trust assets.

Our records indicate that the State of Wyoming owns approximately 640.00 acres of state trust mineral and surface estate (Section 16, Township 29 North, Range 115 West, 6th P.M.) that is

Donald Kranendonk, District Ranger
Bridger-Teton National Forest
Oil and Gas Leasing in Portion of Wyoming Range in Bridger-Teton National Forest DSEIS
May 2, 2016
Page 2

located immediately adjacent to "pending" lease parcels in the southern block of lease parcels depicted on the maps in the DSEIS.

Inasmuch as all alternatives outlined in the document will dictate specific management criteria on the lands subject to the DSEIS that will impact State Trust minerals and surface, Alternative 1 is most restrictive, followed by Alternatives 4 and 3, respectively. These alternatives could significantly impact the State's ability to fulfill its fiduciary responsibility to the trust beneficiaries and will certainly interfere with the management objectives and long-term goals of the Board of Land Commissioners.

The prescriptions outlined in Alternative 2 would ensure compliance with the management direction of the Bridger-Teton Forest plan, as amended, yet provide an opportunity to develop minerals, one of the keys to Wyoming's income base, and not risk to loss of potential royalty dollars.

We appreciate this opportunity to comment. If we may be of further assistance, please do not hesitate to contact this office.

Regards,

Bridget Hill
Director

SC

Appendix C: Lease Stipulations

A stipulation can be attached to Federal leases that modifies the right to develop Federal lands. The use or occupancy of National Forest System land surfaces for fluid mineral exploration or development can be restricted or prohibited to protect identified resource values.

Waivers, exceptions, or modifications to the stipulation may be granted under specific conditions, which are identified and included in the individual stipulation. A waiver, exception, or modification can only be approved by the Forest Service Responsible Official after an analysis has been completed, consistent with the National Environmental Policy Act, for the site-specific development proposal. A waiver, exception, or modification and any monitoring required as a condition of approval, is subject to the discretion of the Forest Service Authorized Officer, which is the Responsible Official, based on the analysis provided by the resources specialist. When a third-party prepares the environmental analysis, it is still subject to the Forest Service environmental analysis requirements and approval by the Forest Service Responsible Official.

Alternatives 2 and 3 described in chapter 2 of volume 1 apply different stipulations for specific resource protection. Stipulations were developed considering information relevant to the project lease parcels, and also clarify direction from the forest plan, as amended. Table 6 in chapter 2, volume 1 provides a summary of the stipulations applied to alternatives 2 and 3.

Under alternative 4, the no-surface-occupancy stipulation would be applied to all acres of the project lease parcels, and forest plan requirements would apply to activities proposed on other National Forest System lands.

No-Surface-Occupancy Stipulation

A stipulation that can be attached to federal leases that modifies the right to develop federal lands. No-surface-occupancy stipulations are considered a major constraint as they do not allow for surface use or occupancy. For example, a lessee of a no-surface-occupancy stipulation area must develop any surface infrastructure outside the no-surface-occupancy area and would need to use advanced technology, such as directional drilling, to access the oil and gas resource under the no-surface-occupancy area.

Explanation: These no-surface-occupancy stipulations are applied to the standard lease form as conditions of the lease. A no-surface-occupancy stipulation is appropriate when the standard terms and conditions, other less restrictive lease stipulations, and best management practices for permit approval are determined to be insufficient to achieve the resource protection objectives.

No-surface-use stipulations would be attached to leases by the BLM as identified by the Forest Service in conformance with the current forest plan during the review process for proposed new leases on National Forest System Lands.

Controlled-Surface-Use Stipulation

A stipulation that can be attached to federal leases that modifies the right to develop federal lands for oil and gas development. For a controlled-surface-use stipulation, use and occupancy is allowed (unless restricted by another stipulation), but identified resource values require special operational constraints that may modify the lease rights. A controlled-surface-use stipulation allows the surface management agency to require a proposed facility or activity be relocated by more than 200 meters from the proposed location if necessary to achieve the desired level of protection.

Explanation: Where standard lease terms and permit-level decisions are deemed insufficient to protect sensitive resources, but where a no-surface-occupancy stipulation is deemed overly restrictive, the Forest Service would apply controlled-surface-use stipulations to leases.

A controlled-surface-use stipulation allows the Forest Service to require any future activity or development be modified or relocated from the proposed location if necessary to achieve resource protection. The project applicant will be required to submit a plan to meet the resource management objectives through special design, construction, operation, mitigation, or reclamation measures, and relocation. Unless the plan is approved, no surface occupancy would be allowed on the lease.

Controlled-surface-use stipulations would be attached to leases by the BLM as identified by the Forest Service in conformance with the current forest plan during the review process for proposed new leases on National Forest System lands.

Timing-Limitation Stipulation

A stipulation that can be attached to Federal leases that modifies the right to develop Federal lands. It is applied annually limiting activity for a specified period lasting more than 60 days. It does not apply to the operation and maintenance of production facilities unless the findings of analysis demonstrate the continued need for such mitigation and that less stringent, project-specific mitigation measures would be insufficient.

Explanation: Where standard lease terms and permit-level decisions are deemed insufficient to protect sensitive resources but where a no-surface-occupancy stipulation is deemed overly restrictive, the Forest Service would apply timing-limitation stipulations to leases.

In general, timing-limitation stipulations are used to protect resources that are sensitive to disturbance during certain periods. Such stipulations are generally applicable to specific areas, seasons, and resources. They are commonly applied to wildlife activities and habitat, such as winter range for deer, elk, and moose; nesting habitat for raptors and migratory birds; and breeding areas.

Buffer zones are also used to further mitigate impacts from any human activities. The size of buffers can also be specific to species and location and can change based on findings of science or movement of species.

Timing-limitation stipulations would be attached to leases by the BLM as identified by the Forest Service in conformance with the current forest plan during the review process for proposed new leases on National Forest System lands.

Exception

An exception is a one-time exemption from a stipulation can be applied that is determined on a case-by-case basis. The exception suspends the restrictions of a stipulation for a specified period of time, activity, or portion of the area where applied but remains in effect relative to other periods of time, activities, or areas where applied.

Explanation: An exception is a limited type of waiver. An exception may not be approved unless, (1) the Authorized Officer determines that the factors leading to the stipulation's inclusion in the

lease have changed sufficiently to make the protection provided by the stipulation no longer justified or (2) the proposed operations would not cause unacceptable impacts.¹

An exception may be approved if the record shows that circumstances or relative resource values have changed or that the lessee can demonstrate that operations can be conducted without causing unacceptable impacts and that less restrictive requirements would meet resource management objectives. Granting of an exception is a discretionary action that the operator should not routinely expect.

Modification

A modification is a temporary or permanent change to a stipulation for the term of the lease, such as a change in the areas, activities, or periods of time where applied, but it does not eliminate the stipulation.

Explanation: A modification may not be approved unless (1) the Authorized Officer determines that the factors leading to the stipulation's inclusion in the lease have changed sufficiently to make the protection provided by the stipulation no longer justified; or (2) the proposed operations would not cause unacceptable impacts.¹

A modification may be approved if the record shows that circumstances or relative resource values have changed or that the lessee can demonstrate that operations can be conducted without causing unacceptable impacts and that less restrictive requirements would meet resource management objectives.

Waiver

A waiver permanently eliminates the restrictions of a stipulation, including all areas, activities, or periods of time to which applied.

Explanation: A waiver, may not be approved unless, (1) the Authorized Officer determines that the factors leading to the stipulation's inclusion in the lease have changed sufficiently to make the protection provided by the stipulation no longer justified or (2) the proposed operations would not cause unacceptable impacts.¹

A waiver may be approved if the record shows that circumstances or relative resource values have changed or that the lessee can demonstrate that operations can be conducted without causing unacceptable impacts and that less restrictive requirements would meet resource management objectives.

Draft Stipulations

The stipulation summary table from chapter 2 is repeated here for your reference. Following the table are the draft notices and stipulations designed to protect a variety of national forest resources for this project.

¹ 43 CFR 3101.1-4

Table 1. Stipulations applicable to alternatives 2 and 3²

Resource	Resource Needing Stipulation	Applicable to Alternative 2?	Applicable to Alternative 3?	Stipulation Type	Protection Applied
Administrative	Administrative sites	Yes	Yes	No surface occupancy	No surface occupancy within DFC 9A administrative sites.
Jackson Hole	Jackson Hole, Wyoming area stipulation	Yes	Yes	No surface occupancy	No wells can be drilled within 1,250 feet of any public road on the Teton National Forest (portions of the northern block of parcels) without consent of the Secretary of the Interior.
Soils	Steep slopes and unstable soils	Yes	Yes	No surface occupancy	No surface occupancy or use is allowed on slopes in excess of 40 percent or on technically unsuitable soils. (This includes areas prone to mass soil movement.)
Aquatic/ Hydrology	Riparian habitat - fisheries, wildlife, hydrology	No	Yes	No surface occupancy	No surface occupancy within 500 feet of outermost perimeter of riparian habitat.
Recreation	Recreation experience along Wyoming Range Crest	Yes	Yes	No surface occupancy	No surface occupancy within ½-mile of the crest of the Wyoming Range to maintain quality recreation experiences.
Recreation	Lander Cutoff of California National Historic Trail	Yes	Yes	No surface occupancy	No surface occupancy within ¼ mile or to the visual horizon, whichever is less, for sections of the Lander Cutoff where the original ruts still exist.
Recreation	Wild rivers	Yes	Yes	No surface occupancy	No surface occupancy within ¼ mile on either side of a waterbody determined to be eligible for inclusion in the National Rivers System as a wild river.
Recreation	Inventoried roadless areas	No	Yes	No surface occupancy	No surface occupancy within inventoried roadless areas for the purpose of preserving roadless area characteristics and values.
Wildlife	DFC 12 wildlife mitigation	Yes	Yes	Controlled surface use	Controlled surface use applied within DFC 12 to minimize road building and other disturbance for protection of wildlife resources.
Amphibians (R4 Sensitive Species)	Amphibian breeding habitat	No	Yes	No surface occupancy	No surface occupancy within 1,640 feet of known breeding habitat.
Big Game	Moderate to high use migration corridors and stopover areas	No	Yes	Timing limitation	No surface use within 0.3 mile of big game migration corridors and stopover areas during April 1 to June 15; and October 15 to December 1.

² DFC = forest plan desired future conditions; MA = forest plan management area

Appendix C: Lease Stipulations

Resource	Resource Needing Stipulation	Applicable to Alternative 2?	Applicable to Alternative 3?	Stipulation Type	Protection Applied
Big Game	Crucial winter range	Yes	No	Timing limitation	No human activity or human disturbance in crucial winter ranges for all big game species between November 15 and April 30.
Big Game	Crucial winter range	No	Yes	No surface occupancy	No surface occupancy in crucial winter ranges for all big game species
Big Game	Winter range/yearlong range	No	Yes	Timing limitation	No surface use in big game winter range/yearlong range from November 15 to April 30.
Big Game	Winter range/yearlong range	No	Yes	Controlled surface use	Well pad density restricted to no more than one well pad per section with total oil and gas related disturbance of 32 acres/section or less (5% over 10 square miles).
Big Game	Parturition (birthing) area	No	Yes	Controlled surface use	Well pad density restricted to no more than one well pad per section with total oil and gas related disturbance of 32 acres/section or less (5% over 10 square miles).
Elk	Parturition (calving) area	Yes	Yes	Timing limitation	No surface use in elk calving areas during May 15 to June 30 if elk are present.
Bighorn Sheep	Lambing, rutting, and winter ranges	Yes	Yes	No surface occupancy	No surface occupancy to protect important bighorn sheep habitat.
Bighorn Sheep	Occupied seasonal ranges	No	Yes	Timing limitation	No surface disturbance or use within 1 mile of occupied bighorn sheep seasonal ranges from November 1 to June 30.
Canada Lynx	Identified lynx home range	Yes	Yes	No surface occupancy	No surface occupancy within identified lynx denning home range habitat.
Canada Lynx	All lynx habitat	Yes	Yes	Controlled surface use	Utilize remote monitoring for producing wells to reduce snow compaction due to accessing sites in the winter.
Gray Wolf	Natal den sites	No	Yes	Timing limitation	No surface disturbance within 1 mile of occupied den sites from April 1 to June 15.
Gray Wolf	Rendezvous sites	No	Yes	Timing limitation	No surface disturbance within 1 mile of established rendezvous sites from June 15 to July 31.
Bald Eagle	Active nest Sites	Yes	Yes	Timing limitation	No surface disturbance within 0.5 mile of active nest sites from February 1 to August 15.
Bald Eagle	Winter roost and perch sites	No	Yes	Timing limitation	No surface use from October 1 to April 1 within 0.5 mile of winter roost and perch sites.
Golden Eagle	Active nest sites	No	Yes	Timing limitation	No surface disturbance from January 15 to July 31 within 0.5 mile of active nest sites.

Resource	Resource Needing Stipulation	Applicable to Alternative 2?	Applicable to Alternative 3?	Stipulation Type	Protection Applied
Owl	Active nest sites	No	Yes	Timing limitation	No surface disturbance from February 1 to September 15 within 0.25 mile of active nest sites.
Peregrine Falcon	Active nest sites	Yes	Yes	Timing limitation	No surface disturbance from March 15 to August 15 within 0.5 mile of active nest sites.
Raptors	Active nest areas	No	Yes	No surface occupancy	No surface occupancy or use within identified nest areas
Goshawk	Active nest areas	No	Yes	Timing limitation	No surface disturbance from April 1 to August 15 within 0.5 mile of active nest areas.
Raptors (Special Status Species)	Nest sites	No	Yes	Timing limitation	Maintain noise level to 49 decibels or less at nest sites during breeding season from February 1 to August 15.
Sage Grouse	Priority habitat	Yes	Yes	No surface occupancy	In priority habitat management areas and sagebrush focal areas, do not authorize new surface occupancy or surface disturbing activities on or within a 0.6-mile radius of the perimeter of occupied leks that are located in priority habitat management and sagebrush focal areas. GRSG-TDDD-ST-012 ³
Sage Grouse	General habitat	Yes	Yes	No surface occupancy	In general habitat management areas, do not authorize new surface occupancy or surface-disturbing activities on or within a 0.25-mile radius of the perimeter of occupied leks. GRSG-TDDD-ST-013
Sage Grouse	General and priority habitat	Yes	Yes	Timing limitation	Do not authorize new surface disturbing and disruptive activities that create noise at 10 [decibels] above ambient measured at the perimeter of an occupied lek during lekking (from March 1 to May 15) from 6 p.m. to 8 a.m. Do not include noise resulting from human activities that have been authorized and initiated within the past 10 years in the ambient baseline measurement. GRSG-TDDD-ST-014
Sage Grouse	Priority-core habitat	Yes	Yes	Timing limitation	In priority-core habitat management areas and sagebrush focal areas, do not authorize new surface-disturbing or disruptive activities from March 15 through June 30. Where credible data, based upon field analysis, support different timeframes for the seasonal restriction, dates may be shifted by either 14 days before or subsequent to the above dates, but not both. GRSG-TDDD-GL-016

³ GRSG – management direction from the Greater Sage-Grouse ROD, USDA Forest Service September 2015.

Resource	Resource Needing Stipulation	Applicable to Alternative 2?	Applicable to Alternative 3?	Stipulation Type	Protection Applied
Sage Grouse	General habitat	Yes	Yes	Timing limitation	In general habitat management areas, do not authorize new surface disturbing or disruptive activities from March 15 to June 30 within 2 miles of the lek or lek perimeter of any occupied lek located inside general areas. Where credible data, based upon field analysis, support different timeframes for this restriction, dates may be shifted by either 14 days before or subsequent to the above dates, but not both. GRSG-TDDD-GL-018
Sage Grouse	Priority habitat	Yes	Yes	Controlled surface use	In priority-core habitat management areas and sagebrush focal areas, limit the density of activities related to oil and gas development or mining activities to no more than an average of one pad or mining operation per 640 acres, using the current Density Disturbance Calculation Tool process or its replacement. GRSG-TDDD-GL-021

NOTICE FOR LANDS OF THE NATIONAL FOREST SYSTEM
UNDER JURISDICTION OF
DEPARTMENT OF AGRICULTURE

In conducting operations associated with this lease, the lessee/operator must comply with all the rules and regulations of the Secretary of Agriculture set forth at Title 36, Chapter II, of the Code of Federal Regulations governing the use, occupancy, and management of National Forest System (NFS) lands when not inconsistent with existing lease rights granted by the Secretary of Interior.

All matters related to this notice are to be addressed to:

Forest Supervisor
Bridger-Teton National Forest
PO Box 1888
340 N. Cache
Jackson, WY 83001
(307) 739-5500

who is the authorized representative of the Secretary of Agriculture.

CULTURAL RESOURCES (National Historic Preservation Act of 1966 (NHPA), P.L. 89-665 as amended by P.L. 94-422, P.L. 94-458, and P.L. 96-515):

The Forest Service authorized officer is responsible for ensuring that the leased lands are examined prior to the undertaking of any ground-disturbing activities to determine whether or not cultural resources are present, and to specify mitigation measures for effects on cultural resources that are found to be present.

The lessee or operator shall contact the Forest Service to determine if a site-specific cultural resource inventory is required prior to undertaking any surface-disturbing activities on Forest Service lands covered by this lease.

The lessee or operator may engage the services of a cultural resource specialist acceptable to the Forest Service to conduct any necessary cultural resource inventory of the area of proposed surface disturbance. In consultation with the Forest Service authorized officer, the lessee or operator may elect to conduct an inventory of a larger area to allow for alternative or additional areas of disturbance that may be needed to accommodate other resource needs or operations.

The lessee or operator shall implement mitigation measures required by the Forest Service to preserve or avoid destruction of cultural resource values. Mitigation may include relocation of proposed facilities, testing, salvage, and recordation or other protective measures.

During the course of actual surface operations on Forest Service lands associated with this lease, the lessee or operator shall immediately bring to the attention of the Forest Service the discovery of any cultural or paleontological resources. The lessee or operator shall leave such discoveries intact until directed to proceed by Forest Service.

THREATENED OR ENDANGERED SPECIES (The Endangered Species Act. (ESA), P.L. 93-205 (1973), P.L. 94-359 (1974), P.L. 95-212 (1977), P.L. 95-632 (1978), P.L. 96-159 (1979), P.L. 97-304 (1982), P.L. 100-653 (1988)):

The Forest Service authorized officer is responsible for compliance with the Endangered Species Act. This includes meeting ESA Section 7 consultation requirements with the U.S. Fish and Wildlife Service prior to any surface disturbing activities associated with this lease with potential effects to species and/or habitats protected by the ESA. The results of consultation may indicate a need for modification of or restrictions on proposed surface disturbing activities.

