White-tailed Deer Management in Northwest Austin: People and Wildlife in a Suburban Landscape

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Abstract

In Northwest Austin, the large population of white-tailed deer is an issue of growing concern as people and wildlife are increasingly in conflict. Whether its whitetails wandering across busy streets, nibbling away at gardens or changing the composition of the forest in nature preserves, the impacts of deer for people, the landscape, and the deer themselves are apparent and play out in multiple arenas. It's a case of imbalance and a question of how stakeholders and the City of Austin can address the problems that arise from overpopulation of deer through the political process. This thesis seeks to explore the relationship between humans and nature in Austin through the lens of journalism and examines the local story as a window into the larger, national issue of white-tailed deer management in urban communities.

Introduction

White-tailed deer populations are thriving in suburban landscapes across the nation, and Central Texas is no exception. Texas Parks and Wildlife, TPWD, estimates there are 3.3 million whitetails living in the Lone Star state, and the Hill Country boasts the highest deer densities in the region (Texas Parks). However, human influences such as hunting and development have caused the white-tailed deer population to fluctuate dramatically over time. The quiet creatures are an integral part of North American history and the demand for deerskin, venison and sport hunting over the course of the last four centuries whittled the nation’s deer population down to an estimated 500,000 by the year 1900 (Sterba, 87, 93-93). By 1938, there were still only 232,000 whitetails in Texas (Graves). But the deer have since recovered, especially in suburban areas.

That reality is especially true in Northwest Austin, a cluster of quasi-suburban neighborhoods a few highway exits away from downtown and just north of the rust-colored Pennybacker Bridge that crosses Lake Austin. Houses line the steep ridges that separate narrow bands of forest from backyards and residential roads. Whitetails roam freely between the two, lured into neighborhoods by the bounty of irrigated vegetation people plant in their gardens, and these neighborhoods are crawling with deer. One resident said she found a newborn fawn on her doorstep and another watched a hungry deer try to eat the fake apples off a decorative wreath (Davis). These urban-dwelling whitetails are relatively unfazed by people, tame even. Deer don’t bother to move off the sidewalk when Molly Jensen grabs the morning paper from the end of her driveway (Jensen).

In Northwest Austin, the deer have become a point of contention among neighbors as the community struggles to define the relationship between humans and whitetails. Perspectives vary, as so often is the case for white-tailed deer in urban areas. The argument is one of whether or not white-tailed deer are a problem, and this is the key factor that has been driving the civic discussion on wildlife management. Some complain about the large herds of deer roaming across residential roads, while others enjoy living among white-tailed deer. The director of the big game program for Texas Parks and Wildlife acknowledged the stark division between stakeholders during a presentation to a class at St. Edward’s University in 2012: “There is nobody sitting on the fence about white-tailed deer,” said Mitch Lockwood (Lockwood).

The issue is polarizing and complex, but no one disputed that there are more whitetails in this neighborhood than there were 30 years ago. The City of Austin hired Plateau Land and Wildlife Management to conduct a deer survey in 2010, and the company estimated there were 400 deer living in Northwest Hills, a subdivision in Northwest Austin. Plateau Biologist Keith Olenik told council members that fewer than 100 deer would inhabit the same type of environment in a more natural setting (Receive Staff). The deer have exceeded the ecological carrying capacity, Olenik said at the November 2010 Public Health and Human Services committee meeting, and 150-300 whitetails should be "removed" in order to reduce stress on the landscape to promote healthier natural areas (Receive Staff). Herein lies the greatest controversy over managing whitetails in Austin: some people in the community do not want to kill deer for the sake of wildlife conservation.

After four years of discussion between stakeholders and the City of Austin, the solution is one of managing negative interactions between human and wildlife. The conversation about thinning the deer herd in Northwest Austin has reached a stalemate. Still, the excessively large population of whitetails continues to have noticeable impacts for people, wildlife and the landscape in Northwest Austin. The question of how to manage and protect nature in a way that is good for us and for nature persists. The answer is unclear and is muddled by the imbalance between human, beast, and the search for stability in a transient world.

The ability of the local herd to reach its current size is rooted in both the growth of Austin as a city as well as biological factors that favor the deer. As an 'edge' species, these animals thrive in habitat where one type of vegetation transitions into another, such as where forest meets grassland, or where wooded areas push up against housing developments like in Northwest Austin (Robinson 2012; Sterba 92). Just as the whitetails were native to this area, their predators were too, until people moved in and killed off or pushed large animals of prey out. Gone are the wolves, jaguarondi and half dozen other big cats that once roamed this part of the Hill Country. Development in Austin drove much of the large wildlife away from people, noise and city lights (Robinson 2011). Whitetails have flourished without the carnivores and hunters that historically thinned deer populations, and are unique as a species because their reproductive rates increase without natural population checks. People driving cars are essentially the only predators left in suburban areas that kill unsuspecting deer (Barr and Robinson; Cornelius 2013).

