



Date: March 22, 2019
From: Audubon Society of Portland et al
To: US Fish and Wildlife Service permitsR1MB@fws.gov
Re: Common Raven Removal Draft EA Comments

Dear US Fish and Wildlife Service Migratory Bird Office,

We the undersigned organizations, are writing to express our strong opposition to the proposal by Oregon Department of Fish and Wildlife (ODFW) to kill up to 1,500 Common Ravens (*Corvus corax*) in Baker County over the next three years. We urge the US Fish and Wildlife Service (USFWS) to adopt the “No Action” alternative in the *Draft Environmental Assessment Scientific Collecting Permit for Common Raven Removal*. (EA) and to deny ODFW’s permit request under the Migratory Bird Treaty Act (MBTA).

The proposal outlined in the EA is not adequately supported by scientific research, could result in the deaths of far more ravens than permitted, poses a significant threat to non-target species, would result in inhumane treatment of wildlife, and is contrary to the law. It comes at a time when state and federal agencies are conducting inadequate efforts to protect Greater Sage-grouse (*Centrocercus urophasianus*) (hereinafter “sage-grouse in Oregon and across the West and in fact, at a time when the Trump Administration is rolling back critical protections for Greater Sage Grouse. The draft EA and companion application to take ravens in Baker County represent an unfortunate perpetuation of a pattern of scapegoating one wildlife species for the decline of another, while at the same time failing to adequately address primary causes of decline.

Our groups all share a deep concern for the status of sage-grouse in Oregon and in Baker County. Many of our groups have been directly involved in Oregon’s SageCon Partnership which developed the Oregon Sage-grouse State Action Plan (2015). The declining populations of sage-grouse across the west, in Oregon and in Baker County,

merit aggressive recovery actions and may well merit strong consideration for future listing under the Endangered Species Act (ESA). The proposal to lethally control as many as 1,500 ravens in Baker County however, stands as a diversion and a distraction from this important work.

ORGANIZATIONAL DESCRIPTIONS

Audubon Society of Portland is a non-profit, public interest organization founded in 1902 with a mission to promote the enjoyment understanding and protection of native birds, other wildlife and their habitats. Audubon Society of Portland has more than 17,000 members, sanctuaries at Oregon's coast, in Portland and on Mt Hood, and staff positioned at the coast, in Portland and in Eastern Oregon. Audubon Society of Portland's work protecting the desert habitats on which sage-grouse depend dates back to its founding 1902. The organization has been active in efforts to protect and recover sage-grouse including participating in the Oregon Sage-grouse Conservation Partnership (SageCon), which developed the Oregon Sage-Grouse Action Plan, since its inception in 2010.

The **Oregon Natural Desert Association** is a non-profit, public interest organization dedicated to the conservation of eastern Oregon's public lands. Founded in 1989, ONDA's mission is to protect, defend, and restore Oregon's high desert. The organization has more than 10,000 members and supporters. ONDA has a long history of interest and involvement in BLM activities with respect to Greater sage-grouse (*Centrocercus urophasianus*) habitat management, livestock grazing, management of energy generation and transmission, travel management, riparian areas, water quality, fish and wildlife, and wilderness.

Founded in 1974, **Oregon Wild** represents more than 20,000 members and supporters from across the state of Oregon who support the organization's mission to protect our state's wildlands, wildlife, and waters as an enduring legacy. Oregon Wild has long worked to protect and restore native species and their habitats by ensuring that state and federal agencies incorporate the best available science into their decision making, fully engage the public, and obey laws and regulations that protect wildlife and other public resources.

Lane County Audubon Society is a nonprofit, public interest organization dedicated to the conservation of and education about our natural environment, with a primary focus on birds and other wildlife and their habitats.

Predator Defense is a non-profit, public interest organization whose mission is to protect native predators and end America's war on wildlife.

Center for Biological Diversity is a non-profit, public interest organization. The Center for Biological Diversity believes that the welfare of human beings is deeply linked to

nature — to the existence in our world of a vast diversity of wild animals and plants. Because diversity has intrinsic value, and because its loss impoverishes society, we work to secure a future for all species, great and small, hovering on the brink of extinction. It does so through science, law and creative media, with a focus on protecting the lands, waters and climate that species need to survive. We want those who come after us to inherit a world where the wild is still alive.

Salem Audubon Society is a non-profit, public interest organization. Salem Audubon is an active chapter of the National Audubon Society. Its mission is to connect people to nature, through education focused on birds, other wildlife and their habitats, and conservation and restoration of natural ecosystems. To this end Salem Audubon promotes the enjoyment of birds and environmental stewardship with birding field trips and educational programs, and involvement in education, advocacy and restoration projects

Umpqua Valley Audubon Society is a non-profit, public interest organization. It welcomes birders and nature enthusiasts to occasional field trips, programs, birding classes and other activities that encourage enjoyment, appreciation and protection of the beautiful valleys of the Umpqua. Umpqua Valley Audubon Society is a chapter of the National Audubon Society.

Humane Voters Oregon is a non-partisan organization that promotes humane treatment of animals through participation in Oregon's political process. We endorse, support and contribute to candidates who support humane treatment of animals. We also lobby elected officials to pass and retain laws that require humane treatment of animals, and we publish voting records of elected officials on issues affecting animals so that voters can hold their elected officials accountable.

Corvallis Audubon Society is a non-profit, public interest organization whose objectives are to engage in any such educational, scientific, investigative, literary, historical, philanthropic and charitable pursuits as may be part of the state purpose of the National Audubon Society.

Western Watersheds Project is an Idaho-based nonprofit membership organization with over 1,500 members, dedicated to protecting and conserving the public lands and natural resources of watersheds in the American West. WWP, as an organization and on behalf of its members, is concerned with and active in seeking to protect and improve the wildlife, riparian areas, water quality, fisheries, and other natural resources and ecological values of watersheds throughout the West, and in Idaho.

