



U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Management and Conservation of Pinyon and Juniper Woodlands

Public Comment Summary Report



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U.S. Department of the Interior
Bureau of Land Management

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The Bureau of Land Management's mission is to sustain the health, diversity, and productivity of public lands for the use and enjoyment of present and future generations.

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ACRONYMS AND ABBREVIATIONS

Full Phrase

BLM	Bureau of Land Management
EO	executive order
ESD	ecological site description
GIS	geographic information systems
NEPA	National Environmental Policy Act

Chapter I. Introduction

I.1 BACKGROUND

The Bureau of Land Management (BLM) manages more than 19 million acres of pinyon-juniper woodlands, comprising over half of the agency's forested lands. The BLM manages pinyon-juniper woodlands for forest health, wildlife habitat, outdoor recreation, grazing, and other multiple uses. Pinyon-juniper woodlands have significant value to tribes, both as sacred sites and as sources of pinyon nuts, fuelwood, and traditional uses.

Climate change is already impacting pinyon-juniper ecosystems, and it is expected to continue having significant impacts on the health and distribution of woodlands and the species that inhabit them. Related stressors include insect and disease outbreaks, wildfire, and the expansion of invasive annual grasses. The BLM actively manages pinyon and juniper to improve rangeland conditions and habitat for sagebrush-dependent species, such as the greater sage-grouse.

In light of these various impacts on pinyon-juniper woodlands, the BLM recognizes the need to manage them for increased landscape health and ecosystem resilience. The BLM is endeavoring to build scientific knowledge, including tribal perspectives, of this resource on the public lands to inform policy and management considerations. The BLM and Forest Service hosted a public workshop and associated public comment period to seek information on the array of existing ecosystem science and knowledge, management trends, social and cultural values, existing and potential threats, and climate resilience of pinyon-juniper woodlands.

Further contributing to the BLM's understanding of its forest resources, on April 22, 2022, President Biden signed Executive Order (EO) 14072, Strengthening the Nation's Forests, Communities, and Local Economies, which sets forth the administration's policy to conserve America's mature and old-growth forests on federal lands. The EO also directs the BLM and Forest Service to define and inventory those forests, analyze threats to them, and develop policies to institutionalize climate-smart management and conservation strategies, with robust opportunity for public comment. The BLM and Forest Service completed the initial inventory of mature and old-growth forests in April 2023. The initial inventory identified 24 million acres of mature and old-growth pinyon-juniper woodlands on federal lands, making the pinyon-juniper group the most abundant old-growth forest type on public lands managed by the agencies.

This report summarizes public comments received about the management and conservation of pinyon-juniper ecosystems during a comment period that occurred from March 28 through May 31, 2024. The BLM specifically requested information regarding:

- Classifying different types of pinyon-juniper ecosystems and identifying appropriate management actions
- Assessing the condition of pinyon-juniper woodlands
- Values associated with old-growth pinyon-juniper woodlands
- Identifying threats to pinyon-juniper ecosystems and management methods to increase the ecosystems' resiliency

- Planning for a diversity of ecosystems and conditions
- Data and information gaps
- Incorporating Indigenous knowledge to improve the BLM’s understanding and management of pinyon-juniper woodlands

I.2 METHOD OF COMMENT COLLECTION AND ANALYSIS

For this comment summary report, the BLM evaluated all written submissions received during the public comment period that were received on or before May 31, 2024. The BLM received comments via the following submittal methods:

- An online comment webform accessible through the project website (<https://www.blm.gov/workshop-management-and-conservation-pinyon-and-juniper-woodlands>)
- The project email: blm_wo_forestry@blm.gov
- Hardcopy mailed-in submissions

The comment analysis process included five main components:

- Developing a comment coding structure
- Using a comment database for comment management
- Reading and coding public comments into discrete categories
- Interpreting and analyzing the comments to identify issues and themes
- Preparing comment summaries

In this report, a *comment submission* refers to a unique letter, email, website entry, or hardcopy comment received by the BLM during the public comment period. A *comment* refers to a substantive statement identified within the comment submission. All substantive comments identified were grouped by similarly themed topics; those comments are summarized in **Chapter 3**.

Table I-1 provides the information on the affiliation of comment submissions. During the comment period, the BLM received 533 total letter submissions; 507 of these submissions were nearly identical submissions from a form letter campaign, while 26 submissions were unique. In total, 356 unique substantive comments were identified from all comment submissions.

Table I-1: Comment Submissions by Affiliation

Affiliation	Number of Submissions	Percentage of Total Submissions
Individuals	10	38.5
Organizations and industry groups	9	34.6
Local governments	5	19.2
State agencies	2	7.7
Total	26	100

Chapter 2. Comment Submission Summary

Table 2-1 summarizes the distribution of comments by topic category. These comment topic categories are outlined further in **Chapter 3**, which presents summaries of the substantive comments included in **Appendix A**.

Table 2-1: Comments by Topic Category

Topic Category	Number of Comments	Percentage of Total Comments
Federal, state, and local governments	21	5.9
Government-to-government consultation and tribal interests	7	2
Public involvement	1	0.3
Executive Order 14072	4	1.1
Analyzing and managing pinyon-juniper woodlands in land use plans and National Environmental Policy Act (NEPA) documents	123	34.6
Climate change and climate resilience	12	3.8
Fire and fuels	10	2.8
Importance and values of pinyon-juniper woodlands	9	2.5
Indigenous uses and values of pinyon-juniper woodlands	11	3.1
Mature and old-growth pinyon-juniper woodlands	1	0.3
Pinyon-juniper management practices	54	15.2
Science and information regarding pinyon-juniper ecology	46	12.9
Wildlife habitat	14	3.9
Livestock grazing	8	2.3
Threats to pinyon-juniper woodland health	21	5.9
Workshop on management and conservation of pinyon-juniper woodlands	14	3.9
Total	356	100

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Chapter 3. Comment Themes and Summaries

The BLM and Forest Service will further consider the themes and comment summaries presented below to inform future policy updates regarding pinyon-juniper woodland management.

3.1 OUTREACH AND ENGAGEMENT

3.1.1 Federal, state, and local governments

Theme: State and local government coordination and cooperation should occur.

Comment Summary

Commenters appreciated recent efforts by the management agencies to involve tribal input, recognizing tribes as sovereign entities entitled to full cooperation and coordination in public land use planning. However, they suggested there has been a lack of similar efforts in coordinating with state, county, and local resource management agencies. Commenters emphasized that these agencies possess a clearer understanding of local conditions affecting pinyon-juniper woodland management. Commenters expressed concerns about a national, top-down approach to implementing pinyon-juniper woodland management.

3.1.2 Government-to-government consultation and tribal interests

Theme: Consultation with tribes on pinyon-juniper management practices must occur.

Comment Summary

Commenters encouraged the agencies to integrate the expertise of tribes on pinyon-juniper woodland management into planning and executing resource management projects to foster cooperation and goodwill with Indigenous groups. They called for early engagement and meaningful consultation with local tribes for any proposed projects that might negatively affect pinyon-juniper forests. They requested that an agreement on policy be made before starting project work to ensure local concerns are represented. Some commenters specifically referenced the formation of the Bi-State Tribal Natural Resources Committee, which includes representatives from tribal entities and aims to protect tribal cultural values in the management of cultural and natural resources. They highlighted the need to involve such groups and their values in federal pinyon-juniper woodland management. Other commenters stressed the need to incorporate tribal perspectives and knowledge during all phases of pinyon-juniper rulemaking.

Commenters expressed concern that pinyon-juniper woodlands have historically been managed without coordinating with tribes that have cultural and spiritual values associated with these woodlands. They requested that the BLM work with tribes to carry out a cultural impacts assessment as part of an environmental justice impacts analysis for pinyon-juniper management. A commenter implored the BLM to both recognize the spiritual and cultural value of pinyon-juniper woodlands to tribal people and to integrate Indigenous knowledge and management practices into planning regarding pinyon-juniper woodlands to promote forest health and to protect the culturally significant sites the woodlands contain.

3.1.3 Public involvement

Theme: The BLM should communicate ongoing projects to the public and provide access to data and information.

Comment Summary

Commenters requested more clear communication of BLM project work to the public, as well as easier access to current and cumulative data. They recommended implementing the model of transparency used in documenting BLM renewable energy projects for other BLM land management projects. They also suggested tracking all pinyon-juniper projects regardless of particular justifications. The commenters further suggested the agencies could cooperate to provide better public access to project information and documents; they noted limitations of the US Geological Survey Land Treatment Digital Library as an access point for data and information on public land management.

3.2 PINYON-JUNIPER WOODLANDS

3.2.1 Executive Order 14072

Theme: EO 14072 is critical for protecting mature and old-growth pinyon-juniper woodlands.

Comment Summary

Commenters agreed with the rationale and implementation of EO 14072; they appreciated efforts to inventory forests, analyze threats, and develop policies to mitigate potential threats. They acknowledged that pinyon-juniper woodlands are among the most abundant sources of old-growth forests, emphasizing that managing this type of habitat offers an opportunity to enact significant policy changes in a frequently overlooked landscape. One commenter highlighted the slow process of reseeded and repopulating pinyon-juniper trees, noting that potential recoveries occur far in the future, if at all. Due to this difficulty, commenters urged the management agencies to adopt a more inclusive approach when identifying mature and old-growth trees for conservation.

Other commenters recommended expanding certain aspects of the EO, such as providing clearer definitions of pinyon-juniper woodlands, specifying management actions, and incorporating updated recent scientific information. Other commenters expressed concerns that the agencies did not properly conduct the initial inventory of 24 million acres of mature and old-growth forests. They suggested the inventory relied on inadequate geographic information systems (GIS) assessments and analysis without recent field surveys or up-to-date information. They recommended that the agencies use updated trend data and the best available information.

3.2.2 Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents

Theme: Vegetation management actions should be considered.

Comment Summary

Commenters recommended using ecological site descriptions (ESDs) when determining locations for tree-removal projects. ESDs, which are based on soil maps, are less likely to change over time compared to vegetation type assessments. Commenters acknowledged that mature and old-growth tree stands might be present in ecological sites that are primarily shrub or grassland; therefore, management agencies should consider these types of habitats when developing tree-removal projects. These habitats include mixed pinyon-juniper and shrub/grassland ecosystems. Commenters suggested avoiding a minimum tree-per-acre approach when considering shrub and grassland habitats. Additionally, commenters stated that previous

restoration activities may have altered the primary vegetation in an ecological site and suggested that management agencies consider these previous changes instead of discarding an ESD as inaccurate.

Commenters emphasized the importance of performing field surveys prior to developing management actions based on stand conditions. When determining stand boundaries, commenters urged the management agencies to consider input from local tribes, nongovernmental organizations, and volunteer groups, and to welcome offers of assistance from these groups due to staffing difficulties and the large areas that need to be covered. Commenters stressed the need for practical, adaptive management of pinyon-juniper woodlands, incorporating input from local and state agencies and following locally developed resource management plans. They also highlighted the importance of continuing to monitor treatment efficacy by partnering with state and local cooperating agencies. Commenters were critical of a top-down, one-size-fits-all approach to pinyon-juniper management due to habitat variability. They stated that large-scale mechanical or chemical treatments should be avoided. They emphasized that GIS or modeling surveys cannot replace field surveys and are not as effective at identifying mature and old-growth tree stands. Finally, commenters urged management agencies to avoid outdated management techniques that do not support modern goals of forest resiliency, species protection, or carbon sequestration.

Commenters stated that stands containing mature and old-growth trees may be unnaturally dense, and they may need thinning. Commenters suggested that tree-removal projects should be implemented where appropriate, but there is concern that these methods might include young tree stands excessively, reducing the recruitment of mature and old-growth trees. This could have a cascading effect on other species that use these ecosystems, including sensitive and indicator species. In old-growth and mature stands, retaining a full suite of age classes is essential to promote long-term resiliency and future growth. Management plans should include alternatives that maximize the retention of old-growth stands and promote mature stands to old growth, carefully considering project impacts on old-growth and mature pinyon-juniper ecosystems.

Since old-growth stands in mixed shrub ecosystems are less dense than in complete woodlands or forest, these areas are likely to fall below the standard tree-per-acre density; these areas should be considered on a case-by-case basis. Projects using a tree diameter cap can skew population demographics and eliminate future potential old-growth trees. Commenters suggested that old-growth zones should be designated as a landscape feature, with measurable indicators to monitor over time. These zones should capture ecological processes and be part of a nationwide inventory. Standards for old-growth management should include indicators related to ecological characteristics within normal variations. Commenters emphasized the use of the best available science to inform long-term management actions in old-growth areas to establish resiliency, prioritizing the retention of old-growth trees. They argued that old-growth and mature pinyon-juniper trees should take precedence over enhancing big game habitat and livestock uses.

Commenters stated that the managing agencies should maintain natural transition zones between vegetation types during management projects, rather than creating sharp boundaries between habitat types. These transition zones, which can include riparian habitats and areas dominated by aspen and mahogany, provide important habitat for wildlife such as pinyon jays. Commenters emphasized that management agencies should prioritize these transition zones for invasive weed treatments.

Commenters were supportive of reseeded efforts to restore postfire habitats. They emphasized that management agencies should continue to use native seed mixes. The agencies should resort to nonnative seed mixes only as a last resort and only if it can be demonstrated that such use is necessary and that its

effects will not persist long term. Commenters described previous projects where nonnative seed mixes were used, leading to a dominant vegetation type adjustment that impacted the ecosystem. They criticized these efforts, stating that changes in vegetation type affect all obligate species and can cause cascading detrimental impacts on all species of the ecosystem. Additionally, commenters encouraged the implementation of smaller-sized projects, referred to as mosaics, to promote shrub ecosystems rather than large-scale tree-removal projects.

Commenters suggested that management agencies should inventory mature and old-growth forests before initiating tree-removal projects. They recommended performing and mapping inventories of pinyon-juniper woodlands, vegetation community types, and species diversity. Additionally, they emphasized the need for further research on landscape-scale patterns, including invasive grasses, fire, grazing, and climate, before implementing large-scale policy changes. The commenters stressed that management agencies should use scientific principles when developing policies for pinyon-juniper management.

Commenters emphasized the importance of considering biocrusts as a significant resource in pinyon-juniper management. They suggested that management agencies should refrain from using aggressive tree-removal methods in areas with high occurrences of biocrusts to prevent damage. Furthermore, they recommended establishing protocols to preserve biocrusts in locations where avoiding heavy machinery may not be feasible during tree-removal projects. The commenters noted that this preservation practice is not currently common among management agencies conducting vegetation manipulation projects.

Theme: Fire management actions should be considered.

Comment Summary

Commenters suggested that large-scale mechanical pinyon-juniper tree removal may be necessary to mitigate potential fire risk near urban locations; they stressed, however, that full-scale tree removal is not always necessary. They recommended prioritizing the retention of old-growth trees; this is because old-growth trees are more fire adapted, reducing the fire risk while still providing ecological benefits.

However, some commenters expressed concern that the impacts of fuel removal treatments in pinyon-juniper woodlands have not been properly researched. They urged the agencies to carefully consider potential effects on wildlife species and habitats when planning fire or vegetation clearing. Suggestions for management actions included proper maintenance of growth between structures and old-growth trees, prioritizing fire-resilient management actions and projects, and using grazing to remove undergrowth to mitigate potential fires.

Other commenters highlighted the importance of historical fire trends in pinyon-juniper woodlands and urged that historical fire and fire return data be considered in decision-making for local, state, and federal resource management plans.

Theme: Wildlife management actions should be considered.

Comment Summary

Commenters argued that monitoring and surveying pinyon jay populations are critical for assessing the effectiveness of pinyon-juniper ecosystem management and establishing the baseline conditions for effective impact analysis and land management planning. They noted that the agencies have traditionally labeled pinyon jays as a sensitive species, but the unique challenges related to managing resilient pinyon-juniper ecosystems could be better met by adopting pinyon jay as an indicator species. Pinyon jays have a

unique relationship with pinyon-juniper communities; they act as primary dispersal agents for pinyon seeds, which is crucial for the reestablishment of pinyon pines after disturbances like fires and insect infestations. Also, pinyon seeds have a significant cultural and historical value to tribes. By monitoring pinyon jays, the agencies could gather crucial information about the health of the pinyon-juniper ecosystem and the efficacy of their management decisions.

Furthermore, monitoring and surveying pinyon jays would provide the agencies with useful information to assess the impacts of management decisions on various species dependent on pinyon-juniper woodlands. Pinyon-juniper ecosystems support a multitude of species, including sensitive and at-risk species, such as the ferruginous hawk, juniper titmouse, and mountain bluebird. Because the pinyon jay is heavily dependent on pinyon-juniper ecosystems, its population trends can indicate broader ecosystem health.

Commenters emphasized the need to weigh the benefits of pinyon-juniper woodland removal against removal's potential negative effects on other wildlife species and habitats. While reducing fuels can mitigate fire risk, it may also introduce invasive plants and harm species dependent on these ecosystems. They stressed the importance of considering the broader context of threats and degradations affecting these ecosystems, ensuring that the benefits and harms of management actions are carefully evaluated.

Active management of all age classes of pinyon-juniper trees to benefit threatened and endangered species and those identified in state wildlife management plans, such as the Utah Wildlife Action Plan, should be utilized as a framework for agencies to manage pinyon-juniper communities. Management actions should promote a heterogeneous landscape, addressing data gaps in pinyon jay biology and enhancing the productivity, diversity, and resilience of pinyon-juniper ecosystems.

Theme: Assessing impacts in categorical exclusions, environmental assessments, and environmental impact statements is critical to managing pinyon-juniper woodlands.

Comment Summary

Commenters emphasized the importance of thoroughly assessing and considering the potential impacts of tree-removal projects on mature and old-growth tree stands. They specified that if a tree-removal project is considered and does not meet criteria specified in CX 516 in Departmental Manual 11.10, then it is essential that the agencies complete an environmental assessment or environmental impact statement, with a detailed analysis of any potential impacts on mature and old-growth tree stands. The commenters added that these projects should prioritize actions that support old-growth retention and promote the progression of mature stands to old growth.

Commenters emphasized the importance of allowing public engagement during the scoping phase of these projects, with clear, specific criteria for identifying and classifying mature and old-growth tree stands. They also suggested developing a similar process for cases in which minor modifications need to be made to a previously approved tree-removal project, allowing the public to provide specific input and analyzing specific impacts that the original approval might not have covered.

In addition, commenters specified that preserving mature and old-growth tree stands was essential in maintaining social, economic, and cultural resources. While NEPA does not mandate that management agencies perform a social impact assessment, commenters recommended that these actions be carried out when appropriate, due to the broad range of socioeconomic and cultural impacts that tree-removal projects could bring. Commenters referred the management agencies to EO 12898 and EO 14096 for

guidance on including social, economic, and cultural issues within NEPA documents. They also suggested that the management agencies could integrate existing social impact assessments into NEPA guidelines when considering social, economic, and cultural impacts from tree-removal projects.

3.2.3 Climate change and climate resilience

Theme: The importance of carbon storage should be considered.

Comment Summary

Several commenters noted that living trees actively store carbon for years; trees can do so even when they are dead, if they are left on-site. Many commenters requested that management include conserving pinyon-juniper forests and leaving trees in place to mitigate climate change. Commenters placed particular emphasis on the capacity of mature and old-growth pinyon-juniper woodlands to sequester carbon; they highlighted research stating that retaining living trees does more to facilitate carbon storage than removing trees to prevent carbon loss from wildfires or reseeding cleared forests with young plants.

Commenters stated their opposition to pinyon-juniper thinning projects and the use of burning wood for energy. They noted that burning forest wood depletes forest ecosystems and generates dangerous emissions in larger amounts compared to burning fossil fuels. They questioned any claims of burning forest wood as a renewable energy source due to the resulting carbon dioxide emissions and loss of capacity for carbon sequestration. They asserted that burning forest wood is, therefore, counterproductive to climate change mitigation.

3.2.4 Fire and fuels

Theme: Large, homogenous pinyon-juniper stands exhibit a greater frequency and intensity of wildfires compared to sage-steppe ranges.

Comment Summary

Commenters highlighted that the encroachment of pinyon-juniper trees is largely attributed to the trees' resilience to drought and the suppression of wildfires, resulting in the proliferation of homogeneous pinyon-juniper habitat at the expense of sage steppe habitat. In areas densely populated with pinyon-juniper woodlands, wildfires have become more frequent and intense compared to fires in sage steppe ranges.

Some commenters proposed adopting a fuels management approach based on smaller units, referred to as mosaics. They argued that these mosaics can replicate natural breaks in woodland habitat, occurring beyond the typical encroachment model boundaries. By employing the mosaic model, smaller fires ignited by lightning strikes can create breaks in homogeneous pinyon-juniper areas, facilitating the emergence of patches of recovering post-successional habitat within the woodlands.

Theme: Current tree-removal methods for fuels-thinning projects can increase the risk and intensity of wildfires.

Comment Summary

Commenters raised concerns regarding the field techniques employed by management agencies during tree-removal operations, noting that current practices may inadvertently exacerbate fire intensity; this is contrary to the intended goal of reducing fire intensity. While the aim of tree removal is to decrease understory growth, grasses, and fallen debris, techniques like lop and scatter can increase the potential fuel load. Furthermore, woody debris left after lop-and-scatter treatments has the capacity to dry out,

making it more volatile compared to live trees. Since tree-removal projects often select trees for sage-grouse conservation, commenters worry that this added fuel load could compromise remaining sage-grouse habitat. One commenter suggested removing this woody debris after the tree-removal treatment.

Additionally, commenters expressed concerns that while fire reduction is often cited as the primary justification for tree-removal treatments, there is insufficient evidence to support the effectiveness of such treatments in achieving this goal. They questioned the assertion that tree removal reduces wildfire risk. They emphasized the need for more research and evidence to substantiate this claim.

3.2.5 Importance and values of pinyon-juniper woodlands

Theme: The value of pinyon-juniper woodlands to humans and wildlife should be considered.

Comment Summary

Commenters noted that pinyon-juniper woodlands have value to humans. These woodlands store carbon; serve as sources of pine nuts, firewood, and biomass; have cultural and spiritual importance; and have recreational values for hunters, hikers, and anglers. The commenters stressed the need to protect these woodlands for their human-related values.

Commenters noted that pinyon-juniper woodlands are an integral part of the ecosystem through their support of wildlife as a source of habitat, food, and shelter. They also stated that juniper trees and their berries give food and shelter to many species of birds; they emphasized that pine nuts are an integral part of ecosystem restoration.

3.2.6 Indigenous uses and values of pinyon-juniper woodlands

Theme: Indigenous uses of pinyon-juniper woodlands should be considered.

Comment Summary

Commenters noted several Indigenous uses of pinyon-juniper woodlands, such as harvesting pine nuts, biomass, and firewood, as well as modifying trees to make bow staves in mature juniper woodlands.

Commenters noted that a significant number of sites that are culturally significant to Indigenous people can be found in pinyon-juniper woodlands. These sites, including brush and branch houses, seed caches, burials, and other cultural and religious tools and artifacts, are at risk of destruction by all types of pinyon-juniper treatments. The cultural value of pinyon-juniper trees to Indigenous people is exemplified by statistics provided by commenters; for example, 85 percent of archaeological sites in Utah are in pinyon-juniper woodlands, and there is evidence of human use of pinyons dating thousands of years. Commenters recommended conducting cultural resource inventories in potentially sensitive areas. They also suggested coordinating with Native American specialists and government cultural, timber, and plant specialists to seek out culturally important areas and protect them.

Other commenters noted that pinyon-juniper forests also have significant spiritual value to tribes as a part of the tribes' religious beliefs. The commenters detailed an example of Indigenous spiritual practices involving pinyon-juniper woodlands in which Navajo girls select a pinyon or juniper tree to be an important monument of their transition into womanhood. These trees retain symbolic value to the women who choose them throughout the women's lives.

Theme: Indigenous management of pinyon-juniper woodlands should be considered.*Comment Summary*

Commenters discussed the extensive utilization of burning as a method of woodland management by Indigenous people throughout North America. One commenter described traditional Indigenous practices of cultural burning to manage woodland ecosystems to promote plant growth and seed production as well as to improve capacity for hunting, traveling, and agriculture. Noted benefits of putting Indigenous methods of burning for forest management into practice include minimizing fire hazards, which would benefit plants and animals that are sensitive to fires; lowering carbon emissions; empowering Indigenous people; and mitigating the consequences of heightened fuel aridity.

3.2.7 Mature and old-growth pinyon-juniper woodlands***Theme: The value of mature pinyon-juniper stands should be considered.****Comment Summary*

Commenters suggested that limiting pinyon-juniper tree expansion should be balanced by protection of mature trees that function as wildlife habitat and storage for carbon.

3.2.8 Pinyon-juniper management practices***Theme: When determining locations that will be subject to pinyon-juniper tree removal, locations that are a high conservation priority for sage-grouse should be areas of focus.****Comment Summary*

Commenters emphasized that juniper removal is often justified by the creation of more open habitat to encourage sage-grouse conservation. They acknowledged the critical need for pinyon-juniper removal, but they argued that the removal strategy is sometimes excessive, leading to detrimental effects. Commenters suggested that the agencies should limit tree removal for sage-grouse conservation to smaller locations and use different justifications for other tree-removal projects. Moreover, they proposed that the agencies adopt an ecosystem management approach instead of single-species management; this is because all species in ecosystems benefit from ecosystem management strategies.

Other commenters stressed the need for the agencies to carefully consider adverse impacts from tree removal and create conservation collections of genetically important populations in case adverse effects are too severe.

Theme: Controlling pinyon-juniper expansion should be considered.*Comment Summary*

Some commenters suggested that selective cutting of junipers should occur to promote a healthy ecosystem with diverse plants. They advocated cutting excess young junipers and leaving older, larger juniper trees to benefit wildlife and propagate next generations of junipers with the trees' berries. One commenter stated that selective cutting of juniper trees benefits soil health and leaves more moisture to be used by grasses and forbs. Another commenter contrasted this position, noting that while a common justification for juniper removal is to lower evaporative demand for water and enhance the flow of streams and springs, research indicates the actual hydrologic effects of juniper removal are complicated and unclear in terms of ecological benefits.

One commenter highlighted an observed decline in pinyon range throughout the southwestern United States at rapid rates; the commenter recommended that the BLM use remote sensing to monitor and detect any significant mortality events annually. The commenter further suggested using these data together with species distribution models to explore potential suitable habitat in the future, considering various climate change scenarios.

Theme: When performing fuels reduction treatments, low-impact methods should be used as much as practically possible.

Comment Summary

Commenters highlighted the significant detrimental impact of using heavy machinery for chaining removal projects. They cited the creation of additional roads to accommodate such machinery, which further fragments habitats and poses a threat to sage-grouse populations.

As an alternative, commenters suggested using hand crews to perform fuels-thinning treatments, when feasible, and employing small, controlled burns. Commenters cited economic benefits in hiring hand crews to perform these fuels reduction treatments. Commenters also stressed the importance of trusting field crews to determine which trees should be designated for removal, considering factors such as height, crown shape, and diameter, in addition to core sampling. They argued against a top-down, one-size-fits-all approach.

Additionally, one commenter argued against burning downfallen junipers for energy production; the commenter stated that burning biomass emits more greenhouse gases than fossil fuels. Finally, commenters generally agreed on the importance of prioritizing the clearing of understory growth, weeds, grasses, and fallen trees, as plant regrowth from clear-cutting pinyon-juniper trees results in new growth of invasive and noxious weeds.

Theme: Agencies should assess other causes of high water use and work to address those causes.

Comment Summary

Commenters disagreed with the hydrologic benefits of juniper removal, arguing that such benefits are complex and not as beneficial as claimed. They suggested there are other users of water resources; they attributed high water use to inappropriate management of livestock grazing and logging. The commenters suggested that the agencies should conduct thorough assessments of the damage caused by livestock grazing and develop potential mitigation strategies based on these assessments. By addressing the root causes of water resource depletion, such as unsustainable grazing practices, they believed that more effective conservation efforts could be implemented.

3.2.9 Science and information regarding pinyon-juniper ecology

Theme: There are concerns that agencies have not used the most up-to-date scientific data when considering updated policy.

Comment Summary

Commenters emphasized the importance of using the most current scientific data and information to inform land use planning policies. They expressed concern that management agencies may not fully consider all potential impacts resulting from mismanagement of pinyon-juniper woodlands. Specifically, they highlighted sensitive species, such as the Clark's nutcracker, juniper titmouse, and pinyon mouse, and placed emphasis on the decline of sage-grouse populations. Commenters urged research into the

relationship between livestock grazing and Gunnison sage-grouse decline; they also requested a scientific justification—beyond sage-grouse conservation—for tree-removal projects.

Other commenters advocated for the continued use of older policies and management strategies. They argued that adaptive management techniques and past research remain essential in policy development, as newer remote technologies and monitoring methods have not yet been fully tested or proven effective. They suggested cautious approach to adopting new methodologies, favoring established practices until the new methodologies' efficacy is adequately demonstrated.

Public comment submissions contained various suggested best available science and information for the BLM and Forest Service to consider during any policy updates to pinyon-juniper woodlands management. The full citations of these references are provided in **Appendix B**.

Theme: In addition to the specific scientific literature provided, there are other tools that could be used for policy development.

Comment Summary

Commenters provided various sources that could inform the development of pinyon-juniper management policy. These sources included GIS data sets from 2013, which offer spatial data for estimating tree stand age; PowerPoint presentations discussing the impacts of fuels reduction on native grasses; and a collaboration website organized by an environmental consultant. Additionally, commenters urged management agencies to use ESDs developed by the Natural Resources Conservation Service and major land resource area descriptions developed by the University of Nevada, Reno.

Commenters also recommended using genetic mutation rates to age trees when traditional methods may not provide accurate results. Furthermore, commenters supported the use of remote monitoring technologies in specific locations, such as woodlands near existing roads, habitat transition zones, and areas experiencing pinyon-juniper encroachment. They argued that these methodologies could enhance the effectiveness and precision of management efforts while minimizing environmental impacts.

3.2.10 Wildlife habitat

Theme: Fuels-thinning projects for pinyon-juniper woodlands would have short-term, detrimental impacts on wildlife, but the decreasing wildfire risk would result in a net benefit for all species that use pinyon-juniper woodlands.

Comment Summary

Commenters recognized the need for fuels thinning in pinyon-juniper woodlands, primarily to reduce wildfire risk and pinyon-juniper encroachment. However, they also observed short-term impacts on wildlife behavior in locations that have undergone fuels treatments. One commenter reported witnessing big game species, which include mule deer, elk, antelope, and sheep, avoiding locations that had been chained or lopped and dropped. In contrast, other commenters noted an increase in mule deer populations due to the increased open space. One commenter highlighted the economic benefits of a higher mule deer population, as hunting tags generate substantial revenue for state conservation and wildlife management agencies.

Theme: Fuels-thinning projects for pinyon-juniper woodlands are often proposed as a solution for sage-grouse conservation.*Comment Summary*

Commenters recognized that several thinning projects were designed and implemented to conserve sage-grouse populations; this species prefers open sagebrush habitat over woodlands. However, there were concerns that thinning projects were applied indiscriminately, using sage-grouse conservation as a justification, even in locations that were not high priority for sage-grouse recovery. Conversely, some commenters stated that pinyon-juniper tree-removal treatments were applied without considering the distinct needs of the bi-state sage-grouse, to the detriment of local populations. Additionally, commenters expressed concerns that despite these tree-removal projects aimed at promoting sage-grouse conservation, sage-grouse populations continue to decline.

Theme: There are species that use habitat adjacent to pinyon-juniper woodlands; this should be considered when developing policy.*Comment Summary*

Commenters placed emphasis on ecotones between pinyon-juniper woodlands and adjacent habitats, including aspen and riparian habitat. These ecotones are important habitat for many bird species, providing transition zones that can support species typically reliant on one specific type of habitat. For instance, riparian-dependent species may use pinyon-juniper woodlands for forage locations due to a lack of arthropod prey in the riparian habitat. Additionally, commenters expressed concerns over the pinyon jay decline, as this species uses transition habitat between pinyon-juniper and sage land ecosystems.

3.2.11 Livestock grazing***Theme: Grazing impacts on pinyon-juniper woodlands should be considered.****Comment Summary*

One commenter stated that it is inappropriate to blame grazing for the detrimental impacts on pinyon-juniper woodlands; the commenter opposed references to negative impacts associated with grazing. The commenter also noted that old-growth forests and their ecosystems have developed contemporaneously with livestock grazing in the West. Additionally, the commenter stated that the reduction of fine fuels and the resulting catastrophic wildfires due to livestock grazing may have benefited old-growth forests.

Other commenters were concerned about the potential damage to pinyon-juniper woodland health that can be caused by livestock grazing. One commenter noted that while many pinyon-juniper vegetation projects are enacted to enhance forage for livestock or habitat improvement for wildlife, there have been few actual studies on the short- and long-term effects of livestock on pinyon-juniper woodlands. The commenter further noted that livestock are not attracted to mature and old-growth woodlands due to the woodlands' sparse understories; however, there are other, under-researched considerations to be explored in terms of management efforts to protect old-growth pinyon-juniper trees from negative impacts from grazing. Specifically, climate change is leading to some areas becoming cooler and wetter; therefore, younger stands of pinyon-juniper trees, which are more suitable for forage, may have a higher potential to become old-growth stands in these areas. This commenter also asserted that the BLM needs to adapt current livestock grazing management to protect old-growth pinyon-juniper stands by increasing research on livestock's posttreatment effects.

Another commenter expressed recognition that increased pressure to expand forage for livestock arises from the shift toward drier, less productive ecosystems in the West due to climate change. The commenter requested that the BLM address this issue proactively.

3.2.12 Threats to pinyon-juniper woodland health

Theme: Threats to pinyon-juniper woodlands and historical management practices should be considered.

Comment Summary

Commenters described several main threats to pinyon-juniper woodland health, including clearing junipers to benefit livestock, weeds that cause uncharacteristic fires, climate change, historical juniper removal by federal agencies, large catastrophic fires, disease, drought, and habitat fragmentation resulting from human pinyon-juniper management practices. In contrast, one commenter expressed a position that restoration treatments are not a main threat to pinyon-juniper ecosystems and that the treatments can alleviate threats when they are implemented correctly.

Commenters noted multiple threats to pinyon-juniper woodland health arising from different types of management over time. Damaging management practices mentioned by commenters included clearing mature and old-growth junipers to make more livestock grazing lands; fire exclusion, which has allowed expansion of young trees into new areas; and removal of trees through methods including anchor chaining, masticating, lop and scatter, prescribed and controlled burning, cabling, bulldozing, chemical treatments, and windrowing. Commenters also noted that while these management practices are typically justified for purposes such as increasing forage for domestic livestock grazing and harvestable wildlife, wildland fire mitigation or fuels reduction, greater sage-grouse habitat improvement, or health of sagebrush ecosystems, there is a lack of research on the long-term effects on plant and wildlife species as well as on the condition of fuels left on the sites preceding, during, and following pinyon-juniper removal.

One commenter referenced photographs comparing old-growth pinyon-juniper woodland crust development in adjacent untreated and treated sites to highlight the issue of declining mature and old-growth pinyon-juniper populations resulting from historical tree-removal projects analyzed in environmental assessments across Arizona, California, Colorado, Idaho, Nevada, New Mexico, Oregon, and Wyoming. Another commenter also noted that the large scale of removal of pinyon-juniper forests on public lands is suspected to be a driving cause of pinyon jay population declines; the commenter further highlighted the vulnerability of pinyons and the people and wildlife that rely on them to stand disturbance due to the late age in which pinyons produce cones.

One commenter requested that guidelines be set for mitigating the spread of exotic species due to the high likelihood of reestablishment of these species in pinyon-juniper communities after treatment. The commenter also requested a mandate to disallow treatments on sites with old-growth pinyon-juniper trees with a high percentage of exotic cover. The commenter highlighted the risk of increased exotic species resulting from high surface disturbance, as well as a concern that seeding establishment is at risk from climate change and land management practices that do not consider long-term protection of seedings. The commenter further noted that pinyon-juniper management projects exhibited a lack of focus on retaining biocrust, mosaics of variable-aged trees, reestablishment of both forbs and seeded grasses, and feathering of ecotones between different communities.

