Western Watersheds Project

Wyoming Office
PO Box 171
Bondurant, WY 82922
Email: Wyoming@WesternWatersheds.org
Web site: www.WesternWatersheds.org

Working to protect and restore Western Watersheds

USDA Forest Service Rocky Mountain Region
Attn: Reviewing Officer
1617 Cole Blvd., Bldg. 17,
Lakewood, CO, 80401

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Wyoming Office
PO Box 171
Bondurant, WY 82922
Tel: (877) 746-3628
Fax: (208) 475-4702
Email: Wyoming@WesternWatersheds.org
Web site: www.WesternWatersheds.org

Working to protect and restore Western Watersheds

August 28, 2022

USDA Forest Service Rocky Mountain Region
Attn: Reviewing Officer
1617 Cole Blvd., Bldg. 17,
Lakewood, CO, 80401

Dear Objection Reviewing Officer,

The following are our objections to the Invasive and Other Select Plant Management DROD and Environmental Impact Statement for the Bighorn National Forest Big Horn, Johnson, Sheridan and Washakie Counties, Wyoming, Andrew K. Johnson Forest Supervisor USDA Forest Service, Bighorn National Forest.

We request a meeting to discuss and resolve these objections.

Since the Forest ignored or provided specious rationale dismissing our EIS comments, these objections are based directly on those comments.

THE EIS FAILS TO ADDRESS THE FOUNDATIONAL PROBLEM, IMPLEMENTS FARMING OF PUBLIC LANDS

Our primary focus is the Neanderthalic herbicide killing of sagebrush. Its like something out of the 1950's when the sole view of public lands was as a feedlot for private livestock. We see this regressive, short-sighted approach as highly problematic.

The Bighorn National Forest has extremely high stocking rates with most allotments stocked at below 2 acres/AUM which is far beyond what the ecosystem could support.

With the brief exception of parts of the North Tongue area, the Forest Service has a long history of spinelessness in addressing this foundational problem.

Instead, we see farming proposals such as this EIS, which essentially props up the unsustainable stocking rates through farming our public lands for the benefit of a few permittees.

From the Bighorn's Current Condition Report (Regan 2006) we see in Table M4C-2, at 272. which provides an example of conditions in areas grazed by livestock, that:

- 55% of grasslands in fair to poor condition
- 73% of sagebrush types in fair to poor condition
- 90% of riparian areas in in fair to poor condition

All these are highly indicative of long term, severe overstocking. Instead of addressing this foundational issue, the Forest simply proposes killing sagebrush to support the unsupportable stocking rate. This is arbitrary and capricious decision making (APA) and violates NEPA's "hard look" requirement.

REMEDY:

Remove the sagebrush and native species killing actions from the ROD.

USE OF PESTICIDES ON NATIVE CLIMAX VEGETATION

In reviewing the EIS, we examined all Forest Service directives related to pesticide use (the Forest Service defines pesticides as including herbicides) on National Forest lands and could find no authority that would allow the Bighorn National Forest to use pesticides to kill sagebrush.

All use of any pesticides, except household versions, are required to be done under Form FS—2100-2.

The applicable FSH states:

> 74 - PESTICIDE-USE PROPOSAL, FORM FS-2100-2
>
> Forest Service units must complete form FS-2100-2, Pesticide-Use Proposal, <u>for all proposed pesticide uses on National Forest System lands, except for household-type uses.</u> Exhibit 01 contains a sample form. (emphasis added)

We attach the form for your review.

The form requires:

> b) Specific Target Pest - Identify the target pest by common and scientific name. Identify life cycle stage for animals or stage of growth for plants

(e.g. emergent or pre-emergent, seedling, sapling, etc.)

Sagebrush is not a pest.

In the FSM, the authority section states:

> 2150.1 - Authority
>
> Laws enacted by Congress authorize the Secretary of Agriculture (the Secretary) to issue necessary regulations, to administer the National Forest System and other resources, and to administer a State and Private Forestry program. These same laws authorize the Forest Service to use pesticides as a component of an Integrated Pest Management approach. Therefore, many of these authorities have subsequently been delegated from the Secretary to the Chief of the Forest Service. Accordingly, pesticides, as a component of an Integrated Pest Management approach, are used by the Forest Service to prevent, control, or manage unwanted native plants, animals, and pathogens, and non-native invasive species on all areas of the National Forest System (NFS).