Yet Austin is just one of many communities at odds over living with deer as this is a window into the larger, national issue of whitetail conservation and management in suburbia. Abundant white-tailed deer populations, and subsequently political controversies, are especially prominent in the "eastern third" of the United States: the North Woods of the states surrounding the Great Lakes, New England and the American South (Sterba, 88). "Over the years, I have watched suburban deer wars play out in community after community across the country. Different casts, same anger, same arguments, same questions, same certainty, same ignorance, same grief" writes Jim Sterba in *Nature Wars*, a book about wildlife in suburban landscapes (Sterba, 112). Like Northwest Austin, a group reports that there is a whitetail problem while others value wildlife and worry about harming beloved deer. Then it becomes a question of whether or not to manage the population, and how to implement a plan that is acceptable to the stakeholders who are involved in the discussion. For Fire Island, New York, experimental birth control for deer was the answer, and researchers riding mountain bikes started shooting does with contraceptive-laden darts in 1993 (Schuerman). Hollywood Park, an enclave of San

Antonio, has been using a combination of relocating deer as well as processing some for venison (Whittaker; Zarazua). Lakeway also traps deer and donates the venison to a food bank and in the early 2000s, the City of Lakeway moved 1,400 deer to Mexico (Rattled by Antlers; Revkin). However, Austin has chosen a different route for managing conflict.

Discourage people from feeding deer, educate residents on keeping a safe distance from whitetails and distributing gardening pamphlets for deer-resistant plants encompasses the bulk of how Austin has already addressed white-tailed deer overpopulation. The city implemented a No-Feeding Ordinance in 2009 to prevent intentional feeding of deer "courtesy of a lot of people in our neighborhood," said Joyce Statz, a Northwest Austin resident and chair of the Northwest Austin Civic Association's Wildlife Management Committee (Statz 2013). The impact of so many deer on people, which was in part perpetuated by feeding, raised concern among the leadership of a local neighborhood association: "The complaints to NWACA have just grown and grown over the years," said Cecelia Burke, also a member of NWACA's Wildlife Management Committee and long-time resident of the area (Burke). Deer run out in the middle of roads and pose a danger to oncoming traffic; whitetails eat anything that's green and grows, defecate in yards and on playgrounds, and the list of inconveniences for Northwest Austin residents goes on (Burke; Cord; Statz 2012).

On the other hand, people also establish meaningful connections with deer, and this is becoming increasingly more important in urban settings. Furthermore, NWACA does not represent the interests of all Northwest Austin residents. This became clearer as the discussion between citizens and the City of Austin progressed from discouraging feeding of deer towards lethal management options. In 2010, neighbors founded DeerAustin to support the humane treatment of animals and speak out against deer harvesting in the community (DeerAustin). The grass-roots non-profit corporation has been active in the civic discussion ever since. "We are completely just literally neighbors who talk to each other in the street," said Robin Abbott of DeerAustin's origins (Abbott 2013).

The fence was up as NWACA and DeerAustin took to opposite sides of deer policy issues brought to the Public Health and Human Services Committee, a subgroup within the City Council tasked with the duty of listening to resident's concerns about deer. The conversation about how to handle the deer issue continues among neighbors, between interest groups and at City Hall four years after whitetails made it onto the Public Health and Human Services Committee agenda.

While the problems that arise when living among so many deer in an urban area are certainly annoying, and even a serious safety hazard such as deer-vehicle collisions, the impact on the health of the herd and the rest of the natural community are issues of equal importance. Biologists are concerned about the health of the herd as there are too many whitetails and too few resources, and recent drought has further exacerbated the situation. One resident said the deer are thin, look mangy and smell bad (Jensen). The landscape in nearby nature preserves, like Bull Creek and Wild Basin Wilderness Preserve shows signs of wear as whitetails have nibbled away at anything resembling green foliage five feet off the ground, known as a 'browse line' (Robinson 2011). This also affects the ability of the forest to regenerate and support other plants and animals, which is especially worrisome for endangered species like the golden-cheeked

warbler (Cornelius 2012). Still, people remain the central focus of any management approach implemented or discussed in city politics.

The tale of humans and whitetails in an urban landscape is a paradigm of success, for as the population of Austin increased, the number of deer living on the fringes of the capital city's limits grew tremendously. Each individual person has different experiences with deer, which in turn impacts his or her perception of whitetails and opinion of the actions people can take to live more contently among wildlife. This is complicated by the fact that deer continue to spur social, political, economic and ecological conflict depending on whom you talk to, yet any potential solutions only consider whitetail overpopulation as a problem for people. Furthermore, mitigating neighbor-neighbor and people-deer conflict when there are a whole host of other problems is akin to putting a Band Aid on a gushing leg wound. Despite the narrow set of solutions and varying perspectives, one thing is for certain: the natural community is out of balance in this part of Austin, a city known for land conservation and environmental awareness. The presence of so many deer is an example of the changing interactions between people and the natural world.

Background

The growth of the deer population and the resulting state of the natural environment are conditions of our own making. However, this is best explained through a series of events that did not necessarily directly involve white-tailed deer. Additionally, the success of the white-tailed deer population is also due in part to the natural ability of the species to adapt to a variety of environmental conditions. The current imbalance was a long time coming, and ability of the local deer population to reach its current size as the result of human actions is rooted in both the growth of Austin as a city as well as the history of land use in Texas.

History

In nature, controls exist to keep wildlife populations in check, but virtually all of the deer's major predators in Austin no longer live here (Robinson 2011). This is just one part of the equation that involves people, wildlife and urban areas. As people pave roads and build houses, the amount of habitat available for wildlife decreases. Predatory animals that require a larger range of open space migrate elsewhere**.** There are still some coyotes in the Austin area, like the nearby city of West Lake Hills, but the small canines simply cannot eat enough deer to keep up with the rapidly increasing population of white-tailed deer (Barr and Robinson). Plus, coyotes don't have a need to hunt deer when there are fast food options available, like rodents, dog food and trash. At the same time, residents are encouraged to report coyote sightings to Travis County, and those that are seen as a threat may be euthanized or relocated (Burke).

