Public Correspondence Received as of September 2, 2025

Mikal 9/2/2025

Sorry about the last minute nature of my input. Rather than edits, I thought I would pass on some ideas, and you can fit those ideas in as appropriate. If you would like help drafting on some of my stuff, let me know and I will be glad to do so.

Socio-Economic

One concern I have is the context of grazing /ranching in the socio-economic section. I realize the drafters have a deeper understanding of grazing and elsewhere in the document fine fuel control is brought up. My concern is the discussion of AUM reductions, this section gives the impression that it is a given that AUM reductions are an automatic benefit to Sage Grouse. Fuel reduction, open space preservation, IAG treatment, the largely rancher makeup of RFPAs, these factors don't have to be fully discussed in this section but there should be some lead in statement to the discussion about AUM reduction that says "in the event that analysis identifies a need for AUM reduction…" rather than presenting AUM reduction as an automatic positive step.

Leveraging Science

We need to keep the tool box full, we need to mention that on harsh low elevation sites, especially when long term weather indicators point to drought, that we need to be open to using Crested Wheat in seedings to stabilize sites and hold the line on IAG. Until we get better at native seeding establishment, we are going to continue to lose ground rapidly to IAGs, Crested Wheat is one of our few ways to make a difference.

This section appears to recommend native seeding following indaziflam, it is my understanding that this would not be effective, or perhaps I am misreading the passage.

In discussing Street (2020) it should also be pointed out that cattle grazing is managed and feral horse grazing tends to be 24/7/365.

In the discussion of infrastructure, cell towers are lumped in with transmission lines, all studies cited appear to involve transmission lines. I know from personal experience that the presence of cell coverage greatly increases the effectiveness of RFPAs. We should point out that in any particular place a cell tower could compromise a few acres but protect hundreds of thousand acres from fire. The net effect of cell towers and transmission lines are much different.

Monitoring Habitat

The text discourages tebuthiuron treatments because of the amount of sagebrush already lost in Oregon, I would suggest looking at that differently, thinning existing sagebrush stands would lessen fire behavior, enhance understory vegetation and quite likely be positive for Sage Grouse, if done prescriptively.

Fuel breaks are discussed, I expect as Potential Operational Delineations (PODs) become the norm as agencies develop the preventative aspect of wildfire control, fuel breaks will become a larger part of the overall strategy.

The mosaic of fine fuels that is present on a grazed landscape provides fuel breaks that are helpful, this should be acknowledged.

Climate change is discussed, as we recognize climate change, we should perhaps encourage good grazing management, It is clear that we need grazing to help manage the fine fuel load, it is important we do this as well as we can. We have many tools to use to enhance grazing, fencing, virtual fencing, adjustments to timing, adjustments to duration, etc. As we go forward we should look for opportunities to improve our grazing rotations.

Cooperation and Collaboration

RFPAs are only mentioned under ODF, in this section consider a paragraph of recognition. They are largely self funded, are on the landscape full time, provide expertise to outside teams, extend the ranching community into the wildfire effort.

This section states that the farm bill may be a big part of fixing the landscape, I am not up to date on farm bill discussions, but it seems like federal funding is no longer a given.

Recommendations

Where it would best fit we should recommend the following:

Feral horses be managed at AML

Encourage improvement of grazing systems

Encourage mechanisms to graze with temporary non-renewable permits on years of high forage production

Develop means to treat IAG effectively at landscape scale, this may involve late season grazing pilot projects

I don’t want this to look like an infomercial for the livestock industry, but at the same time we will need grazing for fine fuel control, and we will need sustainable working ranches to

maintain our open space and staff our RFPAs. To some grazing is controversial and we will need to answer those critics. The following is a passage you may not need to use, but it contains things that may come up as this is finalized and may provide perspective.

et al., 2004). Thus, management objectives for sage-grouse and grazing should focus on promoting vegetation conditions that promote resiliency to ecosystem-scale threats such as wildfire and resistance to exotic annual grasses rather than fine-scale vegetation metrics. Not only is livestock grazing the primary land-use in sage-grouse habitat, but it can also be employed strategically to improve or maintain rangeland condition by addressing these range-wide threats. Grazing can be used as a tool to reduce the risk of habitat loss from wildfire (Davies et al., 2022, 2015, 2010; Diamond et al., 2009; Orr et al., 2023; Thomas and Davies, 2023), and from invasive annual grasses (Davies et al., 2021b, 2021a; Schmelzer et al., 2014), or to improve habitat by increasing insect food resources (Goosey et al., 2019; Richardson et al., 2023). Properly managed livestock grazing allows for the maintenance of perennial bunchgrasses (Boyd et al., 2014; Miller et al., 1994), which are key to promoting ecosystem resilience of sagebrush rangelands (Johnson et al., 2022) and can provide visual obstruction for nesting sage-grouse (Hagen et al., 2007).

August 28, 2025

Sage-Grouse Management Plan Team
Oregon Department of Fish and Wildlife
237 U.S. Route 20
Hines, Oregon 97738

Dear Sage-Grouse Management Plan Team:

Oregon Natural Desert Association ("ONDA") is pleased to provide these comments on the Oregon Department of Fish and Wildlife's ("ODFW") draft proposed Oregon Greater Sage-Grouse Conservation Assessment and Strategy ("CAAS") in addition to our letter dated August 15, 2025.

ONDA is a public interest conservation organization whose mission is to protect, defend, and restore Oregon's high desert for current and future generations. We are the only organization dedicated exclusively to conserving Oregon's desert lands, waters, and wildlife. We have been involved in greater sage-grouse (hereinafter "sage-grouse") conservation on desert public lands for over 35 years. ONDA represents the interests of more than 25,000 members and supporters in Oregon and across the United States.

The CAAS and ODFW's management are vitally important to the conservation and recovery of sage-grouse populations in Oregon and rangewide. Sage-grouse in our state represent the western-most extent of the species; occupy one of the six most important strongholds remaining for the species rangewide; remain strongly connected within the state, as well as to sage-grouse populations in other states; and help to preserve genetic diversity that is essential to the species' persistence.

