

December 1, 2019

Kristy Groves
District Ranger
Duchesne Ranger District Office
85 West Main
Duchesne, Utah 84021



Re: Ashley NF Aspen Restoration Project

Comments sent via email to: comments-intermtn-ashley@fs.fed.us and kristy.groves@usda.gov

Dear Ranger Groves:

These comments are submitted on behalf of the Alliance for the Wild Rockies, Native Ecosystems Council and Yellowstone to Uintas Connection. They address the October 24, 2019 Scoping letter and Report issued by the Ashley NF. These are 501c3 organizations working to ensure the best available science is incorporated into agency project plans and that wildlife habitat retains the attributes needed to support those species potentially occupying or relying on the project area. We have extensive experience on the ground in both the Ashley NF and Wasatch-Cache NF and are greatly concerned with the trends in management in these National Forests, the degradation by livestock, the excessive road densities, ohvs and noise and the many acres of salvage logging or otherwise named "treatments" which boil down to tree removal and ecosystem disturbance by heavy equipment. A project of this scope demands an Environmental Impact Statement and site-specific analysis.

We understand from the scoping letter and report that the Aspen Restoration Project will occur on 177,077 acres outside of designated wilderness, but can occur in Inventoried Roadless Areas and will be conducted under a Categorical Exclusion. According to the Scoping Report (p2) this project is to begin a "programmatic approach" to restoring aspen and that there will be no NEPA for site-specific projects and there will be no appeal or objection opportunities. (Scoping Report p6). In other words, the Forest Service will cut, burn, masticate, sell, girdle, cut roots, and potentially destroy ecosystem function in up to 177,077 acres of the Ashley NF while relying on BMPs and no site-specific analysis or public input. This activity will be superimposed on all other activities such as livestock grazing, ohv use on legal and illegal roads and trails, hiking, horseback riding, trapping, hunting and shooting, while creating more roads and skid trails and landings, introducing noise and disturbance for up to 20 or perhaps more, years, meanwhile expecting the ecosystem to function for wildlife and wildlife populations to maintain themselves.

Here is an outline of some of our concerns:

- The use of a CE and lack of programmatic or site-specific project NEPA without addressing the circumstances prevailing in this project area.
- The lack of site-specific analysis and comparison to ecological criteria, best available science or Forest Plan intent.
- The lack of opportunities for public input, objection and appeal.
- There was no designation of a cumulative effects area and no analysis of cumulative effects.
- Reliance is placed on Best Management Practices (BMPs) instead of science-based criteria under which to manage the project and overlapping uses such as livestock grazing and recreation.
- Climate change was not addressed.
- There was no analysis of the Regionally Significant Wildlife Corridor, ESA, special status species such as goshawk, Canada lynx or wolverine, or for that matter native plants.
- There was no analysis of NFMA viability requirements for special status species.
- Old growth was not addressed.
- Aspen, livestock, active management, beetles all interactions and outcomes not addressed.
- The costs for proposed fencing and other project elements or activities are not defined. Are contractors to be used? Will this occur in the form of timber sales?

1. Use of a Categorical Exclusion

The Scoping Report documents that this project and its unknown number of site-specific projects will be "categorically excluded from documentation in an environmental assessment or environmental impact statement". The rationale is that this is a timber project and/or wildlife habitat improvement project" that will use no herbicides or require more than one mile of low standard road construction. (p5). This precludes the public from seeing and commenting on a site-specific analysis and no opportunity to comment, object or appeal. It also implies that there will be no cumulative effects or hard look at direct or indirect effects, or for that matter, informing the public about existing conditions and the cause and effect related to those conditions in their National Forest.

However, there is no actual data provided in the scoping notice to demonstrate to the public how this use of a CE has been determined. Even implementation of a CE does not free the Forest Service from the requirements of the National Environmental Policy Act (NEPA). The basis for a determination that this project will increase age-class diversity of aspen, restore and maintain self-replacing aspen stands, expand aspen and reduce conifers to reduce fire intensity was never provided. The only objective mentioned for wildlife is to "provide forage and browse for both wildlife and livestock". There is no analysis of the relative importance of livestock vs wildlife in current aspen conditions.

The term "wildlife" includes a large suite of wildlife species. Demonstrating that all wildlife species will be benefited by this project would seem to require some rather extensive documentation to the public, none of which was provided in the scoping notice or report. We believe that the NEPA requires the agency to adequately demonstrate that the determination

that this project will benefit all wildlife species needs to be included in the public involvement process, which in this case is scoping. There is no documentation of the current status of special status species potentially occurring or occurring in the project (and cumulative effects) areas. As discussed below, species such as Northern goshawk, Canada lynx, wolverine, Colorado River cutthroat trout, many owls, bats, amphibians and reptiles are, or potentially are, affected by this project.

Use of a CE for this project is also invalid because the proposed vegetation treatments would occur within unnamed Inventoried Roadless Areas (IRA). In addition, the habitat provided or potentially provided for special status species such as Northern goshawk, Canada lynx, wolverine, threatened or endangered plants and others is not documented in the Scoping Report and no analysis will be available for public input or objection or appeal. These qualify as extraordinary circumstances that invalidate use of a CE. Although the presence of an extraordinary circumstance does not automatically preclude use of a CE, application of a CE requires documentation. It is the existence of a cause-effect relationship between a proposed action and the potential effects on these resource conditions and if such a relationship exists, the degree of the potential effects of a proposed action on these resource conditions that determine whether extraordinary circumstances exist (36 CFR 220.g(b)).

There is no analysis in the Scoping Notice or Report that defines why forest thinning, logging and prescribed burning will not significantly affect the area's value to wildlife. We contend that the proposed thinning and burning will have significant adverse impacts on many wildlife species, impacts that are not currently present. The Scoping Notice does not identify any adverse impacts that have been identified to wildlife from the current habitat conditions in the project area or IRA(s). IRAs are not identified. The project will eliminate existing values of the IRAs and special status species habitats and may further degrade those values, such as wildlife security habitat. This would be a cause-effect relationship, invalidating the use of a CE.

2. Reliance on Best Management Practices

The Scoping Report indicates the project will rely on Best Management Practices. These are assumed to be effective and relied upon. However, a fundamental aspect of NEPA is to take a "hard look" at current management, conditions, assumptions and implementation. A CE is not NEPA and allows the Forest Service to escape accountability for current degraded conditions it claims, such as conifer encroachment into aspen. But, what is the mechanism of this conifer encroachment and lack of recruitment in aspen stands. Is it past fire suppression? Livestock grazing? Both?

What is the past history of this project area? What Forest actions or permitted activities play a role in the current state of aspen, wildlife habitat, watershed health and other ecosystem attributes? There is no analysis of:

- Validity of assumptions from previous NEPA processes
- Accuracy of predictions from previous NEPA processes
- Adequacy of Forest Service implementation of previous decisions
- Effectiveness of actions taken in previous decisions

These above items are critical for effective decisions and outcomes and for the public to be informed. This can only be done under a NEPA process. Without this critical link the validity of the current assumptions cannot be determined. Without analyzing the accuracy and validity of the assumptions used in previous NEPA processes one has no way to judge the accuracy and effectiveness of the current analysis and proposals. The predictions made in previous NEPA processes also need to be disclosed and analyzed because if these were not accurate, and the agency is making similar decisions, then the process will lead to failure. For instance, if in previous processes the agency or permittee said they were going to do a certain monitoring plan or implement a certain type of management, meet certain goals and objectives, and these were never effectively implemented, it is important for the reader and the decision maker to know. If there have been problems with implementation in the past, it is not logical to assume that implementation will now be appropriate. If prior projects have not been monitored to document and compare post project initiation conditions to baseline data, then there is no proof that models or BMPs are accurate, effective, or can be relied upon. What commitments have been made in the Forest Plan and subsequent project plans? Have these been realized?

The reliance on BMPs is a flawed approach that assumes they work. Ziemer and Lisle (1993)¹ indicated that there are no reliable data showing that BMP's are cumulatively effective in protecting aquatic resources. Espinosa et al. (1997)² provided evidence from case histories in Idaho that BMP's thoroughly failed to cumulatively protect salmonid habitats and streams from severe damage from roads and logging. In analyses of case histories of resource degradation by stereotypical land management (logging, grazing, mining, roads) several researchers have concluded that BMP's increased watershed and stream damage because they encourage heavy levels of resource extraction under the false premise that resources can be protected by BMP's (Stanford and Ward, 1993³, Rhodes et al., 1994⁴ Espinosa et al., 1997). Stanford and Ward (1993) termed this phenomenon *the "illusion of technique."*

¹ Ziemer, R.R., and T.E. Lisle. 1993. Evaluating sediment production by activities related to forest uses--A Northwest Perspective. Proceedings: Technical Workshop on Sediments, Feb., 1992, Corvallis, Oregon. pp. 71-74.

² Espinosa, F.A., Rhodes, J.J. and D.A. McCullough. 1997. The failure of existing plans to protect salmon habitat on the Clearwater National Forest in Idaho. J. Env. Management 49(2):205-230.

³ Stanford, J.A., and J.V. Ward., 1992. Management of aquatic resources in large catchments: Recognizing interactions between ecosystem connectivity and environmental disturbance. Watershed Management: Balancing Sustainability and Environmental Change, pp. 91-124, Springer Verlag, New York.

⁴ Rhodes, J.J., Espinosa, F.A., and C. Huntington. 1994. Watershed and Aquatic Habitat Response to the 95-96 Storm and Flood in the Tucannon Basin, Washington and the Lochsa Basin, Idaho. Final Report to Bonneville Power Administration, Portland, Or.

