Historically game farms have been used to raise up and release fowl to be hunted, and they have a deep history with the wealthy and private landowners, especially in Europe and Asia. In America both private landowners and state governments stock pheasants, and private landowners often stock other game birds such as turkeys, quail, and ducks. The hunting of these birds has become culturally ingrained for many hunters, and pheasant and duck hunting in particular tend to develop into a longstanding familial tradition. The release of gamebirds and waterfowl is purely hunting driven as most species released in America are non native galliformes such as ring necked pheasants and chukar partridges, or a domestic strain of a native species, like the mallard duck in order to increase the odds of a hunter locating and harvesting one. This increase of huntable fowl encourages the sale of hunting licenses and gear, which both the federal and state governments depend on to fund their wildlife and conservation departments through the Pittman-Robertson Act (USFWS, n.d). A large chunk of conservation funds comes from the sale of these licenses and gear, so the release of these birds is integral to funding conservation work. The release of these fowl on public land also encourages new hunters to take to the field, preserving the sport of hunting as the number of active hunters declines and threatens conservation funding (Moore, 2021). But despite the benefits, releasing these birds may not be as good for the native wildlife. As these species typically are not native to the environment they are introduced into, they can take over an existing niche from other native species, or they may be maladapted to the conditions they are placed in resulting in significant die off. In the case of species that are native, such as the mallard duck, the strain raised in captivity to be released often does not genetically match the strain found in North America. As not all of these birds are harvested by hunters, birds can escape into the environment and assimilate into wild flocks introducing their poor genetics and potentially disease. There is significant evidence that released game farm mallard ducks can assimilate into wild flocks and interbreed with the wild stock (Lavretsky et al., 2019). The effects of introducing non native species or strains into the environment is still being studied, but the evidence suggests that there are more negative effects than positive.

On game farms pheasants and other bird species are traditionally raised in pens until they reach maturity, when they are released in time for the fall hunting season. In an Idaho study, pen reared pheasants have a near zero survival rate even in areas where predators have been removed. Male pheasants typically have a lower survival rate than female pheasants, but the overall survival of pen reared pheasants was abysmal. Of the released pheasants, only 4% are harvested by hunters (Musil & Connelly, 2009). The rest perished either due to predators or the elements as they are not adapted for a North American environment since they originate from Asia. As a consequence of being captively raised, pen reared pheasants are conditioned to be more trusting of humans since they are fed and raised from an early age, and having never been given an opportunity to adapt to life outside of a pen (ie learning to forage, avoid predators, be fearful of humans) hunting pen reared pheasants will never fall under fair chase as the odds are stacked against them. Pheasants are essentially stocked just to die for the sake of hunters getting a chance at harvesting them, whether the pheasants survive until a hunter gets a chance at them or not.

In birds with a wild population already in North America, the concern is less that the released game farm birds aren’t native but that they have a different genetic signature and different phenotypes than the wild birds. Compared to wild North American mallards, game farm birds are half as genetically diverse as the wild population, are typically 300-400 grams lighter than wild mallards, their bills are taller, more “goose-like” and have less lamellae, and they are typically more aggressive breeders (Lavretsky, n.d). Due to these characteristics, the feeding efficiency of the game farm birds is significantly reduced with the most drastic difference being that female game farm mallards are half as efficient as wild female birds (Schummer, 2022). On game farms this reduced efficiency isn’t as big a deal as in the wild, as the birds are fed by the game farmer consistently. In the wild, there is more pressure to eat as there are predators and an inconsistent food source. If the bird cannot gather as much nutrition in the same time, it takes them longer to lay eggs and it is more likely that they will have a reduced clutch size which may act to reduce the breeding mallard duck population. But when given adequate nutrition game farm mallards also have the ability to produce more eggs than their wild counterparts, and the males tend to be more fertile which can lead to their genes proliferating among the wild population (Cheng et al., 1980). Along the Atlantic coast the mallard duck population has fallen by nearly 29% since 2000, and in New York and Pennsylvania the decline has been more drastic at 40% (McPhaul, 2018). There is concern that these negative phenotypic traits can be spread into the wild stock through breeding, and that this is one of the factors that is causing the decline in the mallard duck population. Since the game farm birds have proven to be more aggressive breeders, they are more likely to spread their genetics if they can survive. There is significant evidence that released game farm mallard ducks breed with wild mallard ducks, mixing their genetics. In Kentucky and New Jersey, nearly 100% of the “wild” mallards genetically sequenced shared a haplotype of a gene with game farm origin mallards (Lavretsky et al., 2019).

