October 08, 2023

Mr. Mel Bolling, Supervisor
Caribou-Targhee National Forest
1405 Hollipark Drive
Idaho Falls, Id 83401

Mr. Robbert Mickelsen, Ecosystem Branch Chief
Caribou-Targhee National Forest
1405 Hollipark Drive
Idaho Falls, Id 83401

Re: Draft Supplemental Environmental Impact Statement – Crow Creek Pipeline Project

Dear Mr. Bolling and Mr. Mickelsen:

These comments are submitted on behalf of Yellowstone to Uintas Connection, Alliance for the Wild Rockies, and Native Ecosystems Council.

The Yellowstone to Uintas Connection (Y2U) is a 501c3 public interest organization whose staff and members have and will continue to work to protect the integrity of habitat for fish and wildlife as well as recreate in this region. We are concerned about the loss of integrity of the Regionally Significant Wildlife Corridor (Corridor) that connects the Greater Yellowstone Ecosystem and Northern Rockies to the Uinta Wilderness and Southern Rockies. Y2U is headquartered in Paris, Idaho with a satellite office in Bondurant, Wyoming.

Alliance for the Wild Rockies (AWR) is a 501c3 public interest organization whose mission is to secure the ecological integrity of the Wild Rockies Bioregion through citizen empowerment and the application of conservation biology, sustainable economic models, and environmental law. Alliance for the Wild Rockies is headquartered in Helena, Montana.

Native Ecosystems Council (NEC) is a 501c3 public interest organization whose staff reviews Forest Service National Environmental Policy Act (NEPA) assessments of Forest Service impacts on wildlife in the Northern Rockies. NEC is headquartered in Willow Creek, Montana.

We have reviewed the DSEIS and find little change from the prior DEIS other than the rerouting of the pipeline to avoid BLM managed lands and Mineral Leasing Act provisions. In our scoping comments, comments on the DEIS, supplemental comments on the DEIS, and our objection, we raised a number of points which are summarized in the following section. We hereby incorporate those comments in their entirety along with those raised in our objection to the FEIS and Draft ROD. The objection expanded on the issues raised above and emphasized

the failures to meet Forest Plan objectives. These documents are being submitted separately along with these comments on the DSEIS.

Prior Comments

In our Scoping Comments (February 19, 2018), our concerns included:

1. The pipeline would fragment IRAs, promote OHV use, and soil disturbance along the pipeline route.
2. There will be direct, indirect, and cumulative ecological impacts that need analysis and disclosure.
3. Construction of the pipeline will leave a visible scar due to removal of vegetation, including trees and shrubs along the route.
4. Restoration will be limited to grasses and forbs, which leaves a cleared path that will induce OHVs to use the route, resulting in an unauthorized route.
5. A review of the effects of roads and motorized vehicles on wildland and wildlife, leading to humans accessing remote areas, damaged environmental resources, looted archeological sites, and noise pollution.
6. Effects of motorized use on wildlife, fragmenting habitat to the point it loses its function and begins losing species.
7. Soil disturbance and erosion, sedimentation of water bodies, spread of invasive species.
8. Due to the removal of vegetation and creation of a cleared path, snowmobiles will be attracted to the route. The tracks and trails of these machines can result in negative impacts to soils, soil temperatures, soil bacteria, seed vernalization, seed dispersal, spring germination and changes in plant species, density, and productivity. They will also create travel routes that affect wildlife travel, habitat use, and populations. Their presence induces increased stress, and displacement from preferred habitats.
9. The project occurs in the Regionally Significant Wildlife Corridor and includes summer and winter ranges for deer and elk. The CNF RFP and its FEIS recognize the value of roadless areas and low road densities for elk security. It stresses the need for migration between summer and winter range.
10. It is important to identify all winter and summer range and how much is affected by direct and indirect effects from the pipeline and how much has been affected by other activities such as roads, timber harvest, OHV use in summer and snowmobile use in winter.
11. We reviewed the benefits of roadless areas, which included increased biodiversity, high level of old growth, essential habitat for species of conservation concern, provide buffers against invasives, provide connectivity and other benefits.
12. We requested analysis of road densities and effects on wildlife, and soil conditions with an integrated analysis of the effects of roads, human use, and habitat fragmentation.
13. Requested disclosure of ongoing soil and water impacts from roads in the project area that may be inadequately maintained. Please disclose the cumulative impacts on soil, water, and wildlife of unauthorized (user created) roads and motorized trails. Please disclose

compliance with motorized route restrictions, and if violations exist, perform an analysis of the resultant harm to wildlife habitat, soil, and water.

14. Demonstrate the project would be consistent with all applicable Land management plan direction, including standards, guidelines, and other direction.

Our Comments on the DEIS (November 21, 2018) expressed concerns including:

1. The DEIS set up a straw man that said impacts to wildlife or corridor integrity would be offset because there is habitat elsewhere, but it did nothing to quantify this other habitat and its quality or ability to support wildlife or corridor function.
2. There were insufficient alternatives provided. There should have been consideration of additional storage at the Afton facility, offsetting natural gas usage by increasing the number of LVE customers using alternative energy, and there should have been a wildlife protection alternative that avoids and mitigates impacts to wildlife.
3. Mitigation was not adequate to remove visible impacts due to the cleared path that will need to remain cleared for annual inspections and maintenance. Examples of other pipelines and reseeded areas were provided to show that these cleared paths remain visible for long periods. OHV and snowmobile issues were raised as this cleared route is an open invitation.
4. The Regionally Significant Wildlife Corridor was not addressed, and the Forest Service should provide an analysis addressing habitat fragmentation and the presence of Core, Corridor, Lynx Analysis Units (including the LAUs proposed, but omitted from the 2003 RFP and an analysis of their condition then and current conditions), security areas, summer and winter range, roadless Areas, wilderness Areas, NRAs, areas closed to livestock grazing, and Goshawk home ranges. There was no road density or noise analysis relative to wildlife needs.
5. While the DEIS described the pipeline crossing six management prescription areas, it did not analyze the current status of these areas already fragmented by mines, timber, transmission corridors, roads and trails, and other surface disturbing activities.
6. While migration corridors were discussed in the FEIS for the CNF RFP, the effects of the proposed project did not address the already high road densities in the Webster/Preuss and Diamond Mountain blocks and how this pipeline will impact security habitat or linkage.
7. Citing the Wildlife Specialists' Report, we indicated the need for ESA Consultation.
8. We raised questions regarding accident statistics, pipeline incidents such as explosions or over pressure. Regarding wildlife collisions, there was a lack of a timeframe in which those occurred, and no analysis of construction impacts or displacement as a result of construction and operation of the pipeline.
9. Regarding climate change, there were some issues with the analysis including the potential growth-inducing impacts due to increasing fossil fuel use, growth impacts on property values and property taxes. We also described the Forest Service National Roadmap for

Responding to Climate Change which stresses connecting habitats, decreasing fragmentation, and removing impediments to migration.

10. Forest Sensitive, MIS and T&E species habitats need analysis to determine suitability and capability of habitats and viability of populations.
11. The Montpelier Ranger District is considered linkage habitat for Canada lynx but there was no analysis of its habitat and how human activities may have degraded that habitat. While the CNF RFP FEIS mentioned 35 observations in the CTNF, there was no analysis of the habitats and conditions in the locations where these observations were made to help understand lynx habitat preference and then evaluate project impacts.
12. We provided analysis and maps of wolverine habitat. A map based on a model by Fish and Wildlife Service indicates habitat potential in SE Idaho. Research by leading researchers pointed out the need for facilitating connectivity between habitat patches.
13. The DEIS analysis for big game was dismissive of project impacts on deer and elk, their summer and winter range, stating that impacts were negligible, "given the amount of habitat available to wildlife outside the proposed disturbance area", but those habitats were not analyzed for their current condition. The RFP prescriptions for winter range emphasized the importance of roadless areas and low road densities for elk security cover.
14. The CNF RFP FEIS describes a process for assessing connectivity, but the DEIS did not address that process in evaluating wildlife impacts.
15. We provided a detailed discussion for sage grouse pointing out the lack of analysis for leks in the project area, that the COT Report described the East-Central Idaho sage grouse population as at "high risk" of loss. We pointed out the value of these populations and their connection to adjacent populations in Wyoming and Idaho. The National Technical Team Report analysis and recommendations were cited but have not been included in any analysis. No population trends were provided and those should have been correlated with activities that fragment habitat.
16. The flaws in reliance on Best Management Practices were described and effectiveness monitoring is needed to validate any claims of their benefits.

Our Supplemental Comments on the DEIS (November 23, 2018) raised additional points, including:

1. The NEPA process was flawed due to lack of incorporation of FERC review and Natural Gas Act provisions.
2. The environmental analysis is limited and should be extended to include all of the direct, indirect, and cumulative impacts resulting from FERC approval.
3. The DEIS only covers impacts to Forest Service lands, but wildlife, surface water, groundwater, and air quality on, below, and over private property will also be potentially impacted.
4. A Supplemental EIS is needed depending on the FERC analysis outcome.
5. There was an inadequate range of alternatives.

6. There was not a "hard look" at environmental impacts, including the public safety analysis, pipeline leak analysis, there are no impact zone calculations and no identification of High Consequence Areas, potential for wildfire from a leak or rupture. We cited that interstate pipelines have exploded or caught fire 137 times in the previous 8 years. The role of Pipeline and Hazardous Materials Safety Administration was cited. How is it involved? How often will it inspect the pipeline? The risk county or other road maintenance might pose due to the location within roadways. Many questions were raised regarding LVE's monitoring, maintenance and response to emergencies, and emergency venting.
7. The use of HDPE pipe and joining methods, inspections, worker certification were of concern. Instances of HDPE pipe fracturing that could reduce the expected lifetime and the question was raised as to how the Forest Service, FERC, and LVE will ensure that the pipeline does not experience deterioration and if so, how that would be detected and repaired. What will happen at the end of the service life?
8. The climate analysis is insufficient due to the need to calculate GHG emissions for all alternatives, future population increases in the service area being expanded into Idaho. The analysis should also include methane leaks as social costs. Production and transport from the production sites and end users will be an impact.
9. Impacts to air quality from LVE users burning more natural gas was needed, there was no baseline air quality data included and no description of the locations of monitoring sites, no analysis of the impacts to NOX, CO2, Ozone, and other pollutants.
10. Whether natural gas is to be provided to phosphate operations, or a map showing the pipeline in relation to mining leases was not addressed.
11. Mitigation measures were suggested relating to livestock grazing. These could reduce cumulative impacts, including reducing animal unit months and retiring grazing permits.

Inventoried Roadless Areas

The DSEIS:3-6 lists a number of activities that have cumulative effects within its Cumulative Impact Analysis Area (CIAA). It notes that construction of the pipeline through Inventoried Roadless Areas would create a visible and physical change. The ROW would be restored following construction with visual markers along the route. (DSEIS:ES-iii). This pipeline route would include a special use authorization and Forest Plan amendment to construct the pipeline within a 50-foot-wide ROW and amend the CNF RFP to establish a 20-foot-wide permanent ROW across NFS lands. Six IRAs are affected. (DSEIS:1-4). These include Gannett-Spring Creek, Hell Hole, Meade Peak, Red Mountain, Sage Creek, and Telephone Draw. (DSEIS:1-9). The DSEIS:1-10 refers to the 2019 FEIS for analysis of impacts to the IRAs. Locations where the public could access the pipeline route would be blocked to reduce the possibility of new access to areas, including IRAs that may be perceived open to travel.

In the following discussion, we have reproduced the descriptive information from the Idaho Roadless Rule Appendix C showing the already degraded condition of these six IRAs.[1] They include characteristics described at the time of designation ca 2008. Typically, they are low to moderate in natural characteristics and remoteness characteristics due to past and ongoing intrusions, timber harvest, roads, motorized trails, and unimproved roads and trails. They are open to cross country snowmobiling with some areas closed to protect wildlife. These closed areas are not identified in the DSEIS and we have seen no evidence snowmobile use is patrolled or closures are effective if they exist. In fact, the CNF RFP FEIS indicates 97% of the Forest is open to over snow travel. The resources within each IRA are listed.

Gannett-Spring Creek #111
20,400 Acres Caribou (Idaho)
45,100 Acres Bridger-Teton (Wyoming)
65,500 Acres Total

The Gannett Spring Creek Roadless Area lies within the Bridger-Teton National Forest in Wyoming (45,100 acres) and the Caribou-Targhee National Forest (20,400 acres) in Idaho. The Gannett Spring Creek Roadless Area (Idaho portion) is within Caribou County, Idaho on the Montpelier Ranger District on the Caribou portion of the Caribou-Targhee National Forest. During the 1985 Forest planning effort, the Wyoming Wilderness Act was passed by Congress and signed into law on October 30, 1984. This occurred after the Forest's Draft EIS and proposed Forest Plan had been released to the public for review. The Wyoming Wilderness Act either designated areas as wilderness or wilderness study areas or released the remaining areas to multiple uses other than wilderness. The Wyoming portion of this area was released. As a result, it was no longer required to evaluate the entire area as one unit. The Idaho portion of the roadless area is approximately ten miles southwest of Afton, Wyoming. The forest boundary forms the north and east border. Access to the area from the south is by Elk Valley Road and Ephraim Valley Road. The Crow Creek Road forms much of the western boundary.

Elevations range from approximately 6,000 feet near Crow Creek to 8,000 feet along mountain ridges near the center of the area. Most of the area is comprised of moderate to gently rolling hills, with steep drainages, typical of the topography of this part of Southeast Idaho. Vegetation includes grasses and sagebrush with stands of Douglas -fir on northern slopes.

Roadless Characteristics

- Natural Integrity: Naturalness of the environment is considered moderate, because of past vegetation treatments, livestock improvements, and adjacent oil and gas drilling activity.

[1] USDA Forest Service. 2008. Roadless Area Conservation National Forest System Lands in Idaho Final Environmental Impact Statement. Appendix C – Idaho Roadless Areas Volume 5: Caribou, Challis, Salmon, and Targhee National Forests.

- Opportunities for Experience: Remoteness and solitude are rated as low, because of the size and minimal screening from valley developments. Opportunities for primitive recreation are considered moderate due to roads and other uses; opportunity for challenging experiences is low due to the rolling terrain.
- Special Features: Special features or attractions include the Crow Creek Road, which is a popular recreation access road and is located on the old pioneer travel route. Other early pioneer wagon roads exist in the area. Elk Valley Marsh is a unique high elevation wetland. A 200-acre parcel was found to be eligible for further study under the Wild and Scenic Rivers Act.
- Manageability: Manageability of the area is considered poor along inventoried boundaries, but a core area could be achieved by locating a boundary on natural features.

Resources

- Fisheries: The Yellowstone cutthroat trout, a Region 4 sensitive species occurs in this roadless area.
- Wildlife: This area is considered a linkage area for the Canada lynx, a Forest Service sensitive species.
- Bald eagle, also sensitive winters near this roadless area. The area has moderate wildlife habitat.
- Water: The area has no municipal water use.
- Botanical: No threatened, endangered, or sensitive plants are present.
- Recreation: Recreation use includes big-game hunting, fishing, off highway vehicle use, and camping.
- Most of the area is open to snowmobiling; some areas are closed to protect wildlife.
- Timber: No recent timber activity has occurred in the area.
- Wildland Fire Use: Much of this area is managed for Wildland Fire Use: The application of the appropriate management response to naturally-ignited wildland fires to accomplish specific resource management objectives in predefined, designated areas outlined in Fire Management Plans.
- Range: Livestock grazing is authorized for most of the area.
- Minerals and Energy: The area has moderate potential for oil and gas and no current oil or gas leases. Exploration wells have been drilled adjacent to the boundary in Elk Valley and to the south on Red Mountain. This area contains 2,900 acres of high and 17,500 acres of medium geothermal potential.
- Landownership and Special Uses: Approximately 655 acres of State or private lands occur within the area. Outfitting and Guiding is authorized.
- Roads and Trails: The area has no forest roads and 10.5 miles of motorized trail.
- Disturbances: The area includes motorized trail use.

Sage Creek #166
12,800 Acres

The Sage Creek Roadless Area is in Caribou County, Idaho and administered by the Montpelier Ranger District and the Soda Springs Ranger District. This area is located ten miles southwest of Afton, Wyoming. The Timber Creek and Smoky Canyon roads access the area from the north. Pole Canyon, Sage Creek, and Crow Creek roads approach the area from the east. Wells Canyon Road accesses the area from the southwest border. The Freeman Pass Road parallels the west border. Timber sales and associated roads in the 1980's and 1990's have altered the west boundary of the roadless area. Elevations in the roadless area range from 8,643 feet to 6,700 feet near Crow Creek. Vegetation on the north slopes includes Douglas -fir and lodgepole pine with aspen, mountain brush, sagebrush, and grass on west and south-facing slopes.

Roadless Characteristics

- Natural Integrity: Naturalness of the environment is considered low, with evidence of mining and timber harvest activities.
- Opportunities for Experience: Remoteness and solitude are rated low, due to the area's small size, road intrusions, and mining activities. Opportunities for primitive recreation and challenging experiences are considered low due to the area's small size and road intrusions.
- Special Features: No special features or attractions have been identified for this roadless area.
- Manageability: Manageability of the area is considered fair along roadless boundaries. Road intrusions are present and adjacent mining activities are visible from the area.

Resources

- Fisheries: The area has high values for fish habitat. Yellowstone cutthroat trout, a sensitive fish species, occurs in this roadless area.
- Wildlife: This area is a linkage zone for the Canada lynx, a Forest Service sensitive species. The hairy woodpecker, northern flicker, and flammulated owl, Forest Service sensitive species also occur in this roadless area.
- Water: The area has no municipal water use.
- Botanical: No threatened, endangered, or sensitive plants are present.
- Recreation: Off-highway vehicle use and hunting are popular in the area. Most of the area is open to snowmobiling; some areas are closed to protect wildlife.
- Timber: Several timber sales have occurred in this area.
- Wildland Fire Use: The southern portion of this area is managed for Wildland Fire Use: The application of the appropriate management response to naturally-ignited wildland fires to accomplish specific resource management objectives in predefined, designated areas outlined in Fire Management Plans.
- Range: Livestock grazing is authorized on most of the area.

- Minerals and Energy: The area has moderate potential for oil and gas and no current oil or gas leases. About 1,900 acres of phosphate deposits are currently under lease and another 2,080 acres of known deposits are unleased in the southern portion of the area. This roadless area contains 10,800 acres of high and 1,900 of medium geothermal potential.
- Landownership and Special Uses: The area has one outfitter and guide and a small communication site under special use authorization. No State or private lands occur within the roadless area.
- Roads and Trails: There are about 3 miles of forest roads and 1 mile of motorized trail. Disturbances: The small communication site.

Meade Peak #167
44,700 Acres

The Meade Peak Roadless Area is in Caribou and Bear Lake counties, Idaho in the Montpelier Ranger District. The center of this area is about twenty miles southwest of Afton, Wyoming. Road access to the area includes Georgetown Creek and Wells Canyon roads. The eastern boundary is formed by the Crow Creek Road, and the southern boundary is the Montpelier Canyon Highway. The Home Canyon Road cuts a deep corridor into the south 1/3 of the roadless area. Bennington Canyon, Pine Canyon, and Little Three-mile Canyon roads are found along the western edge of the area.

The area's topography varies from gently sloping foothills to high, steep, subalpine mountains. Meade Peak is the highest point in the Forest at 9,953 feet above sea level. Conifer stands include Douglas -fir, lodgepole pine, and alpine fir; aspen occurs on all slopes.

Roadless Characteristics

- Natural Integrity: Naturalness of the environment is rated as moderate, because of the evidence of some human activities, such as unimproved roads and timber harvest activities.
- Opportunities for Experience: Remoteness and solitude rate as moderate, because of road intrusions into the area and agricultural fields and communities can be seen from much of the area. Opportunities for primitive recreation and challenging experiences are considered moderate due to area's size, but there are many road intrusions.
- Special Features: Special features or attractions include good wildlife and fish habitat. The roadless area contains Meade Peak, the highest point on the forest, and a 300-acre Research Natural Area.
- Manageability: Manageability of the area is considered poor, due to road intrusions into the area. A core area, with boundaries along natural features, could be achieved.

Resources

- Fisheries: The Bonneville cutthroat trout, a Region 4 sensitive species occurs in this roadless area.

- Wildlife: This area is a linkage zone for the Canada lynx, a Forest Service sensitive species. The area has moderate values for wildlife habitat.
- Water: The area provides municipal water use to five homes at the mouth of Home Canyon.
- Botanical: No threatened, endangered, or sensitive plants are present.
- Recreation: The area is popular for big game hunting, fishing, and camping. Some of the area is open to snowmobiling; some areas are closed to protect wildlife.
- Timber: Recent timber harvest activities have occurred in the area.
- Wildland Fire Use: Much of this area is managed for Wildland Fire Use: The application of the appropriate management response to naturally ignited wildland fires to accomplish specific resource management objectives in predefined, designated areas outlined in Fire Management Plans.
- Range: Livestock grazing is authorized in most of the area.
- Minerals and Energy: The area is considered to have moderate potential for oil and gas and no current oil or gas leases. About 550 acres of phosphate deposits are currently leased and another 2,500 acres of known deposits are unleased. This roadless area contains 44,700 acres of high geothermal potential.
- Landownership and Special Uses: The area has outfitter and guide special-use authorizations.
- Approximately 1,267 acres of State or private lands occur within the roadless area.
- Roads and Trails: There are less than a mile of forest roads and 39 miles of motorized trails.
- Disturbances: The area includes motorized trail use.

Red Mountain #170
13,600 Acres

The Red Mountain Roadless Area is in Bear Lake County, Idaho on the Montpelier Ranger District. The area lies four miles northwest of Geneva, Idaho and one mile west of the Idaho-Wyoming border. Access to the area is by the Elk Valley Road on the north, the Boulevard Road on the east, and the Crow Creek Road on the west.

The area's topography is comprised of gently sloping hills covered with sagebrush, grass, and mountain brush, rising to barren red rock cliffs near the summit of Red Mountain. The elevation ranges from 8,727 feet at Red Mountain to about 6,300 feet near Geneva. Patches of Douglas-fir and lodgepole pine are found on north and east-facing slopes.

Roadless Characteristics

- Natural Integrity: Naturalness of the environment is rated very high, but evidence is present of grazing and unimproved roads.
- Opportunities for Experience: Remoteness and solitude are considered low, because of the area's size and lack of natural screening. Opportunities for primitive recreation and challenging experiences are rated low due to the area's small size and lack of screening.

- Special Features: Special features or attractions include barren, red rock cliffs near the summit of Red Mountain.
- Manageability: Manageability of the area is considered fair, although an improved exploration road bisects the area.
- Fisheries: The Bonneville cutthroat trout, a Region 4 sensitive species occurs in this roadless area.
- Wildlife: This area is a linkage zone for the Canada lynx, a Forest Service sensitive species. The area has moderate values for wildlife habitat.
- Water: The area has no municipal water use.
- Botanical: No threatened, endangered, or sensitive plants are present.
- Recreation: Dispersed recreation use includes hunting and limited snowmobiling. Most of the area is open to snowmobiling; some areas are closed to protect wildlife.
- Timber: No recent timber harvest activity has occurred in this area.
- Wildland Fire Use: Much of this area is managed for Wildland Fire Use: The application of the appropriate management response to naturally-ignited wildland fires to accomplish specific resource management objectives in predefined, designated areas outlined in Fire Management Plans.
- Range: Livestock grazing is authorized on most of the area.
- Minerals and Energy: The area has moderate potential for oil and gas and no current oil or gas leases. This roadless area contains 5,900 acres of high and 7,700 acres of medium geothermal potential.
- Landownership and Special Uses: The area has one outfitter and guide special use authorization. No State or private lands occur within the roadless area.
- Roads and Trails: There are no forest roads and less than 1 mile of motorized trails.
- Disturbances: One reclaimed Oil and Gas exploration road and drill site.

Telephone Draw #169
4,900 Acres

The Telephone Draw Roadless Area is in Bear Lake County, Idaho administered by the Montpelier Ranger District of the Caribou-Targhee National Forest. This area is located approximately seven miles east of Montpelier, Idaho. The northern boundary of the area is formed by Snowslide Canyon Road. U.S. Highway 89 forms the southern boundary. The area is accessible from the Montpelier Reservoir and the Crow Creek Road on the west.

The area's topography is comprised primarily of steep terrain. Average elevation is 7,000 feet above sea level. Sagebrush, grass, mountain brush, and aspen make up the vegetation cover in the area.

Roadless Characteristics

- Natural Integrity: Naturalness of the environment is considered high, with evidence of some unimproved roads.

- Opportunities for Experience: Remoteness and solitude are rated low due to the area's small size. Opportunities for primitive recreation and challenging experiences are also rated low due to the area's small size and lack of screening.
- Special Features: No special features or attractions have been identified in this roadless area.
- Manageability: Manageability of the area is considered poor due to the area's small size.
- Fisheries: The Bonneville cutthroat trout, a Region 4 sensitive species occurs in this roadless area.
- Wildlife: This area is a linkage zone for the Canada lynx, a Forest Service sensitive species. The area has low values for wildlife habitat.
- Water: The area has no municipal water use.
- Botanical: No threatened, endangered, or sensitive plants are present.
- Recreation: off highway vehicle use, and hunting are popular recreation activities in the area. Most of the area is open to snowmobiling; some areas are closed to protect wildlife.
- Timber: No timber harvest activities have occurred in this area.
- Wildland Fire Use: Much of this area is managed for Wildland Fire Use: The application of the appropriate management response to naturally ignited wildland fires to accomplish specific resource management objectives in predefined, designated areas outlined in Fire Management Plans.
- Range: Livestock grazing is authorized for most of the area.
- Minerals and Energy: The area has moderate potential for oil and gas and no current oil or gas leases.
- This roadless area contains 4,900 acres of high geothermal potential.
- Landownership and Special Uses: The area has one outfitter and guide special use authorization.
- Roads and Trails: There are no forest roads and about 3 miles of motorized trail.
- Disturbances: The area includes motorized trail use.

Hell Hole #168
4,700 Acres

The Hell Hole Roadless Area is in Bear Lake County, Idaho on the Montpelier Ranger District on the Caribou portion of the Caribou-Targhee National Forest. It lies about four miles east of Montpelier, Idaho. The Sheep Creek Road is south of the area, and the Bear Hollow Road cuts a corridor into the southern boundary.

The topography of the area is moderately steep and characterized by sagebrush and grass-covered slopes, with a few pockets of Douglas -fir and aspen on north and east aspects. Riparian vegetation covers the low areas along Montpelier Creek and Willow Spring. The average elevation of the area is 6,900 feet.

Roadless Characteristics

- Natural Integrity: Naturalness of the environment is considered moderate because human activities are evident, including unimproved roads, a communication site, and livestock grazing.
- Opportunities for Experience: Remoteness and solitude are rated as low, due to two-track roads on many ridges within the roadless area, small size of area, and agricultural activities and Hwy 89 are visible from most of the area. Opportunities for primitive and challenging experiences are rated as low, due to the area's small size.
- Special Features: Special features or attractions include areas of deer transition/migration range.
- Manageability: Manageability of the area is considered poor, due to the area's many road intrusions. A core area could not be achieved by placing boundaries on natural features.
- Fisheries: The Bonneville cutthroat trout, a Region 4 sensitive species occurs in this roadless area.
- Wildlife: This area is a linkage area for the Canada lynx, a Forest Service sensitive species. The area has low to moderate values for wildlife habitat.
- Water: The area has no municipal water use.
- Botanical: No threatened, endangered, or sensitive plants are present.
- Recreation: Most of the area is managed for semi-primitive motorized experiences year-round. Activities include driving for pleasure, OVH use, and deer hunting. Most of the area is open to snowmobiling; some areas are closed to protect wildlife.
- Timber: No recent timber activity has occurred in the area.
- Wildland Fire Use: Much of this area is managed for Wildland Fire Use: The application of the appropriate management response to naturally ignited wildland fires to accomplish specific resource management objectives in predefined, designated areas outlined in Fire Management Plans.
- Range: The area has no current oil or gas leases. Phosphate leases are adjacent to area. Most of the area is authorized for livestock grazing.
- Minerals and Energy: This roadless area is considered to have moderate potential for oil and gas and contains 4,700 acres of high geothermal potential.
- Landownership and Special Uses: There are outfitter and guide special use authorizations within the roadless area. There is a Forest Service radio repeater within the roadless area. No State or private land in-holdings are located within this roadless area.
- Roads and Trails: There are about 7 miles of Forest roads within the area and no motorized trails.
- Disturbances: The area includes roads. There are no system trails.