3. Climate Change

The Scoping Report does not mention climate change and the role of forests in storing carbon. Instead, trees are to be removed and/or burned, the reverse of damping down climate change. Scientists say halting deforestation is just as urgent as reducing emissions to address climate change, given the function forests provide as a carbon sink.⁵ Forest thinning reduces this carbon sink function. The IPCC released its special report on climate change in August, 2019.⁶ That report noted that, "reducing deforestation and forest degradation rates represents one of the most effective and robust options for climate change mitigation, with large mitigation benefits globally." In past reports such as *Livestock's Long Shadow*⁷, the FAO discussed the contribution of livestock to greenhouse gas emissions. A large factor is also conversion of forests to grasslands for livestock. "Worldwide, livestock production accounts for about 37 percent of global anthropogenic methane emissions and 65 percent of anthropogenic nitrous oxide emissions with as much as 18% of current global greenhouse gas emissions (CO₂ equivalent) generated from the livestock industry." Livestock grazing and trampling in the western US led to a reduction in the ability of vegetation and soils to sequester carbon and also led to losses in stored carbon.

An analysis of net carbon change in US Forests found that, "C loss in the western US (44 ± 3 Tg C per year) was due predominantly to harvest (66%), fire (15%), and insect damage (13%)." Across the US, the various disturbances (harvest, fire, insect, wind and forest conversion) reduced the estimate of potential Carbon sink of the US forests by 42%."⁸ Life cycle analyses of fuel reduction treatments including removal of woody biomass, combustion of fuel in logging machinery, transport, burning of slash, milling energy use, and other factors lead to the conclusion that over the long term, carbon losses from treatment projects may exceed those from wildfire because most of the carbon mass remains on site unburned during fire. The authors further noted that, "Studies at large spatial and temporal scales suggest that there is a low likelihood of high-severity wildfire events interacting with treated forests, negating any expected C benefit from fuels reduction."⁹

⁵ Millman, O. 2018. Scientists say halting deforestation "just as urgent" as reducing emissions. *The Guardian*, October 4, 2018.

⁶ IPCC. 2019. *Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems*. <https://www.ipcc.ch/report/srccl/>. Accessed 11/23/2019.

⁷ H. Steinfeld, P. Gerber, T. Wassenaar, V. Castel, M. Rosales, and C. de Haan, *Livestock's Long Shadow*, Food and Agriculture Organization of the United Nations, Rome, Italy, 2006. <http://www.fao.org/3/a0701e/a0701e00.htm>. Accessed 11/23/2019.

⁸ Harris, N.L.; Hagen, S.C.; Saatchi, S.S.; Pearson, T.R.H.; Woodall, C.W.; Domke, G.M.; Braswell, B.H.; Walters, B.F.; Brown, S.; Salas, W.; Fore, A.; and Y. Yu. 2016. Attribution of net carbon change by disturbance type across forest lands of the conterminous United States. *Carbon Balance and Management*. 11(1): 24. 21 p. <http://dx.doi.org/10.1186/s13021-016-0066-5>.

⁹ Restaino, J.C. and D.L. Peterson. 2013. Wildfire and fuel treatments effects on forest carbon dynamics in the western United States. *Forest Ecology and Management* 303:46-60.

Both fuel treatments and wildfire remove Carbon from forests. A simulation showed that even in mature ponderosa pine forest, protecting one unit of Carbon from wildfire combustion came at a cost of removing three units of Carbon with treatments. "The reason for this is simple: the efficacy of fuel reduction treatments in reducing future wildfire emissions comes in large part by removing or combusting surface fuels ahead of time. Furthermore, because removing fine canopy fuels (i.e. leaves and twigs) practically necessitates removing the branches and boles to which they are attached, conventional fuel-reduction treatments usually remove more C from a forest stand than would a wildfire burning in an untreated stand." The analysis showed that thinning and other fuel treatments to reduce high-severity fire, although considered to keep Carbon sequestered, do not do so. High carbon losses came from treatments while only small losses were associated with high-severity fire and these were similar to the losses with low-severity fire that treatments are meant to encourage.¹⁰

We looked up a few studies on the carbon stored in vegetation and soils. A USDA study¹¹ estimated soil organic carbon in relatively undisturbed secondary forests in the Rocky Mountain Region is 71,571 lbs/acre. Estimated carbon in dead organic matter above the mineral soil horizon in lodgepole pine forest in the Rocky Mountain Region is 13,411 lb/acre. Average storage of carbon by Forest ecosystem component for the Rocky Mountain Region is 148,190 lb/acre for Idaho with trees (60,961 lb/acre), soil (64,417 lb/acre), Forest Floor (21,735 lb/acre) and Understory (1,077 lb/acre). Annual average carbon accumulation in live trees for Idaho is 1,112 lb/acre/year. The Proceedings of the American Society of Mining and Reclamation reported that, "Soil organic matter (OM) is drastically reduced by various processes (erosion, leaching, decomposition, dilution through soil horizon mixing etc.) typically associated with topsoil salvage prior to surface mining activities. Of these processes, loss of physical protection of OM through the breaking up of soil aggregation can result in up to 65% of soil carbon (C) reductions."¹² What effect does the mechanical disturbance of soils to carry out a project such as the Ashley Aspen Restoration Project have when bulldozers, masticators, feller-bunchers and other equipment dig up the soils surface for skid trails, masticating and other actions? See Figure 1 below showing the result of a "treatment".

The BLM and Forest Service allocate AUMs for livestock that relate to forage consumption by a cow and calf, or five ewes with lambs. In a review of the forage consumption for both cattle and sheep using current weights for these animals, we found that currently, a cow/calf pair consumes 1,504 lbs/month and five ewes with lambs consume 1,976 lbs/month.¹³ The cumulative effect of this forage consumption, the gases released by livestock and that lost in

¹⁰ Campbell, J.L., Harmon, M.E., and S.R. Mitchell. 2012. Can fuel-reduction treatments really increase forest carbon storage in the western US by reducing future fire emissions? *Frontiers in Ecology and Environment* 10(2):83-90. doi:10.1890/110057.

¹¹ Birdsey, R. A. Carbon Storage and Accumulation in United States Forest Ecosystems. USDA Forest Service General Technical Report WO-59.

¹² Wick et al. 2008. Soil aggregate and aggregate associated carbon recovery in short-term stockpiles. *Proceedings America Society of Mining and Reclamation*, 2008 pp 1389-1412. DOI: 10.21000/JASMR08011389

¹³ Carter J. 2016. Updating the animal unit month. Report by Yellowstone to Uintas Connection. <https://app.box.com/s/zx4xjekrfuht2aq12soruw0qfil8hogk>

timber removal should also be added to the GHG emissions analysis as a contribution to atmospheric GHGs and loss in carbon sequestration. Removing livestock from the project area is a possibility to offset annual GHG emissions.



Figure 1. Photograph of a Fuels Treatment in Idaho

The Forest Service produced a National Roadmap for Responding to Climate Change. The principles expressed therein are applicable to this project and others in the phosphate mining area.¹⁴ This roadmap provides guidance to the agency, including, but not limited to:

- Assess vulnerability of species and ecosystems to climate change
- Restore resilience
- Promote carbon sequestration
- Connect habitats, restore important corridors for fish and wildlife, decrease fragmentation and remove impediments to species migration.

To date, we have not seen the Forest Service cite or adhere to these principles in any project EA or EIS. A Hard Look would require such an analysis. An honest look would require such an analysis and promote appropriate mitigation actions to include carbon sequestration and offsets as well as habitat restoration.

In addition, the National Fish, Wildlife and Plants Climate Adaptation Strategy proposed by the US Fish and Wildlife Service, NOAA Fisheries and the American Fish and Wildlife Association describes climate change effects and emphasizes conservation of habitats and reduction of non-

¹⁴ USDA. 2010. National Roadmap for Responding to Climate Change. 30p.
www.fs.fed.us/climatechange/pdf/roadmap.pdf

climate stressors to help fish and wildlife adapt.¹⁵ Agencies such as the Forest Service and Bureau of Land Management must address conservation of habitats and reduction of non-climate stressors such as the habitat degradation from livestock grazing, including soil loss, stream dewatering, plant communities shifting to increasers or weeds to help fish and wildlife adapt in accordance with the National Fish, Wildlife and Plants Climate Adaptation Strategy.

Regarding connecting habitats, later in these comments we describe the regional Corridor and its importance to perpetuation of wildlife and their gene pools.

Figure 2 shows the Western Wildway, the Continental Corridor connecting Mexico to Alaska and the regions of that corridor being addressed by scientists and advocates of connectivity for wildlife. In that map, the Yellowstone to Uintas Connection is identified, and is the focus of Y2U. This represents a conservation biology approach to landscape conservation which emphasizes corridors and connectivity for Canada lynx and other species. As we read EAs and EIS for project after project in our National Forests, it appears that conservation biology principles are abandoned and corridor/connectivity ignored.



Figure 2. Western Wildway

¹⁵ <https://www.wildlifeadaptationstrategy.gov/>

The scale of this proposed project covering 177,077 acres demands an EIS and an analysis of factors affecting climate change as well as the other topics covered in these comments. This should include the loss of vegetation and stored carbon by logging, burning, mastication and livestock consumption of vegetation. In addition, use of gas or diesel-powered machines to carry out the project needs to be addressed in terms of the emissions generated. Soil carbon loss due to mechanical disturbance for skid trails, mastication, chainsaws and other machines needs to be calculated. Recreation occurring in the project and any cumulative effects area produces GHGs from atvs, dirt bikes, snowmobiles and other vehicles used for camping and recreating.

