May 17, 2026

KURT HANSEN

District Ranger
Sioux Ranger District
Custer Gallatin National Forest
P.O. Box 37
101 S.E. 1st Street
Camp Crook, SD 57724

Dear Ranger Hansen;

Thank you for this opportunity to comment. Please accept additional comments from me on behalf of the Alliance for the Wild Rockies, Native Ecosystems Council, Center for Biological Diversity, and Council on Fish and Wildlife on the Environmental Assessment for the Chalk Buttes Project.

The Montana Department of Fish, Wildlife and Parks state the project area is in occupied sage-grouse habitat but the EA, FONSI, and the wildlife effect Analysis do not mention sage-grouse even though the proposed alternative calls for burning sagebrush.

Page 468 of Volume 1 Final Environmental Impact Statement for the Land Management Plan has “Figure 30. Distribution of priority and general sage-grouse habitat, pine savanna ecosystem” which shows the project area is in sage-grouse habitat but the EA does not demonstrate that the project complies with the

sage-grouse protections standards in the Revised CGNF Forest Plan which prohibits burning sage-grouse habitat. The project is in violation of NEPA, NFMA, the Revised Forest Plan and the APA.

Page 470 of Volume 1 Final Environmental Impact Statement for the Land Management Plan states:

***The U. S. Fish and Wildlife Service cited habitat loss, degradation, and fragmentation as primary causes for greater sage-grouse population declines and some areas of local extirpations in recent decades (U.S. Department of the Interior 2015d); (Stiver et al. 2015).***

Page 470 continues:

***Fire, both natural and human caused, is a major factor associated with loss of sagebrush habitats and corresponding population declines for sage-grouse. Fire frequency and associated habitat loss has increased in the western portion of sage-grouse range in recent years, at least partly facilitated by the presence and spread of non-native grasses such as cheatgrass, Japanese brome, and timothy. Other invasive plants may also impact sage-grouse habitat. Climate change has the potential to influence the spread and distribution of non-native plants over time, as well as to increase the frequency and severity of fires. Conifer encroachment can result from changes in fire return intervals, which can in turn be influenced by fire suppression activities. Increased conifer presence may also be caused by overgrazing of domestic livestock. Climate change may facilitate conifer encroachment through increased carbon dioxide concentrations, but this theory has not been proven***

***conclusively. Traditionally, fire and other vegetation management practices have been used to remove sagebrush in order to enhance grazing conditions for domestic livestock. Grazing pressure from livestock, as well as impacts from wild ungulates and free-roaming horses have all been identified as potential stressors for sage-grouse and their habitats (U.S. Department of the Interior 2013c). All the priority habitat, and most of the general sage-grouse habitat on the Custer Gallatin are within livestock grazing allotments.***

The proposed action calls for intentionally burning 3,106 acres. How many acres of sagebrush will the project burn? Have you surveyed for sage-grouse and sage-grouse leks? How will the project impact sage grouse?

What effect will spraying for weeds have on sage-grouse?

What is the effect of cattle grazing on sage-grouse in the project area? A hard look NEPA analysis and assessment of the direct, indirect and cumulative harms the projects will cause to Sage-grouse and other wildlife habitats and populations.

Page 476 of Volume 1 Final Environmental Impact Statement for the Land Management Plan states:

***Effects from Permitted Livestock Grazing***

***Much of the designated sage-grouse habitat on the Custer Gallatin is located within permitted livestock grazing allotments. Improper utilization by livestock has the potential for impacts across all seasonal habitats (U.S. Department of the Interior 2013c). Grazing can influence sagebrush communities through reduced productivity, changing plant composition,***

***and herbaceous structure. Indirect effects include those associated with grazing infrastructure, including mortalities associated with water troughs and fence strikes (Boyd et al. 2014).***

To provide cover for nests and chicks, livestock grazing should be managed in breeding habitat to promote residual cover for concealing sage-grouse nests and chicks from predators. There is no evidence in the EA that the Forest Service is doing this.

Please find attached, "Livestock Grazing and Sage-Grouse Habitat: Impacts and Opportunities," by Boyd et al. 2014.

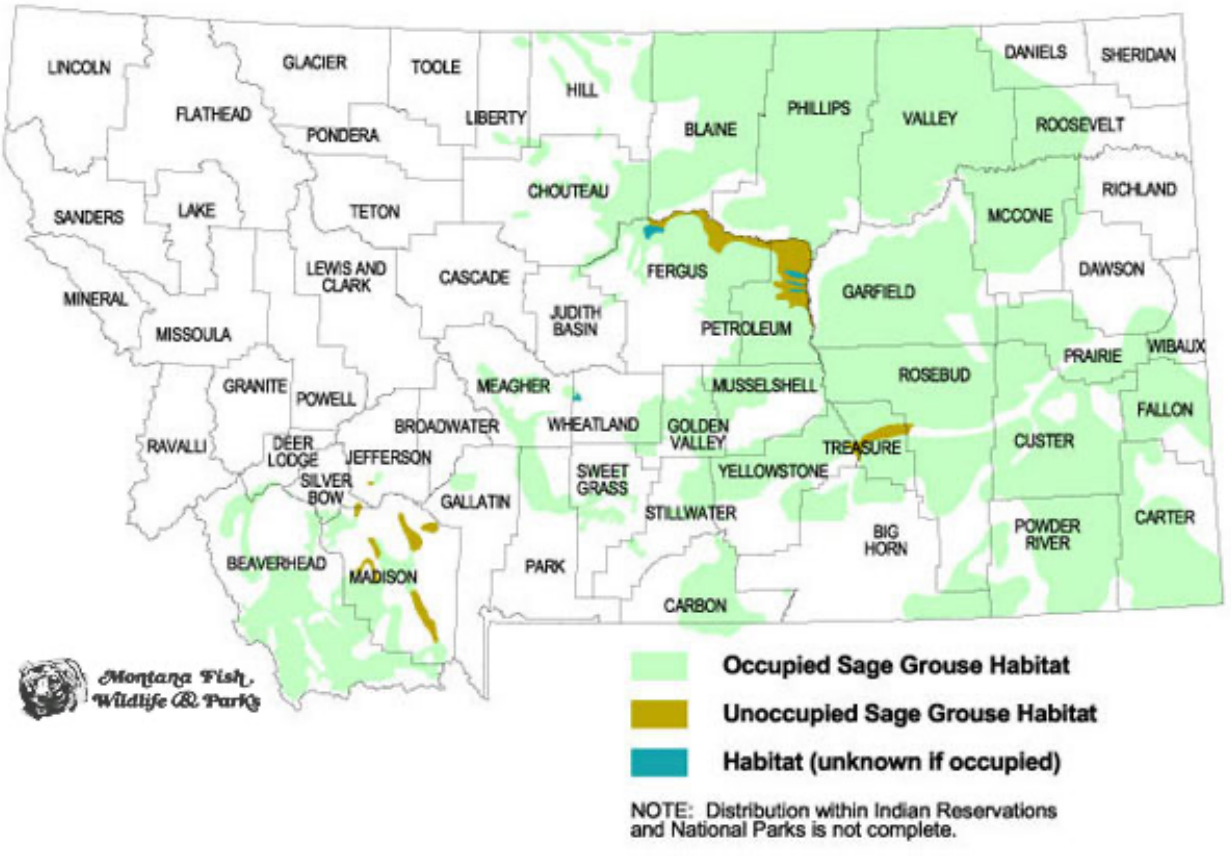
Consequently, research on grazing parameters that promote nest and chick survival for sage-grouse populations (including timing, class of livestock, and duration and intensity of use) is needed. Ranch and rangeland managers can reduce the indirect influences of grazing practices by following recommendations to reduce fence collisions, limiting livestock watering facilities and turning them off when not in use, by installing bird ramps in stock tanks, and by avoiding treatments that reduce long-term sagebrush abundance. Understanding how livestock grazing impacts the structure and composition of sagebrush plant communities provides a critical foundation for assessing the ramifications of grazing to sage-grouse habitat. Establishing a common understanding can reduce conflict over grazing management and focus management efforts in the most impactful direction.