The lessee or operator may choose to conduct the examination at their cost. Results of the examination will be used in any necessary ESA consultation procedures. This examination and any associated reports, including Biological Assessments, must be done by or under the supervision of a qualified resource specialist approved by the Forest Service. Any reports must also be formally approved by the USDA Forest Service biologist or responsible official.

NOTICE FOR LANDS
Administered by the Bridger-Teton National Forest

The National Forest Management Act of 1978 requires all National Forests to be managed in accordance with their respective Land and Resource Management Plans. All leases, permits, and licenses for the use and occupancy of National Forest System lands are required to be consistent with completed Plans. The management standards and guidelines which apply to this lease holding are contained within Chapter 4 (Land Management Direction) of the Land and Resource Management Plan for the Bridger-Teton National Forest. The accompanying Record of Decision document contains some changes and additions to standards contained in Chapter 4. An enclosure to an accompanying letter from the Regional Forester dated February 20, 1990, contains some clarifying information about management standards. Some additions to Chapter 4 and Appendix B of the Land and Resource Management Plan are described in the Decision Notice and Environmental Assessment for Oil and Gas Leasing in Management Area 49, Jackson Ranger District, Bridger-Teton National Forest. Additional site-specific standards apply to this lease holding, and are contained within the Environmental Assessment and Decision Notice for Oil and Gas Leasing in Management Area _____, Ranger District, Bridger-Teton National Forest. All of the documents listed above are available for review at the Forest Service office listed at the end of this stipulation.

Standards and guidelines within the Land and Resource Management Plan establish the framework for the design and implementation of any surface disturbing project. Mitigating measures required for a project will be identified through a site-specific environmental analysis and decision which complies with the National Environmental Policy Act.

All matters related to this notice are to be addressed to:

Forest Supervisor
Bridger-Teton National Forest
PO Box 1888
340 N. Cache
Jackson, WY 83001
(307) 739-5500

who is the authorized representative of the Secretary of Agriculture.

(Amended 4/17/92 by Forest Plan Amendment No. 1.)

LEASE NOTICE

Forest Management Plan Guidelines for Lynx

Lands in this lease contain mapped Canada lynx habitat and/or linkage areas. The Lessee is encouraged to contact the local Forest Service Ranger District Office for potential site-specific requirements, such as the Bridger-Teton National Forest, Forest Management Plan Guidelines, for conservation of Canada lynx habitat or linkage areas prior to proposing operations on the lease. The Forest Service will assess any proposed operations to determine effects on Canada lynx, to ensure compliance with Forest Plan regulatory requirements provided by the NRLMD (USFS 2007). Results of this assessment may result in some restrictions on proposed operations, or disallow use and occupancy if they would be in violation of the Forest Plan or Endangered Species Act of 1973.

Compliance with the following guidelines from the Northern Rockies Lynx Management Direction (NRLMD) Forest Plan Amendment (2007) will be assessed:

- Guideline HU G4: For mineral and energy development sites and facilities, remote monitoring should be encouraged to reduce snow compaction.
- Guideline HU G5: For mineral and energy development sites and facilities that are closed, a reclamation plan that restores lynx habitat should be developed.
- Guideline HU G6: Methods to avoid or reduce effects on lynx should be used in lynx habitat when upgrading unpaved roads to maintenance levels 4 or 5, if the result would be increased traffic speeds and volumes, or a foreseeable contribution to increases in human activity or development.
- Guideline HU G7: New permanent roads should not be built on ridge-tops and saddles, or in areas identified as important for lynx habitat connectivity. New permanent roads and trails should be situated away from forested stringers.
- Guideline HU G8: Cutting brush along low-speed, low traffic volume roads should be done to the minimum level necessary to provide for public safety.
- Guideline HU G9: On new roads built for projects, public motorized use should be restricted. Effective closures should be provided in road designs. When the project is over, these roads should be reclaimed or decommissioned, if not needed for other management objectives.
- Guideline HUG12: Winter access for non-recreation special uses and mineral and energy exploration and development, should be limited to designated routes or designated over-the-snow routes.

NO SURFACE OCCUPANCY STIPULATION
Administrative Sites

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

Forest Service 9A administrative sites, as identified in the Bridger-Teton National Forest Land and Resource Management Plan.

Portions of parcels WYW172848 and WYW173267,

T._S., R._W., 6th PM

Sec.____;

For the purpose of:

Protecting Forest Service investment and use of facilities and the safety of the users.

Exceptions: None.

Modifications: The authorized officer may modify the area subject to the stipulation if it is determined that portions of the leasehold do not contain administrative sites.

Waiver: The authorized officer may grant a waiver if it is determined that the entire lease area does not contain administrative sites.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or Forest Service Manual 1950 and 2820.)

JACKSON HOLE AREA OIL AND GAS LEASE SPECIAL STIPULATION

The lands embraced in this lease being within the area designated in the memorandum of August 15, 1947, by the Secretary of the Interior ("Oil and Gas Leases in the Jackson Hole, Wyoming Area"; Federal Register, August 30, 1947, page 5859), which specifies the general conditions under which the unitized development of the oil and gas resources is authorized, the lessee hereby agrees:

- (1) To drill only such wells on the leased land as may be authorized by the Secretary of the Interior under an approved unit plan; to drill no well within 1250 feet of any public road on or adjacent to the leased land without the consent of the Secretary of the Interior first had and obtained; to refrain from defacing, injuring, or destroying trees, shrubs, or natural features, or removing same outside of the authorized work limits or pipeline and road rights-of-way as established pursuant to, or revised in accordance with, the unit plan. After designation of the authorized work limits by the Secretary of the Interior or his representatives, lessee shall mark such limits by some acceptable visual means. The location of camps, storage, parking of equipment, and storage of materials shall be confined within the authorized work limits. Sludge or other waste by-products from drilling or operations shall be so confined or disposed of that they do not destroy scenic or wildlife or pollute streams.
- (2) To remove at the termination of drilling operations, all camps and buildings not essential to a continuing operation of any well, and to fill all sump holes, ditches, and other excavations, remove or cover all debris, and to restore the sites to a neat and presentable condition appropriate to the surrounding landscape, and, upon any partial or total relinquishment, cancellation, or expiration of this lease as to that part of the leased land to which his rights have terminated, so far as reasonably possible, to restore the surface of the leased land to its former condition to the extent deemed necessary by the Secretary of the Interior and the Regional Forester, U.S. Forest Service, Ogden, Utah, or their authorized representatives.
- (3) To keep to an absolute minimum the number of access, tote roads, and other travelways necessary to conduct the lessee's operations, the location of which shall be designated by the Supervisor prior to the time of their construction. Access to existing public highways shall be determined by the Supervisor at such points on the highways with due regard for sight distance restrictions, safety, or scenic considerations. The location, alignment and cross section of all roads constructed for the convenience of lessee's operations, shall be such that after discontinuance of use, they can be obliterated and the area over which they traverse can be restored to its original condition. All types of roads constructed for operational uses shall, at the termination of these uses, be obliterated where required and the area over which they traversed restored in such a manner that revegetation will be encouraged. All roads constructed for operational purposes are to be considered as private roads and the erection of signs, locked gates, or other devices that may be required, at the discretion of the Supervisor, to discourage or prevent their use by the public shall be constructed and maintained by the lessee.
- (4) To protect the scenic and aesthetic values of roadsides, waterfronts, and recreation area zones as far as possible consistent with the authorized use in connection with construction, operation, and maintenance facilities.
- (5) To conduct operations in a manner that will offer the least possible disturbance to wildlife on or adjacent to the leased land; to exercise no methods of control or interference with such wildlife without authority first obtained from the authorized representative of the Secretary of the Interior

and/or the State Game and Fish Commission; to make no claim against the federal government or the State on account of damage by such wildlife to improvements placed on the leased land.

- (6) To observe and comply with all State and Federal laws and regulations relating to wildlife and to take such action as is necessary to assure observation and compliance with these laws and regulations by lessee's employees and agents.

As to any land within the Cache Creek Municipal Watershed, the lease will contain the following additional requirement.

- (7) To comply with plans heretofore made through agreement with the Forest Service and the Town Council of Jackson, Wyoming, for the protection from pollution of the municipal water during the term of this lease or any extension thereof.

On the lands described below (legal subdivision or other description).

This applies to the areas of parcels WYW172850, WYW172851, WYW173274 that overlap management area 23, along the north and northwest boundaries of the northern block of project lease parcels.

T.__S., R.__W., 6th PM

Sec. __;

Exceptions:

Modifications:

Waiver:

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820.)

NO SURFACE OCCUPANCY STIPULATION
Steep Slopes and Unstable Soils

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

On slopes in excess of 40 percent or on technically unstable soils. This includes areas prone to mass soil movement.

T.__S., R.__W., 6th PM

Sec.__;

For the purpose of:

Protecting steep slopes and unstable soils.

Exceptions: The authorized officer may grant an exception if an environmental record of review demonstrates that the nature of the proposed action could be conditioned so as not to negatively impact the stability of or productivity of the steep slopes and unstable soils identified and if it is determined that the action will meet the designated forest plan performance standards.

Modifications: The authorized officer may modify the area subject to the stipulation based on a USFS evaluation or monitoring results that show that the action does not contain unstable soils or slopes greater than 40 percent, or that the action utilizes construction, reclamation, and design features that would stabilize the site during occupation and restore the original contours after occupation.

A modification may be granted if an environmental analysis of the proposed action demonstrates that unstable soils do not exist on the specific site.

Waiver: The authorized officer may grant a waiver if it is determined that the entire lease area does not contain slopes greater than 40 percent anywhere within the leasehold.

No waiver will be granted for unstable soils.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or Forest Service Manual 1950 and 2820).

NO SURFACE OCCUPANCY STIPULATION
Riparian Habitat – Fisheries, Wildlife, Hydrology

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

Areas within 500 feet of outermost perimeter of riparian habitat.

T.__S., R.__W., 6th PM

Sec.__;

For the purpose of:

Maintaining riparian habitat and functional integrity.

Exceptions: The authorized officer may grant an exception if it is determined through environmental analysis that the nature of the proposed action could be conditioned so as not to negatively impact the habitat identified. Consideration must include the degree of slope, soils, importance of the amount and type of wildlife and fish use, water quality, riparian vegetation, and other related resource values. If wetlands are present, no exceptions would be granted unless compliance can be demonstrated with Executive Order 11990.

Modifications: The authorized officer may modify the area subject to an environmental analysis that determines that project design or mitigation measures can be used to prevent impacts to riparian habitat. Consideration must include the variability in terrain, degree of slope, soils, importance of the amount and type of wildlife and fish use, water quality, riparian vegetation, and other related resource values. If wetlands are present, no modifications would be granted unless compliance can be demonstrated with Executive Order 11990.

Waiver: None.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or Forest Service Manual 1950 and 2820).

NO SURFACE OCCUPANCY STIPULATION
Wyoming Range Crest

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

Lands within 0.5 mile of the Wyoming Range Crest.

T.__S., R.__W., 6th PM

Sec. __;

For the purpose of:

Protecting the scenic values and recreation opportunities along the Wyoming Range Crest.

Exceptions: None

Modifications: None

Waiver: None

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or Forest Service Manual 1950 and 2820).

**NO SURFACE OCCUPANCY STIPULATION
Lander Cutoff of California National Historic Trail**

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

Lands within 0.25 mile or to the visual horizon, whichever is less, for sections of the Lander Trail where the original ruts still exist.

Portions of parcels WYW173270 and WYW173280.

T.__S., R.__W., 6th PM

Sec.__;

For the purpose of:

Protecting the many pioneer graves, tree engravings, and campsites which may be adjacent to the trail, and to protect the scenic and historic values of the trail.

Surface occupancy or use will be restricted unless the operator and surface managing agency arrive at an acceptable plan for mitigation of anticipated impacts; the plan must demonstrate proposed infrastructure is either not visible or will result in a weak contrast rating.

Exception: The authorized officer may grant an exception if surveys determine that other historic trail remnants are not present or it is determined that the section of trail is sufficiently compromised that the action will not result in an adverse effect to the trail.

Modification: If surveys determine that a portion of the lease area does not contain contributing trail segments, then the stipulation may be modified. This determination shall be based upon field evaluation of the area by a qualified archaeologist/historian and subject to confirmation by the USFS.

Waiver: The authorized officer may grant a waiver if surveys determine that the entire lease area does not contain contributing trail segments, then the stipulation may be waived. This determination shall be based upon field evaluation of the area by a qualified archaeologist/historian and subject to confirmation by the USFS.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or Forest Service Manual 1950 and 2820).

NO SURFACE OCCUPANCY STIPULATION
Wild River

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description):

Lands within 0.25 mile on either side of the Big Fall Creek drainage within parcel WYW173278.

If a suitability study finds that the waterway corridor is not suitable for wild and scenic river classification, the stipulation will not apply and the area will be managed as directed in the forest plan (as amended), including forest plan amendment No. 2 (Wild and Scenic Rivers eligibility study and management guidance).

See Attached Maps

T.__S., R.__W., 6th PM

Sec.__;

For the purpose of:

Protecting the existing condition along the portion of the river, which has been determined to be eligible for inclusion in the National Rivers System as a wild river. If a suitability study finds that this waterway corridor is not suitable for wild and scenic river classification, the no-surface-occupancy stipulation for this purpose/resource will not apply, and the area will be managed as directed in the forest plan (aa amended), including forest plan amendment No. 2 (Wild and Scenic Rivers eligibility study and management guidance).

Exceptions: None

Modifications: The 0.25-mile boundary may be modified in accordance with the Wild and Scenic River plan.

Waiver: The authorized officer may grant a waiver if it is determined that the entire lease area does not include wild and scenic river attributes as verified by Forest Service staff. A waiver of this stipulation may only be granted through a land use plan amendment.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or Forest Service Manual 1950 and 2820).

NO SURFACE OCCUPANCY STIPULATION
Inventoried Roadless Areas

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

For all lands designated as an inventoried roadless area.

T.__S., R.__W., 6th PM

Sec.__;

For the purpose of:

Preserving the natural features that contribute to roadless characteristics.

Exceptions: None.

Modifications: The authorized officer may modify the area subject to the stipulation through environmental analysis that determines the boundary of the designated roadless area has been modified and the portion of the leasehold is no longer in a designated roadless area.

Waiver: The authorized officer may grant a waiver if it is determined that the entire lease area does not include any designated roadless areas.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or Forest Service Manual 1950 and 2820).

CONTROLLED SURFACE USE STIPULATION Wildlife Mitigation

Surface occupancy or use will be restricted and is subject to the following special operating constraints.

Surface occupancy or use will be restricted to an average open road density of 0.25 mile per square mile of standard or equivalent road with 1-year to 5-year variations of 0 to 0.5 mile per square mile. Temporary roads will be returned to Elimination Class 3 or 4 Standards.

On the lands described below:

This applies within DFC 12 areas.

T.__S., R.__W., 6th PM

Sec.__;

For the purpose of:

Limiting effects of roading, exploration and development on big game wildlife secure habitat.

Exceptions: The authorized officer may grant an exception if it is determined that the proposed action, through an environmental review, demonstrates that the surface-disturbing activity would not cause adverse impact, have negligible impacts, or improve the protected resource value or use as defined by forest plan objectives, standards, or conditions in the stipulation. If an exception is granted, monitoring, special design, construction, and implementation measures, including relocation of operations by more than 200 meters (656 feet), may be required. Approvals could be subject to additional conditions of approval, reclamation measure, or best management practices. Measures applied would be based on the nature, extent, and values potentially affected by the surface-disturbing activity.

Modifications: The authorized officer may modify the area subject to the stipulation if an environmental analysis demonstrates that the surface disturbing activity added within the forest plan designated DFC 12 area has less impact to the wildlife than an alternative route that avoids the area entirely. If a modification is granted, monitoring, special design, construction, and implementation measures, including relocation of operations by more than 200 meters (656 feet), may be required. In such situations, that a modification may be granted, the activity would be subject to additional conditions of approval (COAs) and reclamation standards to ensure resource values are protected.

Waiver: The Authorized Officer may grant a waiver if it is determined that the entire lease area is not located within DFC12. A waiver may be granted if an environmental analysis determines that the areas mapped as possessing the attributes are verified to not possess those attributes.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or Forest Service Manual 1950 and 2820.)

**NO SURFACE OCCUPANCY STIPULATION
Amphibian Breeding Habitat**

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

Within 500 meters (1,640 feet) of known amphibian breeding habitat (R4 sensitive species). Known breeding habitat is defined as a contiguous aquatic feature, which has been found to have evidence of sensitive amphibian breeding within a 10 year period prior to the proposed development. Evidence of breeding includes presence of eggs, tadpoles, metamorphs or adults in amplexus.

T. __S., R. __W., 6th PM

Sec. __;

For the purpose of:

Avoiding disturbance to amphibians (R4 sensitive species) that would result in a trend toward federal listing or loss of viability.

Exceptions: An authorized officer may grant an exception if an environmental analysis demonstrates that the surface-disturbing activity; would not cause adverse impact, would have negligible impacts, or would improve the protected resource value or use as defined by forest plan objectives, standards, or conditions in the stipulation. If an exception is granted, monitoring, special design, construction, and implementation measures, including relocation of operations by more than 200 meters (656 feet), may be required. In situations where a surface-disturbing activity/lease stipulation is excepted, the activity could be subject to additional conditions of approval, reclamation measure, or BMPs. Measures applied would be based on the nature, extent, and values potentially affected by the surface-disturbing activity.

Modifications: An authorized officer may grant a modification, in consultation with the U.S. Fish and Wildlife Service, if an environmental analysis demonstrates that the proposed action can be sited, conducted, or conditioned to remain compatible with habitat protection and species recovery objectives. If a modification is granted, monitoring, special design, construction, and implementation measures, including relocation of operations by more than 200 meters (656 feet), may be required. In such situations, that a modification may be granted, the activity would be subject to additional conditions of approval (COAs) and reclamation standards to ensure resource values are protected.

Waiver: An authorized officer may grant a waiver if an environmental analysis determines that the areas mapped as possessing the attributes are verified to not possess those attributes.

Waivers, exceptions, and modifications will be considered on a species by species basis.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or Forest Service Manual 1950 and 2820).

TIMING LIMITATION STIPULATION
Big Game Migration Corridors and Stopover Areas

No surface use is allowed during the following time period(s). This stipulation does not apply to operation and maintenance of production facilities.

April 1 – June 15 and October 15 – December 1 within 0.3 mile of lands mapped by Wyoming Game and Fish Department as Big Game Moderate to High Use Migration Corridors and Stopover Areas

On the lands described below:

T.__S., R.__W., 6th PM

Sec.__;

For the purpose of:

Protecting big game moderate to high use migration corridors and stopover areas in order to prevent abandonment of critical habitats, provide connectivity between seasonal use areas, and to maintain reproductive success, recruitment, and survival.