ONDA offers the following recommendations and information in support of our initial review of the new draft CAAS submitted earlier this month.

The updated Oregon Sage-Grouse Conservation Assessment and Strategy should redress and expand upon discussion of the effects of livestock grazing on sage-grouse and their habitats.

The draft updated CAAS recognizes that historic livestock grazing has influenced conifer encroachment and that "legacy effects" of grazing continue to "impede[] habitat recovery." ODFW at 2.5, 2.9–2.10. Additionally, it acknowledges that current livestock grazing continues to

influence sage-grouse habitats, including through "hoof action" that disturbs biological soil crusts that "natural[ly[suppress[]" invasive annual grasses, encouraging non-native species establishment. ODFW at 2.3. But as ONDA observed in our letter of August 15, 2025, the causal connections between livestock grazing–as currently conducted–and the "Big 3" threats highlighted in the draft CAAS are much stronger than indicated.

It is well established that livestock grazing contributes to the spread of invasive annual grasses in sagebrush steppe. Cattle grazing increases cheatgrass dominance in sagebrush habitats by reducing bunchgrass abundance, altering and limiting bunchgrass composition, increasing gaps between perennial plants, and trampling biological soil crusts (Chambers *et al.* 2019, Chambers *et al.* 2016a, Reisner *et al.* 2013, Knick *et al.* 2003). "These annual grasses tend[] to fill vacant spaces among native perennial plants creating a continuous fuel for wildfires to burn and spread (Brooks and others, 2004), especially in areas where perennial herbs had been depleted by inappropriate livestock grazing (Reisner and others, 2013)" (Pyke et al. 2015: 4).

Livestock also distribute invasive annual grass seeds across the landscape via their hooves, fur, and digestive tracts (Chambers *et al*. 2016b, Olff and Ritchie 1998, Schiffman 1997, Knapp 1996, Mack 1981). According to Bartuszevige and Endress (2008), "[c]attle disperse more than an order of magnitude more non-native grass seeds per animal than do elk or deer." Over 70 percent of viable seeds in cattle feces were exotic grass species (Bartuszevige and Endress 2008; *see also* Getz and Baker 2008, Janzen 1984). Areas around troughs and watering sites are especially vulnerable to invasion due to the high amount of trampling disturbance.

Reisner *et al.* (2013) found that, even after controlling for other factors that may contribute to the spread of cheatgrass, there is a strong correlation between grazing effects and cheatgrass incursion (*see also* Reisner 2015). Bock *et al.* (2007) similarly found that "livestock grazing facilitated the invasion [of exotic grasses] into native grasslands, such that the proportion of total grass cover consisting of exotics was 2.5-fold greater on grazed than on ungrazed areas 22 years after we began this study." Research by Williamson *et al.* (2020) further support these findings: "[o]ur results suggest a strong positive relation between the probability of presence and prevalence of cheatgrass and livestock grazing, particularly in unburned locations, where resistance to cheatgrass is greater than in burned locations."

Livestock trampling can reduce and fragment biological soil crust in sagebrush steppe (Root *et a*l. 2020, Reisner *et al.* 2013, Warren and Eldridge 2001), increasing the susceptibility of the landscape to invasion by *Bromus* and other weedy species in arid ecosystems (Root *et al.* 2020, Chambers *et al.* 2016b). "Cheatgrass, however, may be less effective at invading areas with an intact biological soil crust (Kaltenecker et al. 1999). This notion is supported by field observations and growth chamber experiments that indicate that the presence of certain types of biological soil crusts decreases cheatgrass germination compared to bare soil (Larsen 1995; Serpe et al. 2006)" (Deines *et al.* 2007). Root *et al.* (2020) similarly found that ". . . biocrusts increase site resistance to invasion at a landscape scale and mediate the effects of disturbance. Biocrust species richness, which is reduced by livestock grazing, also appears to promote native

perennial grasses."[1] Damage to the soil crust caused by livestock hooves can increase the number of favorable sites available to annual grasses to emerge and establish (Pyke *et al.* 2016).

The degradation and loss of biological soil crust (a natural barrier to invasive plant species, Reisner *et al.* 2013) can accelerate cheatgrass invasion in sagebrush steppe. As summarized by Chambers *et al.* (2016a):

> [B]iological soil crusts, which are an important component of plant communities in warmer and drier sagebrush ecosystems, can reduce germination or establishment of cheatgrass (Kaltenecker *et al.* 1999, Eckert *et al.* 1986). Disturbances or management treatments that reduce abundance of native perennial grasses and biological soil crusts and increase the distances between these perennial grasses often are associated with higher resource availability and increased competitive ability of cheatgrass (Chambers *et al.* 2007; Reisner et al. 2013, 2015; Roundy et al. 2014).

Excessive grazing may eventually lead to reductions in perennial plants, increases in *B. tectorum* dominance, and ultimately result in the conversion of sagebrush steppe habitats to (annual) grasslands (Pyke *et al*. 2016). Loeser *et al.* (2007) found that high-intensity grazing had "strong directional effects that led to a decline in perennial forb cover and an increase in annual plants, particularly *B. tectorum"* in grasslands near Flagstaff, Arizona. In managing for "fire fuels" (including native plants), Chambers *et al.* (2016b) cautioned that "any potential gains resulting from fine fuel removal by livestock may be counterbalanced by decreased resistance to *B. tectorum* due to herbivory of native plants that compete with *B. tectorum*, increased soil disturbance, and damage to biocrusts (Reisner et al. 2013)."

Lastly, the Bureau, in multiple planning documents prepared as part of the National Greater Sage-Grouse Planning Strategy (BLM 2011), acknowledged that livestock grazing and "excessive grazing" (undefined) can spread invasive plants (*e.g.,* Oregon 2015 FEIS: 5-36, Buffalo 2013 DEIS: 306, Billings-Pompeys Pillar 2013 DEIS: 3-88, Miles City 2013 DEIS, vol. 1: 3-77, South Dakota 2013 DEIS: 361, Bighorn Basin 2011 DEIS, vol. 2: 4-146). The draft Nevada/Northeastern California plan observed that "[l]ivestock grazing is one of the vectors to introduce and or increase the spread of invasive weeds" and that "[m]ultiple factors can influence an area's susceptibility to cheatgrass invasion, including livestock grazing, perennial grass cover and biological soil crusts" (Nevada 2013 DEIS: ch. 4, 54, *citing* Reisner et al. 2013).