Again, what is clear is pesticides are to be used for pests. The exception for use on native species is only for "unwanted native plants, animals, and pathogens".

Broad scale use of pesticides to kill the primary component of a climax plant community is not authorized.

A review of the EIS provides no authority for the use of pesticides to kill sagebrush.

The same FSH states:

> 2151.1 - Determination of Need for Pesticide Use
>
> Site-specific, or project-specific analyses (including assessments of chemicals, biological evaluations of pest population levels, and biological evaluations of potentially affected target and non-target species) must be prepared as necessary during the project planning phase. The analyses should support NEPA compliance. Guidance on Forest Service pesticide-use planning and approval are provided in the Pesticide-Use Management and Coordination Handbook (FSH 2109.14).

Here again, the need for pesticide use is against pests.

Also of importance here is that the EIS is programmatic. It fails to provide site specific analyses that would be required under NEPA to authorize on the ground actions.

The EIS admits in a footnote that "The public may attend these meetings, to encourage continued public input, feedback, and transparency. However, these are post-NEPA implementation meetings, and do not provide for formal notice, public comment, or objection processes under objection regulations (36 CFR § 218)."

The EIS further admits that no site-specific NEPA will occur "Both the invasive species and sagebrush treatments under Alternative 2 would be finalized in annual implementation meetings."

Again the EIS admits "Project-specific desired conditions, treatment methods, and project design would be recommended by the Interdisciplinary Team and approved by the District Ranger prior to treatment. This adaptive process would provide for the site-specificity needed for individual treatments." But this process fails to comply with NEPA.

Form FS—2100-2 and the analyses required under 2151.1 are required as the precursors needed to support site-specific NEPA, as stated in the directive above.

Unfortunately, the EIS, despite its admitted programmatic nature refuses to do any further NEPA, leaving all further decision making to a non-NEPA compliance annual meeting.

The EIS, itself, admits that it does not provide the site-specific analysis required by NEPA to authorize on the ground actions.

> Ecosystems across the Bighorn National Forest are complex (Meyer et al. 2005; Regan et al. 2004). There are different soil types, uplands and riparian areas, and groundwater depths. Additionally, flora, fauna, and human uses vary across the landscape. Two examples of the complexity of why a more rigid or "one-size-fits-all" approach would be inappropriate are the risk of herbicides leaching into groundwater and the variability of wildlife species use in mountain big sagebrush habitat.

To comply with NEPA, as well as Forest Service Directives, the Forest would need to complete Form FS—2100-2, the analyses required under 2151.1 and site-specific NEPA prior to authorizing on the ground actions.

Because the ROD provides no rationale as to how climax native vegetation is a pest and fails to comply with a wide range of Forest Service policy, the ROD is arbitrary and capricious and in violation of NFMA, NEPA and the APA.

REMEDY:

Remove all sage brush and other native species killing from the ROD.

SAGEBRUSH ECOLOGY

The EIS bases its entire 'need' to kill sagebrush on a fictional understanding of sagebrush ecology. The foundation of the proposal is the unsupportable assertion that sagebrush has a fire return interval (FRI) of 10 years. This assertion has no basis in reality. There is no way sagebrush would continue to exist under such an extreme FRI.

Sagebrush recruits from seed and seed establishment in sage is episodic, requiring just the right conditions for seed establishment (Young and Evans 1989) (Maier et al. 2001). Seed rarely remains viable past one year and dispersal distances are very short.