Exceptions: The authorized officer may grant an exception if it is determined that the proposed action, through an environmental review determines that (a) the specific activity or requested change would not impair the quality, values, and ecological function of big game migration corridors and stopover areas, nor impair the behaviors, habitat use, or survival of big game that use migration corridors and stopover areas within the specific area; and (b) no practicable alternative is available. If an exception is granted, monitoring, special design, construction, and implementation measures, including relocation of operations by more than 200 meters (656 feet), may be required. Approvals would be subject to additional conditions of approval and reclamation standards to ensure resource values are protected.

Modifications: The authorized officer may modify the area subject to the stipulation if an environmental analysis determines that the migration corridor and stopover areas change for these species as documented by Wyoming Game and Fish Department.

Waiver: A waiver may be granted if it is determined, in coordination with Wyoming Game and Fish Department, that the entire lease area is no longer managed as a migration corridor or stopover area.

Waivers, exceptions, and modifications will be considered on a species-by-species basis.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or Forest Service Manual 1950 and 2820.)

NO SURFACE OCCUPANCY STIPULATION
Big Game Crucial Winter Range

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

Lands identified as big game crucial winter range.

T.__S., R.__W., 6th PM

Sec.__;

For the purpose of:

Protecting wintering big game during the critical winter and early spring months of the year in order to reduce behavioral disturbances which can result in big game mortality, reduced animal fitness, or poor survivorship of young.

Exception: The authorized officer may grant an exception if the operator demonstrates that the crucial winter range is not occupied during the period of concern, subject to a determination by the USFS in coordination with the Wyoming Game and Fish Department.

Modification: The authorized officer may modify the area subject to the stipulations based on an evaluation by the BLM, in coordination with the Wyoming Game and Fish Department, to determine that crucial winter range is not present or boundaries of the subject area has been refined.

Waiver: The authorized officer may grant a waiver if it is determined that the entire lease area does not contain crucial winter range. This determination shall be based on an evaluation by the USFS, in coordination with the Wyoming Game and Fish Department.

Waivers, exceptions, and modifications will be considered on a species-by-species basis.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or Forest Service Manual 1950 and 2820).

**TIMING LIMITATION STIPULATION
Big Game Crucial Winter Range**

No surface use is allowed during the following time period(s). This stipulation does not apply to operation and maintenance of production facilities.

November 15 - April 30 on lands identified as big game crucial winter range.

On the lands described below:

T.__S., R.__W., 6th PM

Sec.__;

For the purpose of:

Protecting wintering big game during the critical winter and early spring months of the year in order to reduce behavioral disturbances which can result in big game mortality, reduced animal fitness, or poor survivorship of young.

Exceptions: The authorized officer may grant an exception if it is determined that the proposed action, through an environmental review determines that (a) between the period of November 15 – December 31 if mild winter conditions exist, and only if wintering big game animals are less concentrated on winter ranges and have adequate available forage outside of the specific exception area; (b) between November 15 and April 30 for a species, the proposed action can be conditioned so as not to interfere with current or subsequent habitat function (i.e. the proposed activities will not lessen overall habitat quality in future years), not compromise animal condition and health, and would not impair values, behaviors, habitat use or quality, or impact the survival of elk, deer, or moose present within the specific area. If an exception is granted, monitoring, special design, construction, and implementation measures, including relocation of operations by more than 200 meters (656 feet), may be required. In such situations that an exception may be granted, the activity would be subject to additional conditions of approval (COAs) and reclamation standards to ensure resource values are protected.

Modifications: The authorized officer may grant a modification to a portion of a leasehold if an environmental analysis, in consultation with Wyoming Game and Fish Department, determines that the necessary annual closure dates or boundaries of big game winter range use have changed for a species.

Waiver: A waiver may be granted if it is determined, in coordination with Wyoming Game and Fish Department, that the entire lease area is no longer managed as crucial winter range.

Waivers, exceptions, and modifications will be considered on a species-by-species basis.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or Forest Service Manual 1950 and 2820.)

**TIMING-LIMITATION STIPULATION
Big Game Winter Range/Yearlong Range**

No surface use is allowed during the following time period(s). This stipulation does not apply to operation and maintenance of production facilities.

November 15 – April 30 on lands identified as big game winter range and/or yearlong range.

On the lands described below:

T._S., R._W., 6th PM

Sec.____;

For the purpose of:

Protecting big game winter range and/or yearlong range.

Exception: An exception may be granted if an environmental analysis demonstrates that the activity would have negligible impacts and would not cause adverse effects to species or their critical habitats. If an exception is granted, monitoring, special design, construction, and implementation measures, including relocation of operations by more than 200 meters (656 feet), may be required. In such situations that an exception may be granted, the activity would be subject to additional Conditions of Approval (COAs) and reclamation standards to ensure resource values are protected.

Modification: A modification may be granted if an environmental analysis determines that the species has relocated; the occupied habitat has increased or decreased; or that the nature or conduct of the activity, as proposed or conditioned, would not impair values associated with the maintenance or recovery of the species. A modification may be granted if conditions have changed such that there is no reasonable likelihood of site occupation over a minimum 10-year period.

Waiver: A waiver may be granted if it is determined, in coordination with WGFD, that the entire lease area is no longer managed as winter or yearlong range.

Waivers, exceptions, and modifications will be considered on a species-by-species basis.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or Forest Service Manual 1950 and 2820).

**CONTROLLED SURFACE USE STIPULATION
Big Game Winter Range/Yearlong Range**

Surface occupancy or use will be restricted and is subject to the following special operating constraints.

Well pad density restricted to no more than one well pad per section with total oil and gas related disturbance of 32 acres/section or less (5% over 10 square miles).

On the lands described below:

T.__S., R.__W., 6th PM

Sec.__;

For the purpose of:

Protecting big game winter range and yearlong range.

Exception: The authorized officer may grant an exception if an environmental record of review determines that, the action, as proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life history, or behavioral needs of big game. An exception to the stated limits may be granted when mitigation is determined to provide an overall beneficial effect to big game habitat and populations.

The USFS can and does grant exceptions if the USFS, in coordination with the Wyoming Game and Fish Department, determines that granting an exception would not adversely impact the population being protected.

Modification: The authorized officer may modify the area subject to the stipulation or surface occupancy criteria if an environmental record of review finds that a portion of the controlled-surface-use area is nonessential, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of big game.

Waiver: The authorized officer may grant a waiver if it is determined by the USFS, in coordination with the State wildlife agency, it is determined that the site is no longer managed as crucial winter or yearlong range for big game.

Waivers, exceptions, and modifications will be considered on a species-by-species basis.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or Forest Service Manual 1950 and 2820.)

**CONTROLLED SURFACE USE STIPULATION
Big Game Parturition Area**

Surface occupancy or use is restricted and is subject to the following special operating constraints.

Well pad density restricted to no more than one well pad per section with total oil and gas related disturbance of 32 acres/section or less (5% over 10 square miles).

On the lands described below:

Big game parturition (birthing) areas.

T. __S., R. __W., 6th PM

Sec. __;

For the purpose of:

Reducing behavioral disruption during parturition and early young rearing period.

Exceptions: The authorized officer may grant an exception if an environmental record of review determines that, the action, as proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life history, or behavioral needs of big game. An exception to the stated limits may be granted when mitigation is determined to provide an overall beneficial effect to big game habitat and populations.

The USFS can and does grant exceptions if the USFS, in coordination with the Wyoming Game and Fish Department, determines that granting an exception would not adversely impact the population being protected.

Modifications: The authorized officer may modify the area subject to the stipulation or surface occupancy criteria if an environmental record of review finds that a portion of the controlled-surface-use area is nonessential, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of big game.

Waiver: The authorized officer may grant a waiver if it is determined by the USFS, in coordination with the State wildlife agency, it is determined that the site is no longer considered in the land use plan to be within a parturition area for big game.

Waivers, exceptions, and modifications will be considered on a species-by-species basis.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or Forest Service Manual 1950 and 2820.)

**TIMING LIMITATION STIPULATION
Elk Parturition Areas**

No surface use is allowed during the following time period(s). This stipulation does not apply to operation and maintenance of production facilities.

Exploration, drilling and development activity will not be allowed during the period from May 15 through June 30.

On the lands described below:

T.__S., R.__W., 6th PM

Sec.__;

For the purpose of:

Protecting key elk parturition habitats in order to prevent abandonment of critical habitats and to maintain elk reproductive success, juvenile recruitment, and survival of adult and young.

Exception: The authorized officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life-history, or behavioral needs of elk. The USFS can and does grant exceptions if the USFS, in coordination with the Wyoming Game and Fish Department, determines that granting an exception would not adversely impact the population being protected.

Modification: The authorized officer may modify the area subject to the stipulation if an environmental record of review finds that a portion of the area is nonessential, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the elk.

Waiver: This stipulation may be waived over the entire lease if, in coordination with the Wyoming Game and Fish Department, it is determined that the lease area is no longer contain elk parturition areas.

Waivers, exceptions, and modifications will be considered on a habitat by habitat basis.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or Forest Service Manual 1950 and 2820.

NO SURFACE OCCUPANCY STIPULATION
Bighorn Sheep Lambing, Rutting and Winter Ranges

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

For those habitats identified as bighorn sheep lambing, rutting and winter ranges.

T._S., R._W., 6th PM

Sec. __;

For the purpose of:

Protecting important bighorn sheep habitat.

Exception: The authorized officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life-history, or behavioral needs of bighorn sheep. The USFS can and does grant exceptions if the USFS, in coordination with the Wyoming Game and Fish Department, determines that granting an exception would not adversely impact the population being protected.

Modification: The authorized officer may modify the area subject to the stipulation if an environmental record of review finds that a portion of the area is nonessential, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the bighorn sheep.

Waiver: This stipulation may be waived over the entire lease if, in coordination with the Wyoming Game and Fish Department, it is determined that the site is no longer contains bighorn sheep lambing or rutting area, or winter range.

Waivers, exceptions, and modifications will be considered on a habitat-by-habitat basis.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or Forest Service Manual 1950 and 2820).

**TIMING LIMITATION STIPULATION
Bighorn Sheep Occupied Seasonal Ranges**

No surface use is allowed during the following time period(s). This stipulation does not apply to operation and maintenance of production facilities.

No surface disturbance or use within 1 mile of occupied bighorn sheep seasonal ranges from November 1 to June 30.

On the lands described below:

T.__S., R.__W., 6th PM

Sec. __;

For the purpose of:

Protecting important bighorn sheep habitat.

Exceptions: The authorized officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life-history, or behavioral needs of bighorn sheep. The USFS can and does grant exceptions if the USFS, in coordination with the Wyoming Game and Fish Department, determines that granting an exception would not adversely impact the population being protected.

Modification: The authorized officer may modify the area subject to the stipulation if an environmental record of review finds that a portion of the area is nonessential, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the bighorn sheep.

Waiver: This stipulation may be waived over the entire lease if, in coordination with the Wyoming Game and Fish Department, it is determined that the entire lease area is no longer contains bighorn sheep lambing or rutting areas, or winter range.

Waivers, exceptions, and modifications will be considered on a habitat-by-habitat basis.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or Forest Service Manual 1950 and 2820.

NO SURFACE OCCUPANCY STIPULATION
Lynx Home Range

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

Within identified lynx home range habitat.

T.__S., R.__W., 6th PM

Sec.__;

For the purpose of:

Protecting denning habitat for Canada lynx in compliance with the Endangered Species Act.

Exceptions: The authorized officer may grant an exception if an environmental analysis demonstrates that the activity would have negligible impacts and would not cause adverse effects to species or their critical habitats. If an exception is granted, monitoring, special design, construction, and implementation measures, including relocation of operations by more than 200 meters (656 feet), may be required. In such situations that an exception may be granted, the activity would be subject to additional conditions of approval (COAs) and reclamation standards to ensure resource values are protected.

Exceptions will only be considered if the USFS determines, using ESA Section 7 consultation/conference with USFWS, that the specific activity or requested change would not impair values associated with the maintenance or recovery of the species.

Modifications: The authorized officer may grant a modification if an environmental analysis determines that the species has relocated; the occupied habitat has increased or decreased; or that the nature or conduct of the activity, as proposed or conditioned, would not impair values associated with the maintenance or recovery of the species. A modification may be granted if conditions have changed such that there is no reasonable likelihood of site occupation over a minimum 10-year period. Section 7 consultation/conferencing procedures would be instituted in those instances where a modification is being considered that involves a federally listed or proposed species.

Waiver: The authorized officer may grant a waiver in consultation with USFWS, or a waiver may be granted upon de-listing of the species and in coordination with a Forest Service wildlife biologist.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or Forest Service Manual 1950 and 2820).

**CONTROLLED SURFACE USE STIPULATION
Canada Lynx Habitat**

Surface occupancy or use is subject to the following special operating constraints.

In Canada lynx habitat, utilize remote monitoring for producing wells to reduce snow compaction due to accessing sites in the winter.

On the lands described below:

T.__S., R.__W., 6th PM

Sec.__;

For the purpose of:

Protecting lynx habitat.

Exceptions: An exception may be granted if an environmental analysis demonstrates that the activity would have negligible impacts and would not cause adverse effects to species or their critical habitats. If an exception is granted, monitoring, special design, construction, and implementation measures, including relocation of operations by more than 200 meters (656 feet), may be required. In such situations that an exception may be granted, the activity would be subject to additional Conditions of Approval (COAs) and reclamation standards to ensure resource values are protected.

Exceptions will only be considered if the Forest Service determines, using ESA Section 7 consultation/conference with USFWS, that the specific activity or requested change would not impair values associated with the maintenance or recovery of the species.

Modifications: A modification may be granted if an environmental analysis determines that the species has relocated; the occupied habitat has increased or decreased; or that the nature or conduct of the activity, as proposed or conditioned, would not impair values associated with the maintenance or recovery of the species. A modification may be granted if conditions have changed such that there is no reasonable likelihood of site occupation over a minimum 10-year period. Section 7 consultation/conferencing procedures would be instituted in those instances where a modification is being considered that involves a federally listed or proposed species.

Waiver: The authorized officer may grant a waiver in consultation with USFWS, or a waiver may be granted upon de-listing of the species and in coordination with a Forest Service wildlife biologist.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or Forest Service Manual 1950 and 2820.)

**TIMING LIMITATION STIPULATION
Gray Wolf Natal Den and Rendezvous Sites**

No surface use is allowed during the following time period(s). This stipulation does not apply to operation and maintenance of production facilities.

No surface disturbance within 1 mile of: occupied den sites from April 1 – June 15 and/or established rendezvous sites from June 15 – July 31.

On the lands described below:

T.__S., R.__W., 6th PM

Sec.__;

For the purpose of:

Protecting gray wolf essential habitat elements.

Exceptions: An exception may be granted in coordination with U.S. Fish and Wildlife Service (USFWS) if an environmental analysis establishes that the activity would not cause abandonment of the site or otherwise be detrimental to maintenance and distribution of viable populations across the forest. If an exception is granted, monitoring, special design, construction, and implementation measures, including relocation of operations by more than 200 meters (656 feet), may be required. In such situations that an exception may be granted, the activity would be subject to additional Conditions of Approval (COAs) and reclamation standards to ensure resource values are protected.

Modifications: A modification may be granted in coordination with the USFWS if an environmental analysis establishes that the species has relocated; the occupied habitat has increased; or that the nature or conduct of the activity, as proposed or conditioned, would not impair values associated with the maintenance or recovery of the species on the forest.

Waiver: A waiver may be granted, in consultation with USFWS, or waiver may be granted upon de-listing of the species and in coordination with a Forest Service wildlife biologist.

Waivers, exceptions, and modifications will be considered on a habitat by habitat basis.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820.)

**TIMING LIMITATION STIPULATION
Bald Eagle Winter Roost and Perch Sites**

No surface use is allowed during the following time period(s) or within specified distances to eagle perch and roost sites. This stipulation does not apply to operation and maintenance of production facilities.

No surface use is allowed within 0.5 mile of known bald eagle winter hunting perch sites or winter communal night roost sites from October 1 to April 1.

This stipulation does not apply to operation and maintenance of production facilities.

On the lands described below:

T.__S., R.__W., 6th PM

Sec.__;

For the purpose of:

Preventing impacts to wintering bald eagles in order to increase the likelihood of winter survival.

Exception: The authorized officer may grant an exception if the operator demonstrates that there are no active or occupied nests during the period of concern, subject to confirmation by the USFS, in coordination with the Wyoming Game and Fish Department and/or U.S. Fish and Wildlife Service, as necessary.

Modification: The authorized officer may modify the area subject to the stipulations based on a USFS evaluation, in coordination with the Wyoming Game and Fish Department and/or the U.S. Fish and Wildlife Service, as necessary. The stipulation may be modified based on negative or positive monitoring results, or if it is determined that the action will not impair the function or the suitability of the habitat, or cause nest abandonment.

Waiver: The authorized officer may grant a waiver if it is determined that the entire lease area does not contain active raptor nests or suitable habitat for raptors. This determination shall be based on a USFS evaluation of the area, in coordination with the Wyoming Game and Fish Department and/or the U.S. Fish and Wildlife Service, as necessary.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or Forest Service Manual 1950 and 2820.)

NO SURFACE OCCUPANCY STIPULATION
Golden Eagle Active Nest Sites

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

No surface disturbance is allowed within 0.5 mile of active nest sites.

T. __S., R. __W., 6th PM

Sec. __;

For the purpose of:

Preventing impacts to breeding raptors in order to increase the likelihood of successful reproduction and recruitment of young.

Exceptions: An exception may be granted if an environmental analysis of the proposed action determines that the nature or conduct of the activity could be conditioned so as not to interfere with adult attendance and visitation of the nest site, jeopardize survival of the eggs, nestlings, or fledglings, or otherwise impair the utility of the breeding territory for current or subsequent successful reproductive activity or occupancy. An exception may be granted if the breeding territory is unattended or remains unoccupied for the current breeding season or if it is late enough in the breeding season of the project year to assure that the species would not re-nest. A site specific exception may be granted, in consultation with Wyoming Game and Fish Department (WGFD) or the U.S. Fish and Wildlife Service (USFWS), if an environmental analysis determines that the specific activity or requested change would not impair values, behaviors, habitat use and quality, and reproductive success of raptor species present within the specific TL area. Exceptions must be consistent with policies derived from federal administration of the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. If an exception is granted, monitoring, special design, construction, and implementation measures, including relocation of operations by more than 200 meters (656 feet), may be required. In such situations that an exception may be granted, the activity would be subject to additional Conditions of Approval (COAs) and reclamation standards to ensure resource values are protected.