The livestock and agriculture industry also has close ties to the story of how people eliminated elements that historically kept deer populations at bay. Up until the 1960s, the screwworm (*Cochliomya hominivorax*) fed on warm-blooded animals like livestock, cattle and deer throughout the southern United States. Since deer and cows are ungulates, they share some of the same parasites, the screwworm being one of them. Female adult screw flies lay eggs in

open wounds, which hatch into hungry screwworms that feed off flesh. The larvae weakens the host animal, while it is not always deadly, the sick ones are likely to succumb to sickness. Following 30 years of research, the U.S. Department of Agriculture discovered a method to eradicate the adult screwfly and subsequently the larval screwworm from the United States. By 1972, the agriculture industry no longer had to worry about the parasite wreaking havoc on valuable stock, and whitetails lost the last major natural predator aside from people and the deer themselves. (Biographical Sketch)

Wildlife and Land: Deer Biology and Ecology

People aside, the evolution of white-tailed deer created an animal that is naturally wired to thrive in conditions provided in urban landscapes like Northwest Austin. For starters, whitetails are native to Central Texas and deer biologists estimate the species lived on the North American continent for over three million years (Kurtén cited in Geist, 255). Now, whitetails are found in every state in the continental United States in a variety of habitat ranging from the murky swamps in the Florida Everglades to the rocky woods of the Texas Hill Country (Rue, 14; Geist, 278). White-tailed deer are a generalist species, meaning they can easily adapt to a variety of environmental conditions and resources like food and habitat in the wake of change (Robinson 2012; Beeby and Brennan, 45). This explains the distribution of deer over such a large range. Additionally, whitetails are by no means picky eaters—one scientific study found that deer in South Texas consume more than 160 different species of vegetation (Barnes et al., 606). This explains their ability to live among people in neighborhoods where the garden variety of plants include virtually anything anyone wants to grow there, whether or not it is native to that particular area.

White-tailed deer also reproduce rapidly and at an early age, and this is another major factor when considering success in terms of population size and sheer numbers. Does can give birth at 6-8 months, and bucks are reproductively mature at about a year and a half (Cathey et al., 14). Female deer normally conceive twins, sometimes even triplets (Cornelius; Cathey et al., 14). Keith Olenik, a wildlife biologist from Plateau Land and Wildlife Management, a company hired by City of Austin to assess the deer population in Northwest Austin, told City Council members that a survey of whitetails in a more rural area in western Travis County found there were 1.5 fawns for every 10 does (Receive Staff). In Northwest Hills, there were 4.5 fawns for every 10 does, Olenik said at the November meeting (Receive Staff). Birth rates may be higher in urban areas because there are more sources of food (Receive Staff).

Even without urban influences, the rolling landscape of Central Texas is prime deer habitat, and this region sustains some of the highest deer densities in the nation. Rural areas in the Texas Hill Country historically had large whitetail populations, and author Leonard Lee Rue reports in *The Deer of North America* that in 1963 there were “an estimated 23.4 deer per 100 acres, or a staggering 149 deer to the square mile” in nearby Kerr County, Texas (Rue, 422**)**. In comparison, there are roughly 50 deer per 100 acres of open space in the subdivisions within the 78731 zip code, or 318 whitetails per square mile of undeveloped land, according to a deer survey conducted by Plateau Land and Wildlife Management in 2010 (cited in Statz 2012). Larger deer densities in urban areas present issues for both people and the deer population itself because development leads to habitat fragmentation, further limiting the natural domain of the white-tailed deer and increasing the chance that they will wander into nearby neighborhoods.

During a presentation to the Public Health and Human Services Committee in November 2010, Olenik said there would be significantly fewer deer in Northwest Hills under natural conditions:

> If a population of deer that wasn't tied to people, that was completely self-sustaining, with predators, with diseases, with everything, in the Northwest Hills area there would be fewer than 100 deer in a natural setting. We've kind of created this vacation spot for deer and they're responding. (Receive Staff)

National Issue and Management Options

It is difficult to track how many communities across the country are dealing with overabundant deer populations, but it is clear that it is becoming more frequent in suburban areas as newspaper articles discuss situations similar to the one in Austin. Comedian Louis C.K. once compared deer to "rats with hooves" and the audience laughed knowingly (washingtonparkchess). Literature, like Sterba's *Nature Wars* or Al Cambronne's *Deerland*, is emerging to discuss the story of deer and people and suburban areas. Laura Simon, an urban wildlife biologist for the Humane Society of the United States, said she receives 20-25 calls a year from people that are struggling to come up with a cohesive solution in their neighborhood that meets stakeholders' needs (Simon). Author Sterba said there could be as many as one thousand other cities dealing with this issue (Sterba).

Like Austin, there are conflicting opinions over, first of all, whether or not this is a problem, and second, what is a humane solution and what is not. Plus, there is always a financial cost associated with any "solution" and not everyone wants to pay. And when it comes to getting to the root cause of all this conflict, the fact that there are too many deer, there are really only three basic options to thin the herd: move some deer elsewhere, kill some, or limit reproduction. In Texas, only the first two are currently viable.