Page 474 of Volume 1 Final Environmental Impact Statement for the Land Management Plan states:

***Prescribed fire projects in general and priority sage-grouse habitat would be subject to the no net loss requirement of sage-grouse plan components (FW-STD-WLSG01). Since prescribed fire is vegetation management, it could only be used in sage-grouse habitat if habitat losses could be mitigated elsewhere, or for purposes that would achieve a net conservation gain to sage-grouse. For example, prescribed fire could be used to stimulate forb production in areas where existing sagebrush cover would not be reduced.***

No where in the EA does it state that sage-grouse habitat loss is being mitigated in violation of the Revised Forest Plan.

MT FWP considers the project area to be occupied sage-grouse habitat. https://fieldguide.mt.gov/speciesdetail.aspx?elcode=abnlc12010



The MOU between the GCNF and the MFWP noted that sage grouse will nest up to 23 miles from leks. By claiming the project area does not contain any sage grouse nesting habitat, that agency has failed to demonstrate that the Forest Plan amendment for sage grouse that 80% nesting habitat will contain sagebrush cover of 15-25% canopy cover and perennial grass residual height of 7 inches. Also, nesting habitat that is burned in the spring during the nesting season is a violation of this Forest Plan direction. The agency claims that no sage grouse nest in sagebrush habitats of the project area is clearly an attempt to conceal burning sagebrush during the sage grouse nesting season.

The agency has failed to provide a map of all sage grouse leks within 18 km and 23 miles of the project area.

The agency has failed to demonstrate what current or projected sagebrush conditions will be in brood-rearing habitat planned for sagebrush burning. The Forest Plan amendment (2015) requires brood-rearing habitat to have over 40% sagebrush habitat of 10-25% canopy cover and a sagebrush height of 16-22 inches.

The GRSG-GEN-GL-007, a US Forest Service and Bureau of Land Management resource guideline designed to protect the Greater Sage-Grouse (GRSG), will be violated as potential sage grouse nesting habitat will be burned during the nesting season.

GRSG-GEN-ST-004 standard is not demonstrated to be in compliance for this project. This standard requires the agency to

provide a disturbance calculation including within general sage grouse habitat.

GRSG-GRSGH-ST-027 standard will be violated as the proposed sagebrush burning activities has not been demonstrated to move the project towards desired conditions; desired conditions are never identified, as well as what needs to be changed to achieve desired conditions with sagebrush removal and fragmentation. Desired conditions for brood-rearing habitat are defined in the sage grouse amendment, but not identified by the agency for the Chalk Buttes project.

Please explain why a lack of fire has degraded wildlife habitat. One has to assume that the presence of juniper woodlands is considered an adverse impact on wildlife, and if burned up, would improve wildlife habitat. We have cited a number of publications, just as examples, that in fact identify the high value of juniper woodlands to wildlife. This value includes forage for mule deer, a species that is to be emphasized on this identified winter range. The value of juniper species to mule deer was identified long ago. For example, Lovaas (1958) reported that the primary winter forage for mule deer in the Little Belt Mountains of Montana were several species of juniper. More recently, this importance was again identified in a published research article. Coe et al. (2018) reported that juniper trees are important to mule deer on their winter ranges in Oregon. There is no information in the notice that indicates why juniper removal will benefit mule deer or elk or any wildlife.

Juniper woodlands are also important habitat for many nongame birds (Coop and Magee undated; Reinkensmeyer 2000; Magee et al. 2019).. Coop and Magee (undated) noted that juniper removal treatments substantially reduced the occupancy of pinon-juniper specialists and conifer obligate species, including the pinyon jay. There One such species, the pinyon jay, is a species of conservation concern who is associated with juniper habitats (Boone et al. 2018); this paper warns of the detrimental impacts to this declining species due to juniper thinning projects. More recently, Magee et al. (2019) reported that juniper removal projects resulted in decreased occupancy of many associated bird species, including the pinyon jay. These research reports are consistent with a 2000 report by Reinkensmeyer that juniper woodlands provide important habitat for many bird species, with bird species diversity and density increasing as woodlands progress into old growth juniper. Given the documented high value of old growth juniper forests to wildlife, the EA or EIS at a minimum needed to discuss how old growth juniper is being managed in this landscape. The Intermountain Region recognizes old growth juniper (Hamilton 1993). How much old growth juniper is believed as essential for optimal non-game bird management, and where is this old growth juniper going to be maintained in this IRA and project?

How will this project effect pinyon jays?

Please find the FWS 90-DAY FINDING ON A PETITION TO LIST THE PINYON JAY (Gymnorhinus cyanocephalus) AS A THREATENED OR ENDANGERED SPECIES UNDER THE ENDANGERED SPECIES ACT  attached.