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The draft CAAS describes a recently published study conducted in Idaho that examined the effects of livestock grazing on sage-grouse over a 10 year period and "found no evidence that low to moderate spring grazing reduced nest survival." ODFW at 2.10. Unfortunately, the findings from this research have been overstated and misunderstood. The study chose sites with "low abundance of annual grasses" (Conway *et al*. 2025) (perhaps recognizing and seeking to avoid livestock from furthering the spread of invasive annual grasses into research plots), which are

[1] These findings were subject to review and further consideration in O'Connor and Germino (2021).

otherwise unrepresentative of rangelands in southern Idaho.[2] This non-random selection criterion thus tainted the research results considering the prevalence of invasive annual grasses in the Great Basin and Intermountain West and the compounding effects of ubiquitous livestock grazing on sage-grouse habitat objectives.

The Idaho research project also applied grazing at low utilization levels ranging from 17–33 percent (Conway *et al.* 2025), and even *rested* spring grazed pastures every other year. Neither prescription is typical of grazing use in eastern Oregon where federal grazing permits allow 50 percent utilization per annum, year after year. To be sure, a lower utilization rate is more likely to support habitat objectives for vegetation height, cover, and composition in sage-grouse habitats. Range scientists have determined that stocking rate (rather than grazing system) is the primary factor affecting rangeland production (Briske *et al.* 2008, Holechek *et al.* 1998, Van Poolen and Lacey 1979). Reducing livestock utilization is recommended to support rangeland restoration (Van Poolen and Lacey 1979, defining light utilization as 20–40 percent utilization of annual forage production by weight; Holecheck *et al.* 1999, defining light-moderate utilization as 30–35 percent utilization). Holechek *et al.* (2010), citing Gregg *et al.* (1994) and Sveum *et al.* (1998), noted that grazing must be kept at conservative levels (25 to 35 percent use) "for high nesting success by sage-grouse." Braun (2006, unpublished) similarly recommended limiting grazing use to 25–30% utilization.

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Livestock grazing is considered the single most important influence on sagebrush habitats and fire regimes throughout the Intermountain West in the past 140 years (Knick *et al.* 2005).[3] Grazing remains the most widespread use of sagebrush steppe and almost all sagebrush habitat is managed for grazing (Knick *et al.* 2011, Connelly *et al.* 2004, Knick *et al.* 2003). Livestock grazing disturbs the soil, removes native vegetation, spreads invasive species and limits productivity in sagebrush steppe (Reisner *et al.* 2013, Knick *et al.* 2005, Knick *et al.* 2003, West 1983). Cattle or sheep grazing in sage-grouse nesting and brood-rearing habitat can negatively affect habitat quality, nutrition for gravid hens, clutch size, nesting success, and/or chick survival (Aldridge and Brigham 2003, Beck and Mitchell 2000, Coggins 1998, Connelly and Braun 1997, Barnett and Crawford 1994). Livestock may directly compete with sage-grouse for grasses, forbs and shrub species; trample vegetation and sage-grouse nests; disturb individual birds and cause nest abandonment (Coates 2007, Holloran and Anderson 2005, Pederson *et al.* 2003, Vallentine 1990, Call and Maser 1985).

Grazing management was identified as a threat to sage-grouse by three expert panels as reported in a comprehensive review (Connelly *et al.* 2011: 555-556, Tables 24.1, 24.2). Impacts attributable to historic or heavy grazing in sage-grouse habitat have not been remedied because plant communities are still not given rest from grazing, even under ecologically oriented grazing

[2] "Another selection criterion for research sites was low abundance of annual grasses; annual herbaceous cover averaged 7.7% on the pastures in our study and averaged 15.5% in other BLM pastures in southern Idaho (https://www.mrlc.gov)."

[3] One expert contended that the "livestock industry has had [a] more negative impact on sage-grouse than any other single factor" and "[i]t's rare to find any place that hasn't been grazed" Hudak (2007: 28–29).

schemes (Connelly *et al.* 2004: 7-30 – 7-31, citing others). Furthermore, water developments have increased the area that can be grazed, increasing the distribution and often the intensity of grazing, so that even where livestock numbers have been reduced, they still exert a significant influence on those habitats (Connelly *et al.* 2004). "Even though livestock numbers [are] considerably [reduced from historic use], and management across the West has steadily improved, acres continue to transition away from reference (historic, potential, and [or] desired) conditions" (Manier *et al.* 2013, *citing* Cagney *et al.* 2010). Federal government scientists have suggested that "livestock grazing across the public lands of western landscapes … will continue to impact the quality of those habitats and their ability to support source populations of sagebrush bird species" (Rich *et al.* 2005).

The updated Oregon Sage-Grouse Conservation Assessment and Strategy should affirm the importance of forbs as a habitat component to sage-grouse conservation.

The draft CAAS describes that "[i]deal spring nesting and brood rearing habitats include . . . abundant native forbs of at least 15% coverage." ODFW at 5.5. The plan goes on to describe the application of Threat-Based Ecostates ("TBE") to inform and guide habitat management for sage-grouse. The TBE classification is a valuable, regularly updated dataset that ODFW should utilize for sage-grouse habitat management. However, there are limitations to the TBE framework. TBE data combines native forb and bungrass data into a single herbaceous cover input which can misrepresent the status of native forbs in an area. For example, Ecostate A establishes a criterion for perennial herbaceous vegetation cover to "exceed[] annual herbaceous cover by at least 3:1" (INR 2025). An area could meet the 3:1 ratio based on perennial bunchgrass cover alone, with no native forbs actually present. Thus, although it may meet the criteria to be classified as Ecostate A, that area would not be functional sage-grouse habitat.