In 2000, voters in the City of Lakeway narrowly approved a non-binding referendum to manage the deer herd through lethal means. With 51 percent for and 49 percent against deer harvesting, the outcome is an indication of how difficult it is for a community to completely agree on how to best deal with this issue. Even so, the city decided implement a trap and process program to thin the deer population, which former Mayor Charles Edwards told the Texas Parks and Wildlife Commission was an estimated 3,000 animals for an area of less than 5,000 acres in 2002 (Rattled by Antlers; Public Hearing). Lakeway had already been trapping and relocating deer to ranches in Mexico under a permit called Trap, Transport and Translocate (TTT), but agreements with landowners fell through in 2002, according to the New Braunfels Herald-Zeuting. In 2010, the Austin American-Statesman reported the City of Lakeway spent $30,000 each year on deer management (Rattled by Antlers).

Hollywood Park, an enclave of San Antonio, has been using a combination of lethal and non-lethal management options since in the town implemented a feeding ban in 2002 (Zarazua). Hollywood Park moved a few hundred whitetails to ranches and processed some for venison over the years in order to thin the deer herd, as any management plan involves initial reduction and long-term maintenance as the population continues to reproduce and grow (Alderson 2013).

Though relocating deer is a non-lethal method of thinning a deer herd, this can be an extremely traumatizing experience for the animal, resulting in broken legs or sometimes broken necks (Cornelius). The stress can also cause death from capture myopathy, a build up of lactic acid in muscle tissue that kills an animal slowly over a period of 10 days to two weeks (Cornelius). Not to mention the cost—the San Antonio Express-News reported TTT cost $108 per deer in 2009 (Whittaker). Between lawsuits filed against the town by residents, overturning of the feeding ban in 2010, and the City Council's decision to significantly reduce the number of animals the city's deer management coordinator can arrange to remove, the issue of deer management has remained extremely political in Hollywood Park (Judge rules; Alderson; Whittaker).

Reducing the deer herd through lethal means has also been done through hunting and hired culls. In Duluth, community of 85,000 people on the shore of Lake Superior in Northern Minnesota, the Arrowhead Bowhunter's Alliance regulates a hunting program within city limits (Cambronne, 200). Four hundred people harvest around 600 deer a year, and hunters participate in a safety orientation and have to pass a proficiency test before they are assigned to specific locations on public land (Cambronne 201-202). If Duluth were to hire sharpshooters, like Lower Makefield Township in Pennsylvania, it could cost an estimated $240,000 a year to cull, or selectively kill, 600 deer because cities usually pay firms by the hour, not by the animal (Cambronne 208). Since bowhunters purchase permits for $20, the City of Duluth earns money from the program rather than having to pay people to manage the deer herd (Cambronne 208). Even though more deer can move in to take the place of those that have been removed, regulated hunting without significant cost to taxpayers is a unique tool and alleviates some of the impacts of deer overpopulation if it is kept up with year after year.

Deer contraception and surgical sterilization are two non-lethal management options. Sterilization is impractical, costly and not widely used. GonaCon and PZP are two successful methods of immunocontraception used on white-tailed deer in the United States, but both are expensive and only the first is technically legal and regulated for use. Female deer treated with GonCon in controlled studies remained sterile for three to five years (Cambronne 196). The dose costs $50 per deer, but there is an additional labor cost involved because the deer have to be vaccinated by hand, bringing the price up from anywhere between $500-$1,000 per deer (Cambronne 196). Furthermore, the use of this particular method of birth control for deer can be risky because GonaCon releases hormones that trigger receptors in the brain that causes the immune system to attack sex cells in any female mammal, including humans (Robinson 2011). There is one method of birth control that can be delivered remotely with a dart gun, but it is still in test stages. Fire Island, New York has been darting female deer with porcine zona pellucida since the 1990s (Schuerman). Know as PZP, the protein causes a female to "produce antibodies that bind to an egg coating and block sperm attachment" (Special Called). The Humane Society of the United States is sponsoring PZP research, which is already licensed for use on burros and wild horses, and Simon said it close to becoming licensed for commercial use on white-tailed deer (Simon). If injected with PZP, a doe will remain sterile for around two years, and must be boosted every few years with an additional vaccine (Special Called). However, birth control for deer is most effective on closed populations, like islands or fenced in areas, where there is not a significant amount of deer coming and going because there can still be a chance that unaffected females can enter the area and reproduce (Cambronne). While birth control is favored as a more humane way of managing a deer population, the financial burden is higher than some of the other options, such as regulated hunting. Additionally, immunocontraception would have to be

approved for use in this state by the Texas State Legislature because white-tailed deer are classified as a game species, which makes them a public resource (Robinson 2012).

However, residents in Northwest Hills have not come to a consensus over any of these management options. Neither has the City of Austin.

Northwest Austin: "A Deer Resort"

As the whitetail population swelled without natural predators, development over the last half century fragmented the species' habitat in Northwest Austin. The deer were displaced from the larger areas of open space where they once lived, and drawn into neighborhoods by what one resident described as "the cafeteria style dining options we offer them" (Burke). Now, white-tailed deer roam the tree-lined suburban streets of Northwest Austin with ease. They are often spotted in herds of as many as 10, or more, foraging on gardens, bedding down on manicured lawns and running across residential roads.

