The Emergence of the White Deer

By
Sean Bernieri

As the aged tour guide drives the bus thought the Seneca Army Depot, all that can be seen are the dead trees and lack of foliage near the ground. Every once in a while, we look out the window and all we see through the bushes is a flash of white followed by the sounds of snapping leaves and branches. The white deer of the Seneca Army Depot have become famous in recent years as the largest population of white white-tailed deer in the world. Simply taking a walk through the Depot you hear the sound of nature and think what possibly occurred for the deer to become this distinct from the rest of the population. Why here? What occurred here that this many rare deer could possibly be focused in one small location? There are many theories behind this, as this was once a government site: people claim that the deer have become white as a result of the superfund site and the radioactive material that was stored near these fenced in deer. When someone in our tour asks about this conspiracy theory, our tour guide smiles and chuckles, responding with what he claims as the true story. The white coloration is a direct result of the unique ecosystem established in the Seneca Army Depot, as the deer of the region have interbred so much that the recessive coat of white has become the dominant trait of the deer. The once abundant brown deer has undergone a change that is profound. After hearing this I have only one question, it is one that I ask after my tour has ended. Why if the white deer is more easily seen and preyed upon are they the more abundant species? What makes the Seneca Army Depot such a special location for the occurrence of these incredible deer? In my mind the only way to answer this question, requires that I look at the historical past of the Depot to determine this. And thus, begins our story…

The Deer

Spring 1939

As I wander through the farm fields I cannot but help to feel the wind on my back and the snow beneath my hooves. Looking out across the land I notice that this has become an incredible ecosystem since I was born a few years ago. I wonder what better life than mine, as I graze on the cabbage and buds that have just begun to sprout. What is fascinating about this is occasionally, we see these beasts walking on their hind legs that are covered in some kind of inedible material that tastes like nothing. They also found these four-legged animals that they ride around in and that make these terrible loud roaring sounds we haven't ever heard before. For the most part they keep to themselves, digging in fields and chopping down trees, where they then create these large glowing masses that spit out this choking black smoke that reaches far up into the sky. For the most part we keep separate, avoiding each other at the first sign of meeting. However, every so often, these bests carry with them these big sticks that launch small painful metal objects that strike down whatever is in their way. I have seen many a fellow buck fall to these horrible weapons as these two-legged creatures then dive down upon the dying or dead buck and strip it of all the muscle and fur and leave nothing but the bones of what was once a majestic peaceful creature gathering food for his survival. Every day I am able to run from where I keep my den down to the lake's edge where I get to take long cool sips from the vast volume of water that allows me to quench my thirst. Life was peaceful and relatively uninterrupted, there was little sign of the erections of the dens of these creatures near my home and I was grateful that this was the case.

1941

I remember the day that my home, my open field, everything: my entire world shrank. It was shortly after a long migration of the four-legged roaring beasts ripped through the land surrounding my den. Giant metal beasts with whirling blades roaring with such force as to bend trees descended from the sky. I had just left to fetch myself some water from the nearby lake, when the black clouds came billowing from the bare strip of land that I crossed over to move to the lake. After fetching water, I wandered by the two beasts who were arguing with one another, with one of the creatures dressed all in green. His face was slightly furry, but his head shone in the afternoon light. He was holding this sheet in one of his arms and was pointing at it with another. I watched as the man standing in his den moved begrudgingly aside and, went into his home. Over the next few days, I watched large amounts of what I assume were possessions, leave this man's house, as the number of creatures dressed in green grew. Curiously around the very edge of what was the forest that protected me, as well as the grazing fields that the beasts tended to so carefully, these large metal spikes were being hammered into the ground. Then came the day when I tried to leave to fetch water; I came face to face with this linked wall that was attached to these spikes. Trying to get around this I went in a circle many times to no avail. On my search I found what was once the home of one of my dear doe friends, and I was astonished to see that there was no longer any cover over what was her home. After several days I had found a relatively small water source, a slow trickle out of a pile of rocks where I was able to quench my thirst, but the space that the deer of this area once called home was disappearing very quickly as these big stone domes were appearing out of nowhere. One of the best things was that I was able to eat anything on the ground still and sleep anywhere I wanted. While these beasts still carried their killing sticks, they did not use them anymore against us. No longer

concerned with the danger that they presented, I wandered through my new enclosure looking at the rapid changes that were going on.