Although sage-grouse are a sagebrush obligate species, the nutritional contribution of forbs outweigh that of sagebrush (Freese 2009, Rosentreter 2004, Barnett and Crawford 1994). Moreover, the high-protein invertebrates associated with forbs are a critical dietary component for the survival of sage-grouse chicks (Dumroese *et al.* 2015). Given the importance of forbs and invertebrates to both hens and chicks, it's unsurprising that habitat use during brood-rearing is typically where forb and arthropod abundance are greater (Smith *et al.* 2019).

Adult female survival, breeding, and brood-rearing success are key to sage-grouse population viability (Taylor *et al.* 2012, Johnson and Braun 1999). Sage-grouse brood success depends on forbs and insects, and so management to promote increased forb cover could play an pivotal role in halting and reversing population declines (Dumroese 2016, Dumroese *et al.* 2015, Gregg and Crawford 2009, Yost *et al.* 2008, Gregg 2006, Thompson *et al.* 2006, Woodward 2006, Connelly *et al.* 2004, Hausleitner 2003, Coggins 1998, DeLong *et al.* 1995, Drut *et al.* 1994a). Sage-grouse chicks rely heavily on insects—consuming invertebrates from 41 families of insects (Innes 2016, Drut *et al.* 1994b)—which are their primary food source in their first weeks of life (Innes 2016, Drut *et al.* 1994b, Pyle 1993, Call and Maser 1985, Peterson 1969, Klebenow and Gray 1968). Insects are such a vital part of the early chick diet that in a study using captive chicks, all chicks not given insects during the first 10 days post-hatch died, whereas all chicks given insects during this time period survived (Johnson and Boyce 1991). Management that increases forb cover

would benefit pre-gravid hens and chicks by supporting insects that are a high protein food source used by the species (Hagen 2011, Thompson *et al.* 2006).

Beginning approximately the third week following hatch, sage-grouse chicks begin to transition from insect consumption to use of forbs (Innes 2016). Chicks have been documented to consume 34 genera of forbs (Innes 2016, Drut *et al.* 1994b). The combination of insects in the first weeks of life followed by consumption of forbs supports rapid maturity in sage-grouse chicks (Rosentreter 2016, Blomberg *et al.* 2013).

Forbs are particularly important to pregravid hens due to their high concentrations of calcium, phosphorus and protein, which support egg production (Innes 2016; Hagen 2011; Gregg *et al.* 2006), composing 18-50 percent of their diet by weight (Blomberg *et al.* 2013; Barnett and Crawford 1994). Sage-grouse hens that have access to better food resources have superior body conditions, resulting in much higher brood success rates than hens in poor condition (Blomberg *et al.* 2013).

Brood-rearing females select for areas that have significantly more forb and grass cover than surrounding areas (Street 2020, Smith *et al.* 2019, Gibson *et al.* 2016, Casazza *et al.* 2011, Hagen *et al.* 2007, Dobkin 1995, Drut *et al.* 1994a, Klebenow and Gray 1968). Early brood-rearing habitat selection is particularly important because recently-hatched chicks are limited in their mobility, and brood success decreases when hens move their broods long distances during this life stage (Street 2020, Gibson *et al.* 2016).

Not only do forbs constitute an important part of the sage-grouse diet, but they provide protective cover as well (Hagen 2011). Brood-rearing females will select for both horizontal and vertical properties found in forb communities, seeking taller forbs and proportionally greater forb cover (Street 2020; Gibson *et al.* 2016; Klott and Lindzey 1990). Forb, sagebrush and grass cover, as well as plant species richness in brood-rearing habitats, are positively associated with chick survival (Holloran *et al.* 2005; Hausleitner 2003).

Sage-grouse will selectively consume the flower buds, flowers and fruits of forbs, and in some cases, these may be the only parts that are consumed (Innes 2016; Rosentreter 2016; Walker and Shaw 2005). Furthermore, the presence of forbs reduces the invasibility of exotic species into a native plant community, helping to preserve intact sagebrush ecosystems important to sage-grouse and other species (Davies and Johnson 2017, Chambers *et al.* 2014, Walker and Shaw 2005).

A major factor contributing to sage-grouse population declines has been decreased annual recruitment due to poor brood-rearing habitats (Smith *et al.* 2019; Wirth and Pyke 2013; Atamian *et al*. 2010). On some landscapes, historic and current livestock grazing has led to forb depletion, where seed production is reduced by grazing, ultimately scuttling the seedbank over time (Street 2020, Gioria and Pysek 2016, Rosentreter 2004). Sage-grouse conservation efforts would be best directed at protecting and restoring breeding and brood-rearing habitats, with a particular focus on enhancing the availability of forb and insect foods (Aldridge and Boyce 2006). Management efforts that promote a productive understory of forbs and native grasses within sagebrush stands

should help ensure high-quality early brood-rearing habitat, increasing fitness of hens and improving chick survival, which will slow or even reverse current declining population trends (Arkle *et al.* 2014, Hagen 2011, Huwer *et al.* 2008, Huwer 2004).

The updated CAAS's prescription for forb cover is an important counterweight to the Bureau of Land Management's latest Oregon Greater Sage-Grouse Approved Resource Management Plan Amendment, which adopted a habitat indicator of ≥2% forb cover in arid sagebrush habitats and ≥6% forb cover in cool-moist mesic habitats during the breeding period (BLM 2025). These objectives are too low to meet sage-grouse life needs and do not align with the preponderance of the science, including research developed on sage-grouse ecology in Oregon. Two studies that compared sage-grouse hens with broods at Hart Mountain and Jackass Creek in Oregon found that sage-grouse at Hart Mountain were more abundant and showed higher productivity than at Jackass Creek (Drut *et al.* 1994a, Drut *et al.* 1994b). At Hart Mountain, broods inhabited lakebeds and meadows where they primarily consumed forbs and insects, whereas at Jackass Creek, broods primarily consumed sagebrush (Drut *et al.* 1994a). Forb cover was estimated to be 10-14% for early brood-rearing habitat and 19-27% for late-brooding locations at Hart Mountain (Drut *et al.* 1994b). Meanwhile, Hagen (2011) noted that overall brood rearing habitat across Oregon typically has >15% forb cover. Drut *et al.* (1994b) suggested that overall minimum forb cover for brood rearing habitat in Oregon should be 12-14%.