The FWS wrote on page 8 of their findings: The petition presents credible evidence that reducing the extent and density of piñon-juniper woodlands, often with complete tree removal, is taking place across the majority of the range of the pinyon jay (Bombaci et al. 2017, 63; Defenders of Wildlife 2022, 66-78) (1) to improve wildlife habitat (e.g. Greater Sage-Grouse, mule deer) (Bender et al. 2013, 55-56; Bergman et al. 2014, 449; Bombaci and Pejchar 2016, 40; Kramer at al. 2015, 30 and 33; Boone et al. 2018, 191) and livestock forage (Aro 1971, entire), (2) to reduce fuels and support fire mitigation plans (Schoennagel and Nelson 2011, 273-275), (3) to improve watershed function and reduce soil erosion (Jacobs 2015, 1427), and (4) increase plant community heterogeneity (Miller et al. 2014, 479).

The project will violate NEPA, NFMA, the Forest Plan and the APA. Pinyon jay's will be affected by more than just burning nesting habitat. The project will also burn up their food source, pinyon pines.

The project will destroy pinyon jay habitat throughout the project area.

The project is in violation of NEPA, NFMA and the APA.

The EA and Wildlife Effects Analysis do not adequately demonstrate that the project is complying with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act (Eagle Act). Please demonstrate that the project will comply with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act (Eagle Act).

The agency does not address the likely adverse impacts of climate change on the persistence of juniper woodlands or values of forests as carbon sinks.

Please explain how climate change could affect the long-term persistence of juniper woodlands. If the persistence of these woodlands will be adversely impacted by climate change, juniper thinning operations will promote the long-term demise of this important conifer. This impact was noted by Coop and Mcgee (Undated).

In addition to the concern about juniper mortality resulting from climate change, we also note that forest thinning in general exacerbates climate change. Milman (2018) recently reported on this issue, noting that scientists say halting deforestation is just as urgent as reducing emissions to address climate change, given the function they provide as a carbon sink. Forest thinning reduces this carbon sink function.

Please explain the impact of juniper treatments on the spread of noxious weeds.

There is a considerable awareness today regarding the problems of noxious weed infestations on public lands. One activity that is clearly promoting noxious weeds are fuels reduction and prescribed burning projects. We cite only a few examples at this time. One example is a Joint Fire Science Report by Coop and Magee (Undated), where they note that fuels and juniper reduction treatments resulted in rapid, large and persistent increases in the frequency, richness and cover of 20 non-native plant species including cheatgrass; exotic plant expansion appeared linked to

the disturbance associated with treatment activities, reduction in tree canopy, and alterations to ground cover; exotic species were much more frequently encountered at treated than control sites, occurring at 86% of sample plots in treatments and 51% of untreated sample plots; richness of exotic species in treatments was more than double that of controls. What is also interesting in this study is that cheatgrass showed a negative effect of tree canopy, which means that cheatgrass was benefited by canopy removal. They noted that models for chestgrass alone and all non- native species together indicate strong negative associations with tree canopies, indicating that increased light availability, or perhaps below-ground resources such as moisture or nitrogen, enhance colonization and growth in treatments. Increases in exotic plant species in treatment areas was one of the reasons these researchers concluded that managers need to be cautious about implementing treatments in light of the persistent, negative ecological impacts that accompany woodland thinning in pinyon pine- juniper ecosystems; this includes an increase in fire frequency.

Kerns and Day (2014) also reported that juniper treatments resulted in at least a short-term conversion of juniper woodlands to an exotic grassland. And Kerns (undated) reported similar findings in another Joint Fire Science Program report; she stated that it is a significant challenge for land managers to apply thinning and burning fuel treatments in a manner that does not exacerbate existing weed and associated resource problems due to the reduction of ecological resistance that fuel reduction activities created, combined with the aggressive nature of exotic species present. Kerns also noted that weed problems were also caused

in slash pile burning, which is planned for the Rowley Canyon project.

Perchemlides et al. (2008) reported similar problems with juniper thinning projects in Oregon; exotic annual grass cover increased, whereas cover by native perennial grasses did not, in treatment areas; they noted that fuel reduction thinning may have some unintended negative impacts, including expansion of exotic grasses, reduction in native perennial species cover, persistent domination of annuals, and increased surface fuels.

Please show scientific documentation that conversion of juniper woodlands to grasslands, including cheatgrass, improves habitat for all wildlife species.

The agency notes that the project will not only reduce juniper, but various shrubs as well. Although we noted above that juniper woodlands have a very high value to many wildlife species, it is not clear that replacing juniper with grasses, including cheatgrass, balances out the loss of wildlife species removed due to juniper removal by replacement with other wildlife species that use only grasses as habitat. For example, the scooping notice did not identify that mule deer on this winter range use grasses as winter forage. The value of cheatgrass to elk in the winter is also not demonstrated. Cheatgrass seeds are extremely sharp, and use by elk in the winter seems unlikely. Cheatgrass use by wildlife in the summer is also unlikely after early spring, since this grass cures out by summer. The seeds of cheatgrass are also responsible to mortality through blinding of grassland birds (McCrary and Bloom 1984).

General comments on the proposal are as follows: Parts of this very large project area are big game winter range as per the Forest Plan. Please define what the specific habitat objectives are for this winter range, including hiding and thermal cover, as well as forage. Juniper and sagebrush are key forage plants for big game on winter ranges. What are the objectives for these forage species? The Forest Plan direction for this management area is binding. If the agency is going to claim that the Forest Plan is being implemented, you need to specifically define how this is being done, instead of simply claiming that juniper and shrub removal is improvement on big game winter range. Also, the science and monitoring behind this claim need to be provided. Currently mule deer populations have been in decline across the western U.S.. We haven't seen any science that reported increases of mule deer populations following removal of juniper and shrubs on their winter ranges.

Please explain what shrubs are present, and will be targeted for masticating and burning. Do these control efforts include sagebrush? There is extensive documentation that sagebrush is highly valuable to both elk and deer on winter ranges (Wambolt 1998, Petersen 1993). Removing sagebrush to increase grasses on winter range, as is suggested in the scoping notice, does not promote mule deer and elk. Sagebrush has a high protein content of almost 13% in the winter, while dormant grasses have a protein content of less than 4% (Peterson 1993). There can be no valid reason to remove sagebrush and replace it with grasses for big game winter forage. The actual replacement species the agency claims are going to be managed for are never identified. But at a minimum, the rationale for removing shrubs and replac-

ing them with grasses on winter range needs to be documented, as is required by the NEPA.