A USDA Technical Note, attached, states:

> sagebrush populations do not produce a long-lived seed bank, seeds have high initial percentage viability, but do not survive more than one year on the soil, seed dispersal distances are short and generally less than 15 yards

Fire and Restoration of Sagebrush Ecosystems by Baker, 2005, attached provides a comprehensive review of FRI in various types of sagebrush:

> Mountain big sagebrush (Artemisia tridentata ssp. vaseyana) recovers within about 35-100 or more years after fire, and Wyoming big sagebrush (A. t. ssp. wyomingensis) requires 50-120 or more years. Fire rotation in other ecosystems is 2 or more times the recovery period. Together, the evidence suggests fire rotations may be a minimum of 325-450 years in low sagebrush (A. arbuscula), 100-240 years in Wyoming big sagebrush, 70-200 years or more in mountain big sagebrush, and 35-100 years in mountain grasslands with a little sagebrush. Given these long rotations, fire exclusion has likely had little effect in most sagebrush areas. If maintaining and restoring habitat for sagebrush-dependent species is the goal, fire should be suppressed where there is a threat of cheatgrass (Bromus tectorum). Elsewhere, fire does not need to be reintroduced until native understory plants can be restored, so that sagebrush ecosystems can fully recover from fire.
>
> Combining the fire-scar and recovery evidence, the best available estimates of fire rotation are 325-450 years in low sagebrush, 100-240 years in Wyoming big sagebrush, 70-200 years or more in mountain big sagebrush, and 35-100 years in mountain grasslands where sagebrush is a minor component. These estimates are likely low estimates, because they could not be corrected for targeted sampling and they use a conservative estimate of adjacency correction, but fire rotation in sagebrush cannot be estimated more precisely at this time using available data.

Sagebrush has been assumed by some to be a fire-dependent vegetation type, requiring periodic renewal by fire (Winward 1991), although evidence challenging this fire dependence has been presented (Connelly et al. 2000, Welch and Criddle 2003). Fire is an important natural disturbance in sagebrush, but does not occur as often as suggested in the past, and is only one of many agents.

Given the long rotations that characterized pre-EuroAmerican fires in sagebrush, fire exclusion likely has had little effect in most sagebrush communities.

A national assessment of fire regimes and fire-related condition classes (Schmidt et al. 2002) placed sagebrush mostly within fire regime II (stand replacement at 0-35 year frequency) and fire regime III (mixed severity at 35-100 year frequency). The source of these estimates is not documented, but they are interpreted to mean that sagebrush has commonly missed several fires since EuroAmerican settlement, and thus requires prescribed burning for restoration. However, the evidence presented here shows that these fire regimes underestimate the fire rotation, and there is no evidence of mixed-severity fire in sagebrush. Sagebrush instead generally belongs in fire regime V (long rotation, stand replacement). Where cheatgrass now dominates, sagebrush is likely in condition class 3 (fire regimes significantly altered from historical range), with too much fire. Sagebrush that has not entered a cheatgrass-fire cycle should remain in condition class 1 (fire regimes within historical range), not having missed much, if any, fire at this point. Similarly, the invasion of junipers, pinyons, and Douglas-fir into sagebrush areas (Arno and Gruell 1983, Miller and Rose 1999) is likely not generally due to fire exclusion, but to other factors (e.g., overgrazing). Particularly in Wyoming big sagebrush, a program of prescribed burning is unwarranted or inadvisable if maintaining and restoring sagebrush landscapes and sagebrush-dependent species is the goal. Correcting for fire exclusion by reintroducing fire is likely not a common sagebrush restoration need. Also, little is known about the pattern of a mosaic created by pre-EuroAmerican fires or the importance of particular aspects of this mosaic to viability of wildlife populations. There is thus insufficient basis for prescribed burning to restore a mosaic thought to be important for wildlife. For example, in mountain big sagebrush, prescribed burning, even at modest fire rotations (e.g., 55 years in Idaho–Nelle et al. 2000), can adversely impact sage-grouse if the landscape mosaic is not just right (Nelle et al. 2000). A fire mosaic can also increase the ability of cheatgrass to further destroy sagebrush (Knick and Rotenberry 1997). Burning sagebrush does not assure restoration of a healthy sagebrush ecosystem, and may delay or prevent restoration, since sagebrush itself does not recover for 35 or more years (Figure 1).