In the past, other species were released with the goal of providing more opportunity for hunters and to help the wild population recover. Many populations of Canada Geese across the United States are actually resident geese which do not migrate as they were captively raised and then released either by state governments, private hunters, or by the public as part of a program to help the wild population of Canada geese recover. These birds are often a mix of the different subspecies of canada geese, which muddies their genetics and makes them unable to integrate into the migratory wild populations of Canada geese. These resident birds do not migrate, often take up residence in public parks and are often considered a nuisance since they may be aggressive to humans and their feces contaminate public spaces (Powell, 2020). This is an example of a failure of a stocking program both through state and private ownership which has resulted in problems with the genetics of the released resident geese, geese being seen as a common pest, and the release has failed to bolster the larger canada goose population as intended. In order to reduce this number of “pest” resident geese, there is often an early goose season in some states (including New York) that has an inflated bag limit that aims to reduce the number of resident geese before the migratory geese start to move into the area.

Game farms can also present the problem of disease. Just like commercial or factory farms they can act as a reservoir for disease since the animals are raised in such close proximity to each other, but as these animals are released into the environment they have the chance to pass these pathogens onto the wild populations of birds. The diseases that may be spread in captive populations of fowl are the recent strain of highly infectious avian influenza, duck virus hepatitis, avian cholera, salmonella, parasites, and a host of other diseases that can heavily affect wild populations once the domestic birds are released to be hunted. It was found that the rate that duck hepatitis spreads in a population is significant, and if a captive bird is released with this disease and comes into contact with wild birds, it has the chance to spread the infection in the wild potentially bringing down the population (Soliman et al., 2015).

Despite the potential downsides of releasing game farm birds, there is no denying that there are some benefits. The pursuit of these birds encourages the purchase of hunting licenses and gear, which are the primary method of funding for most conservation departments. This funding goes into conservation not only for the species hunters are interested in, but other less “popular” species like insects, herps, non game birds, and nongame mammals. Currently America has 11.5 million active hunters who buy a hunting license each year (Moore, 2021). Of these, 2.4 million are waterfowl hunters, and 3.5 million are small game hunters (pheasant, grouse, quail, etc) (Kelly, 2022). Although this number of active hunters is experiencing a decline, the funding generated from hunters is invaluable and a vital part of financing conservation work. Yearly, $256 million is spent by hunters on licenses, tags, and permits. Migratory bird hunters and small game hunters spent a combined $4 billion dollars on gear alone in 2016, a large chunk of which contributed to conservation funding (Kelly, 2022). In order to hunt migratory birds including ducks, hunters are required to purchase a federal duck stamp each year. Each year nearly $40 million is made from duck stamp sales, and duck stamps alone have contributed $1.1 billion towards wetland conservation and restoration since their introduction in 1934 (Kearns, 2021).

Besides the funding aspect, the hunting of upland birds is one of the primary ways that new hunters are recruited. Pheasant hunting in particular is also considered “easier” than other forms of hunting as it does not require you to wake up early, it is typically done in an open field, and since the whole goal is to spook the birds into flying, you do not have to worry about stealth. You also don’t need to worry about retrieving the birds as you can just walk up to them where they fall. In comparison, when waterfowl is shot you need to have a specially trained dog, fishing rod, or kayak in order to retrieve the harvested birds if they were shot over water. All of these benefits means that pheasant hunting is particularly attractive to new hunters, and can be used as a tool in hunter recruitment to maintain and increase the number of active hunters. Upon being asked about his introduction to pheasant hunting in our interview, Dr. Schummer was quoted as saying “It provides a really substantial opportunity for young hunters to be involved and get involved in hunting… As a kid I went with my father all the time and those were really good experiences for me with him and his hunting dogs and friends. It became something culturally for us for years” (Schummer, 2022). Once a hunter gets into pheasant hunting, they may want to explore other methods and avenues of hunting and will become more ingrained in the sport, hopefully helping to recruit more hunters.