East Cascades Audubon Society is a nonprofit, public interest organization organized for the charitable, educational, and scientific purpose of bird study and conservation through engaging the public in volunteer field studies, through educational programs, and by supporting projects that further the knowledge and appreciation of birds and their habitats. This passion for birds and birding fuels the East Cascades Audubon Society to take action, inspire others and engage in projects that promote a better understanding

of the natural world. East Cascades Audubon Society has been an active participant in the Oregon SageCon stakeholder group.

Defenders of Wildlife is a nonprofit, public interest organization founded in 1947. Defenders of Wildlife is a major national conservation organization focused solely on wildlife and habitat conservation and the safeguarding of biodiversity. Defenders believes in the inherent value of wildlife and the natural world.

Humane Society of the United States is a nonprofit public interest organization that come to the aid of animals in crisis and also attacks the root causes of problems. HSUS' most important goal is to prevent animals from getting into situations of distress in the first place. HSUS drives transformational change for animals—bringing a wide set of tools to take on the biggest fights, confronting multibillion dollar industries and staying the course to achieve reform.

The following are our specific concerns with the EA and MBTA take permit application:

- 1. Neither ODFW or USFWS have conducted any research in Baker County to link Raven predation with Gage-Grouse declines. The EA is based entirely on speculation:**

The agencies base the proposal to kill up to 1,500 ravens over a three year period entirely on a small number of studies from areas outside Oregon that show that high densities of ravens may suppress sage-grouse nesting success. The agencies have not provided any data or research at all from Baker County or from the Baker Sage-grouse PAC demonstrating that raven populations in Baker County actually are predating on sage-grouse nests and contributing to the decline of local sage-grouse populations within the Baker PAC.

The permit application to kill up to 1,500 ravens is entirely based on two seasons of point count data that indicate that raven population density within the Baker PAC is estimated to be 0.52 ravens/ km². (EA at 7). ODFW acknowledges that although it could have placed remote cameras at Sage-Grouse nesting areas to document raven predation, it chose not to do so (personal communication.) It is remarkable and deeply troubling that the agencies would propose a three year, taxpayer funded effort that will result in the deaths of up to 1,500 ravens without being able to provide a single documented case in which a raven can be shown to have been the cause of a sage-grouse nest failure within the Baker PAC.

Moreover, the agencies provide no explanation as to why they have singled out ravens for lethal control, as opposed to other species that can depredate on sage-grouse nests. The ODFW Study Design acknowledges that multiple species can depredate on sage-grouse nests including red foxes, badgers, coyotes and black-billed magpies, as well as ravens. (ODFW Study Design at 3). All of these species are present within the Baker PAC. However, the agencies, without explanation or data regarding what species are predating on sage-grouse nests and whether any of these species is having a significant impact, have chosen to focus exclusively on ravens. The singling out of ravens appears to be arbitrary in terms of the predators that could potentially have an impact on sage-grouse nesting success. It also raises the concern that the agencies will arbitrarily decide to target other potential predators within the Baker PAC in the future without data to support those efforts either.

The agencies should not proceed with lethal control of ravens in the Baker PAC without specific data indicating that ravens are depredating on sage-grouse nests, information about other predator impacts, habitat conditions within the PAC and analysis/ modeling that demonstrates that raven removal will be an effective strategy for increasing sage-grouse nesting success.

2. The Studies on which the agencies predicate their proposed lethal control action are inconclusive and do not support a decision to lethally control ravens in the Baker PAC.

USFWS and ODFW predicate the proposed raven lethal control alternatives on a handful of studies conducted entirely outside the Baker PAC, Baker County and Oregon. We challenge the applicability of these studies to the Baker PAC, especially given the fact that the agencies have not provided a single documented case of a raven actually predating on a sage-grouse nest in Baker County.

A review of the studies cited by ODFW to support killing ravens in Baker County reveals that these studies are far from conclusive about the efficacy of raven control in terms of increasing raven nesting success and in fact, strongly indicate that local research is needed about the impacts of ravens and other predatory species on sage-grouse nests before lethal action could be justified.

Coates et al., (2008) in a study conducted from 2002 to 2005 in Idaho and Nevada using remote cameras found that out of 87 nests monitored, ravens predated on 10 nests and badgers on 7 nests respectively. They note that without direct observation “the identity of nest predators is often uncertain.”

Coates et al. (2010) in another study conducted in Idaho correlated high raven densities with lower sage-grouse nest success, but also found that badgers were responsible for nearly half the video monitored nest predations. This study also looked at the habitat

characteristics where raven predation is likely to increase, something ODFW and USFWS fail to do in their proposal.

Coates (2007) in research conducted in Idaho determined that raven reduction increased sage-grouse nest success, but badger predation partially compensated for the reduction. This study concluded that “If corvid removal is being considered as an option to increase sage-grouse success, managers should first identify predators within the community for possible compensatory effects.” (Coates at 152). It further notes that “Effectiveness of corvid removal appears to depend on the composition of the predator community and may be appropriate at the local scale in corvids are found to be important predators.” (Coates at 153). ODFW and USFWS provide no discussion or analysis in the draft EA or Study Design of degree to which raven predation is likely to be compensatory versus additive or of other predators which may be having an impact in the area.¹

Dinkens et al. (2016) also identify multiple challenges with raven control in terms of increasing sage-grouse nesting success. Specifically, Dinkens et al. note the potential for compensatory predation by other species, the importance of assessing habitat quality, impacts of weather patterns on predation risk, and the fact that any benefits derived from raven control are “short lived.” They state that effective strategies must focus on reducing human subsidies to ravens.² Dinkens et al. write:

However, identification of areas where sage-grouse may benefit from raven removal and implementation of a raven removal program targeted at benefitting sage-grouse will not be an easy task. Management of both breeding and transient ravens will be necessary, which will present many challenges. Predator removal as an interim mitigation measure may have a place in sage-grouse management when sage-grouse populations are subjected to high densities of ravens. However, low reproductive rates may persist in many areas due to compensatory predation by other predators (Bui et al., 2010, Coates, 2007), and increasing nest success may not translate to increases in population size. Thus, long-term solutions to reduce human-subsidized raven populations are necessary to address potential negative effects of growing raven populations in sage-grouse habitat. Reducing raven abundance may be possible through non-

¹ Also of interest in Coates (2007) is the discussion of the risk the cattle grazing presents to sage-grouse. Coates states, “Other factors, including other nest predators, undoubtedly are responsible for some nest predation. I video-recorded a domestic cow directly damaging a sage-grouse nest. Also, I suspected that 2 nests were abandoned because of the presence of livestock at nest sites based on video images. In Wyoming, domestic livestock were thought to cause nest abandonment based on images by remote sensing cameras (Holloran and Anderson 2001).” (Coates at 153) ODFW and USFWS provide no discussion direct risks that grazing presents to sage-grouse nesting success.

² Dinkens et al also found that coyote population control to protect livestock correlated with increased nest failure. They write, “Areas with human suppressed coyote numbers (i.e., more coyotes removed per km² by WS) did not have higher nest success; in fact, the lowest nest success for sage-grouse was in the study sites and years with the most coyote removal—when there was a greater amount of precipitation.” (Dinkens et al at 56). They speculate that this coyote suppression may result in an increase in other mesopredators. Perhaps the Agencies should consider reducing coyote control rather than killing ravens as a way to increase sage-grouse nesting success.

lethal means, such as reducing availability of supplemental food (road-kill, dead livestock, and garbage) and nesting and perching structures (oil and gas structures, power lines, telephone poles, communication towers, etc.; Jiménez and Conover, 2001). (Dinkins et al. at 57).

Lockyer et al. (2013) in a study of sage-grouse nesting success in Nevada using video cameras write that while common ravens were the most common predator of sage-grouse nests, they accounted for less than half the documented depredations. They promote reduction of human subsidies to ravens rather than lethal control as a strategy for reducing raven predation. Lockyer et al. write:

*“... common ravens were the most frequent sage-grouse nest predator, accounting for 46.7% of nest depredations. We also successfully documented a suite of mammalian and reptilian species depredating sage-grouse nests, including some predators never previously confirmed in the literature to be sage-grouse nest predators (i.e., bobcats *Lynx rufus* and long-tailed weasels *Mephitis frenata*). Within the high elevation, disturbed habitat of the Virginia Mountains, low sage-grouse nest success may be limiting sage-grouse population growth. These results suggest that management actions that restore habitat in the Virginia Mountains and decrease anthropogenic subsidies of ravens will benefit sage-grouse.” (Lockyer et al. at 242).*

Peebles et al. (2017) studied the benefits of raven control in Wyoming, but the research is hardly definitive in terms of its conclusions regarding the benefits of raven control for sage-grouse nesting success. They write, “The percent change in raven density at removal sites was associated with greater lek counts in those same sites after a year delay. It is possible (emphasis added) that suppressed raven densities reduced the proportion of sage-grouse nests depredated by ravens.” (Peebles et al. at 9999).

ODFW and USFWS appear to have used a very small number of studies, all conducted outside Oregon, to justify a massive raven killing program in Baker County. The use of these studies appears to be highly selective and in every instance ignores significant mitigating factors detailed in these studies that would cast significant doubt on the efficacy of all of the action alternatives included in the Baker PAC Raven Control EA. Among the critical factors that the EA fails to disclose:

- All studies cited occurred outside of the Baker PAC area and outside of Oregon.
- Most studies relied on remote cameras to document predation activities prior to conducting lethal control, something ODFW has failed to do to date and does not include in its study plan, making it impossible to assess the actual efficacy of its proposal.
- None of these studies actually prescribe specific targets for raven population reduction in their conclusions or management recommendations.

- All of the studies noted the importance of considering other species that may also be impacting sage-grouse nest success.
- The importance of considering compensatory mortality.
- The impact of seasonal weather conditions and habitat conditions on the risk of nest predation.
- The relative benefit of reducing human subsidies for ravens relative to the benefits of lethal control.
- The EA and Study Design provide no meaningful basis at how the agencies arrived at the target of 0.15 ravens/ km². Nor is basis for this target can be found in any of the studies cited.

3. The EA fails to meaningfully assess the benefits of raven control for sage-grouse.

Because the agencies have no data regarding actual sage-grouse nest predation by ravens or other species in Baker County, there is simply no basis for the agencies to conclude that “It is expected that the immediate relief from raven-caused depredation of sage-grouse nests will halt further sage-grouse declines while habitat restoration and raven subsidy removal activities have time to take effect.” (EA at18). USFWS and ODFW have zero data to show that ravens are impacting sage-grouse populations in the Baker PAC let alone reach the conclusion that raven population reduction will completely halt sage-grouse declines. This is a remarkable statement that is based on pure speculation and which completely ignores the complex set of factors that drive sage-grouse population dynamics. The agencies should not move forward with large scale raven killing, funded at taxpayer expense, without any meaningful cost/ benefit analysis. To proceed without this type of analysis risks spending large sums of taxpayer money and killing up to 1,500 ravens for minimal or no benefit.

4. The EA and MBTA Permit Application would result in violations of the Migratory Bird Treaty Act by causing the death of protected bird species that are not included in the permit application.

The Migratory Bird Treaty Act prohibits that take of avian species protected under the Act without a permit issued by USFWS. However, the draft EA fails to provide any estimates of non-target take and ODFW does not seek any authorization for non-target take in its MBTA permit application. As proposed, the use of eggs poisoned with DRC-1339 would inevitably result in the deaths of non-target species, with other corvids such as crows and magpies being among the most likely mortalities, but other species at high risk as well. It is notable that in other large scale lethal avian control activities such as the lethal control of Double-crested Cormorants on East Sand Island, USFWS explicitly analyzed and provided MBTA permits to cover potential take of non-target protected birds. Any non-target protected bird species that are taken in this project would represent a clear violation of the MBTA and be a violation of federal law.