Modifications: A site specific modification to the timing-limitation dates or buffer distances may be granted if an environmental analysis determines that a portion of the area is not essential to breeding territory utility or function, or that the proposed action could be conditioned so as not to interfere with adult attendance and visitation of the nest site, jeopardize survival of the eggs nestlings, or fledglings, or otherwise impair the utility of the breeding territory for current or subsequent successful reproduction activities or occupation. A modification may be granted if documentation shows the breeding territory has remained unoccupied for a minimum of 5 years, or that the site conditions of the breeding territory have changed such that there is no reasonable likelihood of breeding territory occupation for a subsequent minimum period of 10 years. Timing limitation dates and buffer distances may be modified if improved biological information based on the best available science indicates that there are more accurate breeding season dates and more appropriate buffer distances for raptors, as recognized by WGFD, USFWS, and the Forest Service. A modification must be consistent with policies derived from federal administration of the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.

Waiver: A waiver may be granted if it is determined, in coordination with WGFD and/or the USFWS, that the entire lease area does not contain active nests or suitable habitat.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820).

**TIMING LIMITATION STIPULATION
Raptor Species Active Nest Sites**

No surface use is allowed during the following time period(s). This stipulation does not apply to operation and maintenance of production facilities.

No surface use is allowed within active raptor nest sites during the timeframes specified below. (Times may shift slightly in either direction, depending on weather variation and site conditions, based on surveys by a qualified biologist.)

Current species of concern, applicable timing restriction and buffer zones (shown below as the radius distance from an active nest) include:

- ◆ Bald Eagle, 1/2 mile, 2/1-8/15
- ◆ Peregrine Falcon, 1/2 mile, 3/1 – 7/31 or 7/1-9/15 for hack sites, depending on the cliff nest height within 1 mile of active nest sites

On the lands described below:

T. __S., R. __W., 6th PM

Sec. __;

For the purpose of:

Protecting priority habitat such as nesting areas, fledging areas, and foraging habitat of sensitive raptor species in order to prevent abandonment of nests and territories and to maintain reproductive success, recruitment, and survival.

Exceptions: An exception may be granted by the Authorized Officer to these dates if an agency biologist verifies that the nest site is unattended for the current season and it is late enough in the season to assure that the species would not utilize the nest for re-nesting activities following a failure at this or alternate nest sites or confirms that the birds have fledged and left the post-fledgling area for the season.

Modifications: This lease stipulation dates and buffer distances may be modified by the Authorized Officer if an environmental analysis indicates that more accurate dates and buffer distances, as recognized by the management agency and WGFD, are available for the raptor species in the planning area.

Waiver: A waiver may be granted if the territory has remained unoccupied for 5 years or conditions change such that there is no reasonable likelihood of site occupation over a minimum 10-year period.

Waivers, exceptions, and modifications will be considered on a species-by-species basis.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or Forest Service Manual 1950 and 2820.)

TIMING LIMITATION STIPULATION Raptors Species Active Nest Sites

No surface use is allowed during the following time period(s). This stipulation does not apply to operation and maintenance of production facilities.

No surface use is allowed within active raptor nest sites during the timeframes specified below. (Times may shift slightly in either direction, depending on weather variation and site conditions, based on surveys by a qualified biologist.)

Current species of concern, applicable timing restriction and buffer zones (shown below as the radius distance from an active nest) include:

- ◆ Bald Eagle, 1/2 mile, 2/1-8/15
- ◆ Peregrine Falcon, 1/2 mile, 3/1 – 7/31 or 7/1-9/15 for hack sites, depending on the cliff nest height within 1 mile of active nest sites
- ◆ Northern Goshawk, 1/2 mile, 4/1-8/15
- ◆ Owl, 1/4 mile, 2/1-9/15
- ◆ Golden Eagle, 1/2 mile, 1/15- 7/31

On the lands described below:

T.__S., R.__W., 6th PM

Sec.__;

For the purpose of:

Protecting priority habitat such as nesting areas, fledging areas, and foraging habitat of sensitive raptor species in order to prevent abandonment of nests and territories and to maintain reproductive success, recruitment, and survival.

Exceptions: An exception may be granted by the Authorized Officer to these dates if an agency biologist verifies that the nest site is unattended for the current season and it is late enough in the season to assure that the species would not utilize the nest for re-nesting activities following a failure at this or alternate nest sites or confirms that the birds have fledged and left the post-fledgling area for the season.

Modifications: This lease stipulation dates and buffer distances may be modified by the Authorized Officer if an environmental analysis indicates that more accurate dates and buffer distances, as recognized by the management agency and WGFD, are available for the raptor species in the planning area.

Waiver: A waiver may be granted if the territory has remained unoccupied for 5 years or conditions change such that there is no reasonable likelihood of site occupation over a minimum 10-year period.

Waivers, exceptions, and modifications will be considered on a species-by-species basis.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or Forest Service Manual 1950 and 2820.)

**NO SURFACE OCCUPANCY STIPULATION
Raptor Species Active Nest Sites**

No surface occupancy or use is allowed on the lands described below (legal subdivision or other description).

No surface use is allowed within 0.25 mile of an active raptor nest site

Current species of concern include:

- Bald Eagle
- Peregrine Falcon
- Northern Goshawk
- Owl
- Golden Eagle

On the lands described below:

T. __S., R. __W., 6th PM

Sec. __;

For the purpose of:

Protecting nest trees of sensitive raptor species in order to prevent abandonment of territories and to maintain reproductive success, recruitment, and survival.

Exceptions: An exception may be granted by the Authorized Officer if an agency biologist verifies that the nest site is no longer used or providing functional habitat.

Modifications: A modification may be authorized by the Authorized Officer if an environmental analysis indicates the nest site is no longer used or providing functional habitat.

Waiver: A waiver may be granted by the Authorized Officer if the territory has remained unoccupied for 5 years or conditions change such that there is no reasonable likelihood of site occupation over a minimum 10-year period.

Waivers, exceptions, and modifications will be considered on a species by species and/or habitat by habitat basis.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820.)

**TIMING LIMITATION STIPULATION
Raptors (Special Status Species) Nest Sites**

No surface use is allowed during the following time period(s). This stipulation does not apply to operation and maintenance of production facilities.

Noise levels maintained to 49 dB or less at known bald eagle, golden eagle, peregrine falcon, owl, and northern goshawk nest sites during breeding season from February 1 to August 15.

On the lands described below:

T.__S., R.__W., 6th PM

Sec.__;

For the purpose of:

Protecting the nest sites of special status raptor species

Exceptions: The authorized officer may grant an exception if an environmental analysis of the proposed action determines that the nature or conduct of the activity could be conditioned so as not to interfere with adult attendance and visitation of the nest site, jeopardize survival of the eggs, nestlings, or fledglings, or otherwise impair the utility of the breeding territory for current or subsequent successful reproductive activity or occupancy. An exception may be granted if the breeding territory is unattended or remains unoccupied for the current breeding season and it is late enough in the breeding season of the project year to assure that the species would not re-nest. A site-specific exception may be granted, in consultation with Wyoming Game and Fish Department or U.S. Fish and Wildlife Service, if an environmental analysis determines that the specific activity or requested change would not impair values, behaviors, habitat use and quality, and reproductive success of raptor species present within the specific TL area. Exceptions must be consistent with policies derived from federal administration of the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. If an exception is granted, monitoring, special design, construction, and implementation measures, including relocation of operations by more than 200 meters (656 feet), may be required. In such situations that an exception may be granted, the activity would be subject to additional conditions of approval (COAs) and reclamation standards to ensure resource values are protected.

Modifications: The authorized officer may grant a site-specific modification to the timing limitation date if an environmental analysis determines that a portion of the area is not essential to breeding territory utility or function, or that the proposed action could be conditioned so as not to interfere with adult attendance and visitation of the nest site, jeopardize survival of the eggs nestlings, or fledglings, or otherwise impair the utility of the breeding territory for current or subsequent successful reproduction activities or occupation. A modification may be granted if documentation shows the breeding territory has remained unoccupied for a minimum of 5 years, or that the site conditions of the breeding territory have changed such that there is no reasonable likelihood of breeding territory occupation for a subsequent minimum period of 10 years. Timing limitation date may be modified if improved biological information based on the best available science indicates that there are more accurate breeding season dates for raptors, as recognized by Wyoming Game and Fish Department, U.S. Fish and Wildlife Service, and the Forest Service. A modification must be consistent with policies derived from federal administration of the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.

Waiver: The authorized officer may grant a waiver if it is determined, in coordination with Wyoming Game and Fish Department and/or the U.S. Fish and Wildlife Service, that the entire lease area does not contain active nests or suitable habitat.

Waivers, exceptions, and modifications will be considered on a species-by-species basis.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or Forest Service Manual 1950 and 2820.)

NO SURFACE OCCUPANCY STIPULATION
Sage-grouse Leks inside Priority Habitat Management Areas

No surface use is allowed during the following time period(s). This stipulation does not apply to operation and maintenance of production facilities.

In priority habitat management areas and sagebrush focal areas, do not authorize new surface occupancy or surface disturbing activities on or within a 0.6 mile radius of the perimeter of occupied leks that are located in priority habitat management and sagebrush focal areas.

On the lands described below:

T. __S., R. __W., 6th PM

Sec. __;

For the purpose of:

To protect occupied Greater Sage-Grouse leks and associated seasonal habitat, life-history, or behavioral needs of Greater Sage-Grouse in proximity to leks, from habitat fragmentation and loss and Greater Sage-Grouse populations from disturbance inside priority habitat management areas.

Exception: The authorized officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life-history, or behavioral needs of Greater Sage-Grouse. The USFS can and does grant exceptions if the USFS, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected.

Modification: The authorized officer may modify the area subject to the stipulation or the NSO criteria if an environmental record of review finds that a portion of the NSO area is nonessential, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the Greater Sage-Grouse, including (but not limited to) reproductive display, daytime loafing/staging activities, and nesting.

Waiver: This stipulation may be waived over the entire lease if, in coordination with the State wildlife agency, it is determined that the site is no longer considered in the land use plan to be within a Greater Sage-Grouse designated core area or connectivity area, or Greater Sage-Grouse are no longer a sensitive or special status species or are not listed or determined to be warranted for listing by the U.S. Fish and Wildlife Service as threatened or endangered under the Endangered Species Act.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Bureau of Land Management Manuals 1624 and 3101 or Forest Service Manuals 1950 and 2820.)

NO SURFACE OCCUPANCY STIPULATION
Sage-grouse Leks outside Priority Habitat Management Habitat Areas

No surface use is allowed during the following time period(s). This stipulation does not apply to operation and maintenance of production facilities.

In general habitat management areas, do not authorize new surface occupancy or surface disturbing activities on or within a 0.25 mile radius of the perimeter of occupied leks.

On the lands described below:

T.__S., R.__W., 6th PM

Sec.__;

For the purpose of:

To protect occupied Greater Sage-Grouse leks, and associated seasonal habitat, life- history, or behavioral needs of Greater Sage-Grouse in proximity to leks, from habitat fragmentation and loss, and Greater Sage-Grouse populations from disturbance outside priority habitat management areas.

Exception: The authorized officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life-history, or behavioral needs of Greater Sage-Grouse. The USFS can and does grant exceptions if the USFS, in coordination with the Wyoming Game and Fish Department, determines that granting an exception would not adversely impact the population being protected.

Modification: The authorized officer may modify the area subject to the stipulation or the no surface occupancy (NSO) criteria if an environmental record of review finds that a portion of the NSO area is nonessential, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the Greater Sage-Grouse, including (but not limited to) reproductive display, daytime loafing/staging activities, and nesting.

Waiver: This stipulation may be waived over the entire lease if, in coordination with the State wildlife agency, it is determined that the site is no longer considered in the land use plan to be within a Greater Sage-Grouse designated core area or connectivity area, or Greater Sage-Grouse are no longer a sensitive or special status species or are not listed or determined to be warranted for listing by the U.S. Fish and Wildlife Service as threatened or endangered under the Endangered Species Act.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Bureau of Land Management Manuals 1624 and 3101 or Forest Service Manuals 1950 and 2820.)

TIMING LIMITATION STIPULATION
Restrict Noise in Sage Grouse General and Priority Habitat

No surface use is allowed during the following time period(s). This stipulation does not apply to operation and maintenance of production facilities.

During lekking (March 1 to May 15), restrict noise to 10 dB above ambient (not to exceed 20 – 24 dB) measured at the perimeter of an occupied lek from 6 p.m. to 8 a.m.

On the lands described below:

T._S., R._W., 6th PM

Sec. ___;

For the purpose of:

Preventing disruption of reproductive activity during the production period

Exceptions: The authorized officer may grant an exception if an environmental analysis and coordination with the Wyoming Game and Fish Department indicate that the proposed action could be conditioned so as not to affect breeding behavior, nest attendance, egg/chick survival, or nesting success. An exception could also be granted if the proponent, Forest Service, and Wyoming Game and Fish Department negotiate compensation that would satisfactorily offset the anticipated loss of nesting habitat or nesting activities. Actions designed to enhance the long term utility or availability of suitable nest habitat may be excepted.

Modifications: The authorized officer may modify the size or dates of the timing limitation area if an environmental analysis indicates that the proposed action could be conditioned so as not to affect nest attendance, egg/chick survival, or nesting success. Seasonal or daily timeframes may be modified (March 1- May 15) if operations could be conditioned to not disrupt lek attendance, breeding behavior, and bird distribution within 0.6-mile radius of the lek during the breeding period. With the primary objective of allowing for 90% of initial nesting attempts to progress through hatch, timeframes may also be adjusted in nesting habitat as supported by appropriate monitoring data.

Waiver: The authorized officer may grant a waiver if, in cooperation with the Wyoming Game and Fish Department, it is determined that the lease area is no longer capable of supporting suitable lekking activity.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or Forest Service Manual 1950 and 2820.)

**TIMING LIMITATION STIPULATION
Sage Grouse Priority Core Habitat**

No surface use is allowed during the following time period(s). This stipulation does not apply to operation and maintenance of production facilities.

Greater sage-grouse breeding, nesting, and early brood-rearing habitats inside designated core areas. This area encompasses Greater Sage-Grouse breeding, nesting, and early brood-rearing habitats inside designated core areas. No surface use is allowed during March 1 – June 30 inside Priority Habitat Management Areas.

On the lands described below:

T. __S., R. __W., 6th PM

Sec. __;

For the purpose of:

To seasonally protect Greater Sage-Grouse breeding, nesting, and early brood-rearing habitats from disruptive activities inside designated core areas.

Exception: The authorized officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, will not affect reproductive displays, nest attendance, egg or chick survival, or early brood-rearing success. Actions designed to enhance the long-term utility or availability of suitable greater sage-grouse habitat may be exempted from this timing limitation. The USFS can and does grant exceptions to seasonal restrictions if the USFS, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected.

Modification: The authorized officer may modify the size and shape of the TLS area or the TLS criteria if an environmental record of review indicates the actual habitat suitability for seasonal Greater Sage-Grouse activities is greater or less than the stipulated area, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the greater sage-grouse, including (but not limited to) reproductive display, daytime loafing/staging activities, and nesting.

Waiver: This stipulation may be waived over the entire lease if, in coordination with the State wildlife agency, it is determined that the described lands are no longer considered in the land use plan to be within a greater sage-grouse designated core area, or are incapable of serving the long-term requirements of greater sage-grouse breeding, nesting, or early brood-rearing habitat and that these ranges no longer warrant consideration as components of greater sage-grouse breeding, nesting, or early brood-rearing habitat.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or Forest Service Manual 1950 and 2820.

TIMING LIMITATION STIPULATION
Sage Grouse General Habitat

No surface use is allowed during the following time period(s). This stipulation does not apply to operation and maintenance of production facilities.

Greater sage-grouse breeding, nesting, and early brood-rearing habitat outside designated core areas and connectivity areas. This area encompasses greater sage-grouse breeding, nesting, and early brood-rearing habitat outside Priority Habitat Management Areas and connectivity areas. No surface use is allowed during March 15 – June 30 in greater sage-grouse breeding, nesting, and early brood-rearing habitats outside Priority Habitat Management Areas and connectivity areas, within two miles of an occupied lek.

On the lands described below:

T. _S., R. _W., 6th PM

Sec. __;

For the purpose of:

To seasonally protect greater sage-grouse breeding, nesting, and early brood-rearing habitats from disruptive activities outside designated core areas and connectivity areas, within two miles of an occupied lek

Exceptions: The authorized officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, will not affect reproductive displays, nest attendance, egg or chick survival, or early brood-rearing success. Actions designed to enhance the long-term utility or availability of suitable greater sage-grouse habitat may be exempted from this timing limitation. The USFS can and does grant exceptions to seasonal restrictions if the USFS, in coordination with the WGFD, determines that granting an exception would not adversely impact the population being protected.

Modifications: The authorized officer may modify the size and shape of the timing limitation stipulation area or the timing limitation stipulation criteria if an environmental record of review indicates the actual habitat suitability for seasonal greater sage-grouse activities is greater or less than the stipulated area, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the greater sage-grouse, including (but not limited to) reproductive display, daytime loafing/staging activities, and nesting.

Waiver: This stipulation may be waived over the entire lease if, in coordination with the State wildlife agency, it is determined that the described lands are incapable of serving the long-term requirements of greater sage-grouse breeding, nesting, or early brood-rearing habitat, and that these ranges no longer warrant consideration as components of greater sage-grouse breeding, nesting, or early brood-rearing habitat.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820.

**CONTROLLED SURFACE USE STIPULATION
Priority Sage Grouse Habitat**

Surface occupancy or use is subject to the following special operating constraints.

Greater sage-grouse Priority Habitat Management Areas. This area encompasses greater sage-grouse Priority Habitat Management Areas Surface occupancy or use will be restricted to no more than an average of one disturbance location per 640 acres using the Disturbance Density Calculation Tool (DDCT), and the cumulative value of all applicable surface disturbances, existing or future, must not exceed 5 percent of the DDCT area, as described in the DDCT.

This lease does not guarantee the lessee the right to occupy the surface of the lease for the purpose of producing oil and natural gas within Greater Sage-Grouse designated core areas. The surface occupancy restriction criteria identified in this stipulation may preclude surface occupancy and may be beyond the ability of the lessee to meet due to existing surface disturbance on Federal, State, or private lands within designated core areas or surface disturbance created by other land users. The USFS may require the lessee or operator to enter into a unit agreement or drilling easement to facilitate the equitable development of this and surrounding leases.

On the lands described below:

T.__S., R.__W., 6th PM

Sec. __;

For the purpose of:

To protect Greater Sage-Grouse designated core areas from habitat fragmentation and loss.

Exceptions: The authorized officer may grant an exception if an environmental record of review determines that the action, as proposed or conditioned, would not impair the function or utility of the site for the current or subsequent seasonal habitat, life-history, or behavioral needs of greater sage-grouse. An exception to the stated limits may be granted when offsite mitigation is determined to provide an overall beneficial effect to Greater Sage-Grouse habitat and populations. The USFS can and does grant exceptions if the USFS, in coordination with the Wyoming Game and Fish Department, determines that granting an exception would not adversely impact the population being protected.