Another thing to take into consideration is that many game farms are family owned businesses, with many in America being over a century old. These businesses have been passed down through generations, and presenting any regulation or change would result in massive backlash from not only the hunting public who have developed a culture around hunting these birds, but the game farms who raise the birds. Game farms are primarily a family business, and to interrupt that is to interrupt tradition that is decades and sometimes a hundred or more years old. Any motion to shut down these game farms would leave these families without a way to produce income. If there is to be bans, limitations, or regulation changes on game farms for waterfowl and pheasants, there will be an economic impact and severe protest from the families who run these operations and the hunters who depend on them to raise the birds they like to pursue. These game farms provide not only an incentive for hunters to continue to buy hunting licenses, but they put money back into the economy as they need to buy feed and supplies to raise up the birds, and once the birds are raised any private consumer can buy them, putting money back into the farm. Since pheasants and other commonly reared gamebirds don’t fall under the migratory bird act, their parts can also be sold to the craft and fly fishing markets, resulting in another secondary revenue stream for these farms. It would be a large humanitarian and economic issue if there was any motion to modify how game farms run, or to stop the release of non native birds at all.

Due to the immense popularity of pheasant hunting, it would be very difficult if not impossible to stop the release of pheasants on both public and private land. A solution for pheasants and other gamebirds is to study whether they are suitable for an area that they are put in. If the niche they occupy is empty in that environment and they do not appear to affect the native wildlife, then they should be allowed to be stocked. But in areas where it is deemed that they could not survive or they may interfere with native species, they should not be stocked as most of them do not survive, and only a small percentage ever encounter hunters. Despite the lack of studies for other commonly released species such as chukar and quail, the same procedure should be followed when stocking these birds as well.

Mallard duck stocking is relegated to entirely private property owners as no states currently actively stock mallards. The best solution would be to stop stocking mallard ducks at all, especially the Eurasian game strain. Since it is effectively impossible to stop the stocking of mallards, a solution for waterfowl would be to modify the Migratory Bird Treaty Act to make it easier for commercial game farmers to acquire, breed, and sell the wild North American strain of mallard duck to prevent hybridization with Eurasian strain game farm mallards. It may even be effective to pass a regulation requiring all registered game farms to only be allowed to rear North American strain mallards to prevent the further degradation of the wild mallard genome. The genome of the Atlantic flyway has been permanently altered and degraded and while there isn’t much that can be done to remove the Eurasian strain genes, the best that can be done is to stop releasing them into the environment.

In conclusion, game farms and the birds that they release help to generate an interest in hunting, which helps to fund conservation through the sale of hunting licenses and supplies. Despite this, pen-reared pheasants often do not survive very well once released, and the introduction of Eurasian strain mallard ducks into the wild American mallard population has the potential to be devastating to their genetics. Hunting pheasants other birds released from game farms is immensely popular and ingrained in hunting culture, so ceasing to stock the birds is not an option. The game farms that supply the birds are also often decades old and are family owned businesses, so shutting them down is economically destroying these businesses and getting rid of jobs. A good solution would be to stock pheasants and other non native birds only where they have the best chances of survival so that hunters have the opportunity for fair chase once the birds are acclimated. A solution for the mallard duck genetic dilemma is to make it easier to acquire, breed, and release farmed American strain mallards through the MBTA instead of using the potentially damaging Eurasian strain of mallard, in order to minimize the genetic impact on the wild population.

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