Finally, while the Oregon Sage-Grouse Action Plan recognizes the nutritional importance of forb- and insect-rich communities during brood rearing, it provides no recommendations for minimum forb cover or prescriptions for managing forbs in sage-grouse habitat (Sage-Grouse Conservation Partnership 2015). Given the critical importance of forbs to sage-grouse brood success and thus population dynamics, and as we also recommended in our letter of August 15, 2025, it is important that the updated CAAS include a measurable objective for forb management and other key prescriptions that are otherwise missing from the Action Plan.

The updated Oregon Sage-Grouse Conservation Assessment and Strategy should reconsider its approach to crested wheatgrass seedings.

The draft CAAS states that sagebrush "has been documented to re-colonize" some areas where crested wheatgrass was seeded "and return to usable sage-grouse habitat over the past 30 years." ODFW at 5.3. However, the cited article, published more than 30 years ago, examined the introduction of alfalfa to crested wheatgrass seedings in southeastern Oregon as a source of nitrogen in replacement of native legumes that were not present in the seedings (Kindschy 1991).

More contemporary studies have found that efforts to establish native plant species within crested wheatgrass monocultures are challenging and generally unsuccessful, even with control treatments (McAdoo *et al.* 2016). This is due to increased nutrient capture and an ability to dominate the seedbank, which interfere with and suppress native species recruitment by as much as 10-fold (Nafus *et al.* 2015, Gunnell *et al.* 2010, Pellant and Lysne 2005). Planting sagebrush seedlings in crested wheatgrass stands yields greater establishment than broadcast seeding (Davies *et al.* 2020, Davies *et al.* 2013). However, nine years after planting sagebrush, sagebrush cover had not recovered to levels typical in intact sagebrush communities (Davies *et al.* 2020).

Although sagebrush has the potential to recover in monocultures of crested wheatgrass, studies on reestablishing native perennial grasses and forbs have been unsuccessful (Morris *et al.* 2019, McAdoo *et al.* 2016, Fansler and Mangold 2011). Attempts to control crested wheatgrass provide only temporary relief from competition, and in some cases increased crested wheatgrass vigor, and seeded native species often decline with the recovery of crested wheatgrass. *Id.* Thus, recovery of functional, complex sagebrush steppe in crested wheatgrass monocultures is unlikely.

The updated Oregon Sage-Grouse Conservation Assessment and Strategy should reconsider its support for using tebuthiuron to improve sage-grouse habitats.

The draft CAAS briefly describes the use of the herbicide tebuthiuron to reduce sagebrush cover, describing two studies that demonstrated a "dramatic increase in forbs and perennial grasses." ODFW at 5.3. Dahlgren *et al.* (2006) conducted their study in mountain big sagebrush communities, which tend to be more diverse, productive, and resilient to disturbance than Wyoming big sagebrush communities (Chambers *et al.* 2014, Davies and Bates 2010). Olson and Whitson (2002) did conduct their studies in Wyoming big sagebrush and found mixed results with increases in forb biomass. Only plots sprayed with tebuthiuron at a rate of 0.45 kg/ha active-ingredient ("ai")—the highest of three application rates—showed an increase in native forb biomass two and four years post-treatment. *Id.* The authors also noted the establishment of cheatgrass (*Bromus tectorum*) at plots with 0.45 and 0.22 kg ai/ha tebuthiuron application rates four years post-treatment where none had been documented before. *Id.*

Recent studies have not shown positive results in Wyoming big sagebrush communities, which comprises much of Oregon's high desert. Smith *et al.* (2023) found that tebuthiuron treatments in Wyoming big sagebrush habitats applied in a mosaic pattern reduced sagebrush cover by 46%, yet yielded no difference in forb or perennial grass abundance or forb diversity four years after treatment. Tebuthiuron was applied at a rate of "0.22kg/ha active ingredient," or approximately 0.2 pounds per acre (Smith *et al.* 2023), which is considered a low application rate (Wachocki *et al.* 2001). There was no difference in sage-grouse nest success, brooding success, female survival, or selection and utilization of the treatment areas, with Smith *et al.* (2023) summarizing, "[r]ather than implementing vegetation treatments of questionable value to sage-grouse . . . maintenance of large, undisturbed tracts of sagebrush will best facilitate the persistence of sage-grouse populations and other species reliant on the sagebrush steppe."

Rau *et al.* (2014) also analyzed the effects of tebuthiuron treatments on functional vegetation groups. Perennial herbaceous vegetation increased by 28%, 34%, and 11% from pre-treatment levels one to three years after treatment, and shrub cover decreased by 26% in the third year post-treatment. *Id.* However, cheatgrass increased by 81% in the third year post-treatment, while in the untreated control cheatgrass only increased by 34% in the third year post-treatment. *Id.* These findings, in addition to Olson and Whitson's (2002) earlier study, demonstrate that although chemical treatments do not disturb soils, they can facilitate further invasion of nonnative species. While tebuthiuron may effectively thin sagebrush, the lack of positive results on native herbaceous vegetation and potential for increased invasive vegetation does not support herbicide use as an effective restoration tool.

The updated Oregon Sage-Grouse Conservation Assessment and Strategy should not endorse mechanical treatments to manage sage-grouse habitats.

