

# A Questionable Practice:

## Augmenting Greater Sage Grouse Populations Through Captive Breeding

The North American Grouse Partnership (NAGP) does not support nor does it believe that captive rearing and augmentation of sage-grouse is a viable tool for the management of wild sage-grouse populations *at this time*.

We also do not believe the release of captive reared grouse is mitigation for impacts to wild grouse habitats and populations and therefore it should not be used as such by federal or state agencies.

NAGP recognizes the authority of state fish and wildlife agencies to oversee the management of sage-grouse populations and the importance of developing tools for sage-grouse conservation. However, we recommend extreme caution should be used by states that allow captive rearing of sage-grouse for gamebird farming/hunting operations and that those operations should have strict oversight by state wildlife agencies.

Releasing sage-grouse into areas without the necessary habitat to support them clearly has little chance of accomplishing anything useful relative to conservation of sage-grouse populations.

Any sage-grouse held in captivity must retain as much of their natural instincts as possible

so they have the best chance of survival when reintroduced into the wild.

We support efforts to improve techniques and methods to improve captive rearing as a management tool under limited controlled conditions.

The NAGP does not support captive rearing of sage-grouse because:

- There is a very low likelihood of survival of released birds
- There is a risk of disease transmission to wild populations
- There is a lack of scientific evidence and techniques for viable operations to rear birds ready for release into the wild
- There are no benefits or mitigation for loss/destruction of habitats
- It creates a false sense of security for the conservation of sage-grouse populations
- It shifts the focus from maintaining/restoring needed habitat to captive breeding

**The primary emphasis of sage-grouse conservation should continue to be the management of habitat for sustainable wild sage-grouse populations.**

photo: Hub Quade

[www.grousepartners.org](http://www.grousepartners.org)

Our mission is to promote the conservation of grouse and the habitats necessary for their survival and reproduction.



“If environmental conditions that precipitated sage-grouse declines have not been mitigated, transplants of additional and locally naïve birds is not likely to succeed”

Baxter et al. 2007

The strategy of augmenting grouse and other game-bird populations through captive breeding has been used for centuries. In some situations with other species of game birds, it has helped bolster small or isolated populations, re-establish populations in historic habitats, or establish new populations in newly-created habitats. The potential success of this practice for sage grouse is questionable for a number of reasons.

Birds reared in captivity can survive in the wild, but there are many hazards. Captive-reared greater sage-grouse often travel great distances after being released into the wild, which can lead to very high mortality. If they cannot find suitable habitat within a reasonable amount of time, they likely will perish. Also, captive-reared female sage-grouse may not breed or attempt to nest in the spring after being released.

As of 2017 sage-grouse have been bred, hatched and maintained in captivity, but only in research settings. Wild sage-grouse do not adapt well to captive conditions and often are flighty and stressed, which leads to high mortality rates. To date, large-scale captive-breeding efforts have never been attempted for greater sage-grouse.

To establish a captive breeding flock, eggs first must be collected from other captive birds or from wild nests. A captive flock of 50 to 150 greater sage-grouse hens should produce from 400 to 1,200 eggs per year, because each female can produce 7 to 10 eggs per year. Once eggs have been collected, they must be incubated and hatched, and the resulting chicks must be reared to an appropriate age.

Captive-reared sage-grouse chicks less than a few weeks of age can be released into the wild, but they likely would not survive on their own. Chick survival is much better if placed success-

fully with females that already have an existing brood. Finding a wild female sage-grouse with an existing brood can be very difficult unless she has been fitted with a radio transmitter prior to nesting, which can be expensive and time consuming. Most females with broods will adopt captive-reared chicks if the chicks are no

older than five days and if releases are made during the evening. Once adopted by a female, captive-reared chicks survive about as well as the wild chicks. If sage-grouse populations are reduced or absent in an area where a secure population is desired, the ability to place chicks with a wild brood is either not possible or highly infeasible.

An alternative approach would be to rear sage-grouse chicks in captivity and release them into the wild 12 to 16 weeks after hatching. At this age, captive-reared chicks are capable of surviving without a female with an existing wild brood. However, wild chicks survive much better than captive-reared chicks that have been released into the wild, even at 12 to 16 weeks of age.

Sage-grouse of all ages are very susceptible to a disease called West Nile Virus. If a captive flock is established, precautions should be taken to prevent exposure of captive birds to mosquitoes that might carry this disease. Captive sage-grouse also are susceptible to salmonella, aspergillosis, and other bacterial, fungal, and viral diseases. Precautions must be taken to prevent introduction of these diseases into wild populations if captive birds are released.

Greater sage-grouse populations vary substantially over time in response to predation rates, inclement weather, long-term drought and disease. Previous work on numerous wildlife species has shown that by far the most successful conservation actions involve maintaining and restoring high quality habitat in sufficient amounts, sizes, and distributions to support populations of at-risk species. Augmentations by captive breeding are not necessary for recovery from declines in population size if relatively large, contiguous habitats are in good condition. Augmentations are unlikely to have any success in increasing the size of small or isolated populations or to maintain populations in areas lacking large, contiguous blocks of habitat. Before any attempt is made to augment these populations, the environmental conditions that created the decline in numbers or the isolating barriers must be reversed or repaired.

Limited and controlled efforts by private individuals and bird farms can help establish successful techniques and protocols for better survival of captive reared sage-grouse with help from wildlife and veterinary professionals. These “ex-

periments” must be done in a way that is well documented, in a controlled environment, and does not put wild birds at risk. We do not support just rearing grouse and dumping them out into the landscape. It is important to learn how to rear sage-grouse in captivity in order to be able to

use this tool if or when it is needed to help wild sage-grouse populations survive an extinction threat.

Literature cited can be found under Captive Breeding on the NAGP website at [www.grousepartners.org](http://www.grousepartners.org)



The **Western Association of Fish and Wildlife Professionals'** white paper "Augmenting Sage-Grouse Populations Through Captive Breeding and Other Means" concluded the following:

- Sage-grouse can be artificially incubated, hatched, reared, maintained, and bred, and will produce viable eggs in captivity.
- Relatively low hatchability and survival rates in captivity suggest egg collections from wild clutches could be substantial to produce a sizable captive flock for captive egg production.
- Release of 1-5 day-old captive-reared chicks to existing brood hens is effective, but is not likely to be a strategy that could be scaled up. Survival of sage-grouse juveniles released at 8-12 weeks has not been evaluated but should be evaluated if releases at this age are contemplated.
- Techniques for captive rearing of sage-grouse are still in their infancy although significant strides have been made in the last 10 years. Methods associated with artificial insemination, controlling bacterial disease, disease prevention and control, and other aspects of husbandry need additional research. Zoos or other conservation partners with a similar mission, in collaboration with state or provincial wildlife agencies, may be in the best position to fund and staff this kind of research.
- Pending refinement and demonstration of the effectiveness of captive breeding and release of sage-grouse, other approaches to augmentation appear to be more certain and likely to be less costly and impactful to source populations.
- Sage-grouse population size varies substantially over time in response to environmental stochasticity. Augmentations by any means are not necessary for recovery from declines in relatively large contiguous habitats in good conditions. Augmentations are unlikely to have any success in small and isolated populations until and unless the environmental conditions that precipitated sage-grouse declines have been mitigated.

photo: Kent Christopher

"Survival of captive-bred juvenile sage-grouse is likely to be much lower than that of wild juveniles"

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