The draft EA and ODFW Study Plan provide a cursory explanation of steps that ODFW or its agents will take to minimize impacts to non-target species. This includes pre-baiting sites with non-poisoned chicken eggs to determine whether non-target species are taking eggs as well as observing pre-baited sites to observe if ravens are caching rather than consuming eggs. However, these strategies are insufficient to prevent the poisoning of non-target species. ODFW acknowledges that even with these strategies in place, it anticipates that at least 75% of the poisoned eggs taken will be cached by ravens. The Study Design states that the agencies will base raven mortality estimates on the number of poisoned eggs taken by ravens divided by 4, because they expect even with strategies in place to prevent non-target species from taking eggs and egg caching, up to 75% of the eggs will still be cached. This means that in order to reach their target of 500 ravens per season, ravens will need to take at least 2,000 baited eggs of which the agencies expect 1,500 will be cached at locations other than the bait stations. These eggs could be accessible to a wide variety of non-target species. The agencies provide no analysis of the risk to other species presented by the distribution of up to 1,500 baited eggs across the landscape each season. (Study Design at 8). It is remarkable and troubling that the information regarding the expectation that 75% of the bait eggs will be cached is not acknowledged or analyzed in the EA itself. This information only appears on the second to last page of the Study Design.

The Agencies also claim that risks to certain species such as raptors and mammals is limited because some species have a higher tolerance for DRC-1339 than ravens (EA at 11). However, the key factor that the agencies fail to adequately address or acknowledge is that what matters is not the amount of DRC-1339 necessary that a raven must consume to receive a lethal dose, but rather the amount of DRC-1339 that is actually in baited eggs. With regards to risk of secondary poisonings, the agencies should address amount of DRC-1339 it will be placing in poisoned eggs and the lethal and sub-lethal impacts on species present in the Baker PAC area that may consume one or more eggs (bait stations will have up to four eggs so there is a potential for a predator to get 4 times the dose per egg).

Finally, the EA fails to address the issue of sub-lethal impacts on other species. The fact that a species may consume a quantity of DRC-1339 below the threshold to cause death does not preclude sub-lethal impacts that could increase risks of predation, starvation or other harm to species that are exposed to DRC-139. Given that much of the proposed activity will occur during nesting season, there is also a risk of causing nest failure of birds that are in some way incapacitated by sub-lethal exposures.

These concerns are not de minimus given that the agencies anticipate that up to 500 poisoned ravens will be scattered across the landscape of which the agencies acknowledge most will not be recovered, and an additional 1,500 poisoned eggs will also be scattered across the landscape that the agencies also anticipate will be cached and not recovered.

5. The raven control project will result in unacceptable inhumane outcomes including the death by starvation of raven nestlings and fledglings:

USFWS and ODFW fail entirely to address the issue of what will happen to raven nestlings whose parents are killed by the use of DRC-1339. The time period where lethal control will occur extends from March until June covering much of raven breeding season in Eastern Oregon. Adult ravens which are killed in this project have a high probability of leaving behind active nests with young or fledglings that are still dependent on parents for survival. These young will starve to death when their parents do not return with food. It is deeply troubling that USFWS would release a draft EA without even attempting to address the ethical and ecological impacts of a lethal control strategy that could result in the orphaning and starvation of hundreds of nests full of nestling ravens over the course of the project.

Our understanding from ODFW staff (personal communication) is that there simply is no plan to address this concern and that lethal control strategies are being pursued during nesting season because ODFW staff believe that this is when they will have the greatest impact. It is notable that the EA did not evaluate any alternatives to conduct lethal control outside of nesting season to avoid this type of inhumane outcome. Ironically, the EA states that the agencies are "...implementing the most humane methods for taking ravens" (EA at 21). It is impossible to reconcile this statement with the fact that FWS does not discuss, consider, evaluate or provide any analysis that addresses the fact that it will be intentionally leaving hundreds, perhaps thousands, of young ravens to starve to death. Nor does it provide or consider any action alternative that considers non-lethal control (reducing human subsidies) or conducting lethal control outside of nesting season.

6. The EA and MBTA Permit Application fail to include egg failure, nestling mortality and juvenile mortality in their estimates of the number of ravens to be lethally controlled during the course of this action.

The lethal control activity will occur from March until June of the calendar year. This is a period when ravens will be incubating eggs, caring for nestlings and supporting fledglings that have left the nest but are still dependent on parents for survival. The EA and MBTA Permit Application fail entirely to account for egg failures, nesting mortality and fledgling mortality that will result from this lethal control action. Mortality could occur when eggs are not incubated and when nestlings and young are not provided with food. It could also occur if nestlings and young are fed poisoned eggs by their parents. The result is that lethal take may actually far exceed the targets that are outlined in the EA and Study Plan.

ODFW writes that it will estimate the number of ravens taken by counting the number of poisoned eggs taken by ravens and dividing by four (ODFW assumes that 3 out of four eggs taken will not result in death of ravens.) However, if poisoned adult ravens leave behind active nests or if adult ravens feed poisoned eggs to nestlings, each poisoned egg taken may result in multiple raven deaths. Ravens typically have anywhere from 4-6 eggs. If a poisoned egg results in total nest failure, the take per poisoned egg may be as high as seven ravens (adult plus eggs or young).

We strongly believe that the law requires that USFWS account for both direct and indirect take of young in the permits that it issues under the MBTA and the analysis of impacts it includes in the EA. However, even if USFWS only focuses on direct take (eg ignores secondary deaths caused by orphaning), the EA and Study Plan still fail to account for nestlings and fledglings that have been fed poisoned eggs by their parents. As a result of this deficiency, this project has a high probability of significantly exceeding the take limits described in the EA and requested by ODFW in their permit application and would result in a clear violation of the MBTA's prohibition on unpermitted take of protected avian species.