The draft CAAS acknowledges that mechanical treatments "have been known to adversely impact sage-grouse habitat," particularly if conducted at large scales or in winter habitat where high percentages of sagebrush cover are required to meet life needs. ODFW at 5.3. However, the draft plan goes on to state that mechanical treatments may also "enhance brood rearing habitats . . . [that] have been degraded." *Id.*

Dahlgren *et al.* (2006) measured forb cover prior to mechanical treatment at 7.6 and 7.9 percent—which exceeds the state of Utah's current objectives of ≥2–≥6% cover, depending on the habitat cluster (UDWR 2019). Although those management objectives were not in place at the time of the study, Dahlgren *et al.* (2006) referenced habitat guidelines provided by Connelly *et al.* (2000), wherein >15% herbaceous cover (grass *and* forb species) was recommended for brood-rearing habitats. In Dahlgren *et al.'s* (2006) study, mean herbaceous cover pre-treatment was 20.2% at sites selected for Dixie-harrow treatments and 16.3% at sites selected for Lawson-aerator treatments. Both sites exceeded Connelly *et al.'s* (2000) recommended herbaceous cover objective, thus neither could be considered "degraded."

The scientific literature does not support mowing in Wyoming big sagebrush communities to improve the herbaceous understory, whether in intact communities or degraded ones. Rau *et al.* (2014) analyzed the response of vegetation to mowing in their study of vegetation treatments of Wyoming big sagebrush communities. Shrub cover decreased by more than 50% in the first year post-treatment and was estimated to have decreased by 28% by the third year post-treatment. *Id.* Perennial herbaceous vegetation increased by 51% in the second year post-treatment but fell to a 16% increase by the third year-post treatment. *Id.* Although mowing yielded positive results for perennial grass cover, Rau *et al.* (2014) found that cheatgrass also responded positively to mowing treatments, increasing from 8% pre-treatment cover to 25% in the second year post-treatment, a more than three-fold difference. In comparison, Hess and Beck (2014) found no increase in forb cover following mowing treatments in Wyoming big sagebrush communities 9 years post-treatment. Smith *et al.* (2023) similarly found no difference in forb cover or species richness between mowed areas and temporary exclosures 6 years post-treatment.

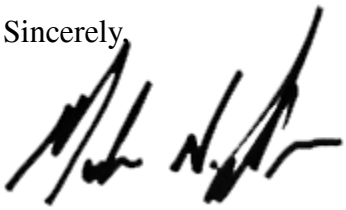
Davies *et al.* (2011) examined the response of "Wyoming big sagebrush plant communities with relatively intact, native herbaceous understories" to mowing in southeastern Oregon. Sites averaged 10% native herbaceous cover, 9–17% sagebrush cover, and less than 0.5% exotic annual grass cover prior to treatment. *Id.* Davies *et al*. (2011) found mowing resulted in no increase in native perennial grasses and forbs but did yield a substantial increase in annual forb and grass biomass after just three years. Davies *et al.* (2011) determined the positive response of nonnative species likely would have been "a more serious problem if it had been a larger component of these plant communities prior to mowing." Furthermore, due to the lack of increase in perennial herbaceous cover, Davies *et al.* (2011) "caution against mowing relatively intact Wyoming big sagebrush plant communities."

Davies *et al.* (2012) found that mowing Wyoming big sagebrush communities with a degraded understory increased cheatgrass and non-native forb cover by up to 4.6- and 4.0-fold, respectively, concluding that "mowing Wyoming big sagebrush communities with degraded herbaceous understories will not restore the native herbaceous component." The peer-reviewed, published, scientific literature is clear that mowing Wyoming big sagebrush communities does not yield positive results for perennial herbaceous vegetation and is not worth the risk of increased invasive species establishment.

* * *

Thank you for your consideration of these additional comments on the draft CAAS.

Sincerely,



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August 15, 2025

Sage-Grouse Management Plan Team
Oregon Department of Fish and Wildlife
237 U.S. Route 20
Hines, Oregon 97738

Dear Sage-Grouse Management Plan Team:

Thank you for this opportunity to provide comment on the draft proposed Oregon Greater Sage-Grouse Conservation Assessment and Strategy ("CAAS"). Even as we continue to review the document, Oregon Natural Desert Association ("ONDA") wants to provide the following, initial input to give Oregon Department of Fish and Wildlife ("ODFW") the most time possible to consider it before finalizing the CAAS for presentation to the Oregon Fish and Wildlife Commission for their meeting on September 12.

ONDA is a public interest conservation organization whose mission is to protect, defend, and restore Oregon's high desert for current and future generations. We are the only organization dedicated exclusively to conserving Oregon's desert lands, waters, and wildlife. We have been involved in greater sage-grouse (hereafter "sage-grouse") conservation on desert public lands for over 35 years. ONDA represents the interests of more than 25,000 members and supporters in Oregon and across the United States.

ONDA appreciates and supports the many and important updates offered in the draft CAAS. These include, but are not limited to, explanation and confirmation of new sage-grouse core area and low-density habitat maps; a revised and increased population goal; extending the period for determining lek occupancy from 7 to 10 years; and adherence to the general standard of managing ≥70 of sage-grouse habitats in preferred ecostates, even accounting for the increased presence of invasive annual grasses on the landscape. We are also grateful for the draft's discussion of issues or concerns with certain management practices, including the uncertainty surrounding the appropriateness and effectiveness of implementing fuel breaks in sagebrush steppe and ODFW's rejection of captive breeding as a substitute for improved conservation of sage-grouse and their habitat.

ONDA offers the following additional recommendations for strengthening the CAAS to help ensure it remains a viable and useful resource and direction for conserving and recovering sage-grouse in Oregon.

The updated plan should build upon the 2011 Oregon Greater Sage-Grouse Conservation Assessment and Strategy, preserving key analyses and findings and updating science and management recommendations, as needed.

The 2011 CAAS is a foundational document for sage-grouse conservation in Oregon that covers a breadth and depth of topics that will continue to be important to management of the species in the future. In contrast, the proposed updatedCAAS statedly foregoes conducting a comprehensive review of certain information and issues relevant to sage-grouse, recreating the document into something different than it was in the past.

Similar to the Bureau of Land Management's ("BLM" or "the Bureau") Record of Decision and Approved Resource Management Plan Amendment for Oregon (2025) ("ARMPA"), in which the agency built upon its 2015 conservation strategy for sage-grouse, ODFW should base its current effort in its 2011 plan, updating science and management recommendations as needed, while also validating and incorporating other information and prescriptions from the 2011 document that remain applicable to sage-grouse conservation today. This would be the most effective way of efficiently producing the most comprehensive CAAS possible within the agency's capacity and timeline set for finalizing the document.