Everyone has a story to share about the deer, and whether the experience was positive or negative, the conclusion is nearly always the same: there are a lot of deer living in the 78731 zip code. One long-time resident said there are many more whitetails now than there were 20 years ago and more complaints about deer, which led the neighborhood association to take their concerns to the City of Austin in 2008 (Statz 2013). First, stakeholders and city officials sought to figure out how many deer lived in this area, followed by how to manage the population and lastly, how to mitigate conflict between people and whitetails. Meanwhile groups sprung up on either side of the fence as animal rights came into question, further complicating the conversation about urban deer. After four years of discussion in the Public Health and Human Services Committee meetings, the City of Austin still has not stated its official position on the state of the deer population in Northwest Austin, and the major question of what to do about the deer remains unresolved through public policy.

The Policy Discussion: NWACA, DeerAustin and the City of Austin

The Wildlife Management Committee within NWACA has focused on addressing white-tailed deer issues over the last six years as some residents started to complain about the presence of so many deer (Burke). Conflict between people and whitetails, as well between neighbors, is further aggravated when residents feed deer because this lures the quiet creatures into the neighborhoods—and keeps them coming back. Deer have to eat, and the impacts of the ungulate's foraging habits create a multi-layered issue that bleeds into the political, economic and ecological realms of the urban whitetail debate. Adult deer can weigh between 100-150 pounds and consume anywhere between four and six pounds of food per day (Cathey et al. 14). In an urban area, food sources include wild vegetation growing on undeveloped land and parks as well as landscaped plants in people's yards, as well as any food that is put out for them in yards, like deer corn or vegetable scraps. A survey NWACA conducted of its members found that 84 percent of respondents reported the deer damaged their landscaping (Impact of Deer).

People feeding deer created a major point of contention among neighbors because this further entices whitetails to come into residential areas. Places where people feed deer are "problem" areas to the point that "you can't use your front yard, your kids can't play in the yard and sometimes it's hard to drive down the street" (Burke). In response, NWACA advocated a citywide feeding ban and in 2009 the City of Austin implemented a No-Feeding Ordinance that classified intentional feeding as a Class C misdemeanor **(**Austin, Texas, Municipal Code §10-8). Now, those in violation of Austin's Ordinance can be fined between $75-$125 for putting out food like deer corn or vegetable scraps for whitetails **(**Austin, Texas, Municipal Code §10-8**).** But the law is difficult to enforce, as city employees have to catch someone in the act before they can issue a citation (Statz 2012). Furthermore, people must either call the city directly or file a complaint with the Municipal Court to report they have witnessed others feeding deer. Only then will an employee from the Health and Human Services department physically drive out to a neighborhood to issue a citation, which they can only do if the officer observes someone in the act. Between 2009-2011, the City of Austin issued six feeding citations, only one of which resulted in a fine (Statz 2012).

Enforcement of the feeding ordinance also creates a situation in which neighbors have to report one another in order for the City of Austin to even think about issuing a citation. People are reluctant to file formal complaints against their neighbors, residents said, and some were hesitant to share any information about people they know who feed deer for the purpose of this thesis project (Statz 2013). While the number of houses with feeding stations has decrease, one NWACA member said there are "serial feeders" who continue to put food out for deer even though it is against the law because "they have a personal relationship with the deer and they just don't give a damn about their neighbors, is what it really boils down to" (Burke). As an urban wildlife biologist for TPWD, part of Kelly Bender's job is to encourage people to connect with nature. However, TPWD does not condone feeding deer or treating whitetails like pets, and in fact does not recommend it. Bender described conversations with people who continue to feed deer despite the fact that there is a feeding ban. "They want the best and sometimes they are really emotionally tied to these animals […] Most often I do a lot of sitting and listening to people, a lot, and I mean I've had people cry about their individual herd, and you just have to be respectful" she said (Bender).

This connection that individuals establish with deer through feeding is an example of a choice that, while not necessarily ill intentioned, has repercussions for the health of the animal. Bender describes why feeding an individual deer can have adverse effects on the whitetail population:

> Sometimes the resident would like to feed deer because they see an individual starving deer and unfortunately what happens then is that the entire herd loses viability, the health of the herd is reduced because the population is increasing beyond carrying capacity. Those are concepts that are kind of abstract to most—many homeowners. They simply see, they see a starving deer, well what do you do with a starving deer, you feed it. (Bender)

Additionally, it's not just feeding that is bad for the deer but also the food itself. People will sometimes put out dried corn, known as 'deer corn,' sold in burlap bags at stores from Wal-Mart to gas stations in the Austin area made especially to attract deer. Hunters often use it to bait their

kill while those in urban areas feed animals in their yards. But corn is not a natural source of food for whitetails. It's like junk food for deer—calories without proper nutritional value (Robinson 2011; Robinson 2012). Furthermore, whitetails are ruminants, meaning they have multiple stomachs like cows, and their digestive systems have a hard time adjusting to a high carbohydrate corn diet when they are biologically designed and naturally predisposed to eating other types of vegetation (Shalaway).