One commenter highlighted the threat that mining and mineral exploration pose to pinyon ecosystems, particularly in Nevada. The commenter listed several mining projects occurring in Nevada that are threatening pinyon ecosystems and noted that the drilling projects discussed were all approved as categorical exclusions. The commenter expressed concern that the proposed projects the commenter listed could all potentially become mines, which would lead to further deforestation of pinyon-juniper woodlands.

3.3 WORKSHOP ON MANAGEMENT AND CONSERVATION OF PINYON-JUNIPER WOODLANDS

Theme: Commenters had comments on the pinyon-juniper workshops that were held in May 2024.

Comment Summary

Several commenters expressed gratitude for the opportunity for public engagement. One commenter stated that the pinyon-juniper workshops are indicative of a shift toward more public inclusion in project planning and policy, and that a lack of this inclusion would make it difficult to reach consensus or to foster trust and collaboration with the public on woodland management projects. Another commenter highlighted a lack of discussion in the pinyon-juniper workshop on the forest densities' impact on disease, drought, and resilience of woodlands, as well as on crossing ecological thresholds, particularly the loss of understory involved with the shift from Phase II to Phase III stands, since this results in less resistant woodlands. This commenter also expressed support for the efforts of local BLM and Forest Service offices and requested that BLM and Forest Service leadership support the efforts of local offices.

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Appendix A

Substantive Public Comments

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Appendix A. Substantive Public Comments

Agency or Organization Name	Commenter Name	Comment Topic	Comment Subtopic	Comment Text	Full Submission Text
Saratoga-Encampment-Rawlins Conservation District, Wyoming	Leanne Correll	Outreach and engagement	Federal, state, and local governments	The Conserving and Restoring America the Beautiful report p. 13-16 (hereafter “Report”) identified eight primary principles the agencies were going to follow in pursuing President Biden’s 30x30 goal. The report reframed the 30X30 goal as the “America the Beautiful” Initiative. Two of the eight principles agencies are 1) support locally led and locally designed conservation efforts and 2) build on existing tools and strategies with an emphasis on flexibility and adaptive approaches. The SER CD expects the agencies to follow these principles for this effort as well. These principles are paramount to all land management actions and for the successful management of healthy ecosystems.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/ld09id5hvh7_document.pdf
Lincoln County Regional Development Authority	Jeremy Drew	Outreach and engagement	Federal, state, and local governments	<p>In 2015 Lincoln County amended its 2010 Public Lands Policy Plan (Plan), and Policy Section 5 is specific to “Forestry”. This Chapter states: Forest and forestry production in Lincoln County is a benefit to the livelihood and well being of its citizens. Many residents rely on pinyon and juniper to heat their homes, pine nuts are harvested both for sale and personal use, fence posts are cut from forests and others use forest products for a variety of arts and crafts. Therefore, it is the policy of Lincoln County to utilize forest resources and promote their development into a sustainable forestry products industry by providing economic opportunity, relying on self-determination and open market conditions. Policies in this Chapter include:</p> <p>Policy 5-1: Promote multiple uses of public forest resources to realize sustainable and continuous provisions of timber, forage, firewood, wildlife, fisheries, recreation and water.</p> <p>Policy 5-2: Support prompt timber salvage and re-vegetation with beneficial native and nonnative species of forage after forest loss due to fire, insect infestation or other events.</p> <p>Policy 5-3: Lincoln County should pursue the implementation and siting of a biomass energy production center in Lincoln County. The County should utilize university range scientists and Agricultural Research Service to monitor the renewable and sustainable health of our forests. These efforts would improve the forest health, establish beneficial plants, rejuvenate springs, improve habitat for sage grouse, help control erosion, and establish a systematic treatment of the PJ over-story. Lesser densities of trees reduce competition for available water and other resources. The treated pinyon and juniper tree product could be used to make electric energy, pellets, particle board, and certain beneficial chemicals used in manufacturing.</p> <p>Policy 5-4: Support the management of woodlands/forest by ecological condition for a diversity of vegetation communities. Grass and shrub ecosystems with no or few invasive species are preferable to pinyon/juniper monocultures with little to no shrub or herbaceous understory. Promote sustainable management and protection of aspen, ponderosa pine, white fir and limber pine forests. Recognize that although these upper elevation forest communities are only a small portion of Lincoln County’s extensive forest lands, they are a very important forest type.</p> <p>Policy 5-5: Urge Federal agencies to promote and facilitate treatment of wildland/urban interface and the treatment of the monocultures such as pinion and juniper forests, and the removal of tamarisk on public lands. Emphasis in regard to these areas should be the reclamation of beneficial plant communities which also enhances the watershed, wildlife, fire management, and grazing. This should be done in such a manner that local entities have an opportunity to derive economic benefits from the forest. Local officials and entities should be consulted for their input prior to any such treatments in cooperation with Federal agencies. Policy 5-6: Recognize the importance of maintaining healthy aspen communities and encourage demonstrated restoration activities that will retain and improve the vigor of these plant communities.</p> <p>Policy 5-7: Lincoln County should promote the economic development of alternative forestry products such as Christmas trees, seed collection, nursery crops and other native plants to utilize area forest resources.</p> <p>Policy 5-8: Lincoln County will work cooperatively with Federal agencies in investigating and prosecuting thefts of forest products. Policy 5-9: Support burned area emergency stabilization, rehabilitation and restoration projects.</p> <p>Policy 5-10: Support stewardship programs through cooperatives, legislation and other avenues.</p> <p>All these policies focus on the need to actively manage forest and woodland areas for multiple resource and use values. LCRDA is proud of the planning and implementation the BLM Ely District and Forest Service’s Ely Ranger District have completed over the past decades in coordination with groups such as Lincoln County, LCRDA and the Eastern Nevada Landscape Coalition. In addition to creating ecological benefits, sagebrush and woodland restoration projects have benefited local communities economically through the planning and implementation of projects as well as the utilization of wood products when appropriate. LCRDA would ask that nothing from these workshops curtail the good work being accomplished. Rather, outcomes of the workshop should enhance and further such efforts.</p>	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/bf0qib4iy85_document.pdf
Lincoln County Regional Development Authority	Jeremy Drew	Outreach and engagement	Federal, state, and local governments	As indicated in the Lincoln County Plan, LCRDA supports the continued use of biomass resulting from management where appropriate. Particularly in Phase 2 or 3 woodlands, treatments often require removal of biomass rather than simply rearranging the fuel load. Communities benefit from biomass products and would rather see the biomass utilized than left on site as.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/bf0qib4iy85_document.pdf

Agency or Organization Name	Commenter Name	Comment Topic	Comment Subtopic	Comment Text	Full Submission Text
Lincoln County Regional Development Authority	Jeremy Drew	Outreach and engagement	Federal, state, and local governments	Agencies should embrace and invite Cooperating Agency engagement when assessing, planning and implementing treatments. Local governments should always have a place at the table in all aspects of a given project.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/bf0qib4iy85_document.pdf
Lincoln County Regional Development Authority	Jeremy Drew	Outreach and engagement	Federal, state, and local governments	Agencies should continue to utilize tools such as Stewardship Agreements, Stewardship Contracts, and Indefinite Delivery / Indefinite Quantity (IDIQ) to implement and monitor projects. These tools have been extremely valuable in LCRDA's view for private contractors, non-government organizations and tribal contractors.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/bf0qib4iy85_document.pdf
Saratoga-Encampment-Rawlins Conservation District, Wyoming	Leanne Correll	Outreach and engagement	Federal, state, and local governments	SER CD comments are based upon the Long Range Land Use and Natural Resource Management Plan for SER CD 2022-2026 (SER CD NRM Plan) ² that includes policy statements developed, open for public comment, adopted by the SER CD Board of Supervisors, and filed with the Carbon County Clerk.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/ld09id5vh7_document.pdf
Saratoga-Encampment-Rawlins Conservation District, Wyoming	Leanne Correll	Outreach and engagement	Federal, state, and local governments	We look forward to continued participation on this topic and would request to serve as a Cooperating Agency on any efforts to make decisions on management actions for the management and conservation of pinyon and juniper ecosystems.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/ld09id5vh7_document.pdf
White Pine County	Nichole Stephey	Outreach and engagement	Federal, state, and local governments	<p>White Pine County, Nevada (County) participated in the May 8-9, 2024 Workshop on Management and Conservation of Pinyon and Juniper Woodlands and found it to be informative and thought provoking. This topic is important to the County as over 900/4 of its approximately 5. 7 million acres are public lands administered “ by federal agencies (primarily BLM at “4.5 million acres and Forest Service at “0. 7 million acres). Many of these lands are either Sagebrush Steppe or Pinyan and Juniper Woodlands. The active management, conservation and wise use of these resources have been and will continue to be extremely important to the County.</p> <p>In 2018 the County adopted a Public Lands Policy Plan (Plan), and Chapter 5 is specific to “Forestry”. This Chapter states that “Forest and forestry products production in White Pine County is a benefit to the livelihood and wellbeing of its citizens. Therefore, it is the policy of County to protect forest resources and promote the continuation of a sustainable forestry products industry”.</p> <p>Policies in this Chapter include: Policy 5-1: Promote multiple use of public forest resources to realize sustainable and continuous provisions of timber, forage, firewood, wildlife, fisheries, recreation and water.</p> <p>Policy 5-2: Support the prompt salvage of forest losses due to fire, insect infestation or other events.</p> <p>Policy 5-3: Support the management of woodlands/forest by ecological condition for a diversity of vegetation communities. Grass and shrub ecosystems with no or few invasive species are preferable to pinyon/juniper monocultures.</p> <p>Policy 5-4: Urge BLM and Forest Service to allow and promote thinning of wildland/urban interface. This should be done in such a manner that local entities have an opportunity to derive economic benefit from the forest.</p> <p>Policy 5-5: Recognize the importance of maintaining healthy aspen communities and encourages activities that will retain and improve the vigor of these communities.</p> <p>Policy 5-6: Allow free use cutting of green pinyon-juniper.</p> <p>The Plan also supports implementation of the “Great Basin Restoration Initiative” now the Eastern Nevada Restoration Initiative (Policy 2-4). All these policies focus on the need to actively manage forest and woodland areas for multiple resource and use values. The County is proud of the planning and implementation the BLM Ely District and Forest Service's Ely Ranger District have completed over the past decades in coordination with groups such as the Eastern Nevada Landscape Coalition. All these policies focus on the need to actively manage forest and woodland areas for multiple resource and use values. The County is proud of the planning and implementation the BLM Ely District and Forest Service's Ely Ranger District have completed over the past decades in coordination with groups such as the Eastern Nevada Landscape Coalition. In addition to creating ecological benefits, sagebrush and woodland restoration projects have benefited the County economically through the planning and implementation of projects as well as the utilization of wood products when appropriate. The County would ask that nothing from these workshops curtail the good work being accomplished. Rather, outcomes of the workshop should enhance and further such efforts in other areas of the County, State and intermountain west.</p>	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/jj05idq2pdo_document.pdf
White Pine County	Nichole Stephey	Outreach and engagement	Federal, state, and local governments	As indicated in its Plan, the County supports the continued use of biomass resulting from management where appropriate. Particularly in Phase 2 or 3 woodlands, treatments often require removal of biomass rather than simply rearranging the fuel load on a given site. This community benefits from biomass products such as firewood and would rather see the biomass utilized than left on site when appropriate.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/jj05idq2pdo_document.pdf

Agency or Organization Name	Commenter Name	Comment Topic	Comment Subtopic	Comment Text	Full Submission Text
White Pine County	Nichole Stephey	Outreach and engagement	Federal, state, and local governments	Agencies should embrace and invite Cooperating Agency engagement when assessing, planning and implementing treatments. Local and tribal governments should always have a place at the table in all aspects of a given project.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/jj05idq2pdo_document.pdf
White Pine County	Nichole Stephey	Outreach and engagement	Federal, state, and local governments	Agencies should continue to utilize tools such as Stewardship Agreements, Stewardship Contracts, and Indefinite Delivery/ Indefinite Quantity (IDIQ) to implement and monitor projects. These tools have been extremely valuable in the County for private contractors, non-government organizations and tribal contractors.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/jj05idq2pdo_document.pdf
Wyoming Department of Agriculture	Michelle MacDonald	Outreach and engagement	Federal, state, and local governments	Our comments are specific to our mission: dedication to the promotion and enhancement of Wyoming's agriculture, natural resources and quality of life. As the proposed project could affect our industry, citizens, and natural resources it is important that you continue to inform us of proposed actions and decisions and continue to provide the opportunity to communicate pertinent issues and concerns.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/v80ei3c25mz_document.pdf
Utah Public Lands Policy Coordinating Office	Sindy Smith	Outreach and engagement	Federal, state, and local governments	By way of introduction, this comment letter begins with a brief description of the commenter's mission and areas of expertise. Here, the commenter, PLPCO, is a State agency whose broad mission is "to coordinate, promote, and implement Utah's public land priorities." ⁷ In addition to "develop[ing] and coordinat[ing] the State's public lands policy initiatives" ⁸ PLPCO is also involved in many different facets of public land management policy, including overseeing the State's Resource Development Coordinating Committee ("RDCC") which is "responsible for commenting on development and conservation proposals on Utah's public lands" ⁹ as well as assisting in resource management planning at the State and County levels. ¹⁰ Footnote 7: PLPCO, About the Public Lands Office, Utah's Public Lands Policy Coordinating Office, available at: https://publiclands.utah.gov/about/ (2021). Footnote 8: Id. 9 Id. Footnote 10: PLPCO, Resource Management Plans, Utah's Public Lands Policy Coordinating Office, available at: https://publiclands.utah.gov/current-projects/resource-management-plans/ (2021). Because of PLPCO's broad mission and expertise, the agency is involved in various issues and projects that involve (among other things) agriculture, grazing, forestry, energy development, and (more pointedly for the current comment letter) forestry and multiple uses on BLM lands. For example, while Utah's Division of Forestry, Fire and State Lands ("FFSL") is the lead agency in Utah's Shared Stewardship Agreement with the U.S. Forest Service ("USFS"), PLPCO remains an active participant in proactive forest management in the State through Shared Stewardship. ¹¹ Footnote 11: PLPCO, Forest Service and State of Utah Invest in Shared Stewardship, Utah's Public Lands Policy Coordinating Office, available at: https://publiclands.utah.gov/uncategorized/forest-service-and-state-of-utahinvest-in-shared-stewardship/ (2019).	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/w508i6rifnw_document.pdf
Utah Public Lands Policy Coordinating Office	Sindy Smith	Outreach and engagement	Federal, state, and local governments	This request is particularly important in the immediate wake of the Sparks, Nevada Workshop. At the Workshop, there were many discussions regarding the need for proper coordination and cooperation with the tribal governments to incorporate indigenous knowledge. While the State agrees that the BLM must engage in meaningful cooperation and coordination with the tribal governments, the State was at a loss as to why this important planning requirement was never truly referenced at the Workshop as it relates to State and county governments as well. The states are sovereign entities that are entitled to full coordination and cooperation on public land issues within state and local governmental boundaries. The State would reiterate its request that the BLM engage in proper coordination and consistency (as outlined above) with the State and counties, in addition to tribal governments.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/w508i6rifnw_document.pdf
Utah Public Lands Policy Coordinating Office	Sindy Smith	Outreach and engagement	Federal, state, and local governments	As directed in EO 14072, consultation with state governments, like DWR, which has extensive experience in habitat restoration, partnerships, and wildlife management, will help achieve the outlined goals of the executive order. DWR is available for consultation to provide wildlife-related information if resource plans are created, amended, or rulemaking occurs for pinyon and juniper ecosystems. I	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/w508i6rifnw_document.pdf
Utah Public Lands Policy Coordinating Office	Sindy Smith	Outreach and engagement	Federal, state, and local governments	Lastly, the cornerstone of proper management of this state's resources is the coordination and cooperation between the State and Federal land management agencies. Accordingly, I thank you for your consideration of the State's comments and look forward to working with the BLM and the USFS as these management directives surrounding pinyonjuniper woodlands are further developed.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/w508i6rifnw_document.pdf
Utah Public Lands Policy Coordinating Office	Sindy Smith	Outreach and engagement	Federal, state, and local governments	Before diving into the State's specific comments regarding Pinyon-Juniper Management, it is important to highlight the fact that under the Federal Land Policy and Management Act ("FLPMA"), when developing or creating land use plans, federal agencies, such as the Bureau of Land Management ("BLM") and USFS, are required to coordinate their plans with state and local government plans. ¹² This coordination process is a separate process from cooperation and must occur regardless of whether state or local governments were designated as Cooperating Agencies. ¹³ Thus, even if the State is not a Cooperating Agency in any given planning process (which it often is), the relevant agency would still be required to make efforts in drafting land use plans that are consistent with state and local plans. Footnote 12: FLPMA 202(c)(9) Footnote 13: Utah State Resource Management Plan (Utah SRMP), pp. 9, available at: https://rmp.utah.gov/state-of-utahresource-management-plan/ (2018).	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/w508i6rifnw_document.pdf

Agency or Organization Name	Commenter Name	Comment Topic	Comment Subtopic	Comment Text	Full Submission Text
Utah Public Lands Policy Coordinating Office	Sindy Smith	Outreach and engagement	Federal, state, and local governments	<p>In addition to the Coordination requirement listed above, federal land management agencies have the responsibility in the development of land use plans to ensure that consideration is given to the applicable state, local, and tribal plans “and to resolve, to the federal land management agencies have the responsibility in the development of land use plans to ensure that consideration is given to the applicable state, local, and tribal plans “and to resolve, to the extent practical, inconsistencies between Federal and non-Federal Government plans.”¹⁴ Specifically, FLPMA states that BLM Land Use Plans “shall be consistent with State and local plans to the maximum extent [the Agency] finds consistent with Federal law and the purposes of this Act.”¹⁵ The National Forest Management Act (“NFMA”) contains a similar requirement, stating that U.S. Forest Service (“USFS”) Forest Plans be “coordinated with the land and resource management planning processes of State and local governments and other Federal agencies.”¹⁶</p> <p>Footnote 14: Id at 8 Footnote 15: 43 U.S.C. §1712(c)(9). Footnote 16: 16 U.S.C. §1604(a).</p> <p>In the past, here in the State of Utah, there were no state or local plans with which to ensure consistency. However, as of 2018, the State of Utah¹⁷ has adopted a State Resource Management Plan (“SRMP”) and all twenty-nine (29) counties in the State have adopted County Resource Management Plans (“CRMPs”).¹⁸ The effort to adopt the SRMP and CRMPs “was a first-of-its-kind effort not only in Utah but nationwide. The state and the counties frequently use their plans to coordinate management actions with the Bureau of Land Management and U.S. Forest Service.”¹⁹ All these plans include locally adopted objectives and policies for many aspects of not only federal land management but also include findings, provisions, and policies relating to natural resource development and environmental quality.</p> <p>Footnote 17: Utah State Resource Management Plan (“Utah SRMP”), pp. 1, available at: https://rmp.utah.gov/state-ofutah-resource-management-plan/ (2018). Footnote 18: PLPCO, Resource Management Plans by County, Utah’s Public Lands Policy Coordinating Office, available at: https://rmp.utah.gov/county-resource-plans/ (2021). Footnote 19: PLPCO, Resource Management Plans, Utah’s Public Lands Policy Coordinating Office, available at: https://publiclands.utah.gov/current-projects/resource-management-plans/ (2021).</p> <p>Here, the State and County Resource Management Plans (“RMP”)s include policies for many aspects of public land management, including vegetation management. These policies promote active, adaptive management of the public lands of the State to improve watershed health and water yields, improve wildlife habitat and forage for livestock, reduce fuel loads, and decrease the chance for uncharacteristic wildfire and the resultant impacts on air and water quality. While not a direct response to the BLM’s request for public comment, the State now specifically requests that under the Coordination and Consistency requirements discussed above, that any and all land-use actions that occur on federally managed land as a result of the current EO be consistent with the Utah SRMP and the relevant CRMPs.</p>	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/w508i6rifnw_document.pdf
Utah Public Lands Policy Coordinating Office	Sindy Smith	Outreach and engagement	Federal, state, and local governments	<p>In summation, the citizens of Utah as a whole will continue to benefit as the BLM fulfills its mission to promote the sustained yield and multiple use of Utah’s public lands. As an overarching goal, “the State of Utah supports the wise use, conservation, and protection of public lands and their resources, including well-planned management prescriptions.”³⁰ Thus, “it is the State’s position that public lands be managed for multiple uses, sustained yields, prevention of waste of natural resources, and to protect the health, safety, and welfare of the public. It is important to the State economy that public lands be properly managed for fish, wildlife, livestock production, timber harvest, recreation, energy production, mineral extraction, water resources, and the preservation of natural, scenic, scientific, and historical values.”³¹</p> <p>Footnote 30 Utah SRMP at 8. Footnote 31 Id</p>	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/w508i6rifnw_document.pdf
Lincoln County Regional Development Authority	Jeremy Drew	Outreach and engagement	Federal, state, and local governments	<p>Lincoln County contains approximately 835,508 acres of wilderness managed by the BLM. LCRDA would suggest that there is plenty of area for minimal to no active management if “preservation” is desired. However, LCRDA does not support curtailment or elimination of active management in any scenario.</p>	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/bf0qib4iy85_document.pdf
White Pine County	Nichole Stephey	Outreach and engagement	Federal, state, and local governments	<p>The County has approximately 350,000 acres of wilderness managed by the Forest Service and approximately 134,000 acres of wilderness managed by the BLM. Based on this, the County would suggest that there is plenty of area for minimal to no active management if “preservation” is desired. However, the County does not support curtailment or elimination of active management in any scenario</p>	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/ij05idq2pdo_document.pdf
Oregon Wild	Doug Heiken	Outreach and engagement	Executive Order 14072	<p>Two years ago President Biden issued Executive Order #14072 which established a policy to conserve mature and old-growth forests, including juniper, for diverse public benefits, especially those related to biodiversity and climate change. It is critical to protect old-growth juniper, as well as mature trees so that there is a population of trees available to replace old growth tree when they die. The agencies should be inclusive in identifying mature and old-growth trees for conservation.</p>	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/4g0qi270qkm_document.pdf
Sierra Club Toiyabe Chapter	Tobi Tyler	Outreach and engagement	Executive Order 14072	<p>Consistent with Executive Order 14072, mature and growth pinyon-juniper forests should remain intact. Pinyon are an extremely slow-growing pine and extremely difficult to propagate and plant. These facts mean that the potential recovery of mature and old pinyon-juniper systems that have been harmed would happen far into the future – if they are able to recover at all.</p>	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/xz0li106x6g_document.pdf

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Friends of the Inyo	Allison Weber	Outreach and engagement	Executive Order 14072	We support Executive Order 14072, Strengthening the Nation's Forests, Communities, and Local Economies, which sets forth the Biden administration's policy to conserve America's mature and old-growth forests on federal lands. We especially appreciate the efforts to inventory these forests, analyze threats to them, and develop policies to institutionalize climate-smart management and conservation strategies, providing an opportunity to uplift pinyon juniper ecosystems, which have too often been overlooked and managed for other uses. This inventory has identified pinyon pine as the most abundant old-growth forest type on Forest Service and BLM lands, with 24 million acres of mature and old-growth pinyon and juniper woodlands on federal lands. Managing these largely overlooked and numerous forest landscapes for conservation and climate change offers great opportunity for meaningful policy change and, as organizations dedicated to the health and sustainability of one such landscape, we will be following emerging pinyon management information and policies closely.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/110bipfcw75_document.pdf
Wyoming Department of Agriculture	Michelle MacDonald	Outreach and engagement	Executive Order 14072	Executive Order 14072, Strengthening the Nation's Forests, Communities, and Local Economies was developed to guide federal agencies to conserve old-growth forests across the nation. The initial inventory indicates 24 million acres of mature and old-growth pinyon and juniper across federal lands. This acreage estimate is concerning given the BLM and US Forest Service are still in the beginning stages of seeking public comment on what the agencies may consider classifying as old-growth. We assume the inventory is a simple Geographic Information System (GIS) desk exercise with little to no ground truthing. ??This inventory has already been incorporated into new National Environmental Policy Act (NEPA) projects and already being utilized in making decisions on potential impacts to old-growth forests.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/v80ei3c25mz_document.pdf
N/A	Rose Strickland	Outreach and engagement	Government-to-government consultation and tribal interests	The panel presentations by tribal leaders were very impressive and informative. Their passion for P-J woodlands and traditional knowledge of woodland management should be an integral part of agency planning and implementation of P-J woodlands projects. Including them is an opportunity to achieve consensus and collaboration rather than continuing anger at the check-the-box consultation they say they are receiving.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/dy09ihsn51p_document.pdf
Grand Canyon Trust	Mike Popejoy	Outreach and engagement	Government-to-government consultation and tribal interests	Conduct a cultural impacts assessment with affiliated Tribes as part of the environmental justice impacts analysis.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Friends of Nevada Wilderness	Shaaron Netherton	Outreach and engagement	Government-to-government consultation and tribal interests	Land managers should also consider more genuine, meaningful consultation with Nevada tribes regarding their understanding of P-J woodland history, management, and cultural importance. As we heard at the conference Tribes do not feel they have had much involvement. The BLM sending a certified letter about an upcoming project is hardly meaningful consultation.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf
Sierra Club Toiyabe Chapter	Tobi Tyler	Outreach and engagement	Government-to-government consultation and tribal interests	The BLM should prioritize early engagement and meaningful consultation with local Indigenous tribes where any work that could adversely impact pinyon-juniper forests is being proposed, AND reaching consensus with those tribes before any work is done.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/xz0li106x6g_document.pdf
California Native Plant Society, Bristlecone Chapter	Maria Jesus	Outreach and engagement	Government-to-government consultation and tribal interests	Tribal engagement: We strongly suggest that BLM actively communicate and conduct meaningful consultation with Tribal Nations regarding management of pinyon-juniper systems.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/vi0wihx5gnp_document.pdf
Friends of the Inyo	Allison Weber	Outreach and engagement	Government-to-government consultation and tribal interests	Secondly, this work has too often been done without collaboration of local tribes who rely on these landscapes for multiple cultural and sacred uses. This results in projects applied without the full information on the site and local needs/values, as we have seen locally in the Bodie Hills and beyond, the result of which lead to the creation of the Bi-State Tribal Natural Resources Committee (BTNRC), formed from the collaborative process between the Nevada Indian Commission, interested tribal members, and members of the Bi-State Executive Oversight Committee in 2015 to develop the sound management of natural and cultural resources, including tribal cultural values. While this is a powerful start, such opportunities need to be developed and deepened across pinyon-juniper woodlands on federal lands, across threats and differing management priorities.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/110bipfcw75_document.pdf

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Friends of the Inyo	Allison Weber	Outreach and engagement	Government-to-government consultation and tribal interests	We would like to once again call attention to the matter of meaningful conversation and local relationship building as the heart and best practice of tribal consultation, with all local and connected tribes. Proper management of these significant tribal landscapes and resources begins with understanding and conversation, which cannot take place in the form of an email notification sent to already overflowing inboxes in the form of “checking a box.” We are pleased to hear that more personal and proactive methods of communication have been employed in Idaho, as discussed in the workshop, and encourage these methods of true tribal consultation be applied across federal agencies in tandem with the development of formal collaborations, such as the Bi-State Tribal Natural Resources Committee.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/110bipfcw75_document.pdf
Friends of Nevada Wilderness	Shaaron Netherton	Outreach and engagement	Public involvement	More clearly communicate your work to the public and make current and cumulative data easily accessible. The BLM has done a good job of documenting active renewable energy projects and making that information readily available to the public (https://www.blm.gov/programs/energy-and-minerals/renewable-energy/active-renewableprojects). This model of transparency should be applied to other sectors of BLM public land management including tracking all pinyon-juniper projects regardless of the particular justification. Additionally, this type of public facing documentation of actions on public lands presents a great opportunity for collaboration between management agencies. The BLM and U.S. Forest Service could work together to better provide access to this publicly generated information. The USGS Land Treatment Digital Library is the only point of access to receive data that we are aware of regarding treatments on public land, but those wishing to review this data must apply for access for which only the BLM offers or declines authorization for access to that data.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf
Lincoln County Regional Development Authority	Jeremy Drew	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	LCRDA would also advocate for engaging with biomass contractors in the planning phase in order to utilize their expertise in terms of where and how treatments can be completed in an economical manner that is also ecologically responsible. Wise use of biomass from restoration treatments should always be considered as an alternative in NEPA analysis.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/bf0qib4iy85_document.pdf
White Pine County	Nichole Stephey	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	The County supports thinning of persistent woodlands to prevent complete loss of the woodland understory and to make woodlands more resistant and resilient to fire.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/jj05idq2pdo_document.pdf
White Pine County	Nichole Stephey	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	The County would also advocate for engaging with biomass contractors in the planning phase In order to utilize their expertise in terms of where and how treatments can be completed in an economical manner that is also ecologically responsible. Wise use of biomass from restoration treatments should always be considered as an alternative in NEPA analysis.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/jj05idq2pdo_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Covered activities under the categorical exclusion (CX) at 516 DM 11.10C1 are to “maximize the retention of old-growth and large trees, as appropriate for the forest type” in accordance with N82:N331th a.I.A.vii.I of that CX. The criteria for identifying old-growth and large trees in the Mature and Old-Growth Forests: Definition, Identification, and Initial Inventory on Lands Managed by the Forest Service and Bureau of Land Management (henceforth Mature and Old-Growth Forests Report) should be used in the application of this CX, unless a site specific diameter-age relationship is established through an objective, transparent process that deviates from the criteria in the report. Footnote I Categorical exclusion for vegetation management and removal of pinyon pine and juniper forests up to 4,500 acres, when conducted to benefit habitat for sage-grouse or mule deer. This CX specifically instructs the Department to “maximize the retention of old-growth and large trees.” Available at https://www.doi.gov/sites/doi.gov/files/elips/documents/516-dm-11-signed-508.pdf	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Any project with the potential to impact old-growth or mature forests not covered by the categorical exclusion at 516 DM 11.10C, or by an EA that has previously been prepared for the project area with specific protections for old-growth and mature forests such that a Determination of NEPA Adequacy would be appropriate, should be analyzed via an Environmental Assessment or Environmental Impact Statement.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf

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Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Any Environmental Assessment or Environmental Impact Statement with the potential to impact old-growth or mature forests should analyze and prioritize an action alternative that maximizes the retention of old-growth stands and promotes the natural progression of mature stands to old-growth stands.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Map old-growth stands using Ecological Site Descriptions (ESDs) and associated soils as the default, since these are soil-based and often more reliable than other sources of information. Include any ESD containing trees (e.g., those listing PIED (Pinus edulis) or JUOS (Juniperus osteosperma) in the Ecological Site name). Such mapping can be adjusted based on objective, transparent ground truthing. Use other potential sources of information, such as Landfire Biophysical Settings, as supplementary, or primary if ESDs are not available, such as at higher elevations. If there is a conflict between ESDs and other sources of remote spatial data, use ESDs unless ground-truthing indicates that a deviation is appropriate.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Consider where old-growth trees might occur in non-tree ESDs, such as in savannas or shrublands, and retain individual old-growth trees in these mixed vegetation types.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	When verifying accuracy of ESDs based on existing vegetation, take into consideration previous land treatment information that may have resulted in the existing vegetation, but may not warrant a determination that the ESD is inaccurate.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	For any project being analyzed via an Environmental Assessment (EA), provide an opportunity to submit scoping comments, and a draft Environmental Assessment for public review and comment. In the EA, specify criteria being used to identify old-growth and mature forests, and include a map of old-growth and mature stands in the project area based on the best available information.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Protect individual old-growth trees occurring outside of forests and woodlands in mixed vegetation types, such as shrublands or savannas with old-growth trees.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Adjust old-growth and mature stand boundaries based on feedback provided by the public. If the proposed treatment prescription is dependent on old-growth and mature stand boundaries, adjust treatment boundaries accordingly. Partner with Tribes, NGOs, or other volunteer groups to survey for old-growth and mature stands when possible.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf

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Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	In old-growth and mature stands, retain a full suite of age classes to provide for recruitment of future mature and old-growth trees.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	In mature stands, management activities should promote the natural progression to old growth and the future ecological resilience of the stand, informed by the best available scientific information.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Mimic natural transition zones between vegetation types during project implementation.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Seeding undertaken as part of projects with the potential to impact old-growth or mature forests, including post-fire seeding, should consist only of genetically appropriate native species. Non-native species should only be used in emergency situations, such as after a high intensity wildfire, and should be limited to short-lived, non-persistent nurse-crop species. Seeding of non-native species in emergency situations should not present serious competition to the reestablishment of native plant communities, and should be done in accordance with an explicit plan designed to aid in the reestablishment of native plant communities.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	If tree removal is undertaken in the wildland-urban interface, prioritize retention of old growth trees among leave trees.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Solicit Indigenous knowledge regarding old-growth and mature trees, forests, and ecosystems, and incorporate knowledge shared into management whenever possible.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Utilize the best available scientific information for analysis and avoidance/minimization of impacts with respect to species dependent on mature and old-growth forests.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf

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Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	In addition, regarding pinyon jays in particular, survey and manage for pinyon jay as part of assessing the overall health of pinyon and juniper woodlands and evaluating the impacts of vegetation manipulation.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Establish a review process for both pending and previously-approved projects with the potential to impact old-growth or mature forests in order to ensure consistency with Bureau guidance. Implementation of previously-approved projects is likely to occur for many years into the future. A streamlined review for consistency with current Bureau 5 guidance could provide for minor modifications to previously-approved projects to maximize retention of old-growth forests without requiring a re-opening of the NEPA process.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	BLM should clarify that conservation of mature and old-growth pinyon and juniper trees should take priority over enhancing big game habitat and livestock forage.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Discontinue large-scale mechanical removal (e.g., chaining, mastication, bullhogging) of oldgrowth and mature forests, especially pinyon-juniper woodlands, on BLM lands within the National Landscape Conservation System, unless necessary to protect or enhance Monument objects, wilderness characteristics, or another specifically-articulated purpose of the NLCS lands in question.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Covered activities under the categorical exclusion (CX) at 516 DM 11.10C are to “maximize the retention of old-growth and large trees, as appropriate for the forest type” in accordance with a.I.A.vii.I of that CX. Criteria should be provided regarding what constitutes old-growth and large trees in order to provide clarity in the application of this CX. We suggest that the criteria for identifying old-growth and large trees in the Mature and Old-Growth Forests Report should be used as the default best available scientific information guiding the application of this CX. We recognize that tree diameter-age relationships can vary based on site conditions. To accommodate this potential variability, deviation from the criteria in the Mature and OldGrowth Forests Report could be permitted if an objective, transparent process establishes a site-specific diameter-age relationship that is different from that in the report.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	The categorical exclusion discussed directly above (at 516 DM 11.10C) explicitly addresses retention of old-growth and large trees. In addition, if a previously-approved EA includes specific protections for old-growth and mature forests, then the use of a Determination of NEPA Adequacy (DNA) for additional vegetation management in the area covered by the EA might be appropriate. Outside of these limited circumstances, we recommend that as a policy BLM prepare an EA or EIS to ensure the proper protection of old-growth and mature forests. Large-scale vegetation manipulation with the potential to affect old-growth and mature forests could be proposed through the use of other CXs, or through the use of a DNA for an area that was not analyzed by the EA being relied upon. The East Kanab Creek project discussed above provides an example of this latter approach. BLM should not approve projects with the potential to affect old-growth and mature forests by means of analyses (or lack thereof) that do not include protections for old-growth and mature forests. Adopting the policy we recommend here would provide needed clarification regarding the appropriate circumstances under which a CX or DNA could be used.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Analysis of alternatives is central to the NEPA process. An action alternative that maximizes the retention of old-growth stands and promotes the natural progression of mature stands to old growth stands should be analyzed in any Environmental Assessment or Environmental Impact Statement with the potential to impact old-growth or mature forests. Such an alternative would align with BLM’s current effort to conserve old-growth and mature forests, and analysis of such an alternative is necessary to ultimately select that alternative. In addition, detailed analysis could bring to light related issues connected to management of old-growth and mature forests that might otherwise be missed, for instance, the role that biological soil crusts and an intact understory play in these forests. Essentially, the BLM must, in all site-specific project planning and NEPA, take a hard look at project impacts to old-growth and mature pinyon juniper forests and related processes.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf

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Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	<p>We propose relying on Ecological Site Descriptions (ESDs) and associated soils for mapping old growth stands since they are soil-based and thus are often more reliable than other sources of information.</p> <p>We recognize that mapping based on ESDs is not perfect and may need modification. To accommodate this possibility, ESD-based mapping could be adjusted if objective, transparent ground truthing establishes that modifications are needed. Other potential sources of information, such as Landfire Biophysical Settings, could be used as supplementary, or primary if ESDs are not available, such as at higher elevations. In the case of a conflict between ESDs and other sources of remote spatial data, we recommend that ESDs be given priority due to their basis in soils data.</p> <p>While we propose relying on ESDs as the default data source, they may not capture old-growth trees in non-tree ESDs, such as in savannas or shrublands. We propose that individual old growth trees in these mixed vegetation types be retained (4.1 above, and see Priority 5 10 Rationale). Another complexity with ESDs is the possibility that existing vegetation does not match the ESD due to past vegetation manipulation (such as tree removal). In such a case, an ESD should not be determined to be inaccurate unless it can be demonstrated that there has been a vegetation type-conversion to a new stable state and that the previous vegetation community characterized by the ESD is unlikely to return (4.2 above).</p>	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	<p>For any project being analyzed via an Environmental Assessment (EA), we propose providing an opportunity to submit scoping comments, and a draft EA for public review and comment before releasing a final EA. Providing an opportunity to submit scoping comments allows for early input from the public in a way that can substantially inform the development of alternatives in the EA and of the project more generally. In addition, providing an opportunity to review and comment on a draft EA allows for continued public engagement as the details of a project are fleshed out. We recommend that the EA specify criteria being used to identify old-growth and mature forests, and include a map of old-growth and mature stands in the project area based on the best available information. This provides for transparency and specificity regarding old growth and mature forests in the project area.</p>	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	<p>We also recommend that individual old-growth trees occurring outside of forests and woodlands in mixed vegetation types be protected, such as old-growth trees in shrublands or savannas (5.1 above). At times a simplistic view of vegetation communities as either forested or non-forested has motivated removal of all trees, including old-growth trees, from shrublands or grasslands. While complete removal of trees may be appropriate in some vegetation types, the presence of old-growth trees indicates the long-term persistence of trees in a vegetation community. For instance, pinyon-juniper shrublands and pinyon-juniper savannas are widely recognized as unique vegetation types, and generally contain old-growth trees, even if in low densities. Such vegetation types should not be subject to complete tree removal, which would amount to a vegetation type conversion inconsistent with the recent ecological history of these areas. Old-growth trees in shrublands and savannas are likely to occur in lower numbers than in pure woodlands or forests, but these trees should not be removed merely because they fall below a threshold number of trees per acre. The presence of old-growth trees should preclude complete tree removal in mixed vegetation types in order to conserve their ecological integrity into the future. More research regarding old-growth and mature tree density in pinyon-juniper shrublands and savannas, for example, could contribute to improved management of these unique vegetation types.</p>	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf

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Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	<p>In Priority 5.2 we propose conducting a social impacts assessment with affiliated Tribes as part of the environmental justice impacts analysis. NEPA requires federal agencies to assess the social, economic, and cultural impacts of proposed actions as part of their environmental impact analysis, in theory ensuring a comprehensive understanding of the effects of federal projects and policies on human communities. Maintaining healthy pinyon-juniper ecosystems by way of preserving old-growth trees and woodlands can benefit communities culturally, socially, spiritually, physically, and economically and conversely, removing old-growth trees and damaging pinyon-juniper ecosystems would have adverse social, economic, and cultural impacts to Indigenous communities. It is critical for the agency to understand that adverse environmental impacts to ancestral lands have adverse and cumulative social, economic, and cultural effects on affiliated Tribal Nations and Indigenous peoples. While we encourage the agency to consider conducting cultural impacts assessments (as distinct from and in addition to social impacts assessments, SIAs), we understand that it is not a requirement under NEPA. However, SIAs can be.</p> <p>The Handbook for Integration of NEPA and NHPA notes that environmental justice issues encompass a broad range of impacts, extending beyond impacts on the natural or physical environment to the interrelated social, cultural, and economic effects. In response to EO 12898, which has since been updated/supplemented by EO 14096, DOI developed guidance for integrating environmental justice into NEPA implementation that requires the lead agency to analyze impacts to human health, and economic and social effects. The CEQ implementing regulations define “effects” or “impacts” to include “ecological...aesthetic, historic, cultural, economic, social or health, whether direct, indirect or cumulative.” (40 C.F.R. 1508.8) In preparing an EIS or an EA, agencies must consider both impacts on the natural or physical environment and related social, cultural, and economic impacts. (40 C.F.R. 1508.14) In addition to ongoing, robust, and meaningful consultation, another method to analyze these effects would be through social impact assessments, which can be required under NEPA and we argue applies here. Environmental justice is intended to encompass the fair treatment and meaningful involvement of all people. Traditional Indigenous Knowledge (TIK) is grounded in place and the continued health of an ecosystem correlates with the health of its associated TIK. Indigenous communities often rely heavily on both ancestral lands and TIK for everything from sustainable resource management, health maintenance and medical practices, and community cohesion and cultural continuity to maintaining cosmic order. Damage to old-growth and mature pinyon-juniper ecosystems is an environmental justice issue that could have significant social, cultural, and economic impacts on Indigenous communities and should be analyzed under NEPA.</p>	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	<p>Social Impact Assessments are a process used to identify and evaluate the potential social effects of a proposed project or policy. They help decision-makers understand the impacts on communities, groups, and individuals, and provide recommendations for managing and mitigating adverse effects. SIAs can be used to examine how a proposed project or policy might affect people's well-being, social cohesion, cultural heritage, access to resources, and distribution of benefits and burdens. It considers both direct and indirect impacts as well as cumulative effects over time. There are existing guidelines for completing SIAs that align with the entirety of the NEPA process⁴, ranging from a plan for public engagement, impacts analyses, development of alternatives, mitigation of adverse impacts, and monitoring plans. The term “cultural impact” is distinct from but included within a social impact in that it refers specifically to the consequences to human populations of any public or private policies and actions that significantly change their norms, values, beliefs, practices, institutions as well as the way they live, work, socialize and organize themselves as part of their cultural life.⁵ Cultural impacts should be considered as part of an SIA, which should be conducted for all proposed projects with potential to impact old-growth and mature pinyon-juniper ecosystems.</p> <p>Footnote 4 The Guidelines and Principles For Social Impact Assessment published in 1994 by the Interorganizational Committee on Principles and Guidelines for Social Impact Assessment. Footnote 5 Sagnia, B.K. (2004) Framework for cultural impact assessment. International Network for Cultural Diversity (INCD), Cultural Impact Assessment Project. Dakar, Senegal.</p>	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	<p>In Priority 5 we recommend that EAs include a map of old-growth and mature stands in the project area, and here we recommend the next logical step, which is adjusting the boundaries of old-growth and mature stands based on feedback provided by the public. The proposed actions may be dependent on old-growth and mature stand boundaries, such as by avoiding cutting trees in such stands. If that is the case, and stand boundaries call for adjustment based on public feedback, tree-removal boundaries should also be adjusted accordingly. Outside entities, such as Tribes, NGOs, or other volunteer groups, may be able to assist with on-the-ground surveys for old-growth and mature stands. The BLM should as a general policy welcome this potential assistance whenever it is offered, given capacity limitations and the difficulty in canvassing some project areas on the ground given their large size. This kind of collaboration can contribute significantly to improve on-the-ground project outcomes</p>	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	<p>While old-growth and mature stands should be retained where they currently occur, we recognize that some of these stands may be unnaturally dense due to past land uses and management. If thinning occurs in such stands, old-growth and mature trees should be retained, along with a full suite of age classes in order to provide for recruitment of future mature and old-growth trees. We have observed projects where a diameter cap has been put in place, but all trees below that diameter cap have been cut. This can result in a skewed population structure, with nothing but old-growth trees remaining. This in turn can make the future of the stand vulnerable since no younger trees remain to eventually become mature or old. An event such as an extreme drought could kill a large majority of the remaining old growth trees and, without any younger trees remaining, could undermine the future viability of the stand.</p>	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf

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Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Regarding mature stands in particular, promotion of the natural progression to future old growth stands, and the future ecological resilience of those stands, should be prioritized. This can provide for new old-growth stands in the future, which is likely to be especially important as existing old-growth stands face challenges to their continued existence, such as extreme drought	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	We recommend mimicking natural transition zones between vegetation types during project implementation for both ecological and aesthetic reasons. We have often observed project implementation that has resulted in a sharp boundary between remaining forest and treeless expanses where trees were removed. Transition zones provide important habitat, such as for pinyon jays ⁶ , which is spatially limited on the landscape, and mimicking such areas during project implementation continues to provide that habitat, rather than simplifying the landscape into fewer monolithic habitat types. Footnote 6 Boone JD, Witt C, Ammon EM (2021) Behavior-specific occurrence patterns of Pinyon Jays (<i>Gymnorhinus cyanocephalus</i>) in three Great Basin study areas and significance for pinyon-juniper woodland management. PLoS ONE 16(1): e0237621. https://doi.org/10.1371/journal.pone.0237621	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Ecologically-resilient and functional old-growth and mature forests often include a healthy, native understory. This includes pinyon-juniper ecosystems, whether persistent woodland, shrubland, or savanna. Regardless of the methods used in vegetation manipulation or restoration projects, utilizing native seed (both annual and perennial, as appropriate) following vegetation manipulation and natural disturbances like fire can best help suppress exotic annual plant species because of native cultivars' tendency to grow in early-seral conditions and their ability to compete with invasive annuals at the phenological level. ⁷ In general, non-native species should only be used when it can be demonstrated both that their use is necessary and that they will not persist long-term. Many past BLM vegetation manipulation projects have seeded persistent non-natives, amounting to a type-conversion of the herbaceous suite of species with long-lasting effects on everything from soils to pollinators. Use of native seed is integral to maintaining healthy and functioning old-growth and mature forest ecosystems, which includes herbaceous species and the other ecosystem components they support. Using native species contributes to successful ecological restoration while mitigating against exotic invasive species such as cheatgrass. Native seeds also provide myriad benefits to obligate wildlife, watersheds, and for cultural uses, and support ecosystem resilience to climate change, drought, desertification, and fire. Footnote 7 Paschke, M. W., Meiman, P. J., Romme, W. H., Brown, C. S., & Herron, C. M. (2011). Using native annual plants to suppress weedy invasive species in post-fire habitats. Natural Resource Report. Available at https://files.cfc.umt.edu/cesu/NPS/CSU/2007/07Paschke_JFSP_weeds%20and%20fire_Final.rpt.pdf	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	We recognize that tree removal undertaken within the wildland-urban interface may be more extensive than outside of it to reduce risk of fire to communities and associated infrastructure. In most cases complete tree removal is not necessary to significantly reduce the risk of fire in the wildland-urban interface. For trees that are left in such projects, we propose that oldgrowth trees be prioritized for retention. In addition to the many other values of old-growth trees, they are generally more fire resistant and adapted than younger trees of the same species. Fire risk can be significantly reduced while also leaving old-growth trees which continue to provide a host of benefits to a multitude of species, including humans.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Old-growth and mature forest ecosystems are integral to the persistence and flourishing of the multitude of species dependent upon them. The best available scientific information regarding these dependent species should be used in environmental analyses and in avoiding or minimizing impacts to these species. This approach is not consistently employed in BLM vegetation manipulation projects. For instance regarding pinyon jay, the East Kanab Creek project discussed above rejected a 500m no-treatment buffer around pinyon jay nest colonies that was proposed, as recommended by the Conservation Strategy for the Pinyon Jay and supported by the best available scientific information ¹¹ , and instead adopted a 300m buffer. The following was provided as an explanation: "the BLM felt this would be the best balance between meeting land health needs...and minimizing adverse effects to nesting pinyon jays". No scientific justification was provided to support either a smaller buffer or a 300m buffer specifically. This demonstrates the need for direction to utilize the best available scientific information regarding old-growth and mature forest dependent species in project planning and implementation. Footnote 11 Somershoe, S. G., E. Ammon, J. D. Boone, K. Johnson, M. Darr, C. Witt, and E. Duvuvuei. 2020. Conservation Strategy for the Pinyon Jay (<i>Gymnorhinus cyanocephalus</i>). Partners in Flight Western Working Group and U.S. Fish and Wildlife Service	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf

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Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	<p>A critical data point for assessing the effectiveness of pinyon and juniper ecosystem management and establishing baseline conditions is the monitoring and surveying of pinyonjuniper obligate species. While there are several pinyon species that could be monitored, the pinyon jay is the most appropriate.</p> <p>The BLM has traditionally relied on “sensitive species” but the unique challenges related to managing resilient pinyon-juniper ecosystems can best be met by adopting and utilizing the pinyon jay as an indicator species of pinyon-juniper ecosystem health and functioning.</p> <p>Pinyon jays have a unique relationship with pinyon-juniper communities. They are the primary dispersal agents for pinyon seeds, including in the reestablishment of pinyon pines after disturbances like fires and insect infestations. Pinyon jays rely on pinyon-juniper ecosystems for breeding, nesting, and foraging. While a decrease in Pinyon jay populations is likely attributable to numerous causes, an increase requires that the habitat they rely on is properly functioning. By monitoring and surveying for pinyon jays, the BLM could gain crucial information about the efficacy of its management decisions.</p>	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	<p>Monitoring and surveying for pinyon jays will also provide the BLM with useful information with which to assess the impacts of management decisions on a host of pinyon-juniper dependent species. As noted by the BLM, pinyon and juniper ecosystems support a multitude of species including some sensitive and at-risk species. These ecosystems provide habitat for ferruginous hawk, juniper titmouse, mountain bluebird, American kestrel, black-throated gray warbler, dusky flycatcher, fringed myotis, pallid bat, white-tailed antelope squirrels, Apache pocket mice, desert woodrats, kit foxes, ringtails, white-backed hog-nosed skunks, northern sagebrush lizard and dozens more. Because the pinyon jay is so heavily dependent on pinyon-juniper ecosystems its population trends can be indicative of trends for a broader suite of pinyonjuniper dependent species and it should be used as an indicator species for pinyon-juniper ecosystems. The U.S. Fish and Wildlife Service explains the concept of an indicator species as follows in its 2015 Technical Reference on Using Surrogate Species for Landscape Conservation 12:</p> <p>Footnote 12US Fish and Wildlife Service. (2015). Technical reference on using surrogate species for landscape conservation. Washington,DC, USA. p. 11, https://ifmp.net/file/technical-reference-on-using-surrogate-species-for-landscapeconservation</p> <p>Species selected and monitored as environmental indicators are sensitive to particular environmental conditions and are considered representative of other species that require the same or similar environmental conditions. As a result, changes in populations of indicator species are assumed to be representative of changes in beneficiary species (e.g., deteriorating water quality reduces a population of indicator fish species and is assumed to affect other species in that same ecosystem).</p> <p>The pinyon jay fits the description of an indicator species well, and should be considered as such in the management and conservation of pinyon and juniper ecosystems.</p>	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	<p>A streamlined review process of both proposed and previously-approved projects for consistency with current BLM guidance would aid in maximizing retention of old-growth forests. For previously-approved projects this could be done without requiring a re-opening of the NEPA process.</p>	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	<p>We have frequently seen that the BLM has prioritized enhancing big game habitat and providing forage for livestock over the conservation of mature and old-growth pinyon and juniper trees. We are concerned that the field offices will continue this management trend absent additional guidance. In particular, we think the local field offices will struggle to reconcile Executive Order 14072 and Secretarial Order 3362. Requiring the inventorying and prohibiting the harvesting of old-growth trees when the primary purpose of the project is forage enhancement would be one clear step the BLM could take to help strike the appropriate balance between big game management and managing for resilient pinyon-juniper woodland ecosystems. This policy direction is warranted because the data shows that the removal of pinyon and juniper often does not enhance mule deer habitat. Bombaci and Pejchar (2016) found that mechanical treatments have a mostly negative or non-significant effect on mule deer and elk. This was attributed to the important cover pinyon-juniper woodlands provide.</p>	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	<p>BLM, via its National Landscape Conservation System (NLCS), manages over 37 million acres of public lands for heightened or specialized conservation, cultural, and recreation purposes. Unsurprisingly, a large percentage of ecologically intact, relict, and healthy functioning pinyonjuniper woodlands occur on NLCS lands, including in Wilderness Study Areas (WSAs), National Monuments, and National Conservation Areas. Because these lands are already elevated for protection and enhancement of native ecosystems, including old-growth and mature forests, it is prudent of land managers to be particularly cautious with management activities such as mechanical vegetation removal projects that have the potential to permanently upend the balance of native ecosystem processes and resilience by adding novel disturbance to these systems. Although all public lands and forests deserve adherence to the precautionary principle for vegetation management activities with the potential to negatively impact oldgrowth and mature pinyon-juniper forests, NLCS lands are an appropriate location for particularly rigorous application of science, monitoring, detailed project design, and caution across these intact landscapes. Passive restoration techniques and selective hand treatments that conform to BLM’s management framework for resource protection and do not incur the same significant surface-disturbing impacts as mechanical methods may still be used to enhance conservation values.</p>	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf

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Friends of Nevada Wilderness	Shaaron Netherton	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	We share the concerns of conference presenters that P-J woodlands must be managed for long-term resilience and thus, that adaptive management practices are better than large-scale, one-size-fits-all approaches, such as manual, mechanical and chemical tree removal across the board. Redmond, Urza, Weisberg (2023, p 4) stated that “it is critical to manage for woodland resilience given the sensitivity of these species to future climate change and the critical function and ecosystem services these woodlands provide...” They continued that “as a result, it is essential that scientists and managers use adaptive management approaches to iteratively improve the management of these critical ecosystems.” Therefore, we believe that the BLM needs to curtail outdated management practices that do not support current conditions and today’s goals for long-term forest resiliency, multiple species protection, carbon sequestration, our ever-increasing understanding of ecosystem services and respect for the cultural values of P-J woodlands to Nevada’s indigenous people.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf
Friends of Nevada Wilderness	Shaaron Netherton	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Do the benefits of P-J woodland removal outweigh the negative effects? When reviewing the purpose of these treatments, it is appropriate to view their side effects. For instance, fuel reduction: the introduction of non-native invasive plants such as cheatgrass following prescribed fire, chaining, mastication, lop-and-scatter; habitat restoration for Greater Sage-grouse and mule deer: the ever-declining populations of pinyon jay, juniper titmouse, Clark’s nutcracker, etc. and lack of research in Nevada on those species	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf
Friends of Nevada Wilderness	Shaaron Netherton	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Slow down implementation of P-J woodland removal until a better body of research can be conducted that more comprehensively outlines the scope of positive and negative effects of this policy.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf
Friends of Nevada Wilderness	Shaaron Netherton	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Reevaluate, based on research, the effectiveness of large scale fuel treatments and their negative impacts on wildlife, and the increased spread of annual grasses and soil disruption. . Some land managers are implementing treatments aimed at reducing fire risk by reducing woody fuels via tree thinning or removal, but very few fire behavior modeling studies have evaluated the effects of these treatments. Under moderate burning conditions, active crown fire is often limited in woodlands by sparse or discontinuous surface fuel loads (Linn et al., 2013; Strand et al., 2013), yet extreme conditions capable of supporting crown spread are becoming increasingly frequent. Mechanical “lop and scatter” and mastication treatments, common fuel treatment types in pinyon–juniper, are considered effective at reducing the risk of crown fire (Wozniak et al., 2020) but can increase surface fuel loads (Bernau et al., 2018; Coop et al., 2017; Young et al., 2015). The limited fire behavior modeling studies done in western juniper ecosystems suggest that old-growth woodlands may indeed burn at a lower intensity than sagebrush-dominated sites (Yanish, 2002) (at which sites the fuel load is significantly increased by “lop-and-scatter” treatments), highlighting the uncertainty of the efficacy of common fuel reduction treatments and the need for fire behavior modeling.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf
Friends of Nevada Wilderness	Shaaron Netherton	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Tree removal by mechanical treatment, prescribed fire, or mastication can increase the cover of herbaceous species, including fire-adapted invasive grasses like cheatgrass (Havrilla et al., 2017; Redmond, Zelikova, et al., 2014; Urza et al., 2017), and the subsequent increases in fine fuel loads (Coop et al., 2017; Young et al., 2015) may actually increase fire ignition probability and rate of spread (Davies & Nafus, 2012). Mechanical treatment and pile burning has a reduced risk of invasive species establishment compared with broadcast prescribed fire (Redmond, Zelikova, et al., 2014). Broadcast burning is most appropriate in woodlands in cool/wet climates that are less susceptible to invasion (Urza et al., 2017), and patchy burning may be used in persistent pinyon–juniper woodlands to maintain natural woodland structure (Huffman et al., 2019). Where managers aim to reduce fire risk while maintaining tree cover, low thinning and pruning lower tree limbs may reduce woody fuel loads and ladder fuels, but evidence that these approaches reduce overall fire risk is limited.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf
Friends of Nevada Wilderness	Shaaron Netherton	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Given the lack of research done on all effects of P-J removal, managers can hedge their bets by using diverse treatment options (including no treatment), allowing for redundancy, and using adaptive management to learn the best approaches. Collaborative efforts between researchers and managers will be critical to understand potential use of silvicultural treatments to increase woodland resilience to drought, promote pinyon pine nut production, reduce fuel loads and fire risk, and to enhance understory perennial herbaceous plants, forage production, and wildlife habitat. This will ultimately allow for improved management of this critical ecosystem that is undergoing substantial changes due to past and present land use, biological invasions, and climate change	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf

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Friends of Nevada Wilderness	Shaaron Netherton	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Taxpayer money funds P-J treatments on our public land and the public is increasingly interested in multiple aspects of this work. Data, especially cumulative data is nearly impossible to find. Information that we would like to see would include: acres per year treated by District, State and total BLM, dollar amount spent on treatments, comprehensive information on wildlife numbers especially those with rapidly declining number such as the Pinyon Jay and other pinyon juniper obligates, Sage Grouse etc. numbers per planned treatment area before, during and after treatments.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf
Friends of Nevada Wilderness	Shaaron Netherton	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Especially in the western portion of the state, a significant die-off has been underway for over a decade due largely to climate change. This has, generally, enacted a gradual shift of the woodland upward in elevation creating a brown-zone lower that, unfortunately, has caused a significant wildland fire threat. Removal of trees at this lower elevation for the purpose of fuel reduction would be appropriate, perhaps, but this should be done following adequate review of resources and tree condition. Condition of this woodland is viewed per interaction perspective. Though, the three phases of growth and density of the woodland is what is meant here, there are a couple of perspectives to take into account. Often at lower elevation levels, phase I P-J woodland still contains larger trees, albeit sparsely, but those trees may contain prehistoric bow staves. Phase II and more, phase III will have a greater abundance of such trees, though the likelihood of archaeological sites will only differ for other reasons as this woodland is old and constantly changing. Where Pinyon Jays, Juniper Titmouse, Clark's Nutcracker, pinyon mouse and multiple other species prefer for multiple reasons per site-specific conditions are likely not well known or understood by the manager who prescribes a chaining at that location. If the BLM is unable to make an adequate assessment of a given P-J woodland stand considered for removal that includes on-the-ground analysis of cultural and biological impacts and then implement either an adjustment to, or decline the project altogether, then the better approach to wildland management would direct them to employ an unbiased researcher(s) to analyze the site before implementing a treatment.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf
Friends of Nevada Wilderness	Shaaron Netherton	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Before the BLM continues its practice of increased P-J woodland removal, multiple factors must be both seriously considered, and more importantly, implemented in the agency's selection of both woodlands needing treatment and methods of that treatment. For instance, a more detailed inventory of age-class of trees (phase I-III) including recognition and preservation of old-growth trees, assessment of cultural sites (i.e., bow stave trees), include a wider range of research conducted by a wider range of researchers to outline what species existing within the P-J woodland are experiencing significant population declines and why, take into account that contraction of this woodland is in part, or large extent due to climate change-driven prolonged drought causing lower elevation die-off thus shifting this woodland upward in elevation and northward in latitude and the ecological effects this places on faunal and floral species that coexist or depend on this woodland.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf
Friends of Nevada Wilderness	Shaaron Netherton	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Additionally, the P-J woodland has long been considered an undesirable obstacle due to its contextual comparison with timber that largely occurs outside of Nevada such as Jeffrey, sugar, lodgepole, and other timber pines. The ecological and cultural values of intact P-J woodlands have rarely been considered favorable by BLM land managers, but instead, regarded as invasive weeds that should be eradicated for more economically and politically important species due in large part to P-J impeding increased livestock grazing in the past and currently, as well as for harvestable game species including mule deer, elk and Greater Sage grouse. The prevalence of this view has, as previously mentioned, been narrow-focused and largely motivated by political or economic gain and has remained in place for over seventy years with limited regard for Native Americans and their ever-diminishing cultural sites. The BLM's implementation of P-J removal on an ever-increasing scale and scope also offers a lack of regard for multiple other bird, mammal, insect, and reptile species, biocrusts and multiple other plant species that are, and have for decades, persistently experienced population decline. This seems to be a fragrant deviation from the BLM mission statement () that boldly announces protection for all of the ecosystems existing in the state. But for the inadequacy of the BLM to either acknowledge or invest in research on such species for decades while increasing their P-J removal agenda, these other less visible and less economically important species are disappearing nonetheless.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf
Friends of Nevada Wilderness	Shaaron Netherton	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Considerations must be made for the holistic effects to BLM management of the P-J woodland with respect to its ecology (including pinyon- and juniper-obligate species experiencing population declines), climate change-driven drought that is accelerating die-off of this woodland and subsequently, the everincreasing frequency and scope of wildland fire. Before we are able to better know, through sound peer-reviewed research offered by a wider range of researchers and institutions, what other negative effects are born out of this policy, we should now seriously consider stalling P-J removal management practices on public lands. With an ever-increasing list of obligate pinyon and juniper species experiencing population declines, the argument for habitat improvement of any other one species, such as greater sage-grouse, which, in spite of over seventy years of pinyon/juniper removal has failed to demonstrate recovery or population stabilization, falls short of reasonable rationale to justify this management practice.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf

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Western Watersheds Project	Laura Welp	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Pinyon-juniper woodlands with soils that support biocrust understories (present or potential) should be recognized as an important classification category, especially on the Colorado Plateau.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hx0jidqr7ab_document.pdf
Western Watersheds Project	Laura Welp	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	On appropriate ecological sites, intact, well-developed biological soil crust locations should be considered an important indicator of mature and old growth pinyon-juniper.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hx0jidqr7ab_document.pdf
Western Watersheds Project	Laura Welp	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Identification of old growth should not rely on indirect indicators. Tree ring data should be sampled on sites identified as old growth	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hx0jidqr7ab_document.pdf
Western Watersheds Project	Laura Welp	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Different pinyon pine and juniper communities should be inventoried for species diversity, surveyed for vegetation community type and geographic range, and mapped.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hx0jidqr7ab_document.pdf
Western Watersheds Project	Laura Welp	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Ecological histories, fire regimes, and historic fire return intervals should be investigated and described for each pinyon and juniper community, along with changes to disturbance factors during European contact—such as the introduction of livestock, mining, woodcutting, and other intensive uses.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hx0jidqr7ab_document.pdf
Western Watersheds Project	Laura Welp	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Considerations should be given to data quality and uncertainty, and the short time frames of historic observations of long-lived trees. More research about stand structure, spatial extent of woodlands, and hypotheses that test climate, grazing, fire, invasive grasses, and other variables should be undertaken. Better research into landscape-scale patterns of expansion and contraction, steady states, and multicentury scales of time need to be done before sweeping generalizations can be made about local historical reference conditions. 4 Footnote 4 4 Arendt, P.A., and W.L. Baker. 2013. Northern Colorado Plateau pinon-juniper woodland decline over the past century. <i>Ecosphere</i> 4(8):103.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hx0jidqr7ab_document.pdf
Western Watersheds Project	Laura Welp	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Sites with ESDs that include high biocrust cover, either actual or potential, should remain undisturbed or only be treated with low-impact methods. Harrowing or chaining should not be an approved method where biocrusts occur due to high levels of biocrust damage and resulting reduction in soil stability and nitrogen fixing, and carbon sequestration.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hx0jidqr7ab_document.pdf

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Western Watersheds Project	Laura Welp	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Develop a protocol for salvaging biological soil crust before treatments for post-treatment restoration. Include collection from multiple locations and emphasize collection of biocrust biodiversity as much as possible.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hx0jidqr7ab_document.pdf
Western Watersheds Project	Laura Welp	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	The IM should set basic standards to improve consistency, quality control, and achievement of treatment objectives in treatment methods across field offices. Field offices will be required to adhere to basic guidelines. Since many treatments are actually implemented on the ground by contractors, they should be required to attend these trainings and perhaps achieve certification.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hx0jidqr7ab_document.pdf
Western Watersheds Project	Laura Welp	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	The desired future condition for management of pinyon and juniper should be the ESD potential.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hx0jidqr7ab_document.pdf
Western Watersheds Project	Laura Welp	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Seedings with the potential to impact old-growth or mature forests, including post-fire seeding, should consist only of native species. Non-native species should only be used in emergency situations, and should be limited to short-lived, nonpersistent species. Seeding of non-native species in emergency situations should not be competition to the reestablishment of native plant communities, and should be done in accordance with an explicit plan designed to aid in the reestablishment of native plant communities.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hx0jidqr7ab_document.pdf
Western Watersheds Project	Laura Welp	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	If tree removal is undertaken in the wildland-urban interface, prioritize retention of old-growth trees among leave trees. All treatments to protect the WUI should require proactive clearing of defensible space around structures on public land. That has been identified as an effective means of protecting structures, which may reduce the need to remove mature trees to protect the WUI.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hx0jidqr7ab_document.pdf
Western Watersheds Project	Laura Welp	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	All treatments in pinyon and juniper require long-term monitoring of the effects of livestock management on p-j communities post treatment	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hx0jidqr7ab_document.pdf
Western Watersheds Project	Laura Welp	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Each vegetation treatment project in old growth should install grazing exclosures as part of the monitoring plan. Data should be collected on the same schedule as other monitoring: more frequently in the beginning, less frequently as time goes on.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hx0jidqr7ab_document.pdf

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Western Watersheds Project	Laura Welp	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Exclosures should be maintained as an investment in future research. A publically-available database should be constructed into which these data are deposited.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hx0jidqr7ab_document.pdf
Defenders of Wildlife	Vera Smith	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Establish old growth zones within intact landscapes. Delineate old growth zones as one type of intact landscape ² in resource management planning and develop indicators that measure the intactness of these zones over time. ³ Zones should be delineated to capture ecological processes relevant to old growth woodlands. ⁴ Maintain an up-to-date national inventory of old growth zones that is publicly accessible. ⁵ Footnote 2 § 6102.1. Footnote 3 § 6102.5(c)(3). Footnote 4 § 6102.2(b)(1). Footnote 5 § 6102.2(e).	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/zs0bid85ter_document.pdf
Defenders of Wildlife	Vera Smith	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Develop objectives and desired conditions for the protection of old growth zones. Use best available science and traditional ecological knowledge (including expert workshops when appropriate) to develop management objectives, desired conditions, and constraints for managing old growth zones in resource management planning. ⁶ Footnote 6 § 6102.1 and § 6102.2.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/zs0bid85ter_document.pdf
Defenders of Wildlife	Vera Smith	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Develop objectives and desired conditions for the management of pinyon-juniper ecosystems. Use best available science and traditional ecological knowledge to describe current and historical conditions and use the information as a basis for developing desired conditions, objectives and constraints for managing pinyon-juniper ecosystems in resource management planning. ⁷ Recognize that ecosystems are dynamic in terms of spatial distribution and stage and that natural fire, grazing, and climate change influence this dynamism. Footnote 7 While this letter is about pinyon-juniper management, this approach would make sense for all ecosystem types within a resource management planning area boundary. By way of example, in developing land use management plans the Forest Service's planning mandate is to achieve ecological integrity (dominant ecological characteristics such as composition, structure, function, connectivity and species composition and diversity occur within the natural range of variation) and sustainability and it approaches this challenge by establishing plan components including standards, objectives and desired conditions that apply to specific places and resource issues. See § 219.8(a), § 219.9, § 219.7(e) and § 219.19	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/zs0bid85ter_document.pdf
Defenders of Wildlife	Vera Smith	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Establish land health standards, guidelines and related indicators that apply to pinyon-juniper systems including the old growth component. Standards and indicators should relate to ecological characteristics that occur within the natural range of variation. At least one standard and indicator should address focal species. ⁸ Another should address understory and shrub diversity and composition. ' Footnote 8 For discussions on focal species, see: US Fish and Wildlife Service. (2015). Technical reference on using surrogate species for landscape conservation. Washington, DC, USA. p. 11; and Noon, B. R., McKelvey, K. S., & Dickson, B. G. (2009). Multispecies conservation planning on US federal lands. Models for planning wildlife conservation in large landscapes/Joshua Millsbaugh, Frank R. Thompson.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/zs0bid85ter_document.pdf
Defenders of Wildlife	Vera Smith	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Require that restoration and vegetation treatment projects in pinyon-juniper ecosystems adhere to accepted scientific principles. Adhere to accepted scientific principles and practices (for example, Society for Ecological Restoration's "International Principles and Standards for the Practice of Ecological Restoration") ⁹ Footnote 9 Gann GD, McDonald T, Walder B, Aronson J, Nelson CR, Jonson J, Hallett JG, Eisenberg C, Guariguata MR, Liu J, Hua F, Echeverria C, Gonzales, EK, Shaw N, Decler K, Dixon KW. 2019. International principles and standards for the practice of ecological restoration. Second edition. Restoration Ecology S1-S46. The principles are summarized in an online infographic.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/zs0bid85ter_document.pdf
Defenders of Wildlife	Vera Smith	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Identify: if, why, and how systems are degraded ¹⁰ and in need of restoration; goals and objectives; ¹¹ and necessary actions (passive or active) ¹² to achieve the desired outcomes Footnote 10 § 6102.3(b) and (d). Footnote 11 § 6102.3.1 Footnote 12 § 6101.4(w).	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/zs0bid85ter_document.pdf