Such greenhouse gas sources can be quantified. An analysis¹⁶ of the carbon footprint of off-road vehicles in California determined that:

- Off-road vehicles in California currently emit more than 230,000 metric tons — or 5000 million pounds — of carbon dioxide into the atmosphere each year. This is equivalent to the emissions created by burning 500,000 barrels of oil. The 26 million gallons of gasoline consumed by off-road vehicles each year in California is equivalent to the amount of gasoline used by 1.5 million car trips from San Francisco to Los Angeles.
- Off-road vehicles emit considerably more pollution than automobiles. According to the California Air Resources Board, off-road motorcycles and all-terrain vehicles produce 118 times as much smog-forming pollutants as do modern automobiles on a per-mile basis.
- Emissions from current off-road vehicle use statewide are equivalent to the carbon dioxide emissions from 42,000 passenger vehicles driven for an entire year or the electricity used to power 30,500 homes for one year.

Another study¹⁷ provides data on the amount of fossil fuel being consumed by snowmobiles in Montana, from which one can calculate the carbon footprint. The study found that resident snowmobilers burn 3.3 million gallons of gas in their snowmobiles each year and a similar amount of fuel to transport themselves and their snowmobiles to and from their destination. Non-residents annually burn one million gallons of gas in snowmobiles and about twice that in related transportation. So that adds up to 9.6 million gallons of fuel consumed in the pursuit of snowmobiling each year in Montana alone. Multiply that by 20 pounds of carbon dioxide per gallon of gas (diesel pickups spew 22 pounds per gallon) and snowmobiling releases 192 million pounds (96 thousand tons) of climate-warming CO₂ per year into the atmosphere.

Any project such as the Aspen Restoration Project must address climate change by addressing these factors within the project and cumulative effects areas. It is also important to place the

¹⁶ Kassir, C. and P. Spitler, 2008. Fuel to Burn: The Climate and Public Health Implications of Off-road Vehicle Pollution in California. A Center for Biological Diversity report, May 2008.

¹⁷ Sylvester, James T., 2014. Montana Recreational Off-Highway Vehicles Fuel-Use and Spending Patterns 2013. Prepared for Montana State Parks by Bureau of Business and Economic Research, University of Montana. July 2014.

carbon emissions in Utah in perspective as the two cited studies did for California and Montana.

4. Wildlife Corridor

Circa 2000, the Wasatch Cache National Forest produced the map shown in Figure 3 representing the Regionally Significant Wildlife Corridor. This map can be found on the Uinta Wasatch Cache NF website.¹⁸

All Forest Sensitive, Management Indicator (MIS), Special Status, Threatened and Endangered (T&E), and big game species must be analyzed to ensure compliance with NFMA, NEPA, ESA and other applicable regulations regarding capability, suitability of habitats, connectivity and viability of populations. Past timber harvest activities, roads, mining and related activities (ohv use, including closed roads and trails illegally used) must be analyzed in the context of the importance of habitat connectivity; corridor, core and peripheral areas; habitat fragmentation by human infrastructure and activity; and security habitat.

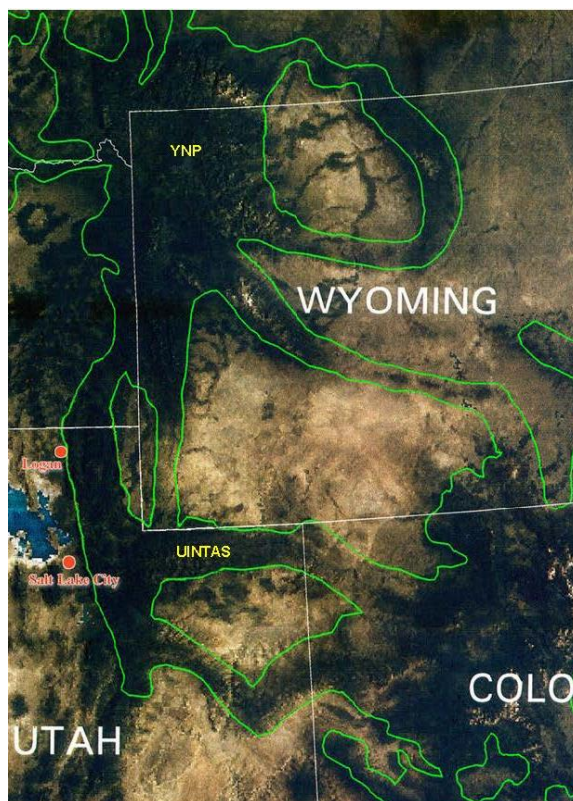


Figure 3. Regionally Significant Wildlife Corridor

5. Canada Lynx

The Forest Service provides a map of historic lynx distribution showing that the Uintas have historically been used by Canada lynx. (Figure 4). There are core and peripheral or linkage areas.¹⁹ The Uintas are a core area as will be discussed below. The Biological Assessment²⁰ for Canada lynx documents the importance of peripheral areas as:

Peripheral populations may contain valuable genetic, physiological or behavioral adaptations that are unique to their ecological success. Because suitable habitats in areas where populations act as metapopulations are spatially separated, the persistence of a metapopulation is dependent on the efficiency and success of dispersing animals in

¹⁸ https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5076928.pdf

¹⁹ USDA Forest Service. 2007. Final Environmental Impact Statement Northern Rockies Lynx Management Direction National Forests in Montana, and parts of Idaho, Wyoming and Utah. Figure 1-1.

²⁰ USDA Forest Service 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. 149p.

reaching isolated patches of suitable habitat. When patches are fragmented and connections between patches do not exist, recolonization becomes problematic and the metapopulation may be unable to persist, even though patches of suitable habitat remain (Meffe and Carroll 1997²¹). Additional fragmentation and isolation of suitable habitat occurring as a result of land management activities can not only affect small isolated habitat patches supporting smaller populations but also large contiguous patches supporting higher population levels.

Ruggiero et al (1999)²² also discuss the effects of fragmentation on competition with lynx by other carnivores and the loss of connectivity. The Forest Service map of historic lynx distribution for 1842 - 1998 is shown in the referenced link and in Figure 3.²³ This reveals the historical areas used and the pattern of connectivity, which clearly connects Colorado populations to the Greater Yellowstone Ecosystem and northern Rockies. The Ashley, Uinta-Wasatch-Cache NFs also published a map showing lynx analysis units, primary and secondary habitat, and connections.²⁴ It should be noted that the Ashley Aspen Restoration Project is entirely within LAUs. (Figure 5).

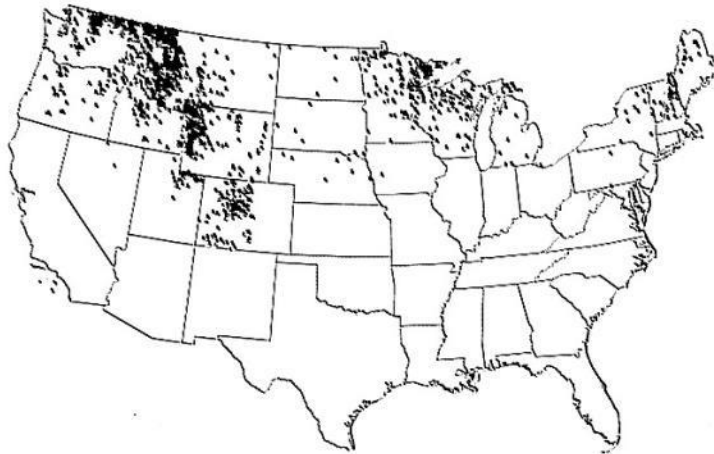


Figure 4. Historical Distribution of Canada Lynx

²¹ Meffe, G.K., and C.R. Carroll. 1997. Principles of conservation biology. Sinauer, Sunderland, Massachusetts

²² Ruggiero, L.F., Aubry, K.B., Buskirk, S.W., Koehler, G.M., Krebs, C.J., McKelvey, K.S., and J.R. Squires (Eds.), Ecology and Conservation of Lynx in the United States. University of Colorado Press, Boulder, CO.