It is intriguing that biologists from TPWD, individuals from NWACA, and other stakeholders can readily discuss the harms of supplemental feeding for whitetails, but all of this information is absent from educational materials designed to discourage people from feeding deer. "Feeding congregates deer into unnaturally high densities that," according to the flyer that explains Austin's No-Feeding Ordinance, "increase the number of deer-vehicle collisions, lower the instinctive fear deer have toward humans and domestic animals" and "increase the number of negative deer/human and deer/pet confrontations" among a few other bulleted points under the subhead "Supplemental Feeding Can Harm Deer" that discuss how luring deer into neighborhoods affects people (Intentional Feeding). Texas Parks and Wildlife published a brochure with similar information, that deer "are currently considered more of a nuisance in some parts of their range" and "Supplemental feeding will only increase the number of deer in the neighborhood" (Living with). The rhetoric is directed towards discouraging people from putting out food for deer, but the reasons are narrowed down to the impacts feeding whitetails has for humans.

In 2010, the City of Austin hired Plateau Land and Wildlife Management to assess the deer situation in Northwest Austin. The biological services company conducted a deer survey and counted roughly 400 deer in the 78731 zip code, which is about 5000 acres large, or 8.3 square miles. With one deer for every two acres, "the ecological carrying capacity of the Northwest Hills area is far exceeded," Olenik said in a presentation to the Public Health and Human Services Committee in November 2010 (Receive Staff). The landscape can support one deer for every 12 acres in Northwest Austin without damaging vegetation and environmental degradation, meaning 150-300 deer would need to be "removed" (Receive Staff). However, only 79-230 deer would need to be "removed" to meet the cultural carrying capacity and significantly reduce conflict between people and whitetails, Olenik said at the meeting, bringing the land to whitetail ratio to five acres per deer (Statz 2012; Receive Staff).

Plateau Land and Wildlife Management also recommended options to thin the deer population, though this was not well received by council members or the public. In order to "remove" deer and therefore address what some perceive as the problem, the city could use a method called Trap, Transport, and Process, or bring in sharpshooters. Both are lethal management strategies, though Trap, Transport, and Process involve catching, moving and killing the deer at a different location while sharpshooters cull animals on site. "Have sharpshooters been used in other urban areas? That's sort of a surprising recommendation to me," Morrison said at the November 2010 meeting, raising her eyebrows. Olenik responded: "Safety is the number one issue. There are a number of quite large open space areas that are over 100 acres in size that could potentially be used. If it is done it would have to be done in an absolutely safe way." (Receive Staff)

Safe or not, some residents of Northwest Austin do not support culling deer in their neighborhoods. “Bringing sharpshooters into our neighborhoods is just so disgusting, I can’t even go through that,” said DeerAustin co-founder Teresa Ferguson to Public Health and Human Services committee at the November 2010 meeting (Receive staff). DeerAustin, a grassroots organization that opposes methods of lethal deer management and advocates for humane treatment of animals, has been active in the civic discussion regarding white-tailed deer in Northwest Austin neighborhoods since 2010 (Abbott). Co-founder Robin Abbott said the group formed partially in response to a ballot the neighborhood association circulated asking members to vote on whether or not they supported reducing the deer herd (Abbott 2013). “We started putting up signs, telling people to vote not […] we circulated a petition and we got more than 500 signatures,” Abbot said of DeerAustin’s response.

And for the last three years, NWACA and DeerAustin have remained on opposite sides of the deer debate, with the City of Austin in the middle. “The relationship was really ugly,” NWACA’s Wildlife Management Committee member Burke said (Burke). When NWACA proposed the city amend the No-Feeding Ordinance in February 2012 to prohibit people from putting water out for deer and change language to make the ban easier to enforce, DeerAustin opposed. The city maintains a garden certification program for people who want to garden for wildlife, and one of the requirements is to have a water source available in a yard, such as a birdbath (Cord). Including water in the feeding ban would be difficult to enforce and conflict with the Wildlife Certification Habitat program, DeerAustin members and City of Austin employees said in response one month later at a March 2012 meeting. The neighborhood association’s Wildlife Management Committee also recommended the City Council raise the fine as serious feeders will likely spend much more than $125 a week on deer food (Deer Management; Statz 2013). Deer-vehicle collisions and dead deer pickup reports decreased since the No-Feeding Ordinance was established in 2009 and complaints about feeding deer were minimal, DeerAustin representative Abbott said (Update on Intentional). DeerAustin called for increasing community education efforts rather than creating a means to increase the number of citations for deer feeders (Update on Intentional). The city was fairly unresponsive to NWACA’s requests, and eventually, NWACA withdrew them and the law remained unchanged (Update on Intentional).

The Public Health and Human Services Committee meetings were tense in spring 2012 and the division between the two groups was clear. DeerAustin members sporting yellow buttons testified at an April 2012 Public Health and Human Services committee meeting, some to discuss how deer are a valuable addition to the neighborhood and others to oppose strengthening feeding ban regulations, and concluded their statements with “NWACA does not represent me” (Deer in Northwest). Dealing with deer was always a community issue as stakeholders grappled to come up with solutions that fit their needs, but, at this point, the separation between neighbors stood in the way of progress.

