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### Breaking Down the Impacts of Cervid Game Farms and Their Connection to the North American Model of Wildlife Conservation

Hunting is a multitude of things. Sometimes, it can be a tool in conservation, it can be a way of life for some by providing ample amounts of sustenance, and for others it can be a form of entertainment. No matter what hunting is used for, it is a multi-billion dollar industry that has led to many new inventions and businesses. One of those businesses that has been created is game farms. A game farm is defined as an agricultural property that breeds and raises non-domesticated animals as livestock for hunting as well as provide other goods and services that are often too hard to come by. There is a range of game farms in the United States with white-tailed deer and other cervids being some of the more popular animal choices. Some other animals on game farms are rabbits and a variety of bird species. A couple of other things that cervid game farms provide are urine, both velvet and hard antlers, hides and leather, and venison (Lupi & Schulz 2001). Although it seems like game farms have many good things going for them, there are many negative impacts of operating one that come from all areas of the business. Some of the negative qualities are: the spread of disease, the dangers they pose to wildlife, and the overall cost of running the farm. On top of the cons of owning a game farm, these establishments are also in conflict with four tenets of the North American Model of Wildlife Conservation. Overall, the existence of cervid game farms is a heavily debated one.

When looking at the impacts of game farms, the most important place to start is at the ecological effects. One of the biggest ecological consequences from game farms, especially cervid game farms, is the rapid spread of diseases. The most common ailment found on game farms is chronic wasting disease (CWD). Chronic wasting disease is a neurological pathogen that causes brain degeneration. This leads to extreme emaciation, abnormal behaviors, and eventually death. Currently, there is no cure for chronic wasting disease. This illness is

caused by an abnormal protein called a prion and it is spread in three ways. The first being direct contact with an infected animal. The second being coming in direct contact with a carcass that is still infected and the last being touching soil or plants that carry the disease (NYSDEC 2022). While chronic wasting disease is one of the more dangerous contaminants one can see on a cervid game farm, it is not the only disease seen on these farms. It just happens to be more important than some of the other diseases due to its severity. According to the New York State Department of Environmental Conservation (2022), it is virtually impossible to remove chronic wasting disease once it has been introduced. Additionally, the former cervid game farm owner, Mike Sheppard (pers. comm. 2022), described chronic wasting disease as a scary occurrence and a major threat to all life on the game farm. Sheppard later went on to say that the scorched-earth policy was an essential whenever this disease popped up (Sheppard pers. comm. 2022). The scorched-earth policy is essentially burning everything on sight. On top of the spread of diseases, game farms do impact the environment within the facility. This is mostly due to how deer eat. It is known that whatever plant source deer eat, they will eat it till there is nothing left and many ecosystems have been destroyed by this. When the plant population in one area is being depleted quickly, a number of things can happen. The first being that there is an increase in erosion. Erosion will more likely occur when there are fewer materials, in this case plant roots, holding the soils in place. More loose soils lead to more erosion. Additionally, as more plant life is lost, the more nutrients there are stuck in the soil. This could have great effects on the nutrient cycle. Lastly, game farms don't actually have much influence, positive or negative, on the outside environment. In fact, game farms don't change the numbers within the wild neighboring populations. There aren't even many impacts to the environment surrounding the farm. The only time a game farm is of concern to the wild populations is when there is disease within the farm or if a deer escapes. Miller and Miller (2016) claims that, currently, no one really knows the genetic effects of having a captive-bred deer breed with a wild deer. There are a few questions about how captive-bred cervids could potentially change antler growth in the wild populations. However, there is just no evidence to support any claim. The biggest risk is the spread of disease between the two separate populations (Lupi & Schultz 2001). Once again, the main issue is the continuing spread of chronic wasting disease.