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Defenders of Wildlife	Vera Smith	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Use genetically-appropriate native seed ¹³ in seed mixes designed to achieve natural diversity and distribution of native vegetation Footnote 13 § 6102.3(d)(5). Also see: National Academies of Sciences, Engineering, and Medicine. 2023. An Assessment of Native Seed Needs and the Capacity for Their Supply: Final Report. Washington, DC: The National Academies Press. https://doi.org/10.17226/26618 ; and Pedrini, S. and Dixon, K.W. (2020), International principles and standards for native seeds in ecological restoration. <i>Restor Ecol</i> , 28: S286-S303. https://doi.org/10.1111/rec.13155 .	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/zs0bid85ter_document.pdf
Defenders of Wildlife	Vera Smith	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Monitor to ascertain when objectives and outcomes are achieved ¹⁴ and trigger corrective management actions when they are not or when new science becomes available. ¹⁵ Footnote 14 § 6102.3(d)(2) and § 6102.2(c)(4). Footnote 15 § 6102.3(d)(4).	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/zs0bid85ter_document.pdf
Defenders of Wildlife	Vera Smith	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	It is important to note that in regard to vegetation treatments in pinyon-juniper forests, there is not scientific consensus regarding treatment effects on these systems, and some science suggests treatments may have negative impacts. ¹⁶ This highlights the importance of adhering to a set of restoration principles so that the purpose, need, and design of projects are clearly articulated and conform with best scientific understanding. Footnote 16 Bombaci, S. P., and Pejchar, L. (2016). “Consequences of pinyon and juniper woodland reduction for wildlife in North America.” <i>Forest Ecology and Management</i> , 365, 34-50; Jones, A. (Ed.). (2019). <i>Do Mechanical Vegetation Treatments of Pinyon-Juniper and Sagebrush Communities Work? A Review of the Literature</i> . Wild Utah Project; and Shinneman, D. J., McIlroy, S. K., Poessel, S. A., Downing, R. L., Johnson, T. N., Young, A. C., & Katzner, T. E. (2023). Ecological effects of pinyon-juniper removal in the Western United States—A synthesis of scientific research, January 2014–March 2021. U.S. Geological Survey Open-File Report 2023–1041.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/zs0bid85ter_document.pdf
Defenders of Wildlife	Vera Smith	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Design restoration plans with Tribes. Pinyon and juniper woodlands are culturally important to many Tribes across the west. In resource management planning, engage with Tribes to cooperatively identify important pinyon-juniper zones and ecosystem management desired conditions, elevating those values whenever possible. ¹⁷ For restoration plans and projects, approach Tribes in the early conceptual stage of project design to cooperate on formulating goals, objectives, and outcomes and integrate traditional ecological knowledge and science into plan and project design. ¹⁸ This would occur prior to and in addition to any required historic preservation consultation process. Footnote 17 § 6102.5(b)(5) and (6). Footnote 18 Id. and § 6101.4(f).	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/zs0bid85ter_document.pdf
Defenders of Wildlife	Vera Smith	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Discontinue using pinyon-juniper vegetation removal projects for mitigation. Increasingly, pinyon juniper treatments (i.e. mechanical mastication, chaining, and general woodland removal) are conducted as mitigation for other actions on federal and private lands that harm sage-grouse habitats. However, these projects are often not ecologically appropriate where conducted and their benefits (i.e. improved habitat for sage-grouse) are inconsistent. ¹⁹ For this reason, we question whether this mitigation strategy is an appropriate or ecologically beneficial practice at all, and encourage land managers to reconsider whether removing one functioning habitat to account for loss of another is sound restoration policy—especially in the face of climate change and with increasing focus on overall ecosystem health over single-species management. However, if the practice is continued, policymakers should condition the use of these types of projects for mitigation by requiring that project outcomes are achieved and project benefits demonstrated before the damaging use for which mitigation is required is allowed to occur. Footnote Bombaci and Pejchar (2016), Jones (2019), and Shinneman et al. (2023), supra	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/zs0bid85ter_document.pdf
Defenders of Wildlife	Vera Smith	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Track projects across federal lands to understand the cumulative, regional and site level effects of management. Currently, it is difficult to impossible to understand the scope and scale of pinyon-juniper vegetation projects and their effects across larger landscapes and rangewide. Project and outcomes tracking ²⁰ is important for improving restoration expertise and defining the cumulative effect of land management actions in the context of climate change Footnote 20 § 6102.3(d)	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/zs0bid85ter_document.pdf
Defenders of Wildlife	Vera Smith	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Finally, BLM should adopt policy disallowing adoption of other agencies’ categorical exclusions related to pinyon-juniper vegetation treatments or cutting. While recent amendments to the National Environmental Policy Act allow BLM to adopt and utilize existing categorical exclusions from other agencies ²¹ , doing so is inappropriate given the complexity of pinyon-juniper management. Especially with heightened considerations for the protection of pinyon jay habitat and old-growth forests and the cultural significance of pinyon and juniper ecosystems, careful ecological, cultural, and public scrutiny is required on every project. Existing site-specific conditions and desired outcomes vary too significantly across BLM lands for a one-size-fits-all approach. ²² Footnote 21 42 U.S.C. § 4336c. Footnote 22 Shinneman et al. (2023), supra, page 38.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/zs0bid85ter_document.pdf

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Friends of the Inyo	Allison Weber	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Finally, if pinyon pine conservation and BSSG, or other species conservation efforts, are found to conflict, it is of critical importance that these treatments be applied with due consideration for the larger context of other threats and degradations affecting these ecosystems. While time is of the essence in the protection and stewardship of species and landscapes of concern, we must gather detailed information and weigh the benefits and harms, as, once lost, it is far harder to restore, especially for a species that takes at least 75 years to fully be able to reproduce and recover.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/110bipfw75_document.pdf
Lincoln County Regional Development Authority	Jeremy Drew	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	LCRDA supports thinning of persistent woodlands to prevent complete loss of the woodland understory and to make woodlands more resistant and resilient to fire	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/bf0qib4iy85_document.pdf
Lincoln County Regional Development Authority	Jeremy Drew	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	LCRDA supports mosaic treatments of expansion woodlands to conserve sagebrush steppe ecosystem.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/bf0qib4iy85_document.pdf
Lincoln County Regional Development Authority	Jeremy Drew	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	LCRDA sees an opportunity to implement invasive weed treatments in the interface areas between sagebrush sites and woodland sites to break fuels and prevent fires from crossing from one site to the other. Either herbicide applications or herbicide coupled with seeding could be extremely affective in these transition areas to minimize fine fuels, especially cheatgrass.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/bf0qib4iy85_document.pdf
Lincoln County Regional Development Authority	Jeremy Drew	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	In its Plan Lincoln County supports maintenance of healthy aspen stands. This often requires removal of pinyon and juniper that have encroached into or around the stands. Similar treatments should be considered around critical riparian areas and mountain mahogany stands. Aspen, mahogany and riparian areas are more limiting habitats in this County than Pinyon and Juniper Woodlands and should be prioritized as such.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/bf0qib4iy85_document.pdf
Lincoln County Regional Development Authority	Jeremy Drew	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	the BLM and Forest Service should begin implementing and monitoring projects in persistent pinyon woodlands that encourage pine nut production. The concept of pinyon "orchards" raised at the conference has merit, and development of such orchards by selectively thinning trees would also reduce fuel loading and provide more resistance and resilience from fire.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/bf0qib4iy85_document.pdf
Lincoln County Regional Development Authority	Jeremy Drew	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	There was a fair amount of discussion around reforestation or post-fire rehabilitation. As described at the workshop, these efforts are very costly and not always successful. LCRDA would not discourage such efforts but would advocate for more pre-fire projects to reduce fire severity and size. LCRDA has observed this pre-fire approach to be much more effective and efficient.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/bf0qib4iy85_document.pdf

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Lincoln County Regional Development Authority	Jeremy Drew	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	LCRDA also asks that the agencies look for ways to incorporate local private contractors whenever possible and consider biomass utilization on projects whenever appropriate.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/bf0qib4iy85_document.pdf
Saratoga-Encampment-Rawlins Conservation District, Wyoming	Leanne Correll	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	The BLM needs to manage PJ Ecosystems with the multiple use mandate referenced in the Federal Land Policy and Management Act, Multiple Use-Sustained Yield Act, and the National Forest Management Act. Managing for healthy ecosystems is about more than just looking at management of one, or in this case two plants in the entire system. PJ Ecosystems are made up of a diversity of flora and fauna from microscopic ones to big game species and there are many different types of PJ Ecosystems. A one-size-fits-all approach to management across all public lands for any type of ecosystem is not appropriate. Trying to identify management strategies that will be successful across this diverse landscape will lead to disastrous outcomes for the local managers of these important ecosystems.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/ld09id5hvh7_document.pdf
Saratoga-Encampment-Rawlins Conservation District, Wyoming	Leanne Correll	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	It is vital to the socio-economic stability of the District that no new constraints be placed on federal lands regarding PJ Ecosystems that would prevent any of the traditional multiple uses from occurring. Land management is a balancing act, but people and the communities in which they live are paramount. The SER CD NRM Plan policies related include: Policy Expectations #17: Federal agencies should achieve a sustainable land use balance between economic growth, energy development, recreation, agriculture, wildlife, conservation use of lands, quality of life, Saratoga-Encampment-Rawlins Conservation District's (Board) custom and culture, and the environment by coordinating with the Board on all decisions. Policy Socio-economics #1: Federal agencies shall base all management decisions on the publicland multiple use mandate of our public lands and implement actions that balance multiple usesfor sustainable land health. Policy Socio-economics #2: Achieve an economic balance between multiple land use impacts andquality of life. Policy Socio-economics #3: The custom and culture of the citizens of the Saratoga-Encampment Rawlins Conservation District is protected to provide for community stability. Policy Silviculture, Fire and Fuels #3: Forest managers shall use the multiple use mandate for sustainable management of all national forests and other public forests.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/ld09id5hvh7_document.pdf
Saratoga-Encampment-Rawlins Conservation District, Wyoming	Leanne Correll	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	All ecosystems change and adapt to local conditions and while all ecosystems are dynamic in nature, no two change in the same way or at the same pace. Each local land manager must assess the local conditions and determine appropriate management actions that are appropriate for locally-led efforts to achieve locally-identified goals and objectives. Local information on the soils, precipitation, management history, site potential, and other weather factors play a large role in determining what management action is appropriate. It is vital that any management actions implemented in any ecosystem including PJ Ecosystems have the ability to be monitored and that managers apply adaptive management as needed for our constantly changing, dynamic systems. Please consider how these principles can be incorporated into all future management actions.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/ld09id5hvh7_document.pdf
Saratoga-Encampment-Rawlins Conservation District, Wyoming	Leanne Correll	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	One of the ways to improve PJ Ecosystem resilience is to continue livestock grazing and apply flexibility to grazing especially when greater than average fine fuels growth is observed. As expressed in the Workshop, the year following a year with higher-than-average precipitation has shown to have more wildfires, i.e., increase the risk for wildfires. As stated in the Report, flexibility should be applied to reduce the risk and promote landscape health and resilience. The SER CD NRM Plan policies related include: Policy - Silviculture, Fire and Fuels #18: Federal agencies should utilize livestock grazing and fuels management programs to promote forest health and reduce wildfire risk. Policy Range #16: The Bureau of Land Management shall support the use of grazing flexibility and outcome-based grazing for all grazing permit renewals and allotment decisions where appropriate.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/ld09id5hvh7_document.pdf

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Saratoga-Encampment-Rawlins Conservation District, Wyoming	Leanne Correll	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	The SER CD has worked with federal, state, local, and private partners for decades to actively manage public lands based upon local conditions, objectives, and management approaches are modified over time with many locally-led, on-the-ground conversations. Many projects to remove juniper that have encroached into sagebrush steppe have occurred. These projects are imperative for our District to reduce impacts to greater sage-grouse and mule deer. The local BLM partners on projects that remove juniper encroachment to improve landscape health and ecosystem resilience. When assessing areas for juniper removal, on-the-ground surveys are conducted to identify any potential old growth trees that are to be selectively left on the landscape. Most of our old growth junipers are in rocky areas where they have been more resilient to fires, places where mastication removal would not occur. The SER CD NRM Plan policies related include: Policy Silviculture, Fire and Fuels #8: Forest resources are managed to benefit the health of the ecosystem, economy of the communities, support a strong agriculture industry, and maintain recreational availability along with custom and culture. Policy Vegetation - General #1: Federal and state land managers should implement proper management of forest and other public lands through Best Management Practices (BMPs) including, but not limited to, timbering, select cutting, fire management, and managed grazing practices for the prevention of catastrophic wildfires. Policy Vegetation – General #13: Federal agencies should encourage prescribed grazing to control invasive, noxious, and nuisance plant species. Policy Vegetation – General #15: Federal agencies should conduct projects to remove conifers and/or sagebrush in areas where they have encroached to improve diversity of age class, fuel breaks, and increase grass / forb understory for the health of the ecosystem.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/ld09id5hvh7_document.pdf
Saratoga-Encampment-Rawlins Conservation District, Wyoming	Leanne Correll	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Management actions also have significant variation and are dependent on the goals and objectives of the local resource management plan or land use plan. Management actions will vary based on site-specific conditions, goals, and objectives. Determining appropriate management actions on a range-wide scale is not appropriate and will result in unintended consequences. Local land managers will be constrained to a set of management actions that may not be appropriate for their situation and not allow for appropriate actions to manage for local goals and objectives	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/ld09id5hvh7_document.pdf
Saratoga-Encampment-Rawlins Conservation District, Wyoming	Leanne Correll	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Ecology suggests that junipers are more drought tolerant and have higher rates of recruitment following severe die off events i.e., fire and drought. Therefore, management actions in PJ-labeled ecosystems containing just the juniper component cannot and should not have the same management action restrictions for treatment. This again provides support that the variation of subclassifications of PJ ecosystems need to be managed at the local level, not with a top-down management approach.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/ld09id5hvh7_document.pdf
Saratoga-Encampment-Rawlins Conservation District, Wyoming	Leanne Correll	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	We do not support the concept of macro-scale National Environmental Policy Act (NEPA) whereby a range-wide process is undertaken to decide management actions for the range of the pinyon and juniper ecosystems and request that NEPA will be done on a local or state-scale.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/ld09id5hvh7_document.pdf
White Pine County	Nichole Stephey	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	The County supports mosaic treatments of expansion woodlands to conserve sagebrush steppe ecosystem.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/jj05idq2pdo_document.pdf
White Pine County	Nichole Stephey	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	The County also views an opportunity to implement invasive weed treatments in the interface areas between sagebrush sites and woodland sites to break fuels and prevent fires from crossing from one site to the other. Either herbicide applications or herbicide coupled with seeding could be extremely affective in these transition areas to minimize fine fuels, especially cheatgrass.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/jj05idq2pdo_document.pdf

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White Pine County	Nichole Stephey	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	In its Plan the County supports maintenance of healthy aspen stands. This often requires removal of pinyon and juniper that have encroached into or around the stands. Similar treatments should be considered around critical riparian areas and mountain mahogany stands. Aspen, mahogany, and riparian areas are more limiting habitats in this County than Pinyon and Juniper Woodlands and should be prioritized as such.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/ji05idq2pdo_document.pdf
White Pine County	Nichole Stephey	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	, the BLM and Forest Service should begin implementing and monitoring projects in persistent pinyon woodlands that encourage pine nut production. The concept of pinyon “orchards” raised at the conference has merit, and development of such orchards by selectively thinning trees would also reduce fuel loading and provide more resistance and resilience from fire.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/ji05idq2pdo_document.pdf
White Pine County	Nichole Stephey	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	There was a fair amount of discussion around reforestation or post-fire rehabilitation. As described at the workshop, these efforts are very costly and not always successful. The County would not discourage such efforts but would advocate for more pre-fire projects to reduce fire severity and overall size. The county has observed this pre-fire approach to be much more effective and efficient.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/ji05idq2pdo_document.pdf
White Pine County	Nichole Stephey	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	The County also asks that the agencies look for ways to incorporate local private and tribal contractors whenever possible and consider biomass utilization on projects whenever appropriate.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/ji05idq2pdo_document.pdf
Wyoming Department of Agriculture	Michelle MacDonald	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	WDA believes this new direction to manage for old-growth forests, using Executive Order 14072 to potentially amend BLM and US Forest Land Use Plans (LUP) is dangerous and unfounded. We fully support the use of local and state partners to assist in managing resources, including pinyon and junipers at the local level, as well as developing the direction to meet the Multiple Use Mandates of the respective agencies.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/v80ei3c25mz_document.pdf
Wyoming Department of Agriculture	Michelle MacDonald	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	In conclusion, WDA does not support the proposed direction to manage for old-growth forests at the national scale. Rather we encourage the BLM to defer to their local field managers and LUPs to create a balanced approach to manage resources with local and state input.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/v80ei3c25mz_document.pdf
Utah Public Lands Policy Coordinating Office	Sindy Smith	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Because of the encroachment of pinyon-juniper woodlands into other ecosystems in the State, the State supports all types of necessary pinyon-juniper removal (where proper) including chaining, dozing, lop and scatter, mastication, chemical treatments, prescribed fire, and any other treatments that could be effectively employed to reduce fuel loads, restore sage-steppe communities and ensure the health of the pinyon-juniper ecosystem. The State is concerned that the BLM and USFS will include tree classes that are relatively young, and have unnaturally overtaken our landscapes in the last century, in their definition of “old growth”. If restrictions on mastication and prescribed fire result from this planning effort, then vegetation and wildlife management will greatly suffer in Utah. The State of Utah Resource Management Plan (“SRMP”) reflects this support and has adopted policies and guidelines promoting pinyon-juniper management on public lands. Specifically, the SRMP states: “The state supports the active removal of pinyon-juniper encroachment on other ecosystems, such as sagebrush, due to its consumption of water, detrimental effects on vegetation and available forage, and its negative effects on wildlife habitat.” ²² Footnote 22 Utah SRMP at 149.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/w508i6rifnw_document.pdf

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Utah Public Lands Policy Coordinating Office	Sindy Smith	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Other Policies and Objectives from the Utah SRMP applicable to the management of pinyon-juniper woodlands include: “The state supports prompt approval by land management agencies of all range improvements, increased water infrastructure, and vegetation treatments to benefit domestic livestock, wildlife, and consequently the health of federal lands.” ²³ Footnote 23 Id. “Improve vegetative health on public and private lands through range improvements, prescribed fire, vegetation treatments, and active management of invasive plants and noxious weeds.” ²⁴ Footnote 24 Id. at 14 Thus, in terms of identifying appropriate management actions, the State would encourage the BLM to work closely with Utah’s land, water, and wildlife regulatory agencies, as well as refer to the Utah SRMP, to identify proper management strategies, such as those quoted above.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/w508i6rifnw_document.pdf
Utah Public Lands Policy Coordinating Office	Sindy Smith	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Watershed Restoration Initiative (WRI). The goals of WRI are to improve watershed health, biological diversity, water quality, and yield and to provide opportunities for sustainable uses of natural resources. The WRI is a partnership-based program in which natural resource experts from various state, federal, and local governments, conservation non-profit organizations, and conservation-minded individuals work collaboratively to improve ecosystems like pinyon and juniper. The BLM and USFS have been critical partners in the WRI, and DWR has worked closely with staff from both agencies on dozens of projects within the pinyon-juniper ecosystem. The DWR recommends that future resource management planning, amendments, or rulemaking regarding pinyon and juniper management on federal lands in Utah utilize this partnership-based program. Utah’s WRI partnership can provide technical assistance to the BLM and USFS in many areas, including identifying existing and emerging threats, conducting ecosystem diversity and condition planning, filling data gaps, and planning and implementing restoration activities on the ground.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/w508i6rifnw_document.pdf
Utah Public Lands Policy Coordinating Office	Sindy Smith	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	We recommend that all management actions, such as mechanical and hand treatments within pinyon and juniper, be allowed in all age classes/phases to ensure wildlife habitat and other natural resource values can be maintained, restored, or improved.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/w508i6rifnw_document.pdf
Utah Public Lands Policy Coordinating Office	Sindy Smith	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	DWR recommends the BLM and USFS consider the need for active management of all age classes of pinyon and juniper to benefit federally listed Endangered Species Act (“ESA”) candidate, threatened, and endangered species, along with “species of greatest conservation need” (“SGCN”)s and their associated threats as identified in the Utah Wildlife Action Plan (“UWAP”). The UWAP is a state of Utah plan used to prevent ESA listings and was developed by state, federal, and local governments, including the BLM and USFS, along with conservation non-profits. The UWAP identifies threats and data gaps to Utah’s native wildlife species and should be considered for conservation and management decisions or rulemaking efforts in pinyon and juniper ecosystems. For example, multiple research projects are underway in Utah studying the ecology of pinyon jay (PIJA), which was recently petitioned for ESA listing. These studies are focused on actively managed and previously treated pinyon-juniper woodlands. Initial information indicates that early to mid-age pinyon and juniper sites are important for PIJA life history. PIJA needs a heterogeneous landscape; pinyon and juniper ecosystem diversity for PIJA should be a key focus during this planning effort. As such, DWR recommends that management and conservation actions planned within the pinyon-juniper ecosystem account for balanced age classes by allowing for active management (mechanical or hand treatment of trees) to benefit PIJA conservation. This should include allowing established practices and experimental treatments (tree removal along with forb, grass, and shrub seedlings) to address existing data gaps in PIJA biology and their use of pinyon and juniper ecosystems, and how to make these systems more productive, diverse and resilient for PIJA and other species.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/w508i6rifnw_document.pdf
Utah Public Lands Policy Coordinating Office	Sindy Smith	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	According to the Utah SRMP, and the State’s Catastrophic Wildfire Reduction Strategy (CatFire), the “mitigation of hazardous fuels can change fire behavior making it easier to suppress.” ²⁷ As such, the State supports proper Fuel Management (which “refers to the practice of modifying vegetation through mechanical, chemical, biological, or manual treatments, or by using fire”). ²⁸ Accordingly, the State recommends that the BLM analyze more fully the types of fuel management necessary to mitigate catastrophic fires in Utah and encourages such projects, where appropriate. Footnote 27 Id. at 81. Footnote 28 Id. at 85.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/w508i6rifnw_document.pdf
Friends of the Inyo	Allison Weber	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	We are thankful for the work of the BLMs Public Lands Rule for formally placing conservation on equal footing with other uses for the first time, and would like to see this policy elevated across agencies as the Biden administration and beyond pursue environmental protections and stewardship in the face of climate change and landscape degradation.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/110bipfcw75_document.pdf

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Lincoln County Regional Development Authority	Jeremy Drew	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	LCRDA supports the Ely BLM District's Resource Management Plan approach of developing restoration plans and associated National Environmental Policy Act (NEPA) at a watershed scale, and then to implement projects as funding becomes available.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/bf0qib4iy85_document.pdf
Lincoln County Regional Development Authority	Jeremy Drew	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	LCRDA supports the Ely BLM District's Resource Management Plan approach of assessing the condition of various ecotypes, developing restoration plans and associated NEPA at a watershed scale, and then to implement projects as funding becomes available.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/bf0qib4iy85_document.pdf
Lincoln County Regional Development Authority	Jeremy Drew	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	LCRDA supports the Ely BLM District's Resource Management Plan approach of assessing the condition of various ecotypes, developing restoration plans and associated NEPA at a watershed scale, and then to implement projects as funding becomes available.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/bf0qib4iy85_document.pdf
Lincoln County Regional Development Authority	Jeremy Drew	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	LCRDA would advocate for the BLM to dedicate more funding to similar planning and implementation using the "Ely" model.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/bf0qib4iy85_document.pdf
White Pine County	Nichole Stephey	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	The County supports the Ely BLM District's Resource Management Plan approach of developing restoration plans and associated National Environmental Policy Act (NEPA) at a watershed scale, and then to implement projects as funding becomes available.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/ji05idq2pdo_document.pdf
White Pine County	Nichole Stephey	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	The County supports the Ely BLM District's Resource Management Plan approach of assessing the condition of various ecotypes, developing restoration plans and associated NEPA at a watershed scale, and then to implement projects as funding becomes available.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/ji05idq2pdo_document.pdf
White Pine County	Nichole Stephey	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	The County supports the Ely BLM District's Resource Management Plan approach of assessing the condition of various ecotypes, developing restoration plans and associated NEPA at a watershed scale, and then to implement projects as funding becomes available.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/ji05idq2pdo_document.pdf

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White Pine County	Nichole Stephey	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	The County would advocate for both the BLM and Forest Service to dedicate more funding to similar planning and implementation using the “Ely” model.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/jj05idq2pdo_document.pdf
Modoc County Planning Department	Sean Curtis	Pinyon-juniper woodlands	Analyzing and managing pinyon-juniper woodlands in land use plans and NEPA documents	Our area believes that the Sage Steppe EIS (6 million acre planning area) is a well researched document that has been working well over both FS and BLM land for over 10 years. Our concern is that this EIS has way more research depth than anything that will be generated from the Executive Order direction. How do we protect this successful project from the top down, less detailed approach. Is an exception from the decision a possibility?	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/n607ieydw7p_document.pdf
N/A	Sandra Less	Pinyon-juniper woodlands	Climate change and climate resilience	Juniper trees store significant carbon above and below ground. These climate benefits should be recognized when making management decisions. Juniper removal will accelerate the transfer of carbon from the ecosystem to the atmosphere. Conserving juniper keeps carbon out of the atmosphere which helps mitigate global climate change.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/s60rih0j19v_document.pdf
N/A	Vicky Njust	Pinyon-juniper woodlands	Climate change and climate resilience	I am asking you to carefully reassess your plans on the usage of our beautiful old growth juniper forests. Like all tree species they have an integral role to play in the ecosystem that has been ignored in the past. They are vital to a number of species and are vital to carbon sequestering.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/6n0vi0oidf3_document.pdf
N/A	Robert Klavins	Pinyon-juniper woodlands	Climate change and climate resilience	Logging is the number one contributor of climate changing emissions in Oregon. Meanwhile living juniper actively store significant carbon above and below ground. Left alive - or even left dead on site - it will store the majority of that carbon for decades or even centuries. Leaving juniper in place mitigates climate change while providing other values. Cutting them speeds climate change. Especially if it is done to facilitate more grazing of destructive livestock.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/p30siizllre_document.pdf
N/A	Robert Klavins	Pinyon-juniper woodlands	Climate change and climate resilience	“Green uses” of juniper are not. Burning wood takes stored carbon and puts it back into the atmosphere making fire risk greater - say nothing about the general livability of our planet!	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/p30siizllre_document.pdf
Oregon Wild	Doug Heiken	Pinyon-juniper woodlands	Climate change and climate resilience	It is sometimes suggested to use juniper for “green” energy production. This is misguided. Per unit energy, burning biomass emits more greenhouse gases than fossil fuels. Removal of juniper for biomass energy is likely to make global climate change worse instead of better. Juniper removal is also not sustainable. There is at most short-term need for juniper control while natural ecosystem processes are restored.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/4g0qi270qkm_document.pdf
Oregon Wild	Doug Heiken	Pinyon-juniper woodlands	Climate change and climate resilience	Juniper trees store significant amounts of carbon above and below ground (even long after they die). These climate benefits should be recognized and appreciated in making management decisions. Conserving juniper keeps carbon out of the atmosphere which helps mitigate global climate change. Juniper cutting and removal will accelerate the transfer of carbon from the ecosystem to the atmosphere where it will exacerbate global climate change.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/4g0qi270qkm_document.pdf
Friends of Nevada Wilderness	Shaaron Netherton	Pinyon-juniper woodlands	Climate change and climate resilience	Climate change and carbon sequestration: “Older forests have characteristics that can provide important wildlife habitat, contribute ecosystem services such as clean water and carbon storage” (BLM website). Has the BLM analyzed the carbon sequestration of all phases of P-J woodland and does the BLM give due consideration into P-J treatment projects the magnitude of carbon that will not be sequestered after the project is completed? Does the benefit outweigh the risks?	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf
Western Watersheds Project	Laura Welp	Pinyon-juniper woodlands	Climate change and climate resilience	The Mature and Old growth Forest report recognized the value of pinyon and juniper biomass for sequestering carbon: “The Executive order calls particular attention to the importance of old-growth and mature forests on Federal lands for ... their role in contributing to nature-based climate solutions by storing large amounts of carbon.” However, one of the justifications for fuels reduction treatments we’ve seen in agency Environmental Assessments is that wildfires release carbon into the atmosphere, and preventing that loss of carbon by removing trees prevents that loss. This analysis flies in the face of research indicating that the carbon sequestration benefits of retaining living trees is superior to the removal of those trees to prevent carbon loss from wildfire. Another assertion we’ve seen is that the herbaceous plants that will (hopefully) result from the post-treatment seeding are highly productive and will uptake carbon, offsetting the loss of carbon from trees. This has no support in research. The amount of carbon uptake from young plants is no match for that already sequestered, for free, in millions of tons of biomass and soils.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hx0jidqr7ab_document.pdf

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Sierra Club Toiyabe Chapter	Tobi Tyler	Pinyon-juniper woodlands	Climate change and climate resilience	We oppose any pinyon-juniper thinning projects that include the use of, or involvement with, commercial biomass. While bioenergy has historically been treated as renewable energy, it has become increasingly scrutinized as the urgency of reducing CO2 emissions has increased. As the IPCC recognizes, burning wood emits as much or more CO2 as burning fossil fuels per unit of energy. Any claims to the “renewability” of burning forest wood must be viewed in context of climate modeling highlighting the urgency of increasing CO2 uptake by forests and other natural sinks. Burning forest wood for energy produces dangerous emissions, depletes forest ecosystems, and transfers forest carbon into the atmosphere, the opposite of what is needed to address climate change. Burning wood emits more CO2 than burning fossil fuels per unit energy generated. The regrowth and sequestration by long-established forests cannot offset emissions in a timeframe compatible with mitigating climate change. Burning forest wood moves carbon that was stored in forests into the atmosphere, where it warms the climate just as effectively as CO2 from burning fossil fuels.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/xz0li106x6g_document.pdf
Western Watersheds Project	Laura Welp	Pinyon-juniper woodlands	Climate change and climate resilience	The Secretary’s Memorandum on Climate Resilience and Carbon Stewardship of America’s National Forests and Grasslands . agency staff on the ground, and researchers themselves, are grappling with carbon sequestration analyses and the lack of available information. (We have heard anecdotally that a Forest hired a scientist to look into this for them so they could produce better carbon analysis in their EAs, knowing that the information they were releasing to the public was not based in science.) This is an area where the IM should provide up-to-date scientific information that these field offices can use to produce carbon analyses that are as accurate as possible under such a dynamic field of study	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hx0jidqr7ab_document.pdf
Western Watersheds Project	Laura Welp	Pinyon-juniper woodlands	Climate change and climate resilience	The IM should discuss the value of living pinyon-juniper biomass in sequestering carbon versus the cost of carbon release from wildfires. Cost-benefit of sequestering carbon in living p-j biomass vs. increased carbon uptake of released understory or loss of carbon through wildfire.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hx0jidqr7ab_document.pdf
Western Watersheds Project	Laura Welp	Pinyon-juniper woodlands	Climate change and climate resilience	With the passage of the Infrastructure Investment and Jobs Act, the Biden administration has provided millions of dollars to agencies to address the risks from climate change. Agencies have responded by increasing their already-vast program treating hundreds of millions of acres of vegetation treatments in pinyon-juniper communities. This IM is badly needed to provide direction on how to implement those treatments while protecting valuable old growth communities. We urge the BLM to produce a technical reference that provides agencies with the science-based information and guidance they currently lack to implement better treatments that will achieve climate change goals before we lose more pinyon and juniper to climate change and poorly planned land management.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hx0jidqr7ab_document.pdf
Utah Public Lands Policy Coordinating Office	Sindy Smith	Pinyon-juniper woodlands	Fire and fuels	A further concern that the State has about proper and balanced pinyon-juniper management is those surrounding wildfire. As noted in the Utah SRMP, “[w]ith the increase in the 1900s of fire suppression efforts and fire management objectives to keep all wildfires small, many of the ecosystems have departed from historic conditions.” ²⁵ This includes “pinyon-juniper forests [which] are now found in areas that they have not historically occupied. Because of this expansion, the sage-steppe has decreased significantly across much of Utah creating negative impacts to plants, wildlife, and watersheds.” ²⁶ Further, the increased fuel load resulting from the pinyon-juniper encroachment contributes to the intensity and destructiveness of catastrophic wildfires. Footnote 25 Utah SRMP at 80 Footnote 26 Id. at 82.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/w508i6rifnw_document.pdf
N/A	Karen Ramer	Pinyon-juniper woodlands	Fire and fuels	Cutting some juniper trees helps prevent huge, extremely hot range fires that kill animals, ruin habitat and can sterilize the soil. Juniper trees burn much hotter than grass or sagebrush.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/i20jil8lnjs_document.pdf
N/A	Robert Klavins	Pinyon-juniper woodlands	Fire and fuels	Fire is a natural disturbance process that can be beneficial. Reintroducing fire is a better way to address any overabundance of juniper. Logging them does not make anyone safer from fire. Uncharacteristic fires are not driven by fuel, and even if the were, the weeds and other plants that replace juniper are finer fuels that will increase fire risk.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/p30siizllre_document.pdf
Friends of Nevada Wilderness	Shaaron Netherton	Pinyon-juniper woodlands	Fire and fuels	Fuels Reduction: Often, trees are felled with chain saws and chopped into smaller pieces which are scattered (“lop and drop” or “lop and scatter”) leaving thousands of acres littered with woody remains to dry in the sun creating massive areas filled with volatile fuels. The diameter of a live pinyon or juniper tree is far smaller than the debris left to dry on the ground after this practice, and dead wood is far more volatile than live wood. This, to any reasonable person, should be the very opposite of fuels reduction rationale and subsequently compound the threat of wildland fire, even if these new fuels are inert within a short period of time, which they are not. Further, where this practice occurs within the vicinity of sage-grouse leks and nesting sites, it offers natural predators very convenient opportunities for cover (coyotes, foxes and badgers blend in nicely with downed, dried woody remains of these trees). Additionally, if the purpose of this practice is to reestablish sage-grouse habitat at the most critical locations (i.e., leks and nesting sites), would it not make more sense for the BLM to remove the downed wood that they, without exception leave behind to further aid in suppression of fire? Additionally, a controlled burn designed to prevent a wild burn seems counter intuitive, and the fuels left on the ground after chipping or masticating, bulldozing, chaining, and chemical treatments also greatly contribute to higher fuel load.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf

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Western Watersheds Project	Laura Welp	Pinyon-juniper woodlands	Fire and fuels	Fuels reduction is one of the main justifications for implementing treatments in pinyon-juniper communities, and they can include removal of valuable Mature and Old Growth p-j stands. However, the effects of these treatments on reducing incidence and intensity of wildfire is still being assessed. There is not enough research yet to conclude that fuels treatments achieve objections, but treatments nevertheless proceed despite the intentional or accidental removal o	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hx0jidqr7ab_document.pdf
Western Watersheds Project	Laura Welp	Pinyon-juniper woodlands	Fire and fuels	<p>Across the Great basin in Nevada, eastern California, Utah, and adjacent states, single-leaf pinyon pine (<i>Pinus monophylla</i>) and Utah juniper (<i>Juniperus osteosperma</i>) communities dominate many lower mountain ranges, foothills, and portions of alluvial fans in basins. These pinyon-juniper communities include old-growth dense woodlands with a large variety of understory forbs, grasses, shrubs, and small trees. Because of the aridity of these montane habitats in the Intermontane West these understory communities are not lush, but the species diversity of plants is often high. Pinyon-juniper communities in the Great Basin can also be defined as parklands, where sagebrush-steppe dominates large patches, dense woodland dominates other patches, and regrowing pinyon-juniper shrub-savannas are recovering from disturbance in other patches. These create natural spatial patterns that need more study outside of the “encroachment” model which labels these successional patches as unnatural and outside the natural range of variation. We contend that these mosaics are well within the natural range of variation with disturbances caused by lightning ignitions during regular summer monsoon periods, resulting in a wildfire patch-mosaic of burns and recovering successional stages of pinyon-juniper woodlands.</p> <p>This may be an important metric to take into account with respect to natural disturbance regimes and wildlife habitat: the size and distribution of patches and mosaics created by natural wildfires. During our field surveys of proposed treatment areas we observed many burn scars, most perhaps caused by lightning since they were on remote montane ridges. The fire scars were of various ages and shapes, but seemed to often repeat a pattern of starting lower on the mountain ridge or upper alluvial fan and burning upwards with convective winds, until burning out on the crests of the ridge, creating a fan shape. These wildfires are so remote that federal agency fire crews cannot respond fast enough to put out these wildfires, and we have observed a lone agency fire truck drive up to a remote wildfire caused by a summer lightning strike burning up a ridge in Nevada, watching it as it burns itself out on the ridge crest, then the fire truck drives away. The pinyon-juniper communities in the Great Basin are simply too vast for large-scale fire control, and the fire regime here may be somewhat natural and continuing from historic normal levels. In some heavily-grazed areas, however, cheatgrass invasions may have increased the fire return interval. This needs further research.</p>	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hx0jidqr7ab_document.pdf
Lincoln County Regional Development Authority	Jeremy Drew	Pinyon-juniper woodlands	Fire and fuels	One was the description of how pinyon and juniper woodlands transition from Phase 1, 2 and 3 while expanding or following a disturbance. The fact that fuel loads double from Phase 1 to Phase 2 and again from Phase 2 to Phase 3 is a critical management and forest health consideration	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/bf0qib4iy85_document.pdf
White Pine County	Nichole Stephey	Pinyon-juniper woodlands	Fire and fuels	One was the description of how pinyon and juniper woodlands transition from Phase 1, 2 and 3 while expanding or following a disturbance. The fact that fuel loads double from Phase 1 to Phase 2 and again from Phase 2 to Phase 3 is a critical management and forest health consideration.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/ji05idq2pdo_document.pdf
Utah Public Lands Policy Coordinating Office	Sindy Smith	Pinyon-juniper woodlands	Fire and fuels	<p>In the State of Utah, at least for purposes of fuel typing, there are four main types of forests: sub-alpine, aspen, ponderosa, and pinyon-juniper.²⁰ Of the four, Pinyon-Juniper is one of the most extensive.</p> <p>Footnote 20: SRMP at 82.</p> <p>These “[p]inyon-juniper forests in Utah are constantly fluctuating because of their natural tendency to encroach on sage-steppe and their resiliency to drought. The pinyonjuniper forests have increased across the state primarily due to fire suppression. Pinyonjuniper forests are now found in areas that they have not historically occupied. Because of this expansion, the sage-steppe has decreased significantly across much of Utah creating negative impacts on plants, wildlife, and watersheds. The frequency of wildfires in the stagesteppe range from 5 to 35 years and in truly homogenous stands of pinyon-juniper can be 50 to 100 years. The severity and intensity of these wildfires are considered to be high in both cases. Most sage steppe has been encroached on by pinyon-juniper and is becoming decadent with little recruitment.”²¹</p> <p>Footnote 21: Id.</p> <p>Thus, in terms of assessing the condition of pinyon-juniper woodlands (as well as in terms of Planning for a diversity of ecosystems and conditions) the State would encourage the BLM to take a holistic approach by looking at what encroaching pinyon-juniper woodlands are doing to other ecosystems. For example, as highlighted, in Utah these woodlands are encroaching into areas such as grasslands and the sagebrush steppe that historically were not home to pinyon-juniper trees. Interestingly enough is the fact that at the Workshop, one of the presenters acknowledged that of the various species of “juniper” in the Western United States the “Utah Juniper” is the only species that isn’t losing habitat acres but is thriving. Here in Utah, this fact is concerning for the reasons outlined herein.</p>	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/w508i6rifnw_document.pdf
Western Watersheds Project	Laura Welp	Pinyon-juniper woodlands	Fire and fuels	The IM should limit fuels reduction treatments in mature and old growth until more information shows it is necessary for public safety	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hx0jidqr7ab_document.pdf