7. The action alternatives are all likely to result in raven deaths far above target levels.

USFWS estimates that there are approximately 708 ravens in the Baker PAC area (CI 95%: 449-1089). (EA at 7). The preferred alternative would allow the ODFW to take up to 500 ravens per season, a number that exceeds the low end of the 95% confidence interval and therefore potentially the total number of ravens actually in the Baker PAC.

First, although the Agencies cap the annual take at 500 ravens, the methodology described is likely to result in a significantly higher level of take. ODFW acknowledges that most of the ravens that die from consuming poisoned eggs will never be recovered. (Study Design at 2). Instead, ODFW writes that it will estimate the number of ravens killed based on the number of poisoned eggs removed by ravens divided by 4 based on the "propensity of ravens to cache eggs." (Study Design at 8) This means that in order to achieve the target of 500 dead ravens, ravens will have to remove 2,000 poisoned eggs from bait stations. This presents a significant risk that far more poisoned eggs will be consumed by ravens than predicted. In fact, if the number of ravens within the PAC is at or above the high end of the confidence interval or there is raven immigration into the PAC while baiting is occurring, the range of lethally controlled ravens would extend from 0 (if 100% of eggs are cached) to 2000 (if 100% of eggs are consumed.) There is a high potential that far more ravens could be killed than anticipated in the EA and the Study Design and even that 100% of the ravens in the Baker PAC area could be killed, a possibility that is not adequately analyzed in the EA.

Second, the agencies fail to account for direct nest mortality (caused by adults feeding poisoned eggs to young) or indirect mortality (caused by orphaning of young whose parents have been poisoned). In either of these circumstances, the removal of an individual egg by a raven could result in multiple raven deaths rather than ODFW's estimate of 0.25 ravens per egg removed.

The EA and Study Design appear to grossly underestimate the potential impacts on ravens.

8. USFWS fails to provide or consider non-lethal alternatives to reduce alleged Raven predation on Sage-Grouse nests in the Baker PAC

The EA and ODFW Study Design provide nominal amounts of information about a parallel study of the efficacy of non-lethal raven removal strategies to reduce raven populations at Cow Lakes and Soldier Creek. In fact, the information is so cursory that it suggests that this element of the plan may have been referenced more to give the appearance of a comparative study, rather than as a real commitment to exploring non-lethal approaches. USFWS does not provide any alternatives in the EA that include only non-lethal raven population strategies such as removal of human subsidies for ravens in the Baker PAC. ODFW dismisses the potential to utilize non-lethal control strategies in Baker County with a single line of explanation stating: "Due to long time frames required to reduce raven populations through non-lethal means alone, lethal raven removal will be necessary to achieve the goals of this project." (Study Design at 2). Neither ODFW nor USFWS provide information or citations to support this statement. Failure to provide analysis of alternatives that focus on non-lethal strategies to address potential raven predation on sage-grouse nests is a potential violation of both NEPA and the MBTA.

Also notable is that neither the EA or Study Design provides any description of how non-lethal strategies (such as removal of human subsidies for ravens) will be implemented in concert with the lethal control actions in the Baker PAC. The EA acknowledges that raven population reduction in the long term requires reduction of human subsidies (EA at 6), However, the EA and Study Design do not even provide cursory information about how this critical component of raven population control will be accomplished in Baker County.

9. The EA does not disclose how ODFW/ USDA Wildlife Services will ensure compliance with DRC-1339 label restrictions:

The EA discloses that ravens will be killed using DRC-1339, an EPA-registered avicide. DRC-1339 will be injected into eggs that will be used as bait for ravens. The avicide is "slow acting" and "kills target birds in 1 to 3 days." It is a violation of federal law to use

DRC-1339 in contravention of the label requirements. Label requirements applicable to APHIS's preparations of DRC-1339 by egg baits include the following:

- Environmental Hazards: This project is highly toxic to birds and aquatic invertebrates. **Do not** use in any manner that may endanger desirable and protected bird species. Runoff may be hazardous to aquatic organisms in neighboring areas.
- ...As many types of non-target birds are potentially vulnerable to DRC-1339, it is necessary to use care and to the requirements of this label to minimize impacts to non-target species.
- **Do not** store, apply, or even temporarily place treated bait in locations accessible to children, pets, domestic animals, or non-target wildlife.
- Observe baited areas (from blinds) early in the prebaiting or baiting period to determine whether non-target species are approaching egg baits.
- . . . Beginning one day after bait application, search treated areas, immediate surrounding areas, and known raven, crow, and magpie roost sites (if accessible) for carcasses of dead or dying birds. Bury or burn retrieved carcasses according to applicable laws. Repeat carcass searches at 1-3 day intervals as long as bait is exposed and likely to remain toxic.

The EA provides a total of one inadequate paragraph describing the methodology of bait placement and a total of seven lines of text describing how reducing exposure of non-target species will be achieved. (EA at 12). The text provided is woefully insufficient to provide any level of confidence in or understanding of how ODFW plans to conduct this activity. The DRC-1339 label requires that applicators prebait the site to ensure that non-target species are not using the site and caching is not occurring. The EA statement that applicators will use camera traps to evaluate site use by non-target species and remain in the vicinity with binoculars to observe caching behavior, leaves many questions unanswered:.