²³ <http://www.fs.usda.gov/detail/r1/landmanagement/resourcemanagement/?cid=stelprdb5160688>

²⁴ https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5076927.pdf

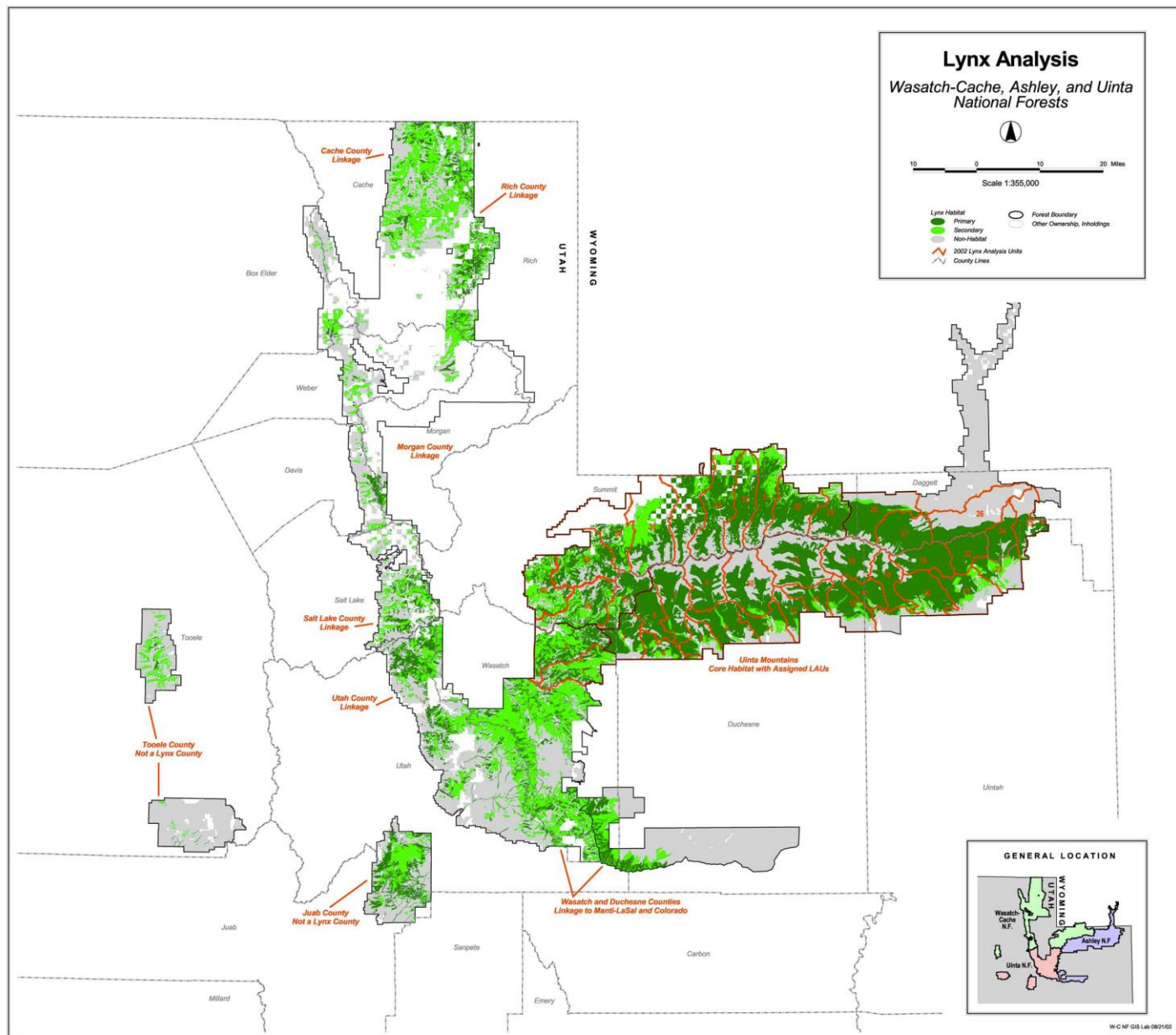


Figure 5. Lynx analysis units, primary and secondary habitat, and connections

In a sophisticated modeling of lynx habitat, it was determined that the Uintas are core lynx habitat.²⁵ (Figure 6). Shown are the core areas in Wyoming and Utah.

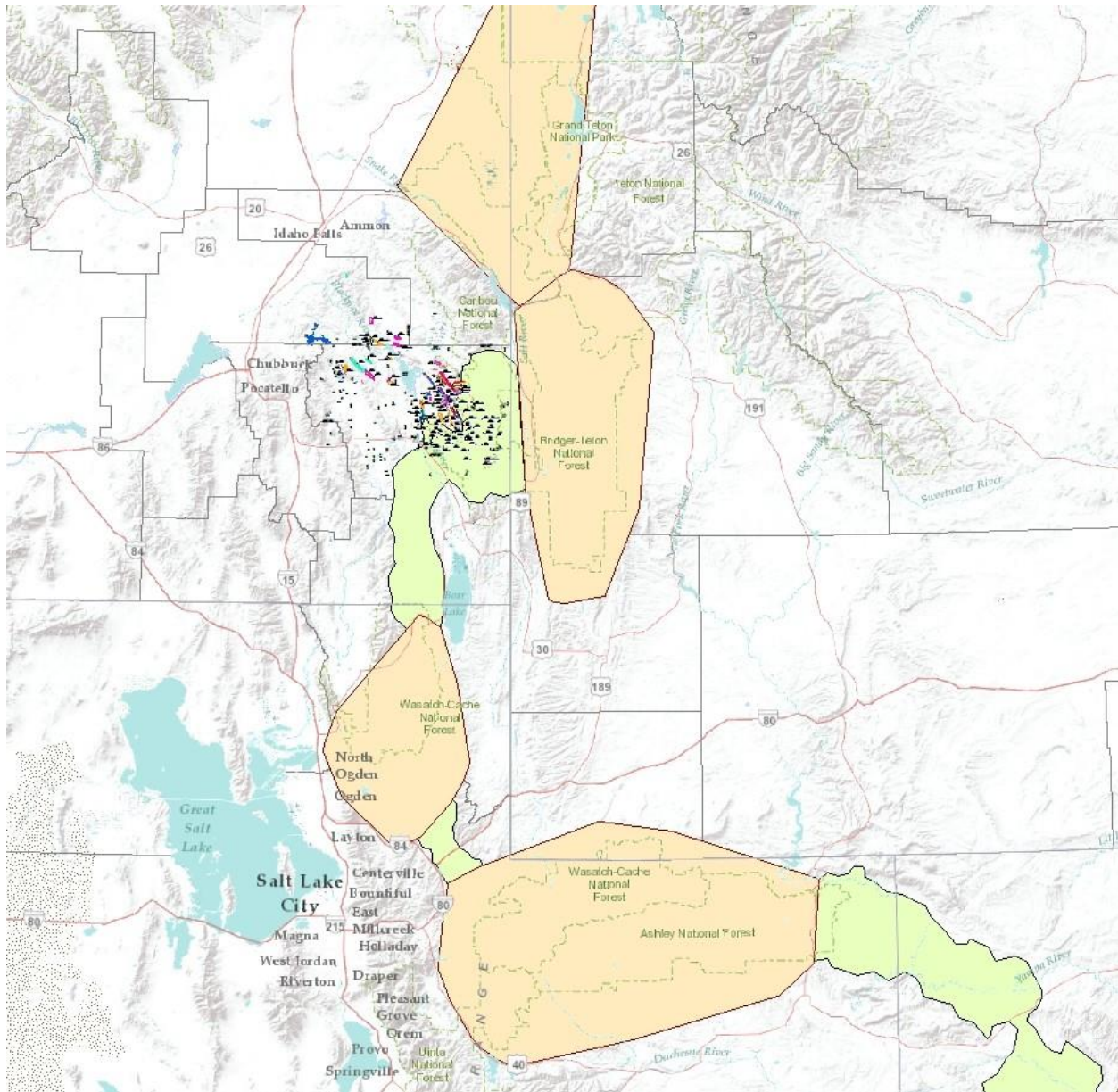


Figure 6. Modeled corridor from Bates and Jones. Orange is depicting a core area for lynx, while yellow are linkages. Mine leases in Idaho shown in various colors blue, red, orange depending on status.

²⁵ Bates, W. and A. Jones. 2010. Least-Cost Corridor Analysis for Evaluation of Lynx Habitat Connectivity in the Middle Rockies. Wild Utah Project, Salt Lake City, UT. <https://app.box.com/s/Og8b1ryqg1iz6r1fd61rdkc8fso97oh5>

More recently, the Colorado Division of Wildlife tracked radio-collared lynx released in Colorado. The tracked lynx show a similar pattern of use in the map. (Figure 7).²⁶ These maps show the migration path, and that lynx have been historically using NE Utah and SE Idaho and have many sightings in the Uinta Mountains.

Thus, the Uinta Mountains are recognized as part of a regionally significant wildlife corridor.²⁷ This corridor connects to the greater Yellowstone ecoregion through the Bear River Mountains of northern Utah and southern Idaho, and through the Crawford Mountains of southwest Wyoming.

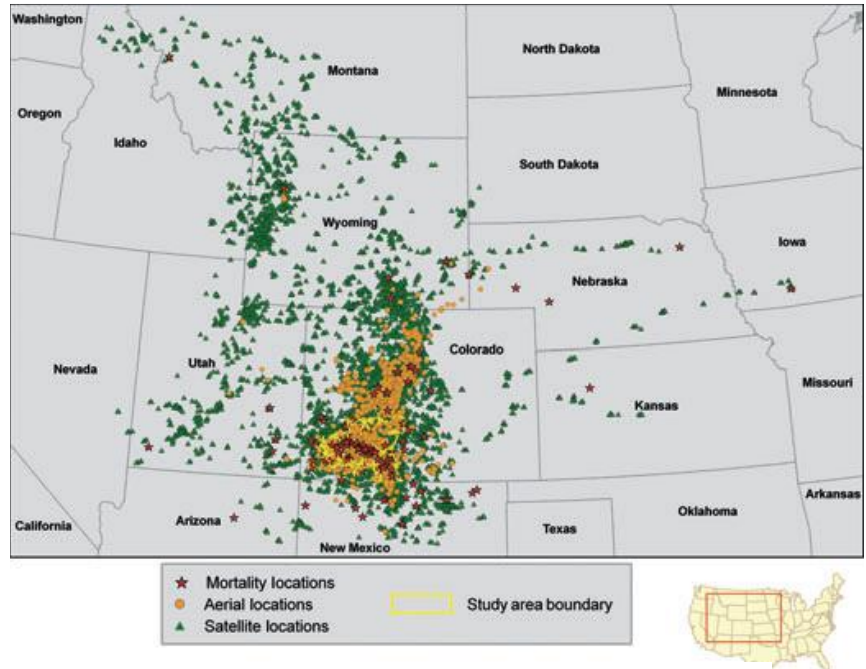


Figure 7. Tracked Lynx from Colorado Re-introductions

Given that there are resident lynx populations in Colorado and Wyoming today, and given that the Uinta Mountains are recognized as a regionally significant wildlife corridor, it is no surprise that lynxes still use the Uintas. Indeed, telemetry records confirm that there is a “hot spot” of lynx occurrences at the western end of the Uinta Mountains, where collared lynxes from Colorado remain for a time before moving on, presumably unable to find mates. As of 2009, at least 22 individuals had made at least 27 visits to the state of Utah, recorded by air telemetry and satellite.²⁸ 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.”²⁹

A recent paper found that lynx exhibited decreasing use of stand initiation structures up to a maximum availability of 25%.³⁰ Another found that 50% of lynx habitat must be mature

²⁶ 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.