The claim that this project will increase diversity is pure unsupported rhetoric. There is no definition as to what constitutes diversity. What criteria are being used to measure diversity, and why isn't this information provided to the public? For example, what is the criteria for a diversity of age classes in juniper woodlands or sagebrush, and what is this based on? The NEPA requires that the agency provide reliable, valid information to the public on projects. This claim that removing juniper and shrubs will improve diversity is a clear violation of the NEPA, as there is no actual basis for it. Worse, it is not clear why eliminating trees and shrubs increases diversity as per the standard definitions. What science claims that a grassland has higher habitat diversity than a woodland or forest, or shrubland? One likely factor driving the proposed project is not promotion of big game species and wildlife, but instead is being done for livestock. Please explain in the EA or EIS the impact of current livestock grazing practices in this landscape.

The claim that thinning and removing juniper will increase resiliency of this area is highly questionable. First, these forests are not highly flammable as per the current science. Second, thinning will likely increase flammability by increasing wind speeds and vegetation drying due to a reduction of shade. Third, flammability will surely be increased over current conditions due to an increase of grasses, including exotic species as cheatgrass. Please provide evidence that any actual published scientific papers that show that prescribed on such a large scale will reduce fires, and thereby increase "resiliency" of this winter range.

Please provide monitoring data on the effect of the fire on as winter range, or how this fire affected the extent of exotic vegetation, such as cheatgrass and other weeds. Since the proposed actions will be somewhat similar in effect, it would seem to be important for the agency to provide this information to the public.

Please provide monitoring data, or references any current science, as to what the specific problems are in this landscape for wildlife. How did the agency determine that the current conditions are causing problems for wildlife? In general, one would not expect trees to be a problem for wildlife, especially juniper which is a highly valuable resource for wildlife, not just for forage, including berries, but as hiding and thermal cover. How has the agency determined that hiding cover are too high in this winter range? What are the objectives for hiding and thermal cover which are the target for management intervention?

Please explain what species of shrubs are going to be slashed and burned. Why aren't these shrubs being used by wildlife?

NEPA requires that the Forest Service provide the public is provided information as to why this project will benefit wildlife. At a minimum, the agency needs to demonstrate to the public that this is in fact the case. The EA or EIS must document any scientific information as to how the resource specialists determined that the project will not lead to any significant effects on wildlife. These conclusions need to be documented for the public, including criteria that were used and evaluated to measure levels of significant impact. As just one question, if the Forest Plan standard to manage this area to promote big game species

on their winter range is not being followed, this would most likely trigger significant impacts. It seems like that this is an intentional Forest Plan violation to promote livestock grazing over wildlife in this landscape. Juniper removal has been a long-standing practice to promote livestock grazing, not wildlife. Please discuss the current grazing use of this area by livestock. This information needs to be included as important information to the public.

Please provided as to what the vegetation types are in the areas not proposed for treatment. What was the basis for determining areas for treatment? It seems likely that the non-treatment areas lack any shrubs and trees. If this is the case, the claims that diversity will be increased by expanding treeless areas in this winter range

Please provide information to the public as to why this project enhances wildlife habitat, or is needed to maintain natural ecosystem processes. If juniper is so flammable, it is not clear why it has to be slashed before it can be burned. It is clear that this project requires much more information to be provided to the public, and much more documentation to justify vegetation management within IRAs. And as previously noted, the criteria which the resource specialists used to estimate the level of impact needs to be provided, as well, to the public. It seems readily apparent that this project requires at a minimum an environmental assessment in order to comply with the NEPA, including the provision of valid, reliable information to the public when and where the Forest Service is planning resource management activities.

lease find attached “Conservation Strategy for the Pinyon Jay (Gymnorhinus cyanocephalus)”
This strategy was developed by the Pinyon Jay Multi-State Working Group, led by Scott Somershoe, Land Bird Coordinator, Migratory Bird Program, Legacy Region 6, U.S. Fish and Wildlife Service, Lakewood, Colorado. Please find their full report attached.

Please see the excerpt below describing the considerations of the location of Woodland Treatments which the EA did not consider in violation of NEPA, NFMA, the APA and the Forest Plan.

***Considerations for the Location of Woodland Treatment ProjectsPinyon Jay use of the landscape within a flock’s home range is likely to vary across a dailycycle, a seasonal cycle, and possibly across years. Although it is important to model Pinyon Jay habitat and occupancy at multiple scales (Johnson et al. 2014, 2015, 2016, 2017), standardized, site-specific assessments to determine whether Pinyon Jays are present in a proposed treatment area and how they are using the habitat may be especially useful in informing management at the treatment scale. These assessments can include surveys to locate nests during the breeding season (e.g.; “clearance surveys”, as typically used for Migratory Bird Treaty Act [MBTA] compliance) or other surveys to identify whether Pinyon Jays use the area for other activities, such as caching or foraging.***
***Vegetation thinning within a traditional nesting colony***

*site can cause the birds to abandon treated areas (Johnson et al. 2018b) or alter the suitability of the habitat (Johnson et al. 2019), and complete removal of the colony site removes nesting substrate altogether. Therefore, avoiding treatment of nest colony sites is recommended. Pinyon Jays often use the samegeneralarea each year for nesting, with colony site shifts of up to 550 yards (~500 meters) between years (Marzluff and Balda 1992, Johnson et al. 2017c, J. Boone and E. Ammon, pers. comm.). Thus, a buffer of undisturbed habitat of 550 yards (~500 meters) around a known breeding colony is recommended and allows for typical colony shifts across years (Johnson et al. 2017c). The Working Group website (https://www.partnersinflight.org/resources/pinyon-jay-working-group/) provides information about how to conduct clearance surveys for Pinyon Jays. Similar guidance is available from Natural Heritage New Mexico (Petersen et al. 2014) and Great Basin Bird Observatory (www.gbbo.org). Additional information and assistance with conducting more generalized occupancy surveys that incorporate caching and foraging habitat use can be obtained by contacting partners in the Working Group with Pinyon Jay survey experience.*

***Considerations for the Timing of Woodland Treatment Projects***

*It is preferable to conduct treatments outside of the Pinyon Jay breeding season, especially if an active nestcolony is within the area where a treatment must occur. Pinyon Jays tend to breed earlier than most passerine*