1. Will applicators remain in the vicinity of all bait stations throughout the entire prebaiting and baiting period while eggs are present?
2. If not, how will ODFW deal with incomplete or uncertain data regarding caching behavior or consumption by non-target wildlife? Camera traps are insufficient to capture either caching behavior or consumption of eggs by non-target species after caching.
3. The EA states that only 2-4 eggs at a time will be placed at each bait station and left of up to one week. In order to kill 500 ravens in a matter of four months, ODFW will need to utilize dozens of bait stations at a time. How many bait stations does ODFW anticipate will be needed and how will ODFW effectively monitor these sites?
4. The EA anticipates that very few poisoned raven carcasses will be recovered. What methodology will ODFW use to try and recover poisoned carcasses as required by the label?
5. Despite cursory discussion of the precautions that will be incorporated into the methodology, ODFW writes that it will estimate the number of ravens killed by

counting the number of eggs taken by ravens and dividing by four “to account for the propensity of ravens to cache eggs.” (Study Design at 8). This indicates, regardless of the precautions put in place by ODFW, the agency still expects that 3 out of 4 eggs taken by ravens will be cached. This means that in order to kill 500 ravens in a season, ravens will need to take 2,000 eggs of which ODFW estimates 1,500 will be cached. This indicates that ODFW’s methodology is in fact, by the agency’s own account highly ineffective to prevent caching and creates the potential to 1) kill far more ravens than would be permitted if in fact the cache rate is lower than 75%, 2) result in the mortality of significant numbers of non-target wildlife if the eggs are cached, 3) leave a significant number of poisoned eggs out in the environment, and 4) result in eggs being cached in locations that would be prohibited by the avicide label,

Other concerns aside, this project should not proceed unless the agencies can clearly describe how they intend to prevent non-target species from accessing baited eggs at bait stations and bring the number of cached eggs down to de minimus levels.

6. The Agencies have failed to adequately address other causes of Raven declines within the Baker PAC, statewide or range wide.

At the same time that the agencies are proposing to kill as many as 500 ravens a year for three years without any research demonstrating that ravens are actually suppressing sage-grouse nesting success in the Baker PAC, they are also taking inadequate steps to address other threats to this sage-grouse population.

The *Baker Priority Area of Conservation Comprehensive Sage-grouse Threat Reduction Plan* and the BLM Causal Factor Analysis identify multiple threats to sage-grouse populations in the Baker PAC. However, some of the most significant threats are inadequately addressed. For example, recreational use of the 4000+ acres Virtue Flats Off Highway Vehicle (OHV) area located on BLM land has experienced significant sage-grouse populations declines. The Local Implementation Team writes the following in the Threat Reduction Plan:

High levels of recreation use in the Baker PAC are concentrated along Highway 86 where it enters the PAC on the west end. Collectively, the OHV area, shooting range, and Interpretive Center cover roughly 6000 acres, or about 1.8% of the PAC. Within 2.0 miles of the OHV area, there are four lek complexes³ comprising eight leks. Approximately 22% of all male birds counted in the Baker PAC in 2016 were counted on these leks, indicating the importance of this area

³ ODFW defines a lek complex as a collection of lek sites typically with small numbers of males that are associated with a larger lek site in the vicinity (≤ 1 mile).

to the population. The number of males counted at the only lek (BA0168) inside the OHV area dropped from a high in 2011 of 15 to a low of one in 2016. Counts at the two lek complexes east of the OHV area (BA0146 and BA0144) since 2012 have yielded only 2 birds at one complex and no birds at the other complex. The majority (two-thirds) of birds counted within 2.0 miles of the OHV area have been counted at the four leks comprising the Virtue Flat Lek Complex located south of the OHV area. Telemetry data indicate that some sage-grouse continue to winter in the Virtue Flat area; winter recreation use of the OHV play area is very low. However, none of birds that were captured and outfitted with telemetry were captured on the Virtue Flat Lek Complex. The team concluded that recreation use was a contributing factor in the failure of sage-grouse populations to recover but only in the limited area where NHOTIC, the OHV play area, and the shooting range are located.

However, unlike the extremely aggressive action the agencies are proposing to address the hypothetical threat presented by ravens, the BLM has decided to take a primarily voluntary approach to reducing impacts from the OHV Area. The plan relies primarily on signage and voluntary compliance as well as enforcement of noise ordinances to reduce the impacts of OHV's within the Baker PAC but intends to allow that activity to continue. The EA must analyze other threats to Baker PAC sage-grouse populations in order to support a reasoned decision regarding raven removal. The cumulative effects to sage-grouse habitat from ongoing recreation use are likely to contribute to continued sage-grouse population declines confounding results from raven removal.

Statewide, limited progress has been made in terms of implementing the Sage Grouse State Action Plan leading to serious questions about the wisdom or efficacy of raven removal to recover and stabilize sage-grouse populations statewide. Among other issues the state failed to allocate full funding for plan implementation during the 2018 budget process, has not fully reconstituted local implementation teams (LITs) to develop implementation approaches and has not quantified and demonstrated results of conservation agreements.

Sage-grouse are a landscape-scale species dependent on large swaths of intact and interconnected habitat. Despite its relatively disconnected and isolated sage-grouse population, the Baker PAC has been shown to have a degree of connectivity with other populations. The lack of demonstrable results in implementing conservation actions in areas surrounding the Baker PAC undermines the case for aggressive raven removal because the Baker PAC is unlikely to persist in isolation. Conservation investments should focus on actions likely to create the highest level of long-term benefits to the greatest number of sage-grouse. Here, raven removal will necessarily benefit only a very small sage-grouse population in the short-term if at all.

At the Federal Level, the Trump Administration has rolled back key protections for Sage Grouse adopted in the BLM Approved Resource Management Plan Amendments (ARMPA). These changes include allowing increased gas and oil drilling and mining within sage-grouse habitat in adjoining states and increased grazing in Research Natural Areas here in Oregon where these activities had previously been restricted to protect sage-grouse. Taken together with the limited progress implementing the State Action Plan progress toward sage-grouse recovery has been limited. This lack of progress is evidenced by the continuing decline in the statewide sage-grouse population to approximately 18,000 individuals. ODFW, 2018.