The two IRAs on the southern portion of the CIAA that the pipeline crosses include Hell's Hole and Telegraph Draw. Telephone Draw is bisected by the pipeline and is considered high in naturalness but with some unimproved roads. Hell's Hole is considered moderate in naturalness because human impacts are evident, including unimproved roads, a communication site, and livestock grazing. The existence of unimproved roads in these IRAs indicates the lack of ability of the Forest Service to block and reclaim illegal, unimproved, or user-created roads and trails. Yet we are to accept that this 18 miles of pipeline ROW through

the CNF and IRAs will somehow be restored and ohv use prevented. We have not seen the CNF map of all these non-system roads and trails. We have seen no enforcement sufficient to prevent these and there are no plans to reclaim them of which we are aware.

Recent court cases in Montana revolving around road density and habitats for wildlife have confronted the Forest Service over its flawed analyses that understate the effects of roads by omitting user-created and illegal roads, and by claiming their road closures are effective when the majority are not. As a result, illegal motorized use and impacts on wildlife are unaccounted for.[2] [3] A current news article provides photo illustrations of the effects of logging roads and the failure of attempted Forest Service closures.[4]

We have mapped the CIAA and IRAs with Forest roads and trails. (Figure 1). These show that the CIAA does not include some portions of the IRAs. While watershed boundaries are used to define the CIAA, it is the integrity of the IRA as a whole that must be accounted for in the analysis. Failing to define the CIAA to include the entirety of the IRAs precludes an accurate analysis of the impacts to the IRAs. Thus, the CIAA must include the entirety of the IRAs affected.

We also mapped the CIAA, IRAs, and roads. (Figure 2). The map includes public roads, highways, and open Forest Service system roads and trails. It illustrates the disturbing scope of habitat fragmentation by roads, mines, and the pipeline route in the region. User-created, and non-system roads are not shown as there is no available data that describes the extent of these. Other roads, such as mine haul roads, transmission lines, pipelines, timber and vegetation management and manipulations are not shown as we do not have the data. The Forest Service should have or collect the data that would enable the analysis. All of these disturbances should have been mapped and analyzed in the NEPA process so habitat fragmentation, wildlife security areas, migration corridors, summer and winter range, other wildlife habitats for special status species could have been analyzed for functionality and compliance with the Forest Plan and best available science, some of which was provided in our prior comments and objection.

While the DSEIS claims that the pipeline ROW will be restored, in our comments on the DEIS, we provided photographs of similar disturbances where the ROWs remain visible for years to decades. The additional habitat fragmentation and noise from this project needs to be analyzed in terms of security habitat for big game, sage grouse, and Canada lynx linkage.

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[2] Alliance for the Wild Rockies v. Leanne Marten, et al. In US District Court for the District of Montana. CV 21-05-M-DLC. Filed 08/03/23. https://app.box.com/s/89u7tipvoenzln5hmvdobty4d33skk1i

[3] Native Ecosystems Council, Alliance for the Wild Rockies v Keith Lannom. In US District Court for the District of Montana. jCV 21-22-M-DWM. Filed04/04/22. https://app.box.com/s/u2srro4tdzuzlct63fhmjkojpu4c85uh

[4] Wuerthner, G.W. 2023. Logging Road Impacts. In: The Wildlife News. August 22, 2023. https://www.thewildlifenews.com/2023/08/22/logging-road-impacts/

We noted in our comments on the DEIS that the claim was made that impacts to summer and winter range were negligible "given the amount of habitat available to wildlife outside the proposed disturbance area". Figure 2 raises serious doubts about this claim. We noted in our DEIS comments that the CNF RFP contains prescriptions identifying winter range for deer and elk and it emphasized the value of roadless areas and low road densities for elk security cover. There has been no analysis of road density for this project nor any inclusion of the analysis provided in the FEIS for the CNF RFP regarding road densities, security cover, and connectivity. Figure 2 should motivate the Forest Service to recognize the extent of habitat fragmentation in the CIAA and adjacent areas and to employ an actual analysis of the current state of affairs compared to the needs of fish and wildlife.

In our comments on the DEIS we described the CNF process for assessing connectivity which includes the following elements. We have not seen any such assessment and it is not contained in the DSEIS or its predecessor, the DEIS.

- Assessing historic patterns of vegetation and connectivity.
- Assess current patterns and relative connectivity including human disturbance and barriers.
- Compare historic and current patterns and relative connectivity to determine if animal movement opportunities have been significantly interrupted.
- Consider measures to restore these.

Biological Assessment

The DSEIS in its Table 1.4-1 indicates that a Biological Assessment (BA) would be prepared for the Agency Preferred Alternative when determined. Apparently, the Forest Service is unaware that a Final Biological Assessment was prepared in 2019.[5] It has not been updated. That BA only considered Canada lynx and American wolverine. DSEIS Table 3.-1 lists three Threatened wildlife species that have potential to occur in the study area. These include Canada lynx, grizzly bear, and yellow-billed cuckoo. It also provided a discussion of wolverine. The DSEIS also addressed Monarch butterfly as a candidate species. The table also includes numerous sensitive species. The BA did not address Ute Ladies'-tresses or Whitebark pine which are listed in DSEIS Table 3.2-1 as threatened. In addition, there is a current Species Status Assessment for wolverine that should be addressed.[6] The BA did not address the proximity and effects of the project on the adjacent Canada lynx critical habitat. Based on the mapping we have provided and numerous human activities occurring in the study area, it is incumbent on the CNF to do a detailed analysis of current habitat conditions vs historical and potential habitats and their suitability for supporting each species.

[5] Stantec Consulting Services, Inc. 2019. Biological Assessment (BA) for Federally Listed Wildlife and Plant Species Crow Creek Pipeline Project. Dated 8/20/19.

[6] U.S. Fish and Wildlife Service. 2023. Species Status Assessment Addendum for North American Wolverine.

Figure 1. Cumulative Impact Analysis Area
Forest Roads, Trails, and Pipeline Route

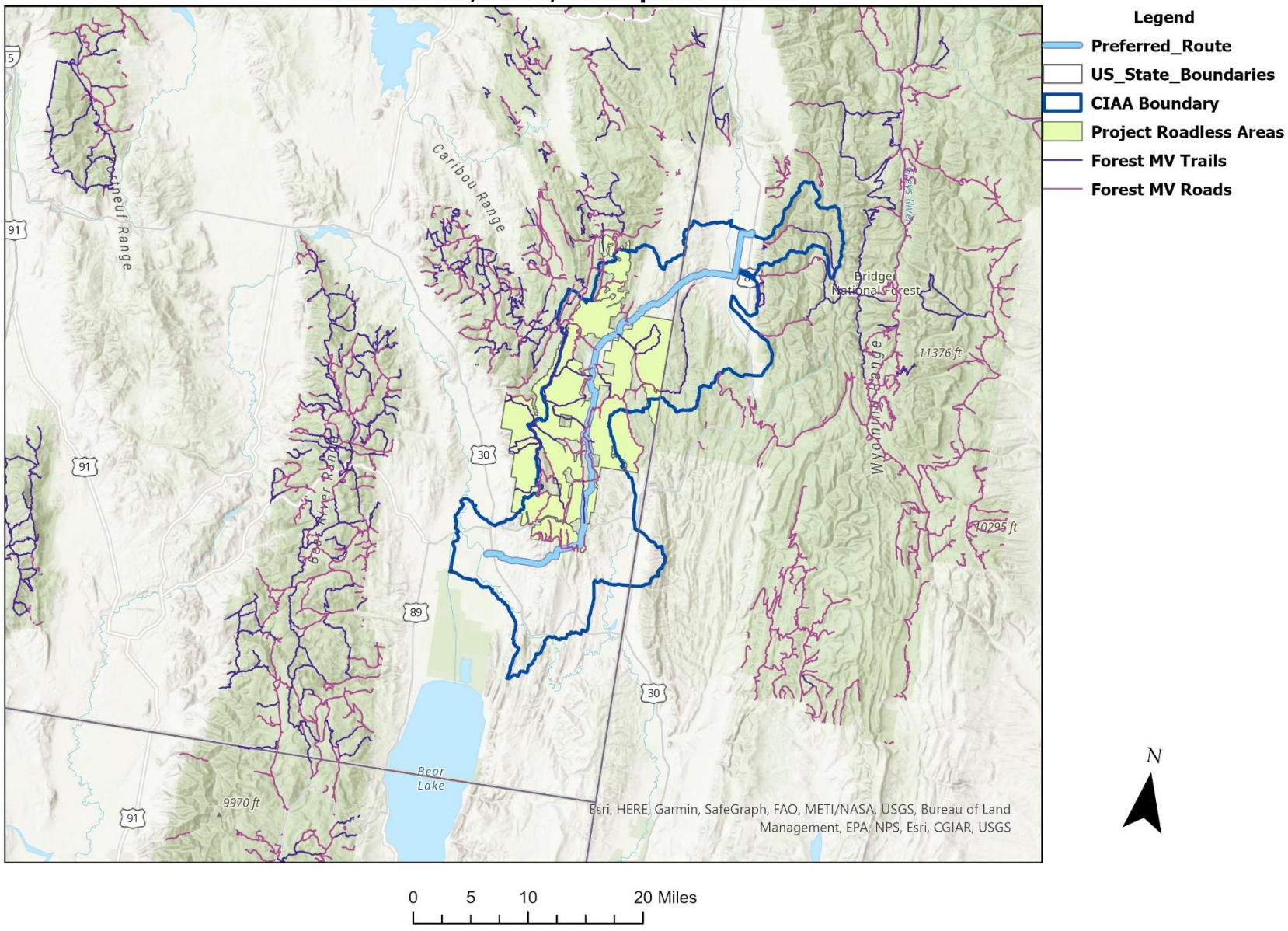
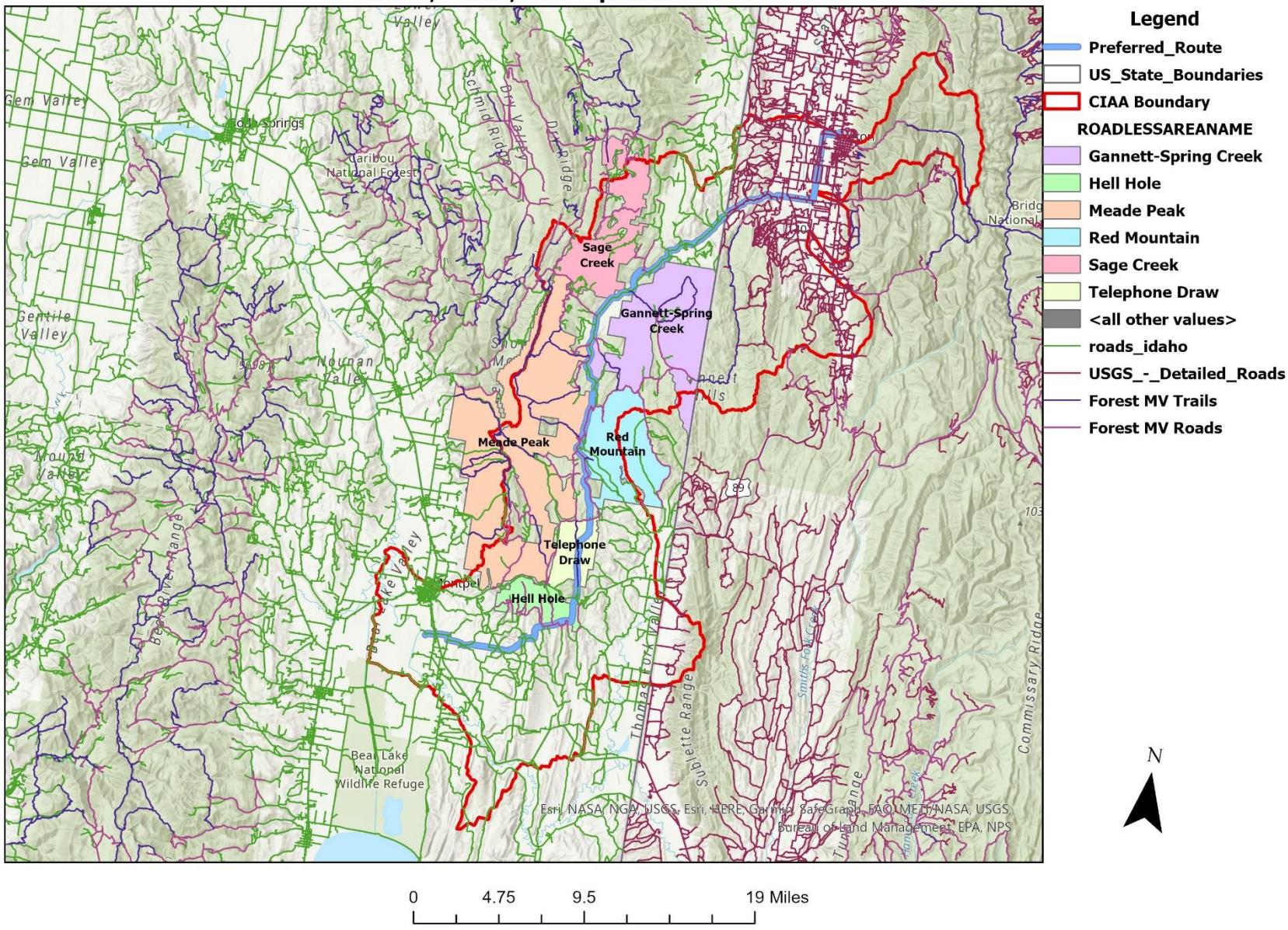


Figure 2. Cumulative Impact Analysis Area, IRAs, Forest and Other Roads, Trails, and Pipeline Route



Sage Grouse

The DSEIS:2-11 proposes to minimize potential impacts to nearby greater sage grouse leks by using design features. These include:

- Project specific elements from a 2023 letter from the State of Idaho regarding portions of the project on state endowment lands. Those features were not described.
- On NFS lands standard GRSG-GEN-ST-006 would be applied within 6.2 miles of an occupied lek. It would include not authorizing activities increasing the noise level more than 10dB above ambient during lekking and do not include noise from human activities that have been initiated in the last 10 years. The act of measuring would likely have a disturbing effect on its own. Separating out activities is logistically not practical. Where is the methodology described?
- Also, on NFS lands, standard GRSG-GEN-ST-007 would require avoiding surface disturbing activities during March 1 to June 15.

The DSEIS:3-21 describes some of the history of policy relating to sage grouse, their habitat needs and that they have been noted to move 50 miles from breeding and nesting areas to summer ranges. Preferred nesting habitat is described as contiguous patches of sagebrush at least 200 acres in size within 6.2 mile of an occupied lek. Early brood-rearing habitat is considered sagebrush habitat within 1.8 miles of more from a lek. There are no known leks or PHMAs on NFS lands in the study area. The study area is not defined, however reference to Figure 3.3-1 shows both a 10 mile and 6.2-mile buffered areas. We expect the 10-mile buffer should be the study area. Occupied lek locations are described relative to the project including on private land. Six occupied leks occur within 6.2 miles of the project. It is noted that along the Wyoming portion of the Proposed Action, there are no occupied or historic leks within 10 miles of the project. Sage grouse populations in the Southern Conservation Area are declining due to habitat loss and fragmentation. Due to these declines and population triggers being tripped, habitat formerly classified as IHMA is now considered PHMA.

In our November 13, 2018 comments on the DEIS we pointed out problems regarding the determination of "occupied" status for leks and the conclusions of the Conservation Objectives Team report. The COT Report[7] described a lack of monitoring and concluded that these sage grouse populations are at high risk of loss.

We have a problem with the determination of "occupied". This is reliance on the ARMPA for determination of Priority, Important and General Habitat Management Areas. These, in turn,

[7] U.S. Fish and Wildlife Service. 2013. Greater Sage-grouse (Centrocercus urophasianus) Conservation Objectives: Final Report. U.S. Fish and Wildlife Service, Denver, CO. February 2013.

relied on mapping analysis by Doherty et al (2010).[8] This, in turn, relied upon a memo from the Director of the BLM and Chief of the Forest Service providing recommendations for refining land use allocations for sage grouse.[9] That memo mapped these *"Identified Areas of GrSG Landscape Significance within BLM/USFS PHMA: Rangewide*." This map showed a clear absence of significant populations in the SE Idaho area. It is important to note that Doherty based their analysis on maximum lek attendance data collected during the years 2000 - 2009. The FEIS for Idaho and Southwestern Montana LUPA notes that for Idaho an occupied lek was one that had been active during at least one of the last five years, 2010 - 2014. FEIS (p3-23).[10]

We plotted lek data for the SE Idaho area from the 2016 IDFG sage grouse database which showed 15 leks of various status in the area southeast of Blackfoot Lake. Figure 3 is a chart showing the leks counted by year since 1960 according to that database. Leks counted appeared to increase over time as new leks were determined, but not all leks were counted in all years and in most years if they were counted it was for less than half the leks. Monitoring was not consistent over time. Figure 4 is a chart showing the total and average males per lek since 1960. A sharp decline is evident when all counts were averaged. What is interesting about this chart is that the populations had declined to very low levels at or before initiation of the time periods (2010 – 2014) BLM used for the ARMPA. So, high historical attendance was not considered they are dismissed without analysis.

The DSEIS:3-33 states that construction would disturb approximately 270 acres of shrubland and grassland that may provide nesting and breeding habitat. It is unclear what is meant by breeding habitat. The DSEIS goes on to describe that breeding and nesting habitat is considered contiguous sagebrush patches of 200 acres in size within 6.2 miles of an occupied lek and winter habitat with limited brood rearing/summer habitat along drainages and springs/wetlands. It is concluded that revegetation would allow sage grouse to use the disturbed areas in the future and that 22 acres of impacted PHMA on private and State land is minor and short term. Finally, the DSEIS:3-34 states that, "the Project may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species."

[8] K Doherty et al. 2010. Mapping breeding densities of greater sage-grouse: a tool for range wide conservation planning.

[9] BLM and Forest Service. 2014. Memorandum Greater Sage-Grouse: Additional Recommendations to Refine Land Use Allocations in Highly Important Landscapes.

[10] Idaho and Southwestern Montana Subregional Greater Sage-grouse RMP Amendments Final EIS

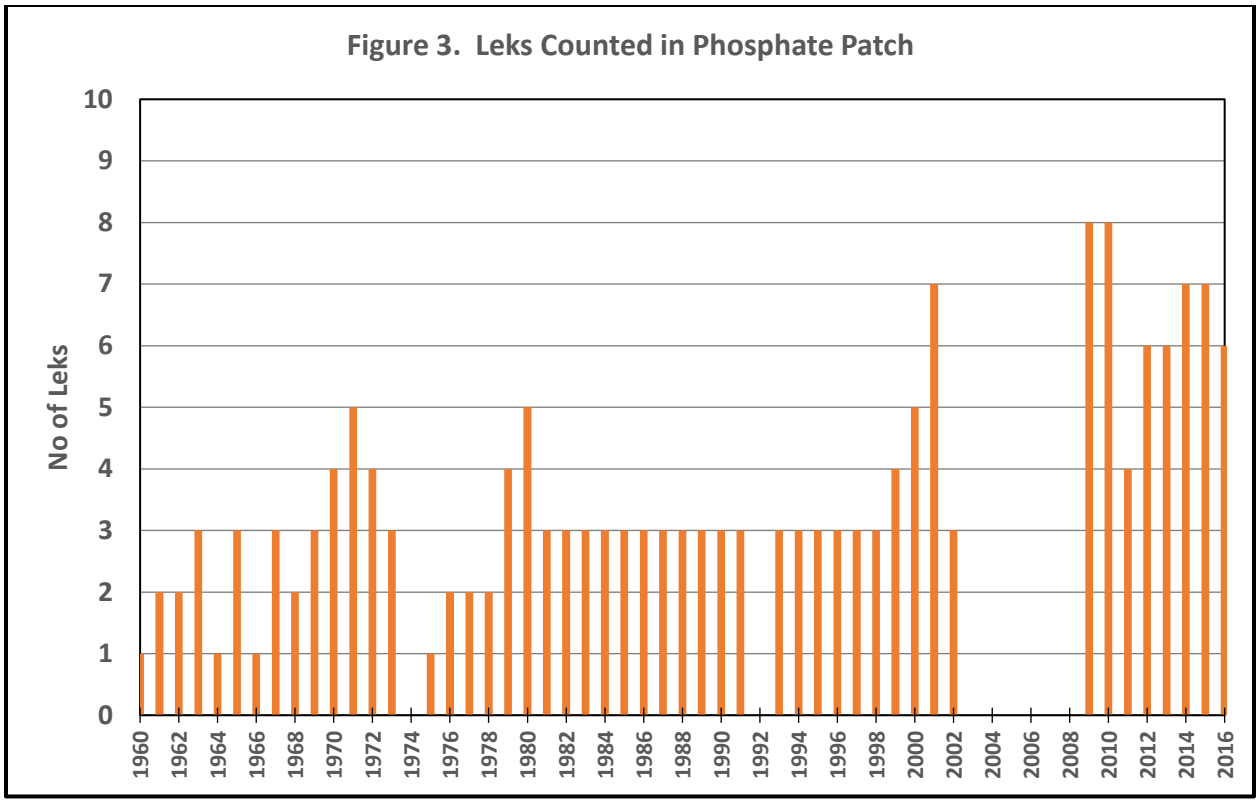


Figure 3. Leks Counted in Phosphate Patch
No of Leks
0
1
2
3
4
5
6
7
8
9
10
1960
1962
1964
1966
1968
1970
1972
1974
1976
1978
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
2016

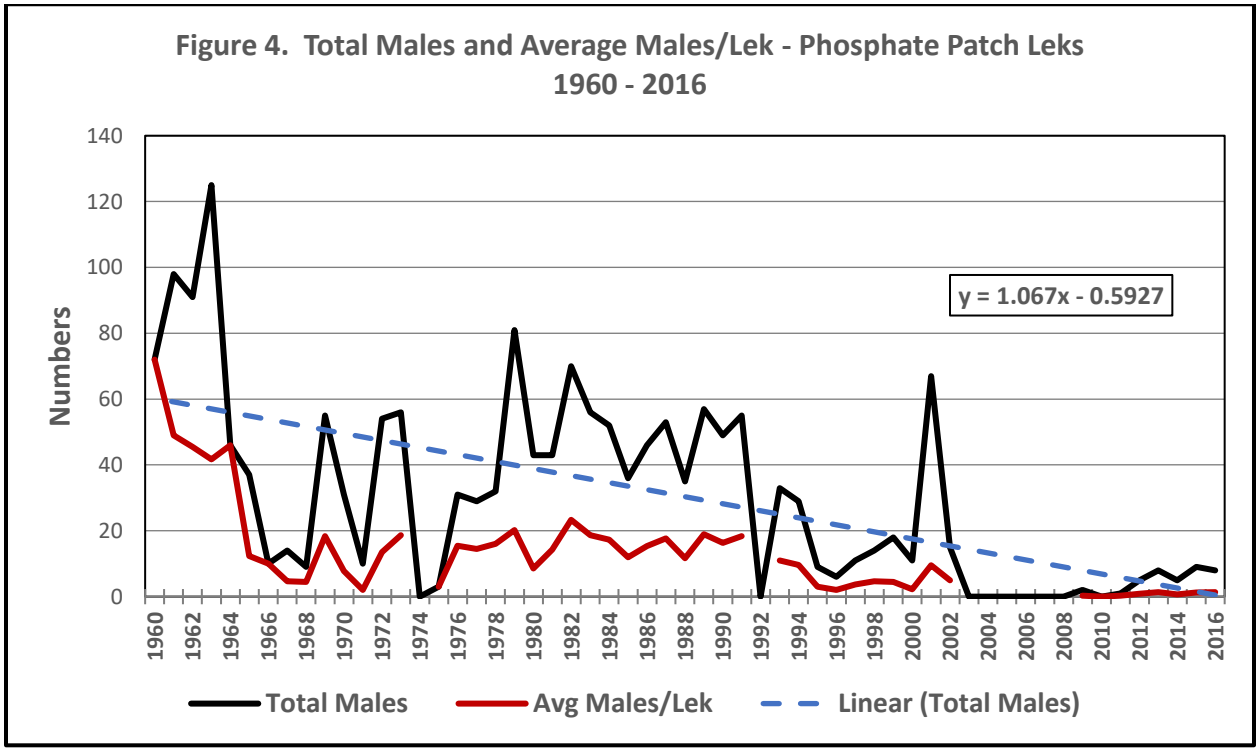


Figure 4. Total Males and Average Males/Lek - Phosphate Patch Leks
1960 - 2016
Numbers
0
20
40
60
80
100
120
140
y = 1.067x - 0.5927
1960
1962
1964
1966
1968
1970
1972
1974
1976
1978
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
2016
Total Males
Avg Males/Lek
Linear (Total Males)

While the DSEIS applies two standards (GRSG-GEN-ST-006, 007) it fails to address additional provisions of the 2015 Greater Sage Grouse Record of Decision (SGROD).[11] Actually, GRSG-GEN-ST-007 is a guideline in the Record of Decision. These are described in Attachment A of the SGROD and include desired conditions, with detailed habitat parameters for breeding, nesting, and summer brood rearing areas. See Table 1 of the SGROD. The DSEIS has not addressed the desired conditions, the standards and guidelines, or analyzed each of these to see if current conditions match sage grouse needs as described in the SGROD. It has not analyzed the current condition of habitats in the CIAA, 6.2 mile, or 10-mile buffers regarding contiguous sagebrush patches of 200 acres in size within 6.2 miles of an occupied lek or rearing/summer habitat along drainages and springs/wetlands.

Also, in 2015, the Idaho and Southwestern Greater Sage-Grouse Approved Resource Management Plan Amendments (ARMPA) was issued.[12] It contains standards, guidelines, and habitat objectives. See Table 2-2 of the ARMPA. These should be compared to the SGROD parameters as there are some differences. It should be noted that the 2012 Pocatello ARMP:10 requires consistency with the Caribou National Forest RFP/EIS.[13] The ARMPA parameters should be compared with those in the GSROD for that consistency.

The 2003 CNF RFP contains numerous provisions regarding monitoring and restoring habitats, and providing for special status species.[14] Those relating to Sage Grouse habitat include:

- "Within five years of signing the ROD, map functional and degraded sage grouse nesting and winter habitat within 5 miles of known leks. Identify opportunities to increase quality or quantity of that habitat." (RFP:3-25).
- "Within five years of signing the ROD, establish breeding bird trend plots to monitor changes in breeding birds in relation to structure or shrub riparian habitats. Once established, reread plots every three years." (RFP:3-25).
- "Management activities should consider proximity to active lek locations during site-specific project planning. Those within 10 miles of an active sage grouse lek and 2 miles of active sharp-tailed grouse leks should be considered further for suitability as grouse habitat." (RFP:3-32).
- "Stands of mature trees (including snags and dead-topped trees) should be maintained next to wet meadows. Where feasible, maintain 30 to 50 percent of the sagebrush habitat in a 5th

[11] USDA Forest Service. 2015. Greater Sage-grouse Record of Decision Idaho and Southwest Montana, Nevada, Utah.
[12] DOI Bureau of Land Management. 2015. Idaho and Southwestern Montana Greater Sage-Grouse Approved Resource Management Plan Amendment.
[13] DOI Bureau of Land Management. 2012. Record of Decision and Pocatello Field Office Approved Resource Management Plan.
[14] USDA Forest Service. 2003. Revised Forest Plan for the Caribou National Forest.

code HUC in contiguous blocks greater than 320 acres to support sagebrush obligate species. (RFP:3-33).

We have seen no trend data for sage grouse or sagebrush obligate species based on the monitoring that was required in the RFP. While sage-grouse lek data is available from IDFG, it appears the SE Idaho leks remain poorly monitored. The DSEIS did not contain an analysis of 5th order HUCs to determine presence or fragmentation of sagebrush habitat in contiguous blocks.

We have done some initial mapping of the sage grouse situation relative to the Crow Creek pipeline to provide visual context of the habitat fragmentation, that over time, has nearly eliminated sage grouse in the SE Idaho leks. We have yet to see an analysis of the structure and functional attributes of habitat relative to species' needs. Figure 5 is an overview of the leks in the three states that should be connected. It shows the CIAA and a 10-mile buffer. The CIAA should also include this 10-mile buffer and there should be analysis of connectivity to the leks in the Bear Lake Plateau and Utah, to the leks west and north of Bear Lake, including the complex around Paris, Idaho. It should also be assessing connectivity to the nearby Wyoming leks. Figure 6 adds in the HMAs. Note that IHMA are now considered PHMA, and the map was not changed to show that. This map emphasizes the importance of connections between these HMAs and leks.

Figure 7 then adds motorized roads, trails, and mine leases to illustrate the overall fragmented nature of this region and the CIAA. It does not include non-system or illegal, user created roads and trails, pipelines, transmission lines, haul roads, mines, and other infrastructure or disturbance as we lack that data. However, the Forest Service should possess or have access to all these data and should map and analyze the current state of habitat fragmentation and how that has affected sage brush communities. It should also analyze the increase of fragmentation over time to explain the decline in lek attendance and populations of sage grouse.