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N/A	Sandra Less	Pinyon-juniper woodlands	Importance and values of pinyon-juniper woodlands	Juniper is a misunderstood species that is often treated as an invasive weed even though it's a native species with important roles to play in the ecosystem. Juniper trees can live for centuries, and juniper woodlands support diverse birds and other wildlife. It is critical to protect old-growth juniper, as well as mature trees that can replace old-growth trees when they die. Agencies should be inclusive in identifying mature and old-growth trees for conservation.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/s60rih0i19v_document.pdf
N/A	Paul Daniello	Pinyon-juniper woodlands	Importance and values of pinyon-juniper woodlands	I urge the Forest Service (USFS) and Bureau of Land Management (BLM) to prioritize the conservation of mature and old-growth juniper trees and acknowledge the value of these vital trees.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/ep0xiieo7k0_document.pdf
N/A	Robert Klavins	Pinyon-juniper woodlands	Importance and values of pinyon-juniper woodlands	I understand juniper may be over-represented on some landscapes compared to historic norms. However, the war on the species has to end. I live in rural Northeast Oregon and am confident our farm is home to Oregon's tallest Rocky Mountain Juniper. We see firsthand the value it has to wildlife. In winter it hosts Townsend's warbler and year round, it provides a home for a pair of great horned owls. Sadly, I see my neighbors cutting down nearly every last juniper on their property and I see it happening across the state at a scale that is absolutely inappropriate.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/p30siizllre_document.pdf
Oregon Wild	Doug Heiken	Pinyon-juniper woodlands	Importance and values of pinyon-juniper woodlands	Juniper are a misunderstood species that is often treated as an invasive weed even though it's a native species with important roles to play in the ecosystem. Juniper trees can live more than 1,000 years, and juniper woodlands support diverse birds, mammals, reptiles, and other wildlife. Juniper trees, along with their berries, provide food and shelter to over sixty species of birds. The Townsend's Solitaire is highly dependent on juniper berries for winter food.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/4g0qi270qkm_document.pdf
Oregon Wild	Doug Heiken	Pinyon-juniper woodlands	Importance and values of pinyon-juniper woodlands	Juniper's small stature, irregular shape, and tendency to grow at low density make them less than ideal for commercial exploitation, though they are sometimes used for fence posts, flooring, firewood, and rustic furniture. Juniper also store carbon which helps stabilize our climate.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/4g0qi270qkm_document.pdf
Friends of Nevada Wilderness	Shaaron Netherton	Pinyon-juniper woodlands	Importance and values of pinyon-juniper woodlands	Nevada's pinyon and juniper woodlands are important to our 16,000 supporters and volunteers who camp, hike, backpack, horseback ride, conduct research, maintain trails, pick pine nuts, enjoy starry skies and otherwise recreate across the state. There are many other important values associated with P-J woodlands and these were emphasized by conference presenters. These include carbon sequestration, ecosystem services such as regeneration, benefits to obligate wildlife, species diversity, cultural and spiritual values to Native peoples, particularly the harvest of pinon seed; recreational values, such as hunting, fishing and hiking.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf
Friends of Nevada Wilderness	Shaaron Netherton	Pinyon-juniper woodlands	Importance and values of pinyon-juniper woodlands	There are many other important values associated with P-J woodlands and these were emphasized by conference presenters. These include carbon sequestration, ecosystem services such as regeneration, benefits to obligate wildlife, species diversity, cultural and spiritual values to Native peoples, particularly the harvest of pinon seed; recreational values, such as hunting, fishing and hiking.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf
Lincoln County Regional Development Authority	Jeremy Drew	Pinyon-juniper woodlands	Importance and values of pinyon-juniper woodlands	For LCRDA, the woodlands themselves represent a value. However, so do the forest products derived from them as part of a responsible forestry program and active management. Specific products of value include pine nuts, firewood, and biomass.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/bf0qib4iy85_document.pdf
White Pine County	Nichole Stephey	Pinyon-juniper woodlands	Importance and values of pinyon-juniper woodlands	For the County, the woodlands themselves represent a value. However, so do the forest products derived from them as part of a responsible forestry program and active management. Specific products of value include pine nuts, firewood, and biomass.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/ij05idq2pdo_document.pdf
N/A	Gene Smith	Pinyon-juniper woodlands	Indigenous uses and values of pinyon-juniper woodlands	I am currently collecting data on Bow Stave Trees of Wyoming. These are culturally modified trees that have been found on old growth Juniper in California, Nevada and Wyoming. It is imperative that cultural resources inventories be conducted in potential sensitive areas to determine if any such trees are present. Not to be forgotten is the Native American custom of collecting nuts from Pinyon (as well as White Bark Pine), so it is also important to conduct cultural resource inventories in these areas as well. The best approach would be a hand - in - hand approach with Native American specialists and government cultural/timber/plant specialists to find and protect these areas of cultural significance.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/wh0dia1e5qt_document.pdf
Oregon Wild	Doug Heiken	Pinyon-juniper woodlands	Indigenous uses and values of pinyon-juniper woodlands	Juniper trees provide important values for native people. Please provide meaningful involvement of tribal interests related to juniper conservation and strive to harmonize western science with Tribal Ecological Knowledge (TEK).	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/4g0qi270qkm_document.pdf

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Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Indigenous uses and values of pinyon-juniper woodlands	<p>Since mass deforestation and destruction of forests and woodlands in North America came with settler-colonialists, the current concept of old-growth forests has its roots in that history. Traditional Indigenous Knowledge (TIK), rooted in a much deeper history, approaches this issue from a different vantage point. TIK contains teachings regarding mature and old-growth trees as elders that absorb the lessons of communities and transmit them back to individuals. With regard to management, there are teachings regarding old-growth forest management that are embedded in other subject areas or stories.</p> <p>Indigenous Knowledge is holistic, embodying an earth-to-sky perspective in which old-growth trees are not separate from the forest, habitat, wildlife, understory, air quality, soils, the watershed below, the human relationships with all of these things, and likely a multitude of other pieces that all form an intricate web of meaning and intactness. We recommend that rather than consulting with Tribal Nations specifically on old-growth, that all agency staff responsible for consultations learn to listen holistically for guidance in one area that may be imparted when discussing another, and that the agency develop mechanisms and pathways for integration of such communication. Further, the agency should pay attention to modern Indigenous Knowledge (IK) and seek to engage in the co-production of knowledge with Indigenous scholars on topics related to the management of old-growth and mature woodlands.</p> <p>It is impossible to overstate the cultural uses and significance of pinyon and juniper to a large number of Indigenous peoples, particularly in the Southwest and the Great Basin. The entirety of the pinyon-juniper ecosystem is, in itself, a cultural resource. For example, 85% of archaeological sites in Utah are in pinyon-juniper woodlands, which clearly expresses the deep and long-standing inter-relationship between people and these forests. The first evidence of human use of pinyon dates back to 6000 BC. Old-growth and mature trees are the backbone of these complex communities and thus also of their importance to Indigenous peoples. They support a complex web of life that includes human beings, and the continued health of old-growth and mature forests is necessary for the flourishing of this web into the future.</p>	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Indigenous uses and values of pinyon-juniper woodlands	<p>Ceremonies and traditions of cultural burning exist among the people of the Pueblo of Acoma, Pueblo of Cochiti, Southern Paiute, and Zuni, though it is likely that the practice was more widespread. There are many reasons to practice cultural burning, including but not limited to increasing seed yield, driving game, stimulating the growth of certain plants, opening up land for agriculture, improving game forage, and facilitating travel and visibility. While sometimes it was humans and sometimes it was katsinas that initiated the burns, the ecological impacts were that they were creating a large mosaic of burned and unburned patches, including open habitats, and were increasing edge areas between burned and unburned land every 5-10 years.⁹</p> <p>Footnote 9 Minnis, P. (Ed.). (2004). <i>People and Plants in Western North America</i>. Smithsonian Books.</p> <p>Researchers have identified pinyon-juniper savannas as the primary possible exception to their statement that low-severity fires are generally unimportant in pinyon and juniper vegetation. Logically, the fuel structure of savannas could support spreading, low-severity fire that would be conducive to widespread fire during dry seasons. Further, while pinyons and most juniper species are usually killed by fire, older pinons can have bark greater than 2 cm thick and it is unknown how these trees may have responded to historical surface fires.¹⁰ This supports the ethnographic data that reports traditional cultural burning of grass and vegetation, and we again encourage the agency to pursue the co-production of knowledge with Tribes to learn more about the role of fire in maintaining pinyon-juniper savannas that support old-growth trees.</p> <p>Footnote 10 Romme, W. H., Allen, C. D., Bailey, J. D., Baker, W. L., Bestelmeyer, B. T., Brown, P. M., Eisenhart, K. S., Floyd, M. L., Huffman, D. W., Jacobs, B. F., Miller, R. F., Muldavin, E. H., Swetnam, T. W., Tausch, R. J., & Weisberg, P. J. (2009, May 1). Historical and modern disturbance regimes, stand structures, and landscape dynamics in piñon–juniper vegetation of the western United States. <i>Rangeland Ecology & Management</i>, 62(3), 203–222. https://doi.org/10.2111/08-194.1</p> <p>Archaeological fire-scar records of increased incidence of fires in non-lightning seasons could have an anthropogenic explanation and could be useful information for Tribes. The suppression of cultural burning across the West that came with colonization resulted in a great rift in cultural knowledge. While burning is more prevalent with Tribes that relate to other forest types, it is hard to know if that is historically true or if it is more attributable to the loss of knowledge due to colonization. We recommend both further consultation with Tribes as well as, under tribal guidance and with free, prior, and informed consent, further research into the archaeological record of fire-scarring in old-growth trees to gain further information that may have been lost in oral histories due to colonization and the suppression of cultural burning.</p>	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Friends of Nevada Wilderness	Shaaron Netherton	Pinyon-juniper woodlands	Indigenous uses and values of pinyon-juniper woodlands	<p>Additionally, our concern expands to the countless perishable archaeological sites (namely remaining house structures and bow staves) dotted across the P-J woodland in Nevada that, with BLM's seventy year-long pinyon and juniper removal are forever lost to science and the educational, legacy, and spiritual importance to Nevada tribal members and, more inexcusably, their future generations. Their reasons for preservation have remained steadfastly static and largely ignored while the BLM's rationale for cutting pinyon and juniper forests has evolved per decade to satisfy changing objectives (i.e., increase livestock grazing, increase mule deer forage and habitat, sage grouse habitat improvement, fuel breaks, etc.).</p>	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf
Friends of Nevada Wilderness	Shaaron Netherton	Pinyon-juniper woodlands	Indigenous uses and values of pinyon-juniper woodlands	<p>Important cultural sites can be found at all elevations of the P-J woodland throughout the state, though especially western and central Nevada. Some of these still remaining Native American brush/branch houses (i.e., enobe [Numu], Nob?p? [Newe], etc.), game drive fences, seed cache features, burials, shade/wind shelters, religious or spiritual altars, roasting pits, lithic and perishable artifacts, etc. can be destroyed by P-J treatments of all kinds.</p>	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf

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Friends of Nevada Wilderness	Shaaron Netherton	Pinyon-juniper woodlands	Indigenous uses and values of pinyon-juniper woodlands	<p>Throughout the Conference, numerous Nevada and California tribal representatives complained loudly and clearly that they have not been a part of the planning and implementation processes for land management practices. They complained that there is no real consultation or collaboration. Crystal Miller of the Walker River Paiute Tribe explained that where there has been “consultation,” it has only been “to check the box.” Robert Gomez of Tubatulabal of Kern, CA declared that “consultation is a farce” and that land managers need to “listen and adhere.” He explained that they are “changing the paradigm” by “pushing the boundaries of sovereignty” through litigation. The tribes were particularly vocal in expressing frustration and even outrage with the removal of PJ forests which are critical to their way of life and even creation stories. They spoke of the removal of “sacred trees.” The tribes also spoke eloquently about management practices that are extremely individual to each forest and are very small scale, sometimes on the individual tree level. 14 We believe that tribal voices need to be heard and further understand and support their concerns about the removal of PJ woodlands.</p> <p>We believe the BLM needs to practice real collaboration that recognizes the cultural and spiritual values of these forests to the tribes. Finally, we support small-scale, adaptive management approaches as practiced by the tribes and believe that incorporation of indigenous knowledge will lead to better forest resiliency and preservation of vital cultural sites.</p>	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf
Western Watersheds Project	Laura Welp	Pinyon-juniper woodlands	Indigenous uses and values of pinyon-juniper woodlands	<p>P-J is important to many Tribes for harvesting pine nuts and many members rely on fuelwood cutting to provide heating in winter. Some Navajo have a tradition of choosing an individual pinyon or juniper tree as a token of the transition from girl to woman in puberty ceremonies, and that tree has symbolic meaning thereafter: “So that particular tree actually becomes a family member. [The girl] is able to reconnect with that particular tree even though she's about maybe 80. And as an elder, she can say, I want to go back and visit my sister and be able to go back down to that particular tree and actually reconnect and that gives her the longevity of life” (Hank Stevens, Tribal Representative. Grand Staircase-Escalante National Monument Advisory Council Meeting, 12/13/2022 https://www.blm.gov/sites/default/files/docs/2022-10/GSENM%20MAC%20Meeting%20Notes_July%2012%2C%202022.pdf).</p> <p>Agencies have NEPA requirements to make special efforts to contact tribal nations for input into many projects, and they consider responses they get. However, tribes may not be able to reply within the time frame allotted for public input. This should not be interpreted as indifference to the project.</p> <p>The photo below by Laura Cunningham was also used in the Coalition comments to illustrate the risks of cheatgrass infestation in projects with surface disturbance, but here we also want to point out that this area was important to the Bridgeport Paiute tribe. A tribal member showed one of us groves of large, old, single-leaf pinyon trees that they collected pine nuts from, and they were asking BLM to protect those groves from vegetation treatments. There was a long oral tradition of collecting pine nuts from individual pinyon known since colonization times, over 200 years.</p>	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hx0jidqr7ab_document.pdf
White Pine County	Nichole Stephey	Pinyon-juniper woodlands	Indigenous uses and values of pinyon-juniper woodlands	<p>The County is supportive of incorporating indigenous knowledge in planning, implementing, and monitoring projects. The Ely Shoshone Tribe has been extremely active in various aspects of projects in the Ely area, including the use of biomass.</p>	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/jj05idq2pdo_document.pdf
Utah Public Lands Policy Coordinating Office	Sindy Smith	Pinyon-juniper woodlands	Indigenous uses and values of pinyon-juniper woodlands	<p>In fact, in terms of incorporating indigenous knowledge into the proactive and balanced management of pinyon-juniper woodlands, research suggests that indigenous peoples across North America utilized burns extensively as a form of management of woodlands. Take for example this quote from Professor Christopher Roos:</p> <p>“These results also have implications for modern fire management and policy. In the wake of recent wildfire disasters—fires that damage homes, infrastructure, and water sources, and kill humans—there have been calls to restore traditional Indigenous burning practices in western North America and elsewhere. Indigenous-managed pyrodiversity offers the opportunity to reduce fire hazards, support fire-sensitive plant and animal species, reduce carbon emissions, and empower Indigenous people. Our results show that a further benefit of supporting, restoring, or emulating Indigenous burning practices, including modern prescribed burning efforts, would be the buffering of the impact of increasing fuel aridity on fire activity. To achieve landscape and regional scale fire-climate buffering, however, these applied burning practices would need to be conducted often and at the scales of interest or in strategic locations that have a particularly important influence on landscape-scale fire behavior. Land managers have struggled to accomplish this goal, but future management aims to increase prescribed burning by more than an order of magnitude. As was the case in recent centuries, climate will continue to play a strong role in influencing fire activity even in the best-case management scenarios. However, Indigenous burning, prescribed burning, and managed wildfire at the appropriate scales can all contribute to undermining climate as a “force multiplier” in our wildfire challenges as we endeavor to get more “good fire” on the ground.”²⁹</p> <p>Footnote 29 Christopher Roos, Indigenous fire management and cross-scale fire-climate relationships in the Southwest United States from 1500 to 1900 CE, <i>Science Advances</i>, available at: https://www.science.org/doi/10.1126/sciadv.abq3221 (2022).</p> <p>It seems that this type of proactive management, in the form of prescribed burning, is another practice that the BLM should examine as it moves forward.</p>	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/w508i6rifnw_document.pdf

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Western Watersheds Project	Laura Welp	Pinyon-juniper woodlands	Indigenous uses and values of pinyon-juniper woodlands	The IM should provide for tribal input beyond the provisions we see in typical NEPA documents. For example, conducting a cultural impacts assessment with affiliated Tribes when undertaking projects in mature and old growth communities. Cultural resource specialists should reach out to tribes beyond the typical letter announcing the project and setting a comment deadline.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hx0jidqr7ab_document.pdf
N/A	Phil McLain	Pinyon-juniper woodlands	Mature and old-growth pinyon-juniper woodlands	While it seems wise to limit the expansion of juniper tree acreage, it also seems wise to protect those trees which have reached maturity. They provided wildlife habitat and carbon storage.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/aw0mi6ljp1p_document.pdf
Defenders of Wildlife	Vera Smith	Pinyon-juniper woodlands	Pinyon-juniper management practices	On May 9, 2024, BLM promulgated the Conservation and Landscape Health Rule (“Rule”) that offers tools and direction for the protection, conservation, and management of forested ecosystems, including the old growth component. Indeed, an objective of the rule is to “promote conservation by maintaining, protecting, and restoring ecosystem resilience and intact landscapes, including habitat connectivity and old-growth forests.” ¹ Footnote 1: 1 § 6101.2(b). In response to BLM’s request for comments, we recommend that BLM develop policy direction for the management of pinyon-juniper ecosystems that builds upon the Rule’s provisions, assures old-growth protection, and promotes management informed by rigorous inquiry into the ecology, historical land management, and cultural significance of these woodlands.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/zs0bid85ter_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Pinyon-juniper management practices	Below we highlight some case studies of BLM vegetation manipulation projects in which mature and old-growth pinyon and juniper trees were either proposed to be cut or were in fact cut down. The projects we highlight are from Utah, Arizona, and California, demonstrating that the lack of priority given to the conservation of mature and old-growth pinyon and juniper is not an isolated occurrence but spans the West in different BLM jurisdictional offices. We believe that projects such as these pose a threat to the conservation of mature and old-growth pinyon and juniper communities. We also believe that clear policy and management direction that is consistent across the BLM could go a long way in reducing or eliminating this threat and instead facilitate BLM’s evolution towards the conservation of intact pinyon and juniper ecosystems, especially mature and old-growth forests.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Pinyon-juniper management practices	Utah - Indian Springs (DOI-BLM-UT-C020-2022-0001-EA) In this project, BLM proposed using mechanical (mastication) and manual (hand cutting) vegetation treatments on approximately 900 acres near the Mount Hillers Wilderness Study Area (WSA), on the Indian Springs bench. The project purpose was to eliminate pinyon pine and juniper trees and convert the area to new grass and forb habitat more favorable to cattle and ungulate. Upon engaging in the NEPA process for this project, commenters discovered that NRCS ecological site data for the project area showed that almost the entire site (96%) was upland stony loam—indicative of pinyon-juniper expected vegetation cover and not a history of expansion. ² Footnote 2 SUWA et al Indian Springs Vegetation Treatment Scoping Comments, July 8, 2022. A field visit with interested organizations and citizen scientists to the proposed project site showed an area that appeared to be healthy, old-growth pinyon-juniper woodland, with a diversity of age and stand class among trees and a rocky understory dominated by native grasses and forbs. Importantly, the site had a decided lack of invasive annual grasses like cheatgrass. Two spring sites within the proposed project area contained a high density of lithic scatter and other cultural resources, evidence that the proposed project location was a highuse area at one time. Pinyon pine and juniper trees across the project area included many large and old pre-settlement trees, and field data collected by members of the Utah Native Plant Society on individual trees (coring and cross-sectioning) showed trees that were almost 800 years old (juniper) and almost 300 years old (pinyon pine). ³ Footnote 3 Utah Native Plant Society, Field Report on Indian Springs Old Growth, Nov. 3, 2022. Despite the native ecological integrity of the proposed project area, the expected site conditions matching on-site vegetative cover and species distribution, and the documented presence of old-growth pinyon-juniper forest and sensitive cultural sites, BLM had no responsibility to protect old-growth or mature woodlands in project planning or NEPA.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf

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Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Pinyon-juniper management practices	<p>Arizona - East Kanab Creek (DOI-BLM-AZ-A010-2022-0017-EA)</p> <p>The East Kanab Creek project proposes to cut trees across about 7,200 acres in far northern Arizona near the Utah border. The project area borders Vermilion Cliffs National Monument to the east and Grand Staircase-Escalante National Monument to the north, and now Baaj Nwaavjo l'tah Kukveni - Ancestral Footprints of the Grand Canyon National Monument is less than a mile to the west. Approval for this project was originally attempted through a Determination of NEPA Adequacy (DNA) that sought to use an EA for a geographically distinct area that did not cover the East Kanab Creek project area. The BLM eventually undertook a site-specific EA after we raised serious concerns about proceeding with a DNA.</p> <p>At the scoping phase of the EA process we proposed an alternative that would prioritize the conservation of old-growth trees, through such measures as retaining trees greater than 150 years old as much as possible, and not clearcutting on pinyon-juniper ecological sites as determined by Ecological Site Descriptions. We also proposed seeding only with native species, and utilizing the best available scientific information to protect pinyon jays. None of these proposals were adopted, and few received any analysis or serious consideration. Instead the project approved clearcutting significant swaths on pinyon-juniper ecological sites, likely eliminating extensive stands of old-growth trees, and planting persistent non-native species in their place. This amounts to a vegetation type conversion which fundamentally alters the historical ecology of an area to such an extent that it is unlikely to be able to recover on management timescales. Previous tree removal in the project area took the same approach, and fires have burned in the project area that have removed pinyon and juniper trees. BLM estimated that in the approximately 35,000-acre project area, there are 9,535 acres of "treatable" pinyon and juniper trees, and proposed to cut trees across about 7,200 of those acres. The vast majority of the area where trees are proposed for removal, over 6,300 acres, is classified as being with a pinyon-juniper ecological site. Thus this 35,000-acre project area, which historically supported extensive stands of pinyon and juniper, will be left with a very small fraction of those stands amidst a landscape dominated by non-native herbaceous species.</p> <p>Projects like East Kanab Creek are why we have proposed many of our policy and management priorities. The lack of serious consideration of old-growth and mature forests in this project was especially concerning to us, and we hope our proposals, if adopted, would encourage and direct the conservation of old-growth and mature forests in projects such as this one in the future.</p>	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Pinyon-juniper management practices	<p>California - Bodie Hills (DOI-BLM-CA-C070-2011-0032-EA)</p> <p>This project is in the Bodie Hills of eastern California, near the Nevada border. The project removed dense, over 200-year-old pinyon and juniper trees on the hillslope on the right side of the photo below. The hillslope on the left was not subject to removal. Only manual techniques were used (chainsaws). Nonetheless, cheatgrass increased markedly throughout the area where trees were removed, while cheatgrass cover in the intact area remained low. During a subsequent field trip, BLM staff said the cheatgrass invasion "was an accident." WWVP included this project as an example of threats to the Bi-state sage-grouse Distinct Population Segment in its petition to list under the ESA. This example illustrates how important it is to refrain from attempting to convert woodland ecological sites to shrublands or grasslands, and to select sites that are not at risk for cheatgrass invasion.</p>	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Pinyon-juniper management practices	<p>A review process for both pending and previously-approved projects with the potential to impact old-growth or mature forests would be extremely helpful in ensuring consistency with current BLM guidance. Implementation of previously-approved projects is likely to occur for many years into the future, and these projects may lack consistency with Executive Order 14072 and the subsequent Mature and Old-Growth Forests Report. These projects may have been approved with little to no analysis of old-growth trees in the relevant NEPA documents. For example, the Yellowjacket Vegetation Enhancement Project in southern Utah was approved in 2012 allowing for vegetation manipulation across 55,568 acres. Based on field visits, Grand Canyon Trust staff found that old-growth pinyon and juniper trees have been extensively removed under the Yellowjacket project. The Yellowjacket Vegetation Enhancement Project EA provides little guidance regarding the management of old-growth trees within the project area. The only mention of old-growth in this document is as follows:</p> <p>"Because the majority of treated areas would consist of slopes less than 30 percent, and contain some shrub understory, it is expected that the majority of pinyon and juniper targeted for treatment are post settlement (</p> <p>The above statement makes an unjustified assumption that areas of slopes less than 30 percent in areas with a shrub component are generally not old-growth stands. This is misguided (see Priority 5 Rationale) and has led to extensive removal of old-growth pinyon and juniper trees up to 51' diameter at root crown (DRC; see photo below).</p>	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf

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Friends of Nevada Wilderness	Shaaron Netherton	Pinyon-juniper woodlands	Pinyon-juniper management practices	As we know, throughout much of Nevada in the late 1870's our pinyon and juniper woodlands were clear cut to support the mining industry in large part to produce charcoal. Each charcoal oven was loaded with ~35 cords of wood. It didn't take long for the forest to be stripped in a 20-mile radius of each burn site, often referred to as carbonaras. The natural response, due to the then still favorable conditions for this woodland to prosper, was regrowth. This process is slow as are the responses of the fauna and other flora that coexist with pinyon and juniper. Not all, but much of the expansion observed throughout the 19th and 20th centuries, and that subsequently led to the widespread policy of removal by land managers, was largely due to regrowth while reclaiming their niche on the Nevada landscape. The BLM in Nevada has been actively managing to reduce pinyon and juniper after World War II, a practice that, during the early 1950s, really took hold and vigorously increased in implementation. To a great extent, these actions were to increase forage for livestock and then later, the narrative shifted more toward increasing forage for mule deer. The "Ely Chain" was and is still used to quickly and extensively eradicate vast swaths of P-J woodland in eastern Nevada and elsewhere over massive geographical areas. Today, the removal of P-J woodlands is being conducted in the name of improving habitat for Greater Sage-grouse as well as for fuels reduction. However, our Greater Sage-grouse population has remained in decline in spite of all the thousands of acres of P-J woodland removed, and along with them, so too are a multitude of pinyon- and juniper-obligate species.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf
Friends of Nevada Wilderness	Shaaron Netherton	Pinyon-juniper woodlands	Pinyon-juniper management practices	Further, what attention is given to other possible contributing factors that are being mitigated on public lands with large-scale P-J woodland removal? It appears to us that the BLM should be actively pursuing other management actions to help Sage-grouse and at the same time protect our mature and old growth forests and the myriad of obligate species associated with these forests.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf
Friends of Nevada Wilderness	Shaaron Netherton	Pinyon-juniper woodlands	Pinyon-juniper management practices	What are the impacts to Sage-Grouse from the ever expanding transmission corridors being constructed in Nevada including the proposed Greenlink North?	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf
Friends of Nevada Wilderness	Shaaron Netherton	Pinyon-juniper woodlands	Pinyon-juniper management practices	What impacts will occur from military over flights from the Mountain Home Air Force Base where they are dropping their operating deck almost to ground level across some of the best SageGrouse habitat in northern Nevada? What is the BLM doing to mitigate or change these military operations?	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf
Friends of Nevada Wilderness	Shaaron Netherton	Pinyon-juniper woodlands	Pinyon-juniper management practices	What are the impacts from the push for green energy development, especially for lithium in the vicinity of the Montana Mountains in very northern Nevada which contains some of the most productive Sage-grouse habitat in the state?	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf
Friends of Nevada Wilderness	Shaaron Netherton	Pinyon-juniper woodlands	Pinyon-juniper management practices	What is the increase in fuel load to a given area after a "lop-and-scatter" treatment and for how long? We have been told that after three years that fuel load is inert, but has that been researched and is that across the board regardless of region? It seems dubious at best that after three years that increased fuel load no longer poses a threat to the sagebrush ecosystem in which this practice is commonly employed. If research has been done on this topic, is it peerreviewed, available for review, and how much research on this has been done to so influence management policy as to make the practice of "lop-and-scatter" so prevalently employed?	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf
Friends of Nevada Wilderness	Shaaron Netherton	Pinyon-juniper woodlands	Pinyon-juniper management practices	What is the impact of wild horse use, especially in those areas where numbers are well over AML, on Sage-grouse and the health of sagebrush ecosystems?	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf
Friends of Nevada Wilderness	Shaaron Netherton	Pinyon-juniper woodlands	Pinyon-juniper management practices	What is the full range of research topics, to date, that have been conducted on Greater Sagegrouse to outline all possible reasons for population decline? Habitat loss is a major cause, but for the BLM to be so focused on one possible threat (P-J woodland "encroachment") and thus remove massive swaths of that woodland annually throughout the state at the expense of multiple other species which are now also in decline is short-sided at best.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf
Friends of Nevada Wilderness	Shaaron Netherton	Pinyon-juniper woodlands	Pinyon-juniper management practices	Site recognition? (Birds have a strong affinity to return to areas where they winter, nest, breed, etc. They are highly visual animals, and once the visible landscape is altered in some way, they often abandon it. So, what effect does P-J removal have on site recognition? Do the birds then abandon traditional lek sites? What effect does this have on their populations? Also, as P. Coats outlined in the workshop, work has been done on these topics, but does the BLM refer to research conducted by more than a select few researchers to gain a better, less biased view of effects to flora and fauna in and around the P-J woodland?	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf
Friends of Nevada Wilderness	Shaaron Netherton	Pinyon-juniper woodlands	Pinyon-juniper management practices	If trees are being removed to enhance grouse numbers, then why are they removed from steep slopes and gully bottoms where grouse never venture? And further, if this is the cause for such grand-scale P-J removal, then why, after over seventy years of this policy, are we still seeing steep population declines in Sage-grouse?	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf

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Utah Public Lands Policy Coordinating Office	Sindy Smith	Pinyon-juniper woodlands	Pinyon-juniper management practices	Overall, the State encourages the responsible and appropriate development/use of natural resources (including rangeland and forestry resources) to promote economic development for the benefit of its citizenry ⁵ and to support the State's energy plan. ⁶ As such, responsible and non-burdensome regulation is necessary to ensure the continued success of the State's natural resources industries/activities that rely on lands managed by the BLM (such as grazing, logging, and recreation). Certainly, revising internal policies and procedures to properly manage pinyon and juniper woodlands is a worthy goal. However, the State has several concerns regarding the BLM's intentions. Footnote 5: See Resource Development Act, Utah Code § 63M-5-102(1)(a), available at: https://le.utah.gov/xcode/Title63M/Chapter5/63M-5-S102.html . Footnote 6: See Utah State Resource Management Plan, pp. 70–71, available at: https://rmp.utah.gov/state-of-utahresource-management-plan/ (2018).	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/w508i6rifnw_document.pdf
Rangelands Restoration Services LLC	Dana Johnson	Pinyon-juniper woodlands	Pinyon-juniper management practices	In regard to different options of mechanical treatments that include mastication, chaining and chainsaw lop and drop/scatter, has there been a long term cost analysis done between the different treatment types? To clarify, chainings typically require follow-up hand cutting because of the hundreds/thousands of smaller trees and live stems being too small to be removed by the chain.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/qn0ti2i2hot_document.pdf
Rangelands Restoration Services LLC	Dana Johnson	Pinyon-juniper woodlands	Pinyon-juniper management practices	Has there been an analysis done to compare regrowth between a smooth chainsaw cut on the base of a tree during the lop and drop process versus the “tattered” stump surface as a result of mastication? My personal observations have concluded that the smooth chainsaw cuts are far more likely to tend to seal themselves over with sap thus oftentimes protecting the root and allowing regrowth from the stump. A “tattered” stump cannot seal itself as effectively thus exposing the root to the point there is no regrowth.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/qn0ti2i2hot_document.pdf
N/A	Karen Ramer	Pinyon-juniper woodlands	Pinyon-juniper management practices	A variety of plants does not equal juniper trees taking over large acreages, pushing out the grasses, taking up the moisture so other plants can't grow. If you look under a juniper tree you will not see grasses growing up to the tree. You will see ground littered with juniper berries and other juniper residue. If it's a large tree, this residue will be at least a foot deep.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/i20ji181njs_document.pdf
N/A	Karen Ramer	Pinyon-juniper woodlands	Pinyon-juniper management practices	Cutting some juniper trees improves the soil health, leaving more moisture for grasses and other forbes.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/i20ji181njs_document.pdf
N/A	Karen Ramer	Pinyon-juniper woodlands	Pinyon-juniper management practices	Because of these reasons I was happy to be a part of these juniper cutting operations.. In these cutting operations some large, older juniper trees were left standing for birds and other wildlife. These standing trees will send out more berries and propagate more juniper trees in the future. Again the healthy ecosystems have a variety of plants - not just thick growths of mostly one species such as sagebrush, juniper, or cheatgrass.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/i20ji181njs_document.pdf
Oregon Wild	Doug Heiken	Pinyon-juniper woodlands	Pinyon-juniper management practices	Juniper is often removed in an effort to reduce evaporative demand for water and promote surface flow in streams and springs. Studies show that the hydrologic effects of juniper removal are complex and not clearly beneficial as often assumed.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/4g0qi270qkm_document.pdf
California Native Plant Society, Bristlecone Chapter	Maria Jesus	Pinyon-juniper woodlands	Pinyon-juniper management practices	Monitoring: Given the rapid declines observed throughout the pinyon range in the southwestern US, we recommend the BLM implement a monitoring program, informed by remote sensing, to detect major mortality events on an annual basis. These data may be used in conjunction with species distribution models to test hypotheses about future suitable habitat under different climate change scenarios.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/vi0wihx5gnp_document.pdf
N/A	Sandra Less	Pinyon-juniper woodlands	Pinyon-juniper management practices	Juniper is often removed to promote the recovery of sage grouse which prefer more open conditions. However, this strategy is often taken too far. Juniper control should focus on the small subset of areas where conservation of sage grouse is a high priority, and primarily areas that are in the initial stages of juniper establishment.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/s60rih0ji19v_document.pdf
N/A	Sandra Less	Pinyon-juniper woodlands	Pinyon-juniper management practices	The fuel-reduction benefits of juniper removal are highly questionable because stand-replacing wildfire is typically driven by weather and topography, not fuels. It's more important to remove surface fuels (especially weeds) than remove juniper trees. The weeds and other plants that are likely to replace juniper are often more hazardous than juniper.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/s60rih0ji19v_document.pdf
N/A	Sandra Less	Pinyon-juniper woodlands	Pinyon-juniper management practices	Juniper removal is more likely to spread weeds rather than reduce them. Studies show that areas occupied by native junipers tend to have greater native plant diversity and are more resistant to invasion by weeds. Avoiding the spread of weeds and exotic grasses may require forgoing juniper treatments in weed-infested areas.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/s60rih0ji19v_document.pdf