Modifications: The authorized officer may modify the area subject to the stipulation or surface occupancy criteria if an environmental record of review finds that a portion of the CSU area is nonessential, or it is identified through scientific research or monitoring that the existing criteria are inadequate or overly protective for maintaining the function or utility of the site for the seasonal habitat, life-history, or behavioral needs of the greater sage-grouse, including (but not limited to) reproductive display, daytime loafing/staging activities, and nesting.

Waiver: This stipulation may be waived over the entire lease if, in coordination with the State wildlife agency, it is determined that the site is no longer considered in the land use plan to be within a greater sage-grouse designated core area, or greater sage-grouse are no longer a special status species or are not listed or determined to be warranted for listing by the U.S. Fish and Wildlife Service as threatened or endangered under the Endangered Species Act.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or Forest Service Manual 1950 and 2820.)

CONTROLLED SURFACE USE STIPULATION
Priority Sage Grouse Habitat

Surface occupancy or use is subject to the following special operating constraints.

In priority habitat management areas, limit the density of activities related to oil and gas development activities to no more than an average of one pad per 640 acres, using the current Density Disturbance Calculation Tool process or its replacement. Do not authorize surface disturbance and disruptive activities unless all existing discrete anthropogenic disturbances cover less than 5% of the suitable habitat in the surrounding area using the current Density Disturbance Calculation Tool process or its replacement, as described in the Wyoming Greater Sage-grouse Amendment (Appendix I), and the new use will not cause exceedance of the 5% cap.

On the lands described below:

T. __S., R. __W., 6th PM

Sec. __;

For the purpose of:

Maintaining the integrity of important priority-core habitat to maintain sustainable local populations.

Exceptions: The Forest Service in coordination with Wyoming Game and Fish Department, may grant an exception to this stipulation if an environmental analysis indicates that the proposed or conditioned activities would not affect the long term suitability or utility of priority-core habitat for sage-grouse. An exception is described in GRSG-M-LM-ST-097-Standard (Wyoming 9 GRSG Amendment)

Modifications: The Forest Service in coordination with Wyoming Game and Fish Department, may grant a modification to this stipulation if an environmental analysis indicates that the proposed or conditioned activities would not affect the long term suitability or utility of priority-core habitat for sage-grouse.

Waiver: The Forest Service in coordination with Wyoming Game and Fish Department, may grant a waiver to this stipulation if site conditions have changed sufficient to permanently preclude sage-grouse occupation of the lease area.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or Forest Service Manual 1950 and 2820.)

Appendix D: Wyoming Range Oil and Gas Leases

The following tables display information for the leases under analysis. Note, this list has been updated since 2011 to remove lease parcels upon request of the lessees. There are 12 leases in suspension representing a total of 20,963 acres with bid amounts totaling \$2,598,202. There are 18 leases pending representing 18,531 acres with bid amounts totaling \$1,621,276. All leases cover 39,493 acres with a total bid value of \$4,219,478.

Table 2. Leases in suspension

BLM Serial Number Legal Land Description	Acres	Sale Date	Bid Amount	Effective Date	Status of Lease	Lessees of Record
WYW172354 T 35 N, R 114 W Sec 20: All; Sec 29: All	1,280.00	12/06/2005	\$352,000.00	05/01/2006	Suspension 07/10/2006	Stanley Energy Inc.
WYW172845 T 35 N, R 113 W Sec 31: Lots 1-4, NENW, SESW	209.72	04/04/2006	\$420.00	07/01/2006	Suspension 09/21/2006	Kirkwood Oil & Gas LLC
WYW172848 T 34 N, R 114 W Sec 1: Lots 1-4, S2N2, S2 Sec 2: Lots 1-4, S2N2, S2 Sec 3: Lots 1-4, S2N2, S2	1,929.20	04/04/2006	\$106,150.00	07/01/2006	Suspension 09/21/2006	Stanley Energy Inc.
WYW172849 T 35 N, R 114 W Sec 1: Lots 1-7, SWNE, S2NW, SW, W2SE Sec 2: Lots 1-4, S2N2, S2 Sec 11: All Sec 12: Lots 1-4, W2E2, W2	2,541.30	04/04/2006	\$383,842.00	07/01/2006	Suspension 09/21/2006	Kerr McGee O&G Onshore LP
WYW172850 T 35 N, R 114 W Sec 3: Lots 1-4, S2N2, S2 Sec 4: Lots 1-4, S2N2, S2 Sec 9: All; Sec 10: All	2,535.24	04/04/2006	\$760,800.00	07/01/2006	Suspension 09/21/2006	Kerr McGee O&G Onshore LP
WYW172851 T 35 N, R 114 W Sec 8: All; Sec 15: All Sec 16: All; Sec 17: All	2,560.00	04/04/2006	\$355,840.00	07/01/2006	Suspension 09/21/2006	Stanley Energy Inc.
WYW172852 T 35 N, R 114 W Sec 13: Lots 1-4, W2E2, W2 Sec 14: All Sec 24: Lots 1-4, W2E2, W2	1,926.22	04/04/2006	\$105,985.00	07/01/2006	Suspension 09/21/2006	Stanley Energy Inc.

Appendix D: Wyoming Range Oil and Gas Leases

BLM Serial Number Legal Land Description	Acreage	Sale Date	Bid Amount	Effective Date	Status of Lease	Lessees of Record
WYW172853 T 35 N, R 114 W Sec 19: Lots 1-4, E2, E2W2 Sec 30: Lots 1, 2, NE, E2NW	940.55	04/04/2006	\$145,855.00	07/01/2006	Suspension 09/21/2006	Stanley Energy Inc.
WYW172854 T 35 N, R 114 W Sec 21: All; Sec 22: All Sec 27: All; Sec 28: All	2,560.00	04/04/2006	\$140,800.00	07/01/2006	Suspension 09/21/2006	Stanley Energy Inc.
WYW172855 T 35 N, R 114 W Sec 23: All Sec 25: Lots 1-4, W2E2, W2 Sec 26: All	1,920.48	04/04/2006	\$105,655.00	07/01/2006	Suspension 09/21/2006	Stanley Energy Inc.
WYW172856 T 35 N, R 114 W Sec 33: All	640.00	04/04/2006	\$35,200.00	07/01/2006	Suspension 09/21/2006	Stanley Energy Inc.
WYW172857 T 35 N, R 114 W Sec 34: All Sec 35: All Sec 36: Lots 1-4, W2E2, W2	1,920.04	04/04/2006	\$105,655.00	07/01/2006	Suspension 09/21/2006	Stanley Energy Inc.
Total	20,963		\$2,598,202			

Table 3. Leases pending authorization

BLM Serial Number Legal Land Description	Acreage	Sale Date	Bid Amount	Status of Lease	Lessees of Record
WYW173035 T 33 N, R 114 W Sec 8: All; Sec 9: S2	960.00	06/06/2006	\$4,800.00	Pending	Kirkwood Oil & Gas LLC
WYW173036 T 33 N, R 114 W Sec 16: All; Sec 17: All	1,280.00	06/06/2006	\$24,320.00	Pending	Samuel Butler III
WYW173037 T 34 N, R 114 W Sec 4: Lots 1, 2, S2NE, SE	319.64	06/06/2006	\$20,800.00	Pending	Stanley Energy Inc.
WYW173038 T 34 N, R 114 W Sec 7: SE; Sec 8: SW	320.00	06/06/2006	\$75,200.00	Pending	Stanley Energy Inc.
WYW173039 T 34 N, R 114 W Sec 8: SE Sec 9: All; Sec 12: All	1,440.00	06/06/2006	\$338,400.00	Pending	Stanley Energy Inc.
WYW173040 T 34 N, R 114 W Sec 10: All; Sec 11: All	1,280.00	06/06/2006	\$294,400.00	Pending	Stanley Energy Inc.
WYW173041 T 34 N, R 114 W Sec 16: N2N2; Sec 17: N2NE	240.00	06/06/2006	\$49,200.00	Pending	Stanley Energy Inc.
WYW173044 T 32 N, R 115 W Sec 33: Lots 1-4, N2, N2S2 Sec 34: Lots 1-4, N2, N2S2	1,268.18	06/06/2006	\$20,304.00	Pending	Kirk D. Martinez
WYW173045 T 33 N, R 115 W Sec 9: All; Sec 10: All	1,280.00	06/06/2006	\$24,320.00	Pending	Stanley Energy Inc.
WYW173046 T 33 N, R 115 W Sec 11: All	640.00	06/06/2006	\$12,160.00	Pending	Stanley Energy Inc.
WYW173266 T 34 N, R 113 W Sec 5: SW	160.00	08/01/2006	\$4,640.00	Pending	Contex Energy Co.

Appendix D: Wyoming Range Oil and Gas Leases

BLM Serial Number Legal Land Description	Acreage	Sale Date	Bid Amount	Status of Lease	Lessees of Record
WYW173267 T 34 N, R 113 W Sec 6: Lots 3-7, SENW, E2SW, SE Sec 7: Lots 1-4, E2, E2W2 Sec 8: All	1,715.47	08/01/2006	\$49,764.00	Pending	Contex Energy Co.
WYW173274 T 36 N, R 114 W Sec 33: S2; Sec 34: S2 Sec 35: S2; Sec 36: All	1,600.00	08/01/2006	\$640,000.00	Pending	Hanson & Strahn Inc.
WYW173278 T 28 N, R 115 W Sec 17: All	640.00	08/01/2006	\$7,040.00	Pending	Contex Energy Co.
WYW173279 T 29 N, R 115 W Sec 4: All; Sec 9: All Sec 17: All	1,920.00	08/01/2006	\$7,680.00	Pending	Wold Oil Properties Inc.
WYW173280 T 29 N, R 115 W Sec 18: Lots 2-4, S2NE, SE, SENW, E2SW, SE Sec 19: Lots 1-4, E2, E2W2 Sec 20: W2; Sec 29: All	1,947.27	08/01/2006	\$11,688.00	Pending	Wold Oil Properties Inc.
WYW173281 T 33 N, R 115 W Sec 14: All; Sec 23: All Sec 24: SW	1,440.00	08/01/2006	\$34,560.00	Pending	Contex Energy Co.
WYW173282 T 33 N, R 115 W Sec 24: W2SE	80.00	08/01/2006	\$2,000.00	Pending	Contex Energy Co.
Total	18,530.56		\$1,621,276.00		

Appendix E: Actions Relevant to Cumulative Effects Analysis

Past, present and reasonably foreseeable future projects were considered in the analysis of cumulative effects for this project (see table 4 and table 5 below, and figure 11 in volume 1). Available information considered included forest databases regarding fire history and vegetation management projects, and information from State and BLM field offices.

Table 4. Past disturbance activities

Activity, year	Description of disturbance	Effects
Grazing allotments	Livestock grazing on 247,929 acres Cattle active on 187,082 acres Forage reserve = 59,670 acres Cow camps, water source use, fence maintenance.	Use of roads, removal of vegetation per utilization guidelines.
Developed and dispersed recreation	Road-oriented uses such as firewood gathering, roadside camping and day use, off-highway vehicle use on open routes, hunting, and winter sports. Use of closed roads for semi-primitive forms of recreation such as horseback riding and hiking. Recreation outfitter and guide activities.	Use of roads and trails in summer and winter, removal of dead wood.
Fontenelle Fire 2012	Located in Snider Basin High severity fire, burned approximately 64,220 acres in the southern Wyoming Range (75% of the fire burned on NFS, 19% burned on BLM, 1% on state, 5% on private lands). Rehabilitation actions included: <ul style="list-style-type: none"> • On NFS lands, 28 miles of firelines were waterbarred and 3 miles of fireline seeded. • On BLM lands, a total 1.5 miles of handline were rehabilitated and 3.5 miles of dozer line were rehabilitated and seeded. 	Burn included approximately 4,640 acres, or 11.7% of the lands under review for leasing. High forest mortality, stand-replacing fire effects.
Maki Vegetation Project 2005-2008	3 miles temporary road. 2,300 acres aspen restoration 273 acres conifer treatment – Timber sale is cut/sold all timber harvesting is complete for Maki	Effects to lynx habitat within Cottonwood Creek Lynx Analysis Unit (LAU). About 830 acres would be burned and converted to unsuitable lynx habitat
Halverson Timber Sale 2008-2012	165 acres regeneration harvest and salvage All harvesting/timber removal is completed— Sale is closed	Located in the Cottonwood Creek LAU About 165 acres converted to unsuitable lynx habitat
South Cottonwood Timber Sale 2008-2013	200 acres regeneration harvest and salvage – Timber sale is closed – All timber/wood products have been removed.	Located in the Cottonwood Creek LAU About 200 acres converted to unsuitable lynx habitat
Recreation, hunting	Use of the area for hiking; use of area roads for motorized recreation and access for hunting, fishing and dispersed camping. Snow machine use in the area during winter months.	Localized temporary disturbance from recreation activities. Use of roads and trails.

LAU = lynx analysis unit; NFS = National Forest System; BLM = Bureau of Land Management;

Table 5. Present, ongoing, and foreseeable projects

Project name/Type	Description of action	Effects
Cottonwood II Vegetation Management Project, 2007-present	1 mile relocation; 1 mile reconstruction; 13.8 miles temporary road. 2,099 acres The record of decision was signed in 2007 for the Cottonwood II EIS.	Effects to lynx habitat within Cottonwood Creek Lynx analysis Unit (LAU). About 1,060 acres converted to unsuitable lynx habitat.
Bare Creek Fish Barrier Improvement, 2015	Replace culvert on Road 10050 to restore a failing fish barrier. (Included in the 2007 Cottonwood II Project.) Completed 2015.	Ground disturbance in immediate area to restore a failing fish barrier.
LaBarge Vegetation Restoration Project, 2015-2020	3 miles temporary road 2,700 acres mechanical treatment; salvage (bug killed conifer) and thinning (conifer) to restore aspen 959 acres fire to restore aspen 103 acres clearcut	Located in the LaBarge LAU About 1,000 acres converted to unsuitable lynx habitat Portions of this project burned in the Fontenelle Wildfire – this project is currently being reevaluated, and the proposed action revised to incorporate new units.
Bare Mt. Post and Pole 1, 2 and 3, 2008-present	0.3 mile temporary road 109 acres thinning Bare Mt. 1 – activities completed 2015; Bare Mt. 2 – harvest completed 2015, pile burning in 2015-2016; Bare Mt. 3 – harvest anticipated through 2017; pile burning anticipated 2017-2018.	Located in the Cottonwood Creek LAU.
Nylander Timber Sale, 2012-2021	144 acres regeneration harvest and sanitation – Timber sale is active – Sale anticipated to close in 2016. Brush disposal and KV activities anticipated through 2021.	Located in the Cottonwood Creek LAU. About 144 acres converted to unsuitable lynx habitat.
Klienstick Timber Sale, 2012-2021	3 miles temporary road 116 acres regeneration harvest and sanitation - Timber sale is active – Sale anticipated to close in 2016. Brush disposal and KV activities until 2021.	Located in the Cottonwood Creek LAU. About 116 acres converted to unsuitable lynx habitat.
Cottonwood Aspen Rx Burn, 2008-present	1,058 acres prescribed burn.	Located in the Cottonwood Creek LAU. About 1.058 acres converted to unsuitable lynx habitat.
Monument Ridge Burn, 2005-present	4,125 acres prescribed burn (125 acres timber, 4,000 acres sagebrush).	Located in the Upper Hoback South LAU. About 125 acres converted to unsuitable lynx habitat.
Fontenelle Fire Salvage, 2014-2018	3 miles temporary road 466 acres of fire killed timber harvesting. Multiple timber sales are active in the area – Sales will be active thru 2018.	Located in the Birch-South Beaver and South Beaver LAUs. Will affect up to 466 acres of fire-killed timber through mechanical harvesting. No lynx habitat will be affected.
Middle Piney Dam, 2017	Reconstruction of the dam, and reconstruction of dam access road.	Localized disturbance during reconstruction activities along access road and dam.
Old Indian Trail Maki Creek Crossing Project, 2016	Construct a small trail puncheon across Maki Creek on the Old Indian Trail.	Small-scale effects to streambanks in the immediate vicinity of the stream crossing.

Project name/Type	Description of action	Effects
South Cottonwood Creek Road and Trailhead Flood Damage Restoration, 2017	Add stream and floodplain roughness and relocate South Cottonwood Creek Trailhead.	Localized disturbance in stream and floodplain.
North Horse Creek Riparian Restoration, 2017	Remove road fill and culverts from the end of Road 10389.	Short-term small-scale effects in the immediate vicinity of the culverts during removal activities. Long-term improvement to restore stream and floodplain function; short-term increased bedload mobility and localized incision of North Horse Creek.
Shafer Creek and LaBarge Creek Fish Passage Culvert Replacement, 2015-2016	Replace two culverts in the LaBarge Creek watershed.	Short-term small-scale effects in the immediate vicinity of the culverts during replacement. Long-term improvement of fish passage connectivity.
Grazing allotments, ongoing	Livestock grazing 247,929 acres Cattle active 187,082 acres Forage reserve 59,670 acres Cow camps, water source use and development, fence maintenance.	Use of roads, removal of vegetation per utilization guidelines.
Developed and dispersed recreation, ongoing	Road-oriented uses such as firewood gathering, roadside camping and day use, off-highway vehicle use on open routes, hunting and winter sports. Use of closed roads for semi-primitive forms of recreation such as horseback riding and hiking. Outfitter guide use.	Use of roads and trails in summer and winter, removal of dead wood.
LaBarge Platform Exploration and Development (Development in Progress)	Drill, complete, produce, and eventually reclaim up to 31 new oil and gas wells on an estimated 18 new well pads. Estimated total short term surface disturbance would be up to 120 acres and total long term surface disturbance would be up to 50 acres. Project lifespan would be 40 to 50 years.	Exact placement of infrastructure is currently unknown; however, it appears that the direct disturbance would primarily take place in Wyoming big sagebrush habitat. Only a portion of this project occurs within BLM shared LAUs – no portion of the project occurs within NFS LAUs.
Rand's Butte Sour Gas Project (Denbury) (Development in Progress)	Development of injection wells for hydrogen sulfide, carbon dioxide, natural gas, and helium with ancillary facilities. Surface disturbance would total up to 872 acres over the short term and 54.6 acres over the long term (project life of 40 years).	The primary direct impact would be disturbance to 496.9 acres of Wyoming big sagebrush habitat, but a variety of other habitats would be impacted to a lesser degree (including aspen, grassland, and other shrub land types). Project occurs within portions of the Birch-South Beaver BLM shared LAU.
Riley Ridge Natural Gas Project (Development in Progress, projects include: Lake Ridge, Fogerty)	Drill up to 238 natural gas wells on 159,928 acres of leases held by ExxonMobil on NFS and BLM lands. As of 2005, 26 wells have been approved and drilled (9 of which were drilled on NFS lands). The approval to construct a new pad and drill additional wells on NFS lands in the Birch-South Beaver LAU is currently being planned.	These leases occur within sage-brush, aspen and conifer forest habitat types on BLM and FS lands; 28,971 and 26,719 lease acres occur on NFS and BLM lands respectively, and within the LaBarge and Birch-South Beaver LAUs. Existing wells have impacted some lynx habitat acres, but impacted acreages are not currently available.