The updated Oregon Greater Sage-Grouse Conservation Assessment and Strategy should incorporate other relevant state wildlife conservation plans and processes, as possible.

ODFW is currently updating its State Wildlife Action Plan ("SWAP") (aka "Oregon Conservation Strategy"). Greater sage-grouse are a Species of Greatest Conservation Need ("SGCN") in the current SWAP and have been proposed to remain a SGCN in the state's revised plan. Both the current and proposed revised SWAP also identify sagebrush habitat as a "key habitat" (aka "Strategy Habitat"), defined as a habitat of conservation concern. Finally, both the current and proposed revised SWAP designate Conservation Opportunity Areas ("COA") across Oregon, areas where the state will seek to focus wildlife conservation investments to benefit the greatest numbers of SGCN.

The draft updated CAAS does not reference the SWAP, which is updated every ten years and is federally approved by the U.S. Fish and Wildlife Service. The CAAS should explain how it will correspond with the new SWAP. Given the CAAS's approach to protecting and expanding upon the best remaining sagebrush steppe in Oregon ("protect the core, grow the core"), it may be especially helpful to sage-grouse, as well as a suite of other sagebrush sea flora and fauna, to compare ODFW's sage-grouse core habitats with ODFW's COAs to discover and leverage synergies between these two plans.

The draft updated CAAS also does not reference the state's network of Priority Wildlife Connectivity Areas ("PWCA"), even as it acknowledges the importance of habitat and genetic connectivity for sage-grouse. For the same reasons that the CAAS should seek to cohere with the SWAP, it should consider where and how PWCAs might benefit sage-grouse, and how proposed sage-grouse conservation measures might in turn protect PWCAs.

The updated Oregon Greater Sage-Grouse Conservation Assessment and Strategy should also affirm and support the Bureau of Land Management's conservation plan for the species.

As the draft updated CAAS acknowledges, federal public lands administered by the Bureau comprise the vast majority of sage-grouse habitat in Oregon and are key to conserving the species. However, even the BLM's comprehensive 2025 ARMPA for managing these millions of acres would benefit from support and accordance in the CAAS. For example, in the federal conservation plan, the Bureau set a benchmark for invasive annual grasses of less than 2 percent cover as an indicator of healthy, resilient breeding/pre-nesting/nesting/early brood-rearing and late brood-rearing/summering/early autumn habitats. Elsewhere, the 2025 BLM plan affirms the agency's commitment in the 2015 BLM plan to limit invasive annual grasses to no more than 5 percent cover within 4 miles of occupied and pending sage-grouse leks. Notwithstanding the CAAS's broader management goal for conserving and expanding upon preferred habitat ecostates, the draft document does not propose benchmarks or objectives for managing invasive annual grasses. In fact, the BLM's plan is replete with critical science-based indicators, measures and objectives for managing nearly every aspect of sage-grouse ecology and habitat needs, while the draft updated CAAS generally lacks similar detail. Even considering the differing roles of the state's strategy versus the federal plan, both the state and federal strategies would be best served if the CAAS confirmed and, where necessary, conformed to key management prescriptions advanced in the federal plan.

Indeed, the BLM's plan might even have difficulty operating without state input and concordance in the CAAS. For example, the Bureau's 2025 ARMPA levies an array of measures to conserve sage-grouse winter habitat, but it is up to the state to identify that habitat type. In fact, the Bureau has never recognized a statewide map of winter habitat in Oregon and/or has ignored public comment providing winter range maps to the agency. The CAAS is the ideal (and appropriate) process and product for finally, formally delivering a winter habitat map to the BLM so that BLM, ODFW, and the public will finally have an accurate and comprehensive understanding of where conservation measures for winter habitat apply. There are likely many other instances in the BLM plan where the CAAS could both inform and propel more effective implementation of the federal strategy.

The updated Oregon Greater Sage-Grouse Conservation Assessment and Strategy must provide a baseline for sage-grouse conservation and management in Oregon.

The CAAS is Oregon's foundational document for presenting the latest, best available science on sage-grouse, describing the species' distribution and habitat needs, enumerating current and future threats and reviewing management prescriptions for conserving, connecting and recovering sage-grouse populations in the state. The CAAS was purposefully updated in 2011 as part of a burgeoning effort to conserve sage-grouse westwide, coordinated by the Western Association of Fish and Wildlife Agencies. It then became a key source of information to support the BLM's precedential 2015 sage-grouse conservation planning process in Oregon and beyond. The CAAS was also a basis for developing the federal Candidate Conservation Agreement with Assurances in Oregon, as well as a series of state regulations promulgated to protect sage-grouse habitat and mitigate for the effects of land use and development. As noted in the draft updated

CAAS, the 2011 plan was a platform for developing the Oregon Sage-Grouse Action Plan (2015) and, again, influenced the Bureau's latest update to its federal conservation plan in 2025.

It is important that the CAAS continue to serve as a leading authority on sage-grouse conservation and management in Oregon given these layers of state and federal conservation and action planning that take their lead from the document. An updated, comprehensive CAAS will be useful to a multitude of regional, statewide and local collaborative conversations seeking the latest direction and prioritization of management actions to conserve sage-grouse, including the Oregon Sage-grouse Conservation Partnership ("SageCon") and sage-grouse Local Implementation Teams. In contrast, the value of the revised CAAS to sage-grouse conservation is weakened if it is written to *follow* these dependent efforts rather than set a baseline and expectations that *lead* other agencies, partners, collaborative decision-making to do all that is necessary for the species.

