

Town of New Castle

Coyote Awareness
& Safety Advisory
Committee

COYOTE SAFETY & COEXISTENCE PLAN



Photo source: Eastern Coyote/Coywolf Research

February 10, 2015

“When we are deciding what actions to take, it is much more beneficial to base our decisions on fact instead of fear. If we act out of fear when dealing with these issues, we are more likely to make mistakes.”

-Bonnie Bradshaw, 911 Wildlife president

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Coyote Safety & Coexistence Plan

OUR GOAL

This proposal attempts to identify the causes of negative coyote/pet interactions. Nine cases of coyote attacks on cats and dogs, three of them fatal, were reported to the New Castle Police Department by Town residents between January 1, 2009, and January 29, 2015. Our goal is to recommend solutions to help prevent future losses.

OUR APPROACH

New Castle residents have formed deep emotional attachments to their pets and, as current and former pet owners ourselves, our Committee grieves for animals that have been lost. These pets cannot be replaced, but in their memory we can formulate a responsible, sustainable public policy to prevent future coyote-pet conflicts and address concerns regarding human safety.

To that end, we strongly believe that the most effective solutions to coyote-pet conflicts will be found through a dispassionate, objective, and scientific evaluation of our ecosystem, animal behavior and human behavior.

To ensure that this proposal is solidly grounded in scientific consensus, we have assembled a Panel of Experts that includes some of the nation's and region's foremost coyote experts. Among them are animal biologists, ecologists, environmental planners, wildlife experts and specialists in preventing conflicts between people and wildlife (see sidebar at right).

In addition, we have conducted extensive secondary research into scientific studies and strategies other towns and municipalities have

Panel of Experts

Lynsey White Dasher
The Humane Society of the United States
Director, Humane Wildlife Conflict Resolution

Melissa Grigione, Ph.D.
Pace University
Director, Graduate Program in Environmental Science
Gotham Coyote Project, Advisor

Maggie Howell
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Janet Kessler
Coyote Coexistence
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Christopher Nagy, Ph.D.
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Gotham Coyote Project, Co-Project Leader

Mary Paglieri
Little Blue Society
Human-Animal Conflict Consultant
Founding Director, Behavioral Ecologist

Stephen Ricker
Westmoreland Sanctuary
Director of Conservation and Wildlife Management

Mike Rubbo, Ph.D.
Teatown Lake Reservation
Director of Conservation Science

Jonathan Way, Ph.D.
Author of "Suburban Howls"
www.easterncoyotersearch.com

Mark Weckel, Ph.D.
Center for Biodiversity & Conservation at the
American Museum of Natural History
Postdoctoral Researcher
Gotham Coyote Project, Co-Project Leader

Maggie Ciarcia-Belloni
NYS and Federally Licensed Wildlife Rehabilitator –
Coyotes, Foxes and Small Mammals

Stephen Coleman
Town of New Castle
Environmental Coordinator

adopted to address conflicts between coyotes and pets and, in very rare cases, coyotes and people.

Commonly Accepted Principles

Our plan is based on the following commonly accepted in the wildlife management principles:

1. **Human safety** is our first priority in managing potentially dangerous wildlife conflicts.
2. **Education and communication** with our Town's residents are essential in minimizing human-wildlife and pet-wildlife conflicts.
3. **Preventive practices** are key to minimizing potential wildlife conflicts.
4. **Biological diversity** is valued in urban and suburban settings because diverse and well-balanced habitats are healthier for people and wildlife. Predators are integral to healthy habitats, as they provide needed population control of wild prey species with high reproduction rates.
5. **Long-term, sustainable solutions** are based on a thorough understanding of the biology and behavioral ecology of wildlife species.
6. **Non-lethal strategies** are preferable to lethal controls, which should be used only as a last resort.

THE SITUATION

Anecdotal reports of attacks on pets by wildlife in New Castle appear to have increased in recent years. Although virtually all recent pet attacks and disappearances have been attributed to coyotes by pet owners, only in a few cases have witnesses actually observed coyotes attacking pets. **A variety of other suburban wildlife predators in our region can and do attack unattended outside pets**, among these are great horned owls, red-tailed hawks, red foxes, bobcats and, if cornered, raccoons. However, for the sake of discussion, let's assume for now that coyotes alone attacked these cats and dogs.