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N/A	Sandra Less	Pinyon-juniper woodlands	Pinyon-juniper management practices	It is sometimes suggested to use cut juniper for “green” energy production. This is misguided. Per unit energy, burning biomass emits more greenhouse gasses than fossil fuels. Removal of juniper for biomass energy is likely to make global climate change worse instead of better.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/s60rih0i19v_document.pdf
N/A	Sandra Less	Pinyon-juniper woodlands	Pinyon-juniper management practices	Juniper is often removed to promote surface flow in streams and springs by reducing evaporative demand for water. Studies show that the hydrologic effects of juniper removal are complex and not clearly beneficial as often assumed.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/s60rih0i19v_document.pdf
N/A	Sandra Less	Pinyon-juniper woodlands	Pinyon-juniper management practices	Where active management of juniper is deemed necessary, agencies should favor low-impact, non-commercial methods, such as hand-thinning young trees and prescribed mosaic fires (where appropriate). Commercial removal of juniper requires roads and heavy equipment, which tends to have significant trade-offs on soil, water, carbon, and weeds, and which can be avoided or mitigated by using hand crews, and retaining cut juniper on-site.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/s60rih0i19v_document.pdf
N/A	Paul Daniello	Pinyon-juniper woodlands	Pinyon-juniper management practices	As your agencies undergo this planning process I urge you reassess the value of mature and old-growth juniper trees. Limit management to hand tool manipulation and avoid the construction of unneeded new roads that continue to jeopardize sage grouse.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/ep0xiieo7k0_document.pdf
N/A	Robert Klavins	Pinyon-juniper woodlands	Pinyon-juniper management practices	Agencies should do more to address the damage caused by livestock and reintroduce natural processes like fire rather than logging	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/p30siizllre_document.pdf
N/A	Robert Klavins	Pinyon-juniper woodlands	Pinyon-juniper management practices	Where there may be legitimate need to reduce juniper for sage grouse, those activities can be focused at a small scale and in places without old growth juniper that belong.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/p30siizllre_document.pdf
N/A	Robert Klavins	Pinyon-juniper woodlands	Pinyon-juniper management practices	Like other native plants and animals, juniper are thirsty. However, the science on the hydrological effects of juniper removal are unclear and complex. What is known is that cows and other livestock have tremendously negative impacts on hydrology and use incredible amounts of water. If we want to conserve water, we need to change livestock management practices, not eliminate native trees.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/p30siizllre_document.pdf
N/A	Robert Klavins	Pinyon-juniper woodlands	Pinyon-juniper management practices	Where juniper may legitimately need to be reduced, there are low-impact methods that may not provide corporate profits, but do pay living wages and keep money in local communities. That includes hand-thinning, fire use, and beaver restoration. Those activities are far less harmful than commercial logging which damages soil, hydrology, increases carbon, and spreads weeds.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/p30siizllre_document.pdf
N/A	Phil McLain	Pinyon-juniper woodlands	Pinyon-juniper management practices	When necessary to remove any tree it is best to use hand removal rather than large equipment which damages soil and other plants.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/aw0mi6lip1p_document.pdf
N/A	Rose Strickland	Pinyon-juniper woodlands	Pinyon-juniper management practices	There was a lot of recognition of the need to “balance” woodland project/management and move away from management approaches which pit the needs of woodland management for Greater Sage-Grouse against the needs of Pinyon Jays, This woodland obligate has been petitioned for listing to the US Fish & Wildlife Service due to populations declines as severe as those of Sage-Grouse , There was support for the agencies to move away from single-species management and more toward sagebrush and pinyon-juniper ecosystem management which benefits all obligate species. Unfortunately, there wasn't much time at the workshop to explore how we can do this.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/dy09ihsn51p_document.pdf
N/A	Austin Tschida	Pinyon-juniper woodlands	Pinyon-juniper management practices	The BLM also needs to have clear management directions on applicable uses of old growth. Please refrain from using age as a defining factor of old growth in the field. Age can be used as a general description, but should not be a deciding factor. Coring juniper trees is very hard and not realistic. Most centers are rotten, and if required to age these stands it adds an extra and unnecessary burden on the BLM. DBH should also not be a hard line for juniper as some trees can grow over 18 inches in less than 150 years due to site specific conditions. Utilize the common and accepted old growth juniper characteristics. But allow on the ground judgment to also play into affect. For example, a tree may have a rounded crown, and multiple tops due to its environment and not be an old growth tree (less than 150 years old). The tree should be allowed to be cut due to on the ground interpretation. Cookie cutter descriptions, sizes and ages do not work well in forest management and should be avoided. There needs to be room for site specific expert interpretations.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/h309ihse8j5_document.pdf

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Oregon Wild	Doug Heiken	Pinyon-juniper woodlands	Pinyon-juniper management practices	Juniper can be found on lands managed by both the US Forest Service and Bureau of Land Management, where typical management priorities are logging and grazing, which means the ecological values of juniper trees are often under-appreciated. The agencies have long sought to remove juniper in order to favor the plants that livestock prefer, but in the process they have killed a lot of mature and old-growth juniper, damaged soil, and spread weeds.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/4g0qi270qkm_document.pdf
Oregon Wild	Doug Heiken	Pinyon-juniper woodlands	Pinyon-juniper management practices	The agencies should do more to address root causes, by excluding livestock and reintroducing fire, instead of applying inappropriate management, such as juniper removal.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/4g0qi270qkm_document.pdf
Oregon Wild	Doug Heiken	Pinyon-juniper woodlands	Pinyon-juniper management practices	Juniper is often removed to promote the recovery of sage grouse which prefer more open conditions. However, this strategy is often taken too far. Juniper control should focus on the small subset of areas that are a priority for conservation of sage grouse and other wildlife that may be imperiled by juniper expansion, and primarily areas that are in the initial stages of juniper establishment adjacent to existing treeless areas.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/4g0qi270qkm_document.pdf
Oregon Wild	Doug Heiken	Pinyon-juniper woodlands	Pinyon-juniper management practices	The fuel reduction benefits of juniper removal are highly questionable, because juniper fuels tend to be heterogeneous and relatively low-density at scales relevant to wildfire. Stand replacing wildfire is driven far more by weather and topography, not canopy fuels. It's more important to remove surface fuels (especially weeds) than remove juniper canopies. The weeds and native plants that are likely to replace juniper are fuels no less hazardous than juniper, and may in fact be more hazardous.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/4g0qi270qkm_document.pdf
Oregon Wild	Doug Heiken	Pinyon-juniper woodlands	Pinyon-juniper management practices	Juniper removal is more likely to spread weeds rather than reducing them. Studies show that areas occupied by native juniper tend to have greater native plant diversity and are more resistant to invasion by weeds. Avoiding the spread of weeds and exotic grasses may require forgoing juniper treatments in weed-infested areas. Removing juniper tends to accelerate the transition to exotic annual grasses, while retaining junipers retains at least some of the native vegetation diversity associated with rangelands.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/4g0qi270qkm_document.pdf
Oregon Wild	Doug Heiken	Pinyon-juniper woodlands	Pinyon-juniper management practices	Any interventions to control juniper populations should be cautious and recognize that juniper woodland expansion in some areas helps offset losses in other areas. The adverse impacts of juniper removal are often not well described or carefully considered. The agencies need to do better.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/4g0qi270qkm_document.pdf
Oregon Wild	Doug Heiken	Pinyon-juniper woodlands	Pinyon-juniper management practices	Where active management of juniper is deemed necessary the agencies should favor low-impact, non-commercial methods, such as hand thinning young trees and prescribed mosaic fires (where appropriate). Commercial removal of juniper requires roads and heavy equipment which tends to have significant trade-offs on soil, water, carbon, and weeds, which can be avoided or mitigated by using hand crews, retaining cut juniper on-site. Adrian D. Manning, , Ross B. Cunningham , David B. Lindenmayer. 2013. Bringing forward the benefits of coarse woody debris in ecosystem recovery under different levels of grazing and vegetation density. Biological Conservation. Volume 157, January 2013, Pages 204–214. http://dx.doi.org/10.1016/j.biocon.2012.06.028 .	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/4g0qi270qkm_document.pdf
Oregon Wild	Doug Heiken	Pinyon-juniper woodlands	Pinyon-juniper management practices	Conservation of juniper in roadless areas larger than 1,000 acres deserves greater emphasis. The agencies should conserve the values associated with roadless areas by relying more on natural processes, and doing only hand treatments. Avoid heavy equipment in roadless areas.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/4g0qi270qkm_document.pdf
Sierra Club Toiyabe Chapter	Tobi Tyler	Pinyon-juniper woodlands	Pinyon-juniper management practices	We are opposed to the process of chaining (destruction of forest through dragging chains with heavy machinery) in any situation. The results are devastating and lead to cheatgrass invasion.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/xz0li106x6g_document.pdf
Sierra Club Toiyabe Chapter	Tobi Tyler	Pinyon-juniper woodlands	Pinyon-juniper management practices	Any thinning should be done surgically with the intention to create islands and transition zones for species such as the pinyon jay, but not in mature and old-growth woodlands.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/xz0li106x6g_document.pdf
Sierra Club Toiyabe Chapter	Tobi Tyler	Pinyon-juniper woodlands	Pinyon-juniper management practices	We highly recommend a study to determine the best way to preserve the old-growth pinyon-juniper forests such as that which is being done in the Sweetwater Range by a coalition that includes Sierra Nevada Conservancy, USFS, UNR. This can and should relate to efforts underway by the US Forest Service to inventory old-growth, and ensure its abundance and distribution over time. https://ceqanet.opr.ca.gov/2022060105	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/xz0li106x6g_document.pdf
California Native Plant Society, Bristlecone Chapter	Maria Jesus	Pinyon-juniper woodlands	Pinyon-juniper management practices	Ex situ collections: Establish ex situ conservation collections (e.g., seed collections, conservation groves) of ecologically and genetically important pinyon-juniper populations.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/vi0wihx5gnp_document.pdf

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Rangelands Restoration Services LLC	Dana Johnson	Pinyon-juniper woodlands	Pinyon-juniper management practices	Mastication is by far the most effective treatment method of pinion and juniper available to land managers especially boom mounted masticating heads due to their ability to reach over “leave trees/plants” and specifically target trees to be removed. More of a surgical approach, the prescription can be tailored to each project. A typical boom mounted masticating head can cut a 60' wide swath from one position greatly minimizing soil disturbance whereas as a Non-boom machine has to drive to each tree to be cut.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/qn0ti2i2hot_document.pdf
Rangelands Restoration Services LLC	Dana Johnson	Pinyon-juniper woodlands	Pinyon-juniper management practices	Mastication being the highest initial per acre cost is greatly reduced when it is compared to long term costs of follow-up treatments required by chainings and chainsaw thinnings and at the same time permanently removing the fuel loads whereas as the other treatment methods merely displace the fuel load.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/qn0ti2i2hot_document.pdf
N/A	Austin Tschida	Pinyon-juniper woodlands	Pinyon-juniper management practices	The BLM needs to address the conflicts with green energy development. On my local BLM district there are multiple large solar farm applications. Currently most would largely impact old growth juniper. The BLM needs to have clear direction on what can and can't be done in old growth juniper ecosystems. For instance, can some be cut for certain purposes? If they cannot be cut, the BLM needs policy that has clear direction and official policy behind it to protect old growth juniper.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/h309ihse8j5_document.pdf
Western Watersheds Project	Laura Welp	Pinyon-juniper woodlands	Pinyon-juniper management practices	The IM should require completion of training and education courses on old growth p-j. for all land management agencies with vegetation treatment responsibilities. Hands-on trainings or a travelling team of specialists that can evaluate proposed treatments on the ground and provide expert knowledge on how to implement treatments in a way that protects mature and old growth forests, and that will have the best chance of achieving objectives. Some of the funding allocated in the Infrastructure Investment and Jobs Act and Public Law 117-58 should provide for this education.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hx0jidqr7ab_document.pdf
N/A	Gene Smith	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	I attach a short article that was recently published in the Wyoming Archaeologist Magazine. Article Currently, documentation of culturally modified trees in the state of Wyoming is rare. Among those documented are a handful of sites that have trees that have been identified as probably bow stave trees. A query to Wyoming archaeologists of the BLM, Medicine Bow National Forest and the Wyoming Association of Professional Archaeologists turned up a total of 8 locations within Wyoming. Of these locations, 6 have been photo documented, and of those 6 sites, only 3 have been documented on Wyoming Cultural Records forms. There are known trees in Fremont County (2), Sweetwater County (7), Carbon County (2), Park County (1) and Laramie County (1) A search in the literature for culturally modified trees turned up dozens of references for marker trees that have bent, shaped or marked, trees utilized to make baskets and other items from bark, as well as harvesting the nutritious inner bark (cambium) of trees all across North America. There are many anecdotal references to the practice in Nevada, Colorado and Wyoming from ethnographic resources (Curtis 1926), online sources (O-N-E online Nevada encyclopedia) and even regional archaeological handbooks (Frison 1978, 1991 and Kornfeld etal 2010). However, looking specifically for trees modified to harvest bow staves turned up only two reports of similar trees in Nevada: “Bow Staves Harvested from Juniper Trees” (Wilke 1988) and “A Bow Stave Site in White Pine County, Nevada and a Simple Probability Model for Bow Stave Trees”(Hauer 2015). In spite of the dearth of known comparisons in Wyoming, it appears that the data presented from both of these reports do compare well with what has been documented so far. So the question to you Wyoming Archaeologists that read this journal: Do you know of other bow stave trees in Wyoming or adjacent states? If so, please contact Gene Smith at grvsmith@wyoming.com with further information about bow stave trees or other culturally modified trees. References: Curtis, Edward 1926 Southern California Shoshoneans. The Diegueños. Plateau Shoshonians. The Washo. Vol. 15. The North American Indian. The University Press, Cambridge, Massachusetts. Frison, George C. 1978 Prehistoric Hunters of the High Plains; Elsevier Science & Technology Books 1991 Prehistoric Hunters of the High Plains Second Edition; Academic Press Hauer, A. Craig. 2015 A Bow Stave Site in White Pine County, Nevada and a Simple Probability Model for Bow Stave Trees. Volume 28 of the Nevada Archaeologist a publication of the Nevada Archaeological Association. Kornfeld Marcel, G.C. Frison and M. L. Larson 2010 Prehistoric Hunter-Gatherers of the High Plains and Rockies Third Edition; Left Coast Press Wilke, Philip J. 1988 Bow Staves Harvested from Juniper Trees by Indians of Nevada; Journal of California and Great Basin Anthropology UC Merced, California. See Attached Comment Submission For Figures of Juniper Bow Stave Removal.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/wh0dia1e5qt_document.pdf
N/A	Rose Strickland	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	Information on monitoring and maintenance of woodland removal projects was missing from this workshop, including how much of it is done, by whom, at what costs, for how long, and how results of monitoring are used in adaptive management. This information would help participants understand whether agency woodland projects are working or not working and how they should be changed.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/dy09ihsn51p_document.pdf
N/A	Rose Strickland	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	Other missing information was on the values of P-J woodlands for carbon sequestration and also the values of P-J woodlands on snow retention and longer run-off periods to to extend water supplies, both of which are being lost by tree removals.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/dy09ihsn51p_document.pdf

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N/A	Eric Nielsen	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	<p>I wanted to make sure you were aware of some geographic datasets I produced while working for the Institute for Natural Resources at Oregon and Portland State Universities a few years ago. These datasets represent conditions relevant to western juniper across the state of Oregon. Although they are tied to the year 2013, they will be generally applicable still with the exception of areas that have been cleared since then. I could do a change detection to identify areas of cutting between 2013-2024 to update these maps reasonably easily. (Identifying areas of juniper establishment since then would be a bigger job.) The datasets were produced from Landsat and Oregon NAIP imagery (circa 2013) and a variety of other predictive GIS data (topography, climate etc), using machine learning models trained from USFS FIA data. The models succeeded in detecting even most individual juniper trees, so represent pretty accurately the condition of the juniper invasion on to rangelands. The maps provide estimates of juniper stand age (which I defined as the estimated age of the oldest individual within the 30- meter pixel), juniper basal area, canopy cover, and stem density. The use of high res aerial imagery allowed tree crown size and shape to influence the model results, which I believe makes these maps considerably more reliable than they'd be if produced from Landsat imagery alone. However, no accuracy assessment was funded for this work. So, despite good model fits and reasonable looking output maps, the data should be regarded as provisional. I do believe it is likely the most accurate you'll find representing these characteristics. Feel free to contact me if I can be of any help putting this info to use, or provide any other information you're curious about.</p> <p>The datasets can be downloaded from Oregon Explorer at the following links: Total tree % canopy cover in stands within geographic range of juniper: https://spatialdata.oregonexplorer.info/geoportal/details?id=0755ecc6479d4d96b475509b228977d9 Juniper presence: https://spatialdata.oregonexplorer.info/geoportal/details?id=01db303e5b9141b49cfed74a88c7d2c8 Juniper basal area: https://spatialdata.oregonexplorer.info/geoportal/details?id=fd5e09b421414892aff843ae68b0f8f9 Juniper % canopy cover: https://spatialdata.oregonexplorer.info/geoportal/details?id=ab980a83aede4acb8948f1a08108e2f1 Juniper stem density: https://spatialdata.oregonexplorer.info/geoportal/details?id=a131dad2615e4cb2bcd1d018037d0851 Juniper stem density (8"+ dbh only): https://spatialdata.oregonexplorer.info/geoportal/details?id=2d0d9859e6cc48e2b2c0ea73c77d9a41 Juniper stem density (10"+ dbh only): https://spatialdata.oregonexplorer.info/geoportal/details?id=0d8869eededd421c872faf38401e2d98 Juniper estimated stand age (estimated age of oldest nearby juniper): https://spatialdata.oregonexplorer.info/geoportal/details?id=f67c2e9499dd4a87937caab7407deaba The following link should pull up all of the above datasets: https://spatialdata.oregonexplorer.info/geoportal/search;q=*juniper*</p>	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/vk0fi94i750_document.pdf
Oregon Wild	Doug Heiken	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	<p>In spite of living in a dry environment, juniper are not highly tolerant of wildfire. Juniper populations wax and wane based on shifting patterns of climate and fire, which is partly how they maintain resilience in the face of changing conditions. This is a natural process, though it may also be related to human caused climate change and the extra carbon in the atmosphere. "Applying an invasive framework to native species that are shifting their ranges in response to climate change adopts an adversarial, local and static paradigm that is often at odds with protecting global biodiversity." Mark C. Urban 2020. Climate-tracking species are not invasive. Nature Climate Change. Volume 10, pages 382–384(2020). https://www.nature.com/articles/s41558-020-0770-8.</p> <p>We should show more humility and avoid exerting too much control over the natural processes that juniper is experiencing. In order to achieve resilience across the species range, gains in one area maybe be essential to compensate for losses elsewhere. Redmond, M. D., Urza, A. K., & Weisberg, P. J. (2023). Managing for ecological resilience of pinyon–juniper ecosystems during an era of woodland contraction. Ecosphere, 14(5), e4505. https://doi.org/10.1002/ecs2.4505.</p>	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/4g0qi270qkm_document.pdf
Oregon Wild	Doug Heiken	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	<p>Juniper encroachment is a minor issue for sage grouse. Only a fraction of sage grouse habitat is adversely affected by conifer expansion. Most of those places are not high priority for sage grouse recovery. Severson et al (2017) recommend focusing treatments around existing treeless area in order to maximize the contiguous area of treeless habitat as opposed to patchy treatments. Severson JP, Hagen CA, Tack JD, Maestas JD, Naugle DE, Forbes JT, et al. (2017) Better living through conifer removal: A demographic analysis of sage-grouse vital rates. PLoS ONE 12(3): e0174347. https://doi.org/10.1371/journal.pone.0174347. http://greatnorthernlcc.org/sites/default/files/documents/Inter-LCC%20Greater%20Sagegrouse%20Research%20Projects%20slides_0.pdf 5 http://map.sagegrouseinitiative.com/</p>	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/4g0qi270qkm_document.pdf
Oregon Wild	Doug Heiken	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	<p>Contrary to common misconceptions there is in fact often a positive relationship between juniper basal area and native grass/forb cover (e.g., bluebunch wheatgrass, Sandberg bluegrass, and richness of native perennial) relative to exotic grasses, while juniper removal tends to increase exotic annual grasses relative to native plants. Even with follow-up seeding with native plants, the treated area was "highly invaded by exotic grass!" Kerns, B.K., and M.A Day. 2013. Powerpoint: The Crooked River National Grassland Westside Wildland Urban Interface Fuel Reduction Project Effect of Juniper Cutting and Seeding on Vegetation. http://www.firescience.gov/projects/05-2-1-05/project/05-2-1-05_Kerns_ppt_for_051513.pdf</p>	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/4g0qi270qkm_document.pdf

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Oregon Wild	Doug Heiken	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	<p>Juniper treatments tend to increase invasion by invasive plants.</p> <p>“Treatments exhibited rapid, large, and persistent increases in the frequency, richness, and cover of 20 non-native plant species including cheatgrass (<i>Bromus tectorum</i>). Exotic plant expansion appears linked to the disturbance associated with treatment activities, 6 reductions in tree canopy, and alterations to ground cover. ... [I]ncreased herbaceous surface fuels including exotic annuals are expected to alter potential fire behavior via ... increased surface fire intensity, flame length, and rate of spread. ... We encourage managers carrying out P-J mastication projects to explicitly consider 1) potential tradeoffs between desired treatment outcomes and potentially unwelcome impacts ...”</p> <p>See Coop & Magee 2016. Integrating Fuels Treatments and Ecological Values in Piñon-Juniper Woodlands: Fuels, Vegetation, and Avifauna Final Report to the Joint Fire Science Program. Agreement number L13ACOO237. https://www.firescience.gov/projects/13-1-04-45/project/13-1-04-45_final_report.pdf</p> <p>Kerns and Day (2014) found that - ... areas with higher juniper abundance to begin with seemed to show a resistance to invasion by exotic annual grasses, perhaps because the exotics are intolerant to shade. Their work has important lessons for conservation efforts and land management goals, especially given the strong push from ranchers and sage grouse advocates to remove junipers. If a juniper woodland is already invaded by exotic grasses, thinning treatments and their associated disturbances such as slash pile burning and skid trail formation—even if followed by seeding—may not be enough to restore native grasslands in the short term.</p> <p>http://www.fs.fed.us/pnw/research/2015/apr/index.shtml#thinning citing B. K. Kerns and M. A. Day. 2014. Fuel Reduction, Seeding, and Vegetation in a Juniper Woodland. <i>Rangeland Ecology & Management</i> 67(6):667-679. 2014; doi: http://dx.doi.org/10.2111/REM-D-13-00149.1, http://www.bioone.org/doi/abs/10.2111/REM-D-13-00149.1</p>	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/4g0qi270qkm_document.pdf
Oregon Wild	Doug Heiken	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	<p>Removing juniper can increase cover of weeds such as cheatgrass at the expense of other native plants. Coultrap D, Fulgham K, Lancaster D, Gustafson J, Lile D, et al. (2008) Relationships Between Western Juniper (<i>Juniperus Occidentalis</i>) and Understory Vegetation. <i>Invasive Plant Science and Management</i>: Vol. 1, No. 1 pp. 3–11. http://www.bioone.org/doi/abs/10.1614/IPSM-07-008.1.</p> <p>[I]t 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. The potential for weed problems is greater at the wildland urban interface (WUI), where diverse source propagules are abundant. We evaluated the effects of fuel reduction activities (thinning, slash pile burning, skid trail formation) and two native seeding treatments (cultivar and local seed) on exotic weed populations and native vegetation in an eastern Oregon juniper woodland ... We found that the fuel reduction activities and post-treatment seeding introduced and spread exotic Species ... [O]ur data indicated that pretreatment juniper abundance was positively associated with native perennial cover, and negatively associated with exotic species cover. These patterns, coupled with the impact of fuel reductions activities, suggest that reducing juniper abundance may not lead to the restoration of native plant community composition even if native treatments are used post-disturbance. Our results suggest that high rates of post fuel reduction seeding in highly invaded juniper woodlands with high propagule pressure, which might be prohibitively expensive for normal management operations, may be effective at establishing high total and native cover, but may still be ineffective at controlling exotic species in areas.</p> <p>... Management Implications ...</p> <p>While the historic increase in juniper is viewed as a problem for maintaining native biodiversity, our data suggest that juniper abundance may be the solution in our study area. We found that exotic species cover was negatively associated with juniper basal area; therefore, juniper cover may be limiting exotic species establishment and spread. Moreover, we found in some cases that juniper basal area was positively associated with some native perennial species. These patterns, coupled with the impact of fuel reductions activities, suggest that reducing juniper abundance may not lead to desired future conditions.</p> <p>Kerns, B.K. 2005. Management Options to Control Exotic Invasive Plant Species in Association with Fuel Reduction Treatments in a Wildland Urban Interface, Crooked River National Grassland. FINAL REPORT. JFSP Project ID: 05-2-1-05. http://web.archive.org/web/20130222090427/https://www.firescience.gov/projects/05-2-1-05/project/05-2-1-05_final_report.pdf. See also, Kerns, Day & Ikdea. 2020. Long-term effects of restoration treatments in a Wyoming big sagebrush community invaded by annual exotic grasses. JFSP Project ID: 16-1-03-25. Final Report. May 2020 https://www.firescience.gov/projects/16-1-03-25/project/16-1-03-25_final_report.pdf (“[Weed] invasion levels after juniper removal and ground disturbance are problematic and may have impacts to biodiversity, forage, and fire behavior.”)</p>	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/4g0qi270qkm_document.pdf

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Oregon Wild	Doug Heiken	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	Contrary to common assumptions about trees and water yield, new science indicates that moderate tree cover might actually benefit hydrology. Deanna Ramsay 2016. Finding water amid the trees - More trees in arid areas could lead to more water access—which is good news for hundreds of millions of the world’s poorest people. http://blog.cifor.org/40702/findingwater-amid-the-trees?fnl=en (“In arid places where water is scarce, the planting of trees is often discouraged out of the belief that trees always reduce the availability of much-needed water. Yet scientists working in Burkina Faso found that when a certain number of trees are present, the amount of groundwater recharge is actually maximized. The study is a “game changer”, according to one of the study’s authors, ... ‘The most important point of our study is to show that a trade-off between water and tree cover doesn’t always exist, and that more trees can actually improve groundwater recharge.’ Aida Bargués Tobella”) citing Ilstedt, U.; Tobella, B.; Bazié, H.R.; Verbeeten, E.; Nyberg, G.; Benegas, S.L.; Murdiyarso, D.; Laudon, H.; Sheil, D.; Malmer, A. 2016. Intermediate tree cover can maximize groundwater recharge in the seasonally dry tropics. <i>Scientific Reports</i> 6: 21930. DOI: 10.1038/srep21930 http://www.cifor.org/publications/pdf_files/articles/AMurdiyarso1601.pdf	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/4g0qi270qkm_document.pdf
Oregon Wild	Doug Heiken	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	New science indicates that the alleged hydrologic impacts of juniper may be miscalculated. The water resources used by trees may be much more segregated than previously thought from the water resources discharged to streams. Once the root zone is recharged, which happens every winter, the trees have little impact on the annual discharge of water to streams. See Oregon State University (2010, January 23). Water hits and sticks: Findings challenge a century of assumptions about soil hydrology. <i>ScienceDaily</i> . Retrieved March 15, 2010, from http://www.sciencedaily.com/releases/2010/01/100121173452.htm . BROOKS, J., H. Barnard, R. COULOMBE, AND J. McDonnell. Ecohydrologic separation of water between trees and streams in a Mediterranean climate. <i>Nature Geoscience</i> . 3, 100 - 104 (2010). Published online: 20 December 2009 doi:10.1038/ngeo722. http://www.nature.com/ngeo/journal/v3/n2/abs/ngeo722.html http://oregonstate.edu/ua/ncs/archives/2010/jan/water-hits-and-sticks-findings-challenge-centuryassumptions-about-soil-hydrology . Niemeyer (2016) found - Despite that many tout that pinyon and juniper removal will augment water yield, these assertions are often based on studies in humid forests or anecdotal evidence. Many studies in pinyon and juniper watersheds reveal negligible increase in streamflow (Clary et al. 1974; Baker Jr 1984; Dugas et al. 1998; Baker Jr and Ffolliott 2000; Owens and Moore 2007). In other cases woody plant expansion increased streamflow (Wilcox and Huang 2010) and in another case woody plant die-off decreased streamflow (GuardiolaClaramonte et al. 2011). As a result of this scientific literature, many scientists question whether pinyon and juniper removal actually results in appreciable gain in most landscapes is highly contested (Huxman et al. 2005; Wilcox et al. 2006; Roundy and Vernon 1999; Ffolliott and Gottfried 2012). Whether woody plant removal actually increases water yield depends on the physical traits of the plants (rooting depth, canopy size, etc.), climate (precipitation amount, seasonality, and intensities), soil type, and geomorphology (Thurrow and Hester 1997; Huxman et al. 2005; Wilcox et al. 2006). Many researchers assert that based on previous water yield studies, only sites with more than 450 mm (18 inches) of precipitation will result in increased water yield if pinyon and juniper are removed (Hibbert 1983; Wilcox 2002; Kuhn et al. 2007). Two empirical studies are underway in the northern pinyon and juniper cover range (labeled in the maps below), the South Mountain paired-catchment study in southwestern Idaho by the USDA-ARS in Boise, Idaho and the Porter Canyon Experimental Forest administered by the USDA-ARS in Reno, Nevada in winterdominated precipitation regimes. These studies could clarify if and where increases in streamflow would occur with PJ removal.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/4g0qi270qkm_document.pdf
Oregon Wild	Doug Heiken	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	Ryan Niemeyer. 2016. Juniper Hydrology website - Streamflow Paradox. https://rniemeyer07.github.io/Juniper_Hydrology/streamflow/streamflow_paradox/ . The author notes “the amount of precipitation, minus ET, results in the water ‘left over’ that either recharges groundwater or becomes streamflow.” Since much of the precipitation in the Northern Great Basin occurs in winter when ET is low, most of the precip is available for stream flow or groundwater recharge, and the effect of juniper removal will be modest at best. Niemeyer, R.J., T.E. Link, M.S. Seyfried, and R. Heinse. 2017. Climate moderates potential shifts in streamflow from changes in Pinyon-Juniper woodland cover across the western U.S. <i>Hydrological Processes</i> (2017) doi: 10.1002/hyp.11264. https://ryniemeyer.files.wordpress.com/2018/01/hp_submission9nov2016.pdf . (“For the northern and western ecoregions of the PJ distribution in the western U.S. where precipitation predominantly occurs in the winter, HBV simulated a 25 mm (37%) annual decrease in ET with conversion to grassland from woodland.”)	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/4g0qi270qkm_document.pdf

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Oregon Wild	Doug Heiken	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	<p>Another factor to consider is that the CO₂ enriched atmosphere may make juniper use water more efficiently by allowing juniper to readily obtain their daily carbon then close their stomata which reduces evapotranspiration. See Paul A. Knapp, Peter T. Soule, Henri D. Grissino-Mayer. 2001. Post-drought growth responses of western juniper (<i>Juniperus occidentalis</i> var. <i>occidentalis</i>) in central Oregon. <i>GEOPHYSICAL RESEARCH LETTERS</i>, VOL. 28, NO. 13, PAGES 2657-2660, JULY 1, 2001. https://agupubs.onlinelibrary.wiley.com/doi/pdf/10.1029/2000GL012365 (“...results are consistent with the drought-ameliorating effects of CO₂ shown by controlled laboratory studies and suggest that rising levels of atmospheric CO₂ may impact western juniper growth rates.”). Also, Eddleman, Miller, Miller, Dysart. 1994. <i>Western Juniper Woodlands (of the Pacific Northwest) Science Assessment</i>. October 6, 1994. https://www.fs.fed.us/r6/icbemp/science/eddeleman.pdf. (“The absence of stomates on exposed leaf surfaces, thick cuticles, and reduced stomata density are mechanisms that reduce water loss through transpiration under high evaporative conditions. These adaptations allow western juniper to grow in the semiarid conditions of the Great Basin (Miller and Shultz 1987).”)</p> <p>Anecdotal information indicating that streams used to be perennial before juniper expansion often overlook other contributing factors such as decadal climate fluctuations. “Our results indicated that removing most PJ in the basin would not produce a perennial stream given climatic conditions of 1981–2013. Instead, anecdotal evidence suggesting consistent stream flow at the beginning of the 20th century was more likely related to wetter and cooler climatic conditions than to changes in upland PJ.” Carroll, RWH., Huntington, J.L., Snyder, KA., Niswonger, RG., Morton, C., Stringham, TK. Evaluating mountain meadow groundwater response to Pinyon-Juniper and temperature in a great basin watershed. <i>Ecohydrol.</i> 2017;10:e1792. doi:10.1002/eco.1792. http://onlinelibrary.wiley.com/doi/10.1002/eco.1792/full</p> <p>If there is an intent to remove juniper to enhance groundwater recharge in mountain meadows for instance, relatively small scale treatments are effective. Landscape scale treatments are not necessary. “Even a small-scale removal of PJ (0.5 km²) proximal to the meadow will promote a stable, shallow groundwater system resilient to droughts.” (See Carroll et al 2017, above).</p>	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/4g0qi270qkm_document.pdf
Oregon Wild	Doug Heiken	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	<p>The agencies should carefully consider the trade-offs associated with juniper removal. One of those trade-offs involves the lost opportunity to store carbon and mitigate global climate change. Landscape scale expansion of juniper woodlands is providing an ecosystem service (carbon storage via natural afforestation) and juniper removal erases that benefit. Campbell, J.L., R. Kennedy, W.B. Cohen, and R. Miller. 2012. Regional carbon consequences of Western Juniper encroachment in Oregon. <i>Journal of Rangeland Ecology and Management</i>. 65(3):223-231. http://larse.forestry.oregonstate.edu/sites/larse/files/pub_pdfs/Campbell_etal_2012.pdf (“unlike forest growth which is balanced by natural disturbance, timber harvest, and land conversion, woody encroachment is assumed to be largely one-directional with the potential result of a [significant] North American net carbon sink. ... [T]he highest biomass shrubs with which juniper competes in Oregon (namely, <i>Artemisia</i> spp.) have an average biomass per unit crown cover of only 8% that of juniper (derived from juniper allometry of Sabin [2008], and sage allometry of Rittenhouse and Sneva [1977]). This means that even when juniper cover replaces sage cover on a one-to-one basis (as reported by Miller et al. 2005), aboveground biomass lost in shrubs is less than 8% that gained in aboveground juniper biomass. ... This study illustrates the capacity of woody removal, over very small areas, to offset encroachment over very large areas ...”); See also Barger, N.N., A.R. Archer, J.L. Campbell, C. Huang, J.A. Morton, and A.K. Knapp. 2011. Woody plant proliferation in North American drylands: A synthesis of impacts on ecosystem carbon balance. <i>Journal of Geophysical Research</i>. 116, G00K07, doi:10.1029/2010JG001506. http://fes.forestry.oregonstate.edu/sites/fes.forestry.oregonstate.edu/files/PDFs/Barger_2011_JGR.pdf (“The greatest tree biomass response occurred in Great Basin sagebrush steppe sites encroached upon by western juniper (<i>J. occidentalis</i>), sites strongly dominated by winter precipitation. ... Changes in [above ground biomass] pools were greatest in systems experiencing <i>Juniperus</i> and <i>Pinus</i> spp. Encroachment ...”]</p> <p>Kennedy, Warren B. Cohen, and Richard F. Miller (2012) <i>Assessing the Carbon Consequences of Western Juniper (<i>Juniperus occidentalis</i>) Encroachment Across Oregon, USA</i>. <i>Rangeland Ecology & Management</i>: May 2012, Vol. 65, No. 3, pp. 223-231. https://repository.arizona.edu/bitstream/handle/10150/642629/22766-42470-1-PB.pdf;jsessionid=810A2AC31A4A6C4C759C3C862C5602B7?sequence=1. [ABSTRACT:... Using a random sample of 150 aerial photography plots, we estimate the average aboveground accumulation of carbon in undisturbed juniper woodlands to be 2.9 kg C m⁻² yr⁻¹ ; about 0.20 Tg C yr⁻¹ across all of Oregon. However, juniper removal by cutting and or burning, occurring at a rate of < 1% yr⁻¹ , counteracted regional encroachment by about 35%, bringing the net change in aboveground carbon down to 1.9 kg C m⁻² yr⁻¹ , about 0.13 Tg C yr⁻¹ across all of Oregon. This study illustrates the capacity of woody removal, over very small areas, to offset encroachment over very large areas ...]</p>	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/4g0qi270qkm_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	<p>Boone, J. D., Witt, C., & Ammon, E. M. (2021). Behavior-specific occurrence patterns of Pinyon Jays (<i>Gymnorhinus cyanocephalus</i>) in three Great Basin study areas and significance for pinyon-juniper woodland management. <i>PLOS ONE</i>, 16(1), e0237621.</p> <p>This research article by Boone et al. investigates the habitat use and occurrence patterns of Pinyon Jays in three distinct study areas within the Great Basin, which is home to nearly half of the global population of this species. The study utilized radio telemetry and direct observation to track the birds, comparing these data with control sites to understand the jays' preferences for different woodland habitats based on their behaviors such as caching, foraging, and nesting. All three of these activities were concentrated in lower-elevation pinyon-juniper woodlands near the woodland-shrubland ecotone, which is often where pinyon-juniper removal projects are focused.</p>	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf

Agency or Organization Name	Commenter Name	Comment Topic	Comment Subtopic	Comment Text	Full Submission Text
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	Fernandez, D.P., Neff, J.C., Huang, C., Asner, G.P., & Barger, N.N. (2013). Twentieth century carbon stock changes related to Piñon-Juniper expansion into a black sagebrush community. <i>Carbon Balance and Management</i> , 8, 8 This study investigates the impact of pinyon-juniper woodland expansion on carbon stocks in southeastern Utah. The research focuses on how the expansion of PJ woodlands into black sagebrush communities has altered the carbon dynamics of these ecosystems over the twentieth century. The study employs a combination of plot-based measurements and remote sensing techniques to estimate changes in carbon stocks at different spatial scales. The researchers found that pinyon-juniper expansion led to a decrease in understory vegetation carbon but this loss was offset by significant gains in carbon stored in pinyon-juniper vegetation and surface litter. Soil mineral carbon stocks appeared unaffected by changes in woody plant cover and density. The study also utilized historical and contemporary aerial photographs to develop forest density maps, which helped in estimating aboveground carbon stock changes over a larger landscape scale.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	Floyd, M. L. 2021. Status and trends of pinyon-juniper vegetation in the western United States. Report to Defenders of Wildlife. Prescott, Arizona: Natural History Institute. This comprehensive report, authored by M. Lisa Floyd, Ph.D., from the Natural History Institute, provides an extensive overview of the status, ecological importance, and management challenges associated with pinyon-Juniper woodlands in the western United States. The 23 document is structured into three main parts: natural processes, challenges to pinyon-juniper woodlands, and management implications. A discussion of natural processes delves into the ecological and taxonomic descriptions of pinyon-juniper woodlands, discussing their biodiversity, carbon sequestration capabilities, and historical geographic movements. It highlights the ecological roles these woodlands play, including their support for diverse plant and animal species and their contribution to carbon storage. The author outlines several threats to these ecosystems, including fire disturbances, invasive species, climate change, and human-induced alterations like overgrazing and land clearing. The report concludes with a discussion of various management strategies aimed at restoring and conserving pinyon-juniper woodlands. It evaluates the effectiveness of treatments like restoration and controlled burns, and stresses the importance of informed management decisions based on ecological understanding and historical data.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	Floyd, M.L. and Romme, W.H., 2012. Ecological restoration priorities and opportunities in piñon-juniper woodlands. <i>Ecological Restoration</i> , 30(1), pp.37-49. This publication discusses ecological restoration priorities and opportunities in pinyon-juniper woodlands of the southwestern United States. Because pinyon-juniper woodlands exhibit great diversity in environmental conditions, species composition, historical disturbance regimes, and changes over the past century, tailored restoration approaches rather than a one-size-fits-all strategy are recommended. The authors distinguish between passive restoration (removing degrading agents) and active restoration (manipulating composition, structure, or function), as well as structural vs. functional restoration, and restoration of canopy vs. understory. Five case studies illustrate a spectrum of conditions and appropriate restoration strategies, ranging from passive restoration of pristine old-growth woodlands on Mesa Verde to active restoration of severely degraded areas with overstory thinning, seeding natives, and weed control. The authors highlight that while climate change poses challenges for restoration, restoring historical processes may increase ecosystem resilience and adaptability.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	Hanna, D.P., D.A. Falk, T.W. Swetnam, and W.H. Romme. 2018. Age-related climate sensitivity in <i>Pinus edulis</i> at Dinosaur National Monument, Colorado, USA. <i>Dendrochronologia</i> 52:40-47. This study explores the impact of tree age on climate sensitivity. The study focuses on the <i>Pinus edulis</i> species, commonly known as pinyon pine, located at Dinosaur National Monument in northwestern Colorado. This region represents the northern extreme of the species' current distribution, making it a critical area for studying environmental adaptability and response. The 24 research highlights how the growth sensitivity of pinyon pine to climate varies with age. The authors found that younger trees (less than 200 years old) exhibit lower growth sensitivity, which increases as the trees age, stabilizing once they surpass approximately 250 years. This pattern suggests that older trees have a more consistent response to climatic variations compared to younger ones. Additionally, the study examines efficacy of and factors that impact reconstructing past climate conditions from tree-ring data, concluding that age-related changes in growth response should be considered to improve the accuracy of such reconstructions. Overall, the study contributes to the understanding of how long-lived tree species like pinyon pine respond to climatic changes over their lifespan.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	Jones, Allison, Do Mechanical Vegetation Treatments of Pinyon-Juniper and Sagebrush Communities Work: A Review of the Literature (2019). A comprehensive literature review focused on the effectiveness of mechanical vegetation treatments in pinyon-juniper and sagebrush communities. The review, led by Allison Jones from the Wild Utah Project, synthesizes over 300 scientific studies, reports, and articles to evaluate the outcomes of these treatments in terms of vegetation structure, wildlife habitat, soil stability, watershed productivity, carbon sequestration, and livestock grazing. The review concludes with recommendations for future research, emphasizing the need for long-term studies to better understand the ecological impacts of mechanical treatments and to guide management practices more effectively. The document serves as a critical resource for land managers, researchers, and policymakers involved in vegetation management and ecological conservation in sagebrush and pinyon-juniper landscapes.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf

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Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	<p>Miller, R. F., J. C. Chambers, L. Evers, C. J. Williams, K. A. Snyder, B. A. Roundy, and F. B. Pierson. 2019. The Ecology, History, Ecohydrology, and Management of Pinyon and Juniper Woodlands in the Great Basin and Northern Colorado Plateau of the Western United States. General Technical Report. Fort Collins, CO: Rocky Mountain Research Station, USDA Forest Service.</p> <p>This report provides an extensive review of the current knowledge surrounding pinyon and juniper woodlands prevalent in the Great Basin and Northern Colorado Plateau regions. The report discusses physical settings of the regions, including geology, topography, and soils, and then delves into detailed discussions on the ecology, life history, and biology of the woodlands. This includes an examination of climate impacts, species diversity, and ecological dynamics over the past 20,000 years, highlighting changes during the Holocene and the effects of recent human activities and disturbance. A significant portion of the synthesis is dedicated to ecohydrology, exploring how woodland structures influence hydrological processes, soil 25 conservation, and water resources. The final sections of the report focus on the management and restoration strategies employed over the years, assessing their effectiveness and the ecological outcomes of various interventions like mechanical tree removal and controlled burns. Throughout, the report emphasizes the importance of understanding the ecological functions, resilience, and the historical context of these woodlands to effectively manage and conserve them. It also discusses the challenges posed by climate change, invasive species, and fire. In summary, the report concludes that while tree removal can be an effective tool for managing pinyon and juniper woodlands, its success depends on a variety of ecological, geographical, and management factors. Effective tree removal requires careful planning, execution, and follow-up management to ensure that the ecological goals are met and adverse effects are minimized.</p> <p>The report also discusses the characteristics and ecological roles of old-growth woodlands, particularly in the context of their soil characteristics and the impacts of disturbances like drought and disease on these older stands. Old-growth woodlands are often associated with specific soil types that are less productive, such as those with shallow, rocky, or sandy compositions. These conditions can limit the density and productivity of the woodlands but also contribute to their unique ecological characteristics. The report also notes that old-growth stands are typically found on sites with restrictive soil layers, such as claypans or fractured bedrock, which can lead to shallow and transient soil moisture storage.</p>	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	<p>Noel, A. R., Shriver, R. K., Crausbay, S. D., & Bradford, J. B. (2023). Where can managers effectively resist climate-driven ecological transformation in pinyon–juniper woodlands of the US Southwest? <i>Global Change Biology</i>, 00, 1–15.</p> <p>This study leverages new demographic models to assess how climate change is expected to impact the population demographics of five pinyon or juniper tree species across the US West. It places these results within a climate adaptation framework to evaluate strategies for resisting, accepting, or directing ecological transformation. The authors find that two of the five studied species, <i>Pinus edulis</i> and <i>Juniperus monosperma</i>, are projected to experience significant population declines due to increased mortality and decreased recruitment rates under various climate futures. The paper concludes that ecological transformation in the warmer and drier pinyon-juniper communities of the southwest is projected to encompass 37.1%–81.1% of the sites, depending on future climate scenarios. Less than 20% of sites expected to transform away from pinyon-juniper have the potential to retain existing tree composition through density reduction. The study highlights the need for adaptive management strategies that consider the ecological and demographic realities of climate change impacts on these critical ecosystems.</p>	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	<p>Redmond, M.D., Alexandra K. Urza, and Peter J. Weisberg. 2023. “Managing for Ecological Resilience of Pinyon–Juniper Ecosystems during an Era of Woodland Contraction.” <i>Ecosphere</i> 14(5): e4505.</p> <p>Recent and projected woodland losses may have cascading ecosystem consequences, including potential reductions in water availability, altered energy balance, declines in tree-obligate wildlife species populations, and increases in invasive plant establishment. It is critical to manage for woodland resilience given the sensitivity of these species to future climate change and the critical function and ecosystem services these woodlands provide. Yet, managing for woodland resilience is challenging due to the wide array of knowledge gaps. Further, regional differences in species, soil, and climate mean that management recommendations may not be generalizable across ecoregions and in different woodland types. As a result, it is essential that scientists and managers use adaptive management approaches to iteratively improve the management of these critical ecosystems. This publication also recommends various best practices and likelihood of restoration success with varying degrees of confidence, based on different site conditions, desired outcomes, and existing monitoring data.</p>	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf

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Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	Redmond, M.D., Cobb, N.S., Miller, M.E. and Barger, N.N., 2013. Long-term effects of chaining treatments on vegetation structure in pinyon-juniper woodlands of the Colorado Plateau. <i>Forest Ecology and Management</i> , 305. This study examined the long-term vegetation and soil surface characteristic effects of tree reduction treatments involving chaining and seeding in pinyon-juniper woodlands of the Colorado Plateau. Treated areas had increased herbaceous cover and decreased tree cover, and the increase in herbaceous cover was primarily due to nonnative crested wheatgrass. Surface fuel loads were nearly twice as high in treated areas, potentially changing fire behavior and increasing habitat complexity. Treated areas also had higher bare mineral soil cover and lower biocrust cover, which impact soil erosional processes. Interestingly, treated areas had significantly less pinyon pine recruitment compared to untreated areas, while there was no change in Utah juniper recruitment. These results indicate that treated areas may become more Utah juniper dominated in the future due to increased establishment of Utah juniper compared to pinyon pine. While treatments were effective at reducing tree cover and increasing herbaceous cover, there were long-term (40 year) treatment effects on vegetation composition and ground cover that need to be taken under consideration when developing future management strategies. These findings highlight the importance of considering longterm vegetation dynamics when undertaking tree-reduction.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	Romme, William H.; Allen, Craig D.; Bailey, John D.; Baker, William L.; Bestmeyer, Brandon T.; Brown, Peter M.; Eisenhart, Karen S.; Floyd, M. Lisa; Huffman, David W.; Jacobs, Brian F.; Miller, Richard F.; Muldavin, Esteban H.; Swetnam, Thomas W.; Tausch, Robin J.; Weisberg, Peter J. 2009. Historical and modern disturbance regimes, stand structures, and landscape dynamics in pinyon-juniper vegetation of the Western U.S. <i>Rangeland Ecology and Management</i> . 62(3): 203-222. This synthesis paper provides a comprehensive review of the historical and modern disturbance regimes, stand structures, and landscape dynamics in pinyon-juniper vegetation across the Western United States. The authors examine the ecological variability within pinyon-juniper ecosystems, which include a mix of pinyons, junipers, shrubs, herbs, and soil organisms. They discuss three main types of pinyon-juniper vegetation: persistent woodlands, savannas, and wooded shrublands, each characterized by distinct ecological processes and disturbance regimes. The paper highlights the lack of frequent historical fires in persistent woodlands, suggesting that these areas were naturally resilient to fire disturbances due to their sparse understory and discontinuous canopy. In contrast, pinyon-juniper savannas, which feature a mix of trees and grasses, might have experienced low-severity fires that maintained tree densities before these regimes were disrupted by Euro-American settlement. Wooded shrublands are described as dynamic systems where tree densities fluctuate with climatic conditions and disturbances.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	Wirth C, Messier C, Bergeron Y, Frank D, Frankhänel A (2009). Old-growth forest definitions: a pragmatic view. <i>Ecological Studies</i> 209: 11-33. This paper discusses the challenges and limitations of defining old-growth forests. The authors review existing attempts to define old-growth forests, which typically use a combination of structural, successional, and biogeochemical criteria. Structural definitions focus on features like uneven-aged tree size/age distributions, presence of large dead wood, and pit-and-mound microtopography. Successional definitions emphasize the replacement of early-successional species by late-successional species in the absence of major disturbances. Biogeochemical definitions consider factors like nutrient cycling and productivity. The authors argue that a single, concise scientific definition of old-growth that encompasses the full spectrum of forest types is likely not possible. Structural indicators developed for temperate forests do not easily transfer to other biomes like boreal or tropical forests. Determining accurate tree ages is also methodologically challenging. The authors note that static structural definitions can also fail to capture the dynamic nature of forests shaped by recurring disturbances. The authors contend that a pragmatic, context-specific approach may be more useful than seeking a single overarching definition, focusing on the key processes and features that characterize old-growth in a given forest ecosystem.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Grand Canyon Trust	Mike Popejoy	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	Wozniak, S. S., E. K. Strand, T. R. Johnson, A. Hulet, B. A. Roundy, and K. Young. 2020. Treatment Longevity and Changes in Surface Fuel Loads after Pinyon-Juniper Mastication. <i>Ecosphere</i> 11: e03226. This paper investigates the long-term effects of mechanical mastication on surface fuel loads in pinyon-juniper woodlands. This study is significant for land managers aiming to reduce wildfire risks and promote understory vegetation growth by altering fuel compositions through mastication. The research was conducted across three study sites in Utah. The study meticulously measured changes in surface fuel components, including down woody debris, across different size classes, tree litter, duff, herbaceous, and shrub fuels over a 10-year period post-mastication. Additionally, the study assessed tree cover, density, and height as indicators of treatment longevity. Key findings from the study include a plea for integrated fire management strategies that consider the trade-offs between reducing canopy fuels and managing for the composition, quality, and health of ground-level fuels.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Friends of Nevada Wilderness	Shaaron Netherton	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	For effective planning of projects within the P-J woodland that encompasses the best practice to ensure that ecosystem's health and resilience as well as the same for it's floral and faunal inhabitants, the BLM should consider broadening their scope of research to cover all other species including pinyon- and juniper-obligates	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0ff4dpbu_document.pdf

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Friends of Nevada Wilderness	Shaaron Netherton	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	For at least seventy years, the Pinyon Jay population has declined at a rate that exceeds the decline of the greater sage-grouse for unknown reasons due to a lack of research (Boone, et. al., 2018). In fact, this significant, sustained decline of Pinyon Jays has been observed throughout all of its range, but especially, and most significantly within Nevada and west-central New Mexico (Boon, et. al., 2018). According to the Breeding Bird Survey-derived estimation of pinyon jay population decline, within the coming decades, it is reasonable to hypothesize that this species will fall below the threshold of viability and thus perish as a species (Boon, et. al., 2018). Meanwhile, climate change is excelling sustained drought that is causing die-off within the pinyon and juniper woodland which is thus receding in elevation forcing jays to occupy higher elevations from what they are known to previously occupy. On top of this layer exists wildland management practices that focus on removal of the pinyon and juniper woodland over hundreds of thousands of acres throughout the state, also largely at lower elevations. With a lack of knowledge regarding even why Pinyon Jays are declining (Boone, et. al., 2018), it would seem an appropriate course of action to stall, or at least reduce pinyon woodland removal until research can either dismiss such treatments as the cause of pinyon jay decline. Or, upon finding that this management practice is partly to blame, a revision on how and where public land managers treat for fuels reduction should be implemented	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf
Friends of Nevada Wilderness	Shaaron Netherton	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	Research is needed on Clark's Nutcracker, pinyon mouse, Juniper Titmouse, a host of insects, reptiles, and flora and biocrusts in Nevada regarding the mass removal of P-J woodlands.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf
Friends of Nevada Wilderness	Shaaron Netherton	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	More research is needed on the cause of grouse declines across the board, including the Gunnison sage-grouse which also is in steep decline. What effect does, and has livestock grazing had on this species in Nevada and beyond? Is there just cause for continuation of the P-J woodland removal at every site where sage-grouse exist and, in this question, acknowledge that in those areas, there are multiple other factors at play that appear to be under studied or lacking consideration at the expense of multiple other P-J dwelling species that are now knocking on the door for federal protection	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf
Western Watersheds Project	Laura Welp	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	Old Growth and Mature pinyon and juniper communities common on the Colorado Plateau are characterized by understories with well-developed intact biocrust in the understory and sparse herbaceous vegetation. Many of these are known from the Colorado Plateau (see, e.g., Colorado_Plateau_Pinyon-Juniper_Shrubland; Colorado_Plateau_Pinyon-Juniper_Woodland; Floyd et al. 1) but can also occur elsewhere. 2 Footnote 1 M. Lisa Floyd a,?,William H. Romme b, Dustin P. Hanna, David D. Hanna, 2016. Historical and Modern Fire Regimes in Piñon-Juniper Woodlands, Dinosaur National Monument, United States. Rangeland Ecology & Management http://dx.doi.org/10.1016/j.rama.2016.09.005 page 7 Footnote 2 Waichler, W.S., R.F. Miller, and P.S. Doescher 2001 Community characteristics of old-growth western juniper woodlands. Journal of Range Management 54: 518–527. Additionally, most field offices identify old growth with morphological growth characteristics. 3 However, these characteristics have not been systematically correlated with empirical data on age (S. Kitchen, Rocky Mtn Research Station Ecologist, ret. Personal communication). Many older trees do not conform to morphological characteristics. Identification of old growth sites also requires verification through tree ring data, either through coring or cutting “biscuits”. In our experience, these data are rarely collected prior to project implementation. Planning pinyon and juniper treatments without this information risks removal of valuable old growth trees that do not conform to morphological characteristics. Footnote 3 E.g., Tausch, R.J., Miller, R.F., Roundy, B.A., and Chambers, J.C., 2009, Piñon and juniper field guide: Asking the right questions to select appropriate management actions: U.S. Geological Survey Circular 1335, 96 p.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hx0jidqr7ab_document.pdf

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Western Watersheds Project	Laura Welp	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	<p>Biocrusts are important components of ecosystems, particularly on the Colorado Plateau, but also elsewhere within the p-j range. 5 Biocrust management is particularly important in the Four Corners area, where models indicate pinyon and juniper are the most vulnerable to a combination of warming and drying conditions, lower soil water availability, and management history. 6</p> <p>Footnote 5 Shinneman, D. J., & Baker, W. L. (2009) Environmental and climatic variables as potential drivers of post-fire cover of cheatgrass (<i>Bromus tectorum</i>) in seeded and unseeded semiarid ecosystems. <i>International Journal of Wildland Fire</i>, 18(2), 191-202. Footnote 6 Shriver, R.K., C.B. Yackulic, D.M. Bell, and J.B. Bradford. 2022. Dry forest decline is driven by both declining recruitment and increasing mortality in response to warm, dry conditions. <i>Global Ecol Biogeogr.</i> 31:2259–2269.</p> <p>This critical ecosystem component is rarely considered in planning treatments in the field, however. Field offices are not consistent in their management of biocrust, and some even have adopted assumptions about it that are unsupported by the science. For example, one of us attended a field trip on the Grand Staircase-Escalante National Monument to discuss a proposed treatment in mature pinyon juniper communities with well-developed crust. BLM staff dismissed impacts to biocrust because:</p> <p>1) although crust would be crushed and fragmented, the organisms were still there and hadn't been destroyed. This ignored the fact that the ecosystem services provided by biocrust require it to be intact to function best. 2) the herbaceous species in the seed mix also fix nitrogen and sequester carbon. Those species would replace biocrust in performing those ecosystem functions, so loss of biocrust was not important. In fact, this assertion is contrary to all research on biocrust.</p> <p>We mention this to illustrate the importance of formal education and training in this subject. We hope the IM and hopefully a subsequent technical reference might help fill this gap.</p>	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hx0jidqr7ab_document.pdf

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Western Watersheds Project	Laura Welp	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	<p>Arendt and Baker (2013) used General Land Office survey records as a historical dataset to compare to modern digital datasets for Dinosaur National Monument in Utah. They found declines of pinyon-juniper woodland of 3-7% over 90 years. Shorter natural and human-caused fire return intervals of 188-216 years appear to be driving this contraction. Cheatgrass invasion may also be moving parts of the woodland into earlier seral stages of sagebrush and grassland. The authors recommend direct control of cheatgrass, and not prescribed fire, to manage these areas. They also note that, "Spatially complex patterns of woodland stability, recovery, contraction, and expansion show that century-scale data are needed across large landscapes to discern net trends in landscape change needed for ecological restoration, management, and understanding impending future change."</p> <p>They conclude that, "The net decrease of woodland and increase of shrubland does not support past findings that pinyon-juniper is generally invading sagebrush shrublands of the western United States..." They critique other studies that posited pinyon-juniper expansion by using too limited a scale of landscape, or looking at changes in tree density and not geographic location of woodland-shrubland ecotones. Studies that depended on forensic evidence such as dead trees may be biased because that evidence may disappear at unknown rates. Some local expansions of pinyon-juniper woodland could be due to recovery from a fire, where seeds are cached by rodents or birds, or present in the soil. Animal dispersal agents would naturally revegetate pinyons and junipers into sagebrush areas recovering from fire. Climate change must also be considered in fire rotation studies, as well as expansions and contractions of woodland ecotones. Downward expansion of trees into sagebrush slopes is occurring in some sites studied in Utah, Nevada, and Idaho, but may be due to numerous factors such as heavy livestock grazing that reduced tree sapling competition with native perennial grasses and shrubs, or milder winters allowing trees to grow into toe slopes and basins. More study is needed about the soil characteristics, slope, aspect, and other abiotic habitat variables of these ecotones. Pinyons and junipers are highly adaptable to a wide range of habitat types, and this adds complexity to any claims of departure from an apparently very wide natural range of variation. Considerations should be given to data quality and uncertainty, and the short time frames of historic observations of long-lived trees. More research about stand structure, spatial extent of woodlands, and hypotheses that test climate, grazing, fire, invasive grasses, and other variables should be undertaken. Better research into landscape-scale patterns of expansion and contraction, steady states, and multi-century scales of time need to be done before sweeping generalizations can be made about local historical reference conditions.</p> <p>Healthy old-growth pinyon-juniper woodland in the Cherry Creek Range near Ely, Nevada, with an understory of sagebrush and native grasses and forbs. This is proposed for a 70,000-acre chaining and chainsawing "treatment." We contend this is old growth woodland and should be conserved.</p> <p>Bluebunch wheatgrass (<i>Agropyron spicatum</i>) in a dense old-growth pinyon-juniper woodland on an allotment grazed by cattle. Ely Field Office of Bureau of Land Management, Nevada. This woodland I has been approved for a chaining treatment to remove pinyonjuniper vegetation communities but this will also impact native grasses and forbs.</p> <p>Egan Valley past pinyon-juniper treatments are visible in the basin as all native vegetation is removed, including sagebrush, in order to seed a monoculture of crested wheatgrass in the valley for livestock forage.</p> <p>Crested wheatgrass (<i>Agropyron cristatum</i>) from Russia seeded into the treated basin.</p> <p>A monoculture of crested wheatgrass grazed by cattle has replaced all native sagebrush and pinyon-juniper vegetation communities on this treated basin. Egan Basin, Nevada. Water trough of an old tire. Arendt and Baker conclude: "Our results show that century-scale dynamics included much more than simply uniform woodland expansion, but rather, spatially heterogeneous expansion and contraction of several ecosystems, mediated by natural fire and human land uses. Pinyon-juniper expanded in some areas, often near ecotones, and contracted in others, where fires occurred. Pinyon-junipersagebrush ecotones were not historically maintained in fixed locations by fire, because fire was rare and spatially heterogeneous in sagebrush and pinyon-juniper. Areas of pinyon-juniper undergoing post-fire recovery appeared similar to expansion, which also occurred outward from ecotones, with contraction elsewhere. Overall, losses in historical pinyon-juniper, montane shrubland, and mature sagebrush have occurred, which will likely have a negative impact on this landscape's biodiversity, if continued indefinitely into the future."</p> <p>These complex patches of successional habitats need more study. It is our opinion that enough of these wildlife burn mosaics exist in Great Basin sagebrush and pinyon-juniper woodland habitats that no artificial treatments are needed.</p>	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hx0jidqr7ab_document.pdf

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Western Watersheds Project	Laura Welp	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	Wildfire burn scars on the Cherry Creek Range seen from Egan Valley, near Ely, Nevada. This is adjacent to a massive chaining project to remove similar pinyonjuniper woodlands. Western juniper communities form open woodlands or savannas in northeastern California on the Modoc Plateau, in adjacent northwestern Nevada, and into eastern Oregon. According to Sawyer et al. (2009), old growth Western junipers (Juniperus Wildfire burn scars on the Cherry Creek Range seen from Egan Valley, near Ely, Nevada. This is adjacent to a massive chaining project to remove similar pinyonjuniper woodlands. occidentalis) may reach an age of 3,000 years. Fire ecology involves medium- to high-density fire severity that burns through crowns and kills trees. The trees do not resprout, and only regrow from seed after many decades. Birds and mammals spread the cones and seeds. Associated plants include many shrubs such as big sagebrush (Artemisia tridentata), bitterbrush (Purshia tridentata), green rabbitbrush (Chrysothamnus viscidiflorus), curl-leaf mountain mahogany (Cercocarpus ledifolius), sticky currant (Ribes viscosissimum), and desert gooseberry (R. velutinum). Native bunchgrasses can form an important understory, including bluebunch wheatgrass (Agropyron spricatum), Cusick's bluegrass (Poa cusickii), Sandberg bluegrass (P. secunda), Thurber needlegrass (Stipa thurberiana), and Great Basin wildrye (Leymus cinereus) in moist spots. Numerous forbs also grow in this plant community, such as phacelias (Phacelia spp.), phlox (Phlox spp.), and blazing star (Mentzelia spp.). Ponderosa pines (Pinus ponderosa) and Jeffrey pines (P. jeffreyi) mix in at higher elevations. A unique juniper community in eastern Nevada that needs to be mapped and described is the "swamp cedars" community in basins such as in Spring Valley, NV. The cedars are actually Rocky Mountain junipers (Juniperus scopulorum) growing on the flat valley floor among sagebrush and ephemeral shallow marshes ("swamps"). The Swamp Cedar Area of Critical Environmental Concern (ACEC) managed by the Bureau of Land Management lies on a "perched water table," where seasonal wetlands and springs are common, and allowing a savanna of junipers to come down from their usual mountain habitats to grow on the valley floor. There is a lot of water in this basin, creating unique and local juniper communities.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hx0jidqr7ab_document.pdf
Lincoln County Regional Development Authority	Jeremy Drew	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	LCRDA views a distinct difference between historic / persistent woodland and expansion woodland and the management of each may be completely different. LCRDA would call the BLM's attention to the attached Position Paper by the Intermountain Society of American Foresters.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/bf0qib4iy85_document.pdf
Lincoln County Regional Development Authority	Jeremy Drew	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	LCRDA supports the use of ecological site descriptions developed by the Natural Resources Conservation Service (NRCS) and major land resource area descriptions that have been developed by Dr. Tamzen Stringham at the University of Nevada, Reno.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/bf0qib4iy85_document.pdf
Lincoln County Regional Development Authority	Jeremy Drew	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	LCRDA would call the BLM's attention to the information available online through the Nevada Pinyon-Juniper Partnership (rci-nv.com/nevada-pinyon-juniperpartnership). Remote sensing technologies could be implemented to determine where woodlands have encroached into other critical ecotypes such as aspen, mountain mahogany and riparian areas. Some of these interface areas may provide a good starting point for prioritizing treatments. Additionally, woodland areas near existing roads are a high priority as thinning around ignition sources is critical and would also allow in many cases for biomass utilization.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/bf0qib4iy85_document.pdf
Modoc County Planning Department	Sean Curtis	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	It is required under Council of Environment Quality Guidelines that Federal Land Management Agencies use "Best Available Science" while proposing and implementing Land Management activities. While there is no absolute definition of "Best Available Science", it is commonly understood that this means the current, most recognizably valid scientific information that is relevant to the specific ecological area under discussion. It is well documented that site responses can vary greatly across ecological types, under the same land management treatments. Future predicted responses to treatments will also vary based on the future climate scenarios analyzed.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/dc0viqf5amf_document.pdf?v=18857

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Modoc County Planning Department	Sean Curtis	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	Using the best available science, including intensive site-specific ecological analysis, with potential climate change included, the Sage Steppe Ecosystem Restoration Strategy (Strategy) Final Environmental Impact Statement was published in April 2008, with corresponding Records of Decision signed by the respective BLM and USFS signatories: Surprise Field Office, Alturas Field Office (now combined as the Applegate Field Office) Eagle Lake Field Office and the Modoc National Forest. Appropriate Plan Amendments were incorporated in the individual land management use plans. This FEIS covers approximately 6.5 million acres of the Sage Steppe Ecosystem in northeastern California and northwestern Nevada, which is becoming dominated by Western Juniper, for a number of reasons. This is primarily due to the lack of the natural restoration process of wildfire. Western Juniper was always an important component of these 6.5 million acres, but the change in composition overtime of Western Juniper has seriously affected this Sage Steppe Ecosystem, including the understory grass and form components, soil moisture, and wildlife habitat. The Strategy includes standards and guidelines that identify and direct careful management of mature and old-growth Western Juniper across the 6.5 million acres, including consideration of potential climate change in promulgating effective treatments. Although the Strategy was released over a decade ago, it is still considered a "gold standard" in Sage Steppe and Western Juniper Management, and ongoing research has validated that the standards and guidelines in this document continue to represent "Best Available Science" guiding state of the art management.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/dc0viqf5amf_document.pdf?v=18857
Modoc County Planning Department	Sean Curtis	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	There is no Pinyon-Juniper in the 6.5 million acre Strategy analysis area, and Western Juniper is recognized by the BLM inventory as a separate ecological forest type from Pinyon-Juniper. However, as can be the case, often when Federal Agencies take "broad brush" approaches to land management, critical ecological distinctions may get overlooked, and statutory language or National direction can inadvertently lump ecological types together. Therefore, we want to specifically advise the BLM that any guidance and/or direction on Pinyon-Juniper management must not include guidance and/or direction on Western Juniper ecosystem management.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/dc0viqf5amf_document.pdf?v=18857
White Pine County	Nichole Stephey	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	From the County's view there is a distinct difference between historic/ persistent woodland and expansion woodland and the management of each may be completely different. The County would call the BLM's attention to the attached Position paper by the Intermountain Society of American Foresters in this regard.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/jj05idq2pdo_document.pdf
White Pine County	Nichole Stephey	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	The County supports the use of ecological site descriptions developed by the Natural Resources Conservation Service (NRCS) and major land resource area descriptions that have been developed by Dr. Tamzen Stringham at the University of Nevada, Reno.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/jj05idq2pdo_document.pdf
White Pine County	Nichole Stephey	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	Remote sensing technologies could be implemented to determine where expansion, and in some cases persistent, woodlands have encroached into other critical ecotypes such as aspen, mountain mahogany and riparian areas. Some of these interface areas may provide a good starting point for prioritizing treatments.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/jj05idq2pdo_document.pdf
White Pine County	Nichole Stephey	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	The County would also suggest that new monitoring methods and information should not preclude the use of past data and knowledge. Adaptive management and past research of pinyon-juniper woodlands is critical to improving management actions going forward. Many of the new remote sensing and monitoring methods have not been fully proven nor ground truthed, so the knowledge of past researchers and practitioners also warrants a continued place at the decision table.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/jj05idq2pdo_document.pdf
N/A	Ella Rowan	Pinyon-juniper woodlands	Science and information regarding pinyon-juniper ecology	Using genetic mutation rates can help age trees. It may be worth looking into this to better understand juniper old growth characteristics.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/km0pi3wfmf_document.pdf
N/A	Karen Ramer	Pinyon-juniper woodlands	Wildlife habitat	Cutting some juniper trees improves the habitat for sagegrouse, deer, elk, and other wildlife	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/i20ji181njs_document.pdf
N/A	Rose Strickland	Pinyon-juniper woodlands	Wildlife habitat	We are told that 350 species are obligates of sagebrush ecosystems, but little to no information was presented on plant and animal species which are obligates of the Pinyon-Juniper woodland ecosystem. Also, how many of these species are threatened, endangered, or sensitive? What are these obligate and TES species? How can the impacts of the woodland removal projects be known and avoided, minimized or mitigated if we do not know the species being directly and indirectly impacted by tree removals?	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/dy09ihsn51p_document.pdf

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N/A	Rose Strickland	Pinyon-juniper woodlands	Wildlife habitat	John Boone of GBBO presented excellent information on Pinyon Jays - which he calls an ecotone species, due to their use of transitional habitats between sage grouse and P-J woodland ecosystems. There were no definitive answers yet on the cause of drastically declining Pinyon Jay populations in the last few decades. I don't remember if there was a question on the connection between Pinyon Pine declining production of pine nuts and declining Pinyon Jay populations?	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/dy09ihsn51p_document.pdf
N/A	Emilie Strauss	Pinyon-juniper woodlands	Wildlife habitat	An ecotone important to birds not mentioned in the workshop, (at least in the portions I heard) and also not in the MATURE AND OLD GROWTH FOREST: DEFINITION, IDENTIFICATION, AND INITIAL INVENTORY ON LANCE MANAGED BY THE FOREST SERVICE AND BUREAU OF LAND MANAGEMENT (USDA Forest Service 2023) is that zone between riparian and /or aspen groves located in pinyon-juniper woodlands. It is well-recognized that riparian habitats are critical for birds and many other wildlife species. I believe this ecotone deserves special recognition, especially where riparian abuts mature and old-growth forest. When birding the Great Basin, it is common to see birds somewhat dependent on riparian make frequent forays into the adjacent pinyon-juniper woodlands. It is apparent that there may not be enough arthropod prey within the aspens and cottonwoods to provision riparian bird species, especially since Great Basin riparian is often restricted to narrow linear strips. Conversely, birds that depend more on pinyon-juniper woodlands are often seen in riparian. I have, for example, often seen Western Tanagers emerge from the pinyon-juniper woodlands to drink at springs and streams. I respectfully suggest that riparian/pinyon-juniper woodland ecotone be added to classification of pinyon-juniper woodland ecosystems.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/c70ki708qji_document.pdf
N/A	Emilie Strauss	Pinyon-juniper woodlands	Wildlife habitat	During the workshop, there was discussion of the importance of pinyon-juniper woodland to avian species besides Pinyon Jay and Sage Grouse. I want to support that. Since the focus of the comments should be targeted on data rather than on management, I am including an observation of Evening Grosbeaks (not a rare or declining species yet as far as I know) foraging in the Bodie Hills in pinyon-juniper woodland. This species is always a thrill to see with their black and yellow plumage, large bills, and loud ringing vocalizations. From my 1993 notebook: Evening Grosbeaks (EVGR). 4/23/93--lower Bodie Hills in Mono Basin near Bridgeport Creek and Hector's Station--135+--ES. Very stormy afternoon with light snow falling. Observed continuous small groups of EVGR mostly flying overhead with all flying towards west calling with loud "choo" calls. Saw a few feeding on pinyon trees but they were very wary; spooked as I approached. Probably feeding on pinyons--fall 1992 was a very heavy nut year. They were mostly in small groups of 3 to 5 but I saw a few groups of about 25. I've never seen so many EVGR. "Gather in especially large flocks in winter--up to 300". Subsequently submitted to eBird: https://ebird.org/checklist/S175125506	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/c70ki708qji_document.pdf
Oregon Wild	Doug Heiken	Pinyon-juniper woodlands	Wildlife habitat	After more than a century of over-grazing and fire exclusion, juniper are expanding into new areas, and becoming more densely established, which poses a conservation conundrum for the imperiled sage grouse that prefer more open habitat. This has become another rationale for juniper removal, but not always well-founded when applied in areas that are not a high priority for sage grouse recovery.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/4g0qi270qkm_document.pdf
Friends of Nevada Wilderness	Shaaron Netherton	Pinyon-juniper woodlands	Wildlife habitat	Greater Sage-Grouse Habitat Improvement: The management practices that have been employed to stabilize the stubbornly declining population of Greater Sage-grouse in Nevada and beyond, along with the national politics, have contributed to preventing grouse from being listed as an endangered species. However, through the exhaustive, expensive efforts of removing P-J woodlands for the sake of spurring sagebrush ecosystems to expand back to their "historical" levels, the species has steadfastly remained a declining one.	https://scs-public.s3-us-gov-west-1.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf

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Friends of Nevada Wilderness	Shaaron Netherton	Pinyon-juniper woodlands	Wildlife habitat	<p>Mule Deer Habitat Restoration: The push has been focused on restoring our public lands to a “historical” level for the benefit of wildlife including, if not especially for greater sage-grouse and mule deer. However, mule deer in Nevada have never been at higher population densities until recently (Grayson, 2011). This species, in Nevada, has undergone a remarkable population increase over the past one hundred years (Grayson, 2011). Much of the reason for this population increase has been owed to the removal of P-J woodland during the mid and late 19th century and early 20th century for the sake of charcoal production, mine timbering, construction, and other anthropogenic activities during the mining boom period of the state which, in fact, was quite obviously not checked or balanced through environmental review. Therefore, with the observed increase of the Nevada mule deer population, wildlife managers came to realize the benefit of removal of this woodland and thus similarly came to realize the hindrance to their efforts offered by this woodland. Mule deer, along with elk, offer our state a financial cash crop. The Nevada Department of Wildlife offers more than 10,000 mule deer tags annually in Nevada at a cost of \$240 per tag with another 50,000 to 70,000 tag applicants. Stating 10,000 tags issued annually is a gross underestimation, but the point remains clear. At these low-ball numbers, the state is receiving an annual income on mule deer alone of between \$14.4 million and \$19.2 million.</p> <p>Mule deer population decreases (in recent years) were largely due to fire and drought affecting cover and forage, primarily sage and bitterbrush (media communication with Jon Ewanyk and KOLO News, 2023), but P-J woodland encroachment has had an overall negative effect at “an alarming rate.” For mule deer to step into the limelight with sage-grouse in being the focus of P-J woodland removal, the BLM should also consider the near and distant past with regard to mule deer population levels. This should also influence the BLM into which era of the past they wish to return conditions of our landscape to when stating “historical levels.” So, were mule deer held at low, localized population levels for much of the deep past and therefore should be now recognized as relatively stable and abundant? The archaeological record clearly portrays mule deer throughout the Great Basin as being a rare species on the table of prehistoric hunters (Grayson, 2011). For comparison, bighorn sheep and pronghorn are not rare in this context, but are relatively common additions to archaeological discoveries at camp and cooking sites throughout the region (Grayson, 2011). Greater Sage-grouse, however, were more common on the landscape and are notably in serious decline for multiple reasons, but are we prepared to sacrifice so much P-J woodland and their obligate faunal species for economical gain derived from mule deer?</p>	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpu_document.pdf
Friends of the Inyo	Allison Weber	Pinyon-juniper woodlands	Wildlife habitat	<p>Another matter of conservation concern and potential conflict with pinyon pine conservation, the Bodie Hills are the great stronghold for the Bi-state sage-grouse (BSSG), a distinct population segment of the Greater sage-grouse, which have been petitioned for protection under the Federal Endangered Species Act on and off for almost 20 years, during which time conditions and threats for both the distinct population segment and the Greater sage-grouse have only been amplified and worsened. BSSG populations continue to struggle across the board and all but the Bodie Hills stronghold population have seen continued long term losses. While the Bi-state sage-grouse Local Area Working Group (LAWG) has been working tirelessly to combine the efforts of agencies, conservationists, ranchers, concerned citizens, and local tribes towards the stewardship of the species, threats beyond the control of LAWG actions such as climate change and wildfires, habitat fragmentation, and development all continue, threatening to push the distinct population segment to extinction. While we support the continued stewardship and management of sagebrush ecosystems for the restoration of the BSSG, we will echo sentiments expressed in the workshop regarding the nexus of BSSG and pinyon conservation.</p>	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/110bipfcw75_document.pdf
Friends of the Inyo	Allison Weber	Pinyon-juniper woodlands	Wildlife habitat	<p>Firstly, pinyon tree removal has too often been applied without surgical consideration towards the best habitat for BSSG, leading to needless pinyon pine deforestation at a time when wildfire, development, and climate change are all affecting the life cycle and viability of pinyon pine.</p>	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/110bipfcw75_document.pdf
Saratoga-Encampment-Rawlins Conservation District, Wyoming	Leanne Correll	Pinyon-juniper woodlands	Wildlife habitat	<p>During the Management and Conservation of Pinyon and Juniper Woodlands recent public workshop (hereafter “Workshop”) at Sparks, Dr. Peter Weisberg stated there is huge regional variation in types of pinyon-juniper ecosystems. Within the SER CD boundaries, we do not have any pinyon but have areas of juniper woodlands. Junipers are found in many transition areas between the conifer forests and the lower elevation shrublands. Most of the junipers are located on BLM and private lands scattered across the District. More and more, junipers are encroaching into the sagebrush steppe and rangeland ecosystems.</p> <p>This expansion of juniper is a threat to the sagebrush ecosystem and specifically greater sage-grouse and all the sagebrush obligate species. As a result, greater sage-grouse habitat is degraded, and wildfire risk increased.</p>	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/ld09id5vh7_document.pdf
Rangelands Restoration Services LLC	Dana Johnson	Pinyon-juniper woodlands	Wildlife habitat	<p>My personal observations have also concluded the ability of lop and drop and chainings to impact wildlife movements particularly big game migration and travel corridors. Elk, mule deer, antelope and sheep avoid and do not like walking through lop and drop and chaining debris fields and will find alternate routes around some of these areas.</p>	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/qn0ti2i2hot_document.pdf
N/A	Rose Strickland	Pinyon-juniper woodlands	Wildlife habitat	<p>Also, are the agencies using the P-J Working Group Conservation Strategy? Do agencies check whether project areas are being used by Pinyon Jay for nesting before approving a project site?</p>	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/dy09ihsn5lp_document.pdf

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Wyoming Department of Agriculture	Michelle MacDonald	Pinyon-juniper woodlands	Wildlife habitat	Even more contradictory, the BLM's Technical Reference 6710-1, Sage-Grouse Habitat Assessment Framework Form S-2 identifies habitat for sage-grouse as unsuitable when trees are within the vicinity of the lek site. Local, state, and federal partners will utilize these forms to assist in identifying where to appropriate funding to remove conifers such as pinyon and juniper. Yet, the BLM is now proposing to retain conifers with the goal of increasing old-growth forests.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/v80ei3c25mz_document.pdf
N/A	Vicky Njust	Livestock grazing	Livestock grazing	It would be considered a travesty to destroy this species to make room for grazing. With what we now know about the high cost of meat consumption to the planet, the animal and ourselves we now know that cutting down forests to allow for more grazing is a very bad choice. Just look at the damage to the rain forest-our planet's respiratory system. Please don't allow special interest groups to push you into bad choices. You are the guardians of the forests, and they and we rely on you to make protective choices.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/6n0vi0oidf3_document.pdf
Grand Canyon Trust	Mike Popejoy	Livestock grazing	Livestock grazing	We also recognize that as climate conditions worsen and western ecosystems become drier and less productive there will be increasing pressure to expand forage for livestock. The BLM must proactively address this issue. Cutting down pinyon-juniper might seem like a tempting shortterm option for supporting livestock grazing, but this approach only worsens an already dire situation. Pinyon and juniper woodlands can serve as significant carbon sinks (Fernandez et al. 2013). In contrast, livestock production has long been identified as a significant source of global greenhouse gas emissions. The Biden Administration has taken important and meaningful strides to address climate change, and the BLM should support those efforts in the context of pinyon-juniper management by disallowing harvesting of old-growth to support enhancement of livestock forage.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/lu09ic64a6q_document.pdf
Friends of Nevada Wilderness	Shaaron Netherton	Livestock grazing	Livestock grazing	What effect does livestock grazing have on Greater Sage-grouse?	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf
Friends of Nevada Wilderness	Shaaron Netherton	Livestock grazing	Livestock grazing	Have cattle or sheep been removed from one area and then grouse populations monitored as a result of removing them? Riparian areas critical for the survival of young birds are often decimated (either in water availability or plants and insects required by grouse chicks) by livestock remaining in these well watered areas that grouse depend on.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf
Friends of Nevada Wilderness	Shaaron Netherton	Livestock grazing	Livestock grazing	What impacts are livestock grazing having on Sage-grouse lek or nesting sites?	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf
Western Watersheds Project	Laura Welp	Livestock grazing	Livestock grazing	It is important to recognize that many pinyon-juniper vegetation projects are implemented to provide forage for livestock, although recently this has been subsumed under the term "habitat improvement" for wildlife.. Despite this, there have been very few studies documenting the short- and long-term effects of livestock on pinyon-juniper woodlands of any age. 7 Footnote 7 Hartsell et al.) Since mature and old growth woodlands communities often have sparse understories, livestock are not attracted to those areas, and it may seem like impacts in old growth communities is not significant or relevant to this upcoming IM. The public workshop on pinyon and juniper management in Sparks Nevada had several presentations on model-based predictions for p-j old growth in the future. However, in this time of climate upheaval, the younger stands with more forage on for example the northern/cooler/wetter places to which trees may migrate may become old growth stands. Sites that are characterized by Phase I or II may become Phase III mature old growth if they are managed for that value. This includes managing livestock in those younger communities to promote site progression to old growth. This is a significant data gap. This information is critical to understanding pinyon and juniper management overall, but also in protecting and maintaining old growth. It would be remiss of the IM not to address the need for current livestock grazing management to adapt to promote old growth pinyon and juniper. Since we also recognize the political implications of discussing livestock, but increased research into the post-treatment effects of livestock may be less controversial. Therefore, we recommend that the IM promote more research. Funding from the Infrastructure Improvement Act for treatments should include mandatory research into old growth management and long-term post-treatment research.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hx0jidqr7ab_document.pdf
Wyoming Department of Agriculture	Michelle MacDonald	Livestock grazing	Livestock grazing	The WDA is currently reviewing a project in Wyoming where the agency is analyzing the cumulative impacts to "potential" old-growth pinyon and juniper. One of the identified impacts in the analysis is livestock grazing. Based on this example, we believe it's imperative to comment on this proposal and clearly oppose any reference or inclusion of livestock grazing impacts to old-growth forests on either BLM or US Forest Service lands.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/v80ei3c25mz_document.pdf

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Wyoming Department of Agriculture	Michelle MacDonald	Livestock grazing	Livestock grazing	Livestock grazing has occurred in the West on public lands for well over 100 years. Old-growth forests and their ecosystems have developed simultaneously with many activities, including but not limited to livestock grazing. In fact, old-growth forests may have benefited from livestock grazing by reducing fine fuels and subsequent catastrophic wildfires. In contrast, WDA has reviewed numerous other federal projects and decisions analyzed under NEPA where livestock grazing was deemed a causal factor for increasing the density and expansion of conifer stands. The polarized analysis and final decisions indicate livestock grazing is the scapegoat for all resource impacts and the BLM and US Forest Service needs to remove it as a general overarching comment in these NEPA projects.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/v80ei3c25mz_document.pdf
N/A	Kathy Gregg	Pinyon-juniper woodlands	Threats to pinyon-juniper woodland health	Various kinds of exploitation continues and especially in burned areas of forest where heavy grazing by domestic livestock occurs it is pastoral activity - fire and teeth - that are the most consistently destructive human activity.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/cx09imm161d_document.pdf
N/A	Kathy Gregg	Pinyon-juniper woodlands	Threats to pinyon-juniper woodland health	Large-scale, long-term ecological destruction is totally transforming the Juniper forest while many other habitats have already been degraded or lost. All of our woodlands have been influenced by humans in some way and the ecological effects have been complex and varied	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/cx09imm161d_document.pdf
N/A	Kathy Gregg	Pinyon-juniper woodlands	Threats to pinyon-juniper woodland health	When a habitat is fragmented, as is now the case, the species within the isolated patches become more vulnerable to inbreeding and disturbance such as fire and disease. Connectivity is essential for the robustness of an ecosystem.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/cx09imm161d_document.pdf
Lincoln County Regional Development Authority	Jeremy Drew	Pinyon-juniper woodlands	Threats to pinyon-juniper woodland health	LCRDA found the list of threats presented at the workshop to match its observations. Largescale catastrophic fire, especially in overstocked woodlands, is by far the most imminent and urgent threat to pinyon-juniper ecosystems. Disease and drought follow as major threats. All three have a direct link to woodland density.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/bf0qib4iy85_document.pdf
N/A	Sandra Less	Pinyon-juniper woodlands	Threats to pinyon-juniper woodland health	The main threats to juniper here in Oregon are: juniper removal to benefit livestock, weeds that cause uncharacteristic fire, and climate change. Agencies should do more to address root causes, by excluding livestock and reintroducing characteristic fire, instead of relying on ecologically inappropriate half-measures, such as juniper removal.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/s60rih0j19v_document.pdf
N/A	Paul Daniello	Pinyon-juniper woodlands	Threats to pinyon-juniper woodland health	Prior misguided management practices by your agencies have dramatically changed the landscape. Mature and old-growth juniper populations have been destroyed to open more range lands to livestock. At the same time, fire exclusion has allowed younger stands of juniper to expand into new areas, impacting important conservation work like the recovery of the greater sage grouse.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/ep0xiieo7k0_document.pdf
Oregon Wild	Doug Heiken	Pinyon-juniper woodlands	Threats to pinyon-juniper woodland health	The main threats to juniper and rangeland ecosystems are: livestock grazing, weeds (especially annual grasses which cause uncharacteristic fire), climate change, and sometimes the agencies' own misguided juniper removal programs. USGS says, "This woodland expansion is largely a result of a combination of fire suppression and overgrazing. These factors lead to a decline of browse and grass species that competitively exclude juniper and provide the fuels to carry fires that restrict junipers to rocky sites (Burkhardt and Tisdale 1976)." USGS, Status and Trends of the Nation's Biological Resources, Great Basin-Mojave Region. http://web.archive.org/web/20060216143536/http://www.ccsn.nevada.edu/science/Charlet/GRE-AT-BN.PDF . See also, Romme et al. 2008. Historical and Modern Disturbance Regimes, Stand Structures, and Landscape Dynamics in Piñon-Juniper Vegetation of the Western U.S. Colorado Forest Restoration Initiative. https://web.archive.org/web/20150519175325/http://oregonstate.edu/dept/range/sites/default/files/Synthesis_on_P-J_Woodlands.pdf , https://cfri.colostate.edu/wpcontent/uploads/sites/22/2018/03/Romme_DisturbanceRegimes_Report.pdf .	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/4g0qi270qkm_document.pdf
Friends of Nevada Wilderness	Shaaron Netherton	Pinyon-juniper woodlands	Threats to pinyon-juniper woodland health	There is an increasingly growing level of understanding of the complexity of mature and old growth pinyon-juniper woodlands. However, along with this growing level of understanding exists an increasingly growing realization of how much we still do not know regarding the direct and indirect effects of pinyon-juniper woodland removal. There is a long history of extensive pinyon-juniper woodland removal in Nevada over the past decades with no or very limited monitoring of impacts. Thus, we support the concerns of the conference speakers, particularly scientists, who noted how little research has been completed on the importance of these woodlands. We are concerned over the habitat impacts for multiple pinyon- and juniper-obligate species, the true effects of these actions are yet to be either known nor fully researched, that over the past several decades have been widely reported in varying levels of population decline. It is also concerning that researchers noted that P-J forests are contracting in many areas of their range due to threats from climate change and anthropogenic disturbances.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf

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Friends of Nevada Wilderness	Shaaron Netherton	Pinyon-juniper woodlands	Threats to pinyon-juniper woodland health	Dr. Bob Shriver's presentation used FIA data to look at mortality and recruitment. He noted that four of the five species of pinyon and juniper are experiencing population decline to some degree for multiple reasons. Dr Shriver noted: "Tree establishment rates are currently at their lowest level in the last 400 years (since the 1600s)." Looking to the future, Dr. Shriver stated "increasing carbon emissions will contribute to these population declines. No species will see long-term improvement within their current range, though there will exist some potential for migration, or range movement due in part to wetter and cooler conditions than currently exist which are favored by these species." Similarly, in their 2023 paper, Redmond, Urza, and Weisberg note that P-J woodlands "have experienced extensive tree die off over the past several decades while simultaneously under-going expansion in other portions of their range." Again, this effect is largely due to a shift from ideal to unfavorable climatic conditions in P-J woodlands that are becoming increasingly xeric.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf
Friends of Nevada Wilderness	Shaaron Netherton	Pinyon-juniper woodlands	Threats to pinyon-juniper woodland health	Dr. Weisberg's research in Nevada clearly outlines that in many regions where P-J woodlands have been thought to have expanded, the reality too often is in fact that these woodlands are reforesting following historic mass tree removal for charcoal production, mine timbers, fuel, construction materials harvesting, etc. Dr. Weisberg and others have done extensive research on this topic and emphasized that it is not difficult for researchers to identify repopulation as opposed to new expansion, a topic sparsely evident within state and federal land management plans regarding the practice of "restoring" our public lands to a "historical" level of this woodland. We support researchers' concerns that we need to better understand complex P-J woodland dynamics and not assume that "new" expansion is necessarily unnatural and therefore harmful to desert and montane ecosystems in Nevada.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf
Friends of Nevada Wilderness	Shaaron Netherton	Pinyon-juniper woodlands	Threats to pinyon-juniper woodland health	In Nevada the threat to our mature and old growth pinyon and juniper woodlands appears to be primarily from past and current BLM projects aimed at reducing the woodlands.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf
Friends of Nevada Wilderness	Shaaron Netherton	Pinyon-juniper woodlands	Threats to pinyon-juniper woodland health	Large-Scale "Vegetation Treatments," such as Tree Removal, Chaining & Mastication: For over seventy years (Vernon, et al., 2001) pinyon-juniper woodlands in Nevada have been managed through the practice of removing trees by multiple methods (i.e., anchor or 'Ely' chaining, masticating, lop-andscatter, prescribed and controlled burning, cabling, masticating, bulldozing, chemical treatments, windrowing, etcetera) for multiple reasons including increasing forage for domestic livestock grazing and harvestable wildlife, wildland fire mitigation or fuels reduction and, more recently, greater sagegrouse habitat improvement (or health of sagebrush ecosystems) (Boone, et. al., 2018, Vernon, et al., 2001, Brunkhorst and Wright, 2020).	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf
Friends of Nevada Wilderness	Shaaron Netherton	Pinyon-juniper woodlands	Threats to pinyon-juniper woodland health	Preservation and Enhancement of Nevada's Sagebrush Ecosystem: There has been extensive pinyon and juniper removal throughout Nevada over the years with little regard to the potential effects. Some of these impacts include increased cover and density of introduced exotic plants (i.e., cheatgrass) (Shinneman et. al., 2021). While the removal of P-J woodlands is aimed at, and may often encourage enhancement and improvement of sage and grassland communities, not all treatment sites hold positive results (Shinneman et. al., 2021). Too often negative trends arise from the prescribed treatment of P-J woodlands including taxonomic/functional groups (including some sage-dependent species) experiencing substantial declines or deleterious effects (Shinneman et. al., 2021). More remarkable, considering the multitude of resources expended on the removal of this woodland is the lack of research before, during and after treatments are conducted. As Shinneman, et. al. (2021) stated, "even when pinyon-juniper removal accomplishes near-term goals, the long-term responses of plant communities and wildlife species are understudied and this often remains uncertain." Shinneman, et. al. (2021) goes on to state that "such variability in response and uncertainty regarding duration of treatment effects are problematic for land managers who wish to thin or remove pinyon and juniper trees to protect biological and environmental resources from consequences of woodland expansion." To what degree is analysis of specific sites conducted prior to sagebrush ecosystem enhancement projects by means of P-J woodland removal, and is that analysis available to either the public or for those who apply for access to review it? Is the BLM focusing their efforts solely on Greater Sagegrouse or other sagebrush obligate species such as Sage Thrasher, Brewer's Sparrow, Sagebrush Sparrow?	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf
Friends of Nevada Wilderness	Shaaron Netherton	Pinyon-juniper woodlands	Threats to pinyon-juniper woodland health	Climate change has led to increases in scale and intensity of wildland fire, driven largely by continued warming/drying conditions. Introduced non-native species such as cheatgrass have accelerated this threat to levels that are either complicated and intensely difficult to impossible to mitigate. The threat of this increased threat of wildland fire within the P-J woodland is only accelerated with the removal of that woodland, regardless of the means by which it is removed. Identification of the threats to this ecosystem, though, must begin with more in-depth research on the effects from BLM management policies, such as its removal, on the host of species that depend upon it. One consideration we suggest is the amount, volatility, and duration of fuels left after a treatment is conducted at a site. The goal at such a project site being sage-grouse or mule deer habitat improvement or fuels reduction should be cause for concern over the amount of dead, downed wood left scattered across that landscape.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf

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Western Watersheds Project	Laura Welp	Pinyon-juniper woodlands	Threats to pinyon-juniper woodland health	<p>Discussion about declining pinyon and juniper populations often stress the role of drought, climate change, and wildfire in the decline of these species. We submit that the millions of acres of tree removal projects that have never considered mature and old growth trees also constitute a significant impact. WWP staff have read many EAs across the states we work in (Oregon, Idaho, Wyoming, Colorado, Utah, California, Nevada, Arizona, and New Mexico). Some EAs have recently begun to mention the need to avoid old growth, but others do not. It varies widely not just by state but by field office. We hope this IM will rectify that.</p> <p>The photos below compare old growth pinyon and juniper woodland crust development in untreated and treated sites adjacent to one another. GSENM, untreated, showing developed biocrust, and little understory Kanab FO, mastication treatment. Photo taken from same location as above photo, only looking north toward treatment. This area had been the same dense pinyonpine with intact biocrust. WWP coring projects of pinyon pine within a mile of the photopoint on the GSENM side of the road found trees were over 150 years old in sits with old growth characteristics. No ages were sampled by the BLM prior to this treatment to avoid old growth trees. It is likely old growth trees were removed during this -acre project.</p>	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hx0jidqr7ab_document.pdf
Western Watersheds Project	Laura Welp	Pinyon-juniper woodlands	Threats to pinyon-juniper woodland health	<p>The IM should set guidelines for reducing risk of exotic species spread. For example, if exotic species cover is high, the likelihood that they will re-establish in pj communities after treatment is high. The IM should mandate no treatments on old growth pinyon and juniper sites that are above a certain percentage of exotic cover. The risk of increasing exotics through surface disturbance is too high, particularly as the success of seeding establishment is too uncertain given exigencies of climate change and widespread land management practices that do not manage for longterm protection of seedings. but no provision was made for retaining biocrust, mosaics of variable aged trees, feathering of ecotones between different communities. Seeded grasses returned (so did exotics) Forbs did not. The project is considered a success by the BLM. There have been efforts to extend this kind of treatment into GSENM (see Skutumpah project) that were only stopped by litigation.</p>	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hx0jidqr7ab_document.pdf
Friends of the Inyo	Allison Weber	Pinyon-juniper woodlands	Threats to pinyon-juniper woodland health	<p>Pinyon pine reach sexual maturity around 75 to 100 years of age, only beginning to produce cones around 35 years of age, making these forests, and the many people and wildlife that rely on them for food, shelter, and more, especially vulnerable to stand disturbances. Humans, deer, bear, and bighorn sheep thrive on the pine nuts which are rich in protein and fats, as do birds such as Steller's Jays, Clark's Nutcrackers, and, a topic of conservation concern at the May 8th and 9th workshop: the Pinyon Jay. The pinyon jay population has shrunk by an estimated 85 percent since 19701 , with a driving cause suspected to be widespread destruction of pinyon-juniper forests on public lands. In future workshops, presentations, and other information gathering formats hosted by the federal government, we would like to see this destruction, and the management techniques that are causing the destruction, (such as clearing for development, including mining, and chaining for livestock grazing), discussed further as part of not only the larger context of threats to pinyon juniper woodlands, but also as part of the decision making of local federal government representatives.</p> <p>Footnote 1 Partners in Flight Database</p>	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/110bipfcw75_document.pdf
Friends of the Inyo	Allison Weber	Pinyon-juniper woodlands	Threats to pinyon-juniper woodland health	<p>One threat that has been able to run rampant in pinyon ecosystems, especially in Nevada, is mining and mineral exploration. While there is no active mineral exploration on the California side of the Bodie Hills, there are several projects threatening pinyon ecosystems on the Nevada side, and it is well known that mineralization occurs on both sides of the state line. There are currently three active gold exploratory drilling projects that have been approved by the United States Forest Service in the Bodie Hills: the Bald Peak, Sawtooth Ridge, and Spring Peak projects, and one that is in the process of being approved, the Polaris project. Another exploratory drilling project on Section 16 State Lands on the Dry Lakes Plateau in the Bodie Hills is on hold for one more year due to a State Lands Commission mineral exploration moratorium. It would be the fifth drilling project in the Bodie Hills. Headwater Gold, the company drilling at Spring Peak, is also currently filing claims on both the California and Nevada sides of Dome Hill and has submitted a Plan of Operations to the Forest Service for their Lodestar project to drill on the south slope of the Aurora Crater. (2) The Sawtooth Ridge exploratory drilling project was approved to clear cut 700 pinyon trees alone, and our preliminary estimates for the three drilled sites, (of the 13 approved), point to the number of trees removed being even higher. These drilling projects were all approved as Categorical Exclusions and any one or all of these exploration projects could become an active mine in 20 years, leading to further pinyon pine and juniper woodland deforestation.</p> <p>Footnote 2 Headwater Gold, Dome Hill https://headwatergold.com/dome-hill-nevada</p>	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/110bipfcw75_document.pdf
Lincoln County Regional Development Authority	Jeremy Drew	Pinyon-juniper woodlands	Threats to pinyon-juniper woodland health	<p>LCRDA does not find restoration treatments to be a major threat to pinyon-juniper ecosystems. In fact, these treatments, when developed correctly, alleviate the three major threats.</p>	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/bf0qib4iy85_document.pdf
White Pine County	Nichole Stephey	Pinyon-juniper woodlands	Threats to pinyon-juniper woodland health	<p>The County found the list of threats presented at the workshop to match its observations. Largescale catastrophic fire, especially in overstocked woodlands, is by far the most imminent and urgent threat to pinyon-juniper ecosystems. Disease and drought follow as major threats. All three have a direct link to woodland density.</p>	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/jj05idq2pdo_document.pdf

Agency or Organization Name	Commenter Name	Comment Topic	Comment Subtopic	Comment Text	Full Submission Text
White Pine County	Nichole Stephey	Pinyon-juniper woodlands	Threats to pinyon-juniper woodland health	The County does not find restoration treatments to be a major threat to pinyon-juniper ecosystems. In fact, these treatments, when developed correctly, alleviate the three major threats listed above.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/ij05idq2pdo_document.pdf
N/A	Rose Strickland	Workshop	Workshop on management and conservation of pinyon and juniper woodlands	It was interesting that the workshop participants quickly pivoted from initial discussions of preserving old growth forests to concerns about current agency management of P-J woodlands. There were multiple questions about whether current P-J removal projects were considered a threat to the woodlands and their resiliency by the panelists, but there were no yes or no answers.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/dy09ihsn51p_document.pdf
N/A	Rose Strickland	Workshop	Workshop on management and conservation of pinyon and juniper woodlands	The Q&A sessions and discussions by participants of their concerns were also excellent, proving the need for more opportunities for continuing discussions of woodland management issues by all stakeholders. Public input into agency woodland projects was not allowed during the COVID years (avoiding crowded meetings) and by the agencies' use of categorical exclusions in the NEPA processes to exclude public participation. As a result, the concerns of the public, including conservationists and tribal communities, were ignored in project decisions and resulted in controversy and legal actions. I hope these workshops indicate a sea change for a more inclusive approach to project planning and policy. Without a new approach, the participants told the agencies and researchers that we would not be able to come to consensus on woodland management nor develop the trust to be able to collaborate in woodland management planning and implementation.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/dy09ihsn51p_document.pdf
N/A	Rose Strickland	Workshop	Workshop on management and conservation of pinyon and juniper woodlands	Another topic for future workshops is more information on weed impacts of P-J removal projects, how to prevent worsening weed infestations by these projects and how to prevent the otherwise inevitable wildfires fueled by invasive weeds in P-J woodlands.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/dy09ihsn51p_document.pdf
Friends of Nevada Wilderness	Shaaron Netherton	Workshop	Workshop on management and conservation of pinyon and juniper woodlands	Thank you so much for the opportunity to provide comments. Several of my Board of Directors and staff either attended the Management and Conservation of Pinyon and Juniper Woodlands workshop in Reno or watched it via zoom. We want to thank the Bureau of Land Management and Forest Service for hosting such a well done workshop. As an NGO that partners with the BLM on public land stewardship we were very grateful for the ability to attend and hear the presentations. The staff putting on the conference did an excellent job of presenting and reviewing current research on pinyon-juniper (PJ) woodlands and incorporating too-often unheard Native perspectives from multiple representatives of Nevada Tribes. We feel that the discussions on mature and old growth pinyon-juniper forests were consistent with BLM's recently finalized Public Land Rule and we look forward to the BLM issuing more detailed guidance on how both that rule and take-aways from the conferences will be implement on the ground, especially here in Nevada.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/hv0fif4dpbu_document.pdf
Lincoln County Regional Development Authority	Jeremy Drew	Workshop	Workshop on management and conservation of pinyon and juniper woodlands	There was a general lack of discussion around how forest densities impact woodlands from a disease, drought, and resilience / resistance standpoint. The Ely BLM Resource Management Plan correctly identified much of the pinyon-juniper woodlands in Lincoln County as being "overmature", and this is a major concern that must be addressed.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/bf0qib4iy85_document.pdf
Lincoln County Regional Development Authority	Jeremy Drew	Workshop	Workshop on management and conservation of pinyon and juniper woodlands	There was also little discussion about crossing ecological thresholds, especially from Phase 2 to Phase 3 where the understory tends to be lost, resulting in a woodland that is less resistant to change.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/bf0qib4iy85_document.pdf

Agency or Organization Name	Commenter Name	Comment Topic	Comment Subtopic	Comment Text	Full Submission Text
Lincoln County Regional Development Authority	Jeremy Drew	Workshop	Workshop on management and conservation of pinyon and juniper woodlands	LCRDA noted both Dr. Robin Tausch and Dr. Rick Miller in the audience, but not listed as presenters. This was unfortunate given the combined century of experience in pinyon and juniper research those two gentlemen possess.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/bf0qib4iy85_document.pdf
Lincoln County Regional Development Authority	Jeremy Drew	Workshop	Workshop on management and conservation of pinyon and juniper woodlands	LCRDA appreciates the opportunity to participate in the recent workshop. These comments are intended to support the continued active management of pinyon-juniper ecosystems in balance with other critical ecosystem services. LCRDA supports the actions of its local BLM and Forest Service Offices and asks BLM and Forest Service Leadership to support rather than curtail their efforts.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/bf0qib4iy85_document.pdf
White Pine County	Nichole Stephey	Workshop	Workshop on management and conservation of pinyon and juniper woodlands	There was a general lack of discussion around how forest densities impact woodlands from a disease, drought, and resilience/ resistance standpoint. The Ely BLM Resource Management Plan correctly identified much of the pinyon-juniper woodlands in this County as being "overmature", and this is a major concern that must be addressed.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/ji05idq2pdo_document.pdf
White Pine County	Nichole Stephey	Workshop	Workshop on management and conservation of pinyon and juniper woodlands	There was also little discussion about crossing ecological thresholds, especially from Phase 2 to Phase 3 where the understory tends to be lost, resulting in a woodland that is less resistant to change.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/ji05idq2pdo_document.pdf
White Pine County	Nichole Stephey	Workshop	Workshop on management and conservation of pinyon and juniper woodlands	The County noted both Dr. Robin Tausch and Dr. Rick Miller in the audience, but not listed as presenters. This was unfortunate given the combined century of experience in pinyon and juniper research those two gentlemen possess.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/ji05idq2pdo_document.pdf
White Pine County	Nichole Stephey	Workshop	Workshop on management and conservation of pinyon and juniper woodlands	Again, the County appreciates the opportunity to participate in the recent workshop. These comments are intended to support the continued active management of pinyon-juniper ecosystems in balance with other critical ecosystem services. The County supports the actions of its local BLM and Forest Service Offices and asks BLM and Forest Service Leadership to support rather than curtail their efforts.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/ji05idq2pdo_document.pdf

Agency or Organization Name	Commenter Name	Comment Topic	Comment Subtopic	Comment Text	Full Submission Text
Utah Public Lands Policy Coordinating Office	Sindy Smith	Workshop	Workshop on management and conservation of pinyon and juniper woodlands	<p>On May 8th and 9th, the Bureau of Land Management (“BLM”) hosted a “workshop on management and conservation of pinyon and juniper woodlands”¹ in Sparks, Nevada (the “Workshop”). This Workshop was in response to President Biden’s Executive Order 14072, dated April 22, 2022, and entitled “Strengthening the Nation’s Forests, Communities, and Local Economies”² (the “Executive Order” or “EO”). The Executive Order directs the executive branch to create policies “to conserve America’s mature and old-growth forests on federal lands and directs BLM and U.S. Forest Service to define and inventory those forests, analyze threats to them, and develop policies to institutionalize climate-smart management and conservation strategies, with robust opportunity for public comment.”³</p> <p>Footnote 1: BLM, Workshop on management and conservation of pinyon and juniper woodlands, Bureau of Land Management, available at: https://www.blm.gov/workshop-management-and-conservation-pinyon-and-juniperwoodlands (2024). Footnote 2: 87 FR 24851 Footnote 3: BLM, Workshop on management and conservation of pinyon and juniper woodlands, Bureau of Land Management, available at: https://www.blm.gov/workshop-management-and-conservation-pinyon-and-juniperwoodlands (2024).</p> <p>The State sent representatives to attend the Workshop where the BLM and U.S. Forest Service (“USFS”) presented the initial inventory called for in the EO. It was highlighted that “the initial inventory identified 24 million acres of mature and old-growth pinyon and juniper woodlands on federal lands, making the pinyon-juniper group the most abundant old-growth forest type on Forest Service and BLM lands. of mature and old-growth forests in April 2023.”⁴ The State of Utah (“State”), through its Public Lands Policy Coordinating Office (“PLPCO”), in collaboration with the Utah Division of Wildlife Resources (“DWR”), has reviewed the EO and related materials presented at the Workshop. The State and DWR appreciate the opportunity to comment on the BLM’s and USFS’s management and conservation planning efforts in pinyon and juniper ecosystems.</p> <p>Footnote 4: Id</p>	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/w508i6rifnw_document.pdf
Rangelands Restoration Services LLC	Dana Johnson	Workshop	Workshop on management and conservation of pinyon and juniper woodlands	I find these workshops very informative and helpful and hope they will continue on an annual basis.	https://scs-public.s3-us-gov-west-l.amazonaws.com/env_production/oid365/did200110/pid_208137/assets/merged/qn0ti2i2hot_document.pdf

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Appendix B

Suggested Literature and Data to be Considered

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Appendix B. Suggested Literature and Data to be Considered

Public comment submissions contained various suggested best available science and information for the BLM and Forest Service to consider during any pinyon-juniper woodlands management policy updates. The full citations of these references are provided below.

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