Intentional fire suppression is appropriate, at least in Wyoming big

sagebrush and the lower elevations of mountain big sagebrush where replacement by cheatgrass is possible (Wambolt et al. 2002). (emphasis added)

Baker 2008, attached, found Historic Range of Variability (HRV) of FRI in sagebrush:

> Estimates derived from five sources are >200 yr in little sagebrush (Artemisia arbuscula), 200–350 yr in Wyoming big sagebrush (A. tridentata ssp. wyomingensis), 150–300 yr in mountain big sagebrush (A. tridentata ssp. vaseyana), and 40–230 yr in mountain grasslands containing patches of mountain big sagebrush with longer rotations in areas where sagebrush intermixes with forests. Landscape dynamics under the HRV were likely dominated in all sagebrush areas by infrequent episodes of large, high-severity fires followed by long interludes with smaller, patchier fires, allowing mature sagebrush to dominate for extended periods. Fire rotation, estimated from recent fire records, suggests fire exclusion had little effect on fire in sagebrush ecosystems.
>
> Instead, cheatgrass (Bromus tectorum), human-set fires, and global warming may have led to too much fire relative to the HRV in four floristic provinceswithin the range of sagebrush in the western US. Sagebrush ecosystems would generally benefit from rest from disturbance. Global warming is likely to increase fire, and widespread prescribed burning of sagebrush is unnecessary. Where cheatgrass occurs, fire suppression is sensible. In areas of depleted understories, restoration to re-establish native plants is needed if sagebrush ecosystems are to effectively recover from future disturbance.
>
> The available data suggest mountain big sagebrush recovers faster than does Wyoming big sagebrush (Fig. 3). New data since Baker (2006a) suggest possibly two recovery tracks for mountain big sagebrush, a fast track represented by the 16 upper points with nearly full recovery by about 25–35 yr after fire (Fig. 3a) and a slower track represented by >40 points with 75 or more years for full recovery (Fig. 3a). The slow track could occur in larger fires, particularly if seed survival is low and seed must disperse into the fire from distant unburned areas. Welch and Criddle (2003) estimated 70 yr for mountain big sagebrush to reach the middle of a large burned area and a few decades more for plants to mature. Thus, full recovery on the slow track may require up to 100 yr (range = ~75–100 yr). The fast track may be favored by more precipitation or otherwise favorable environment for sagebrush regeneration, smaller fires, or more survival of seed on the surface or in the seed bank. However, there may be a continuum of rates of recovery rather than just two tracks.
>
> Fire rotation in most ecosystems appears to be commonly much longer than

the period to regain pre-fire cover of mature dominant plants. Perhaps this occurs because communities tend to become dominated by plants that, among other attributes, also can regrow sufficiently fast to have a reasonable period of maturity and seed production before suffering widespread mortality. Fire rotation appears to be commonly at least 2–3 times the period to regain pre-fire cover of mature plants. For example, mature piñon-juniper woodlands recover within ~200 yr where fire rotation is 400-600 years (Baker and Shinneman 2004; Floyd et al. 2004). In lodgepole pine forests, mature trees dominate after ~150 yr where fire rotation is ~300 yr (Buechling and Baker 2004). Similarly, it requires 20–30 yr after fire in chaparral in California for shrubs to fully recover where fire rotation was ~80 yr (Keeley et al. 1999). Thus, I conservatively estimate fire rotation and mean fire interval for sagebrush are at least twice the recovery period: >50–70 yr for fast-track and >150–200 yr for slow-track mountain big sagebrush.

Fire rotation in little sagebrush is estimated to be >425 yr in intermix with piñon-juniper and >200 yr in larger areas; in Wyoming big sagebrush it is 400–600 yr in intermix with piñon-juniper and 200–350 yr in larger expanses; in mountain big sagebrush it is 160 yr in intermix with Douglas-fir, 400–600 yr in intermix with piñon-juniper, and 150–300 yr in larger expanses; finally, in mountain grasslands with patchy mountain big sagebrush, rotation is uncertain in intermix and 40–230 yr in larger areas (Table 1).

Little adaptation to fire in sagebrush taxa is consistent with evidence of long fire rotations and mean fire intervals under the HRV (Table 1).

The interludes between large fires are nearly as long, on average, as the fire rotation (Table 1). During these long interludes, sagebrush could fully recover and dominate in spite of poor dispersal capability (Young and Evans 1989) and slow recovery (Fig. 3). Thus, sagebrush landscapes would have been dominated most of the time by large areas of mature sagebrush as documented by early historical accounts of explorers (Vale 1975).