According to the log maintained by the New Castle Police Department, local residents reported:

2015 to date: 1 pet attacked
 2014: 1 pet attacked
 2013: 2 pets attacked
 2012: 1 pet attacked
 2011: 1 pet killed
 2010: 1 pet killed, 1 attacked
 2009: 1 pet killed

In light of anecdotal reports on social media, we recognize that additional incidents may not have been reported to NCPD.

However, it is important to note that coyote reports to the New York State Department of Environmental Conservation (NYS DEC) are actually declining: a total of 36 incidents were reported to DEC in 2012, down from 39 in 2011 and 80 in 2007, according to the most recent statistics available.¹

"I've seen a decrease in the number of coyote incidents over the past several years, which I think is because of education. The most attacks occurred about 6 years ago. Sightings have remained about the same."

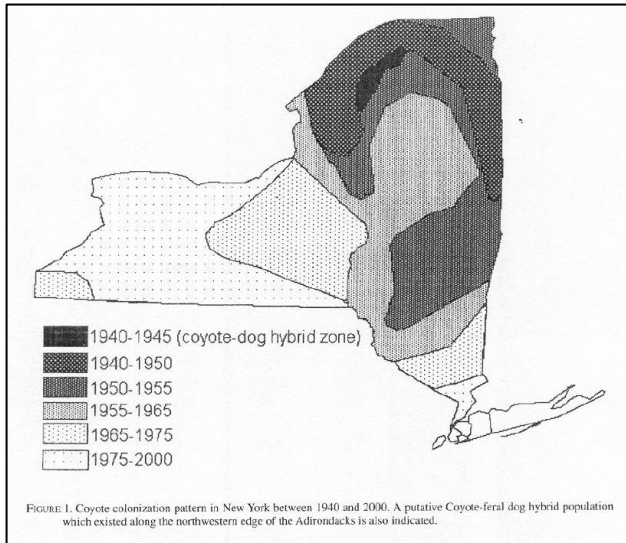
-- NCPD Animal Control Warden

Why Are Coyotes in New Castle?

Although fossil evidence from Maryland, Pennsylvania and New Brunswick suggests the presence of coyotes in the Northeast during the Pleistocene era (Gipson 1978, Stewart 1976, Nowak 1978), researchers from Cornell University and New York State Department of Environmental Conservation believe that coyotes began to establish sustainable populations in New York State in the 1930s and now are found throughout the state except for Long Island. Coyotes filled a

¹ "Experts Say Yorktown Coyote Incidents Rise In Spring" by Nathan Bruttell, Yorktown Daily Voice, May 16, 2013.

niche in the ecosystem that was available after the extirpation of the previous keystone predator, the gray wolf. Unfortunately, scant information currently exists concerning relative coyote density, abundance, survivorship, or population growth.²



Source: "Chronology of Range Expansion of The Coyote (*Canis latrans*) in New York" by Heather Feiner, Joshua Ginsburg, Eric Sanderson & Matthew Gompper, *The Canadian Field Naturalist*. 2006.

The Cornell/DEC study suggests that factors responsible for increased sightings of predators in suburbia may include "an enhanced forage base associated with residential sprawl." Indeed, we note that New Castle has seen extensive development of residential properties over the past decade, many of which have altered wildlife habitat. **Coyotes, foxes and other predators have become more visible as new residential areas extend into previously undisturbed areas.**

Stephen Ricker, Director of Research and Land Management at Westmoreland Sanctuary, observed in October 2014 that local acorn production has declined significantly in wooded

areas, forcing wildlife to search for other sources of food.³

We also note that the growth of social media, particularly Facebook, has contributed to the perception of a recent surge in the coyote population and attacks on pets. Indeed, anecdotal reports indicate that **incidents between pets and coyotes have occurred in New Castle for many years, but they have been widely publicized only recently due to the arrival of social media.**

Finally, it is important to understand that one family of coyotes can occupy a territory, which can range from one to 30 square km but average about 10 square km.⁴ Travel corridors (e.g., Metro North railroad tracks in Chappaqua and Con Ed power lines in Millwood) provide linear pathways allowing coyotes to cover long distances quickly. Still, more than one coyote family seldom occupies a single territory. If an increase in coyote sightings is reported, people likely are just seeing the same individuals over and over.