²⁷ Wasatch-Cache National Forest March 2003 Revised Forest Plan 4-21.

²⁸ Colorado Department of Wildlife (CDOW) Report, 2006-7, Tables 4 and 6, pages 23 and 24.

²⁹ Ibid. page 10; see also Figure 2, page 29.

³⁰ Holbrook, J. D., J. R. Squires, L. E. Olson, N. J. DeCesare, and R. L. Lawrence. 2017. Understanding and predicting habitat for wildlife conservation: the case of Canada lynx at the range periphery. *Ecosphere* 8(9):e01939.

10.1002/ecs2.1939

undisturbed forest for it to be optimal lynx habitat and no more than 15% can be young clearcuts, i.e. trees <4" dbh.³¹ The study also found that lynx do not use clearcuts in winter when they are at most risk of starvation.

Given that lynx prey consists principally of snowshoe hares and red squirrels. In the case of hares, the near universal grazing of livestock in the Uinta Mountains in both wilderness and non-wilderness areas, in both the Ashley and Uinta Wasatch Cache NFs depletes food for hares and degrades hare habitat. Livestock are a potential factor reducing hare populations, thereby reducing the food base for lynx. Similarly, loss of fir and lodgepole pine which are a food source for red squirrels can play a role when timber projects remove these trees. Currently, besides this proposed project, the WCNF is carrying out the Burnt-Beaver Restoration project which is a project of a similar nature covering 70,772 acres in the Evanston-Mountain View Ranger District and affecting two IRAs. In addition, both the Ashley and WCNF are participating in the High Uintas Domestic Sheep Analysis to reauthorize domestic sheep grazing on ten allotments covering 160,000 acres. A recent notice from the Ashley NF describes the Mill Park Forest Restoration Project, a 3600-acre timber and vegetation manipulation.

It is critical that the Forest Service fully analyze the effect of livestock grazing, the effects of these so-called aspen treatment or restoration projects as well as any other past, present and foreseeable actions in the Uinta Mountains on Canada lynx habitat and food base, vis a vis hares and squirrels as well as the impact of livestock grazing on accelerating conifer encroachment into aspen and the direct effects of grazing removal of aspen shoots on recruitment.

A hard look must be conducted of habitat fragmentation, corridor functionality, vegetation treatments, road density, snowmobile and ohv activity, trapping and other human activity as well as livestock grazing on Canada lynx. That look must also include any and all Forest Plan requirements and intent as well as embody the best available science applicable to Canada lynx.

6. Wolverine

Recently, a US District Court ruling remanded the USFWS Withdrawal of its Proposed Rule to list the distinct population segment of the North American wolverine occurring in the contiguous United States as a threatened species under the Endangered Species Act for further consideration.³² The ruling reviewed the science relating to the selection of denning sites in combination with snow presence during the natal period and recent analyses of potential climate change effects to snow pack that indicate a severe reduction in snow cover during this century with negative implications to wolverine populations. This factor alone should place

³¹ Kosterman, M.K. 2014. Correlates of Canada lynx reproductive success in northwestern Montana. Masters Thesis, University of Montana, Missoula, MT. 79p.

³² US District Court for the District of Montana, Missoula Division. April 4, 2016. Defenders of Wildlife v US DOI. CV 14-246-M-DLC

greater emphasis on habitat integrity and restoration for corridors, connectivity for both lynx and wolverine.

The ruling also emphasized that populations in the US, which exist as meta-populations “require some level of regular or intermittent migration and gene flow among subpopulations, in which individual subpopulations support one-another by providing genetic and demographic enrichment through mutual exchange of individuals.” If connectivity is lost, “an entire meta-population may be jeopardized due to subpopulations becoming unable to persist in the face of inbreeding or demographic and environmental stochasticity.”

The study by Copeland, 2010³³, cited in the ruling, analyzed spring snow cover to determine overlap with known den sites, finding 97.9% overlap. They concluded that if reductions in snow cover continue to occur, “habitat conditions for the wolverine along the southern extent of its circumboreal range will likely be diminished through reductions in the size of habitat patches and an associated loss of connectivity, leading to a reduction of occupied habitat in a significant portion of the species range.” A second analysis by McKelvey, 2011³⁴ used Global Climate Models to predict the change in distribution of persistent spring snow cover so that “for conservation planning, predicting the future extent and distribution of persistent spring snow cover can help identify likely areas of range loss and persistence, and resulting patterns of connectivity.” McKelvey concluded that they expect, “the geographic extent and connective(ity) of suitable wolverine habitat in western North America to decline with continued global warming” and that “conservation efforts should focus on maintaining wolverine populations in the largest remaining areas of contiguous habitat and, to the extent possible, facilitating connectivity among habitat patches.”

In its Proposed Rule, the USFWS accepted these studies as the best available science with climate change as the driving factor. Other threats were considered of lower priority in comparison, “however, cumulatively they could become significant when working in concert with climate change if they further suppress an already stressed population.” The USFWS noted harvest, demographic stochasticity and loss of genetic diversity as these secondary factors but avoided mention of habitat integrity and fragmentation by roads, infrastructure and human activity or loss of prey base due to depletion of herbaceous plant communities and cover by livestock grazing.

Robert Inman, PhD, a biologist and Director of the Greater Yellowstone Wolverine Program at the Hornocker Institute/Wildlife Society noted that the USFWS singled out a particular activity, fur trapping, that can cause mortality, while ignoring the full range of human activities such as

³³ Copeland, J. P.; McKelvey, K. S.; Aubry, K. B.; Landa, A.; Persson, J.; Inman, R. M.; Krebs, J.; Lofroth, E.; Golden, H.; Squires, J. R.; Magoun, A.; Schwartz, M. K.; Wilmot, J.; Copeland, C. L.; Yates, R. E.; Kojola, I.; and R. May. 2010. The bioclimatic envelope of the wolverine (*Gulo gulo*): do climatic constraints limit its geographic distribution? *Canadian Journal of Zoology*. 88: 233-246.

³⁴ McKelvey et al. 2011. Climate change predicted to shift wolverine distributions, connectivity, and dispersal corridors. *Ecological Applications*, 21(8), 2011, pp. 2882–2897.

road kill, before records were kept. So delineating habitat based on these records can understate actual range for wolverines. He also provides evidence that wolverines can den in areas lacking the presumed snow cover and that conditions suitable for competing for food are also a limiting factor. He further argues that road density was found to be a factor in an earlier telemetry-based habitat analysis, particularly at higher elevations. Wolverine were observed to avoid or alter their travel when encountering housing developments and traffic, infrastructure, transportation that can affect mortality.³⁵ He also pointed out the extensive trapping that occurred in the US prior to records of wolverine and that they may well have been eliminated from suitable places before records were kept.

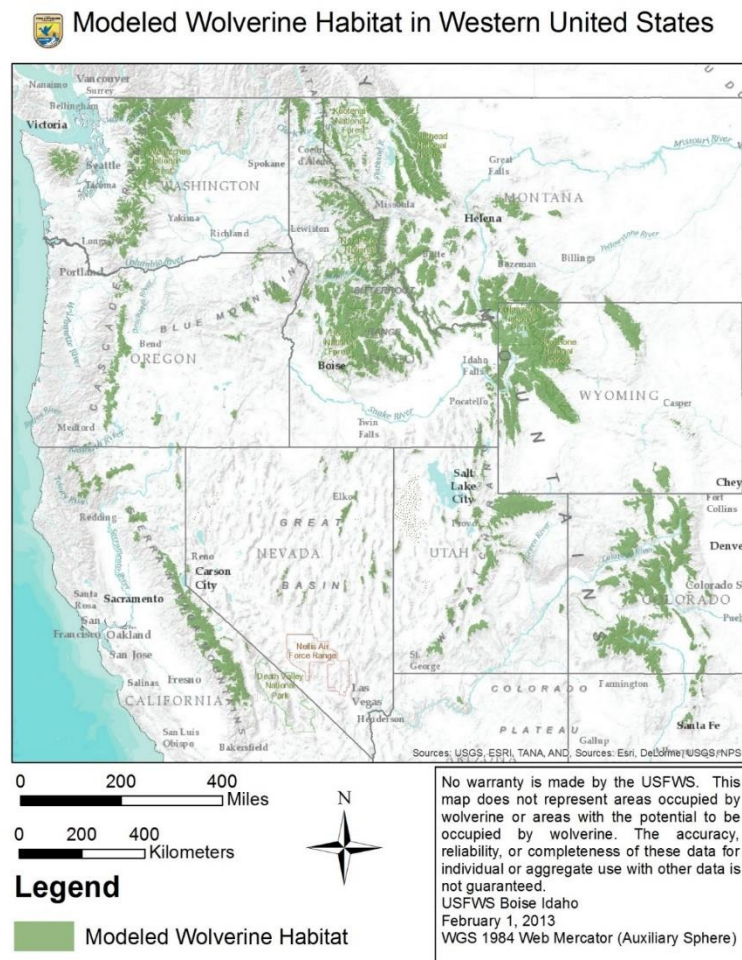


Figure 8. Fish and Wildlife Service Modeled Wolverine Habitat

So, while the USFWS emphasizes the role of connectivity and genetic exchange in maintaining meta-populations and genetic diversity, it avoids the identification of the connections vital to maintenance and recovery of species. See Figure 8 which is a map of the USFWS modeled wolverine habitat.³⁶ This map shows wolverine habitat areas in Montana, Idaho, Utah and Wyoming but provides no indication of travel corridors that wolverine might use to connect these. This map shows the areas in Northern Utah and Idaho with sufficient snow cover. Connecting these “dots” would likely lead to a connectivity pattern similar to that of Canada lynx, discussed previously. Note the Uintas are considered wolverine habitat. The Idaho Management Plan for the Conservation of Wolverines identified the movement corridors shown