I still remember the first time I saw the fledgling white one within our population.[1] His emergence stood out like a giant sign that things were changing faster than we even thought they were. This white deer looked just like a normal one, he had four legs, the same nose and general shape as a normal fawn with the same two bony buttons[2] except he had fur that was as white as the snow that fell every year. This deer was clearly not able to hide in the woods that were its home unless it was snowing the deer appeared clear against the browns and greens of the preserve. Thinking back to the moments when I was just a fawn and I was not enclosed, I think I would have had a much harder time escaping predators if they were able to see white fur against the backdrop of nature. This deer will likely be thought of as an outcast at least until he finds his own place within society. If he can survive within the new enclosure than his status will likely slowly change to becoming one with the rest of the herd. During this time that the white deer first was born, many of us older deer looked at the similarities that were growing within the younger population. The younger deer were growing more alike in many aspects - grazing patterns, the number of spots, and the general response to noise and food were making it hard to differentiate between the young ones. There were also significantly more of them growing every year and I couldn't help but compare their growing up confined to the freedom that I once had. Crossing to my little stream for water, I noticed this picture of the white deer with a giant red line

[1] The propagule pressure placed on the environment by the humans has fundamentally changed the interaction of the deer with the nutrients and availably resources. With the increasing isolated population there has been a bottleneck of genes. This bottleneck forms the foundation for the emergence of recessive alleles within the confined population. While these alleles normally appear in very rare cases, by penning the deer population within the Seneca Army Depot, the population becomes more inbred. The more inbred deer that are present within the population the more likely the recessive allele will emerge.

[2] Buttons are the spot where then antlers grow on a male fawn

going through it. Still both the two- legged creatures and the rest of the population remained relatively separated from one another, preferring not to interact with one another.

The Soldier

1955

What once had a huge amount of understory, full of grasses, mosses, and trees that had once covered the land and hid the bunkers was beginning to become exposed at the ground level. The emergence of the white deer was a surprise to me and all the other soldiers within the base. We looked at this and thought that here was this rare animal that we had accidentally caught within our Depot. But the commander forbade us from hunting any of the deer; he wanted us on full alert in the event of a Commie invasion. Rather than disobey the commanding officer, the rank and file simply went about their daily training and left the deer to themselves. As time went on and spring turned to summer and summer into winter, it became apparent that something weird was going on. The number of sightings of the white deer was increasing and other soldiers were seeing this deer at around the same time at different locations (because everyone remembers when and where they were when they encountered the Mythic White Deer). Still our commanding officer refused to let us go out in search of the white deer. Over the next few years, it became even more clear that there was a problem for the deer within the base. Over time the deer become visibly thinner. Some of the deer were much bigger than others and they looked like they were perfectly suited to the amount of food they were getting. For the most part, the deer were no longer the high energy creatures that inhabited the location when we first arrived. The ground had been eaten bare for the past 2 years and the deer had begun to consume anything that they could reach. Small trees which looked like they were going to grow into huge hulking trees were eaten down to the trunk, these florae were not going to survive if the deer continued to eat

at the rate they were currently at. Even still, more and more soldiers claimed to have seen the white deer and this became the talk of the base that there was more than one white deer.

1957

The event that changed the CO's mind came as a shock to all. As you rode through the camp for basic training and practice, you could hear the moaning of dying deer around you; most tried to shut it out, but many felt uneasy about the problems that the deer were facing. As more and more deer were dying as a result of the inevitable starvation, there were clearly not enough resources within the Depot to support their population.[3] These deer were dying everywhere in the forest, by the side of the road, even near the bunkers simply collapsing from exhaustion not 20 feet from the door. While this normally shouldn't have been a problem, what got most of the higher ups attention was the smell. The rotting flesh of the deer was problematic, as it attracted many different insects and maggots that were then clearly spreading as more deer died. The problem, by and large was that soldiers were succumbing to sickness due to the smell and visual of the rotting corpse, but also the disease[4] that was spreading as a result of the volume and proximity of the decomposing flesh to the barracks and bunkers. Clearly something needed to be done about the deer and finally our COs sought out help.

1962

In what I call the hour of need, the COs called in scientists to determine the number of deer that needed to be killed for the base to support a healthy population of deer. Many of us expected these scientists to be like the nuclear researchers, dressed all in white and incredibly

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[3] Fluctuating resource Hypothesis relates the changing resources in the environment to different competitive pressures like: increased competition or larger necks to reach higher up branches. The fluctuating resource hypotheses runs throughout every ecosystem and is directly related to the population and the propagule pressure placed on the environment. The changes in nutrients is implicitly hidden behind population shifts.