Fire rotations were instead long, and the amount of early-successional postfire vegetation was likely low much of the time, because small interlude fires account for little total burned area. Early accounts of explorers document little area of grassland within large expanses of sagebrush (Vale 1975).

If the goal is to mimic the disturbance regime in sagebrush under the HRV, these ecosystems need rest and recovery from past disturbances, particularly disturbances by land uses (Knick et al., this volume) and fire not additional disturbance.

A USDI BLM publication titled Post-fire Recovery of Wyoming Big Sagebrush Shrub-steppe in Central and Southeast Montana found similar results:

> Our findings of extremely slow Wyoming big sagebrush recovery after fire are similar to the other research in the area (Eichhorn and Watts 1984) and also support findings by Baker (2007) that fire rotations for this subspecies are about 100 – 240 years.

Bukowski and Baker, 2013, attached, have similar conclusions:

> Historical fire rotations were estimated at 171–342 years for Wyoming big sagebrush (A. tridentata ssp. wyomingensis) and 137–217 years for mountain big sagebrush (A. tridentata ssp. vaseyana).
>
> Results also suggest that historical sagebrush landscapes would have fluctuated, because of infrequent episodes of large fires and long periods of recovery and maturity.
>
> Fire suppression in Wyoming big sagebrush may also be advisable, as modern fire rotations are shorter than their historical counterparts.

Sowell et al, 2008, attached, concluded:

> Removing Wyoming big sagebrush for any purpose, including enhancing sage-grouse brood survival, does not appear to be biologically sound

Beck et al, 2012, attached concluded:

> The preponderance of literature indicates that habitat management programs that emphasize treating Wyoming big sagebrush are not supported with respect to positive responses by sage-grouse habitats or populations. There is less empirical information on ungulate habitat response to Wyoming big sagebrush treatments, but the value of sagebrush as cover and food to these species is clearly documented. A few studies suggest small-scale treatments (□60-m width) in mountain big sagebrush (Artemisia tridentata ssp. vaseyana [Rydb.] Beetle) may create attractive foraging conditions for brooding sage-grouse, but these may have little relevance to Wyoming big sagebrush. Recommendations or management programs that emphasize treatments to reduce Wyoming big sagebrush could lead to declines of wildlife species. More research is needed to evaluate the response of sagebrush wildlife habitats and populations to treatments, and until that time, managers should refrain from applying them in Wyoming big sagebrush communities.

From the Forest Service Rocky Mountain Research Station, we find applicable research. RMRS-GTR-144 provides a compendium on sagebrush ecology. The

entirety of Chapter VII is directly applicable to the EIS, and was not considered, even though it is the agency's own literature.

Also from the Rocky Mountain Research Station is RMRS-RP-140, which we provide in its entirety, as it addresses the scientific underpinnings, actually the lack thereof, of the Bighorn's proposal.

What is clear here is that the Forest Service's assertion that sagebrush has a FRI of 10 years is wildly outside of the best available science. As a result, its proposal to spray, mow and burn sagebrush is unfounded and unsupportable.

Clearing, ignoring this wide array of contradictory scientific information renders the ROD arbitrary and unsupportable, in violation of the APA, and NEPA's "hard look" requirement.

REMEDY:

Remove all sage brush and other native species killing from the ROD.

THE DEIS

One of the more surprising aspects of the EIS is how the current authorization under the 1996 decision is essentially identical to that being proposed, with the exception of aerial spraying and the increased amount of sagebrush killing.

Equally surprising is the fact that the Forest Service admits to only using a tiny fraction of the authorization from the 1998 decision.

More disturbing, is the failure of the EIS to justify itself. The EIS lacks even a map of current infestations, let alone any actual data.

The Forest Service admits it ignorance, stating "The Bighorn National Forest does not specifically survey for invasive plant species and does not maintain data on acreages of invasive plant species or the trend of patch sizes."

The EIS admits that only one county does any surveys at all and the EIS fails to describe the level of effort. The remaining two county partners do no surveys at all.