The NTT Report provides analysis and recommendations that include delineating the types and areas disturbed for leks nesting areas.[15] The report cited a Wyoming study that found impacts up to 11 miles from industrial development. The report also included analysis of causes of decline and their mechanisms, and the need for habitat restoration and monitoring. For example, it recommended:

- Prioritize restoration in seasonal habitats limiting sage grouse distribution and abundance.
- Include habitat parameters (cover and height of sagebrush, grasses, and forbs) recommended by Connelly et al. (2000) and compare to ecological potential using NRCS Ecological Site Descriptions.
- Use native seeds and restore to ecological potential as the highest priority for restoration efforts.

[15] Sage-grouse National Technical Team. 2011. A Report on National Greater Sage-Grouse Conservation Measures. 74p.

- Design management of livestock grazing and travel management to achieve or maintain conditions to benefit sage grouse.
- Conduct population monitoring (lek counts) led by State wildlife agencies even though these have been challenged as inconsistently conducted and biased. However, lek counts appear the best available information on populations over time. Use standardized methodology.
- At landscape level, track the percent of sagebrush cover and maturity of stands.
- Collect quantitative habitat data (nesting, brood rearing, winter).

A current paper has analyzed effects of habitat variables such as sagebrush cover and human activities in the western sage grouse region on sage grouse population dynamics.[16] Lek persistence was positively related to sagebrush cover and the effect of continuous cover was most pronounced in southern Idaho. Anthropogenic disturbance "strongly decreased the probability of a lek persisting". The strongest effect was at 1 km, but persisted out to 15 km. There was a major negative impact related to road densities.

So far, we have seen nothing approaching this level of analysis in the DEIS or DSEIS. The trend in populations of sage grouse at these leks should be analyzed and correlated with mining, road activity, transmission lines, pipelines, and other habitat fragmenting activities to determine when leks were abandoned or population declines were occurring, if and how it relates to the time frame of these human activities. The role of livestock grazing, timber projects, and vegetation treatments should also be incorporated. The analysis should cover the CIAA and buffers and include all land ownerships.

[16] Gregory T. Wann, Nathan D. Van Schmidt, Jessica E. Shyvers, Bryan C. Tarbox, Megan M. McLachlan, Michael S. O'Donnell, Anthony J. Titolo, Peter S. Coates, David R. Edmunds, Julie A. Heinrichs, Adrian P. Monroe, Cameron L. Aldridge. 2023. A regionally varying habitat model to inform management for greater sage-grouse persistence across their range, Global Ecology and Conservation, Volume 41, e02349, ISSN 2351-9894,
https://doi.org/10.1016/j.gecco.2022.e02349

Figure 5. Cumulative Impact Analysis Area
Sage Grouse Leks, 10 Mile Buffer, and Pipeline Route

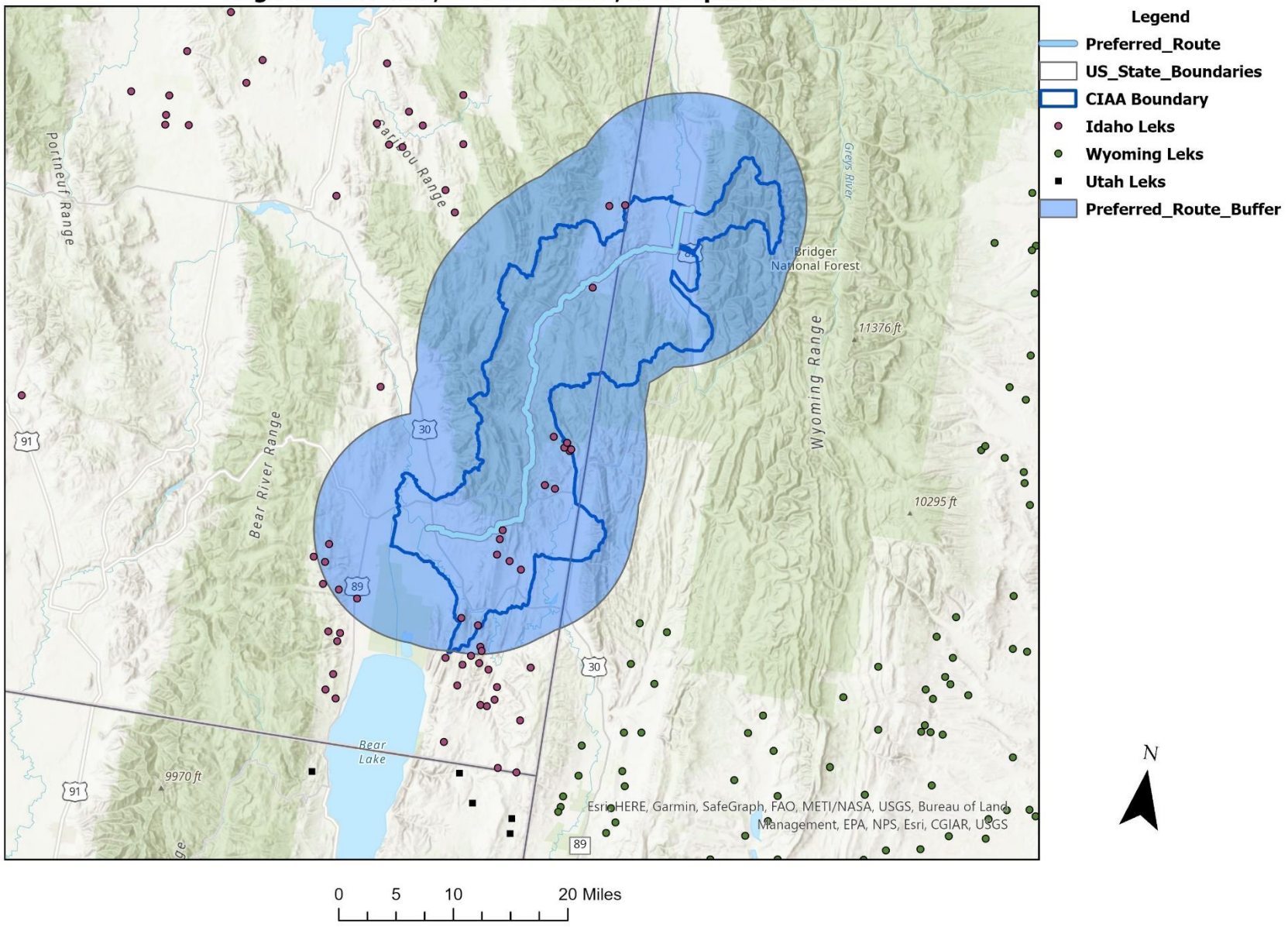


Figure 6. Cumulative Impact Analysis Area
Sage Grouse Leks, 10 Mile Buffer, BLM HMAs, and Pipeline Route

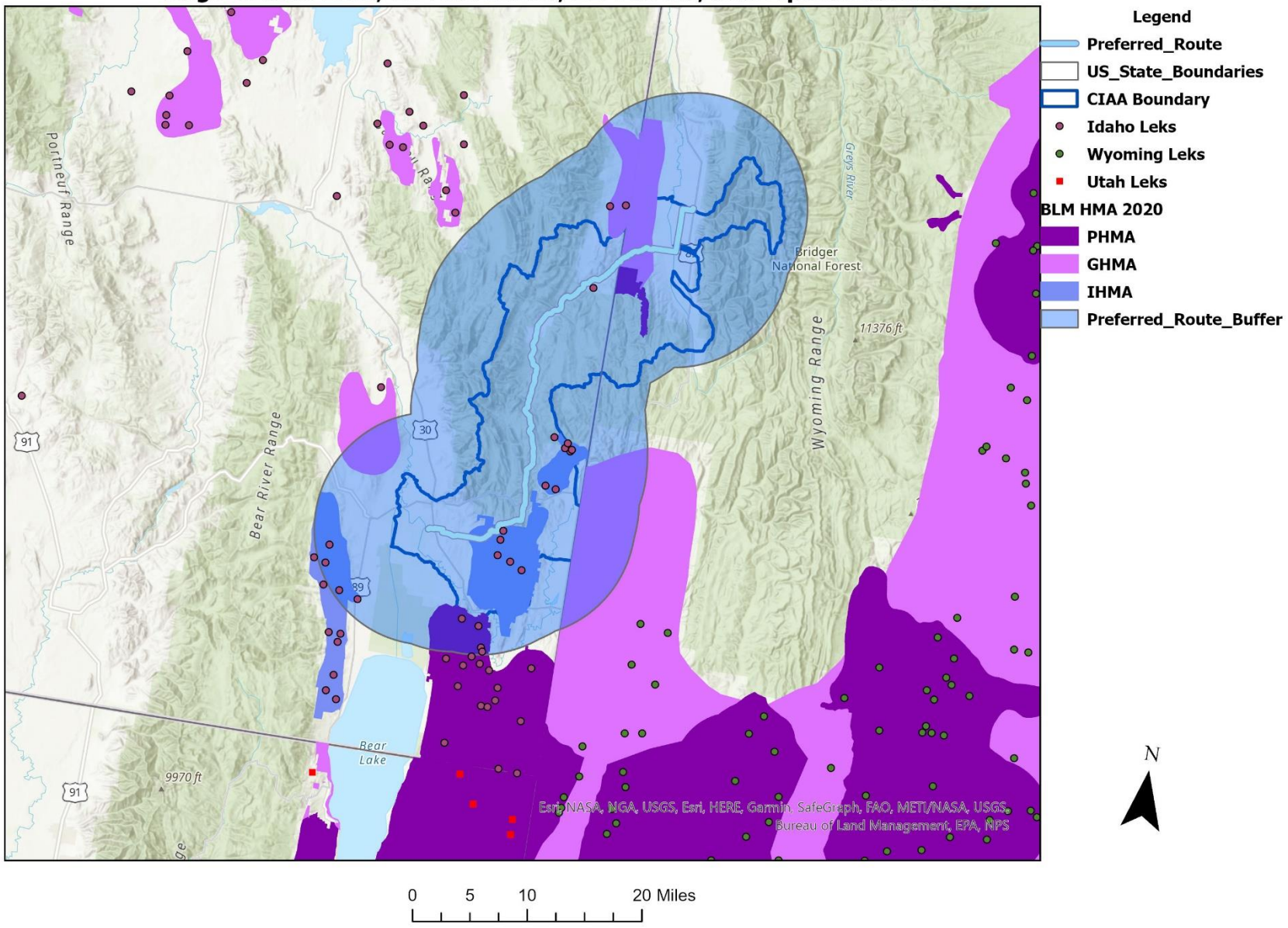
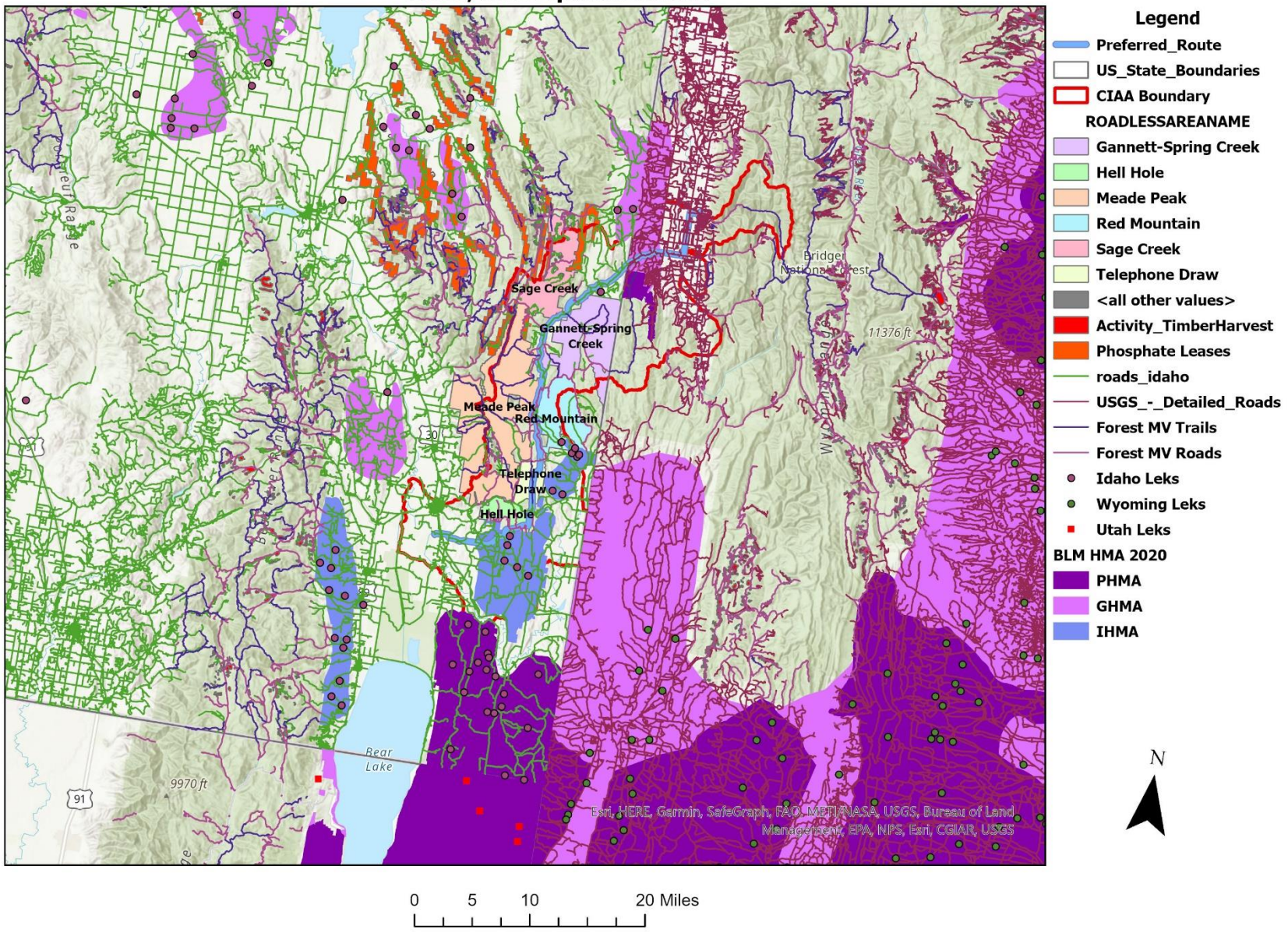


Figure 7. Sage Grouse Leks, HMAs. CIAA, IRAs, Forest and Other Roads, Trails, and Pipeline Route



Canada Lynx

The DSEIS Figure 3.3-1 shows the CIAA and Canada lynx critical habitat. The CIAA overlaps critical habitat. DSEIS Tabe 3.3-1 lists lynx as having potential to occur in the study area. We assume the study area refers to the CIAA. Species listed in the table are described as having the "potential to occur in the study area based on a review of species habitat requirements, vegetation maps, and correspondence with state and federal biologists."

The DSEIS:3-13ff provides a narrative for lynx including mention of the proximity of the pipeline to that critical habitat on lower Crow Creek, but states there will be "no effect" on critical habitat from the project and therefore no further analysis on critical habitat is needed. It also provides a general narrative describing lynx habitat, including elevations of 5,000 to 6,000 feet, presence of snowshoe hares and coniferous forests.

The DSEIS continues with its narrative that the Montpelier RD was not identified in the Northern Rockies Lynx Management Direction FEIS as core, secondary, peripheral, occupied, or unoccupied lynx habitat due to vegetation factors. FWS and CTNF then jointly decided that vegetation types were too patchy to provide suitable lynx habitat and the CNF was found to be unsuitable habitat and no LAUs would be designated. The Montpelier RD was identified as a potential linkage habitat between the core habitat in the Bridger Teton NF and the peripheral habitat in the Ashley NF in Utah. Note also that the Soda Springs Rd is also part of the linkage as mapped in the CNF RFP FEIS.

The DSEIS then reports on lynx observations in the area, consisting of one sighting of a female with two kittens in 2005. These were "believed" to be transplants from Colorado. Track surveys from 2008, 2011, 2014, and 2018 were cited as absence of lynx because no tracks were found.

On its face, there are problems with this narrative. First, none of the analysis of habitat requirements, vegetation maps and correspondence with other agencies was provided. Second, the "no effect" on critical habitat conclusion ignores the cumulative and indirect effects of the pipeline in combination with everything else that has and is occurring in the CIAA and critical habitat. Third, we have seen no analysis of lynx habitat requirements and comparison with conditions in SE Idaho or the critical habitat that would make SE Idaho unsuitable. Fourth, while the Montpelier RD was determined to be linkage habitat, we have seen no description of the qualities of that habitat, its potential and current state in order to evaluate cumulative effects of habitat fragmentation. Fifth, the idea that the female lynx and two kittens were considered transplants is convenient. But, if this was not a radio collared lynx, there is no basis for making that determination. Equally likely, is it was not a transplant but a female in or looking for a home range. Finally, using winter track surveys in recent years after habitat in SE Idaho has been overwhelmed with development and human activity is begging the question as to whether

lynx were ever present or had habitat in SE Idaho. We argue this is not the case, that in fact, lynx did occupy SE Idaho in years gone by. We lay out this case later in these comments.

Regarding impacts to lynx, the DSEIS:3-29 uses the lack of snowshoe hares, use of existing roads for the pipeline, alteration of only a few acres of forest habitat, restoration to the prior vegetation on the ROW, and the demonstrated ability of lynx to move across shrub-steppe habitats preclude "any decrease in the study area's ability to serve as habitat for Canada lynx." Also, "In the case of the Project, the habitats within the study area are naturally patchy, therefore, the effects from additional anthropogenic fragmentation, resulting from the Project, are anticipated to be negligible and mostly temporary." Then, citing studies, the DSEIS states that lynx do not avoid gravel roads thus fragmentation by these roads is discountable. But the cited studies were in low recreational use areas. However, the DSEIS does state that, "In Colorado, Canada lynx used areas of motorized recreation, but they altered their behavior to spend less time in these areas or used these areas at night when there was less human use." So, human activity does deter lynx from using preferred habitats and altering their behaviors. These are impacts.

We have seen no population/habitat studies in the area for snowshoe hares or other potential lynx prey such as red squirrels, grouse and others to support the claim that there are insufficient hares to support lynx. The fact that lynx in the southern populations use a wider range of habitat than just boreal forest is validated by the DSEIS when it recognizes their use of shrub-steppe. While that may not be primary habitat, it does connect patches of either historical or potential lynx habitat. Below we provide a detailed analysis on the state of Canada lynx regulation, habitat and occurrence that was submitted to FWS for its current Species Status Assessment for Canada lynx.[17] These comments provide details that show there is a lack of regulatory protection for lynx in SE Idaho or in linkage areas, that there were historical populations of lynx in SE Idaho but the filtering of these thru the lens of "verified" status of observations eliminated reliable observations. Also, that reliance on current tracking surveys have been convenient to extractive uses by being conducted long after habitats have been fragmented. We also provide a recent lynx habitat model that the CTNF has determined is the best available information that applies to the CTNF.[18] [19]

Figure 8 shows the CIAA in relation to lynx linkage paths in the region. The CIAA is a central core for these linkage paths. We point out later that a sophisticated model delineated core and corridor areas within a Forest Service Regionally Significant Wildlife Corridor that these linkages follow. Figure 9 shows the Montpelier RD in relation to critical habitat, pipeline,

[17] Carter, J. 2023. Canada lynx Species Status Assessment – Comment Submittal. January 25, 2023. Yellowstone to Uintas Connection.
[18] Bolling, M. 2021. Response to letter requesting information on Canada lynx. Dated September 13, 2021.
[19] Olson et al. 2021. Improved prediction of Canada lynx distribution through regional model transferability and data efficiency. Ecology and Evolution 11:1667 – 1690.

CIAA, and linkage pathways. Note also that the Soda Springs RD is a linkage as well. Figure 10 shows the six IRAs directly affected by the pipeline and their central role in providing linkage habitat. What is now needed is application of these habitat models to the project analysis in combination with the habitat studies the CNF RFP intended or needs to do, in order to determine the ability of these predicted habitats to be used or restored, and the effects of habitat fragmentation we have described earlier in these comments and illustrated in Figure 7. Neither the DEIS or DSEIS have provided this.

The CNF RFP provides direction, goals, standards, and guidelines for wildlife, including lynx. The Caribou RFP FEIS laid out a process for addressing connectivity. We have reviewed the RFP for standards or objectives relating to lynx and its habitat. Overall, these are quite generic and not specific to the habitat of lynx. The direction specified to maintain linkages for Canada lynx is found in (1) Vegetation Desired Future Conditions, (2) Vegetation Goals 1 – 4, (3) Vegetation Standard 2, (4) Wildlife Goals 2, 3, and 5, (5) Vegetation Goal 7, (6) Lands Objective 1, and (7) Lands Standard 1. (RFP 3-28) We reviewed each of these for specifics regarding lynx habitat. They are summarized below:

1. **Vegetation DFC** (RFP 3-17) to retain diversity of structure and composition, 30 – 40% of conifers in mature and old classes (FEIS notes this will not be attained), functional corridors are present, aspen managed to 20 – 30% mature and old, non-forested vegetation within site potential and within HRV, restoration of native shrub communities accomplished, woodland types are multi aged with balanced shrub/herbaceous understory and within HRV.

2. Vegetation Goals 1 – 4, 7 (RFP p3-17 – 3-18) to have diverse forested and non-forested ecosystems within HRV and/or restored through time, aspen managed to reduce or halt decline, forested ecosystems moving towards a balance of age and size classes in each forested type on a watershed or landscape scale, sage-steppe and mountain brush moving towards a balance of age, canopy cover, and size class on a watershed or landscape scale and within HRV, biodiversity maintained or enhanced.

3. Vegetation Standard 2 (RFP 3- 19*)* "In each 5th code HUC which has the ecological capability to produce forested vegetation, the combination of mature and old age classes (including old growth) shall be at least 20 percent of the forested acres. At least 15 percent of all the forested acres in the HUC are to meet or be actively managed to attain old growth characteristics."

4. Wildlife Objective (RFP 3-24) "The Forest provides habitat that contributes to state wildlife management plans; Forest management contributes to the recovery of federally listed threatened, endangered, and proposed species and provides for conditions, which help preclude sensitive species from being proposed for federal listing."

5. Wildlife Goals 2, 3, and 5 (RFP 3-24) states that wildlife biodiversity is maintained or enhanced by managing for vegetation and plant communities within their HRV, maintain multiple vegetation layers in woody riparian habitats, maintain, and "where necessary and feasible, provide for habitat connectivity across forested and non-forested landscapes."

6. Lands Objective 1 (RFP 3-8) "Identify land adjustments and rights-of-way to improve management, public access, and/or wildlife connectivity annually."

7. Lands Standard 1 (RFP 3-9) "Priority shall be given to acquiring lands having special importance or unique characteristics such as riparian areas, historic sites, habitat for federally listed species, recreation sites, etc."

There is no specific direction and no enforceable standards regarding lynx habitat and linkage. These appear as mere afterthoughts with no relation to research on lynx or hare habitat. We have seen no evaluation in any project as to whether these have any relation to the habitat needs of lynx. The DEIS and DSEIS did not analyze these provisions or reveal how they have been applied across the affected watersheds and landscape where lynx formerly have been found, or in the linkage shown in the CNF RFP FEIS and maps we have provided on numerous projects. They have not used the guidance in the CNF RFP FEIS on connectivity and how to analyze it. They did not analyze the risk factors described in the LCAS and the combined impact of all the various uses and projects on this linkage area. A review of IRAs in the CNF finds they are rarely different in management than other forest lands, with many user-created roads and trails, timber harvest, mining, and livestock grazing. So, if IRAs are fragmented by all these activities, where are the intact habitats for lynx and other special status species in IRAs and other habitats presumed to have even lower levels of protection?

A thorough review of the science on lynx habitat characteristics needed for recovery and connectivity should be completed and used to compare current conditions in the CNF to those needed for lynx. Both lynx and sage grouse have fallen victim to the use of current data that is collected long after habitats have been fragmented and degraded, populations declined or have become rare. That data is being used to claim that further degradation is minor or insignificant as there is habitat elsewhere but never analyzing that habitat.

Figure 8. Canada Lynx Linkage, Modeled Lynx Habitat, CIAA, and Preferred Pipeline Route

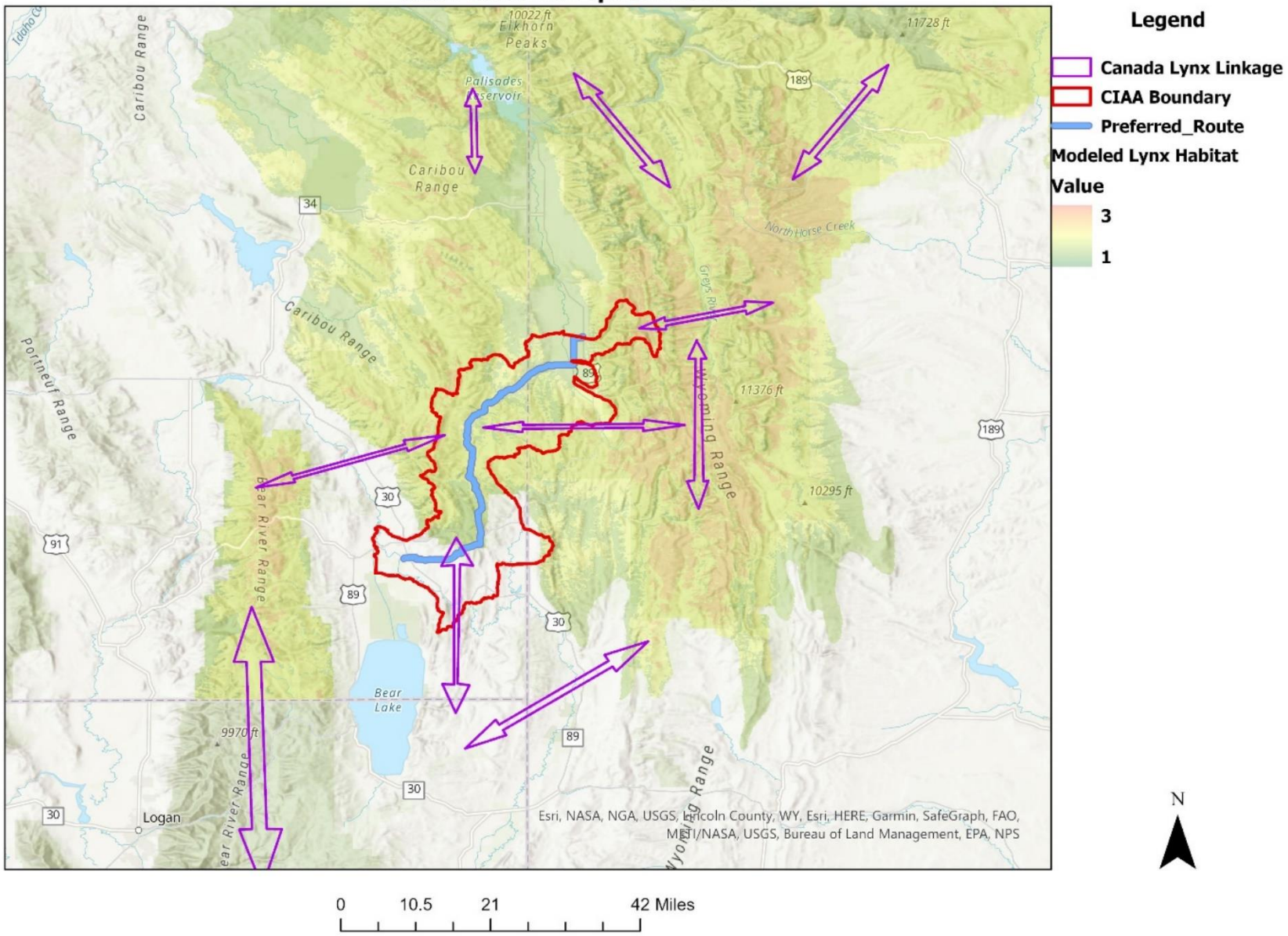


Figure 9. Canada Lynx Linkage, Modeled Lynx Habitat, CIAA, Preferred Pipeline Route, and Lynx Critical Habitat