*land birds. Data from Nevada (J. Boone and E. Ammon, unpublished data), Utah, and Colorado (R. Norvell and L. Rossi, unpublished data) indicate that nesting activity in these regions begins in late February or early March and ends in late May. Studies in New Mexico suggest that nesting phenology may occur later than in more northerly regions, except in the case of a mast crop the previous fall (Johnson et al. 2014, 2015, 2017c); however, Pinyon Jays in New Mexico still breed earlier than most piñon-juniper bird species. The specific timing of the breeding season may vary from year-to-year depending on the severity of the preceding winter and on the availability and abundance of nuts cached during the previous fall (Balda 2002).*

***Documenting the Effects of Woodland Treatments on Pinyon Jays***

*If a woodland treatment is conducted in an area that is occupied by Pinyon Jays, conducting systematic, standardized pre- and post-treatment monitoring of Pinyon Jay habitat use and vegetation parameters will help to determine the effects of the treatment on PinyonJays. If treatments are conducted within a known nesting colony, post-treatment monitoring should be completed to determine if the colony moves and if the new habitat has similar characteristics to the original colony location. Pre- and post-treatment monitoring of vegetation measures (e.g., tree size, tree density, canopy cover, tree vigor, and piñon nut productivity) is necessary for understanding the impacts of thinning treatments on Pinyon Jays (Johnson et al. 2018a, 2018b, 2019).*

*Post-treatment monitoring could be conducted by the agency performing the treatment, but may be facilitated by collaboration between managers and Pinyon Jay researchers. We strongly encourage this collaboration to take advantage of the information gathering opportunities presented by ongoing woodland treatments and among researchers to compare and contrast regionally-specific findings to strengthen our overall knowledge of Pinyon Jay conservation needs.*

*Considerations for Implementation of Woodland TreatmentsIf a woodland treatment is conducted in an area that is, or*

*could be, occupied by Pinyon Jays, particularly during the breeding season, the following considerations and implementation parameters may help to reduce negative impacts to Pinyon Jays. The information presentedbelow is organized according to regions and by woodland treatment types and objectives. The bulk of this material is derived from research conducted in the Southwest (mostly New Mexico); less information is available about the Great Basin and other regions occupied by Pinyon Jays. Some of the information shown below may be applicable across the broader Pinyon Jay range, but this remains to be determined.*

*Southwest Region - Woodland Thinning and Herbicide Treatments*

*The information in this section is informed primarily by research conducted in New Mexico and to a lesser extent, Arizona. In this region, most woodland treatments involve thinning, with a limited occurrence of herbicide*

*treatments and large scale woodland removal. The goals of these projects are often fuels reduction, but may also include reduction of juniper to increase grass and forbsfor ungulates (i.e., big game) and cattle, management for other wildlife species, and watershed restoration. Treatment plans that include plans for collaboration with Pinyon Jay researchers allow managers to identify whether particular treatment parameters (e.g., different percentages of retained canopy cover and/or tree density) can meet primary management objectives while remaining within the range of suitable nesting, caching, and foraging habitat.*

*a. Pinyon Jays often use the same general area each year for nesting, with colony site shifts of up to 550 yards (~500 meters) between years (Marzluff and Balda 1992, Johnson et al. 2017c, J. Boone and E. Ammon, pers. comm.). Thus, if a buffer area of 550 yard (~500 meters) around a known breeding colony remains undisturbed, it allows for colony shifts across years (Johnson et al. 2017c).*

*b. If thinning in persistent piñon-juniper woodlands or wooded shrublands, creating a patchy-clumpy mosaic of suitable nesting habitat within the treated area, as opposed to evenly spaced thinning, allows for shifting colony locations. This treatment pattern also better mimics how fire would have impacted the landscape inpersistent piñon-juniper woodlands and wooded shrublands (Romme et al. 2009). Provided that sufficient suitable habitat is retained throughout the treatment area, retaining as many larger trees as possible within areas of*

***higher tree density and/or higher canopy cover will likely conserve more Pinyon Jay nesting habitat than thinning all size/age classes to a uniform density. For example, a guideline is to retain trees within the 25–75% quartiles of these measures at the target site or similar sites (Johnson and Sadoti 2019).***

***c. If using herbicide treatments in juniper or piñon-juniper woodlands, a mosaic of treated and untreated areas better mimics the natural landscape setting than large monomorphic treatment areas. If juniper is the target species, avoiding treating areas that contain piñontrees avoids compromising piñon nut production.***

***d. As piñon nut production is critical to Pinyon Jays, mast-producing trees are particularly valuable. Therefore, thinning may be particularly detrimental in known productive piñon woodlands containing old or very old trees, likely of prime piñon nut producing age, and trees of moderate age to support future nut production(Parmenter et al. 2018, Crist et al. 2019). Parmenter et al. (2018) identified age and size of P. edulis as an indicator of probable nut productivity: little to no productivity (<3.5 inches or <9 centimeter diameter at breast height [dbh]); medium productivity (3.5–5.9 inches or 9–15 centimeter dbh); and high productivity (>6.3 inches or >16 centimeter dbh) (Zlotin and Parmenter 2008). Old and very old trees likely produce more mast due to their large size and larger number of fruiting branches (Parmenter et al. 2018).***

***e. South- and west-facing slopes, as opposed to north- and east-facing slopes, may be more suitable for treatments***

*avoiding impacts to Pinyon Jays because north- and east-facing slopes are projected to better survive future climate change scenarios (Rondeau et al. 2017). Sites with lower heat load (north-facing) are also favored for Pinyon Jay colony sites (Johnson et al. 2017b).*

*f. Large and densely crowned trees are particularly valuable for Pinyon Jay nesting, particularly when they occur within areas of higher tree density (Wiggins 2005, Johnson et al. 2014, 2015, Johnson and Sadoti 2019).g. Retaining and promoting native grasses, forbs, and shrubs in the understory may increase available invertebrate prey for Pinyon Jays (Bombaci and Pejchar 2016).*

*h. If cheatgrass and other invasive annual plants are in the vicinity of a planned treatment area, aggressive invasive species control in post-treatment management plans decreases fire risk and fire intensity (Chambers et al. 2017), thus lowering the risk to stands important to Pinyon Jays. A minimum of 20% perennial native herbaceous cover in a treatment area is recommended for preventing a large increase in cheatgrass and other annual invasive plants post-treatment (Chambers et al. 2017).*