Habituation & Food Conditioning

Coyotes are naturally averse to contact with human beings. However, they are highly adaptable, and they may lose some of their wariness of people and human settlements under certain circumstances.



Source: Alabama Cooperative Extension System (Alabama A&M University and Auburn University)

"Habituation" is a waning of response to repeated, neutral stimuli (Humphrey 1930, Thorpe 1956, Eibelsfeldt 1970). Coyotes are capable of

² Suburban Coyote Management And Research Needs: A Northeast Perspective By Paul Curtis, Department Of Natural Resources, Cornell University, Ithaca, NY; Daniel Bogan, Department Of Natural Resources, Cornell University, Ithaca, NY; And Gordon Batcheller, New York State Department Of Environmental Conservation, Albany, Ny. Proceedings Of The 12th Wildlife Damage Management Conference. 2007

³ Stephen Ricker during a workshop at New Castle Town Hall sponsored by the New Castle Pet Safety and Coyote Awareness Committee and the Audubon Society. October 22, 2014

⁴ Robert Crabtree, Ph.D., founder, chief scientist and president of the Yellowstone Ecological Research Center

becoming habituated to people, human environments and virtually any human stimulus to which they are exposed repeatedly. Habituation is a natural response in all wildlife that is essential to survival; otherwise, disturbances such as those from humans would make it difficult for them to feed, breed and rest. Unfortunately, in coyotes, the natural habituation response has made them susceptible to persecution, as we are seeing in New Castle.

“Food habituation” is the strengthening of an animal's behavior because of positive food reinforcement, e.g., pet food left outdoors. This is a different response from habituation.⁵

In the context of increased coyote sightings, habituation can be reinforced by:⁶

Exposure to people. Coyotes may start ignoring people when they encounter them frequently. This does not indicate aggressiveness. Coyotes are opportunistic hunters, and they instinctively perform a “risk/benefit analysis” when deciding whether to pursue food sources. Habituation to people causes coyotes to “ignore” certain risks and take advantage of resources close to human dwellings where they are not welcome.

Food condition results from:

Access to food. People provide easy access to large supplies of food by leaving pet food, unsecured compost or trash, and fallen bird seed and fruits in yards. Unintentional and intentional feeding of coyotes causes them to become conditioned to the availability of food sources near our homes.

Access to water. Year round water supplies from man-made ponds and pet water dishes attract prey animals and coyotes.

Coyote-Pet Interactions

Pets are a normal part of a suburban landscape and coyotes simply view them as they do other animals. Coyotes do not know that residents consider their pets to be family members. Rather, pets in the same area as a coyote territory may be seen as potential prey or a potential competitor.

Coyote-Human Interactions

Most interactions with coyotes are sightings. Physical conflicts between coyotes and human beings are exceedingly rare. When such incidents occur, serious injuries are uncommon. A 2006 analysis found 142 reported coyote-human incidents in the United States and Canada in the 46 years between 1960 and 2006. The number of reported incidents was nearly equal between adults and children. The study notes that future **conflicts could be reduced or prevented through public education and modification of human behavior.**⁷

Most reported injuries were minor, with just one puncture wound or scratches to the victim. Since 1980, two deaths have resulted from coyote-human conflicts in all of North America; in one case the coyote was intentionally fed by the victim's family. Other incidents were pet-related, including a person intervening in a coyote-pet conflict. In a third of the cases, people were feeding the coyote, often by hand. Several cases involved coyotes that were cornered or protecting their den and pups. In some very rare cases, coyotes were rabid.⁸ Most of the reported incidents occurred in

“Coyote-human conflicts are exceedingly rare. When incidents occur, serious injuries are uncommon.”