City council members were no longer receiving information; they were now referees in the white-tailed deer policy debate. “I don’t think it’s too productive to dedicate too much more time to ‘I want to support the deer’ ‘I want stronger enforcement,” said council member Laura Morrison after nearly an hour of listening to DeerAustin and NWACA bicker during three minute testimonies to the Public Health and Human Services Committee in April 2012 (Receive Staff). Amidst the tension, one person proposed a way for the groups to settle differences outside

of City Hall, and the city council jumped at the chance to shuffle the deer issue off to the Animal Advisory Commission, a branch of local government that counsels the City of Austin and the Travis County Commissioners court (Receive Staff; Lundstedt). After DeerAustin recommended stakeholders work with the Animal Advisory Commission Chair to coordinate possible solutions, Chair of the Animal Advisory Commission David Lundstedt proposed stakeholders form a working group to discuss possible solutions to the deer issue outside of city council chambers:

> I got up in front of the subcommittee and I made the offer, I said let us form this working group, we'll take it off your plate for six months or so and we'll come back with some recommendations. And they jumped at it because it got it off kind of their hair for a little while and allowed the people who had the problem to do the work instead of them. (Lundstedt)

The sense of relief was evident: “I certainly appreciate Animal Advisory wanting to take this up. Lord, help them. Don’t ask me why they want to do this, but you know, good for them,” said council member Mike Martinez at the April 2012 meeting (Receive Staff).

The wall came down as DeerAustin and NWACA agreed to form the Deer Working Group with Lundstedt, and the group has been meeting over the course of the last year to come up with recommendations that fit both the deer advocate and management bill. “We have come to a good working relationship with DeerAustin” said Burke, a NWACA representative in the Deer Working Group (Burke). The final roster included Abbott, Theresa Ferguson and Robert Shaw from DeerAustin; Burke and Leon Whitney from NWACA; Joe Staudt of the city’s Health and Human Services Department; Larry Turner and Lundstedt from the Animal Advisory Commission; Katie Jarl, the Texas State Director of the Humane Society; Judy Monroe of the Urban Deer Management Project. After a year of meetings, stakeholders came up with thirteen recommendations for the City of Austin, though it wasn’t always easy, Lundstedt said:

> When we first started, our meetings were pretty much those two sniping back and forth at each other. By the end of the process we were having ice cream at one of the guys’ house and watching deer out in the front yard […] it was pretty remarkable that we got both sides of the debate to get together and have such good dialogue and come up with a plan that was so widely accepted. (Lundstedt)

The working group presented its recommendations at a March 2013 Public Health and Human Services committee meeting, and the presentation was well received: “It’s a model for all sorts of situations that we have in the city” said council member Morrison of the Deer Working Group (Briefing and possible action). “The main thing we’re recommending is we work together moving forward,” Abbott said (Abbot 2013).

All of the suggestions fall under the umbrella of creating a management plan to reduce conflict between people and deer, essentially learning to live with whitetails in an urban landscape (Recommendations). This includes identifying streets that need more traffic controls to reduce deer-vehicle-collisions as well as public education and awareness campaigns. The group also recommends transferring the education responsibility from the Rodent and Vector Program within the Health and Human Services Department, which has four full time employees, to the Parks and Recreation Department (Recommendations). Additionally, the Deer Working Group

seeks to shift enforcement of the No-Feeding Ordinance from the Rodent and Vector Program to the City's Code Compliance Department, a group with a larger staff and more experience dealing with city laws (Recommendations; Burke). Enabling dead deer pickup on private property, exploring methods of non-lethal management such as fencing, deer-resistant landscaping and deer contraception are also on the list (Recommendations). Though birth control is on the list as an example of an option to explore, the recommendations do not list any plans to reduce the deer herd through lethal or non-lethal means.

The Deer Working Group, which has since been dissolved, expected the council and the city departments would review the recommendations and make a decision in time for the April 2013 meeting, but Lundstedt said: "there was some reluctance on some parts… any time you start trying to transfer responsibilities from one department to another you get this kind of turf issue, resistance" (Lundstedt). The Public Health and Human Services Committee meets next on May 21, and Lundstedt said the deer issue will be on the agenda (Lundstedt). The neighborhood conflict has been subdued, and now the City of Austin continues to struggle with shifting responsibilities to deal with white-tailed deer in Northwest Austin.

The prolonged policy discussion about how to manage whitetails makes one issue clear: deer are not a problem for everyone. There are people in Northwest Austin who have already learned to live with deer, and the issues NWACA described for the neighborhood association are comparable to Texas Parks and Wildlife Urban Biologist Kelly Bender's explanation about managing whitetails for an individual versus a population. People feed deer because they see a starving animal, Bender said, while not necessarily thinking about how this contributes to the cycle of overabundance as the herd increases beyond the social and ecological carrying capacity (Bender). Plenty of individuals, though not everybody, do not see deer as a problem, while NWACA, DeerAustin, and the city are working to figure out how to reduce conflict for the community as a whole. Herein lies the relationship between people, wildlife and public policy—a single person either clashes or connects with a few deer, and groups of people grasp onto one set of experiences or the other to fuel an agenda. And then there are people who are not particularly invested in the debate, but still live among deer just like the rest of the residents.

Darla Davis has lived in Northwest Hills for 10 years, does not have strong feelings about deer, and described how quickly the whitetail discussion came up in her neighborhood: "I think it's very unfortunate that became a political thing […] This happened really suddenly. We had been in the neighborhood for a while and then all of a sudden there seemed to be people who seemed to say that the deer problem was like the biggest problem we had" (Davis). If there is one thing that Northwest Hills residents can agree on when it comes to whitetails it's that they rarely see just one lone deer. Aileen Lin, who has lived in the neighborhood for three years, sees deer every day as many as two or three times a day (Lin). She estimates that 80 percent of the time she will see herds as opposed to just one deer (Lin). Typically, the deer travel in groups of five to eight but sometimes as many as 12 to 15 at a time (Lin). Lin describes living among deer as a way to maintain a connection with the natural world:

> When you see the deer you definitely feel like you live in a natural place because you have trees around you and now you have animals that survive on their own. I really like that because it makes us feel like we are all connected the natural environment. I personally like it and I think I know some people that feel like the deer bother them. But I

> think for our small family, it's almost like we don't have to have a pet because we have the deer. (Lin)

For Lin, positive interactions with wildlife reinforce her perception that deer are not a nuisance, and therefore not a problem for her.

