



WYOMING CHAPTER – THE WILDLIFE SOCIETY

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April 28, 2017

RE: Enrolled Act 91, “Game Bird Farms – Greater Sage Grouse”

Dear Wyoming’s Sage Grouse Implementation Team,

On behalf of The Wyoming Chapter of the Wildlife Society, please find the following comments on the State of Wyoming’s Enrolled Act No. 91 establishing the game bird farm-certification to raise greater sage-grouse. Given the long-standing commitment by the State of Wyoming that has resulted in proactive management of our sage-grouse populations, and the expertise within our organization’s membership, WY-TWS has been following this issue closely and appreciates the opportunity to present our biological perspective to you.

The Wildlife Society is an international organization committed to addressing national and international issues that affect the current and future status of wildlife in North America and throughout the world. The Wyoming Chapter of The Wildlife Society (WY-TWS), overseen by a voluntary executive board, is comprised of wildlife professionals who collectively promote awareness of and continued improvement in science-based wildlife management in the State of Wyoming and surrounding regions.

As stated in the narrative summary accompanying Act 91, the intent of the Act is for purposes of conserving the greater sage-grouse. We therefore assume that the overall goal of the program is the reintroduction of domestically-reared sage-grouse chicks to recolonize areas with suitable habitat but no existing population of birds, or to augment wild populations. Given the scope of this proposed effort, we examined the peer-reviewed literature and contacted colleagues across the region so as to inform the discussion going forward. The best information available is from Colorado, where 304 eggs from wild greater sage-grouse were collected and followed to recruitment into the breeding population the following spring. Of the 304 eggs collected, 16 individual sage-grouse were confirmed to have been recruited (i.e., were present on leks the spring following release) into a wild population in northwestern Colorado; a recruitment estimate of 5%. Using vital rates for wild populations reported in a literature review conducted by Connelly et al. (2011), 41 (13%) chicks would have been recruited from those same 304 eggs if they had not been domestically reared. Therefore, although individual vital rates are comparable between domestically reared and wild sage-grouse as reported in the literature, accumulated demographics suggest that recruitment percentages are decreased through domestic propagation efforts.

WY-TWS identified several potential bottlenecks to a captive-rearing and population augmentation effort from the literature and through conversations with scientists knowledgeable in rearing sage-grouse in captivity. To maximize the potential benefit and minimize the potential negative effects of implementing Act 91, the following need to be addressed by the State of Wyoming:

1. A clear and testable mission for the program:

Although the narrative summary accompanying Act 91 established the generalized intent, the program lacks clearly established, testable goals and objectives. The establishment of clear and concise goals and objectives is a necessary and critical first step to developing an effective management program. An effective

objective is one that can be used to develop suitable monitoring (e.g., specific enough to suggest specific monitoring needs—in other words, is testable), and should be based on, and specific to, information obtained by completing an in-depth review and assessment of the available information pertinent the program. We recommend that goals and objectives specify the anticipated benefits of reintroduction and augmentation aspects of the program, specify anticipated outcomes of each of the different aspects of captive rearing (e.g., threshold survival rates for eggs and chicks), and specify the potential impacts to wild populations either acting as egg sources of or being augmented through the program.

2. Egg collection from wild source populations:

Given sage-grouse female behavior during laying combined with the approach to finding wild nests suggested by Act 91, the vast majority of egg collection in Wyoming will occur following a female initiating incubation of her clutch. Re-nesting rates of sage-grouse across their range are 20 to 30%, with research in Wyoming finding rates lower than 15%, and the majority of individuals that re-nest lose their initial clutch either during the laying phase or early during incubation. Therefore, it is safe to assume that the majority of wild females whose eggs are collected will not re-nest, and will effectively be eliminated from the reproducing population that year.

To reduce potential impacts of egg collection to wild populations, we recommend that egg collection only occur during years when range conditions are conducive to high productivity (i.e., a good residual herbaceous understory combined with favorable long-range weather forecasts); collection efforts do not impact the same group of individuals for more than 1 day and the same population for more than 1 year; and populations deemed vital for conservation of the species in Wyoming are not considered for collection (e.g., avoid Core Population Areas). It should be recognized that efforts to collect eggs from wild hens may pose a risk to the hen and surrounding grouse, by risking abandonment of nests, increasing stress levels of hens, and attracting predators. Efforts should be made to reduce these risks. Further, if dogs are used to find nesting females, collection efforts should be curtailed no later than May 15 to avoid impacting brooding sage-grouse with young chicks. This date may need to be adjusted based on site-specific and annual shifts in the timing of hatch.