³⁵ Review of the United States Fish and Wildlife Service’s Proposed Rule to List Wolverines as a Threatened Species in the Contiguous United States, May 2013. <https://www.federalregister.gov/documents/2013/02/04/2013-01478/endangered-and-threatened-wildlife-and-plants-threatened-status-for-the-distinct-population-segment>

³⁶ <https://www.fws.gov/mountain-prairie/es/species/mammals/wolverine/02012013ModeledWolverineHabitatMap%20.jpg.pdf>

in Figure 9.³⁷ These overlay with the Regionally Significant Wildlife Corridor and the Lynx Least Cost Path shown above, principally emphasizing the corridor from SW Wyoming through SE Idaho and the Bear River Range south to the Uinta Mountains. We call this the Yellowstone to Uintas Connection.

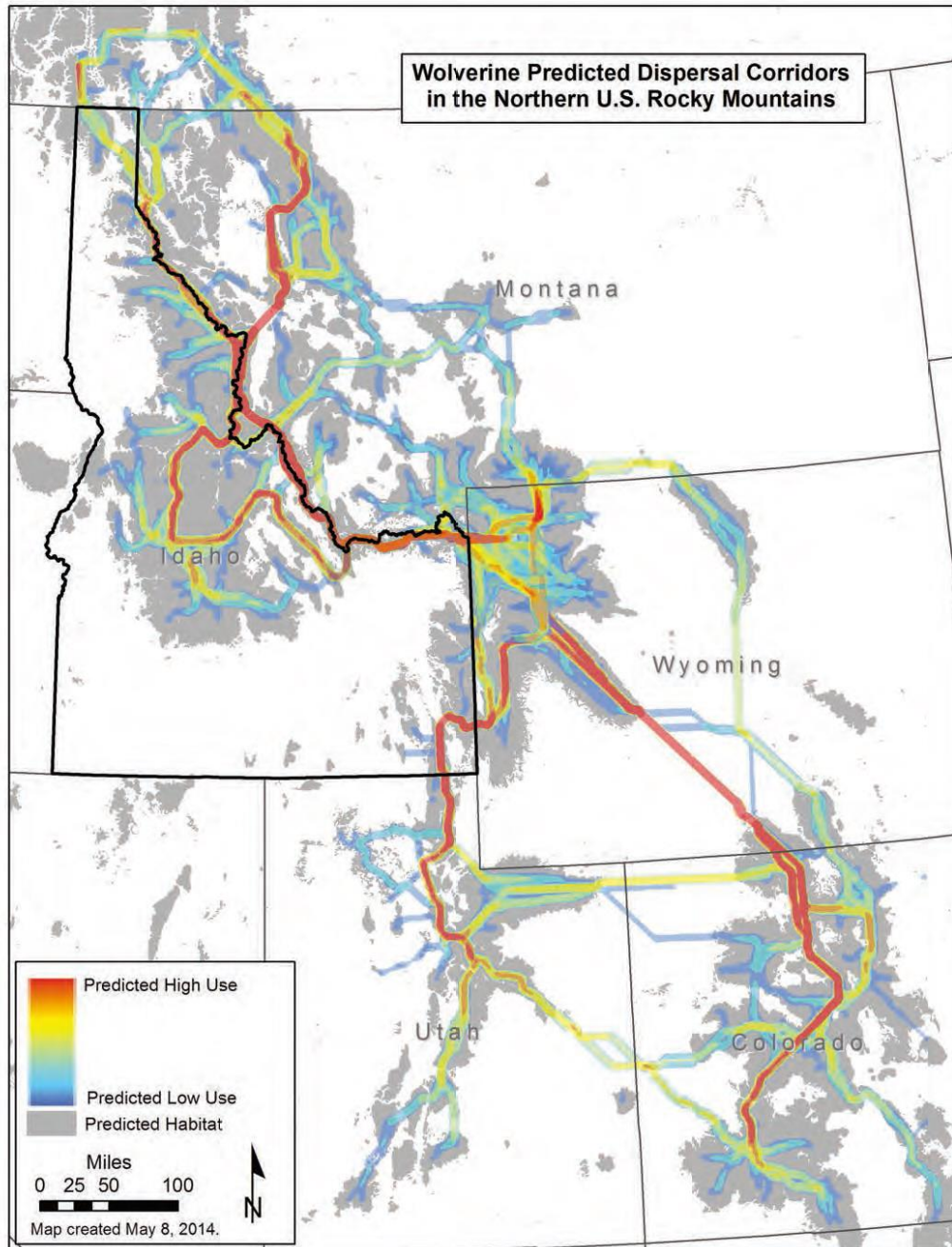


Figure 9. Wolverine predicted movement corridors in the Northern Rockies

³⁷ Idaho Department of Fish and Game. 2014. Management plan for the conservation of wolverines in Idaho. Idaho Department of Fish and Game, Boise, USA. <https://idfg.idaho.gov/old-web/docs/wildlife/planWolverine.pdf>

7. Northern Goshawk

Northern goshawk is a Management Indicator Species in the Ashley NF. The analysis should map all goshawk territories and overlay them with the proposed (and past) treatment areas to determine how the proposal will affect goshawk. The Forest Plan (pV-6) notes that a 5% reduction in old growth acreage will trigger further evaluation or and/or a change in management direction for goshawk. Thus, the status of old growth aspen, Douglas-fir, mixed conifer, Engelmann spruce must also be analyzed. The effects of livestock grazing on aspen and other vegetation types must be analyzed. Recommendations from the Forest Service's own research³⁸ provide guidelines for limiting livestock use of herbaceous vegetation in goshawk home range to 20% and emphasize protection of mycorrhizal fungi layers in forest soils, which this project will destroy. Along with goshawk, other MIS and special status species must be analyzed as to current habitat capability along with their population trends in the project area and Forest.

8. Old Growth

The Ashley NF Forest Plan (Table II-3, p11-10) describes the acreage of forest types and the amount of Mature/Old Growth acres. These include Douglas-fir, Lodgepole, Engelmann spruce, subalpine fir, aspen, Ponderosa pine, Pinyon-Juniper, and softwoods. The Forest Plan is three decades old and a new Plan is in the process of being developed. During the time since the release of this 1986 Forest Plan there have likely been numerous timber, fuel treatment, aspen restoration, salvage and other forest manipulations in the project area. These must be disclosed, mapped and the outcomes analyzed. What role have these projects and livestock grazing played in the current conditions that the Forest service is using as justification for this project?

The Intermountain Region recognizes Hamilton (1993)³⁹ for its definitions of old growth. Hamilton provides characteristics for the different forest types, including aspen, mixed conifer, Engelmann spruce, Douglas-fir and others. Current stand conditions must be surveyed and compared to these definitions and the potential of these forests to sustain old growth. Hamilton notes that stand development and aging is a "dynamic" process and that the old-growth stage follows the mature stage. Mature and late seral stages are merely steps along the way to a climax stage. What are the climax stages of the forest types in the project area and what is their current status in comparison? Of the acres classified in the Forest Plan as Mature/Old Growth, what percentage are Old Growth? Where is the old growth located in relation to the project? How will this project affect this status?

³⁸ Reynolds, R.T., R. T. Graham, H. M. Reiser, R. L. Bassett, P. L. Kennedy, D. A. Boyce, JR., G. Goodwin, R. Smith, and E. L. Fisher. 1992. Management recommendations for the Northern Goshawk in the Southwestern United States. USDA Forest Service, Gen. Tech. Rep. RM-217, Ft. Collins, Co.

³⁹ Hamilton, R.C. 1993. Characteristics of Old Growth Forests in the Intermountain Region. USDA Forest Service, Intermountain Region.

9. Aspen

The Scoping Report states, " Many aspen populations across the west are declining due to drought, ungulate browsing, and lack of disturbance, particularly fire, requiring active restoration efforts to maintain and improve aspen forest health in the region." Then goes on to describe use of nearly all known mechanical methods for logging, masticating, and destroying the understory in an effort to "restore" aspen. That "ungulate browsing" is mentioned belies that cattle and sheep are the dominant "ungulate" by numbers, biomass and forage consumption occurring in the Forest. The Ashley NF in a current effort, the High Uintas Domestic Sheep Analysis indicated it used the 1960's analysis for suitability (in today's terms this would be capability).⁴⁰ However, the Region has produced updated capability criteria⁴¹:

- Areas with less than 45 percent slope for domestic sheep, 30% for cattle.
- Areas producing more than or having the potential to produce an average of 200 lbs. of forage/acre on an air-dry basis over the planning period
- Areas without dense timber, rock, or other physical barriers
- Areas with naturally resilient soils (not unstable or highly erodible soils)
- Ground cover greater than 60%.
- Areas within one mile of water or where the ability to provide water exists.