To this point, it is concerning that the draft updated CAAS characterizes the 2015 Oregon Sage-Grouse Action Plan as "expand[ing] upon" the 2011 CAAS and that the draft proposed CAAS is "considered a complementary document to the Action Plan, focusing on ODFW's specific responsibilities for managing Oregon's sage-grouse populations, and ODFW's role in cooperation and coordination under the Action Plan…" The problem is, the 2015 Action Plan itself drew from the 2011 CAAS and, where the Action Plan might fall short of its goals, it will be important that the new CAAS include the substance and direction needed to inform revisions and future adaptive management. Indeed, in 2021, members of SageCon assessed 5 years of implementation of the Action Plan and found that it was failing to achieve statewide population and habitat goals, due in part to the plan's approach and complexity and a lack of local capacity and resources to implement the plan, but also due to "a lack of specific and measurable objectives and mechanisms to adjust actions to work more effectively toward meeting objectives." The updated CAAS should provide the latest research and management prescriptions needed to support revisions to the 2015 Action Plan and related planning and management.

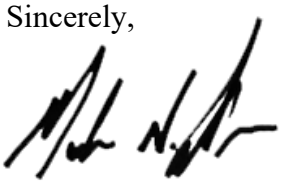
The draft updated Oregon Greater Sage-Grouse Conservation Assessment and Strategy implicates the "Big 3" for causing the majority of sage-grouse habitat degradation in the state, but mostly overlooks a fourth factor driving habitat transition to lower quality ecological states and ecosystem dysfunction.

The draft updated CAAS identifies invasive species, conifer encroachment, and wildfire as the three most significant and pervasive threats to sage-grouse and their habitat (the "Big 3"), but only marginally addresses the catalyzing and complicating effects and interaction of domestic livestock grazing on sagebrush steppe and with the Big 3. Both the legacy effects of grazing and current grazing management influence vegetation composition in sage-grouse habitat, leading to the establishment and spread of invasive annual grasses and juniper encroachment, which have, in turn, affected wildfire regimes. Even with improved understanding of range management, domestic livestock grazing is still typically conducted for durations, during seasons of the year and at intensities that knowingly contribute to habitat degradation. The updated CAAS would best serve sage-grouse if it included a more robust assessment of the direct, indirect and cumulative impacts of grazing on sage-grouse habitats.

* * *

Thank you for your consideration of these comments. We look forward to providing additional input on the draft CAAS in coming days.

Sincerely,



Mark N. Salvo
Conservation Director

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Outlook

Sage-grouse Plan Revision [#11]

From Wufoo <no-reply@wufoo.com>
Date Sat 7/12/2025 9:02 AM
To SageGrouse Plan * ODFW <SageGrouse.Plan@odfw.oregon.gov>

Are you an Oregon resident? (Optional)	Yes
Email	garrettbend@gmail.com
	• I understand that I am agreeing to receive email messages about the Oregon Sage-Grouse Plan Revision at the email address listed above.
COMMENT BOX	You need more attention to the importance of having an intact understory of native grouse-preferred forbs available for chicks and hens in the spring lekking and brood rearing times.

Outlook

Comments on Chapter 8: Management Approach / Section 8: Sage-grouse Management Protocols

From Talha Mansur Khan <talha_mk@hotmail.com>
Date Mon 7/28/2025 12:04 AM
To SageGrouse Plan * ODFW <SageGrouse.Plan@odfw.oregon.gov>

Comments on Chapter 8: Management Approach / Section 8: Sage-grouse Management Protocols

1) The Harvest Management section needs to place stronger emphasis on the "optimum recreational benefits" goal of the Oregon Revised Statute 496.012 with regard to sage-grouse harvest. The plan should explicitly acknowledge that as a gamebird, sage-grouse are a resource and hunting provides a recreational benefit to the people. Strong language is needed as a safeguard against over-zealous commissioners who have suggested placing further restrictions on sage-grouse harvest that are not backed by the best available science. Proposals to place further restrictions on an already restrictive season framework are distractions from the main reasons for sage-grouse population declines (habitat loss, wildfires, invasive annual grasses, juniper encroachment, etc.). As already included in the draft, "USFWS found that harvest was not a significant threat to sage-grouse populations under existing frameworks". The sage grouse season provides hunters with the incentive to visit remote regions of Oregon which they otherwise would not visit and results in contributions to local economies.

2) The CAAS needs to state a clear department conclusion in the Science Review section. Several studies have been cited in the literature review. Some suggest hunting may lead to additive mortality while others suggest that conservative hunting seasons are likely to fall under the compensatory regime. What's the CAAS bottom line takeaway from the literature review? Is the current harvest framework leading to compensatory or additive mortality? Does the science review need to include more recent studies? It feels like very few studies published since the previous CAAS in 2011 have been cited. The reference list has not been included in the draft.

3) The harvest management approach needs to quantify the number/proportion of hunter-harvested wings the department needs to make meaningful conclusions about the sage-grouse population structure. If the new population model suggests that Oregon has been undercounting sage-grouse by approximately 1/3, then the number of hunter-harvested wings needed to make meaningful conclusions should also scale. Recommendation 1 in Chapter 8 states that "Develop a harvest management protocol that incorporates the new population model that maintains harvest at a conservative level but provides an adequate sample of wings to evaluate population demographics in hunted units." The CAAS needs to quantify what an "adequate" sample of wings is. The current language is subjective and not meaningful.

4) The number of available permit numbers needs to increase, especially since the new population model is suggesting the true sage-grouse population has been under-estimated. With actual harvest hovering around 3%, why reduce opportunity? The overall number of available permits has halved since 2007 (1300 in 2007 vs. 670 in 2024). Available permits are under-supplied. The number of first choice applicants exceeded the number of permits drawn for 8 out of the 10 hunt units in 2024. ODFW should publish how many applicants were unsuccessful in the draw for each hunt.

5) The framework around permit number announcements needs to change. Gamebird regs come out late June/early July. Sage-grouse hunt applications open July 01. Yet permit numbers aren't announced until early August, which is a source of frustration.

6) CAAS should include how to improve sage-grouse hunter engagement. The Department should provide information to hunters on their harvested birds based on the submitted wings, similar to the USFWS band program. ODFW should invite hunters who have submitted wings to the wing bee. ODFW should specifically advertise habitat improvement projects such as juniper removal to sage-grouse hunters.