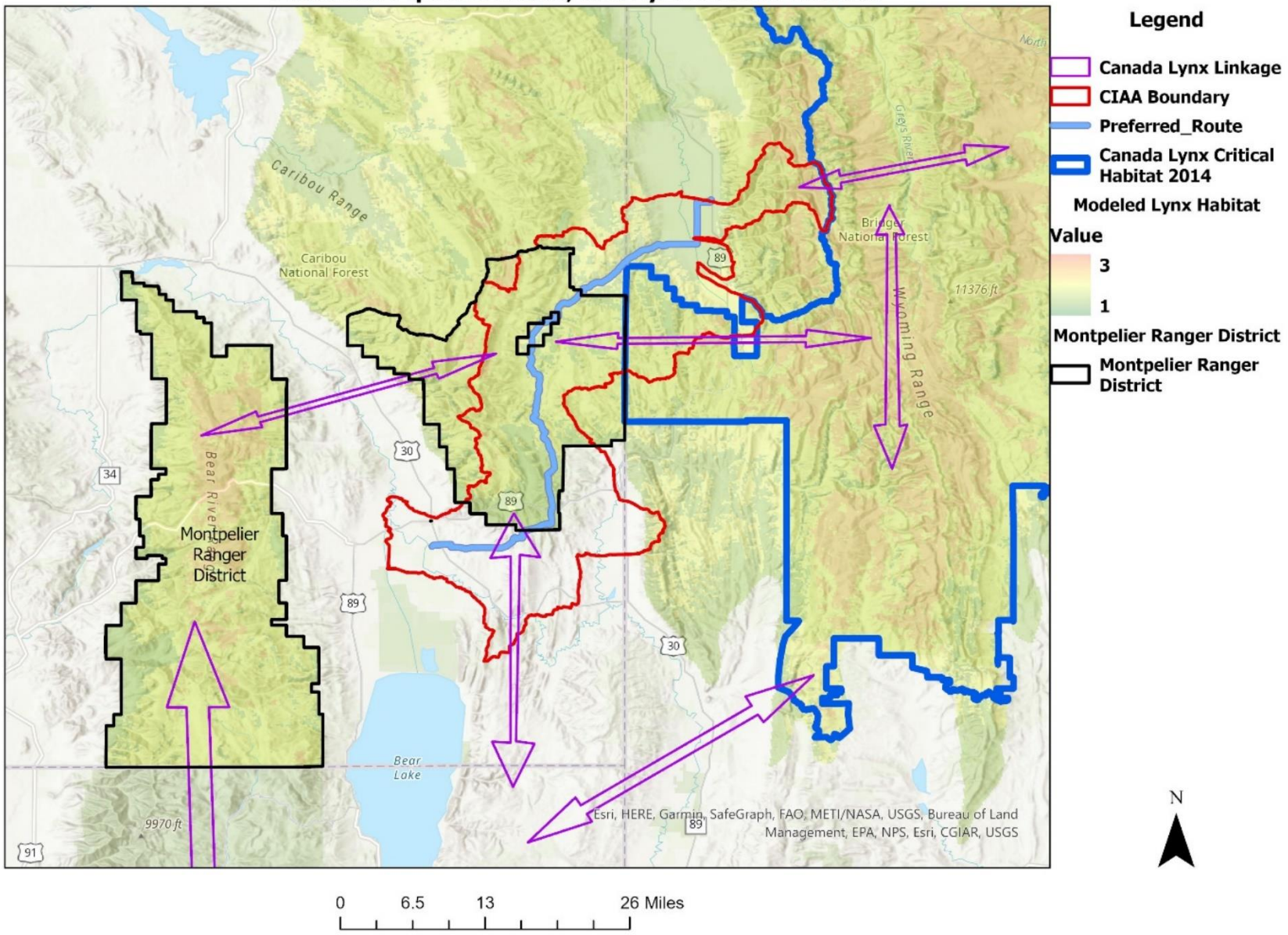
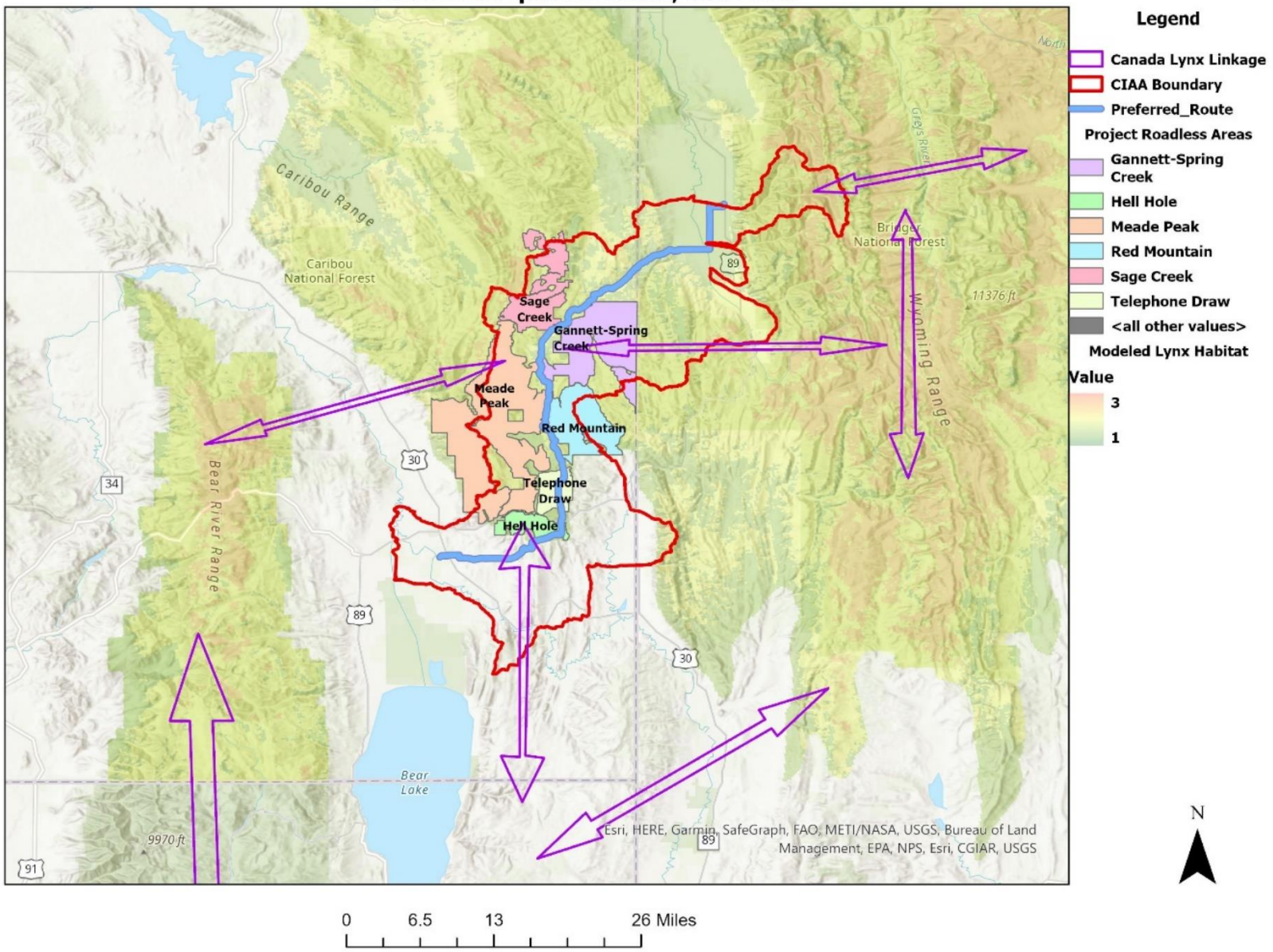


Figure 10. Canada Lynx Linkage, Modeled Lynx Habitat, CIAA, Preferred Pipeline Route, and IRAs



Canada Lynx Science and Regulatory Review

The Programmatic Lynx BA. Canada lynx were listed as a Threatened species under the Endangered Species Act (ESA). In December 1999, the Forest Service and Bureau of Land Management completed their "Biological Assessment of The Effects of National Forest Land and Resource Management Plans and Bureau of Land Management Land Use Plans on Canada Lynx" (Programmatic Lynx BA).[20] The Programmatic Lynx BA concluded that the current programmatic land management plans *"may affect, and are likely to adversely affect, the subject population of Canada lynx."* The Lynx BA team recommended amending or revising Forest Plans to incorporate conservation measures that would reduce or eliminate the identified adverse effects on lynx. The Programmatic Lynx BA's determination means that Forest Plan implementation is a *"taking"* of lynx and makes Section 7 formal consultation on the land management plans (LMPs) mandatory, before actions are approved. The Lynx BA *"likely to adversely affect"* conclusion was based on the rationale that land use plans within the Northern Rockies have inadequacies, including:

1. Aggressive fire suppression may limit the availability of foraging habitat.
2. Allow levels of human access via forest roads that may risk incidental trapping, shooting, or access by competing carnivores.
3. Weak in guidance for new or existing recreation developments.
4. Allow mechanized and non-mechanized recreation that may pose a risk, by allowing compacted snow trails and plowed roads that facilitate competitors and predators.
5. Weak direction for maintaining habitat connectivity.
6. Weak in direction for coordinating management activities with adjacent ownerships to assure consistent management of lynx habitat across the landscape.
7. Fail to provide monitoring of lynx, snowshoe hares, and their habitats, making the detection and assessment of adverse effects from other management activities difficult or impossible to attain.
8. Forest management has resulted in a reduction of the area in which natural ecological processes were historically allowed to operate, thereby increasing the area potentially affected by known risk factors to lynx. The Plans have continued this trend. The Plans have also continued the process of fragmenting habitat and reducing its quality and quantity. Consequently, plans may risk adversely affecting lynx by potentially contributing to a reduction in the geographic range of the species.
9. Plan revisions are needed to incorporate conservation measures included in the Canada Lynx Conservation Assessment and Strategy.[21]

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[20]USDA Forest Service and DOI Bureau of Land Management.1999. Biological Assessment of the Effects of National Forest Land and Resource Management Plans and Bureau of Land Management Land Use Plans on Canada lynx.

[21]Ruediger et al. 2000. Canada Lynx Conservation Assessment and Strategy. USDA Forest Service, USDI Fish and Wildlife Service, USDI Bureau of Land Management, and USDI National Park Service. Forest Service Publication #R1-00-53, Missoula, MT. 142 pp.

The LCAS *"was developed to provide a consistent and effective approach to conserve Canada lynx on federal lands in the conterminous United States. The USDA Forest Service, USDI Bureau of Land Management, and USDI Fish and Wildlife Service initiated the Lynx Conservation Strategy Action Plan in spring of 1998."* The LCAS was published shortly after the Canada lynx was listed as Threatened under the ESA. Risk Factors from the LCAS (2000) include:

1. Timber harvest and pre-commercial thinning that reduce denning or foraging habitat or convert habitat to less desirable tree species.
2. Fire exclusion changing the vegetation mosaic maintained by natural disturbance processes.
3. Grazing by livestock that reduces forage for prey.
4. Roads and winter recreation trails that facilitate access to historical lynx habitat by competitors.
5. Incidental trapping and shooting.
6. Predation.
7. Being hit by vehicles.
8. Obstructions to movement such as highways and private land developments.

All of these factors continue to operate within the National Forests and BLM lands within and surrounding the SE Idaho linkage area, adjacent lynx critical habitat and the Regionally Significant Wildlife Corridor between Yellowstone and the Uinta Mountains. They are not effectively addressed while degradation and fragmentation of habitat continues. Monitoring of these activities is minimal to non-existent.

Northern Rockies Lynx Management Direction. We reviewed the Northern Rockies Lynx Management Direction (NRLMD).[22] This direction *"applies to mapped lynx habitat on National Forest System land presently occupied by lynx, as defined by the Amended Lynx Conservation Agreement (CA)[23] between the Forest Service and FWS…When National Forests are designing management actions in unoccupied mapped lynx habitat they should consider the lynx direction, especially the direction regarding linkage habitat."* (NRMLD p1). [Emphasis added]. The FEIS for the NRLMD provided a map for the Northern Rockies Lynx Planning Area which is inserted as Figure 11. The CA provided this, *"As recommended in the LCAS, appropriate actions, including research, administrative studies, or monitoring, will be taken to verify the effectiveness of the lynx conservation measures."* (CA p7). We have seen none of these monitoring or other studies that have addressed effectiveness of lynx conservation measures, while monitoring of lynx and snowshoe hare occurrence and populations in the DPS is lacking.

[22] USDA Forest Service. 2007. National Forests in Montana, and parts of Idaho, Wyoming, and Utah. Northern Rockies Lynx Management Direction Record of Decision.
[23] USDA Forest Service and USDOI Fish and Wildlife Service. 2006. Canada Lynx Conservation Agreement. USFS Agreement #OO-MU-11015600-0 13.

In the NRMLD (p3) there is reference to a FWS *"Clarification of Findings"* in a Remand Notice which basically explains away most forest activities as impacting lynx or lynx habitat, i.e. a *"threat"* to lynx. The NRMLD puts it this way:

> *After the LCAS was issued the FWS published a Clarification of Findings in the Federal Register (FEIS, Vol. 1, Appendix P), commonly referred to as the Remand Notice. In the Remand Notice the FWS states, "We found no evidence that some activities, such as forest roads, pose a threat to lynx. Some of the activities suggested, such as mining and grazing, were not specifically addressed [in the Remand Notice] because we have no information to indicate they pose threats to lynx" (p. 40083).*
>
> *Further on in the Remand Notice they state, "Because no evidence has been provided that packed snowtrails facilitate competition to a level that negatively affects lynx, we do not consider packed snowtrails to be a threat to lynx at this time" (p. 40098).*
>
> *In regards to timber harvest the FWS states, "Timber harvesting can be beneficial, benign, or detrimental to lynx depending on harvest methods, spatial and temporal specifications, and the inherent vegetation potential of the site. Forest practices in lynx habitat that result in or retain a dense understory provide good snowshoe hare habitat that in turn provides good foraging habitat for lynx" (p. 40083).*
>
> *These findings by FWS narrow the focus from the concerns first published in the LCAS (discussed above) about what management direction is needed to maintain or improve Canada lynx habitat. We considered this information in the development of the selected alternative, and in our decision.*

So, in one fell swoop, FWS and then the USFS through the NRMLD adopted guidance that removes the majority of Forest Service actions or permitted activities from consideration as impacting lynx. We are to believe that lack of evidence is proof these activities have no impact on lynx or their habitat. Yet, the scientists who published the Science Report[24] which was used as the basis for the NRLMD had determined these activities adversely affect lynx and lynx habitat.

[24] Ruggiero, Leonard F.; Aubry, Keith B.; Buskirk, Steven W.; Koehler, Gary M.; Krebs, Charles J.;McKelvey, Kevin S.; Squires, John R. 2000.. Ecology and conservation of lynx in the United States. General Technical Report RMRS-GTR-30WWW. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. https://www.fs.usda.gov/research/treesearch/50623 Accessed on January 21, 2023.

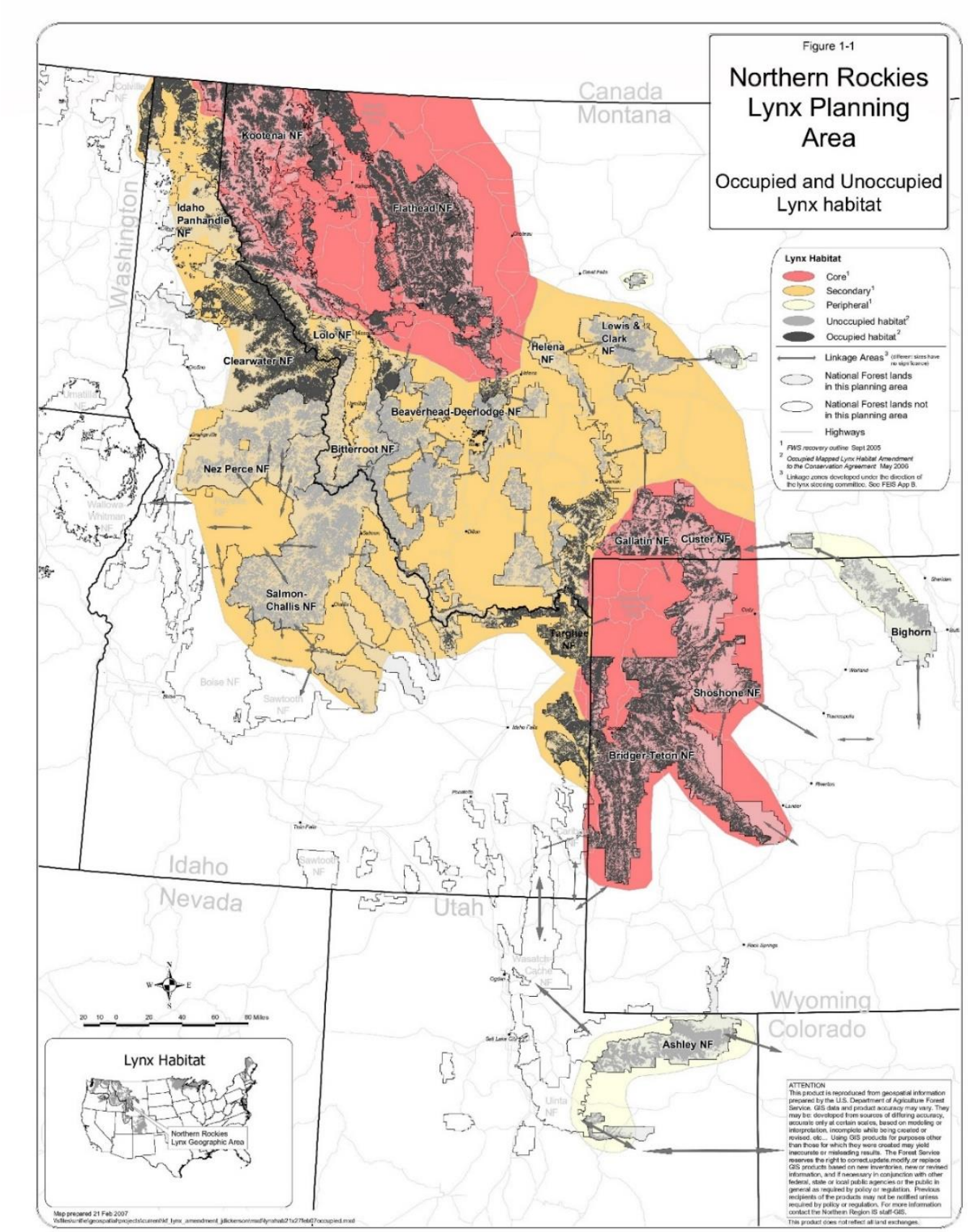

Figure 11. Map of Lynx Habitats from the FEIS for the NRLMD

What we have observed is a gradual easing of requirements and population status of lynx over the years. Absence of lynx in SE Idaho is a foregone conclusion if you manage them out of existence by denying their presence thru history then deny impacts from logging, snowmobiles across the landscape, large numbers of off road vehicles speeding thru forest roads, and that *"mining and grazing, because they were not specifically addressed … because we have no information to indicate they pose threats to lynx."* In this way, the agencies have relieved themselves of most responsibility to maintain or restore lynx, its habitat, and connectivity. We have reviewed the Science Report. It does not say roads, snowmobiles, timber harvest, mines and grazing do not impact lynx or lynx habitat. We discuss these as part of the narrative below.

Further in the NRLMD there are clarifying statements such as that standards and guidelines only apply to occupied habitat, while they can be considered for unoccupied habitats. (NRLMD p6). Regarding vegetation management direction, it *"conserves the most important component of lynx habitat: a mosaic of early, mature, and late successional stage forests, with high levels of horizontal cover and structure."* (NRLMD p21). The objectives, standards and guidelines do not *"apply to linkage areas"*. (NRLMD Att 1 p2). Livestock grazing *"may reduce or eliminate foraging habitat in areas that grow quaking aspen and willow in riparian areas….These localized changes in habitat may affect individual lynx; however, no information indicates grazing poses a threat to overall lynx populations…"* (NRLMD p21). Livestock management objectives and guidelines do not apply to linkage areas. (NRLMD Att 1 p5). Over snow recreation *"Emphasizes not expanding snow compacting human uses into non-compacted areas."* Guideline G11 *"discourages the expansion of designated over-the-snow routes and play areas into uncompacted areas." "An alternative to drop all direction limiting snow compaction was not developed in detail because there is evidence competing predators use packed trails, suggesting a potential effect on individual lynx."* (NRLMD p23). Mineral and Energy Standard does not apply to linkage habitat. (NRMLD Att1 p5).

As these statements make clear, lynx habitat, including linkage areas have virtually no protections, standards, or guidelines under the NRLMD. While it does acknowledge that there is evidence of lynx competitors using packed snow trails it does not address landscape level snow machine access, the increase in motorized recreation with fast, high-powered machines, and landscape-level use such as occurs in 97% of the CNF since the Science Report data and information was assembled. A recent paper by Olson et al (2018)[25] acknowledges that lynx avoid areas of ski resort development and they altered their behavior to spend less time in areas of motorized recreation or used them at night when there was less use. The Forest Service Rocky Mountain Research Station has said, *"Lynx appear to have an upper threshold of recreation intensity which they can tolerate, and above this level, lynx may be less able to coexist. Managers, then, should keep in mind that developed or dispersed areas with very high use may displace lynx from habitat."*[26] We note that the phosphate mines in SE Idaho operate 24 hours per day, 7 days per

[25] Olson, L.E.; Squires, J.R.; Roberts, E.K.; Ivan, J.S.; Hebblewhite, M. 2018. Sharing the same slope: Behavioral responses of Canada lynx to winter recreation. Ecology and Evolution. 1-18.
[26] USDA RMRS. 2023. Winter Sports and wildlife: Can Canada lynx and winter recreation share the same slope?

week for up to 30 years at an individual mine with some 400 blasts of explosives each week at each mine.[27] Haul roads further fragment the habitat, operating continuously. Recreational vehicles are numerous and pervasive on Forest roads and trails, and trapping and shooting is common.

Since these studies were used in the Science Report, three decades have passed with ever increasing snowmobile and off-road vehicle use. A report by Winter Wildlands Alliance for USDA noted that snowmobile use more than doubled between the early 1980s and 2004.[28] Cross-country skiing and snowshoeing experienced a similar increase. In the 1990s more powerful snow machines made access available to *"dominate terrain only accessible by backcountry skis or snowshoes."* High-marking and acrobatics are common in areas previously inaccessible. High marking is the "*recreational maneuver of attempting to reach the highest point of a snow-covered feature such as a mountain, on a snowmobile.*"[29] Groomed trails now are over 20,000 miles in the 11 Western Snow Belt States. Today, there are 1.3 million registered snowmobiles in the US and 601,000 in Canada.[30] As acknowledged above, this increased access allows trapping and hound hunting to occur across the landscape. In Idaho there were 1,830 trapping licenses issued for the 2017 - 2018 season[31], up from 638 in the 1995-1996 season.[32]

We looked up some brief history of ATVs and UTVs. These come from industry websites. The first four wheeled atv was produced in 1982 by Suzuki.[33] This quickly turned to an emphasis on speed in 1987 with a model that could attain almost 80 mph. *"Naturally, as high-performance ATVs gained popularity, Quad Racing and ATV Motocross enjoyed massive growth and exposure in the late 1980s."* The first UTV, the Kawasaki Mule was introduced in the late 1980s.[34] A racing emphasis came about with the introduction of the Polaris RZR in 2007. Today, sales of these

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https://www.fs.usda.gov/rmrs/winter-sports-and-wildlife-can-canada-lynx-and-winter-recreation-share-same-slope Accessed on January 16, 2023.

[27] USDA and DOI. 2019. Final Environmental Impact Statement Proposed Dairy Syncline Mine and Reclamation Plan. https://app.box.com/s/jmod5pcq1txhv4wmply3oxuazlm16tau Accessed on January 16, 2023.

[28] Winter Wildlands Alliance. 2006. Winter Recreation on Western National Forest Lands. https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd528883.pdf Accessed on January 16, 2023

[29] https://en.wikipedia.org/wiki/Highmarking

[30] ISMA. 2022. Snowmobiling Fact Book. https://www.snowmobile.org/docs/isma-snowmobiling-fact-book.pdf Accessed on January 17, 2023.

[31] IDFG. 2018. Idaho Department of Fish and Game Furbearer. https://collaboration.idfg.idaho.gov/WildlifeTechnicalReports/Furbearer%20Statewide%20FY2018.pdf Accessed on January 16, 2023.

[32] Melquist, W.E. 1997. Idaho Department of Fish and Game Furbearers Study III, Job 1. https://collaboration.idfg.idaho.gov/WildlifeTechnicalReports/Furbearer%20PR94.pdf Accessed on January 16, 2023.

[33] https://www.hqpowersports.com/blog/history-of-the-modern-atv-and-utv/ Accessed on January 17, 2023.

[34] https://shocktherapyst.com/blog/a-brief-history-of-utvs/ Accessed on January 17, 2023.

vehicles are around 800,000 annually with about half in the US. This is an estimate, since in many states they are not registered.[35]

The point of this is that there are millions of snowmobiles, ATVa, URVs, and dirt bikes in the US today. Add to this the pickup truck and SUV market with their TV commercials emphasizing the backcountry and off-roading. These were present only minimally during the time of most of the studies in the Science Report. The implication of this is that conclusions about forest roads and snow trails are out the window today since these are loud, fast, and powerful machines capable of accessing most terrain and are present in large numbers. For instance, in 2017, we funded a research project at Kiesha's Preserve to evaluate traffic on a CNF Forest access road in SE Idaho. Over 300 vehicles per day were using the road with many traveling at high rates of speed.[36] Sound levels were over 100 DbC. In winter, snowmobiles produced noise levels of over 100 DbC. These roads today are not quiet, low travel frequency roads, but as we like to say, they have become an analog to a motocross where there is no enforcement of speed, noise or even checking registrations. How are lynx to occupy an area with this level of disturbance?

The Conservation Agreement (CA). addresses its scientific basis as:

> *In March of 1998, an interagency lynx coordination effort was initiated in response to the emerging awareness of the uncertain status of lynx populations and habitat in the conterminous United States and the onset of the listing process. The U.S. Fish and Wildlife Service (FWS), USDA Forest Service (FS), Bureau of Land Management (BLM), and the National Park Service (NPS) have participated in this effort. Three products important to the conservation of lynx on federally managed lands have been produced through this effort: (1) "The Scientific Basis for Lynx Conservation" (Ruggiero et. al. 2000)[37], hereafter referred to as the "Science Report"; the Lynx Conservation Assessment and Strategy (LCAS); and this Lynx Conservation Agreement (CA). Several States within the range of the lynx have contributed to this effort through interactions with participants and review of draft products.*
>
> *The Science Report, prepared by an international team of experts in lynx biology and ecology, is a compendium and interpretation of current scientific knowledge about the Canada lynx, its primary prey and habitat relationships. This document serves as an important scientific reference for the various lynx activities of the cooperating Federal Agencies.*

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[35] https://www.motorcyclesdata.com/2022/12/27/all-terrain-vehicles/ Accessed on January 17,2023.
[36] Unpublished data. 2017. Utah State University in Association with Kiesha's Preserve.
[37] Ruggiero, Leonard F.; Aubry, Keith B.; Buskirk, Steven W.; Koehler, Gary M.; Krebs, Charles J.;McKelvey, Kevin S.; Squires, John R. 2000.. Ecology and conservation of lynx in the United States. General Technical Report RMRS-GTR-30WWW. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. Available at: http://www.fs.fed.us/rm/pubs/rmrs_gtr030.html

> *The LCAS builds upon this scientific base and identifies the risks to the species that may occur as a result of federal land management. It recommends conservation measures that could be taken to remove or minimize the identified risks. It was developed to provide a consistent and effective approach to conservation of Canada lynx on federal lands in the conterminous United States.*

The LCAS and Science Report constituted the best available knowledge and were incorporated into the CA. The Science Report (p12) addressed uncertainty by suggesting that *"the burden of proof be shifted so that uncertainty favors, or at least is not destructive to conservation…"*. As we pointed out above, the LCAS identified risk factors, which are now excluded by the NRLMD and Remand Notice. These exclusions have arbitrarily discounted nearly all affecting lynx and lynx habitat. Lack of regulatory mechanisms was identified as a cause in the listing notice (FR Vol 65 No 58 p16052) stated as,

> *The contiguous U.S. Distinct Population Segment of the lynx is threatened by the inadequacy of existing regulatory mechanisms. Current U.S. Forest Service Land and Resource Management Plans include programs, practices, and activities within the authority and jurisdiction of Federal land management agencies that may threaten lynx or lynx habitat. The lack of protection for lynx in these Plans render them inadequate to protect the species.*

The Science Report (SR) addresses fragmentation as *"reduction of total area, increased isolation of patches, and reduced connectedness among patches or natural vegetation…"* (SR p84*). "habitat fragmentation is the most serious threat to biological diversity and is the primary cause of the present extinction crisis."* (SR p85). *"rare species associated with wilderness, such as the lynx, generally are considered most susceptible to fragmentation."* (SR p86). *"generalist predators tend to dominate the predator guild in fragmented landscapes."* (SR p86). Coyotes and lynxes are separated by snow conditions, but *"this separation may break down where human modifications to the environment increase access by coyotes to deep snow areas. Such modifications include expanded forest openings throughout the range of lynx in which snow may be drifted, and increased snowmobile use in western mountains. Recreational snowmobile use has expanded dramatically in the United States in the past 25 years, with hundreds of thousands of km of trails (>19,000 km of groomed trails in Maine alone) within the pre-settlement range of the lynx…"* (SR p94). *"Fragmentation of habitats occupied by lynx (including increased openings, higher road densities, exurban residential development, and wider use of snowmobiles and devices that compact snow in areas with deep, soft snow) is a plausible mechanism for the questionable conservation status of the lynx in the contiguous United States."* (SR p95).