⁵ Mary Paglieri, Human-Animal Conflict Consultant, Little Blue Society

⁶ Denver Parks & Recreation, Natural Areas Program, Natural Resources Division. October 2009.

⁷ “Coyote Attacks on Humans in the United States and Canada” by Lynsey A. White and Stanley D. Gehrt, School of Environmental and Natural Resources, Ohio State University. 2005.

⁸ Coyote attacks on humans in the United States and Canada by L.A. White and S.D. Gehrt, Human Dimensions of Wildlife. 2009

The Incidents in Rye & Rye Brook, NY

On July 2, 2010, The New York Times reported, "In the past nine days, two young girls playing outside their homes were attacked in separate episodes, officials said. Both girls survived with minor injuries, but the highly unusual attacks have prompted a wide-ranging response that has included helicopter searches, errant gunfire and an endless stream of gossip."

In the ensuing weeks, three coyotes were killed in the area, two by trapping and one by a car. All three coyotes had advanced cases of mange. The trapper said the coyotes probably contracted the mange from one specific den site. (Source: "Updated: Rye Brook Police Shoot and Kill Coyote after Attacks on Teenager and Toddler" by Satta Sarmah, *The Rye Patch*. September 6, 2010.)

On September 7, 2010, a child and her father were scratched and bitten in their yard by a coyote, and a teenager was "lunged at." A coyote shot and killed the next day by Rye Brook police was confirmed rabid by the Westchester County Department of Health. It was the first report of a rabid coyote in Westchester County, officials said. (Source: "Rabies found in New York coyote that attacked people in Westchester County" by The Associated Press. September 8, 2010.)

The Committee believes that humanely dispatching coyotes generally is appropriate when they exhibit symptoms of rabies or injure humans in unprovoked attacks. Seriously diseased coyotes can be easily identified by their unhealthy appearance, making trapping and euthanasia a more effective and humane solution than killing indiscriminately.

Southern California.

To put the rarity of coyote-human incidents in perspective, **at least 4.5 million Americans are bitten by dogs every year, and 20 to 30 of those attacks prove fatal annually**, according to the Centers for Disease Control and Prevention (CDC).⁹

Wildlife experts generally agree that incidents involving healthy, i.e. non-rabid, coyotes on people are caused by habituated or food conditioned coyotes.¹⁰ **However, it is important to note that not all habituated or food conditioned coyotes are threats**, as evidenced by the surprisingly high density of the coyote population and low incidence of conflicts in Chicago, where no human-coyote conflicts have occurred.¹¹

⁹ "Human Fatalities Resulting From Dog Attacks in the United States, 1979–2005" by Ricky L. Langley, *Wilderness & Environmental Medicine*. March 2009

¹⁰ Coyotes in urban areas: conflicts and solutions by M.I. Grindler and P.R. Krausman, *Rocky Mountain Research Station Proceedings*, USDA Forest Service, Rocky Mountain Research Station, Fort Collins, CO. 1998.

¹¹ GEHRT, S.D. "Ecology and management of striped skunks, raccoons, and coyotes in urban landscapes."

Eastern vs. Western Coyotes

While significant morphological differences have been noted between eastern coyotes (coywolves) and their western counterparts,¹² **no evidence has been found of any differences in biology or behavior.**

According to Jonathan Way, Ph.D., a research scientist at Clark University and author of "Suburban Howls," eastern coyotes may be more wary of people than their western counterparts due to the influence of a higher percentage of wolf DNA. Wolves are known to be extremely averse to human contact. Dr. Way adds, "We certainly are not seeing that coywolves are more aggressive [than western coyotes] with either pets or people. Simple strategies can avoid negative interactions with both western coyotes and

Predators and people: from conflict to conservation. Island Press, Washington, D.C. 2004.