Project name/Type	Description of action	Effects
<p>True Oil Lander Peak Exploration and Development Project (In planning stage, projects include: Soda)</p>	<p>Drill one exploratory well per pad on two well pads (one existing and one previously reclaimed) and a water supply well would be drilled on a third existing well pad on NFS lands on existing leases located about 22 miles northwest of Big Piney in Sublette County, Wyoming.</p>	<p>Potential to affect mountain big sagebrush, lodgepole pine forest, and spruce/subalpine fir forest; 5.88 acres within lynx habitat would be impacted. Increased vehicle traffic along areas roads during operations. Located within the South Beaver LAU on NFS lands. Thirty-three acres of the Project Area is on the South Beaver LAU and no disturbance in this LAU. All existing pads, roads and proposed disturbance is in the Cottonwood Creek LAU.</p>
<p>Dry Piney Deep Development Project</p>	<p>Proposed gas development project, which would include 10 gas production wells with associated access roads and buried gathering pipelines; a gas processing plant, 7.6 miles of methane pipeline, 8.3 miles of CO₂ pipeline, four CO₂-injection wells, 13 miles of an overhead, 230-kilovolt (kV) electric transmission line, a 230/34.5 kV substation, one water-supply well, one produced-water disposal well and one sour-gas disposal well. The proposed facilities and supporting features would be constructed on a mix of public, state and private land, with the majority of the 355 acre gas processing plant facilities on private QEP owned land in the Dry Piney Creek area, approximately 10 miles northwest of LaBarge, Wyoming.</p>	<p>Employment, income, government revenue, housing, traffic, crime, disproportionate effects on low income families, ecosystem service.</p>

LAU = lynx analysis unit; NFS = National Forest System; BLM = Bureau of Land Management; KV = Knutson-Vandenberg funded activities; EIS = environmental impact statement

Appendix F: Socio-economic Analysis Information



**ECOSYSTEM SERVICES OF THE WYOMING RANGE
A BRIEFING PAPER AND SURVEY
FOR THE 2015 OIL AND GAS LEASING
SUPPLEMENTARY ENVIRONMENTAL IMPACT STATEMENT
SOCIO-ECONOMIC SPECIALIST REPORT**

Prepared for:

Commissioner Joel Bousman and
Bridger-Teton National Forest Line Officers and Specialists

May 2015

Ecosystem Research Group
121 Hickory Street
Missoula, MT 59801
Phone: (406) 721-9420
Fax: 406-543-3436
www.ecosystemrg.com

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1. INTRODUCTION TO ECOSYSTEM SERVICES OF THE PROJECT AREA

This briefing paper is meant to 1) give the reader an understanding of the ecosystem service framework and 2) provide information about the existing condition of these ecosystem services within the proposed Wyoming Range Oil and Gas project area. After reading the briefing paper, the reader should be prepared to fill out the survey (next section). Any questions about ecosystem services, this briefing paper, or the survey may be addressed to: Ben Irej, Social Scientist with Ecosystem Research Group (ERG), birej@ecosystemrg.com, O: 406-721-9420, C: 406-546-3329.

The project area likely produces a suite of ecosystem services that benefit the local, regional, and national population. Ecosystem services are defined here as those goods and services that are produced by ecosystems and valued by society. These may include species habitat, forage and timber production, regulation of the quantity, quality, and timing of water, opportunities for recreation, and opportunities to enjoy scenery.

The 2014 Project Initiation Letter (PIL) included the following comment identified during scoping, which elucidates the need to assess the ecosystem services of the project area, “Potential impacts from post-leasing exploration and/or development could have cumulative effects on the social and economic well-being of the local communities and quality of life for residents”. Understanding something about how ecosystem services are produced within the project area and how development affects these ecosystem services is important to ensuring that the natural capital of the project area is protected and these kinds of goods and services continue to be produced for the betterment of the local, regional, and national population.

National Forest management is directed by mandates from legislation and policy, including the Final Planning Rule of 2012 (FPR), the National Forest Management Act of 1976 (NFMA), the National Environmental Policy Act of 1969 (NEPA), and Multiple-Use Sustained-Yield Act of 1960 (MUSYA). The mandates include, respectively, that the Forest Service must: provide for ecological sustainability and contribute to social and economic sustainability; comprehensively assess present and anticipated use, demand, and supply of benefits coming from public and private forests; compare the benefits and costs and the tradeoffs associated with various management alternatives; and coordinate and consider the multiple uses of National Forest lands to best meet the needs of society.

Part of the utility of an ecosystem service assessment for supporting FPR, NEPA, NFMA, and MUSYA requirements includes providing information about the full-range of ecosystem services valued by society, which can inform rational natural resource allocation, tradeoff, and utilization decisions and contribute to ecological, social, and economic sustainability.

According to the Forest Services’ ecosystem service website, “when our forests are undervalued they are increasingly susceptible to development pressures and conversion. Recognizing forest ecosystems as natural assets with economic and social value can help promote conservation and more responsible decision-making”.

1.1 USING THE BRIEFING PAPER

This ecosystem services briefing paper and survey were created to assess the importance of ecosystem services produced within the project area. The ecosystem service framework from the USFS Region 1 ecosystem service assessment and mapping project was adapted for this assessment, including the names of the ecosystem services and their descriptions. The broad categories of ecosystem services (provisioning, regulating, habitat, cultural) were adapted from the Millennium Ecosystem Assessment. PIL issues were sorted by ecosystem service based on their relevance. The direct beneficiaries of each ecosystem service were assessed by ERG's Social Scientist. The value information for each ecosystem services was created by searching for keywords in the Affected Environment Chapter of the 2011 Oil and Gas Leasing in the Wyoming Range FSEIS. Statements relevant to an ecosystem service were then sorted by service. Value information statements from the FSEIS for an ecosystem service are followed by page numbers (in parentheses). If a sentence does not end with a page number in parentheses, the next page number after that sentence applies. Driver information (drivers are defined here as those things that affect change in the production or receipt of ecosystem services) was also derived through a keyword search of the FSEIS. The keyword(s) used to develop the value and driver information are listed at the end of each ecosystem service subsection. The information contained in the briefing paper should be used to help inform your answers to the questions in the survey (next section).

Duke University's Nicholas Institute for Environmental Policy Solutions has recently released a Federal Resource Management and Ecosystem Services Guidebook, which provides a framework and methodology for assessing ecosystem services as part of federal land management and planning efforts. This guidebook, like most ecosystem service literature, calls for taking a comprehensive look at ecosystem services affected by planning and management. We have tried to do the same here. Therefore, some ecosystem services may seem irrelevant or unimportant to the project area. This is an artifact of our effort to analyze the full-range of ecosystem service. With your survey, we will be able to remove irrelevant or unimportant ecosystem services from the table and focus the rest of our analysis on the most important ecosystem services.

2. **ECOSYSTEM SERVICES SURVEY**

Instructions: Please answer the following questions after reviewing the Ecosystem Services Briefing Paper. Reference the Table of Contents to answer the following two questions. Please use a pencil and write clearly. Upon completing this survey, please mail, fax, or scan and email this page to ERG (contact information on cover page).

Question 1: Rank the following ecosystem services from most important (+3) to most unimportant (-3) to society by writing in the decimal number (2.1, 3.1, 4.2, 5.3, etc.) of the ecosystem service from the Table of Contents into the space provided. Use each of the twenty-two decimal numbers from the Table of Contents only once. Please ensure that each space is filled with a decimal number. Please review your answer and make any changes before moving on.

Most important	(+3)	_____
	(+2)	_____
	(+1)	_____
Not Important	(0)	_____
	(-1)	_____
	(-2)	_____
Most Unimportant	(-3)	_____

Question 2: Rank the following ecosystem services from likely to be most positively affected by oil and gas development (+3) to likely to be most negatively affected by oil and gas development (-3) by writing in the decimal number (2.1, 3.1, 4.2, 5.3, etc.) of the ecosystem service from the Table of Contents into the space provided. Use each of the twenty-two decimal numbers only once. Please ensure that each space is filled with a decimal number. Please review your answer and make any changes before moving on.

Likely to be most positively affected (+3) _____

(+2) _____

(+1) _____

Likely to not be affected (0) _____

(-1) _____

(-2) _____

Likely to be most negatively affected (-3) _____

1. PROVISIONING SERVICES – PRODUCTS PRODUCED WITHIN THE PROJECT AREA

1.1 FRESH WATER

1) In-stream use of water for recreational navigation, 2) in-stream use of water for industrial navigation, in-stream use of water for hydropower production, 4) out-of-stream use of water for domestic and municipal use, 5) out-of-stream use of water for agricultural production, 6) out-of-stream use of water for industrial production, 7) tribal use of water under treaty rights, 8) water for aquatic and riparian ecosystems.

Relevant PIL scoping issues –

- Potential impacts from post-leasing exploration and/or development could affect groundwater quality and quantity in the area.
- Potential impacts from post-leasing exploration and/or development could occur to water quality and could affect habitat for fish and other special status aquatic species.

Direct beneficiaries – Tribes, recreationists, hydro-power producers, domestic and municipal water users, irrigators, industrial water users, species using aquatic and riparian ecosystems

Value information from Affected Environment Chapter - Water from the Wyoming Range has long supported ranches and towns (3-24).

Driver information – Potential effects from post leasing exploration and or development could occur to ground water of the area. Concerns have been expressed about aquifer contamination and ground water depletion by drilling (4-50). Potential effects to ground water quality are those resulting from withdrawals of ground water for drilling purposes from the Wasatch Formation aquifer and include lowering water levels in aquifers used by domestic and stock wells, requiring replacement or deepening those wells and depletion of ground water discharge to surface waters resulting in reductions in stream base flows and spring flows (4-51). Ground water quality could be impacted by leaky well seals allowing cross-aquifer contamination. Flow (leakage) among aquifers having differing water quality could also occur where aquifer zones in an oil and gas production well or water well are not isolated during well completion or are inadequately plugged during well abandonment. The potential exists for effects to ground water quality from accidental spills during the construction phase (4-55). Alternative 2 would have the greatest potential impact on ground water resources. Alternative 3 reduces the ground water impact potential because the projected number of wells is 20 and it adds stipulations that set a minimum distance (500 feet) for drilling near wetlands, streams, and riparian areas, some of which may be supported by shallow ground water discharge. Alternatives 2 Reduced and 3 Reduced have even less potential for impacts to groundwater resources because the projected number of wells is 11 and 8 respectively. Alternative 3 Reduced also includes the added stipulations described above for Alternative 3. Alternative 4 has the least potential for effects to ground water of the action alternatives because the projected number of wells is 6.

Wells would be drilled only from existing producing leases under this alternative (4-56). Cumulative effects to ground water could affect residential and livestock wells (4-57).

Keyword search – Water

1.2 **BUILDING MATERIALS**

Wood products, poles

Relevant PIL scoping issues – none

Direct beneficiaries – Wood products and processing industry, farm, ranch, and domestic users

Value information from Affected Environment Chapter - The wood products and processing industry is one of the most affected industries by the management of National Forests and accounts for a very small percentage of total employment in the project area (3-17).

Driver information – none **Keyword**

search – Wood, timber

1.3 **ORNAMENTAL MATERIALS**

Christmas trees, decorative materials, antlers, taxidermy

Relevant PIL scoping issues – none

Direct beneficiaries – Tribes, households, sportsmen

Value information from Affected Environment Chapter – none

Driver information – none

Keyword search – Tree, antler

1.4 **FORAGE**

Forage for humans including mushrooms and berries, forage for livestock, forage for other mammals, birds, and insects

Relevant PIL scoping issues –

- Potential impacts from post-leasing exploration and/or development could affect permitted livestock grazing.
- Potential impacts from post-leasing exploration and/or development could affect large game and trophy game species.

Direct beneficiaries – Herbivores including elk, livestock, mule deer, and sage-grouse, omnivores including grizzly bears, black bears, berry pickers, and mushroom pickers

Value information from Affected Environment Chapter – The diet of elk varies seasonally depending on availability of forage. In the winter, they feed on grasses and forbs, during the spring they focus primarily on grasses and then switch to forbs. Deciduous shrubs are used year round (3-100). Grizzly bears eat a variety of roots, berries, seeds, and plants, especially whitebark seeds. Martens sometimes feed on fruits and nuts (3-110). Sage-grouse forage includes forbs, sage, and succulent vegetation. Mule deer are primarily browsers and will eat all exposed portions of woody plants. In the spring, grasses and forbs comprise the bulk of their diet (3-106). Moose typically feed on willow during the winter and aquatic vegetation in the summer (3-109). Northern three-toed woodpeckers consume berries (3-116). A variety of birds feed on seeds and vegetation (3-68). Livestock have grazed the Wyoming Range for over a century (3-24).

Driver information – Depending on the rate of forage loss, elk herd sizes could decrease over time and dependency on elk feed grounds could increase (4-127). There will be irretrievable loss of wildlife habitats and grazing forage during drilling that will last until the facilities are closed and the disturbed areas reclaimed. The degree of loss would vary by alternative with the number and size of pads and length and location of roads (4-203).

Keyword search – Forage, fruit, nut, grass, forbs, berries, seed, browse, graze, mushroom, shrub

1.5 ANIMAL PROTEIN

Mammal, bird, insect, arachnid, amphibian, reptile, fish, and crustacean protein

Relevant PIL scoping issues –

- Potential impacts from post-leasing exploration and/or development could affect large game and trophy game species.

Direct beneficiaries – Tribes, hunters, livestock producers, outfitters and guides, insectivores including sage grouse, predators including lynx, wolves and birds of prey, scavengers

Value information from Affected Environment Chapter – Industries most affected by Forest management include fishing and hunting (3-17). Grazing accounted for .5% of total employment in Sublette County, but supported 1% of total income. Jobs in agriculture (not including livestock grazing) forestry, fishing, and hunting account for 6.1% of total jobs, making it the sixth largest employing sector in the economy yet it supports just 1.7% of the total labor income. Individuals in this sector of the industry may be migrating out of the area in search of higher paying jobs or areas with a lower cost of

living, or may be taking up mining jobs locally (3-17 and 3-19). BTNF directly supports about 33% of the jobs and income generated by elk hunting in the region, however, because 76% of the elk migration

corridors are on the BTNF, its overall role in supporting elk hunting is probably significantly greater (3-34). Snowshoe hares are the primary prey species for lynx and the distribution of lynx coincides closely with that of snowshoe hares. Red squirrels are considered an important alternate prey species for lynx (3-70). Preferred wolf prey includes deer, elk, and moose. An excellent prey base exists in the project area for wolves (3-89). Grizzly bears in the Greater Yellowstone Ecosystem eat cutworm moths, carrion, fish, and sometimes elk or moose calves or other smaller mammals (3-93). Martens primarily prey on voles and mice and occasionally insects (3-110). Northern goshawk prey primarily includes grouse, hares, and red squirrels (3-115). Boreal owl populations appear to be limited locally partially by abundance and availability of prey (3-117). Fish and waterfowl comprise the majority of bald eagle diet however carrion and small mammals may supplement their diet when primary prey sources are not available, especially in winter (3-123). Wolverines are predators as well as scavengers (3-120). Spotted bats are believed to forage primarily on noctuid moths and occasionally beetles (3-119). Peregrine falcons prey on waterfowl (3-122). Sage-grouse feed on insects (3-113). Northern three-toed woodpeckers consume insects (3-116). A variety of bird species feed on insects (3-68).

Driver information – With Alternative 2, there is the potential to displace game and decrease hunting opportunities in the North Mountain Roadless Area (4-33). Oil and gas activities could affect structural components within the boreal forest (primary constituent element) that may reduce the ability of those areas to support snowshoe hare, the primary prey species of lynx (4-69). Alternative 2 could have a negative impact on wolf prey populations (4-70). Prey base and foraging habitat quality for raptors are likely to decline as a result of oil and gas exploration activities (4-81). Sediment can reduce the abundance of invertebrate prey for fish and amphibians (4-136).

Keyword search – Hunt, prey, predator, forage

1.6 FUEL

Firewood, biofuels

Relevant PIL scoping issues – none

Direct beneficiaries – Firewood gatherers, campers

Value information from the Affected Environment Chapter – none

Driver information – none

Keyword search – Fuelwood, firewood

1.7 **MEDICINAL MATERIALS**

Plant and animal materials for synthesis and use as medicine

Relevant PIL scoping issues – none

Direct beneficiaries – Tribes, wildcrafters

Value Information from Affected Environment Chapter – none

Driver information – none

Keyword search – Medicinal, medicine

1.8 **PLANT VARIETIES FOR REVEGETATION**

Endemic plant varieties can be bred and transplanted for revegetation efforts

Relevant PIL scoping issues – none

Direct beneficiaries – Ecosystems in need of restoration, restoration companies

Value Information from Affected Environment Chapter – none

Driver information – none

Keyword search – Medicinal, medicine

1.9 **PLANT GENETICS**

Plant genetic materials such as seeds, pollen, scion

Relevant PIL scoping issues – none

Direct beneficiaries – Whitebark forests

Value information from Affected Environment Chapter – none

Driver information – Whitebark pine is not expected to be adversely affected by any alternative (4-33).

Keyword search – Seed, pollen, scion, whitebark, gene

2. HABITAT SERVICES – THE PROJECT AREA PROVIDES HABITAT FOR A WIDE VARIETY OF SPECIES

2.1 SPECIES HABITAT

Providing breeding, rearing, feeding, and migrating habitat for species

Relevant PIL scoping issues –

- Potential impacts from post-leasing exploration and/or development could occur to terrestrial wildlife including threatened, endangered, sensitive, management indicator species' habitats and populations, large game, and trophy game species.
- Potential impacts from post-leasing exploration and/or development could occur to rare plant species habitats including sensitive and management indicator species' habitats and populations.
- Potential impacts from post-leasing exploration and/or development could occur to water quality and could affect habitat for fish and other special status aquatic species.

Direct beneficiaries – Native and desirable species

Value information from Affected Environment Chapter –

General habitat conditions - Six terrestrial management indicator species are present in the project area, including elk, mule deer, moose, pronghorn, bighorn, and marten (3-96). The project area is outside of crucial winter range, but does provide parturition (birthing) habitat and spring/summer/transition range, especially for elk, mule deer, and moose (3-97). Roads cause direct loss of habitat and also contribute to habitat fragmentation and edge habitats. This decreases habitat effectiveness or even renders habitats adjacent to roads as unsuitable for many species. In addition to the deleterious effects on habitat, roads interrupt migration and movement patterns, increase human/wildlife contacts and conflicts, cause disturbance and displacement, increase vulnerability of wildlife to poaching and can lead to direct mortality through collisions (3-64).