The data and information included in the Science Report had mostly been generated by the early 1990s, much in the 1970s and 1980s. The studies describing road density and snowmobile effects were very limited. The single study in the Science Report (p308) was based on data from the 1980s and stated that *"Road densities had no significant effect on habitat selection, and lynx crossed roads at frequencies that did not differ from expectation."* There was no data on the use of these

roads by vehicles in summer or snowmobiles in winter. Road density averaged 1.28 miles/sq.mi. As noted above, snowmobile use was expanding. The Science Report (p391) noted that *"Roads in the study area were of primitive standards that received little use in summer but were frequently used by snowmobilers in winter."* The Science Report (p295) said, *"Snowmobiles became readily available in the late 1950s and early 1960s, likely influencing trapper coverage, access, and attitudes."* Science Report (p391*), "Although legal harvest is no longer a conservation concern, human-caused mortality is believed to be additive in the low-density lynx populations characteristic of southern boreal forests (Koehler 1990; Table 13.3). If so, illegal or incidental harvest could significantly reduce population numbers of lynx in southern regions."*

2017 Species Status Assessment (SSA). The USFWS published a species status assessment (SSA)[38] for Canada lynx in 2017. The SSA recognized the lack of regulatory mechanisms was the reason for listing. (SSA p1). It stated:

> Factors affecting lynx that were evaluated in the SSA *"include the adequacy of existing regulatory mechanisms (the factor for which the DPS was listed); climate change, vegetation management, wildland fire management, and habitat loss and fragmentation (the factors considered by the Interagency Lynx Biology Team [ILBT] to have the potential to exert population-level effects on the DPS); and other factors that could influence the continued ability of particular geographic units to support resident lynx."* (SSA p3).
>
> *"The lack of regulations protecting lynx habitat from potential threats on Federal lands at the time of listing has been largely addressed by formal and binding amendments or revisions to most Federal land management plans within the DPS range. Although uncertainty remains about the efficacy of this improved regulatory framework, Federal lands are now being managed specifically to protect and restore lynx habitats, with the goal of supporting continued lynx presence on these lands."* (SSA p231).

This last statement is incredibly dismissive of the main cause of lynx habitat degradation, lack of adequate regulation, and instead, dismisses almost all actions that the Science Report acknowledged adversely affect lynx and lynx habitat. We searched online for evidence that the CNF has adopted the NRLMD or provided any Forest Plan amendments for lynx protection. There were none to be found. Y2U sent a letter to Mel Bolling, Forest Supervisor of the Caribou Targhee NF (CTNF) requesting updated analysis of the lynx status in the CTNF, including its historical occurrence, migration corridors and connections between habitats. The letter outlined

[38] U.S. Fish and Wildlife Service. 2017. Species Status Assessment for the Canada lynx (Lynx canadensis) Contiguous United States Distinct Population Segment. Version 1.0, October, 2017. Lakewood, Colorado.

our desired analysis and mapping to include human fragmentation and historical lynx habitat use.[39] The response from Mr. Bolling explained the current situation in the CTNF.[40]

Mr. Bolling explained some of the history of the lynx listing, the Science Report, LCAS and the 2013 revision of the LCAS which is now considered the primary guidance for land management agencies. His letter pointed out that the Targhee NF RFP was amended by the NRLMD in 2007. A National Lynx Survey was conducted on both the Forests in 1999 and determined that the Targhee NF met criteria for management as an occupied forest, but the Caribou did not. Therefore, the Caribou NF was not subject to the NRLMD and *"No LAU's or lynx habitat is mapped on the Caribou due to the designation of the Caribou NF as an unoccupied forest in 2002."* (p2). The conservation measures in the CNF RFP were *"deemed sufficient: by the USFWS through consultation on the RFP Biological Assessment to address threats to Canada lynx and provide regulatory mechanisms to ensure the continued persistence of Canada lynx on the Caribou National Forest."* Under this arrangement, therefore it appears that the provisions of the CNF RFP would be central to analysis of lynx habitat because other protections are dismissed due to what appears to be an arbitrarily determined occupancy status that ignored historical lynx observations and only relied on absence determined by the National Lynx Survey in 1999 which occurred long after historical reported occupancy. That lynx are now considered to be absent from the Caribou NF, indicates that the CNF has failed to provide the necessary regulatory mechanisms.

Mr. Bolling's response included reference to the paper by Olson et al (2021)[41] which used lynx observations in the west, climate, and human induced factors to model lynx habitat. Using lynx GPS and tracking data from Idaho, Wyoming, Montana, Washington, and British Columbia, the study found that lynx habitat is made up of a complex array of environmental conditions, not primarily vegetation type and elevations as currently mapped. They included an index of summer vegetation production, percentage of tree cover, road density and night light intensity as indices of anthropogenic influences. One confounding issue is their assumption of boreal forest soil pH as a factor due to the wetter conditions in boreal forests. However, we know lynx use a variety of forested types and this factor might disqualify some habitats unnecessarily. The model provides insight and a basis for more detailed analysis of lynx potential habitat and its fragmentation within the linkage in SE Idaho in the CTNF. We have included an Olson et al map from that paper as Figure 12 below. It illustrates a high probability of suitable lynx habitat in SE Idaho and the CNF. So, by this model, lynx habitat is present in SE Idaho. Why are there no lynx here?

Our review of the 2017 SSA shows there is a tendency to find habitat fragmentation and degradation as unimportant to persistence of lynx, while only implicating climate change as

[39] Carter, J., Garrity, M., Johnson, S., and Fite, K. 2021. Request for Response on Lynx Analysis in the CTNF. Letter on behalf of Yellowstone to Uintas Connection, Native Ecosystems Council, Alliance for the Wild Rockies, and Wildlands Defense. Dated August 15, 2021.
[40] Bolling, M. 2021. Response to letter requesting information on Canada lynx. Dated September 13, 2021.
[41] Olson et al. 2021. Improved prediction of Canada lynx distribution through regional model transferability and data efficiency. Ecology and Evolution 11:1667 – 1690.

problematic. But climate change is superimposed on all the existing insults to habitat and heightens their importance in the decline of lynx and lynx habitat. For example, the SSA contends that lynx only occurred in Colorado during *"irruptions from Canada…in the early 1960s and 1970s"* concluding that there is doubt that the population in Colorado *"will receive the demographic and genetic support from the north that is thought to be important to the DPS populations."* (p227).

There are two competing hypotheses operating regarding lynx presence in Colorado.

> H1. Lynx had been present in the Southern Rockies (south of Idaho-Wyoming) in a self-sustaining population for millennia but were slowly extirpated as a result of human activities, including trapping and livestock grazing, from early 19th century through mid-20th century.
>
> H2. The presence of lynx in the Southern Rockies in the 19th and 20th centuries prior to lynx reintroduction into the San Juan Mountains, was due mostly or entirely to periodic influxes of lynx from Canada.

Two bodies of evidence (I & II) support H1 as the correct hypothesis.

> I. There is a general lack of evidence of lynx population cycles in Canada being correlated with lynx population dynamics in the U.S., let alone in Colorado. The Science Report (p242) comments on the immigration hypothesis.
>
> *"In the Canadian provinces, Alaska, Montana, and Washington, we know that there are local reproductive populations, knowledge that invalidates a pure immigration hypothesis. For these areas, we can only state that they appear to be a part of a population in which lagged synchronous dynamics occur. Because we do not know why these dynamics occur, we cannot say to what extent they are affected by changes in local dynamics and the role that immigration might play.*
>
> *. . . the lack of lynx occurrence records associated with a large population peak occurring in the central provinces during the early 1980s. This population peak was higher than any recorded in the 20th century prior to 1959, but there was no evidence from museum specimens, verified mortality records, or anecdotal observations that unusual numbers of lynx occurred in any portion of its range in the contiguous United States."*
>
> II. Since lynx reintroductions in Colorado, lynx have reproduced and become established there. Prognostications of the eventual disappearance of lynx from Colorado are speculative and have nothing to do with whether Colorado was or is capable of supporting a self-sustaining population of lynx.

The Science Report in describing the population cycles made this observation regarding the Minnesota population: *"a three-year lag with data from the south-central Canadian provinces resulted in a strong correlation for the most recent period (r = 0.73, 1960-1983) but the pattern is out of phase in the previous 26 years… ."* (SR p238). We note that lynx were present in the DPS during large blocks of time other than in the 1960s and 1970s.

The 2013 LCAS. We reviewed the 2013 LCAS.[42] It emphasizes protection of core areas which support persistent lynx populations and *"less stringent protection and greater flexibility in secondary/peripheral areas…"* (p2). The only conservation measures provided for these peripheral areas were for vegetation management, which are general and unenforceable statements such as *"Vegetation treatments should be designed with consideration of historical landscape patterns and disturbance processes. Design timber harvest, planting, and thinning to include some representation of young densely stocked regenerating stands in the mosaic for snowshoe hare production areas"* (p95). The 2013 LCAS provided conservation measures for core areas and stated that projects *"must be consistent with the management direction contained in the forest plan."* (p89). This would mean the analysis would be consistent with the CNF RFP and its FEIS. Conservation measures for core areas included (only examples cited, for full list see the LCAS):

1. Delineate LAUs (p89)
2. Vegetation management (includes several measures including landscape evaluation to identify opportunities for adaptation to climate change). (p89)
3. Wildland fire management (p93)
4. Habitat fragmentation (promote or retain large contiguous blocks of lynx habitat, identify linkage areas to maintain connectivity, minimize large scale development, and others (p93)
5. Recreation management (direct recreational activities away from identified linkage areas (p94).
6. Minerals and energy (locate facilities and roads outside of lynx habitat and linkage areas where possible) (p95)
7. Backcountry roads and trails (Avoid Road reconstruction and upgrades that substantially increase speeds) (p95).
8. Livestock grazing (manage in riparian areas to maintain snowshoe hares) (p95).

[42] Interagency Lynx Biology Team. 2013. Canada lynx conservation assessment and strategy. 3rd edition. USDA Forest Service, USDI Fish and Wildlife Service, USDI Bureau of Land Management, and USDI National Park Service. Forest Service Publication R1-13-19, Missoula, MT. 128 pp.

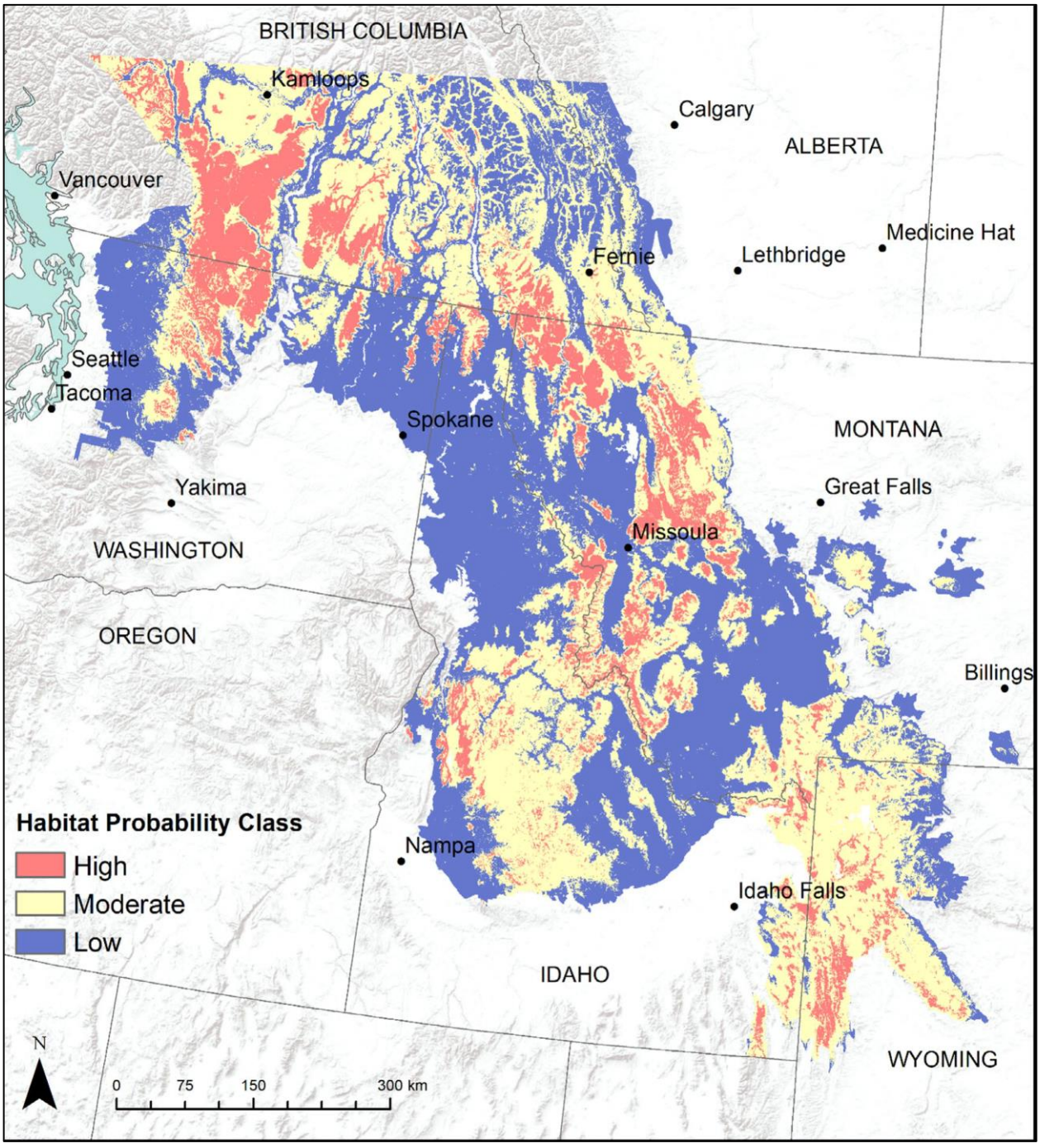

Figure 12. Prediction of Canada Lynx Habitat Probability from Olson et al 2021.

In the past two years we have seen several National Forests, the Caribou Targhee NF, the Ashley NF come out with prescribed fire and other forest manipulations that cover most, if not all, of the acreage within those Forests. These add up to nearly 2 million acres. This is happening across the West.

We have included Figure 3.1 from the 2013 LCAS here as Figure 13. That map does not show any linkage habitat. While it refers to the USFWS Recovery outline, there is no analysis of how to recover lynx. The 2013 LCAS does address factors that compromise lynx habitat and movement under the umbrella of *"anthropogenic influences"*(p68). It admits that not every human activity has been examined, but groups the activities into two tiers that can negatively affect lynx populations and habitat. The specialization of lynx on snowshoe hares and lynx *"low densities and in small populations throughout their range in the contiguous United States .. increase their susceptibility to local extirpations."* (p68). First tier factors include climate change, vegetation management, wildland fire and habitat fragmentation *"can directly effect (sic) both snowshoe hare and lynx population dynamics."* (p68).

"Federal agencies have amended or revised land management plans across much of the range of the lynx to provide direction to conserve lynx and lynx habitat. Thus, the impacts of anthropogenic influences have been substantially reduced." (LCAS p68). The Caribou NF has not demonstrated that its RFP has *"conserved lynx and lynx habitat"* or reduced *"anthropogenic influences"* while continuing to propose and approve projects across the CNF, including phosphate mines, timber and prescribed fire, and off-road vehicle trails. In no case have lynx protections or criteria been invoked or analyzed and no habitat analysis of the linkage capability has been performed, and in every case when consulted, the FWS has signed off on these projects. FWS must do a better review of these projects and their implications to lynx habitat, including requiring that land management agencies conduct the proper monitoring, quantitative habitat descriptions and analysis of habitat structure and function prior to approving future projects.

The 2013 LCAS describes how these first-tier factors affect lynx and lynx habitat. Climate change is a factor which is overriding other impacts and can cause shifts in distribution, changes in snowshoe hare cycles, reduction in lynx habitat and population, among other outcomes. (LCAS p69). Vegetation management alters stand structure, composition and arrangement and occurs across the range of the lynx. (LCAS p71). Wildland fire management can result in similar alterations. (LCAS p76). Habitat fragmentation, *"accentuates the viability risk inherent in a small population and increases its vulnerability to local extirpation."* (LCAS p76). Examples of fragmentation include, *"removal of forest cover, development of highways and associated infrastructure, and intensive minerals or energy development…"* (LCAS p77). Vehicle collisions are a factor in mortality. Here, the LCAS admits these activities have inherent risk to viability for small populations. In a direct contradiction to the Remand Notice, here *"intensive minerals development"* is a factor fragmenting habitats, yet this is excluded from any standards in the NRLMD for linkage habitats.

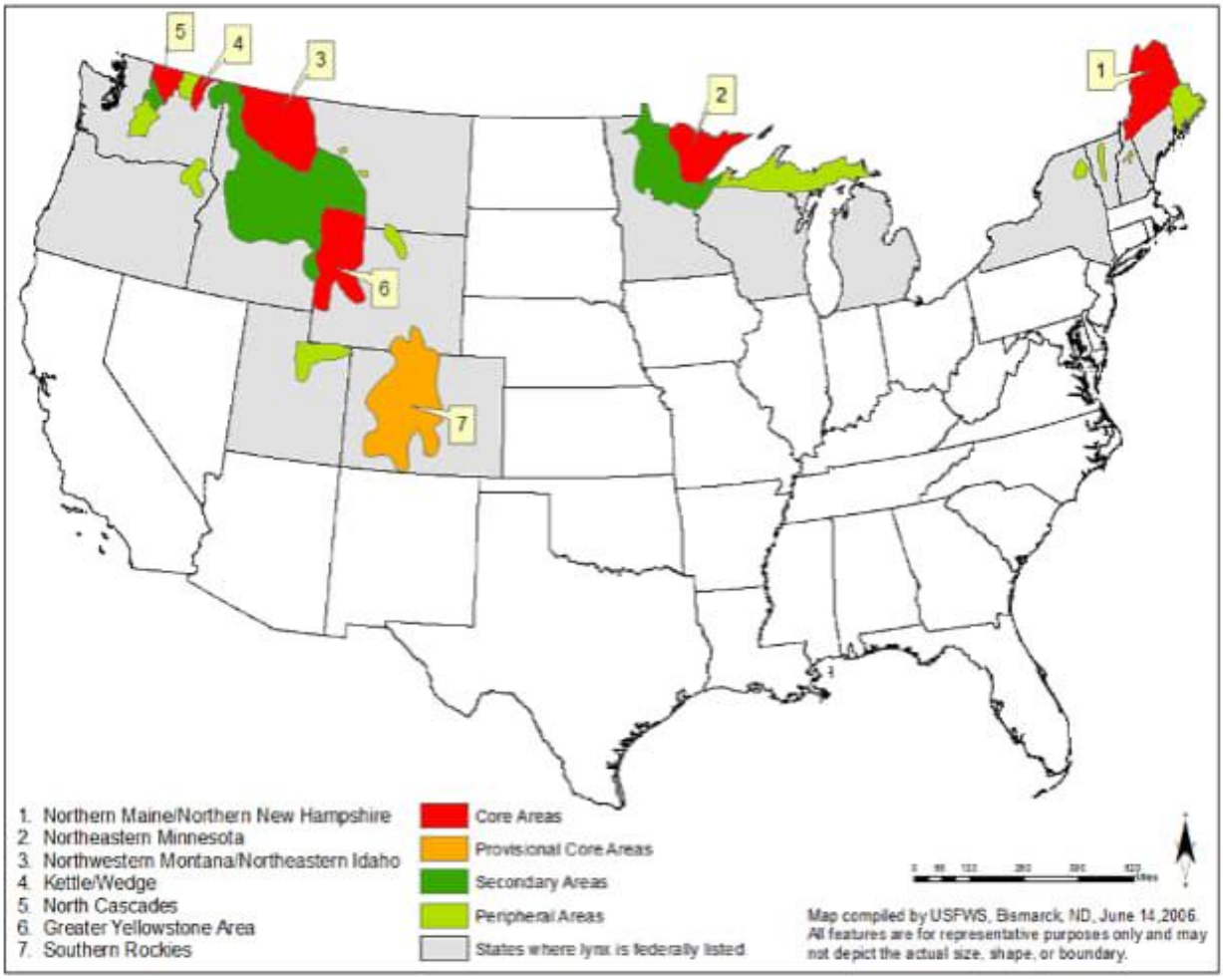

Figure 13. Taken from the LCAS Figure 3.1. Areas identified as core, secondary, and peripheral as depicted in the Canada Lynx Recovery Outline across the states where the lynx is listed (U.S. Fish and Wildlife Service 2005)

The second tier of anthropogenic influences include incidental trapping with rates of trapping *"positively related to average pelt value and appeared additive to nontrapping mortality."* (LCAS p79). It *"can occur in areas where regulated trapping for other species…overlaps with lynx habitats."* (LCAS p79). *"No conservation measures to address incidental trapping are included … because trapping is regulated by the states."* (LCAS p80). Idaho allows trapping of numerous species, hound pursuit and with snowmobile access and groomed trails, winter access is available throughout the CNF. Previously we have noted the increase in trapping licenses in Idaho. This effect is dismissed from consideration.

Recreation is noted to be increasing with millions of participants. (LCAS p80). The data reported in the LCAS is pre-2009. Recreation effects include habitat loss from construction of

developed areas, disturbance from human presence with examples of den abandonment, use of compacted trails in the snow by competitors. (LCAS p80). Minerals and energy development *"could affect lynx habitat by changing or eliminating the native vegetation and contributing to habitat fragmentation. … development of associated roads, powerlines, and pipelines.. could also result in a loss of lynx habitat and contribute to fragmentation."* (LCAS p83).

An illegal shooting example from Colorado is provided, showing over 14% of reintroduced lynx were shot in the first 10 years. (LCAS p84). Forest/backcountry roads and trails with low vehicular or snowmobile traffic *"had little effect on lynx seasonal resource-selection patterns" and lynx traveled on roads "unplowed during winter". "Squires et al (2008) reported that lynx denned farther from all roads compared to random expectation. … occupy dens in early May when many forest roads are still impassable… snowmobiles no longer use the roads because of intermittent and unpredictable availability of sufficient snow."* Finally, *"fewer roads were located in denning habitat and higher road density occurred along forest edges and in managed stands, which lynx avoided…."* (LCAS p84). But these factors are all dismissed as affecting lynx in the Remand Notice and we find no regulatory standards regarding these activities relating to lynx and lynx habitat in the CNF.

Regarding livestock grazing, LCAS (p85) notes the summer diet of snowshoe hares is dominated by herbaceous food including *"forbs, grasses, and shrubs"*. Then claims that *"The habitats used by snowshoe hare that are most likely to be affected by livestock grazing are riparian willow and aspen communities."* The conclusion is that grazing by domestic livestock is *"unlikely to reduce the snowshoe hare prey base…"* This statement can only be produced by those who have never studied the impacts of livestock grazing on ecosystems in the Rocky Mountains. We have studied the effects of livestock grazing in SE Idaho and NE Utah and found extensive habitat degradation, over-utilization of forage, and overstocking with riparian areas extremely degraded. See Appendix 1 for a brief review with photographs showing some of the degraded conditions. Habitats in many of the National Forests in the southern portion of the DPS are terribly degraded by livestock grazing. Riparian areas and other snowshoe hare foraging areas are included.

By laying out these first and second tier anthropogenic effects for core areas, the 2013 LCAS inadvertently explains why lynx may not be found today in southern areas where they existed in earlier times. Lynx have *"low densities and in small populations throughout their range in the contiguous United States .. increase their susceptibility to local extirpations."* (LCAS p68). Almost every anthropogenic activity does have an adverse effect on lynx and lynx habitat as the science provided by the Forest Service and FWS have described in the preceding paragraphs. It is the omission of current monitoring and analysis along with the absence of adequate Forest Service standards that logic dictates is responsible for absence of lynx in places where it was observed in years gone by. We can find no monitoring or analysis of the effects of these activities to comply with the RFP and Travel Management Plan in the CNF. Lack of current data enables the CNF to deny impacts. Since our research has found an absence of recent monitoring and studies on Canada lynx habitat, populations and snowshoe hare habitats and populations across these southern Forests, it is incumbent that this lack of information be addressed.

Lynx Observations. The 2013 LCAS briefly describes lynx occurrences in the Northern Rockies. In Wyoming, lynx is a species of *"greatest conservation concern" and "has been documented historically and currently in western Wyoming…"* In Idaho lynx *"are classified as an S1 species of greatest conservation need."* Most of the 35 verified records in Idaho came from north of the Snake River with 2 from Caribou and Bonneville Counties along the Wyoming border. Recent snow tracking surveys have detected no lynx. (LCAS p57). Two lynxes were captured in traps in 2012 and 2013, one was released alive, and the other was shot due to being misidentified as a bobcat. In Utah, the LCAS reports only a few historical records from the early 1900s with later records all from northwestern Utah near the borders with Wyoming and Idaho. (LCAS p58).

Lynx observations were summarized in McKelvey et al (2000)[43]. McElvey et al used *"written accounts, trapping records, and spatially referenced occurrence data…"* (SR p207). They limited consideration of trapping records due to lack of constant effort and confusion with bobcats and where high reliability is needed, *"we used a subset of these data we call 'verified records"*. Verified records were those *"only if it was represented by a museum specimen, or a written account in which a lynx was either in someone's possession or observed closely….neither tracks nor sighting reports were considered to be a verified record."* (SR p209). Yet, today tracking surveys are used.

We have extracted McKelvey's data from Table 8.1 of their chapter and summarized the percent of observations that are *"verified"* and *"reliable"*. An extremely low percentage of total spatially referenced occurrences were *"verified"*. (Table 1). Hundreds to thousands of observations are not counted when determining lynx historical occupancy. Are we to believe they were all wrong? An example of this comes from a BLM report.[44] Of interest is an account by Harold Wadley, who was a Forester working for the U.S. Forest Service in Idaho and in the Uinta Mountains in Utah. Harold worked in the Uinta Mountains in 1957 and 1958. He used dogs and traveled by snowshoe to track and tree lynx. His records show he treed 20 Canada lynx in those two years. Harold encountered Canada lynx along the entire north slope of the Uinta Mountains. He estimated that there were 15 Canada lynx on the north slope of the Uinta Mountains between the West Fork of the Bear River and the Little East Fork of the Black Fork River. This essentially was the area within his ranger district. Was his report even considered? It is hard to tell. Do we just discount this as unreliable? After all, Harold worked for the U.S. Forest Service and knew lynx as do most trappers are likely to be able to do. His observations in the 1950s indicate a resident population occurred on a portion of the north slope of the Uinta Mountains at that time. This was prior to the irruptions from Canada in the 60s and 70s.

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[43] McKelvey, K.S., K.B. Aubry, and Y.K. Ortega. 2000. History and distribution of lynx in the contiguous United States. Pages 207-264. Chapter 8. In Ruggiero, L.F., K.B. Aubry, S.W. Buskirk, G.M. Koehler, C.J. Krebs, K.S. McKelvey, and J.R. Squires (Tech Eds). Ecology and conservation of lynx in the United States. Univ. Press of Colorado. Boulder, CO. 480 p.

[44] Lewis, L. and Wenger, C.R. 1998. Idaho's Canada Lynx: Pieces of the Puzzle. Idaho Bureau of Land Management Technical Bulletin No. 98 - 11 in cooperation with the U.S. Forest Service.

In the following paragraphs, we use an example of how one should approach these arguments surrounding whether lynx ever resided in the Uinta Mountains that was provided by Dr. Kirk Robinson in one of our joint efforts to address domestic sheep grazing in the Uinta Mountains of Northwest Utah.[45]

Table 1. Spatially Referenced Occurrence Data from McElvey et al 2000.