Of course, knowing where the infestations are is the first step, but the EIS fails to implement action to implement this foundational first step.

These three aspects call into question the purpose and need of this EIS.

The EIS admits "None of the alternatives analyzed in this document would result in the treatment of all known infestations of invasive species in Bighorn National

Forest if funding and manpower levels continue at present levels or at levels allocated over the past decade." As discussed, the 1998 decision has barely been implemented yet this foundational problem is not addressed or corrected in the proposed action.

As we have discussed above, the Bighorn National Forest has simply manufactured "desired conditions" for sagebrush to justify its regressive, blind urge to kill sagebrush. The "desired conditions" invented by the Bighorn have no basis in the best available science on sagebrush ecology. They are simply created to support the Forest's severe overstocking problem, without doing anything that may displease its permittees.

The EIS repeats the nonsensical statement that "Lack of aerial application herbicide treatments would limit the Forest Service's opportunities to work with stakeholders and surrounding landowners, which could lead to a spread of invasive plant species on NFS lands."

The EIS states that the purpose and need is "early detection and rapid response" but nowhere in the EIS is there a set of actions implemented for early detection. In fact, the EIS admits it makes no effort at detection.

The EIS describes the outcome of the 1998 decision to be a failure at adequately controlling invasive species, yet the proposed action is nearly identical, but the EIS fails to explain how continuing the same failed approach would lead to different results.

Section 1.2.1 provides authorities but none support the killing of native climax sagebrush. And particularly, none support the use of aerial spraying to do that.

The EIS states "Major changes in the invasive plant species situation have occurred since the Bighorn National Forest noxious weeds decision was made in 1998. Non-native and invasive plants have spread, new species have occurred, and new treatment herbicides and methods have been developed." But additions of species and herbicides are included in the 1998 decision.

Stunningly, the EIS admits that, despite the failure of current efforts to control invasive species, the Forest will do nothing to reduce the level of disturbance or vectors that have led to the expansion of invasives on the Forest.

Trying to support its claim of the need to kill sagebrush, the EIS flails, stating "The need for this Proposed Action is to increase the amount of disturbance in this system, as the adaptive project design process, including the annual implementation meetings, finds this is needed through the use of prescribed fire, mowing, or herbicide application." This is despite the fact that disturbance in these vegetation types is significantly higher than pre-european invasion and the fact that the EIS predicts more disturbance due to climate change and other factors.

Again, the Bighorn's manufactured fictitious claim of the need for more disturbance runs directly counter to the best available science. It also ignores the fact that more disturbance leads to more invasive species. The connection between 'treatments' and increases in invasive species is nearly universal and well documented.

At 2-18, the EIS states "Given the species present in the Bighorn National Forest, large contiguous blocks of heavy sagebrush cover over large portions of the mountain big sagebrush habitat is not desired."

But there are no "large contiguous blocks of heavy sagebrush cover" on the Bighorn National Forest. Examine the map of sagebrush cover types on page 200 of Regan 2006.

The EIS, without any support, concludes all alternatives would only impact individuals in Sensitive Species populations, but provides no data or analysis as to what a viable population is or what current populations are. Further, the EIS provides no information as to habitat parameters for these species and their relation to areas targeted for treatment.

No surveys are required prior to treatments. The approach is 'act now, think never'.

The EIS frames all impacts as "temporary", "short-term", "temporary loss of habitat" and "disturbed species could return to the sites immediately after treatment", but the treatments proposed, particularly the killing of sagebrush is a long term impact, taking, as discussed in the literature above, many decades to recover.

Overall, the EIS reads more like advertising spin than the hard look required under NEPA.

Under Appendix A, we see most of the supposed "protection measures" are entirely discretionary, with the use of "consider" and "review" and "should" and could". That does not provide meaningful protection.

REMEDY:

Withdraw the ROD and add current invasive species methods to the 1998 decision and implement that program to control non-native, invasive species.

We incorporate here, in their entirety, the objections submitted by, as we incorporated each of their comments into our comments on the DEIS:

1) Bighorn Audubon Society

2) FSEEE
3) Council for the Bighorn Range

Sincerely,

Jonathan B Ratner
Director – Wyoming Office