¹² Way, J.G. Taxonomic Implications of Morphological and Genetic Differences in Northeastern Coyotes (Coywolves) (*Canis latrans* × *C. lycaon*), Western Coyotes (*C. latrans*), and Eastern Wolves (*C. lycaon* or *C. lupus lycaon*). *Canadian Field-Naturalist* 127(1): 1–16. 2013.

easterns. In both critters, the vast majority of animals avoid people even when they live in human dominated areas.”

Coyote Biology and Behavior

Although many coyotes have adapted to the darker hours in order to avoid humans, they are biologically diurnal and may be seen at any time of the day. In other words, **daytime activity is not a sign of problematic behavior.**

Coyotes are omnivorous and are known to eat small mammals such as rabbits, mice and voles; raccoons; groundhogs; birds; insects and plant materials.¹³ White-tailed deer comprise the majority of the coyote diet in some parts of the Northeast. In the Adirondacks, coyote diets are now dominated by white-tailed deer (Brundige 1993). In Westchester, venison comprises the majority of coyotes’ diet, including fawns and deer killed by cars.¹⁴ Fawns represent almost a third of deer consumed during the month of June. In southwestern Massachusetts, the cause-specific mortality rate of fawns associated with predation by coyotes was 5.8% (Decker et al. 1992). While much of the deer consumed may be fawns or carrion, coyote predation on adults may be significant when deep snow impairs deer movements (Messier and Barrette 1985).¹⁵

Given the serious concerns with deer densities in northern Westchester County—well documented as affecting forest health, water quality and human health—coyote-deer predation may be the only control on regional deer populations other than vehicle collisions and winter starvation.

Coyotes bed in sheltered areas but do not generally use dens except when raising young. Their physical abilities include good eyesight and hearing and a keen sense of smell.

¹³ New York Department of Environmental Conservation, <http://www.dec.ny.gov/animals/9359.html>

¹⁴ Kevin Clarke, New York Department of Environmental Conservation

¹⁵ “The Ecology of Northeast Coyotes: Current Knowledge and Priorities for Future Research by Matthew E. Gompper, WCS Working Paper No. 17. 2002

Mortality is highest during the first year of life, and few coyotes survive for more than 10 to 12 years in the wild or for more than three years in urban areas.¹⁶ Human activity—including traffic, hunting and trapping—is considered the greatest single cause of coyote mortality.



Source: Rocky Mountain National Park

Breeding and Pup Rearing

According to Dr. Robert Crabtree, founder, chief scientist and president of the Yellowstone Ecological Research Center, coyote populations are distinctly structured in non-overlapping but contiguous territorial packs consisting mainly of family units. About 95% of the time, only one female (the dominant or alpha) in a family unit breeds. Other females, physiologically capable of breeding, are “behaviorally sterile.” Intact family units generally will exclude transient coyotes from their territories.

“About 95% of the time, only one female in a family unit breeds. Other females are ‘behaviorally sterile.’”

The alpha pair is monogamous and mates for life. They usually breed in February and March, producing one litter about nine weeks (60 to 63 days) later in April and May. Average litter size is five to seven pups. Coyotes are capable of hybridizing with dogs and wolves, but this is unusual as their breeding seasons do not usually correspond.

¹⁶ Robert Crabtree, Ph.D.

After pups are born, dens may be located in steep banks, rock crevices, sinkholes, and underbrush, as well as in open areas. Usually dens are selected for protective concealment and may have several openings. Coyotes will often dig out and enlarge holes dug by smaller burrowing animals. Coyotes may move their dens several times within a season.

Both adult male and female coyotes hunt and bring food to their young for several weeks. Other adults associated with the alpha pair also help feed and care for the young. Coyotes commonly hunt as singles or pairs; extensive travel is common in their hunting forays. They will hunt in the same area regularly, however, if food is plentiful.

Pups begin emerging from the den by three weeks of age, and within two months they are able to follow the adults. Pups normally are weaned by six weeks of age and frequently are moved to larger quarters such as dense brush patches and sinkholes along water courses. The adults and pups remain together until late summer or fall when some pups become independent. Most young coyotes are forced out and disperse in search of their own territories, while others remain with the original family unit as beta animals.

“Attempts to control coyote populations using lethal methods have been spectacularly ineffective.”