State and time span	Total Spatially Referenced Occurrences	Verified Records	Verified as Percent of Total/Reliable
Colorado 1878 - 1974	196 Total 84 Reliable	17	8.7/20.2
Idaho 1874 - 1991	234 Total 228 Reliable	74	31.6/32.4
Utah 1916 - 1991	27 Total 17 Reliable	10	37.0/58.8
Montana 1887 - 1999	1,542 Total 1,169 Reliable*	84	5.5/7.1
Washington 1896 - 1999	765 Total 571 Reliable**	134	17.5/23.4
Wyoming 1856 - 1991	361 Total 288 Reliable	30	8.3/10.4

*Note that trapping records showed 3,012 reported between 1950 – 1997
**Trapping records show 215 between 1960 - 1989

Dr. Robinson's logical analysis examines the use of verified vs reliable accounts, or observations. He puts it this way:

> *There may have only been 10 verified records of lynx occurrence in the Uintas in the 20th century, but there have been an additional 17 reliable reports of lynx in Utah in the 20th century, based on physical remains (including photographs), visual sightings and track identifications, plus another 10 of unknown reliability. The total number of records is 37. Most of these lynx occurrences were on the north slope of the Uintas, in or near the West Fork of Blacks Fork. Even if we discount the 10 reports of unknown reliability, we still have 17 reliable reports and 10 verified records of lynx, for a total of 27, most of which located the lynx in the Uintas! In other words, the historical evidence indicates a minimum of 10-37 lynxes in the Uinta Mountains over the last 103 years (not counting dispersers from Colorado). Thus, there can be little doubt that the actual number of "sightings" was greater than 10. 30 would be much more probable.*

[45] Coalition comments on the High Uintas Domestic Sheep Analysis Project. 2019. Provided to the Uinta Wasatch Cache National Forest. August 5, 2019. Access at: https://app.box.com/s/797x21rggtx1t6yayr0gi9kpbouis4sr

Why arbitrarily exclude the "reliable" sightings? What does "reliable" mean if you can't rely on what is reliable? Yet the FS chooses not to rely on them for the purpose of the DEIS—a decision that would seem to be based not so much on a desire for accuracy as a desire to minimize the presence of lynx in Utah in order to make room for Alternative 2.

At this point we should ask ourselves how many records—verified records, if you like—it would take to establish that there was a resident population of lynxes in the Uintas during some part of the 20th century. Does anyone have even the slightest clue? Of course not. And the reason is that there are no empirical data for establishing a baseline on which to base a prediction. Surely all we can reliably say is that the more records (verified + reliable), the higher the probability. Thus, this premise commits the fallacy of begging the question by presupposing what is to be proved.

As we review the table 8.1 from McKelvey, it is apparent that most historical observations and accounts are dismissed out of hand and have become the basis of today's claims by FWS and the Forest Service that there are not (and perhaps never were) resident lynx in Utah and Idaho, or Colorado for that matter even though the reintroduced population survives there today and appears stable or increasing according to the Forest Service website cited earlier.

McKelvey et al (2000) also provide a narrative describing lynx records in Idaho, totaling 73 records. Some records such as reported in Lewis and Wenger (1998), are apparently not included. The following are extracted from McElvey et al:

From 1874 – 1917, there are 22 museum specimens from areas north of the Snake River Plain. In 1939 and 1940 specimens were collected in central Idaho in Valley County and Idaho County. In 1954 and 1955 specimens were located from Bonner and Shoshone Counties. Other verified records include one from Shoshone County in 1901, one from Boundary County in 1919, one from Idaho County in 1936, one from northwest Idaho in 1939, one from Clearwater County in1942, five from Caribou County in 1947, two from Bonneville County in 1955. (SR p225 - 226).

"There are 35 verified records from 1960 to 1991: four from 1962 to 1969, 18 from 1970 to 1979, 10 from 1982 to 1989, and three from 1990 to 1991; there are no verified records of lynx in Idaho since 1991 (Anonymous 1999, unpublished). Although most of these records are from the northern and central regions of Idaho where lynx occurred historically, six are from counties in the Snake River Plain, in areas where forest types occupied by lynx are absent or very fragmentary in extent (see "Lynx Associations with Broad Cover Types"). These include records from Blaine, Butte, Jerome, and Twin Falls Counties in 1972; one from Blaine County in 1984; and one from Power County in 1990". (SR p227).

The Lewis and Wenger (1998) report provided numerous accounts of lynx and lynx tracks in Idaho. They noted that little is known about Canada lynx in Idaho and that *"the lack of Canada lynx studies…only adds to the puzzling nature of the species"*. It was based on interviews with individuals *"familiar with Canada lynx habitat and local fauna in general."* (pi). These were individuals documented by Idaho Fish and Game as *"having harvested Canada lynx"*. While the report covers several areas of Idaho, it also includes Eastern Idaho accounts by 18 individuals. These are provided here for the SE Idaho area. They included accounts from residents in Island Park, St. Anthony, Rexburg, Georgetown, Ashton, Preston, Swan Valley, Paris, Montpelier, and Alta, Wy. The reports included those who observed lynx in SE Idaho in Georgetown Canyon, Tincup Creek, and Henry's Fork, many of whom killed lynx or observed their tracks. The report paints a broad picture of lynx across much of Eastern Idaho as well as other areas of the state. Here is one from Oliver Peterson of Montpelier who was trapping prior to the 70s when lynx sightings were claimed to be due to movement from Canada due to hare cycle lows. It appears very convenient today to claim there were never resident lynx in these areas.

> *Oliver Peterson, Montpelier, ID —Oliver began trapping in 1945 and did most of his trapping in the 1950s and 1960s. During a one-week period in 1947 or 1948, he caught five Canada lynx ten miles northeast of Soda Springs. He trapped four Canada lynx in the 1950s and 1960s, one in the same area where he caught the five Canada lynx. He caught three Canada lynx farther east near Georgetown. Except for one Canada lynx trapped near timberline, the remaining Canada lynx were caught in areas with a mosaic of aspen, conifer, and mountain brush. (p8). He speculated that during those years there were no snowmobiles and atvs and that the demise of lynx was due to increased access and by snowmobiles, atvs, and the lack of snowshoe hares. Traplines were accessed by snowshoe or skis and now (the 1990s) there is "intensive snowmobile and atv use". He believed this was a primary factor in the demise of lynx since the 1970s.* (p17).

The interviews provided information on lynx prey including jackrabbits, grouse, red squirrels, voles in addition to snowshoe hares indicating the use of alternate prey appears greater than in Canada and Alaska. The authors suggest scenarios relating lynx behavior to jackrabbit populations by lynx following jackrabbits into shrub steppe far from typical coniferous forest habitats and end up near other habitats occupied by snowshoe hares and/or may exploit jackrabbit population highs without leaving traditional habitats resulting from jackrabbits dispersing into those habitats.

They also discuss livestock grazing, noting that studies show that livestock reduce forage availability, that elk and livestock eat many of the same species as do black-tailed jackrabbits and reduce forage to the point it limits jackrabbit densities. *"Grazing of the same areas by both species may have cumulative effects on both snowshoe hare and jackrabbit habitats."* (p17). *"Utilization of forage by both elk and livestock may thus have a significant impact on hare habitats. This may be particularly true in the southern-most portions of the Canada lynx range where grazing becomes a more dominant use."* (p18).

In conclusion, Lewis and Wenger (p19) state, *"there is no 'smoking gun' factor in the decline of Canada lynx in Idaho. Many variables appear to limit Canada lynx numbers in this state. The most important of these appear to be timber harvest practices; high numbers of coyotes, mountain lions, and elk; increasing motorized and nonmotorized recreational use; incidental trapping; and reduced numbers of alternate prey, including species that are not documented as Canada lynx prey in existing research. These include jackrabbits, beavers, and porcupines."*

Lynx, the ESA and Forest Service Manual. The ESA promulgated regulations at 50 CFR § 402.12 delineate the purpose of a Biological Assessment (BA) as to *"evaluate the potential effects of the action on listed and proposed species and designated and proposed critical habitat…"*. It describes the contents as *"discretionary"* and depends on the nature of the federal action with consideration for including (1) results of on-site inspections; (2) views of recognized experts; (3) review of the literature; (4) analysis of the effects of the action on species and habitat, including cumulative effects and the results of related studies; and (5) analysis of alternate actions considered by the Federal agency.

In a recent typical example in the CNF in a Decision for a phosphate mine, the Husky 1 North Dry Ridge)H1NBR) mine, the BA only based its brief analysis on the proposed action, not the suite of alternatives contained in the FEIS.[46] It included minimal analysis. The intent of the ESA was avoided and if one applied the NEPA standard for a hard look or cumulative effects to this aspect of the analysis, the analysis would fail. *"Discretionary"* cannot be used to avoid taking a hard look in the analysis. This project, combined with other projects that are listed in the FEIS for H1NBR in addition to roads, timber harvest, and recreation, occurs within a linkage area connecting to critical habitat for lynx immediately east of the project. Figure 7 above illustrates the extreme level of habitat fragmentation in this linkage. The loss of this connection due to habitat fragmentation means the loss of the genetic connection between the critical habitat and other peripheral habitat such as in the Uinta Mountains which then connect to the current Colorado population. **How can regulations or land use plans be effective when they are *"discretionary"* for the project proponents?**

The Forest Service Manual[47] cites the ESA as *"the Act directs federal departments and agencies to ensure that actions authorized, funded, or carried out by them are not likely to jeopardize the continued existence of any threatened or endangered species or result in the destruction or adverse modification of their critical habitats."* (FSM 2670.11). The FSM (2679.12) cites Departmental Regulation 9500-4 as (1) *"Manage 'habitats for all existing native and desired nonnative plants, fish and wildlife species in order to maintain at least viable populations of such species.'"* (2) *"Conduct activities and programs 'to assist in the identification and recovery of threatened and endangered plant and animal species.'"* (3) *"Avoid actions 'which may cause a species to become threatened or endangered'"*. The CNF provided guidance in its RFP FEIS to address this connectivity but has ignored its own guidance in

[46] https://www.fs.usda.gov/project/?project=37878 Accessed on January 17, 2023.

[47] USDA Forest Service. 2005. Forest Service Manual National Headquarters (WO) Washington DC. FSM 2600 – Wildlife, Fish, and Sensitive Plan Habitat Management Chapter 2670 – Threatened, Endangered and Sensitive Plants and Animals (September 23,2005).

approving the H1NDR and all the other projects we have reviewed. How can the CNF dismiss impacts to Canada lynx without actually conducting an analysis? The current analysis for H1NDR and other projects does not *"ensure"* that actions do not further endanger or adversely modify habitat. Only in the industry bias world of today's Forest Service could total destruction of habitat not be considered an "adverse" impact. Degrading and fragmenting this linkage habitat compromises lynx migration and habitat adjacent to and bordering lynx critical habitat and must be considered in that context.

FSM 2670.31 provides additional guidance for T&E species.

> (1) *"Place top priority on conservation and recovery of endangered, threatened, and proposed species and their habitats."* (2) *"Establish, through the Forest planning process, objectives for habitat management and/or recovery of populations."* (4) *"Avoid all adverse impacts on threatened and endangered species and their habitats, except when it is possible to compensate adverse effects totally through alternatives identified in a biological opinion."* (6) *"Identify and prescribe measures to prevent adverse modification or destruction of critical habitat and other habitats essential for the conservation of endangered, threatened, and proposed species. Protect individual organisms or populations from harm or harassment as appropriate."*

Once again, the CNF has not placed top priority on conservation and recovery, has not established meaningful objectives with enforceable standards for lynx habitat, has not designated LAUs with standards to protect preferred habitats and linkages, has ignored the effect of this linkage area on the adjacent critical habitat or peripheral habitat in the Uinta Mountains, thus compromising the integrity of that critical habitat and what remains of the core population in the DPS. The CNF by allowing snowmobile use on 97% of the Forest is not preventing harm or harassment of lynx, wolverines or other species which are affected by snowmobile use and the associated trapping, shooting and harassment. We have witnessed multiple snowmobiles trespassing on Kiesha's Preserve chasing and harassing a coyote and deer in an effort to "whack" the coyote and at other times, releasing dogs carried in their sleds to chase mountain lions while trespassing. With the groomed trails throughout the mountains, one hunter can cover a hundred miles in one day looking for tracks to turn out his dogs.

The FSM 2670.5 provides definitions of terms that are useful in interpreting the efficacy of the agency analysis. An **adverse effect** includes *"Any action that directly alters, modifies, or destroys, critical or essential habitats or renders occupied habitat unsuitable for use by a listed species, or that otherwise affects its productivity, survival, or mortality."* **Essential habitat** is defined as *"Those areas designated by a regional forester as possessing the same characteristics as critical habitat without having been declared as critical habitat by the Secretary of the Interior or Commerce. The term includes habitats necessary to meet recovery objectives for endangered, threatened, and proposed species and those necessary to maintain viable populations of sensitive species."* A **viable population** is defined as *"A population that has the estimated numbers and distribution of reproductive individuals to ensure the continued existence of the species throughout its existing range (or range required to meet recovery for listed species) within the planning area."*

The CNF has not designated Essential Habitat, but it has designated linkage for lynx. It has not identified recovery objectives or evaluated how a project leads to recovery of lynx. The analysis we have provided shows actions by the Forest Service have had an "adverse effect" as demonstrated by the lack of lynx observations and presence in SE Idaho. Given the lack of lynx observations in the recent decades, it is apparent that human activity is occurring in such a manner that lynx populations are being affected. Otherwise, why are lynx not being found here today? This example is illustrative of failures by both the Forest Service to comply with the intent of its RFP and FWS failure to require detailed analysis and protections in its role of consultation.

FSM 2671.44 describes determination of the effects on listed species. Biological evaluations are to *"conduct and document the program and activities review necessary to ensure that any action … is not likely to jeopardize the continued existence of any listed or proposed species or to result in the destruction or adverse modification of critical or proposed critical habitat."* Internal *"biological expertise"* and *"informal consultation"* are to be used to reach *"supportable determinations of effect"*. Finally, *"Consider effects on suitable unoccupied habitat essential to recovery of the species when doing the biological evaluation."* We do not see CNF analysis of the linkage, or "suitable unoccupied habitat" or any effort to address its current vs historical condition as delineated in the CNF RFP FEIS. FWS is not addressing failures such as these.

The lack of adequate regulatory mechanisms to protect lynx habitat and connectivity has been implicated as a central issue for lynx being able to maintain populations.[48] (FR p16052). The FSM described above makes the point that the Forest Service should establish through planning, objectives for habitat management and/or recovery of populations and prescribe measures to prevent adverse modification of habitat essential to the conservation of T&E species. This remains to be done and the FWS should ensure that not only the CNF, but all Forests and BLM land management plans are quantitatively addressing lynx habitat and connectivity needs.

What the CNF provides for lynx linkage in its RFP is summarized below.

Caribou NF Direction for Canada Lynx. Earlier in these comments, we reviewed the RFP for standards or objectives relating to lynx and its habitat.

There is no specific direction and there are no enforceable standards regarding lynx habitat and linkage (which the Forest Plan itself mapped). These appear as mere afterthoughts with no relation to research on lynx or hare habitat. We have seen no evaluation in any project as to whether these have any relation to the habitat needs of lynx. In our example, the H1NDR NEPA process did not analyze these provisions or reveal how they have been applied across the affected watersheds and landscape where lynx formerly have been found, or in the linkage

[48]DOI USFWS. 2000. Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for the Contiguous U.S. Distinct Population Segment of the Canada Lynx and Related Rule. Fed. Register Vol. 65, No. 58.

shown in the CNF RFP FEIS. In our example of the H1NDR FEIS, the analysis did not use the guidance in the CNF RFP FEIS on connectivity and how to analyze it. It did not analyze the risk factors described in the LCAS and the combined impact of all the various uses and projects on this linkage area. A review of IRAs in the CNF finds they are rarely different in management than other forest lands, with many user-created roads and trails, past timber harvest, mining, and livestock grazing. For example in our comments on the Dairy Syncline DEIS (p43) we cited the Idaho roadless rule description of the Huckelberry Basin IRA which was to be fragmented for a tailings pond.[49] *"Remoteness and solitude rate as low, because of development." .. "Manageability of the area is considered poor, due to road intrusions and timber harvest activities."* (Idaho roadless rule FEIS C5-46). This is typical of the characterization of IRAs under the Idaho Roadless Rule. So, if IRAs are fragmented by all these activities, where are the intact habitats for lynx and other special status species in IRAs and other habitats presumed to have lower levels of protection? **A thorough review of the science on lynx habitat characteristics needed for recovery and connectivity should be completed and used to compare current conditions in the CTNF to those needed for lynx.**

Lynx and the Regionally Significant Wildlife Corridor

The following discussion is about the need to define, protect and restore a corridor or corridors, and provide standards for habitat to provide connectivity to the southern population of lynx. This is focused on the Regionally Significant Wildlife Corridor passing through SE Idaho and NE Utah to connect critical habitat in the GYA to the Colorado lynx population.

The Colorado Division of Wildlife tracked radio-collared lynx released in Colorado.[50] According to the Rocky Mountain Research Station, *"By 2010, all indications were that the vast majority of animals relocated there had stayed in the state and they seemed to be surviving and reproducing well enough that the population was on a slight upward trajectory."*[51] That link also noted that lynx were extirpated or greatly reduced in Colorado by the 1970s. The web report noted that *"managers really understand the need to provide for connectivity in these critical areas we've identified."* Do they? Are they? Where is the evidence? The Forest Service and Fish and Wildlife Service should require evidence in its evaluations.

Devineau et al (2010) show that lynx telemetry records confirm that there is a *"hot spot"* of lynx

[49] USDA. 2008. Roadless Area Conservation National Forest System Lands in Idaho Final Environmental Impact Statement Appendix C.

[50] Devineau P, Shenk T.M., White, G.C., Doherty Jr., P.M. and R.H. Kahn. 2010. Evaluating the Canada lynx reintroduction programme in Colorado: patterns in mortality. Journal of Applied Ecology. doi: 10.1111/j.1365- 2664.2010.01805.x 8 p.

[51] USDA RMRS. 2023. Winter Sports and wildlife: Can Canada lynx and winter recreation share the same slope? https://www.fs.usda.gov/rmrs/winter-sports-and-wildlife-can-canada-lynx-and-winter-recreation-share-same-slope Accessed on January 19, 2023.

occurrences at the western end of the Uinta Mountains, where collared lynx from Colorado remain for a time before moving on. As of 2009, at least 22 individuals had made at least 27 visits to the state of Utah, recorded by air telemetry and satellite.[52] The highest concentration of lynx locations in Utah, as identified by telemetry, is in the Uinta Mountains. *"The use-density surface for lynx use in Utah indicates the primary area of use being located in the Uinta Mountains."*[53] A recent report by Colorado Parks and Wildlife (CPW) using information from the tracking devices found that 19 males and 10 females reintroduced into Colorado between 1999 - 2006 were located in Utah.[54] Because some of these were single data points, CPW chose to evaluate 11 males and 6 females that were located in Utah between 2000 and 2010. Most of the individuals *"entered and exited Utah via the Uinta Mountains in the northeast, Abajo Mountains in the southeast, or the East Tavaputs Plateau in the east-central part of the state… ."* The report points out that a male and female occupied the same area in the Uinta Mountains for >200 days, but it is not known if there was denning or reproduction. *"Those that spent a considerable amount of time in Utah tended to find and traverse the high country running north – south through the central portion of the state*." *"There were likely other individuals who made the trip. Also, CPW stopped monitoring collared lynx in April, 2011. Movements into Utah may or may not have continued since then, but we have no documentation."* (p3).

The Science Report (Chapter 10) discusses the history of lynx occurrence in Colorado. *"… boreal forest habitat in Colorado is insular in nature and isolated from similar habitat in Utah and Wyoming by more than 150 km of lower elevation habitats in the Green River Valley and Wyoming Basin (Findley and Anderson 1956). All but a few specimen records are from the center of this island of boreal forest habitat in west-central Colorado."* (SR p230). There were 15 specimens found between the 1800's and 1936 with none thereafter until 1969, 1972, and 1974 when four additional specimens were identified. Despite snow tracking efforts, there have been no verified records in Colorado since 1974. (SR p231). As we summarized in Table 2, out of 196 records in Colorado between 1878 – 1974, there were 17 verified records, but 84 reliable records.

Figures 8.19 and 8.20 in the Science Report (p247) depicts lynx occurrences overlaid on Kuchler (1964) vegetation classes in the western U.S. It is noted that Rocky Mountain Conifer cover type enclosed 82% of lynx occurrences. Those Figures and Figure 8.17 show dense patterns of lynx occurrence in Colorado, western Wyoming and the GYA, western Montana, northern Idaho, and Washington bordering Canada. A pattern of occurrence also is shown in northeast Utah and along the border between Idaho and Wyoming. Connecting these populations is critical for the DPS to recover and maintain gene flow.

We have been addressing connectivity in the Yellowstone to Uintas Connection (Y2YConn) since our organization was founded. The Y2UConn leg of the Regionally Significant Wildlife Corridor is the high elevation, conifer dominated link needed to connect the GYA and northern

[52] Colorado Department of Wildlife (CDOW) Report, 2006-7, Tables 4 and 6, pages 23 and 24.
[53] Ibid. page 10; see also Figure 2, page 29.
[54] Ivan, J. 2019. Summary of movements of Colorado lynx in Utah. Colorado Parks and Wildlife, Fort Collins.

Rockies to the Uinta Mountains and Southern Rockies. The CNF Forest Plan FEIS (pD-5)[55] summarizes the history/knowledge of this corridor through SE Idaho into NE Utah.

> *Most of the efforts to date to map corridors have focused on large-scale dispersal corridors generally from the Northern Rockies (Glacier NP) to the Greater Yellowstone Ecosystem. The USFWS, in efforts to conserve large carnivores in the Northern Rocky Mountains, has developed the concept of linkage zones. The linkage zone is an area between habitat fragments able to support both movement and low-density occupancy. The distinction between linkage zone and corridor is the width of habitat—that is the ability to support low density occupancy by species (Samson et al, 1997).*
>
> *Ruediger, et al, 2000 drafted a map titled "IGBC Wildlife Habitat Linkage in the Northern Rocky Mountains." This map also includes the northeastern portion of the Caribou in the mapped north-south linkage zone. Other agencies and groups have done mapping as well.*
>
> *In May 2000, a meeting was held with several state and federal agencies as well as other interested groups, to discuss developing common criteria to help identify linkages of highest importance (Ruediger, 2000). They recommended factors to consider when identifying wildlife habitat linkages; 1) consider all scales, 2) landforms and topography are important, mountain passes, river bottoms and major ridges are often natural movement corridors, 3) vegetation is important, many species use forested areas for cover, 4) quality of habitat is important, 5) areas with low road densities and low levels of human use are important, 6) need data and 7) maintain large intact blocks of habitat (Ruediger, 2000)*
>
> *The Wasatch-Cache National Forest in Utah looked at a north-south corridor passing through the Forest. They used McNab, et al, (1994) to identify Province M331 "Southern Rocky Mountain Steppe" as main north-south corridor (Williams, Forest Biologist pers. comm.) Part of this province (M331) passes through part of the Caribou NF in the Caribou/Webster/Preuss subsections. This same area has been mapped as part of the Greater Yellowstone Ecosystem and was included on Ruediger's "IGBC Wildlife Habitat Linkages" map.*

The 2003 Revised Forest Plan and FEIS for the Wasatch Cache National Forest provides this map along with a map of LAUs in the Wasatch-Cache NF, Uinta NF, and Ashley NF on its website.[56] Figure 14 illustrates this Regional Corridor and its connections. Figure 15 illustrates the Kuchler RMC type, and Figure 16 the topography. These maps show that the Science Report ignored this conifer dominated, high elevation connection in its claim that the Colorado boreal forest

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[55] USDA Forest Service. 2003. Final Environmental Statement for the Caribou National Forest Revised Forest Plan.

[56] https://www.fs.usda.gov/detailfull/uwcnf/landmanagement/planning/?cid=stelprdb5076923&width=full

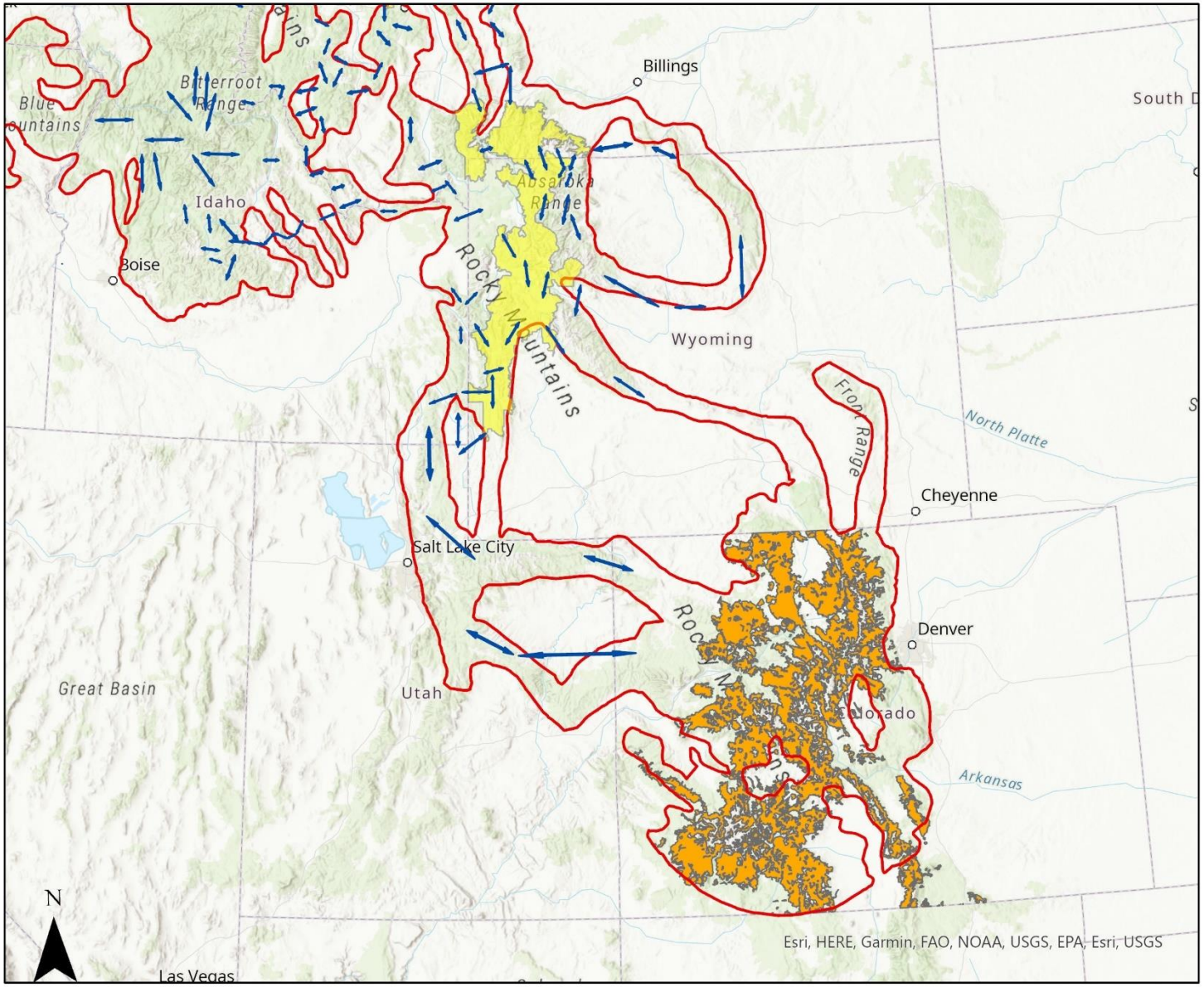
(Kuchler?) is *"isolated from similar habitat in Utah and Wyoming by more than 150 km of lower elevation habitats in the Green River Valley and Wyoming Basin."* Distances between higher elevation forested areas are much less in the western leg (Y2UConn) than across the Green River Valley and other northern areas from Colorado.

Colorado Parks and Wildlife summarized lynx movements from the reintroductions in Colorado to Wyoming.[57] Locations from 16 male and 15 female lynx that were released in Colorado between 1999 -2006 and were located in Wyoming between 1999 – 2010. (p2). It is interesting to note that the reintroduced lynx came from Canada populations to the north. Inspection of the maps in the report give the impression these lynx are attempting to find their way back north. As the report describes, *"Most of these individuals entered and exited Wyoming via the Medicine Bow Mountains or the Park Range and traveled no farther into the state than the northern extent of these ranges… . At least 8 lynx made it to the Greater Yellowstone Area and beyond. A few entered/exited via the Uinta Mountains in Utah… ."* The report notes that there were likely other individuals that made the trip, but there is no documentation since that time. (p3). Inspection of the figures in the report shows that some lynx apparently did cross the wide lower elevation valleys between the Medicine Bow Mountains and GYA, but there was no consistent path being followed and there were few conifer or high elevation areas. (Figure 6).