The next set of impacts on account of cervid game farms that should be considered are to do with the economic side. Again, one of the biggest concerns are the potential dangers captive cervids can do to the wildlife. The main way to prevent any contact between captive and wild populations is installing a fence and to most, this seems like a pretty easy solution. However, it is quite the opposite. First let's look at the parameters of installing a fence. A majority of game farms are on large properties. Typically, a couple hundred acres. Secondly, it is a requirement to have a tall and sturdy fence to ensure safety on both sides because it is relatively normal for a captive cervid to escape both over and under the fence (Lupi & Schulz 2001). The type of fence needed and the overall size of the fence can lead to one very expensive bill that doesn't include future repairs or potential expansion. Mike Sheppard had around a ten to twelve foot fence that cost \$89 per fence and an additional \$29 per fence for barbed wire on his over two-hundred acre game farm (pers. comm. 2022). Furthermore, one would also have to consider the permit costs, transportation costs and, in some states, the penalty costs of running a game farm. And all of that before the game farm could even open to the public. One last fee to evaluate is the price of fixing up the farm after an epidemic. As stated above, game farms use a scorched-earth policy whenever a disease comes onto the farm. This means that everything dies, including all of the captive-bred cervids. Therefore, a new round of cervids would need to be purchased as well as some landscaping. Economic impacts can also be grouped together with the management impacts, as tons of money goes into regulating and maintaining a game farm. One part of management that goes along with any business is employees. Depending on the size of the establishment, it might be necessary to have at least a couple of employees to ensure the safety of all captive cervids, wildlife and any customer that may come to the game farm. This can be challenging, especially if it is not a family owned business. One would have to include specialized training for a majority of the needed tasks on top of the financial costs of having employees. When considering how much it would cost just to open a game farm, it is understandable as to why using a game farm is incredibly expensive.

As stated in the introduction, game farms are in conflict with the North American Model of Wildlife Conservation. This is a set of policies that regulates and protects wildlife and there are seven basic principles: wildlife resources are a public trust, markets for game

are eliminated, allocation of wildlife is by law, wildlife can be killed only for a legitimate purpose, wildlife is an international resource, science is the proper tool to discharge wildlife policy, and democracy of hunting is standard (Gurarie 2022). In accordance with Miller and Miller (2016), game farms contradict the wildlife is a public resource, markets for game are eliminated, wildlife can only be killed for a legitimate purpose, and the democracy of hunting tenets. The first tenet (public resource) basically states that all things in nature are available to all of mankind. This prevents one group or class of citizens from controlling wildlife simply because they believe it is their right. The second tenet (markets) sets to abolish any market around wildlife because it privatizes what should be available to everyone. The third tenet (legitimate purpose) is a difficult one to discuss because each person's definition of the word "legitimate" can vary. Nevertheless, it is included in the North American Model of Wildlife Conservation that wildlife being killed cannot gain any profit. The last tenet (democracy) is another way that the model is ensuring accessibility to all.

When breaking down how game farms go against the North American Model of Wildlife Conservation, it is clear as day. Let's start with the wildlife can be killed only for a legitimate purpose tenet that does include the no financial gain from killing game animals. The whole idea of game farms is to hunt game animals. Yes they may provide other useful things such as the urine, but a majority of the revenue that is brought in is from hunting. With that being the case, the markets for game are eliminated tenet is also contradicting game farms because there is an entire market to hunt game animals. This is privatizing what should be available to everyone and not only those who could afford it. Some may believe that since game farms are open to the public, game farms don't go against the markets tenet. However, the prices of using a game farm as a main source of hunting can be incredibly expensive for some individuals and is preventing them from using the facility. Which then leads to the last two tenets, public trust and democracy. For that reason, game farms also go against these two tenets because hunting game animals is no longer open and available for all. It once again becomes something for the wealthy to control and use as a source of entertainment.

Outline above are a multitude of negative impacts and associations of cervid game farms. So, it is only fair to point out some of the positives linked to these game farms. A few of the materials provided by cervid game farms are incredibly difficult to find in other places.

For example, deer antlers can be almost impossible to find in nature. Game farms make a market for a good that isn't truly available to all. Another thing that game farms supply is venison. Deer meat is a popular source of protein in some areas, but it isn't sold in stores. Game farms can sell their deer meat to those that are unable to hunt. One last thing about cervid game farms is that many use them as a way to introduce kids to hunting. This can be used to teach the next generation the responsibility of being a safe hunter.

In closing, there are not that many positive impacts associated with cervid game farms. They can provide some exclusive items and allow for great memories to form that will go on for a lifetime. Even so, the level that the negative ecological, managerial, and economical impacts have are so devastating that they outshine any favorable qualities. The overwhelming concerns about the spread of disease within and outside the facility, the overall costs of operating and the energy it takes to control a game farm makes it easy to understand why this business is fading away. Also taking in the fact that all game farms go against four tenets of the North American Model of Wildlife Conservation. When considering all of the information about game farms, it seems that the wiser choice is to go old fashioned hunting in the wild.

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