Lethal Control Is Ineffective...

Attempts over the past century or more to control coyote populations using lethal methods have been spectacularly ineffective. Each year, Wildlife Services, part of the United States Department of Agriculture’s Animal and Plant Health Inspection Service (APHIS), kills approximately 32,000 coyotes on public lands and private ranches, usually before the spring lambing season. The agency won’t release exact figures, but has said it spends \$13 million a year on livestock protection, mostly for lethal control. The agency’s own records show that coyotes represent more than two-thirds of the mammalian predators it kills. Camilla Fox,

executive director of Project Coyote, calls the species “the most persecuted animal in North America” and estimates that 500,000 animals are shot, snared, trapped, or poisoned each year in the United States by Wildlife Services agents, ranchers, hunters, trappers and others.¹⁷

Despite this heavy emphasis on lethal population control, coyotes have expanded their territories from the deserts and prairies of central North America to nearly every part of the continent, including human-populated farms, suburbs and cities. Clearly, they are here to stay.¹⁸

... Appears to Be Counterproductive...

More than being ineffective, researchers have found solid evidence that lethal control measures can lead to increased breeding and immigration, and can put greater pressure on local food sources, including pets.¹⁹

Studies have shown that family unit size and population density rebound completely within eight months of implementing lethal control or removal measures. In some studies, litter size nearly doubled when the population was reduced to more than half the pre-removal density, possibly due to reduced competition for food (Andelt 1987, 1996) or breeding among younger females. On the other hand, home range size did not change in response to these efforts.^{20,21}

¹⁷“Coyotes Under Fire: Government Program Slaughters Coyotes by the Tens of Thousands” by Karen E. Lange, All Animals magazine, The Humane Society of the United States. February 2012

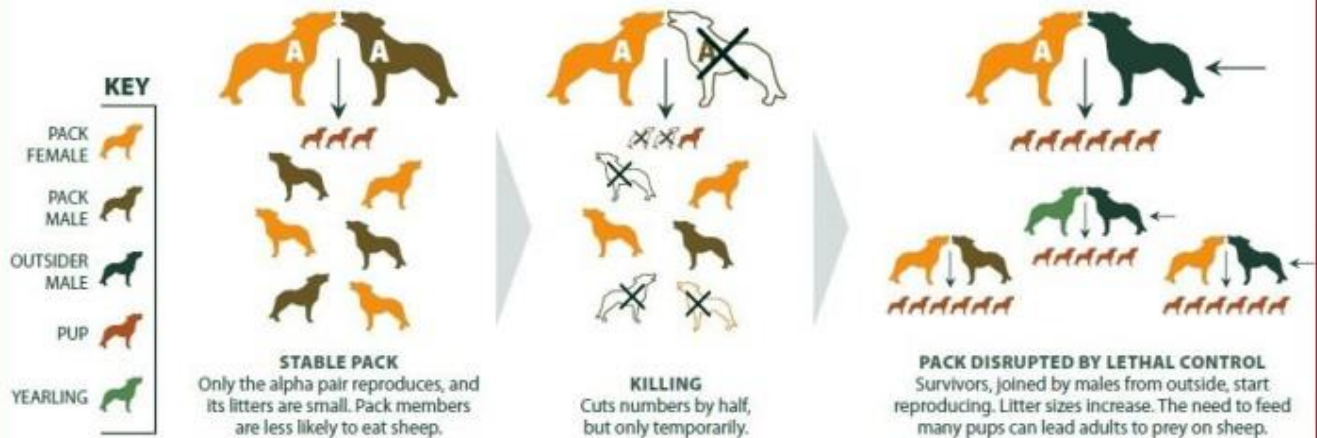
¹⁸ New York State Department of Environmental Conservation, www.dec.ny.gov/animals/9359.html

¹⁹ “What effect does reduction of coyotes (older than 6 months) have on the remaining population?” by Robert Crabtree, President and Founder Yellowstone Ecological Research Center and Research Associate Professor, University of Montana. Revised 2012.