A least-cost path analysis of lynx connectivity between the San Juan Mountains in Colorado and the Greater Yellowstone Area reviewed the negative effects of habitat loss and fragmentation on wildlife populations and the resulting isolation of those populations.[58] The role of landscape linkages in providing connections and gene flow was addressed. Using GIS, current spatial data for habitats, human factors affecting lynx movement, and potential travel corridors between core patches of lynx habitat in the southern and northern Rockies were identified. Habitat suitability analysis identified the best core areas for lynx based on vegetation type and road density. Habitat types suitable for lynx were identified and scored. We have provided a general overview map in Figure 17 showing these core and corridor areas of the least cost path overlaid with the Y2UConn leg of the Regional Corridor. These are well aligned with each other. Detailed maps of vegetation classes, road densities, core areas, housing density, slope, habitat permeability, and least cost corridors are provided in the report. The analysis provides an assessment of the probability of successful dispersal for lynx as it assessed the entire landscape, while *"an animal traveling on the ground may not have prior knowledge of the territory it is crossing or obstacles it may come upon."* (p21). The model is suitable for making conservation and management decisions.

[57] Ivan, J. 2017. Summary of movements of Colorado lynx in Wyoming. Colorado Parks and Wildlife.
[58] Bates, W. and Jones, A. 2007. Least-Cost Corridor Analysis for Evaluation of Lynx Habitat Connectivity in the Middle Rockies. Report to the Nature Conservancy by the Wild Utah Project, Salt Lake City. https://app.box.com/s/0g8b1ryqg1iz6r1fd61rdkc8fso97oh5

Figure 14. Regionally Significant Wildlife Corridor, Lynx Linkage and Colorado Potential Habitat



Lynx Critical Habitat

Regional Corridor

Canada Lynx Linkage

Lynx Potential Habitat

Regional Corridor - Referenced in USDA. 2003. Revised Forest Plan Wasatch-Cache NF.

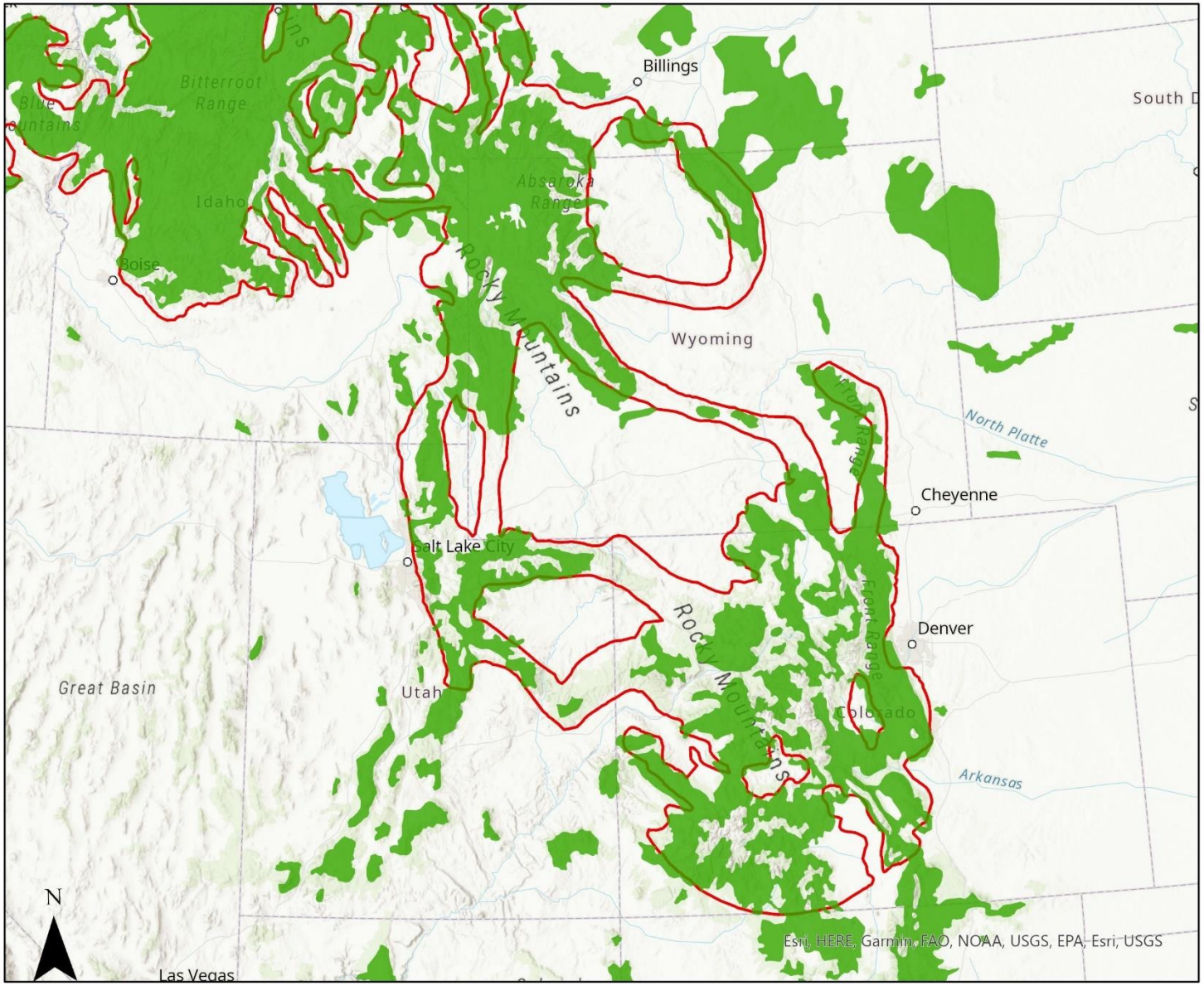
https://www.fs.usda.gov/detailfull/uwcnf/landmanagement/planning/?cid=stelprdb5076923&width=full

Canada Lynx Linkage - USDA Forest Service Northern Region. November 13, 2003. Canada lynx linkage areas for the Northern Rockies Lynx Amendment.

Lynx Potential Habitat - Colorado Parks and Wildlife

Critical Habitat - Fish and Wildlife Service designation. See Federal Register Citation Number 79 FR 54782, published 20140912 for the legal critical habitat information.

Figure 15. Regionally Significant Wildlife Corridor and Kuchler Rocky Mountain Conifer

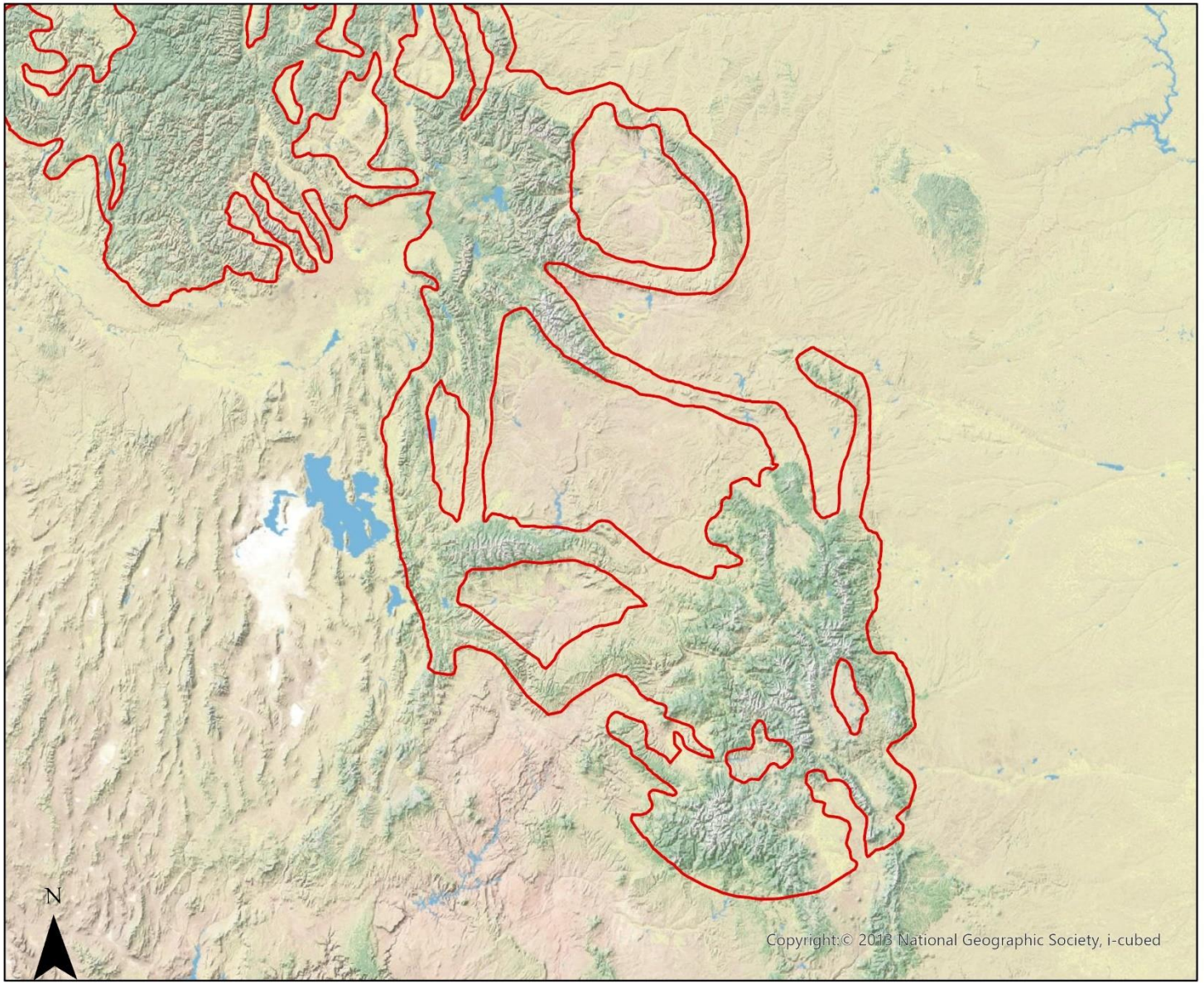


Regional Corridor - Referenced in USDA. 2003. Revised Forest Plan Wasatch-Cache NF.

https://www.fs.usda.gov/detailfull/uwcnf/landmanagement/planning/?cid=stelprdb5076923&width=full

Kuchler type GIS files from Data Basin. http://app.databasin.org/app/pages/datasetPage.jsp?id=1c7a301c8e6843f2b4fe63

Figure 16. Regionally Significant Wildlife Corridor Topographic Relief



Regional Corridor

Regional Corridor - Referenced in USDA. 2003. Revised Forest Plan Wasatch-Cache NF.

https://www.fs.usda.gov/detailfull/uwcnf/landmanagement/planning/?cid=stelprdb5076923&width=full

Topographic Map
ESRI land cover imagery for the world and detailed topographic maps for the United States

Colorado Parks and Wildlife engaged in a similar effort to map predicted use areas in Colorado.[59] They used location data from reintroduced lynx fitted with transmitters, filtered those data to remove locations for the first six months to account for habituation, considered elevations above 8,000 feet, and included factors for housing and road density, slope, distance to forest patches and vegetation types. Summer and winter data were used to generate models for both seasons. Figures 18 and 19 are reproduced from that report.

A map of the predicted distribution for Canada lynx in the 2050's based on modeled climatic conditions is provided in Figure 20.[60] This dataset represents the predicted distribution for Canada Lynx (Lynx canadensis) for the 2050's (ten year period average), based on the agreement (spatial average) of 5 niche modeling techniques (BIOCLIM, Climate Space Model, Envelope Score, Environmental Distance, SMV) and monthly precipitation and average temperature from 12 GCM's from the A2 emission scenario. Localities used to produce the model were resampled from the core area (highest probability) of the predicted distribution based on 48 Worldclim 1.4 climatic variables and BIOCLIM. CPW (Ivan) have also produced maps of summer and winter predicted habitat above 8,000 ft in Colorado.

Modeling and analysis such as these examples provide should be used to delineate the final configurations for regional corridors needed to maintain connectivity for these lynx populations. The Y2UConn leg of the corridor is a viable option for the higher elevations and snow cover needed by lynx. It also includes the potential core area of the Uinta Mountains where historical observations indicate a lynx population existed there in the early 1800's prior to trapping and exploitation by people. It connects to Critical Habitat in Western Wyoming where studies documented lynx present in 2004/2005 along with populations of snowshoe hares.[61] A follow-up effort in the winter of 2008/2009 also detected lynx in the Greater Yellowstone Area.[62]

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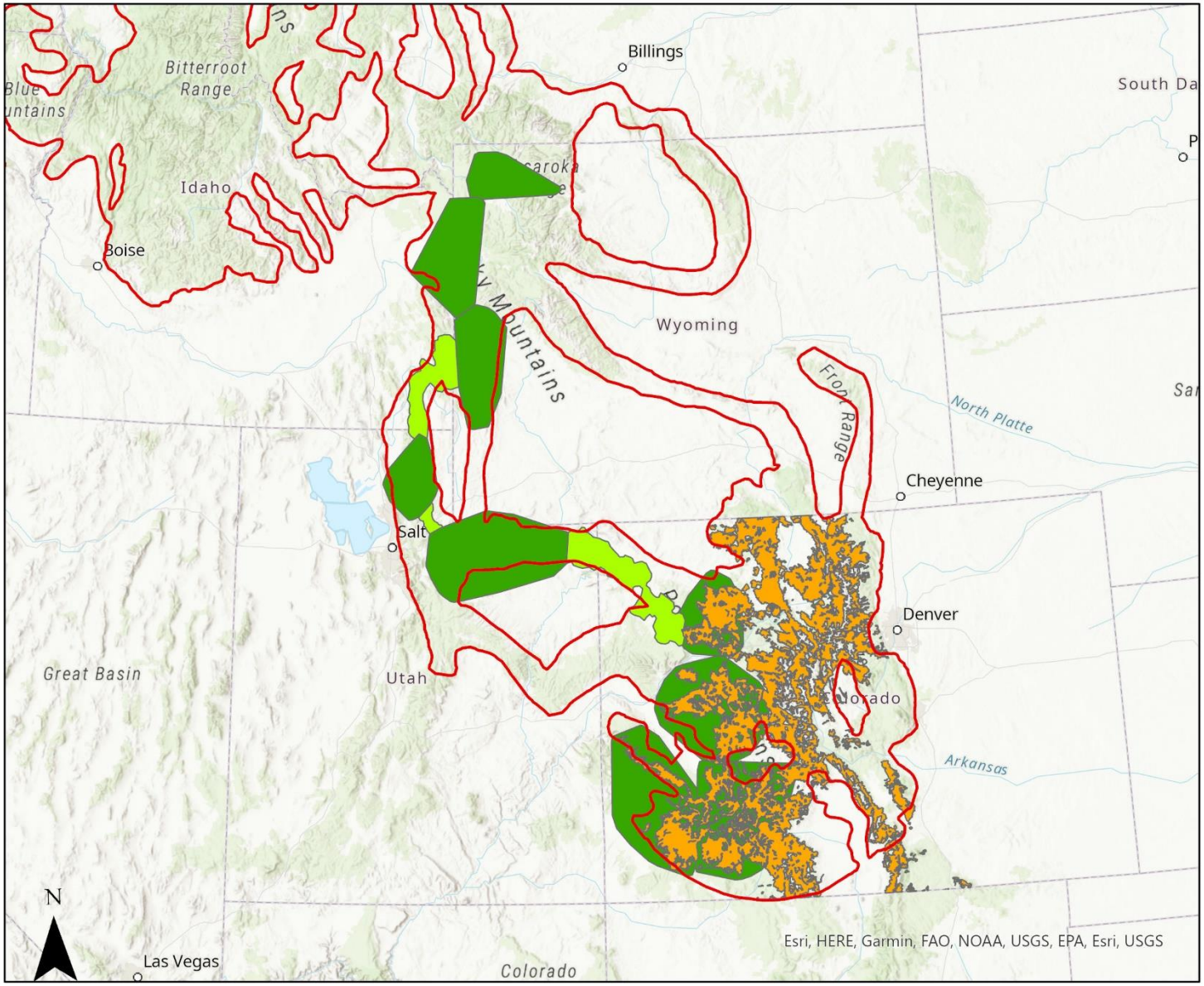
[59] Ivan, J., Rice, M., Shenk, T., Theobald, D., and Odell, E. Undated. Predictive Map of Canada Lynx Habitat Use in Colorado. Colorado Parks and Wildlife. Accessed on January 20, 2023. https://cpw.state.co.us/Documents/Research/Mammals/Publications/CPWPredictiveLynxMapReport.pdf

[60] Hamilton, H. 2008. Predicted Distribution of Canada Lynx (Lynx canadensis) - A2 emissions scenario - 2050's. California Academy of Sciences 07.29.2008. Map data from https://databasin.org/datasets/3674ed71-f5b7-45a3-a778-dfc2f0990235/ Accessed on January 20, 2023.

[61] Berg, N.D., Burghardt, J., Gray, R., and Smith, B. 2005. The Greater Yellowstone Lynx Study 2004/2005 Annual Report. The Endeavor Wildlife Research Foundation.

[62] Holmes, M. and Berg, N. 2009. Greater Yellowstone Ecosystem Lynx Study. Endeavor Wildlife Research Foundation. https://yellowstone.co/pdfs/lynxstudy2009.pdf Accessed on January 22, 2023.

Figure 17.Regionally Significant Wildlife Corridor, Lynx Linkage and Colorado Potential Habitat



Regional Corridor
Lynx Potential Habitat
CanadaLynxCorridors
CanadaLynxCores

Regional Corridor - Referenced in USDA. 2003. Revised Forest Plan Wasatch-Cache NF.

https://www.fs.usda.gov/detailfull/uwcnf/landmanagement/planning/?cid=stelprdb5076923&width=full

Canada Lynx Linkage - USDA Forest Service Northern Region. November 13, 2003. Canada lynx linkage areas for the Northern Rockies Lynx Amendment.

Lynx Potential Habitat - Colorado Parks and Wildlife

Bates and Jones (2007) Least-Cost Corridor Analysis for Evaluation of Lynx Habitat Connectivity in the Middle Rockies.

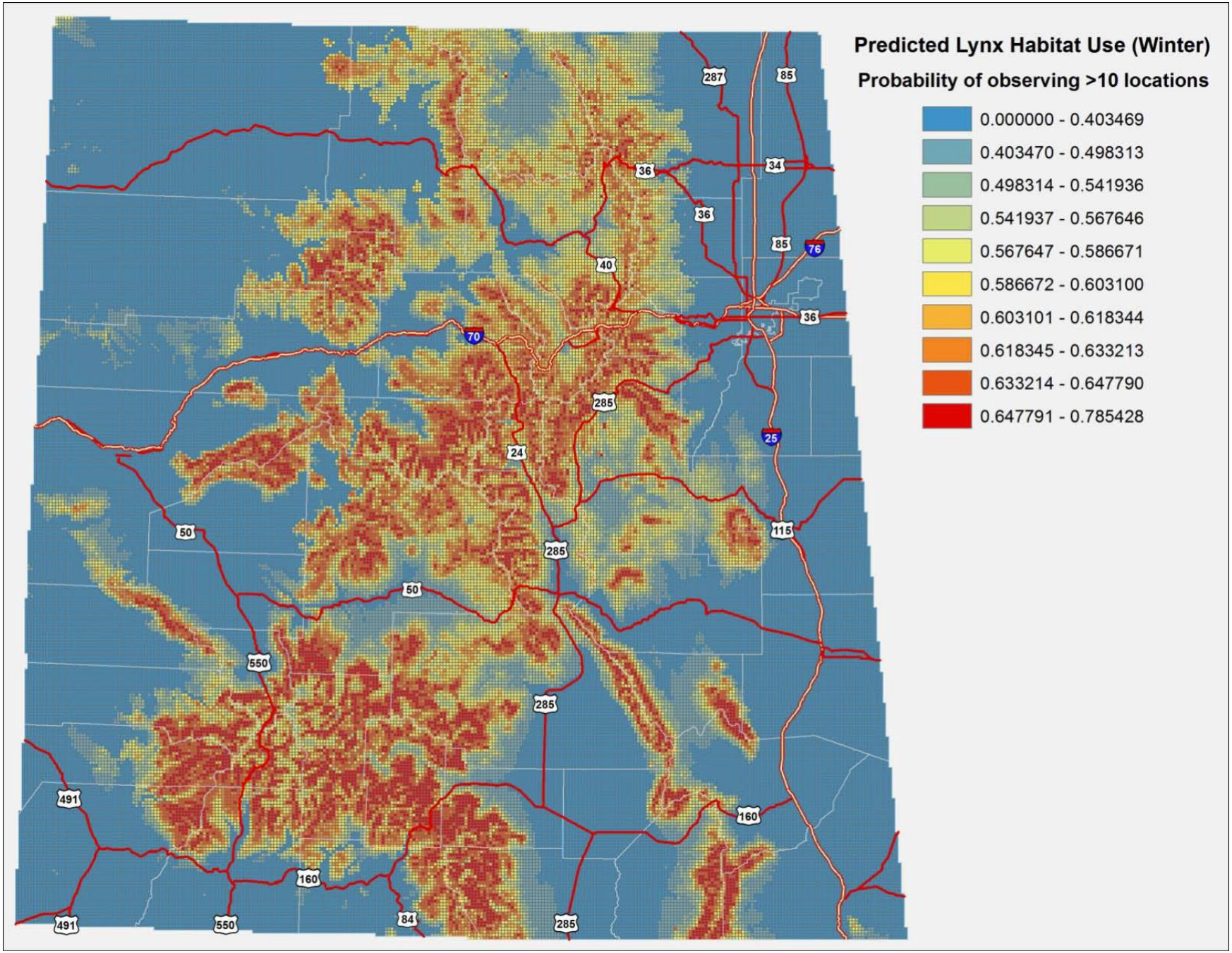


Figure 18 . Predicted winter use by Canada lynx in western Colorado. (From Ivan et al Figure 2)

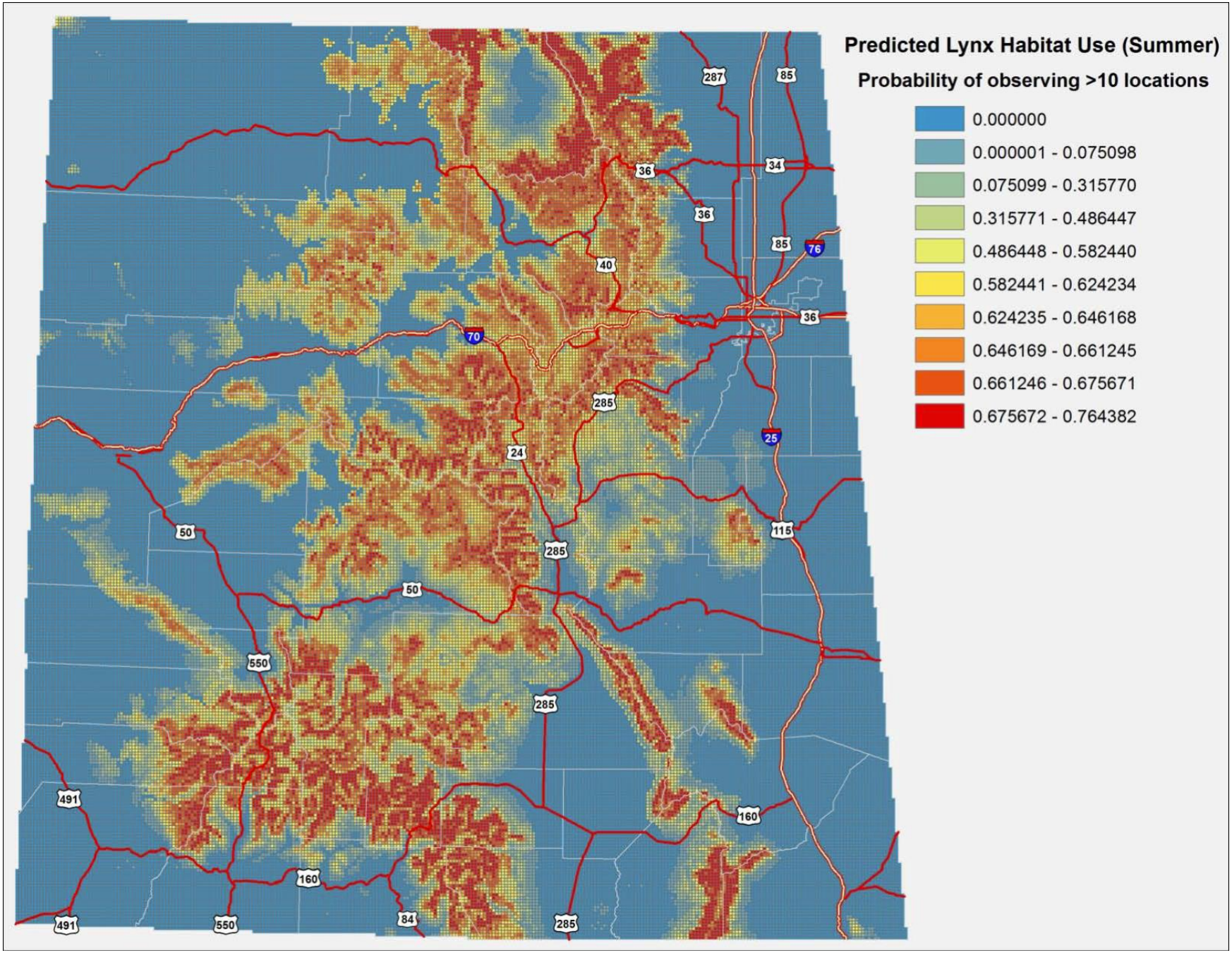
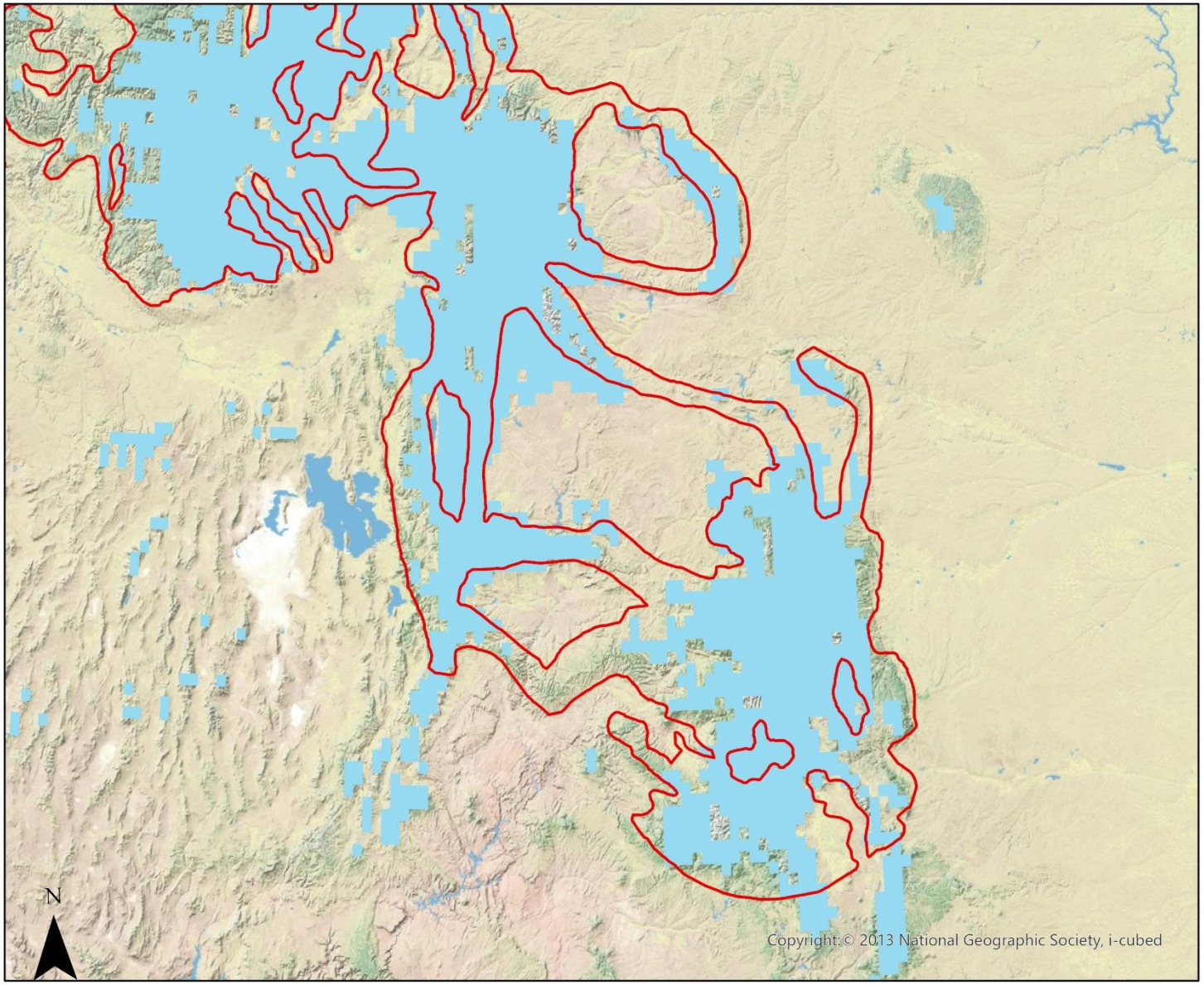


Figure 19. Predicted summer use by Canada lynx in western Colorado. (From Ivan et al Figure 3)

Figure 20. Regionally Significant Wildlife Corridor
Predicted Lynx Distribution in 2050s Using Climate Model



Regional Corridor

Predicted Lynx 2050

Regional Corridor - Referenced in USDA. 2003. Revised Forest Plan Wasatch-Cache NF.

https://www.fs.usda.gov/detailfull/uwcnf/landmanagement/planning/?cid=stelprdb5076923&width=full

Predicted Lynx Distribution 2050

https://databasin.org/datasets/3674ed71-f5b7-45a3-a778-dfc2f0990235/

Providing for Canada lynx in Idaho, Utah, Wyoming, and Colorado

These four states are those historically used or occupied by Canada lynx that do not border the Canadian Provinces (excluding northern Idaho) and the forested habitats where the larger populations of lynx have survived. Ensuring connectivity and habitat protection in these southern core and corridor areas that are disconnected from habitats in Canada is critical to maintain the isolated meta-populations in the south. The Colorado reintroductions show lynx can survive in this southern portion of the DPS, yet research and monitoring are lacking for these areas. The Science Report (SR p338) reported only seven studies with two of those being for bobcats. In the following, we just touch on a few parameters to place some degree of definition on lynx habitat, prey, and demographics for context to illustrate some of the quantitative parameters that need to be incorporated into agency requirements.