[4] Disease or general health is one aspect of propagule pressure. The healthier a population is the better able it is to survive and ultimately reproduce. When applied to understanding invasive ecology, the propagule pressure is a measure of the efficacy of an invader to successfully progress through the TEST stages.

structured following what we saw as a mechanical style of understanding. The scientists who were called in were rather casual and seemed to be more interested in the trees and shrubs than the deer carcasses littering the road. In the mess hall, over the next few days, there were numerous accounts about the scientists and the methods they were looking at to control the deer. They weren't talking about extermination nor were they discussing the removal of the deer from the Depot; they stayed more concerned with the plants and looked at the deer population's result on the plant life and the necessary resources needed to support such a large deer population. Taking information from the topographic maps and occasional Blackbird photographs taken in the air of the Seneca Army Depot, the scientists produced a number. The number was by their calculation the carrying capacity of the Base. From what my platoon could tell the recommendation by the scientists was to "thin the herd;" reduce the population of the deer to the carrying capacity of the Depot. Thinking long and hard about the question about the killing of deer, the COs relented and stated that it was okay for the bucks to be killed if the general number was logged and as soon as the population declined enough for the population to be supported, that all hunting ceased immediately, or you would face the military tribunal. This made many of the soldiers happy as they could participate in life fire practice, while also being controlled in their usage of their weapons. It was like a holiday hunting trip with platoons competing against one another for the largest buck or what buck had the largest antlers. In addition, to prolong the myth regarding the white deer sightings, which was clearly more than one deer, the hunting of the white deer was forbidden, and the population of white deer was able to grow, but not unchecked. Over the next few years, the woods slowly began to rebound as the deer were reduced in population and the flora were able to grow faster than the deer to eat, in such

abundance so that there was always some flora left entering the winter.[5] The deer also began to grow back to their normal size; they were no longer the emaciated husks that they were only a few years ago….

Back to today:

Having understood the history of the Seneca Army Depot, and the real story behind the emergence of the white deer I cannot help but ask the question: Was this a solution? This may be due to my own curiosity regarding the topic, and it may also be due to the recent study that was performed near the Depot. I cannot help but wonder: while the white deer population exploded, it became a huge monoculture and yet the deer continued to survive. The allowance and essential selection for the surviving deer to have the recessive allele is an incredible decrease in genetic diversity within the deep population. Associated with their decreased genetic diversity are incredible drawbacks if the white deer were reintroduced into the world. Releasing the deer would be a mistake because they are so inbred that they could introduce an allele into the local population that could decimate their fitness. The historical and ecological change that occurred within the entirety of the history of the Seneca Army Depot is not something that can easily be overlooked. In general, the current deer population has declined over time and yet the carrying capacity of the Seneca Army Depot has also declined: as new food sources had not been planted or had been able to form as quickly as the deer population was growing. The deer were clearly too effective at consuming the nutrients and flora during their period of unchecked growth.

[5] More of an aftereffect of overpopulation and food scavenging the decrease in the number of edible plants shows a shift in the carrying capacity of the Depot. Since the deer consumed too many plants during this period of overpopulation. In doing so, they ultimately decreased the amount of viable food sources as trees died and were unable to regrow due to the excessive consumption by the deer. The Fluctuating Resource Hypothesis holds to this situation as the total amount of resources shifts over the course of the deer's inhabitance within the Seneca Army Depot.

This also offers the opportunity for momentary pause of reflection. How can the knowledge gained from the Seneca Army Depot apply to ecological theory? The Seneca Army Depot is essentially a giant sandbox for an ecologist; it is an isolated population with very low levels of predation. The measure of competitive success within the now dominant recessive allele is indicative of the overall change within the population. Are there key differences within the population of White deer at the Seneca Army Depot when compared to White deer from another location? These are questions that while left unanswered show the intricate community that the events surrounding the Seneca Army Depot have created. Any scientist willing to work near the superfund site will find an incredible amount of information available. All it takes are the right questions.

As I look back on my experience at the Army Depot, I am able to reflect on the understanding that these deer have such a unique environment; they are able to be so special because they simply are protected from many of the problems they would face in the outside environment. That fence that surrounds the Depot is a blessing and a curse for the deer. They are cursed to forever progress toward a monoculture, an ecosystem with no genetic diversity. But they are blessed with the protection of the fence and the managers of the Army depot, so maybe not all is lost for them. While an interesting science experiment surrounded by what are now folk legends, there is no denying that the white White-tailed deer of the Seneca Army Depot are making history.