The lack of progress in implementing strategies to protect and recover sage-grouse at the PAC, state and regional levels makes the excessively aggressive efforts to control ravens in the Baker PAC without solid data to support this action all the more troubling. We urge the Agencies to prioritize and fund strategies other than lethal control of ravens where there is better data and a higher probability of positive impacts for sage-grouse populations within the Baker PAC and statewide.

7. Although framed as a study, this project will not provide meaningful information regarding the impacts of raven densities on Sage Grouse Nesting success.

The agencies have no pre-study data on sage-grouse nesting success, sage-grouse nesting productivity or sage-grouse nest predation in the Baker PAC. Without this baseline data it will not be possible to draw meaningful conclusions regarding the impacts of reduction in raven populations on sage-grouse nesting success relative to other factors which may be impacting sage-grouse populations in the Baker PAC. We question why, if ODFW and USFWS are truly interested in researching the benefits of raven population reduction on sage-grouse populations in Baker County, they have not collected necessary baseline data to inform this project over the past two years.

We also question the validity of the comparison sites where ODFW will be taking no action (Bully Lake and Crowley PACs) and implementing non-lethal removal (Cow Lakes and Soldier Creeks PACs) strategies. The EA and Study Design do not provide enough information to generate confidence that the sites are similarly situated or that variables are sufficiently controlled such that meaningful comparisons can be made between the lethal removal, non-lethal removal, and no removal sites.

8. The EA and Study Design provide inadequate information regarding oiling of eggs in raven nests which will occur following three seasons of poisoning of ravens in the Baker PAC.

USFWS and ODFW provide virtually no detail or analysis regarding how the agencies will conduct the nest oiling actions that it anticipated will occur in years following three years of lethal control of ravens using baited eggs. In fact, this phase of the project receives a total of five lines of description in the EA. (EA at 12). Will the agencies produce a separate EA to cover this activity? How will the agencies address the situation if raven immigration into the Baker PAC results in population levels above the target level that cannot be address via egg oiling? In this situation, will the agencies resume lethal control via baited eggs. The egg oiling phase of this study should be fully described and analyzed in this EA.

9. ODFW is using modelling that it admits is unrealistic to determine the effects of the proposed action on raven populations in the Baker PAC.

The EA states: “The model is simple in that it assumes immigration and emigration do not influence the population being modeled. This “closed population” assumption is unrealistic for small, modelled populations that are encompassed by a relatively large and fluid population, such as is the case with the Baker PAC...” (EA at 16). Why is ODFW using modelling that it admits is unrealistic to describe the effects of the proposed action? Given that immigration and emigration of ravens is in fact almost certain, ODFW should develop models that provide a more realistic view of how the action alternatives will impact raven populations.

10. Other NEPA Concerns

An environmental impact statement (EIS) is required

An Environmental Impact Statement (EIS) is required for all major federal actions significantly affecting the quality of the human environment.” (42 U.S.C. § 4332(2)(c)). Because there are “substantial questions” as to whether significant impacts may occur, USFWS is required under NEPA to prepare an EIS.

Under NEPA, the question of if an action is “significant” is evaluated on the basis of both context and intensity. Here, the context of the project is the isolated area inhabited by the local (Baker) sage-grouse population, which is the bird’s most imperiled and isolated sub-population in Oregon. Further context is found in statewide and national efforts to conserve sage-grouse populations and to prevent the need to list the species as threatened or endangered under the Endangered Species Act. The effects of the proposed project on this isolated region would have both long and short-term implications for sage-grouse, corvids and other wildlife species in this threatened region

of the sagebrush steppe ecosystem, with direct relationship to sage-grouse recovery nationwide and must be thoroughly analyzed in an EIS.

The second basis for evaluating significance is the severity of the impact, or the intensity. The CEQ regulations provide ten factors to evaluate intensity where the presence of even one can be enough to require an EIS.

- **Controversy.** Under the CEQ regulations, one of the intensity factors that must be analyzed is “the degree to which the effects on the quality of the human environment are likely to be highly controversial”. Here, the agencies’ failure to collect and provide data showing ravens are depredating sage-grouse in the Baker PAC and thus having a significant impact on the population, makes the decision to kill ravens highly controversial and lacking a well-reasoned explanation. In Hagen 2011, a study cited within the EA, the author concluded that lethal techniques to manage predator populations for the benefit of avian species are often “highly controversial”, further establishing the controversial nature of predator removal as a tool to benefit sage-grouse and the need to analyze the proposed raven removal project in an EIS.

Additionally, the agencies formula for calculating how many ravens are to be killed each year is itself highly controversial and a central part of the proposed action. The formula relies on the assumption that 75% of poisoned eggs will be cached by ravens and that only one in four eggs will actually kill a raven. The inadequacy of this “best guess” approach to determining the number of ravens killed, combined with both the unknown legitimacy of the assumption (no scientific literature or data is provided in the EA to support the assumption) and the increased likelihood of other wildlife species being impacted by cached poisoned eggs, contributes to the controversial nature of the proposed action and the need of additional analysis in an EIS.

- **Uncertainty.** Under the CEQ regulations, another intensity factor that must be analyzed is “the degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.” The agencies failure to collect critical data on *if* ravens are depredating sage-grouse, and *if* depredation is a contributing factor to population declines within the Baker PAC, creates a high degree of uncertainty as to the ability of the proposed action to benefit sage-grouse in the Baker PAC. Similarly, the high degree of uncertainty related to how many poisoned eggs will actually kill ravens, creates “unknown risks” to ravens and other wildlife and a high level of uncertainty. Additional research is needed to establish a more robust environmental baseline which might help resolve the uncertainty and avoid speculation about possible effects.

There is also uncertainty to the long-term benefits of the proposed project since the EA and appendix A fail to provide any meaningful details about the non-

lethal, long-term techniques intended to reduce raven densities. The omission of details regarding this arguably more important part of the proposed project must be remedied and analyzed in detail in an EIS to reduce uncertainty regarding the long-term implications of the proposed action.