An analysis⁴² of the ten allotments covered in the High Uintas Domestic Sheep analysis applying the Regional criteria and current forage production showed that these ten allotments are overstocked by a huge amount. For example, the normal grazing season is approximately 2 months. The analysis showed that for the permitted numbers, the capable acres and current forage would only support 0 - 0.2 months, depending on which allotment is the subject.

Browsing of aspen has been studied by Forest Service scientists such as Bartos, Mueggler, Campbell and other researchers such as Charles Kay who conducted a historic study for BLM in Nevada.⁴³ Kay reported the results of a study of hundreds of aspen clones in the Shoshone, Simpson Park, Diamond, Desatoya and Roberts Mountains on BLM lands in central Nevada. Aspen in these areas are found to be in poor condition and many stands have not successfully regenerated in 100 years or more.

⁴⁰ USDA Forest Service. 2016. Interoffice email communication from Sandra Remund-Kaminski to Paul Cowley stating they used the 1960's determination of capable lands for the Ashley National Forest allotments.

⁴¹ USDA Forest Service. 2003. Final Environmental Impact Statement Wasatch-Cache National Forest. Appendix B9.

⁴² Vasquez, E., Carter, J., and A. Jones. 2018. A Forage Capacity and Stocking Rate Determination for the High Uintas Wilderness Domestic Sheep Analysis. <https://app.box.com/s/2c8dgun6na1v71zlew9ocpzq3nb27mo>

⁴³ Kay, Charles E. 2001. The Condition and Trend of Aspen Communities on BLM Administered Lands in Central Nevada – with Recommendations for Management. Final Report to Battle Mountain Field Office, Bureau of Land Management. Battle Mountain, Nevada. An updated (2003) version is available at: <https://idahoforwildlife.com/Charles%20Kay/59-%20Aspen%20Management%20Guidelines%20for%20BLM%20Lands%20in%20North-Central%20Nevada.pdf>

No evidence of elk presence was found in or near any of the stands, so elk were not contributors to the problem. Forest succession was not a problem as conifer invasion had not taken place in the communities studied. Other than pinyon pine, conifers were absent from the study area. Kay observes that where aspen in central Nevada has been protected from grazing, aspen has maintained its position in the vegetation community and, in fact, has actually replaced sagebrush, contrary to the opinion of some that say sagebrush naturally replaces aspen. He cites other exclosure studies that have found that aspen stands have expanded and eliminated sagebrush. Exclosure studies have also suggested that climate has little impact on aspen in central Nevada. Aspen inside exclosures regenerated without fire or other disturbance while aspen in adjacent, unprotected areas did not. Numerous papers were cited that demonstrate that climatic variation does not account for observed declines in aspen.

Fire exclusion was examined. It was noted that BLM has suppressed fires for a long period and the study areas contained little evidence of fires. In fact, only a few out of the hundreds of clones studied had experienced fire during the past 20 years. Aspen age data suggest that few aspen stands in central Nevada have burned during the past 100 years. Kay points out that while the burned stands did regenerate, in all cases where aspen were protected from livestock grazing, aspen regenerated. So, while fire may benefit the species, aspen declines cannot be attributed to absence of fire.

Exclosure data indicated that herbivory had a major influence on aspen stem dynamics and understory composition in central Nevada. Most herbivory was from livestock. Pellet counts were used and showed that 59.3% were from domestic sheep, 40.2% from cattle and 0.4% from deer. Exclosures that exclude cattle but not deer, including canyons closed to livestock, had aspen stands that all were regenerating. When fallen trees blocked livestock access, aspen were able to regenerate in the protected spaces. Reductions in livestock numbers also resulted in aspen regeneration. Distance to water and slope were also factors that related to aspen regeneration or the lack of regeneration. Cattle use was generally related to distance from water and slope. Steeper slopes or areas further from water received less use. Aspen stands further from water and on steeper slopes were in better condition than those nearer water or on more gentle slopes, again indicating that grazing by livestock was the operative factor causing declining health of aspen clones. While Kay cites other research indicating that wildlife have impacts on aspen regeneration, he states that in all cases where aspen is protected from livestock, it successfully regenerated and formed multi-aged stands without fire or other disturbance. He concluded by saying, "The single, stem-aged stands seen in central Nevada and found throughout the West are not a biological attribute of aspen, but a result of excessive ungulate herbivory. ... In central Nevada, however, domestic livestock are the predominate ungulate herbivore."

A recent study in Utah's famous Pando clone looked at the lack of recruitment of aspen. The study "documented 4.5 times the amount of cattle use herbivory in two weeks than the mule deer use over six months. Forage utilization by mule deer prior to the onset of livestock grazing was unobservable, while forage utilization by livestock (plus mule deer) during the 2 weeks of

cattle grazing consumed 70 to 90 percent of the understory vegetation's annual production."⁴⁴ This demonstrates that the effect of wildlife, in this case, deer, are negligible compared to domestic livestock.

Age structure of aspen was determined in the Hart Mountain National Antelope Refuge to determine the relationship to the presence of livestock and climate. A significant decline in aspen recruitment occurred in the late 1800s that coincided with the onset of high levels of livestock grazing. Livestock grazing was terminated in 1990 and aspen recruitment increased "by more than an order of magnitude". Climate variables were not a significant factor. "Where long-term declines in aspen are currently underway on grazed lands in the western US, land managers need to carefully consider the potential effects of livestock and alter, as needed, management of these ungulates to ensure retention of aspen woodlands and their ecosystem services."⁴⁵

It is incumbent on the Ashley NF to update the capable acres and stocking rates for all allotments in the project area and use current livestock weights and forage consumption rates.⁴⁶ Part of this analysis should also be to analyze the effect of sheep bedding areas and proximity of water developments and/or water and livestock on aspen stand dynamics, recruitment, age class, disease. The effect of slope must also be analyzed.⁴⁷

10. Beetles

Insects such as mountain pine beetle and others are considered pests to be eliminated because they kill trees and create fire hazards. However, the science indicates otherwise. For example, here are summaries of a few studies.

Spruce beetle infestations were found to have no influence between pre-fire beetle severity and fire severity. Findings were consistent across moderate and extreme burning conditions. "In comparison to severity of the pre-fire beetle outbreak, we found that topography, pre-outbreak basal area, and weather conditions exerted a stronger effect on fire severity. Our finding that beetle infestation did not alter fire severity is consistent with previous retrospective studies examining fire activity following other bark beetle outbreaks and reiterates the overriding influence of climate that creates conditions conducive to large, high-severity fires in the subalpine zone of Colorado. Both bark beetle outbreaks and wildfires have increased

⁴⁴ Ratner, J.R., E.M. Molvar, T.K. Meek, and J.G. Carter. 2019. What's eating the Pando Clone? Two weeks of cattle grazing decimates the understory of Pando and adjacent aspen groves. Hailey, ID: Western Watersheds Project, 33 pp. <https://app.box.com/s/ysuufd9dl5dcaof8ija9f7xy67b8q8vj>

⁴⁵ Beschta, R.L., Kauffman, J.B., Dobkin, D.S., and L.M. Ellsworth. 2014. Long-term livestock grazing alters aspen age structure in the northwestern Great Basin. *Forest Ecology and Management*. 329(30-36). <http://dx.doi.org/10.1016/j.foreco.2014.06.017>

⁴⁶ Carter, J. 2016. Updating the Animal Unit Month. Yellowstone to Uintas Connection, Paris, ID. 7p. <https://app.box.com/s/zx4xjekrfuht2aq12soruw0qfil8hogk>

⁴⁷ Carter, J. 2013. Utilization, Rest and Grazing Systems - A Review. Yellowstone to Uintas Connection. 11p. <https://app.box.com/s/ngw6723dx52quxw2rd8u>

autonomously due to recent climate variability, but this study does not support the expectation that post-beetle outbreak forests will alter fire severity, a result that has important implications for management and policy decisions."⁴⁸

- Advance regeneration in untreated beetle infected stands exceeded 1000 stems/ha on 76% of plots, "suggesting that in the absence of management intervention most future stands will be adequately stocked." Only half the shrub, grass and forb cover was present in treated stands compared to untreated stands.⁴⁹
- Using the Forest Vegetation Simulator (FVS), the authors determined that total forest basal area would return to pre-outbreak levels 25 years sooner in untreated stands than in treated stands (80 vs 105 yrs). Based on the paper, it appears that leaving the stands untreated will result in greater and more rapid regeneration, greater herbaceous plant cover and more carbon storage than engaging in the proposed treatments following beetle infestations.⁵⁰
- Analysis of pine beetle and spruce beetle outbreaks and the likelihood of large-scale wildfires in the Pacific Northwest forests east of the Cascade Range, indicated that these beetle outbreaks affected less than 2% of any ecoregion. In recent decades, wildfire likelihood did not "consistently increase or decrease following insect outbreaks." Following mountain pine beetle activity fire likelihood was not higher or lower than in non-affected forests. Following spruce beetle outbreaks, fire likelihood was lower. It was concluded that other factors such as climate control the large fire years. "Thus, although both bark beetles and defoliators alter fuels and associated fire potential, the windows of opportunity for increased or decreased fire likelihood are too narrow—or the phenomena themselves too rare—for a consistent signal to emerge across PNW conifer forests."⁵¹
- A study of fire behavior following outbreaks of mountain pine beetle in the Greater Yellowstone area found that dead surface fuels were not different among undisturbed, red and gray-aged stands. Red aged stands were defined as 1 - 2 years post outbreak. Gray aged stands were 3 - 5 years post outbreak. Canopy bulk density was 53% lower in red and gray vs. undisturbed stands while canopy fuel load was 42% lower and canopy moisture was 29% lower. Modeling results indicate that mountain pine beetle outbreaks may "reduce the probability of active crown fire in the short term by thinning lodgepole pine canopies".⁵²

⁴⁸ Andrus, R., Veblen, T.T., Harvey, B.J., and S. Hart. 2016. Fire severity unaffected by spruce beetle outbreak in spruce-fir forests in Southwestern Colorado. *Ecological Application*: 26(3):700-711. DOI: 10.1890/15-1121.