The Science Report Chapter 13 reviewed the ecology of lynx in these southern areas and compared them to the taiga in Canada. In both regions, lynx occurred where snowshoe hares were abundant. In the southern region, lynx were known to make exploratory movements prior to dispersal. The Colorado tracking data clearly illustrate these exploratory movements. Habitats in the southern region are patchier and lynx make more use of alternate prey. For instance, lynx scats collected in north-central Washington contained 79% snowshoe hare and 24% red squirrel. (SR p376 - 377). Snow tracking studies in the southern Canadian Rocky Mountains found prey consisted of 52% snowshoe hare, 30% red squirrels, and the rest were flying squirrels, martens, voles, and grouse plus unknowns. Snowshoe hare densities were estimated to range from 0.01 - 0.47 hares/ha. (SR p377). *"In southern boreal forests, limited data suggest that because snowshoe hares typically occur at low densities (Chapter 7), alternative prey may always be important components of lynx diets, especially in the western mountains."* (SR p378).

We previously referenced the association between lynx locations and habitat. The predominant association was with Rocky Mountain Conifer in these western interior states. Lynx use a variety of habitats and elevations between summer and winter. Generally, they use higher elevations in more southerly locations and between summer and winter. Most conifer types are included in areas used by lynx and can include Douglas-fir, western larch, lodgepole pine, subalpine fir, whitebark pine, and Engelmann spruce. Occasionally, they will occur in non-forested areas such as shrub-steppe. (SR p379). Snow tracking in Washington found that lynx traveled around meadows and used thinned stands that contained several hundred trees per ha. (SR p381).

Home ranges in these southern areas are larger than in the north. The average for males is 151 km^2 and females, 72 km^2. In west-central Wyoming they were smaller at 90 and 66 km^2. (SR p383 – 384). In Washington, home ranges were bounded by rivers, ridges, and major highways. (SR p385). Exploratory movements in Montana ranged from 17 to 38 km. (SR p386). Dispersal can take place over larger distances of several hundred km. (SR p386 -387). In the north-central Washington study, 8 kittens were documented in a population of 23 lynx during the three-year study. Estimates of total lynx density for the 1,161 km^2 area was 2.4 lynx/100 km^2. (SR p387).

Comparisons are made to northern populations during the lows in hare cycles, indicating similar demographics occur in the southern populations compared to these lows. (SR p389).

Because lynx are highly dependent on snowshoe hares, we have looked for information on hare density in these southern states. Chapter 11 of the Science Report summarizes densities in Montana as well as the Wyoming Range. (SR p346). These ranged from 0.6/ha to 1.4/ha. Two studies cited from Utah gave densities ranging from lows in aspen with dense understory of 0.22/ha to 2.7/ha in spruce-fir habitat. Intermediate numbers occurred in Douglas-fir (0.57/ha and subalpine fir of 0.99/ha). These were estimated from pellet counts while the higher numbers from spruce-fir were from live trapping. Pellet plots in Colorado ranged from 0.26/ha in aspen, to 0.46 in Engelmann spruce. (p185).

These southern hare densities compare to population lows in areas of Canada with persistent lynx populations. For example, from the Science Report (SR p362), *"Hare densities in the southwest Yukon declined from 8.0 to 10.7/ha to 0.2 to 0.5/ha during one cycle (Ward and Krebs 1985), and another population fell from 7.5/ha to 1.3/ha during the next cycle (Slough and Mowat 1996). Similarly, a population in the Northwest Territories fell from 7 to 9/ha to 0.4 to 1.0/ha during the early 1990s (Poole 1994), and a northern Alberta population declined drastically from about 17/ha to 0.34/ha during the early 1970s (Brand et al. 1976)."* Apparently hare densities in these studies were sufficient to support lynx populations in the DPS, but the absence of recent hare studies leaves open the question as to the status and extent of current hare densities in the southern portion of the DPS. Whether snowshoe hares exist in sufficient numbers in these southern regions needs to be determined along with factors (deforestation, livestock grazing, predation, etc.) driving their population density.

A recent study looked at forest characteristics centered around lynx reproductive success.[63] Concerns were habitat fragmentation and loss of connectivity. In particular, the natural patchiness of lynx habitat at the southern extent of its range is *"subject to loss and fragmentation by some forest management practices (i.e. regeneration harvests, pre-commercial and commercial thins, prescribed burns), wildfires and insect infestations, and climate change… ."* (p2). There are data gaps on the abundance and arrangement of lynx habitat and how these relate to reproductive success. The research was conducted in the Swan, Mission, and Purcell Mountains in Montana and included low to mid-elevation ponderosa pine and Douglas-fir to high-elevation subalpine fir, spruce and lodgepole pine. (p3 - 4). Thirty - six female lynx were radio collared and monitored. They produced 36 litters with an average of 2.46 kittens during the 14 year period 1998 – 2012. (p12 – 13*).* Mature forest was the dominant structure in core areas and home ranges with 49 and 50% of core and home ranges with young regenerating forest averaging 13 and 11% of core and home ranges, respectively. (p13). When the proportion of young regenerating forest reached 10 – 15% of the core area, the probability of producing a litter declines. (p14). Females with larger surviving litters *"had less fragmented home ranges, lower*

[63]Kosterman, Megan K., "Correlates of Canada Lynx Reproductive Success in Northwestern Montana" (2014). Theses, Dissertations, Professional Papers. Paper 4363.

moisture variance, young regenerating forest patches with low perimeter-area ratio, and lower percent composition of old regenerating forest than home ranges of females with smaller surviving litter sizes". (p15). *"…connectivity of mature forest, percent composition of young regenerating forest and young regenerating forest patches with low perimeter-area ratio, and adjacency of mature to young regenerating forest types were the most important predictors for overall lynx reproductive success in our study areas."* (p16).

The Northern Rockies Lynx Management Direction Record of Decision (NRLMD ROD) and its standards and guidelines provided no adequate standard for levels of mature forest habitat within LAUs and provided nothing for habitat not designated in LAUs. While it states that habitat connectivity will be maintained, there is no definition of what constitutes connected habitat, even though this can be defined by current science. The NRLMD ROD does not clearly define what qualifies as unsuitable lynx habitat, which is limited to no more than 30% of an LAU (VEG S1) with no more than 15% unsuitable habitat created in 10 years (VEG S2). The glossary at 12 also defines lynx habitat in an unsuitable condition as the stand initiation structural stage but notes that unsuitable habitat can also be created by shelterwood cuts and commercial thinning depending on the resulting stand composition and structure. The ROD at 9 defines lynx habitat in an unsuitable condition as those forests in a stand initiation structural stage that are too short to provide winter snowshoe hare habitat; these conditions are created by stand-replacing wildfires, prescribed burns that remove all vegetation, or regeneration timber harvest. The ROD at 10 states that the definition of VEG S2 was changed to clarify that it only applies to timber management practices that regenerate a forest, as clear-cut, seed tree, shelterwood, and group selection. The VEG S2 standard applies to all timber management projects that regenerate forests, including clear-cuts, seed tree, shelterwood and groups selective cuts. The NRLMD does not ensure persistence of lynx, since there are no restrictions on the amount of an LAU that can be converted to habitats that are avoided by lynx, and to habitats that reduce habitat connectivity via mature forests.

The 30% clear-cut standard for lynx habitat in the NRLMD is based on habitat recommendations published in 1989, while other key recommendations were ignored. Although these recommendations noted that monitoring was required to determine if they would be effective, we found no evidence such monitoring was ever done before they were partially included in the LCAS and the NRLMD. Currently, the best available science demonstrates that the 33% opening level allowed by these recommendations are invalid, while the unused recommendations of maintaining a high level of forest cover of 69% has been validated. The 1989 Brittell recommendations for lynx habitat defined a level of habitat connectivity for lynx, which included denning, travel, and stalking habitat as 66% of each square mile of lynx habitat, not an entire LAU of many square miles with no guidance as to where within that LAU habitat should be maintained.[64]

[64] Brittell, J.D., R.J. Poelker, S.J. Sweeney, G.M. Koehler. 1989. Native cats of Washington. Washington Department of Wildlife, Olympia.

While clear-cuts and sparse forests may receive some lynx use, their suitability for lynx is significantly reduced for a significant amount of time. It has been shown not only that those clear-cuts and sparse forest are strongly avoided by lynx but that restoration of lynx habitat use in these logging areas to 50% of previous use takes 20 years in forest thinnings, and 34-40 years for selection cuts and clear-cuts. Also, all logging treatments are avoided by lynx for at least 10 years.[65] Predictors for lynx reproductive success within occupied female home ranges were the connectivity of mature forest, intermediate (10 - 15%) amounts of young regenerating forest, young regenerating forest patches with low perimeter - area ratios, and the adjacency of mature forest to young regenerating types. Female lynx home ranges with greater than 50% mature forest and 10 - 15% young regenerating forest appear to be the optimum.[66]

More recent work has characterized habitat quality of Canada lynx at their "range periphery".

> *Our results indicated that the probability of a female producing kittens was most associated with the connectivity of mature, multistoried forests (composed of mostly spruce-fir). However, the variation among female lynx accounted for ≈62% of the total variation explained in litter production, suggesting substantial individual-level variation. Thus, managers can contribute to increased reproductive success of female Canada lynx by facilitating the development of mature forests but measuring that success will be difficult given the individual variation. In core areas of high-quality females (i.e., produced kittens frequently), mature forest was 17% more abundant (i.e., ≈60% of the total core area), more connected, less clumpy, and exhibited 2.25-times larger patch sizes than the core areas of low-quality females. At the home-range extent, patterns were less pronounced while the abundance of mature forests remained high (≈50%) for high quality females. Additionally, we demonstrated that the relative density of snowshoe hares was ≥2.8 times higher in advanced regenerating forests compared to all other structural classes, including mature forest. Advanced regenerating forests accounted for ≈18–19% of the core area and home range of high-quality female lynx. Combined, our results suggest that a high-quality mosaic for female Canada lynx contains ≈50–60% mature forest and ≈18–19% advanced regenerating forest. Furthermore, we used Forest Inventory and Analysis data to characterize the approximate age distribution of advanced regeneration and mature forest, which was relevant for rotation schedules of forest silviculture. Results indicated that advanced regeneration was ≈20 to 80 years old while mature forest was ≈50 to ≥200 years old.*[67]

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[65] Holbrook, J.D., Squires, J.R., Bollenbacher, B., Graham, R., Olson, L.E., Hanvey, G., Jackson, S., Lawrence, R.L., 2018. Spatio-temporal responses of Canada lynx to silvicultural treatments within the Northern Rockies, U.S. For. Ecol. Manage. 422, 114–124.

[66] Kosterman, M.K. 2014. Correlates of Canada Lynx Reproductive Success in Northwestern Montana.Graduate Student Theses, Dissertations, & Professional Papers. 4363. https://scholarworks.umt.edu/etd/4363 Accessed on January 22, 2023.

[67] Holbrook, J.D., Squires, J. R., Bollenbacher, B., Graham, R. O., Lucretia E., Hanvey, G., J, S., Lawrence, R.L., Savage, S. L. 2019. Management of forests and forest carnivores: Relating landscape mosaics to habitat quality of Canada lynx at their range periphery. Forest Ecology and Management. 437: 411-425. https://doi.org/10.1016/j.foreco.2019.01.011 Accessed on January 22, 2023.

In addition, lynx spend a significant amount of time at the interface between mature and advanced regeneration forest. This is likely because advanced regeneration forest provides the most hares, but mature forest habitat makes these hares more accessible. This indicates that advanced regeneration forest subsidizes the occurrence of hares in adjacent mature forest where they are more accessible to lynx.[68]

What is lacking today is the inclusion of current knowledge of what is known about lynx, snowshoe hare, red squirrels and their habitats into quantitative criteria that define these habitats and their overlap in the southern DPS. The NRLMD and current Forest Plans are badly out of date and based on the omission of critical information. This is especially true in those areas not bordering the Canadian populations. While the Science Report has pointed out study and research needs, there has been a lack of definitive work in the southern-most states, particularly in SE Idaho, NE Utah, Colorado and the linkages or connections between these areas. Since these areas are heavily used by livestock as opposed to the situation further north, the effects of livestock on habitats important for cover and forage for snowshoe hares, and cover for lynx need to be determined. Also, the effects of over-snow travel, cross-country skiing, summer recreation and road density must be studied because the earlier data in the Science Report and the conclusions represented in the NRLMD, both LCAS, the 2017 SSA and the Remand Notice were based on earlier times in the absence of the levels of activity currently flooding throughout the western National Forests and BLM lands. We have regularly asked for data and maps of old growth forest residuals in these forests without success, apparently because these have not been developed. We have regularly asked for identification of the status of mined land reclamation, forest and vegetation manipulations, mapping of non-system roads and trails, temporary roads on National Forests without result.

It is in this vacuum of current data and information that the CTNF and FWS must evaluate the status of Canada lynx in the DPS. Continuing to cast doubt on the historical presence of lynx in these southern areas cannot be used as a mechanism to reduce the area of potential lynx habitat, the habitat connections needed, or regulatory requirements. Instead, the current existing database and science must be applied to map and describe these areas of historical observations (not just verified records), their current habitat status and fragmentation by human uses as compared to what is known about the habitat needs of lynx. Studies and data collection need to happen to answer the questions and fill the data needs.

The criteria for identifying and managing LAUs needs to change to more specific, quantitative limitations on timber harvest, road density, mining, recreation use, perhaps using blocks of contiguous habitat and connections. Currently "unoccupied" or "peripheral" areas that had historical lynx observations must have potential lynx habitat mapped into LAUs, watershed

[68] Holbrook, J.D., Squires, J.S., Olson, L.E., Lawrence, R.L., Savage, S., 2017. Multi-scale habitat relationships of snowshoe hares (Lepus americanus) in the mixed conifer landscape of the Northern Rockies, USA: cross-scale effects of horizontal cover with implications for forest management. Ecol. Evol. 7, 125–144.

areas, or blocks of habitat with definitive and quantitative criteria and standards reflecting what is known about lynx habitat. The parameters defining lynx habitat in places such as those studies we have cited in the contiguous states could be used to define current standards. Forest Plans and BLM Resource Management Plans must be amended with new standards to correct the current lack of regulatory requirements we have identified in our example of the Caribou NF. Corridors must be mapped and defined following the examples cited herein in which models have been used to identify lynx habitat, corridors, and connections. Those should have the same standards as occupied habitat.

Until these things are done, the Status Assessment for lynx must be that they are not only "threatened" in the western states DPS, but "endangered" and a recovery plan put in place to retain lynx in its historical habitat.

Respectfully,

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APPENDIX 1 -LIVESTOCK GRAZING STUDIES IN LINKAGE AND PERIPHERAL AREAS IN SE IDAHO AND NE UTAH BY DR. JOHN CARTER & ASSOCIATES

Since the late 1980s we have been engaged in collecting data on habitat in NE Utah and SE Idaho, particularly focused on the Bear River Range and Uinta Mountains. These are areas located in the linkage and peripheral habitat described for lynx in the CNF RFP and WCNF RFP. The 2013 LCAS (p68) stated that, *"Federal agencies have amended or revised land management plans across much of the range of the lynx to provide direction to conserve lynx and lynx habitat. Thus, the impacts of anthropogenic influences have been substantially reduced."* The presumption is that putting it in a forest plan means it will be so. The data and observations we have made over the past four decades and even earlier as we have backpacked and explored the national forests in Idaho, Utah, and Wyoming refute that presumption. Following are descriptions of some of our reports and data showing that livestock grazing management in this linkage habitat is abysmal. Figure A1 shows the National Forests occurring in the high elevation Regionally Significant Wildlife Corridor, which are where much of this data and observations have occurred. This corresponds to the linkage habitat and peripheral habitat.

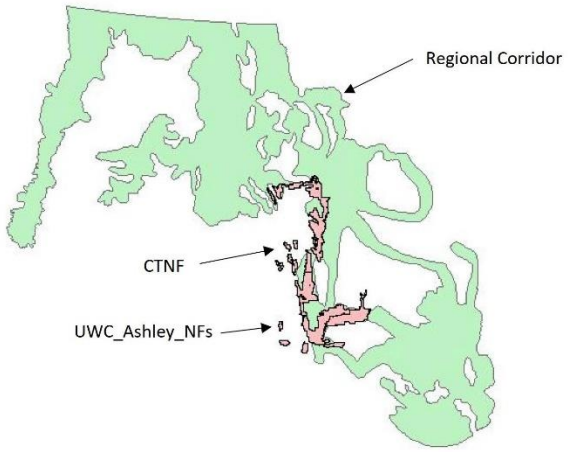

Figure A1. Forests in Which Livestock Grazing Studies Occurred

We completed a survey in the Caribou NF in 2001 with a report (Report) issued in 2002.[69]. This study showed tremendous degradation of plant communities and riparian areas. Monitoring in this and other areas in the Caribou and Targhee Zones and in NE Utah in the Uinta Wasatch Cache NF and Ashley NF since that time has shown no progress. When we measure use by livestock it is typically higher than sustainable levels and livestock are the base of the pyramid of damaging actions the Forest Service allows to continue. The photos in Figures A2-A6 below were taken during the 2001 survey and are from the Report. They show examples of the (a) impact of livestock grazing and water developments on vegetation, soils and aspen understory and recruitment, (b) conifer understory, and (c) riparian areas. Photo links are provided in the referenced Report for all locations surveyed.

[69] Carter, J., Chard,B. and J. Chard. 2002. Assessment of Habitat Conditions Bear River Range Caribou National Forest, Idaho. https://app.box.com/shared/5q2hazcnfu

In preparing this survey, we relied on Forest Service monitoring reports, the Draft EIS for the Revised Caribou Forest Plan[70] and literature characterizing livestock impacts on upland and riparian habitats. In the late 1990's, the Forest Service had prepared Regional and Sub-Regional Reports characterizing departures from Proper Functioning Condition (PFC) for aspen, conifer, tall forb, sagebrush/grasslands, riparian, and wetland areas. They found livestock grazing and past timber harvest in conifer forest were fundamental issues leading to loss of PFC in these communities.[71] [72] Our Report (p18) described the structure and compositional characteristics of these habitats needed for PFC.

We assessed 86 locations for PFC in the Bear River Range including uplands, riparian areas, open basins/meadows, aspen and conifer stands. These were within one mile of water sources in areas considered "capable" for livestock based on slope and distance to water. Mapping analysis predetermined the locations at which we surveyed each habitat type present. We compared observable conditions to the Caribou RFP Draft EIS PFC guidelines. Table A1 below is reproduced from the Report and shows the number of locations of each habitat type assessed. A total of 310 individual habitats were assessed. As shown, a small percentage met the Forest Service guidelines for PFC, most did not.

[70] USDA. 2001. Draft Environmental Impact Statement for the Caribou National Forest Revised Forest Plan Draft Revised Forest Plan. Caribou-Targhee National Forest.
[71] USDA. 1996. Intermountain Regional Assessment: Properly Functioning Condition. USDA Forest Service, Region IV, Ogden, Utah.
[72] USDA. 1998b. Draft Sub-regional Assessment of Properly Functioning Condition for Areas Encompassing the National Forests of Northern Utah. USDA Forest Service, Region IV, Ogden, Utah

Figure A2. Sheep watering and bedding area showing complete loss of understory, loss of aspen recruitment and high-lined aspen. The soil is completely exposed. Sheep are bedded in a different location each day throughout the season, leading to widespread damage that is not documented by the Forest Service.

Figure A3. Aspen stand in valley bottom. Cattle have denuded the area, browsed suckers and essentially created a single aged stand that will die out unless livestock are excluded and recruitment allowed to occur. No understory cover or herbaceous vegetation is left.

Figure A4. Grazed conifer stand with little herbaceous vegetation present

Figure A5. Grazed riparian area with barren banks, little vegetation left in riparian zone

Figure A6. Sediment-laden stream substrate from trampled and eroding banks, adjacent roads

Table A1. Results of Bear River Range PFC Assessments

Habitat type	Number of locations	Number in PFC	Percent in PFC
Aspen forest	71	17	24%
Conifer forest	68	14	21%
Forb meadow	44	2	4.5%
Sage – grass	73	8	11%
Riparian	54	12	22%

We measured ground and canopy cover along transects at 55 locations in sagebrush-grassland and tall forb habitats. Tables A2 and A3 below are reproduced from that report. Bare soil averages above 50% show ground cover is well below potential. These averages included some ungrazed exclosures, which if omitted from the analysis, would have resulted in even lower soil cover values. The Sub-Regional Assessment by the Forest Service indicated ground cover potential ranges between 80 - 95%. In our surveys of un-grazed areas in the Bear River Range and on Kiesha's Preserve, potential ground cover is near 100% in all habitats. See our Kiesha's Preserve website for photographs of these ungrazed conditions.

Table A2. Cover Data for 45 Sagebrush Locations

Cover type	Range	Average	Standard Deviation
Bare Ground	86.2 – 10.7	51.6	19.0
Litter	68.2 – 2.0	31.5	15.2
Grass	23.2 – 0.3	5.1	5.3
Forb	14.7 – 0.5	4.5	3.4
Shrub	16.7 – 0	4.7	3.6
Rock	11.9 – 0	2.2	2.8
Crust/moss	10.4 – 0	0.4	1.6
Shrub Canopy	43.0 - 0	12.4	9.0

Table A3. Cover Data for 10 Locations in Tall Forb

Cover type	Range	Average	Standard Deviation
Bare Ground	78.8 – 5.5	54.1	22.6
Litter	55.0 – 4.9	24.2	15.5
Grass	16.5 – 1.0	6.0	5.6
Forb	21.1 – 2.8	11.6	5.2
Shrub	10.3 - 0	3.0	3.4
Rock	3.6 - 0	0.8	1.2
Crust/moss	1.9 - 0	0.3	0.6

Data collected in this 2001 study as well as other surveys we have conducted in the area demonstrate that all Forest habitats grazed by livestock are well below potential. Compared to the Draft Caribou RFP EIS and other PFC manuals for Riparian Areas the best we could say is they are functioning at risk with many in non-functioning condition

We have measured utilization by livestock in numerous locations in the Bear River Range and adjacent public lands such as BLM. Compared to Forest Plan or BLM land use plan standards allowing 30 – 50% use in upland and riparian areas, universally we find utilization in riparian areas and meadows near 100% and in uplands 70 – 80%. A summary of studies is listed:

1. Unpublished data for Bear River Range riparian areas (12) using paired plots found utilization rates averaging 81%.[73]
2. 2011 Monitoring Report 1st Hollows and Paris Canyon Allotments.[74] I found utilization ranges from 75 – 92% in meadows, riparian area use was 63 and 82.6% at two locations monitored, upland low sagebrush sites ranged from 49 to 69%, and upland big sagebrush sites ranged from 85 to 88%.
3. Multiyear study in the Bear River Range in northern Utah looked at livestock grazing effects on plant production, soil nitrogen and carbon.[75] That study documented losses in plant cover, plant production, soil carbon and nitrogen in areas grazed by livestock compared to long term ungrazed areas.
4. Summary of utilization data for riparian areas on the North Rich Allotment in the Bear River Range.[76] Over a four-year period these remained nearly constant at 83 – 93%.
5. A multiyear study on a BLM managed allotment (Duck Creek) in the lower elevation foothills adjacent to the Bear River Range in Utah. We evaluated government monitoring by collecting data on grazed and ungrazed paired plots and critiqued the government monitoring effort. We found the BLM understated utilization and native plant production was greatly reduced by decades of improper management.[77]
6. A paper illustrating upland and riparian outcomes from BLM management of the Duck Creek allotment showed the installation of upland water and a deferred rotation grazing system resulted in increased use on the riparian greenline, bank alteration by trampling remained at 80%, riparian utilization remained near 100%, and upland utilization increased to near 80%.[78]
7. A report summarizing multiple years of data collection in the High Uintas Wilderness.[79] This study documented depleted alpine ground cover in grazed areas compared to those that had been excluded from sheep grazing for decades. Grazed areas had over 50% bare soil compared to 0.2% in long term rested areas. Streambanks were scoured by high runoff events due to loss of stabilizing vegetation in the watershed and stream banks. Most of the

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[73] Carter, J. 2009. Unpublished utilization data for Riparian Areas in the Bear River Range.

[74] Carter, J. 2012. 2011 Monitoring Report 1st Hollows and Paris Canyon Allotments. Report prepared for Western Watersheds Project and Yellowstone to Uintas Connection. Dated March 1,2012.

[75] Carter, J., Chard, B., and Chard, J. 2011. Moderating livestock grazing effects on plant productivity, nitrogen and carbon storage. In Monaco, T.A. et al. comps. 2011. Proceedings – Threats to Shrubland Ecosystem Integrity; 2010 May 18-20; Logan, UT. Natural Resources and Environmental Issues, Volume XVII. S.J. and Jessie E. Quinney Natural Resources Research Library, Logan Utah, USA.

[76] Carter, J. 2009. Allotment Summary North Rich Allotment Riparian Areas.

[77] Catlin, J., Carter, J., and Jones, A. 2011. Range management in the face of climate change. In Monaco, T.A. et al. comps. 2011. Proceedings – Threats to Shrubland Ecosystem Integrity; 2010 May 18-20; Logan, UT. Natural Resources and Environmental Issues, Volume XVII. S.J. and Jessie E. Quinney Natural Resources Research Library,
Logan Utah, USA.

[78] Carter, J., Catlin, J., Hurwitz, N., Jones, A., and Ratner, J. 2017. Upland water and deferred rotation effects on cattle use in riparian and upland areas. Rangelands 39(4):112-118.

[79] Carter, J. 2006. Watershed Conditions Uinta's Wilderness, Utah. Report for Western Watersheds Project. https://app.box.com/s/944957604b8618539585 Accessed on January 21, 2023.

soils in the allotment are considered as high to extremely high in erosion potential, resulting in loss of the productive upper horizon.

8. A paper on livestock grazing impacts in the High Uintas Wilderness which is in designated LAUs and Peripheral habitat.[80] While all lands in this 160,000 acre set of domestic sheep allotments are grazed by domestic sheep, we determined that only a small fraction of the area (6%) is capable for grazing when we applied the Forest Service criteria for determining capable acres. The current forage on the allotments provides only 10% of the demand. The result of this is accelerated erosion, sedimentation of lakes and streams, depletion of the native plant community to below its potential. Based on the two scenarios we evaluated, the stocking rate would need to be reduced between 90 – 97%.

There were other surveys and reports with data provided to the Forest Service and BLM. No management changes have resulted from this input now decades after we first began monitoring and submitting data to the agencies. The habitats are depleted of the forage and horizontal cover needed by snowshoe hares and other wildlife. The Desired Future Conditions and Standards provided in the Forest Plans for these places have resulted in no positive change. Yet, the FWS and Forest Service claim that provisions in Forest Plans protect lynx habitat.

[80] Carter, J., Vasquez, E. and Jones, A. (2020) Spatial Analysis of Livestock Grazing and Forest Service Management in the High Uintas Wilderness, Utah. Journal of Geographic Information System, 12, 45-69. https://doi.org/10.4236/jgis.2020.122003