Mammals – The North Mountain area contains some crucial winter range for bighorn sheep (3-44). For energy development sites, remote monitoring should be encouraged to reduce snow compaction, which provides travel corridors for lynx's competing predators (3-76). The Wyoming Range has the longest and most consistent lynx occupancy in the state (3-77). The Wyoming Range is unique and indicative of the boreal forest habitat required by lynx. Although few data are available, researchers believe that lynx in the Greater Yellowstone Ecosystem (GYE) have a patchy distribution and the Wyoming Range may represent some of the most important lynx habitat in this ecosystem (3-77). The project area is within designated critical habitat for lynx (3-86). Lynx winter and denning habitat makes up less than 12% of the GYE, the project area is included in this 12% (3-88). Mule deer occupy plains and prairies, shrublands, woodlands, and mountain forests. They prefer rough breaks at elevations near or at the subalpine zone in the mountains but can also be found in the alpine, montane, and foothill zones. Mule deer seek refuge at

lower elevations when snow pack is deep (3-106). The project area is primarily mule deer spring/summer/transition habitat. Mule deer also migrate through and around the project area going to and from winter range (3-106). Moose use a variety of habitats from dense coniferous, deciduous, or mixed forests to shrublands, open meadows, grasslands, and riparian areas. In the GYE, moose typically move to willow dominated riparian areas below 7,000 feet during the winter. During summer months, moose feed extensively in wetland and riparian areas and on aquatic vegetation. They require cover throughout the year and typically will not use large, open areas with little screening vegetation. Moose are somewhat less immobilized by deep snow than elk or mule deer. Pronghorn utilize sagebrush and grasslands. They are typically found in wide open areas where their vision is unrestricted. Only a small portion of the lower elevation habitat on the BTNF is considered suitable for antelope (3-109). Marten are most likely to occur within mature/old growth, spruce/fir forests in the project area (3-110). Elevation and snow pack may limit the potential for fisher in the project area (3-121). Open roads essentially reduce the amount of habitat used and available to elk (3-100). The project area provides parturition/summer habitat and transition habitat for elk, which is used during the spring and late fall for migration (3-104). Wolf habitat is present in the project area, including an excellent prey base of elk, mule deer, and other ungulates. The amount and location of roads can impact wolf habitat use (3-89). Habitat in the project area is not typically frequented by grizzly bears and has limited value as habitat (3-94).

Aquatic species - LaBarge Creek Management Area includes important waters for Colorado cutthroat trout (CRCT) (3-48). CRCT require cool, well-oxygenated water and undergo seasonal migrations triggered by water temperature (3-129). CRCT have declined in the BTNF for reasons including reduced watershed function and aquatic habitat degradation (3-130). Cutthroat trout have been adversely affected by reduced watershed function and habitat degradation from dams, water diversions, road networks, timber harvest, permitted livestock grazing, private and public developments on floodplains, developed and dispersed recreation in riparian areas, and recreational angling (3-130). Four endangered fishes (humpback chub, bonytail, Colorado pikeminnow, and razorback sucker) are present in the lower Green and Colorado rivers and could potentially be affected by oil and gas development and consequent depletion of water from the Upper Green River (3-129). Columbia spotted frogs inhabit riparian areas with permanent water and over-winter in oxygenated waters. Drought is a threat to frogs and their habitat and may be exacerbated by management activities and land uses. Frogs are vulnerable to water-borne chemical toxins, which they absorb through their moist skin (3-130).

Birds - Migratory birds use a variety of habitats in the project area during the breeding season (3-67). The Wyoming Bird Conservation Plan identifies priority species within the state of Wyoming. A number of these birds are known to use habitat within the project area, a high percentage use the area for breeding (3-67). Brewer's sparrow (an indicator species) is likely a common summer resident in the project area where suitable sagebrush habitat is present (3-111). Sensitive terrestrial habitat species within the project area include greater-sage grouse, northern goshawk, three-toed woodpecker, great grey owl, and boreal owl (3-112). The project area is most likely used for greater sage-grouse brood rearing however; it is plausible that some nesting could be occurring in immediately adjacent areas or even in habitat within the

project area, particularly on the north/northeastern edge (3-115). Based on general cover type, there is an estimated 25,000 acres of potential habitat for goshawks in the project area (3-116). Based on general cover type data of the project area, there is an estimated 19,000 acres of lodgepole pine mix that may be suitable nesting and foraging habitat for three-toed woodpeckers (3-116). Based on general cover type data for the project area, there is an estimated 31,000 acres of potential habitat for great grey owls in the project area. Based on general cover type data, there is an estimated 29,000 acres of potential habitat for boreal owls in the project area (3-117).

Plants - Greenland primrose habitat is threatened by disturbance of wetland habitats by livestock or recreational users (3-146).

Driver information –

General habitat considerations - Activities on adjacent lands that may affect streams and watersheds include vegetation management, fuel treatments, rangeland management, oil and gas development, residential and commercial areas, road construction and maintenance, and recreational activities. Natural events, such as wildland fires, would also have a cumulative effect on streams and watersheds. Although best management practices and design criteria would not apply to wildland fires, burned area recovery plans would be developed to rehabilitate affected areas (4-141). Potential adverse effects on watershed resources and aquatic habitats include accelerated erosion, increased stream sedimentation, decreased water quality, potential chemical contamination, altered stream flows, channel degradation, and long-term loss of vegetation productivity (4-203). Minor effects on watershed, water, and soil resources, including increased erosion are probably unavoidable under all action alternatives (4-204).

Mammals - Alternative 2 is unlikely to affect Forest-wide population trends of elk, moose, and mule deer (4-77). Alternative 2 has the highest potential for incremental adverse cumulative effects to lynx (4-112). Alternative 2 would likely result in adverse effects to lynx individually and/or to lynx habitat, including designated critical habitat. The recent documentation of lynx in the area, abundant snowshoe hares, and record of past denning activity make it likely that individual lynx would be exposed to effects associated with the proposed leasing. The overall amount of habitat that is predicted to potentially be affected is relatively small, however; effects may extend out from the direct footprint of the project activities and the leases are within and adjacent to undeniably important lynx habitat that appears to be limited. Based on findings that lynx have and continue to be poached, typically from open roads, the increased roading increases the risk for mortality. Although roads would be closed to the public, they would need to remain open for industry use and would be on the landscape and in use for decades when associated with a producing well (4-69). Connected actions associated with the proposed leasing in the 44,720-acre project area may potentially add incrementally to the past, present and foreseeable large-scale projects in the cumulative effects area. Producing leases, mostly in the southern portion of this area have most assuredly reduced available lynx habitat and rendered the development area and immediately adjacent habitats as unavailable for lynx occupation because of the existing wells, road system, and human activity. Lynx passing through would also be at increased risk of mortality due to roads (4-113). Because of the potential

for new roads and reconstruction of existing roads and to a lesser extent, loss of habitat and disturbance, Alternative 2 has the potential to negatively impact wolf prey species (4-71).

Aquatic species - Aquatic species have been impacted by water diversion and dams (3-130 and 133). Data shows long term significant decreases in acid neutralizing capacity and increases in nitrogen and sulfur deposition project area lakes and streams. Much of these changes occurred in the years since natural gas development began in the Pinedale area. When freshwater fish eggs are subjected to acid stress, the duration of the hatching process may take many days longer than normal hatch, in addition, larval mortality increases, and fish become more susceptible to other environmental stresses. Low environmental pH alone is not acutely toxic to adult salmonids, but acidification in combination with aluminum in soft water is a threat to all aquatic organisms. Amphibians are particularly vulnerable to atmospheric deposition, increased acidity, and mobilization of metals from the soils. Acidification increases egg and embryo mortality, although susceptibility varies between species and with pH and soil chemistry (4-138). Effects on stream health and watershed conditions resulting from livestock grazing, poor drainage on existing roads and trails, and natural hill slope instability would continue.

Keyword search – Habitat, migrate, migrating, parturition, feeding, calving

3. **REGULATING SERVICES – BENEFITS OBTAINED FROM THE NATURAL REGULATION OF ECOSYSTEM PROCESSES WITHIN THE PROJECT AREA**

3.1 **WATER FLOW REGULATION (MAINTENANCE OF WATER QUALITY, QUANTITY, TIMING)**

Prolonged water availability, reduced water treatment costs, increased water quantities

Relevant PIL scoping issues –

- Potential impacts from post-leasing exploration and/or development could affect groundwater quality and quantity in the area.

Direct beneficiaries – Tribes, recreationist, hydro-power producers, domestic and municipal water users, species using aquatic and riparian ecosystems

Value information from Affected Environment Chapter – (see habitat value information for aquatic species)

Driver information – In BTNF, the potential for acidification of lakes and waterways from atmospheric deposition is high (4-138).

Keyword search – Water, Total Maximum Daily Load, drought, flood

3.2 **WATER FILTRATION/PURIFICATION**

The capacity of an ecosystem to purify water

Relevant PIL scoping issues –

- Potential impacts from post-leasing exploration and/or development could affect groundwater quality and quantity in the area.
- Potential impacts from post-leasing exploration and/or development could occur to water quality and could affect habitat for fish and other special status aquatic species.

Direct beneficiaries – Plant and animal species, tribes, recreationist, domestic and municipal water users, irrigators, industrial water users

Value information from Affected Environment Chapter – Shallow aquifers are more susceptible to contamination, because a contaminant introduced at the surface can more rapidly enter the system with relatively little intervening soil adsorption (3-60).

Driver information – Minor effects on watershed, water, and soil resources, including increased erosion are probably unavoidable under all action alternatives, although stipulations for No Surface Occupancy in riparian areas reduce potential for adverse effects (4-204). Use of heavy construction equipment could

cause compaction of near surface soils, reducing the ability of the soil to absorb water and resulting in increased surface runoff and potential for ponding (4-52).

Keyword search – Water, filter, purification, purify, pollution, soil

3.3 AIR QUALITY REGULATION

Capturing/filtering dust, chemicals, gases

Relevant PIL scoping issues –

- Potential impacts from post-leasing exploration and/or development could impact air quality and air quality-related values, with emphasis on cumulative effects because of extensive development in the Pinedale area and previously monitored exceedances of National Ambient Air Quality Standards for ozone in Sublette County.

Direct beneficiaries – Local residence, downwind communities, ecosystems

Value information from Affected Environment Chapter – Frogs are vulnerable to air-borne chemical toxins, which they absorb through their moist skin (3-130). Levels of total atmospheric deposition are lower at the Pinedale sites when compared to sites in the Bridger Wilderness. Higher atmospheric deposition levels are common at higher elevations in mountainous terrain. The Bridger Wilderness has a "total deposition levels of concern" status because total nitrogen and sulphur deposits are thought to be high enough to cause changes in aquatic community structure (3-159). This essentially means that the resistance of these ecosystems to change due to atmospheric deposition is thought to have been overcome. There are seven Wilderness lakes near the project area thought to be sensitive to change from atmospheric deposition (3-161).

Driver information – Dust and air pollution from energy development are of concern (4-28). The introduction of dust, and air pollution would be temporary during exploration, and longer-term (average of 2-40 years) if the field is developed and production occurs (4-30). There is the potential for air quality to be affected in the South Wyoming Range and Grayback Roadless Areas (4-33). Accidental explosions, fires, blowouts, oil spills and leaks cause potentially serious air pollution problems (4-138). The drilling and production of wells subsequent to leasing could impact air quality and air quality related values, with emphasis on cumulative effects because of extensive development in the Pinedale area and previously monitored exceedances of *National Ambient Air Quality Standards* for ozone in Sublette County (4-170). The protection of air quality is of great concern in the Upper Green River Basin, including the proposed project area. In light of ongoing and planned development in the Pinedale Anticline, Jonah fields, and the nearby LaBarge Platform, local citizens have expressed concerns related to decreased visibility, increased dust, high levels of ozone and other hazardous air pollutants (4-170).

Keyword search – Air, dust, pollution, chemical

3.4 POLLINATION

The contribution of animals to the reproduction of plants

Relevant PIL scoping issues – none

Direct beneficiaries – Farmers, ranchers, ecosystems, plants

Value information from Affected Environment Chapter – Payson's milkvetch and Wyoming tansy mustard have a high intrinsic vulnerability that may be due in-part to pollinator limitations. Sweet-flowered rock-jasmine, Shultz milkvetch, Boreal draba, and Weber's saw-wort have a moderate intrinsic vulnerability that may be due in-part to pollinator limitations. These species are Plant Management Indicator Species on the BTNF (3-138).

Driver information – none

Keyword search – Pollination, pollinator

3.5 DISTURBANCE REGULATION

Ecosystems can regulate the effects of floods, wildfires, wind events, avalanches, drought, landslides

Relevant PIL scoping issues – none

Direct beneficiaries – Local property owners, irrigators, ecosystems, water users, species

Value information from Affected Environment Chapter – Aspen are in decline in part due to the alteration of the natural fire regime (3-142). Payson's milkvetch is in decline due to fire suppression (3-145). Loss or alternation of Lynx habitat can occur through fire events (3-72). Marten are rare or absent in forests that lack ground structure, such as those maintained under a frequent low fire severity regime (3-110). Northern-three-toed woodpeckers forage on dead (including fire-killed) trees. Threats to flammulated owl include successional trends to a more closed canopy and extensive wildfire (3-121). CRCT populations are limited in part by fire suppression (3-134). Drought conditions can persist on mule deer's low elevation sagebrush winter ranges, reducing survival during even more mild winter conditions (3-106). Drought is a threat to frogs and their habitat and the effects of drought may be exacerbated by management activities and land uses (3-130). Windswept ridges often serve as leks for sage-grouse (3-113). Payson's bladderpod is found on windswept ridge crests (3-145).

Driver information – none

Keyword search – Fire, drought, landslide, avalanche, flood, wind

3.6 REGULATE INSECTS AND DISEASE

The capacity of an ecosystem to regulate insects, disease, and invasive species through genetic and species diversity, spatial diversity, age-class diversity, and the actions of predators and parasites

Relevant PIL scoping issues – none

Direct beneficiaries – Farmers, ranchers, ecosystems

Value information from Affected Environment Chapter – Sweet-flowered rock-jasmine, Shultz milkvetch, boreal draba, and Weber's saw-wort have moderate intrinsic vulnerability, which may be due in part to a predisposition to disease. Payson's milkvetch and Wyoming tansy mustard have a high intrinsic vulnerability, which may be due, in part, to a predisposition to disease (3-138). Bighorn sheep populations are in decline in part, it is believed, due to disease (3-118).

Driver information – Unsanctioned, illegal, or unintentional introductions of invasive species are aided by road access (4-137). Action alternatives for this project would add potential for noxious weed introduction proportionate with the areas disturbed (4-161).

Keyword search – Insect, disease, invasive

3.7 EROSION REGULATION

Soil retention and the capacity to regulate soil erosion

Relevant PIL scoping issues – none

Direct beneficiaries – Surface water users, farmers, ranchers, ecosystems, aquatic species

Value information from Affected Environment Chapter – Extensive beaver pond development and dense willow growth on creeks blunts erosion forces of high spring runoff (3-134).

Driver information - Some irretrievable soil loss/displacement related to road, pipeline, well pad construction, and other field development facility construction would occur (4-203).

Keyword search – Erosion

3.8 CLIMATE REGULATION/CARBON SEQUESTRATION

Long-term storage of greenhouse gases in ecosystem

Relevant PIL scoping issues – none

Direct beneficiaries – Humans, species, and ecosystems vulnerable to climate change

Value information from Affected Environment Chapter – Aspen are in decline indirectly from climate change (3-142). Climate change is predicted to have a greater effect on average temperature changes in the Northern Hemisphere (3-155). Climate change could have profound impacts on Canada lynx within the project area (3-67). There are concerns about the impacts of global warming on whitebark pine seeds (3-67).

Driver information – none

Keyword search – Climate, sequester, sequestration, carbon, storage

4. CULTURAL SERVICES – NON-MATERIAL BENEFITS OBTAINED FROM THE PROJECT AREA

Relevant PIL scoping issues –

- Potential impacts from post-leasing exploration and/or development could change the backcountry recreation setting, detracting from the quality of recreation opportunities in the area.
- Potential impacts from post-leasing exploration and/or development could affect cultural and visual resources.

4.1 PROTECTING AND CONTEXTUALIZING CULTURAL SITES AND REGULATING THE USE OF CULTURAL SITES

Providing protection from the deterioration of cultural sites, providing contextualization of cultural sites, regulating the use of cultural sites

Relevant PIL scoping issues – (above)

Direct beneficiaries – Tribes, academics, tourists, local residents

Value information from Affected Environment Chapter – "Sense of place" is a term used to describe the values that draw people to specific landscapes. It is an important component of culture and the self-identity of a society, and a major factor in the minds of many who responded to public scoping (3-25). The entire Wyoming Range is the traditional homeland of the Eastern Shoshone and Shoshone-Bannock Tribes. A number of sites have been recorded in the area, such as rock cairns, cairn alignments, and segments of the "Old Indian Trail", that may be considered "Traditional Cultural Properties" or sacred sites. These areas are still utilized by tribal members who continue to exercise traditional activities on National Forest System lands (4-33).

Driver information – Inadvertent damage and/or destruction of cultural and paleontological resources from increased visitation and surface disturbing activities would be unavoidable. Although mitigation measures include identification and mitigation for these resources prior to surface-disturbing activities, some unanticipated discoveries of unknown cultural and paleontological resources could occur (4-204).

Keyword search – Culture, cultural, sacred, place

4.2 OPPORTUNITIES FOR RECREATIONAL EXPERIENCES

Benefits to the individual: 1) Solitude and escape from crowds and noise, 2) escape from stresses, 3) physical and mental challenge, self-reliance, practicing outdoor skills, 4) adventure and exploration, 5) a

sense of place, 6) insight, self-discovery, creative inspiration, 7) a connection to the past, 8) time with family and friends, 9) lasting memories, 10) connection to other cultures, 11) connection to your own culture. **Benefits to society:** 1) Increased knowledge and innovation, 2) improved physical and mental health, 3) improved interpersonal relationships, 4) improved land stewardship, 5) improved cultural stewardship, 6) improved quality of life, 7) improved economies

Relevant PIL scoping issues – (above)

Direct beneficiaries – Local residence, tourists, sportsmen, recreationist

Value information from Affected Environment Chapter – Timber and oil and gas exploration during the 1960s and 1970s resulted in a road system that is now used mainly for recreation (3-24). The Wyoming Range is considered a minor range by mountaineers and is considered part of one's back door wilderness and place of livelihood by many local residents yet has been overlooked by the public at large. This was until controversy over development shone a spotlight on the range and several guidebooks that serve recreationists looking to avoid crowds were published (3-25). Recreation activities in the Wyoming Range include hunting, fishing, horse packing, hiking, backpacking, car camping, general touring, and snowmobiling (3-26). The lease parcels considered in this analysis add to the potential for changing recreation settings and attributes of the land that are valued by the public (3-26). When asked if having recreation areas close to home improves quality of life, 83% of Wyoming resident respondents strongly agreed. Quiet/solitude, fishing access, and nature trail opportunities were rated high state-wide.