⁴⁹ Collins, B., C. Rhoades, R. Hubbard, and M. Battaglia. 2011. Tree Regeneration and future stand development after bark beetle infestation and harvesting in Colorado lodgepole pine stands. *Forest Ecology and Management* 261: 2168-2175. <https://app.box.com/s/gobg0f67p65aqox5qgi9o3yzcwmk5kjk>

⁵⁰ Dixon, G.E., 2002. Essential FVS: a user's guide to the forest vegetation simulator. Internal Report, USDA Forest Service, Forest Management Service Center, Fort Collins, CO, p. 202. Available from: <http://www.fs.fed.us/fmrc/ftp/fvs/docs/gtr/EssentialFVS.pdf>.

⁵¹ Meigs, G. W., J. L. Campbell, H. S. J. Zald, J. D. Bailey, D. C. Shaw, and R. E. Kennedy. 2015. Does wildfire likelihood increase following insect outbreaks in conifer forests? *Ecosphere* 6(7):118. <http://dx.doi.org/10.1890/ES15-00037.1>

⁵² Simard, M., Romme, W.H., Griffin, J.M., and M.G. Turner. 2011. Do mountain pine beetle outbreaks change the probability of active crown fire in lodgepole pine forests? *Ecological Monographs* 81(1):3-24. <https://app.box.com/s/1fhk7zhacm0g7ty9po6zryjrpwlg8o>

11. Active Management

Active management, by whatever name used, whether treatment, fuel reduction, logging, restoration, salvage, mastication cannot be effective in restoring ecosystem function or reducing large wildfires and are inappropriate in most situations. For example, in a letter to Congress⁵³, over one hundred scientists stated that in Wilderness and other protected areas (protected from logging etc.) "fires burned more severely in previously logged areas, while fires burned in natural fire mosaic patterns of low, moderate and high severity, in wilderness, parks, and roadless areas, thereby, maintaining resilient forests." They concluded their letter by stating,

"Public lands were established for the public good and include most of the nation's remaining examples of intact ecosystems that provide clean water for millions of Americans, essential wildlife habitat, recreation and economic benefits to rural communities, as well as sequestering vast quantities of carbon. When a fire burns down a home it is tragic; when fire burns in a forest it is natural and essential to the integrity of the ecosystem, while also providing the most cost-effective means of reducing fuels over large areas. Though it may seem to laypersons that a post-fire landscape is a catastrophe, numerous studies tell us that even in the patches where fires burn most intensely, the resulting wildlife habitats are among the most biologically diverse in the West. For these reasons, we urge you to reject misplaced logging proposals that will damage our environment, hinder climate mitigation goals and will fail to protect communities from wildfire."

The Scoping Report lists the purpose of the project as increasing aspen resilience and improving wildlife habitat, while increasing forest resistance to uncharacteristically large and severe wildfire. Once again, fire hysteria is used to justify more logging and active management when the evidence is that climatic factors such as wind and high temperatures drive severe fires and that they burn through treated areas. Beetle infestations are also implicated in these severe fires.

In a review⁵⁴ of wildland fuel treatments in the interior forests of the US, the following points were made:

- "Treating fuels to reduce fire occurrence, fire size, or amount of burned area is ultimately both futile and counter-productive" because most acreage burned is under extreme conditions which make suppression ineffective. If, due to treatments, moderate intensity fires are suppressed this leads to most acres burning under extreme conditions. Reducing burned area would not be desirable as large fires were common prior to European settlement and many western plant species are adapted to large, severe wildfires. Large fires generally have many areas lightly to moderately burned. Any

⁵³ Geos Institute. 2018. Open Letter to Decision Makers Concerning Wildfires in the West. <https://app.box.com/s/nemr8uoccub0u8hubomjx4uhn6sfbu83>

⁵⁴ Reinhardt, E.D., Keane, R.E., Calkin, D.E., and J.D. Cohen. 2008. Objectives and considerations for wildland fuel treatment in forested ecosystems of the interior western United States. *Forest Ecology and Management*. 256:1997-2006. <https://app.box.com/s/loj3dggz37akelxs18thq0qpkplmk533>

fire "could offer a unique opportunity to restore fire to historically fire-dominated landscapes and thereby reduce fuels and subsequent effects."

- Reducing fuel hazard is not the same as ecosystem restoration. Treatments such as mastication and thinning may leave stand conditions that do not mimic historical conditions. Mastication breaks, chips, grinds canopy and surface woody material into a "compressed fuel bed" while thinning that removes fire-adapted species and leaves shade tolerant species do not mimic historical conditions. "Fire itself can best establish dynamic landscape mosaics that maintain ecological integrity."
- Thinning for fire hazard reduction should concentrate on the smaller understory trees to "reduce vertical continuity between surface fuels and the forest canopy." Thinning can increase surface fire behavior, for example, it increases surface wind speed and results in solar radiation and drying of the forest floor creating drier surface fuels.
- Fuel treatments are transient. Prescribed fire creates tree mortality with snag fall contributing to fuel loads, tree crowns expand to fill voids, trees continue to drop litter. Trees cut for harvest or killed by fire contribute limbs to the forest floor, increasing fuel loadings. Up to seven treatments may be needed to "return the area to acceptable conditions that mimic some historical range."

Analysis of fuel treatments and fire occurrence in the western US Forest Service managed lands determined that fuel treatments have a probability of 2.0 - 7.9% of encountering moderate or high-severity fire in a 20 year period of reduced fuels (estimated time frame for return of fuels to prior levels or the "window of effective fuel reduction").⁵⁵

Another review questions current policy and whether it is based in science. Lack of monitoring of post treatment effects leaves questions as to the efficacy of treatments. " While the use of timber harvests is generally accepted as an effective approach to controlling bark beetles during outbreaks, in reality there has been a dearth of monitoring to assess outcomes, and failures are often not reported. Additionally, few studies have focused on how these treatments affect forest structure and function over the long term, or our forests' ability to adapt to climate change. Despite this, there is a widespread belief in the policy arena that timber harvesting is an effective and necessary tool to address beetle infestations. That belief has led to numerous proposals for, and enactment of, significant changes in federal environmental laws to encourage more timber harvests for beetle control."⁵⁶

Analysis of fire severity patterns in western ponderosa pine and mixed conifer forests showed that " that the traditional reference conditions of low-severity fire regimes are inaccurate for most forests of western North America. Instead, most forests appear to have been characterized by mixed-severity fire that included ecologically significant amounts of weather-driven, high-severity fire." "Biota in these forests are also dependent on the resources made available by higher-severity fire. Diverse forests in different stages of succession, with a high proportion in relatively young stages, occurred prior to fire exclusion. Over the past

⁵⁵Rhodes, J.J. and Baker, W.L. 2008. Fire probability, fuel treatment effectiveness and ecological tradeoffs in western U.S. public forests. *The Open Forest Science Journal* 1: 1-7.

<https://app.box.com/s/s3dqfmgcxizw0pkrva56ott43qphhiya>

⁵⁶ Six, D.L., Biber, E., and E.L. Esposito. 2014. Management for mountain pine beetle outbreak suppression: does relevant science support current policy?. *Forests* 5(1):103-133. DOI: 10.3390/f5010103.

<https://app.box.com/s/4y9y70lbqyza4xnn56a9764abhyr92h8>

century, successional diversity created by fire decreased. Our findings suggest that ecological management goals that incorporate successional diversity created by fire may support characteristic biodiversity, whereas current attempts to 'restore' forests to open, low-severity fire conditions may not align with historical reference conditions in most ponderosa pine and mixed-conifer forests of western North America."⁵⁷

We have provided links for downloading some of the articles cited and many are agency references which are available from the Forest Service.

Sincerely Yours,



Jason Christensen, Director
Yellowstone to Uintas Connection
PO Box 280 Mendon, UT 84325

And For

Michael Garrity, Executive Director
Alliance for the Wild Rockies
P.O. Box 505 Helena, MT 59624

And

Sara Johnson
Native Ecosystems Council
P.O. Box 125
Willow Creek MT 59760-0125

⁵⁷ Odion DC, Hanson CT, Arsenault A, Baker WL, DellaSala DA, et al. (2014) Examining Historical and Current Mixed-Severity Fire Regimes in Ponderosa Pine and Mixed-Conifer Forests of Western North America. PLoS ONE 9(2): e87852. doi:10.1371/journal.pone.0087852.