*Great Basin Region - Sagebrush Restoration and Thinning Treatments In the Great Basin, the dominant woodland treatment involves complete tree removal of generally lower-elevation patches of woodland to reclaim or improve shrubland habitat to benefit Greater Sage-Grouse and other sagebrush obligate species. Compared*

*to the Southwest, there is less information about PinyonJay habitat use in the Great Basin upon which to base suggested treatment parameters.*

*a. Pinyon Jays often use the same general area each year for nesting, with colony site shifts of up to 550 yards (~500 meters) between years (Marzluff and Balda 1992, Johnson et al. 2017c, J. Boone and E. Ammon, pers. comm.). Thus, if a buffer area of 550 yard (~500 meters) around a known breeding colony remains undisturbed, it allows for colony shifts across years (Johnson et al. 2017c).*

*b. Pinyon Jays appear to use Phase I woodlands most frequently, Phase II woodlands at an intermediate level, and Phase III woodlands rarely (J. Boone and E. Ammon, unpublished data). Therefore, preferentially treating denser woodlands as opposed to less-dense woodlands is recommended. We recognize that Phase III woodlands are rarely the target of typical woodland treatments in this region at the current time for several reasons, including their low potential to revert to high-quality shrubland habitat after complete removal.*

*c. Treatments that create "feathered" transition zones of approximately 270–550 yards (250–500 meters) betweenthe treated area and untreated piñon-juniper woodlands more accurately mimic the transitional zones that Pinyon Jays use most often in the Great Basin. More specifically, a woodland / shrubland ecotone that is irregular, diverse, and gradual is likely to be more favorable for Pinyon Jays than a linear ecotone with sharp transition from open shrubland to dense woodland (Crist et al. 2019, J. Boone*

***and E. Ammon, unpublished data).***
***d. If using herbicide treatments in juniper or piñon-juniper woodlands, a mosaic of treated and untreated areas more accurately mimics the natural variation in woodland cover. If juniper is the target species, treating areas with piñon trees will compromise piñon nut production.***
***e. If cheatgrass and other invasive annual plants are in the vicinity of a planned treatment area, aggressive invasive species control in post-treatment management plans decreases fire risk and fire intensity (Chambers et al. 2017), thus lowering the risk to stands important to Pinyon Jays. A minimum of 20% perennial native herbaceous cover in a treatment area is recommended for preventing a large increase in cheatgrass and otherannual invasive plants post-treatment (Chambers et al. 2017).***

The agency does not address the likely adverse impacts of the project on pinyon jays or on climate change on the persistence of juniper woodlands or values of forests as carbon sinks.

There is no mention in the EA about how climate change could affect the long-term persistence of juniper woodlands. If the persistence of these woodlands will be adversely impacted by climate change, juniper thinning operations will promote the long-term demise of this important conifer.

In addition to the concern about juniper mortality resulting from climate change, we also note that forest thinning in general exacerbates climate change. Milman (2018) recently reported on this issue, noting that scientists say halting deforestation is just as urgent as reducing emissions to address climate change, given the function they provide as a carbon sink. Forest thinning reduces this carbon sink function.The impact of juniper treatments on the spread of noxious weeds was generally ignored and downplayed in the EA, even though this is very likely a significant adverse impact of this proposal.

There is a considerable awareness today regarding the problems of noxious weed infestations on public lands. One activity that is clearly promoting noxious weeds are fuels reduction and prescribed burning projects. We cite only a few examples at this time. One example is a Joint Fire Science Report by Coop and Magee (Undated), where they note that fuels and juniper reduction treatments resulted in rapid, large and persistent increases in the frequency, richness and cover of 20 non-native plant species including cheatgrass; exotic plant expansion appeared linked to the disturbance associated with treatment activities, reductionin tree canopy, and alterations to ground cover; exotic species were much more frequently encountered at treated than control sites, occurring at 86% of sample plots in treatments and 51% of untreated sample plots; richness of exotic species in treatments was more than double that of controls. What is also interesting in this study is that cheatgrass showed a negative effect of tree canopy, which

means that cheatgrass was benefited by canopy removal. They noted that models for chestgrass alone and all non-native species together indicate strong negative associations with tree canopies, indicating that increased light availability, or perhaps below-ground resources such as moisture or nitrogen, enhance colonization and growth in treatments. Increases in exotic plant species in treatment areas was one of the reasons these researchers concluded that managers need to be cautious about implementing treatments in light of the persistent, negative ecological impacts that accompany woodland thinning in pinyon pine-juniper ecosystems; this includes an increase in fire frequency.

Kerns and Day (2014) also reported that juniper treatments resulted in at least a short-term conversion of juniper woodlands to an exotic grassland. And Kerns (undated) reported similar findings in another Joint Fire Science Program report; she stated that it is a significant challenge for land managers to apply thinning and burning fuel treatments in a manner that does not exacerbate existing weed and associated resource problems due to the reduction of ecological resistance that fuel reduction activities created, combined with the aggressive nature of exotic species present. Kerns also noted that weed problems were also caused in slash pile burning, which is planned for the Rowley Canyon project.

Perchemlides et al. (2008) reported similar problems with

juniper thinning projects in Oregon; exotic annual grass cover increased, whereas cover by native perennial grasses did not, in treatment areas; they noted that fuel reduction thinning may have some unintended negative impacts, including expansion of exotic grasses, reduction in native perennial species cover, persistent domination of annuals, and increased surface fuels.
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The EA failed to provide any documentation that conversion of juniper woodlands to grasslands, including cheatgrass, improves habitat for all wildlife species.The agency notes that the project will not only reduce juniper, but various shrubs as well. Although we noted above that juniper woodlands have a very high value to many wildlife species, it is not clear that replacing juniper with grasses, including cheatgrass, balances out the loss of wildlife species removed due to juniper removal by replacement with other wildlife species that use only grasses as habitat. For example, the scooping notice did not identify that mule deer on this winter range use grasses as winter forage. The value of cheatgrass to elk in the winter is also not demonstrated. Cheatgrass seeds are extremely sharp, and use by elk in the winter seems unlikely. Cheatgrass use by wildlife in the summer is also unlikely after early spring, since this grass cures out by summer. The seeds of cheatgrass are also responsible to mortality through blinding of grassland birds (McCrary and Bloom 1984).
General comments on the proposal are as follows:
Parts of this very large project area are big game winter

range as per the Forest Plan. The EA failed to define what the specific habitat objectives are for this winter range, including hiding and thermal cover, as well as forage. Juniper and sagebrush are key forage plants for big game on winter ranges. What are the objectives for these forage species? The Forest Plan direction for this management area is binding. If the agency is going to claim that the Forest Plan is being implemented, you need to specifically define how this is being done, instead of simply claiming that juniper and shrub removal is improvement on big game winter range. Also, the science and monitoring behind this claim need to be provided. Currently mule deer populations have been in decline across the western U.S.. We haven't seen any science that reported increases of mule deer populations following removal of juniper and shrubs on their winter ranges.