3. Egg handling and incubation:

Colorado Parks and Wildlife (CPW) have developed detailed protocols describing the care and incubation of eggs collected from wild populations. These protocols continue to be improved upon by CPW, and are extremely important given that improper handling and incubation of eggs will increase domestically-hatched chick deformities and result in weakened chicks with lower probabilities of survival. We recommend that facilities in Wyoming are designed and run following the protocols developed in Colorado, and that those running these facilities work closely and continually with CPW and other staff in Colorado that have experience in the handling and incubation of sage-grouse eggs.

4. Chick husbandry from hatch to release:

Literature suggests that most artificially-reared galliforms die within a few weeks of release due primarily to behavioral deficiencies in released animals arising from rearing conditions, including foraging, predator avoidance, and social deficiencies. Sage-grouse specific research supports this generality with between 34% (apparent) and 42% (modeled) survival of released chicks to 28 days in Colorado. Sokos et al. (2008) reviewed different rearing techniques and concluded that release aimed at establishing or augmenting a population is justified only when using birds from facilities following enhanced rearing techniques (naturally, semi-naturally and anti-predator trained), as the release of artificially-reared birds has a low probability of success. We recommend following enhanced rearing protocols with sage-grouse chicks from hatch, including natural (or at the least semi-natural) brooding and anti-predator training. It is worth noting that sage-grouse chicks will readily imprint on their human handlers, emphasizing the importance of enhanced (i.e., natural) rearing.

Disease problems have been common in captive populations, with disease outbreaks at least partly a result of enhanced exposure, especially to exotic pathogens. Again, sage-grouse-specific research supports this generality, with disease (especially bacterial infection) being the primary issue in captive-rearing facilities in

Colorado—CPW emphasizes that releasing healthy chicks is absolutely critical to have any chance of the chick surviving. We recommend that the State work closely and continually (e.g., at least annual inspections of captive-rearing facilities; all mortalities (eggs and chicks) necropsied; examination of all birds prior to release; etc.) with bird disease experts at the Wyoming State Veterinary Laboratory in certifying, inspecting and verifying all bird farms raising sage-grouse. It is worth noting that there are always risks that release programs may inadvertently infect wild populations with pathogens for which those populations have no resistance, even with intensive pre-release screening. We suggest following recommendations provided in Snyder et al. (1996): (1) manage captive populations in isolated, single-species facilities and do not exchange animals between facilities; (2) sage-grouse farms should be located within the natural range of the species, and in at least two geographically separate facilities; (3) facilities should be closed to the public; and (4) staff should practice rigorous disease-prevention methodology including strict avoidance of contact with other captive animals. We additionally recommend that sage-grouse not be reared in farms that were used to raise other bird species in the past, especially species whose ranges do not overlap with sage-grouse. Extreme caution and regular screening for previously unknown diseases needs to be addressed adaptively across all bird farms raising sage-grouse in Wyoming. Further, wild populations that may come into contact with released birds need to be rigorously monitored for disease exposure to include the full spectrum of diseases and parasites known to impact sage-grouse as well as diseases and parasites that could potentially impact the species but are currently not known to impact the species.

5. Release protocols:

The protocols established in Enrolled Act 91, specifically item d in Section 1 of the Act which establishes that sage-grouse will be isolated for at least 30 days prior to release, do not allow for the release protocols developed in Colorado to be followed. According to CPW progress reports, the survival of released chicks in Colorado was inherently dependent on adoption into a brood—25% of chicks introduced to broods at >30 days of age successfully integrated into the brood at 36 hours post introduction; this compared to 100% of chicks introduced to broods at <10 days of age integrating. Although we do not disagree with the premise and caution suggested by item d (Section 1) in the Act, it limits the ability of the Wyoming program following release protocols that have been shown to have the greatest level of success. This concern further emphasizes our recommendation in the chick husbandry section above on following enhanced rearing protocols rigorously and innovatively.

6. Monitoring of program success:

We strongly recommend that a rigorous monitoring program be developed to assess, in a statistically-valid manner, the success of the program as established by the goals and objectives statement mentioned above. Monitoring data should be collected and analyzed both for the success of the release program and for the potential impacts on wild populations—including those used as egg sources as well as populations being augmented. Monitoring the wild population being augmented by captive-reared sage-grouse is important beyond the issue of disease and parasite prevalence raised above as many researchers have reported that release programs have negatively impacted wild populations because of decreased breeding success of wild individuals, increased predation of the population in general, and genetic pollution (Sokos et al. 2008). Monitoring should be considered a mandatory component of the program, and continued throughout the duration of this effort. Researchers at the University of Wyoming could assist in developing and implementing a suitable monitoring program.

In closing, we are grateful for your stewardship of our State's natural resources and especially for your leadership on sage-grouse conservation and management in Wyoming and across the range of the species. Thank you for your thought and attention to this matter.

Sincerely,



Holly Copeland
President, Wyoming Chapter of The Wildlife Society

Select Literature:

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