Though Lin and other residents enjoy the deer, the landscape is suffering—and there are other problems. Again, the fact that white-tailed deer have to eat leads to yet another problem for a different group of people. In this case, deer are contributing to changes in the composition of the forest as they forage on most plants within their reach. This creates a visible gap in vegetation, known as the 'browse line.' Deer favor young trees, like red oaks, and Ornithologist John Cornelius said this will affect the ability of the forest to regenerate over time: "If you take the long scale perspective and say 'what is my forest going to look like in 200 years,' the oaks will die eventually and if they are not replaced by younger ones, then the plant composition and the community structure of that forest changes dramatically over time" (Cornelius). Not only will this impact vegetation, but also other animals. For example, the golden-cheeked warbler has very specific habitat needs that require a mix of hardwood oaks and junipers (Cornelius). The endangered songbird nests only in Central Texas, and changes to the forest may affect their ability to reproduce successfully and survive as a species (Robinson 2011; Cornelius). Though there are a lot of other factors that affect forest composition, such as weather, it is obvious that too many whitetails can significantly alter the natural ecosystem, and how fewer deer would at least slow that process.

As overpopulation creates competition for resources, there are more whitetails vying for sources of food, including what is provided to the deer population in front yards. "Urbanized environments have really favored the rise of populations of mediocre quality populations of deer," Bender said of whitetails in urban areas like Austin (Bender). Bender noticed that deer in western Travis County, a more urbanized area with larger whitetail populations, tend to be smaller than the same species of animal that live farther east in places with more open space, though this is speculation and not scientifically documented (Bender).

And after three years of drought in Central Texas, there was even less vegetation in open spaces and front yards for deer to eat. In a natural environment under the same conditions, some deer would starve and die off, but the fact that there is still some food available enables the deer to survive with just enough to eat. Robinson, the land manager at Wild Basin Wilderness Preserve, noted the "deer are literally on the brink of death, so many of them are not healthy" (Robinson 2011). The irony is that people are very vocal about how an overabundance of deer is harmful to humans without considering that they themselves may not be so good for the deer.

Conclusion

The story of people and whitetails is a conflict of our own making, and the problems that arise are symptoms of the many impacts people have on the natural world. Urbanization and development eliminated the major predators that historically controlled deer populations while limiting deer to small, fragmented pieces of habitat. Now that the deer are lured into

neighborhoods by the garden buffet we provide for them, and some, like the NWACA Wildlife Management Committee, represent people who perceive whitetails as a problem and others, like DeerAustin, do not. The problem in this community is that people simply cannot agree on the best course of action, and so it becomes necessary to settle for one that reduces conflict rather than thin the deer population. The issue has become less polarizing as discussions about culling deer in Austin died down and solutions progressed towards education and learning to live with whitetails. Still, whitetails have breached the social and ecological carrying capacities as some people and the natural environment can no longer handle the growing population of deer in this area.

There are a number of tools available for managing white-tailed deer through population reduction and all fall under the umbrella of options that are either lethal or non-lethal. The City of Austin could hire sharpshooters or trap deer and then donate the processed meat to a food bank. The city could also apply for a permit to transport deer to areas with fewer whitetails, if anyone else would take them. Deer contraception limits reproduction and population growth. However, the city and Northwest Austin are not opting for deer management because none of the strategies are acceptable among the stakeholders involved in the discussion. This part of the conversation hit a political impasse when the City of Austin took the sidelines and allowed interest groups to come up with their own solution.

Yet people are stewards of the environment and bear the responsibility of managing natural resources, wildlife being one of them. Education is important and some progress is better than none, but mitigating conflict between neighbors as well as people and wildlife does nothing to address the fact that the deer herd is still increasing beyond the biological carrying capacity. It's clear that all gardening workshops in the world cannot solve the problems that arise for both people and the natural community when there are too many deer, and too few resources. What's clearer is that the City of Austin is not ready to take an official position on the deer issue due to varying perspectives among stakeholders. Furthermore, the community is not ready to take the risks associated with deer management.

The question of managing and protecting nature for the benefit of both people and the natural world is one that does not have a comprehensive or immediate answer, and perhaps never will. Rather, a whole host of other questions arise when considering the choices we can make to address the issue of white-tailed deer overpopulation in urban areas. For one, how do we pay for expensive management practices? Furthermore, who pays? "The problem is so broad and beyond our reach that it's not even a financial issue. You couldn't spend enough money to resolve the issue," said Robinson of white-tailed deer overpopulation (Robinson 2011). Even if we can't completely solve the problem, is it worth it to buy time for future generations of people, whitetails and other flora and fauna? If we don't pay now, what price will we pay later? If we choose to manage nature are we moving farther away from it? If we do nothing, are we ignoring the glaring signs? The future is uncertain and the relationship between people and nature is redefining itself as we continue to struggle with our role in managing white-tailed deer in urban Austin, one of many communities across the country asking some form of this question: How do we protect and manage nature in a way that's good for us and good for nature?

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