One issue that is generally ignored in the EA is what shrubs are present, and will be targeted for masticating and burning. Do these control efforts include sagebrush? There is extensive documentation that sagebrush is highly valuable to both elk and deer on winter ranges (Wambolt 1998, Petersen 1993). Removing sagebrush to increase grasses on winter range, as is suggested in the EA, does not promote mule deer and elk. Sagebrush has a high protein content of almost 13% in the winter, while dormant grasses have a protein content of less than 4% (Peterson 1993). There can be no valid reason to remove sagebrush andreplace it with grasses for big game winter forage. The actual replacement species the agency claims are going to be managed for are never identified. But at a minimum, the

rationale for removing shrubs and replacing them with grasses on winter range needs to be documented, as is required by the NEPA.

The claim that this project will increase diversity is pure unsupported rhetoric. There is no definition as to what constitutes diversity. What criteria are being used to measure diversity, and why isn't this information provided to the public? For example, what is the criteria for a diversity of age classes in juniper woodlands or sagebrush, and what is this based on? The NEPA requires that the agency provide reliable, valid information to the public on projects. This claim that removing juniper and shrubs will improve diversity is a clear violation of the NEPA, as there is no actual basis for it. Worse, it is not clear why eliminating trees and shrubs increases diversity as per the standard definitions. What science claims that a grassland has higher habitat diversity than a woodland or forest, or shrub land? One likely factor driving the proposed project is not promotion of big game species and wildlife, but instead is being done for livestock. This may be why there is no actual discussion in the EA of current livestock grazing practices in this landscape.

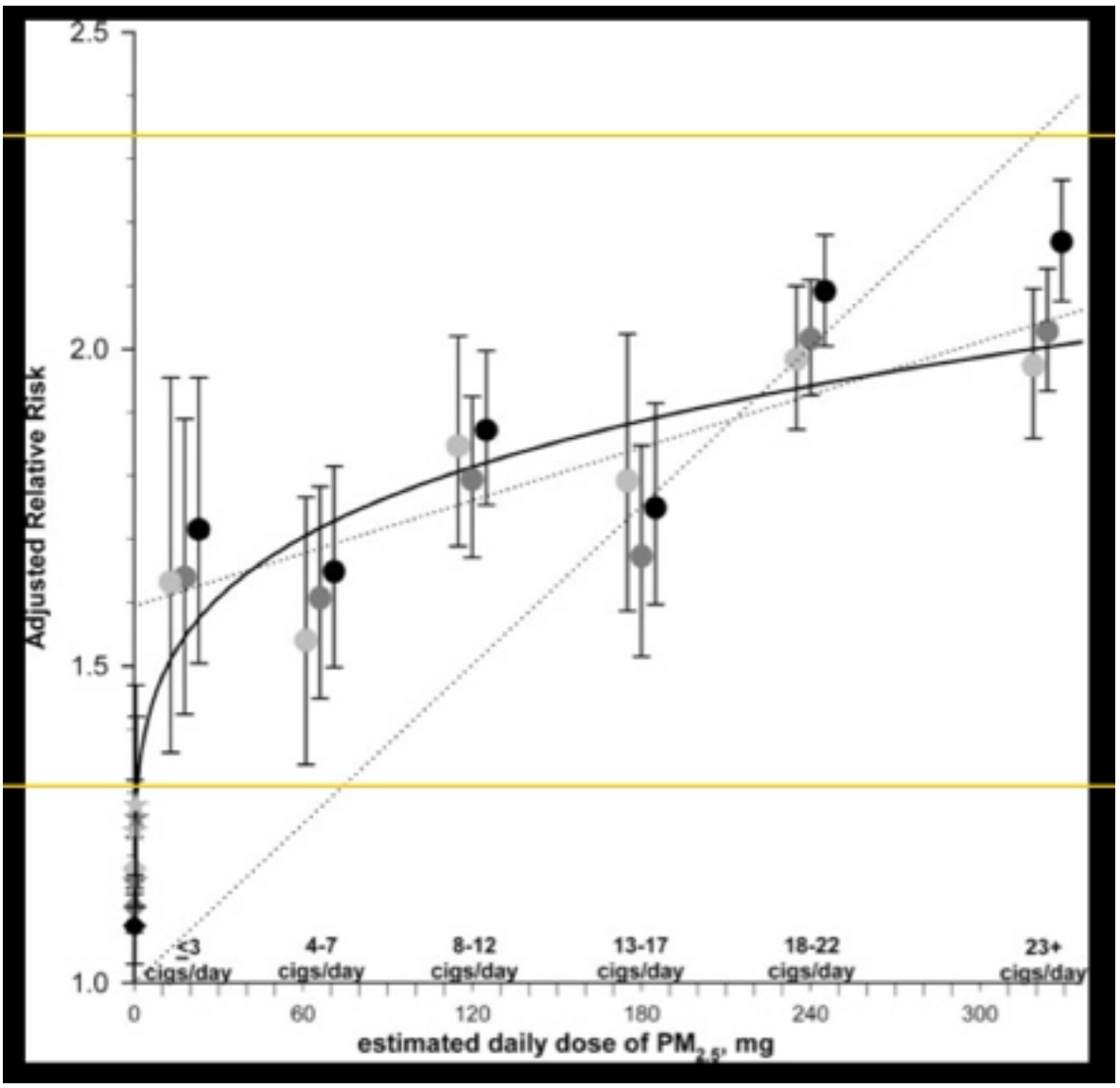
The EA did not provide any monitoring data on the effect of the fire on as winter range, or how this fire affected the extent of exotic vegetation, such as cheatgrass and other weeds. Since the proposed actions will be somewhat similar in effect, it would seem to be important for the agency to provide this information to the public.