Big Piney, Marbleton, Pinedale, Rock Springs, and Green River make up a significant portion of visitors to the Wyoming Range. Although part of the attraction of the Wyoming Range is the lack of crowds seen in the Wind River Range and Jackson Hole areas, there is considerable recreation use, especially along popular roads near the margins of the range (3-28). Access to outdoor recreation consistently ranks among the top reasons people move to the Greater Yellowstone region (3-30). Many national forests are able to offer visitors only a choice between classified wilderness (much of it overcrowded) and roaded, developed settings; there is not much large backcountry left. Thus the Bridger-Teton is in a unique position to offer this setting in abundance, especially in the Wyoming Range (3-30). Backcountry areas fill a niche that classified wilderness does not, especially if the agency wants to manage wilderness for something other than recreation. In non-wilderness, backcountry uses can be allowed that do not comply with the Wilderness Act, such as mountain biking, use by motorized trail vehicles, winter shelters and hut systems; the Forest Service can allow for larger party sizes and construct facilities such as trail bridges for user convenience. Certain habitat manipulation projects, such as prescribed burns to benefit wildlife or installation of fish structures in creeks, are compatible in backcountry areas, whereas they might not be in wilderness (3-31).

All or parts of four inventoried roadless areas exist within the Recreation Analysis Area and just over 190 total acres of these areas are slightly overlapped by parcel boundaries (3-39). About 69% of the total acres of these areas are under a No Surface Occupancy stipulation in the 1990 Forest Plan. (Under the reduced leasing alternatives 2 and 3, 39 acres of inventoried roadless areas overlap parcel boundaries). For this

analysis the inventoried roadless areas are the 'special areas' identified in the nation-wide RARE-II and subject to the 2001 Roadless Area Conservation Rule (3-40). The area surrounding and including the lease parcels is known for its remote and primitive nature, relatively low human use, and opportunities for outdoor recreation including big game hunting, hiking and horseback riding, and snowmobiling (3-23). Winter recreation has been on the rise and this trend is expected to continue (3-36). The east slope of the Wyoming Range is known for its dependable snow pack and attractive terrain (3-36). The Horse Creek Management Area is a popular place for both snowmobiling and backcountry skiing (3-49). National Trails include the Wyoming Range National Recreation Trail, established primarily for hiking and backpacking, and the historically important Lander Cutoff of the Oregon Trail located in the southern part of the analysis area. These trails are not included in the reduced-acreage area (3-38). Several Wild and Scenic River candidates originate in the Wyoming Range, including North Piney and Middle Piney Creeks, Big Fall Creek, and LaBarge Creek. These creeks are not within the reduced-acreage analysis area (3-38).

Driver information – There is a concern about effects to the area's backcountry characteristics which would in turn affect recreation and related businesses that rely on the backcountry (4-3). Under Alternative 2, recreation visits to the Forest would probably increase due to the expected increase in population. Oil and gas leasing could impact a variety of resources in the study area; effects on these resources could indirectly impact the social values they contribute to, including recreational values. Recreation is expected to increase relative to population; however, this does not mean that the values of recreational experiences are also expected to increase. There is no data available that allows for a quantitative analysis of recreation and other social values affected by natural resources on the Forest. It is logical to assume that there will be a negative correlation between values not directly accounted for in the market place and oil and gas activity. If increases in recreational visits are attributed to an increase in Sublette County's population, the majority of additional visitor days would likely be experienced by local residents (4-16). Demands for recreation would likely increase due to increased population and greater visibility of the Forest (4-23). Issue identified during scoping: potential impacts from post leasing exploration and or development could change the backcountry recreation setting, detracting from the quality of recreation opportunities in the area. The existing qualities of the area (the essentially wild landscape, large backcountry areas, remoteness, relatively few people, fine scenery, and existing recreation roads and trails) provide valued opportunities for recreation. Noise, dust, air pollution, and other effects from energy development are of concern, as well as the potential for increased traffic on forest roads. Potential effects of the action alternatives on Forest recreation settings and experiences have to do with several aspects of energy exploration and development. Those aspects include effects on recreation setting, effects on sight and sounds, changes to winter use and trails, changes to scenery, off-forest recreation effects, and changes to special areas including Wild and Scenic River eligible streams, inventoried roadless areas, and National Trails (4-28). There would be no direct, indirect or cumulative effects on hunting opportunities, recreation settings, character of the land, special areas, recreation uses or facilities on BLM or private lands, and no introduction of noise or un-natural lighting as a result of the No Action Alternative. However, activity in the area could occur as existing suspended leases are developed

and any of the effects described in this analysis could occur; existing leases do overlap with inventoried roadless areas or the corridors of eligible Wild and Scenic Rivers. For areas not within existing leases, the *Wyoming Range Legacy Act* withdrew the Wyoming Range from disposition under laws relating to mineral and geothermal leasing, therefore there will be no future leasing actions and effects from the withdrawn area (4-29). Potential effects on the recreation setting from roads, pipelines, well pads, and support facilities such as gravel pits, staging areas and collection facilities, sights and sounds of oil and gas activities, hazards from leaks, and effects of winter operations on existing snow trails could all occur under Alternative 2. Wells and associated pads, tanks, roads and pipelines would change the scenic character and recreation setting for at least some of the area being analyzed. The miles of road associated with these wells (half of which would use existing roads) would change the recreation setting in some areas. Whether this change is permanent or temporary depends on whether exploratory wells become producing wells and if the mitigation measures employed for effectively closing roads are no longer needed. It is possible that new and reconstructed roads that are currently closed could be left open for public use (if determined consistent with the travel planning process, and with Forest Plan road density guidance), thus permanently changing the recreation setting in those areas. Exploration would include considerable heavy industrial traffic, with an average of 70-75 truckloads to move a typical drill rig to a site, and noise from the drilling operation itself. This effect would probably not last longer than a few weeks per well, but it would likely take place during the time that most recreation use occurs in the summer and fall. Field production would include lighter traffic than the site construction and drilling phases, but industrial/truck traffic could still be considerable. In addition to the effects of traffic, Forest visitors would be aware of the presence of gas wells by the sight of pumps, condensate tanks and other support facilities, flaring on occasion (involving bright lights, smoke, and noise, although use of green well completions would minimize this), and in the case of a tight gas sand development, hydraulic fracturing to release trapped gas into the wells (4-29). According to the reasonably foreseeable development scenario for Alternative 2, about nine miles of new road could be constructed. It is possible that 3,000 acres could be converted from semi-primitive backcountry to a roaded setting. This figure would be the maximum possible under this alternative and it should be noted that this is very unlikely to occur since some of the new roads could be in places already classified as Roaded Natural due to their proximity to existing roads. Roaded Natural recreation settings are corridors of ¼ to ½ mile on either side of open roads. It is most likely that some area less than 3,000 acres would be converted, but it is not possible to predict the amount without knowing the locations of proposed roads. The short-term and long-term effects could differ depending on whether recoverable energy reserves are found. New exploration roads could be made available for public traffic, converted to trails, or recontoured, depending on the management objectives consistent with travel planning for the area. Based on past exploration work conducted within the Forest, most roads that would be built or upgraded would be high-standard roads with a gravel surface that could be used all year. With a 40+ year life expectancy for each well developed, these roads would remain on the landscape for at least that time period, and possibly beyond if they are deemed necessary as part of the Forest transportation system. The introduction of noise, drill rig lights, dust, and air pollution would be temporary during exploration, and longer-term (average of 2-40 years) if

the field is developed and production occurs. Dust and drilling noise would probably be most significant during the exploration and development phase and greatly reduced during the production phase. Full field development could have a significant effect on the general setting, due to the sights, sounds and odors associated with gas field production. Some of these effects can be mitigated with modern technology. As an example, the flaring that takes place on existing gas wells during initial production testing and potentially during occasional well maintenance can involve bright flames that would be visible from long distances. With the use of green well completions flaring would be minimized. However, green completion may be limited by access to pipelines. Flaring, when it does occur is a very short term activity. Part of the recreation setting that is valued in the Wyoming Range is the quiet and the remoteness from the sights and sounds of human development, clean air, and clear night skies. Without adequate mitigation, industrial development could intrude on this setting. Existing recreational uses of closed or little-used roads such as hiking, horseback riding and, where allowed, motor vehicle use, would be displaced if oil/gas traffic occurred on them. Safety would be a concern, especially in fall when recreation use is heaviest. Many camps, including established hunter and outfitter camps, exist in the road corridors; these may be affected in the short term by construction traffic and its accompanying noise and dust (4-30). In the long term the roads that are re-opened and reconstructed, whether managed for public use or not, would differ in development level and feel compared to the currently closed roads. Visitors could experience a dramatic difference between the current near-wilderness setting and that of an industrial setting, especially if well pads were placed near traditional hunting camps. Outfitters could possibly lose clients (especially repeat business from people who have come to expect a certain experience) or would have to move their operations. A relatively small acreage (during the exploration phase) would be directly disturbed by construction of well pads, roads and pipelines. This does not include any additional disturbance from gravel pits, staging areas and gathering facilities. Long-term disturbance would affect a smaller acreage because unused portions of well pads would be reclaimed and revegetated, as well as any road ditches and pipeline routes. Less area is needed for field production than for exploration and development operations. Well sites monitored remotely or accessed primarily by over-snow vehicles in winter could be plowed anytime if necessary to deal with a problem or to truck out materials. Some effect on current winter recreation would take place, since many of the groomed winter trails follow Forest roads. If roads that are currently used as winter trails are plowed to oil/gas developments, existing winter recreation would be displaced. In some locations this effect could be mitigated by providing alternate parking areas for public use. Possible effects on special areas could occur from roading and a resulting increase in vehicle access, noise, lights, and air pollution. Roads and facilities could be visible from trails, backcountry, and inventoried roadless areas, especially at night if there are lights. Mitigation with shrouds could be applied to this short term effect, and production activities normally do not need permanent lighting (4-31). If a gas field was developed, the noise of the field and the sight of its lights would be noticeable from part of the Wyoming Range National Recreation Trail. In addition, direct effects are possible on the south end of the historic Lander Cutoff of the Oregon Trail. These effects could be mitigated by using green well completion, and shrouding lights. However, green completion may be limited by access to pipelines. Whether or not locating wells away from the trail would be adequate for

protecting the trail setting is dependent on site-specific terrain and vegetation (4-34). There would likely be some effects on recreation settings on BLM land near the Forest, especially where the primary recreation access roads pass trailheads and dispersed campsites on BLM land. The forks of Horse, Cottonwood, and Piney Creeks are accessed via roads to the east and U.S. 189; these roads are narrow and some have tight curves. They would be used for both recreation and oil and gas activity. Indirect effects here would be similar to those identified above for the Forest including increased traffic, noise, etc. Heavy equipment on state and county roads would be present, especially during the construction and drilling phase. This would create some conflict with recreation uses and may pose a concern about public safety. In the event of field development, noise, lights, and gas well flares could be noticeable from BLM and some private land, however mitigations including green well completion and shrouding of lights could reduce these effects. The opportunity for green completions would be dependent on access to pipelines (4-34).

Keyword search – Recreation, hunt, fish, snow, trail, road, tour, solitude, culture

4.3 OPPORTUNITIES TO EXPERIENCE SCENERY

Improved quality of life, sense of place, economies, and knowledge

Relevant PIL scoping issues – (above)

Direct beneficiaries – Local residence, tourists, recreationists

Value information from Affected Environment Chapter – In the past decade or more, the region's economy has been driven more by the attractiveness of communities as places to live than by tourist dollars. Scenery, wildlife, and open space consistently rank among the top reasons people move to the Greater Yellowstone region (3-30). For both backcountry travelers and users of the roads and dispersed campsites, the opportunity to see wildlife and enjoy scenic settings is very important (3-31). The Bare Pass Road (Forest Road 10146) in the Cottonwood Creek Management Area is a very scenic drive with the unique views of the Red Castles, large, deep beaver ponds, and views of the Wyoming Range from Darby Mountain to Triple and Lander Peaks (3-49). The Piney Creek Management Area has many trails that offer non-motorized users the opportunity for wildlife viewing and scenic waterfalls (3-51). Residents of the Pinedale area consider visibility impairment to be a major concern (3-156). Views of Lander and Triple Peaks, Wyoming Peak and the southern Wyoming Range, as well as across the Upper Green River basin to the Wind River Range from the Red Castles, are outstanding (3-44). Distant views from high points such as Wyoming Peak are spectacular (3-45).

Driver information – Noise, dust, air pollution, and other effects from energy development could affect the scenery of the area (4-28). Under Alternative 2, the sights and sounds of energy activity would be noticeable from the Wyoming Range Trail and other viewpoints in the area (4-46).

Keyword search – Scenery, scenic, view

4.4 **EXERCISING TREATY RIGHTS AND OTHER RESERVED RIGHTS IN ABORIGINAL AND CEDED LANDS**

Increased awareness of treaty rights, continued relationships with the land through co-management, traditional ecological knowledge and traditional ecological practices, continued intergovernmental relationships, continued cross-cultural exchange, other benefits listed for the three services above

Relevant PIL scoping issues – (above)

Direct beneficiaries – Tribes, governments

Value information from Environmental Effects Chapter – none

Driver information – none

Keyword search – Tribe, treaty

Ecosystem Services Survey Analysis

Analysis of Data Point One: The Keyword Search and Word Count

A keyword search of the Affected Environment and Effects Analysis chapters of the Oil and Gas Leasing in the Wyoming Range FSEIS was performed. The verbiage from those keyword ‘hits’ was sorted by ecosystem service and were categorized as either information about the values or drivers of the ecosystem service. This process revealed how much verbiage in the FSEIS Affected Environment and Effects Analysis chapters was committed to each service and whether that information had to do with the values associated with the service or the impacts that the proposed alternatives would have on that service.

Word count was then used to rank each ecosystem service based on the number of words committed to values information about a service and by the number of words committed to discussion about how the service might be negatively affected by the oil and gas development. This keyword and word count analysis revealed that species habitat and opportunities for recreation experiences received the most verbiage categorized as ‘values information’, followed by animal protein, opportunities to experience scenery, and water flow regulation. These services were followed by forage, disturbance regulation, air quality regulation, and protecting and contextualizing cultural sites and regulating the use of cultural sites. The ecosystem services with the most verbiage committed to how oil and gas development might negatively affect them were species habitat and opportunities for recreational experience. These were followed by fresh water, air quality regulation, and animal protein. Next were forage, water filtration/purification, protecting and contextualizing cultural sites, and opportunities to experience scenery. Verbiage regarding species habitat in the Affected Environment Chapter of the FSEIS focused on a wide array of species that may exist in the project area or that may be affected by development in the project area, including big game species, lynx and other predator species, small mammals, amphibians, fish, and plants. Values verbiage for opportunities for recreational experiences emphasized the value of the area for local and regional populations, especially for recreation in backcountry areas that provide a unique niche for recreational uses such as mountain biking, motorized trail use, and backcountry hut use in a backcountry setting. Verbiage regarding the production of animal protein focused on domestic livestock production, prey availability for lynx, and other predators, and hunting opportunities for humans. Verbiage regarding forage production focused on seasonal forage availability for big game species, grizzly bears, sage grouse, and livestock. Verbiage regarding air quality regulation focused on the effects of atmospheric deposition on amphibians, aquatic community structure, and lakes, especially at higher elevations. Verbiage regarding opportunities to experience scenery focused on the benefits that local communities receive from scenery and wildlife viewing and the effect of these amenities on local communities.

Analysis of Data Points Two and Three: Ecosystem Service Surveys with Local Decisionmakers

Data Point 2: Survey of a Key Informant: Forest Service Line Officer

On Thursday, May 21 2015, a phone survey was conducted with Big Piney District Ranger Rob Hoelscher regarding the ecosystem services of the Wyoming Range project area. The Ranger had reviewed the Ecosystem Services Briefing Paper and Survey before the call. In the survey the Ranger expressed that the most important ecosystem services (+3) to society that come from the project area were species habitat and water flow regulation. The next most important ecosystem services (+2) were air quality regulation, fresh water, and opportunity for recreational experiences. On the next tier of importance (+1) were protecting and contextualizing cultural sites and regulating the use of cultural sites,

erosion regulation, water filtration/purification, and opportunities to experience scenery. The Ranger expressed that the two ecosystem services that would likely be most positively affected (+3) by oil and gas development were fuel and building materials. On the next tier (+2) were erosion regulation, plant varieties for revegetation, and disturbance regulation. The Ranger expressed that the two ecosystem services that would likely be most negatively affected (-3) by oil and gas development were species habitat and opportunities to experience scenery. On the next tier (-2) were air quality regulation, fresh water, and water flow regulation. During follow up questions, the Ranger expressed that the reason fuel and building materials would likely be positively affected by oil and gas development was that oil and gas development was likely to improve access to forest products, including firewood and timber for building materials. The Ranger expressed that erosion regulation would likely be positively impacted because oil and gas development would necessitate road improvements and those road improvements would include improved erosion control. The Ranger expressed that his ranking of ecosystem services was a ranking based on the relative importance of these ecosystem services and should not be taken in absolute terms.

Also, the Ranger said he felt that the ranking would likely change if he were to have a discussion about these ecosystem services with resource specialists on the Bridger – Teton National Forest.

Data Point 3: Survey of a Key Informant: County Commissioner

A phone survey of Sublette County Commissioner Joel Bousman was completed on April 16 and May 27, 2015 regarding the ecosystem services of the Wyoming Range project area. Commissioner Bousman had reviewed the Ecosystem Services Briefing Paper and Survey before the calls. In the survey, Commissioner Bousman expressed that the most important (+3) ecosystem services to society that come from the project area were forage and opportunities for recreational experiences. The next most important (+2) ecosystem services were fresh water, building materials, and fuel. On the next tier of importance (+1) were erosion regulation, animal protein, opportunities to experience scenery, and disturbance regulation. Commissioner Bousman expressed that the two ecosystem services that would likely be most positively affected (+3) by oil and gas development were building materials and fuel. The Commissioner expressed that opportunities for recreational experiences could be either positively or negatively affected by oil and gas development. He said that on the one hand, oil and gas development could improve access to recreation; on the other hand, it could be a detriment to the recreation experience through a disruption of the scenery. Commissioner Bousman expressed that ecosystem services likely to be most negatively affected by oil and gas development (-3) were forage and scenery. On the next tier (-2) were animal protein and air quality regulation.