- **Unique character of area.** Another intensity factor that must be analyzed is “unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.” ODFW has designated the Baker area as a “priority area for conservation” due to it being one of most important areas in the state for sage-grouse. Because sage-grouse are an important indicator species of the overall health of the sagebrush ecosystem, the Baker PAC is not only an ecologically critical area for sage-grouse, but also the many other species that rely on the sagebrush steppe ecosystem.
- **Precedent.** Precedent is another intensity factor that must be analyzed, meaning “the degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.” Because the agencies put forth the “*proposed study*...to determine the effect of lowering raven density on sage-grouse populations, and to compare the effectiveness of lethal and non-lethal techniques for lowering raven density...” (EA at 1) and that “the study results should help to understand the efficacy of raven control as a sage-grouse management technique in eastern Oregon” (EA at 18), it is abundantly clear that the “proposed study” would have a precedent setting effect for sage-grouse management in Oregon. This, in addition to the other factor listed above, further supports the need to prepare an EIS.

Due to the multiple relevant factors related to the proposed action’s significance, USFWS must prepare an EIS to analyze the proposed actions. See *W. Watersheds Proj. v. USDA APHIS Wildlife Servs.*, 320 F. Supp. 3d 1137 (D. Idaho 2018); and, *Oregon Wild v. Bureau of Land Management*, Not Report in F.Supp.3d (2015).

The EA fails to analyze critical project components and connected actions

By failing to provide any details, discussion or analysis of the non-lethal techniques for lowering raven densities, a core component of the proposed study, the EA fails to analyze an action that is critical to justifying the larger project. Under NEPA, actions are considered connected if they “are interdependent parts of a larger action and depend on the larger action for their justification.” (40 CFR 1508.25 a (iii)). The EA clearly establishes that one of the primary reasons for conducting the study is to compare non-lethal and lethal techniques for lower raven densities. (EA at 1). In other words, the non-lethal and lethal techniques are “interdependent parts of a larger action” and so are

connected. Non-lethal techniques must be analyzed in conjunction with lethal techniques in further detail.

Environmental Effects: Trophic cascades not considered

The EA fails to analyze the potential impacts to the food chain that could result from the removal of a significant number of ravens from the Baker PAC. Trophic cascades are indirect interactions that can occur within a food chain when a trophic level is suppressed. A classic example is a top-down cascade, where a predator is removed from the food chain and its prey population increases, changing the dynamics of the food web. Given the target density for ravens in the Baker PAC is less than 1/3 of the current density estimates, indirect adverse impacts to the food web are likely. The agencies must analyze how reductions in raven densities, and the likely complete removal of ravens from localized areas, will impact associated ecological processes, including impacts to the abundance and distribution of other predator and known prey species.

The EA and Study Design fail to show how the proposed actions will meet the intended purpose and need.

The EA states that “the proposed study...is to determine the effect of lowering raven density on sage-grouse populations, and *to compare the effectiveness of lethal and non-lethal techniques for lowering raven density.*” (EA at 1, emphasis added). However, both the EA and Appendix A fail to specifically identify or define any non-lethal techniques, when non-lethal techniques will be implemented, specific objectives for non-lethal techniques, or any other study design metrics that are essential for a reader to understand how non-lethal techniques will achieve reductions in the raven population. By failing to provide specific details regarding how this essential part of the proposed study will be implemented, the EA has failed to establish how the intended purpose and need will be met.

11. The EA Fails to Demonstrate BLM Land Use Plan Consistency.

The EA fails to detail how the proposed actions conform with the Baker RMP, the 2015 Oregon ARMPA and other BLM plans and policies related to the conduct of lethal raven removal on public lands. The EA must include a detailed analysis of how the proposed actions conform to relevant BLM land use plans.

12. Other Issues

Section 6.6: On Page 25 of the EA, the EA discusses cumulative effects based on the seven western states in the Pacific Flyway excluding Alaska. However, in the second paragraph the discussion shifts to “three states” stating that “The estimated size of the raven population in these three states is 1,002,000...” This section should reconcile

whether the analysis is being done at the scale of three states or seven states. It appears that the “three state” comment is simply an error.

Section 7: The narrative states that conservation stakeholders were “also invited to discuss the proposed action including Portland Audubon, Oregon Natural Desert Association” making it appear that we did not avail ourselves of the opportunity. In fact, all three organization have actively engaged in this process. Oregon Wild and Portland Audubon met with agency staff in Hood River and Portland Audubon drove to Baker City to meet with agency representatives specifically about this issue and tour the impact area with ODFW and other agencies. Audubon and ONDA have had additional discussions with agency staff at SageCon meetings. Audubon has regularly checked-in with ODFW and USFWS regarding progress on the EA. It would be more accurate to say that these organizations were “consulted” as opposed to was “invited.”

Conclusion: We urge USFWS to select the “no action” alternative and reject ODFW’s MBTA permit application to take up to 500 Common Ravens a year for three years or, in the alternative that USFWS prepare an EIS to disclose and consider the uncertainty and likely significant environmental effects of the proposal. None of the action alternatives are adequately supported by data demonstrating that ravens are actually suppressing sage-grouse in the Baker PAC or by the scientific literature cited in the EA. The action alternatives are all likely to result in higher take of ravens than described in the EA and ODFW Study Design. All three action alternatives are likely to result in the take of non-target federally protected bird species. All three action alternatives are likely to result in inhumane outcomes including the intentional starvation of nestling and fledgling ravens whose parents have been poisoned. All three action alternatives will result in the uncontrolled distribution of hundreds of poison eggs across the landscape. The Agencies should focus on addressing the primary causes of raven decline in the Baker PAC rather than engaging in a divisive, scientifically unsupported, inhumane and likely illegal lethal control program for ravens.

Thank you for your consideration of these comments,

Respectfully,

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