The EA never provides any monitoring data, or references any current science, as to what the specific problems are in this landscape for wildlife. How did the agency determine that the current conditions are causing problems for wildlife? In general, one would not expect trees to be a problem for wildlife, especially juniper which is a highly valuable resource for wildlife, not just for forage, including berries, but as hiding and thermal cover. How has the agency determined that hiding cover are too high in this winter range? What are the objectives for hiding and thermal cover which are the target for management intervention?

Overall, this EA is a huge violation of the NEPA because the public is provided essentially no information as to why this project will benefit wildlife. At a minimum, the agency needs to demonstrate to the public that this is in fact the case. The EA also did not provide any information as to how the resource specialists determined that the project will not lead to any significant effects on wildlife. These conclusions need to be documented for the public, including criteria that were used and evaluated to measure levels of significant impact. As just one question, if the Forest Plan standard to manage this area to promote big game species on their winter range is not being followed, this would most likely trigger significant impacts. It seems like that this is an intentional Forest Plan violation to promote livestock grazing over wildlife in this landscape.Since the project is in violation of the Forest Plan, the project is alos in

violation of the Healthy Forest Restoration Act which requires that the project complies with Forest Plans.
Juniper removal has been a long- standing practice to promote livestock grazing, not wildlife. The EA did not discuss the current grazing use of this area by livestock. This information needs to be included as important information to the public.

**Massive herbicide use, another public health hazard**




Forest managers often use massive amounts of herbicides as part of their "fuels reduction" projects, even extoling it as an "integral part" of modern forestry practice because they claim it increases forest wood volume and even biodiversity. This particular project is also paired with widespread herbicide use.

But ten years after their use, herbicides (typically glyphosate, i.e. Roundup) can still be shown to reduce plant species diversity in the understory. But the human health impacts are far more alarming, and are

usually dismissed or completely misunderstood by those who make decisions on their use in forestry.

As biologic poisons, pesticides (herbicides and insecticides) have always been recognized as a hazard to human health, and their use has been controversial since at least 1962 with the publishing of Rachel Carson's *Silent Spring*. The idea that widely distributing biological poisons would leave beneficial plants, animals, and humans unharmed never made scientific sense, and in recent decades, a growing body of research confirms they do damage to far more of the biological world than just pests. But now the danger of the use of pesticides is likely exponentially greater.

A second dimension of concern emerged in the 1990s with research that showed many pesticides (including the most commonly used herbicides containing glyphosate) were also endocrine disruptors, i.e. they mimicked or antagonized critical human hormones at extremely low dose exposure, adding an entirely new level of scientific evidence of their harm to human health. Endocrine disruptors have been identified as causing a wide spectrum of harm, especially at the earliest, most critical stages of human development; in utero, infancy, and childhood. Clinical consequences include developmental disorders, reproductive toxicity, multiple cancers, immunosuppression, and damage to the brain and nervous system. Many pesticides degrade into metabolites that have even stronger endocrine disrupting characteristics.

Because of this research, in 1996, Congress mandated EPA test all pesticides for endocrine disruption potential. Twenty-nine years later that still has not happened and EPA's regulatory process largely ignores the issue. Independent researchers meanwhile have strengthened the evidence of harm from endocrine disruptors. Glyphosate is still the most commonly used herbicide, despite increasing resistance developing in many plant species. It is now recognized as an endocrine disruptor. A detailed case against the use of glyphosate can be found here.

A third dimension of public health harm from pesticides has emerged in the last few years that almost certainly dwarfs the previous two. Scien-

tists from throughout the world are finding PFAS in many of the most commonly used pesticides. The presence of PFAS can be both intentional and inadvertent, i.e. intentionally incorporated into the active ingredient, as inactive ingredients used to enhance efficacy, or from leaching from storage containers.

Recently the CDC made an unprecedented recommendation that physicians consider testing their patients' blood for PFAS or "forever" chemicals. That they have never made any such recommendation for any other toxic chemicals speaks volumes about the unprecedented danger of these chemicals. In 2022, EPA made stunningly strict drinking water guidelines for forever chemicals; for the two main categories .02 and .004 parts per trillion (ppt). To give that a visual context, that is the equivalent of 1 drop of water in a lake the size of six Rose Bowl stadiums, and one drop of water in a lake the size of 30 Rose Bowl stadiums.

Then in April last year EPA made enforceable, nationwide drinking water standards for these chemicals that are so strict it means EPA essentially believes there is no safe level of PFAS exposure. They made the standard equal to the detection capability of current technology, i.e. 4 ppt (parts per trillion).

Reflecting growing worldwide alarm in the scientific community, a pollution researcher at the UK's Liverpool John Moores University, Patrick Byrne, said PFAS are "probably the greatest chemical threat the human race is facing in the 21st century." Twenty-nine states have adopted at least some laws to protect their residents from PFAS in consumer products and more is being planned.

Please see the following

Global contamination with PFAS now intersects with pesticide use because the evidence is overwhelming there is wholesale contamination of pesticides with PFAS chemicals, and many pesticides break down into still toxic, short chain PFAS type chemicals. Seventy percent of pesticides introduced to the market since 2015 qualify as PFAS compounds. As a former EPA scientist, Kyla Bennett said, "If the intent was to

spread PFAS contamination across the globe there would be few more effective methods than lacing pesticides with PFAS."

There is already widespread PFAS pesticide contamination of every component of the global environment, including drinking water and the food supply. Nearly 100% of humans carry PFAS in their blood in very disturbing amounts, including newborns, and pesticides are a major reason. Women, fetuses, infants, and children are more susceptible to the health hazards of pesticides and PFAS. European scientists said, "The extent of this contamination is shocking. It is a result of political failure at many levels."

Pesticide use in forested areas is largely unrestrained, and decisions about mass spraying are made by private contractors, lumber companies, and government agency employees who have no expertise in the health consequences of the products they are exposing the public to. This lack of oversight is irrational, and it is now wholly unacceptable. There is strong evidence that the mass use of pesticides is now a serious, global public health threat on an unprecedented level because of endocrine disruption and now PFAS contamination. Indeed, these extremely hazardous chemicals are likely found in the emissions of pellet combustion.

Pesticides can drift thousands of miles from where they are applied. Typically about 25% of sprayed pesticides become airborne and capable of contaminated ecosystems hundreds and even thousands of miles away.

Thank you for your attention to these concerns.

Sincerely yours,

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