²⁰ “Demographic and Spatial Responses of Coyotes to Changes in Food and Exploitation” by Eric Gese, USDA, APHIS, Wildlife Services, National Wildlife Research Center, Logan, UT. 2005.

Why **KILLING** Doesn't Work

Shoot or poison coyotes and you will have just as many again within a year or two. Kill one or both members of the alpha pair (A)—the only one that normally reproduces—and other pairs will form and reproduce. At the same time, lone coyotes will move in to mate, young coyotes will start having offspring sooner, and litter sizes will grow.



Source: The Humane Society of the United States

Reduction rates of 70% or higher are needed to decrease the number of females breeding in a given area, which is nearly impossible to achieve and sustain. Either a subordinate female pack member or an outside female can be quickly recruited to become a breeding female. In addition, light to moderate levels of reduction can cause a slight increase in the number of territories, and hence the number of females breeding.

The science is clear: **as strongly density-dependent breeders, coyotes self-regulate their numbers** according to the resources available in the ecosystem.

According to Dr. Crabtree, reduction or removal of coyotes causes the population structure to be maintained in a colonizing state, triggering rapid rebounds in population size. Hunting and predator control programs can increase population densities by lowering the mean age of reproduction,

increasing litter size, decreasing dispersal, attracting transient individuals, and decreasing natural mortality rates. (Knowlton and Gese 1995, Crabtree and Sheldon 1999). Sex ratios favoring females (Knowlton 1972) and higher recruitment rates may also occur (Berg and Chesness 1978, Davison 1991, Pyrah 1984, Crabtree and Sheldon 1999, Stephenson and Kennedy 1993). Litter size, juvenile survival, immigration and emigration, and the fraction of females breeding are also associated with population density as a function of food availability (Knowlton and Gese 1995).²²

Dr. Crabtree also tells us that the average age of a breeding adult in an undisturbed population is four years old. By age six, reproduction begins to decline whereby older alpha pairs maintain territories but fail to reproduce. **Less breeding may eliminate the need to kill pets to feed pups.**

²¹ "Coyote Depredation Control: An Interface Between Biology and Management" by Frederick F. Knowlton, Eric M. Gese, And Michael M. Jaeger. Journal of Range Management. 1999.

²² "The Ecology of Northeast Coyotes: Current Knowledge and Priorities for Future Research" by Matthew E. Gompper. WCS Working Paper No. 17. 2002.

Consistently reducing coyote populations keeps the age structure skewed to the younger, more reproductively active adults. The natural limitations seen in older-aged populations are absent and the territorial, younger populations produce more pups. Reductions in adult density of coyotes also cause young adults to stay rather than dispersing, and to secure breeding positions in the area. This phenomenon is well-documented by research conducted by Wildlife Services and others. Research also indicates that younger coyotes are most frequently involved in conflicts.

In contrast to ineffective lethal control methods, one non-lethal method, sterilization, has been shown to be successful in achieving lasting reductions in which the coyote population did not rebound.²³

...And Hurts Nearby Neighborhoods

Coyotes are unaware of property boundaries and municipal borders. Increased breeding within a family unit will put greater pressure on potential food sources, including pets, across a wide geographic area. Consequently, individuals and neighborhood associations seeking to “manage” the coyote population using lethal methods on their properties will make matters that much worse for their neighbors and their neighbors’ pets. Likewise, lethal control measures in one town can have an adverse impact on neighboring municipalities.

What About Trapping and Relocation?

It is a common misconception that coyotes can be relocated safely to other locations. According to Kevin Clarke, a biologist with the NYS Department of Environmental Conservation, taking a coyote because it’s perceived to be a threat to human safety requires a permit, which is kill only. Clarke

said, “If [trappers] are moving those animals, it is unlawful. We don’t move threats.”

Mr. Clarke added that while relocation is not currently illegal in New York for “non-problem” coyotes, it is discouraged for humane and ethical reasons. A coyote that is removed from its territory and separated from its family unit will make every effort to return, and usually dies in the attempt. Unfamiliar with the new terrain, they are often killed by traffic or in territorial disputes with coyotes already established in the area.

Other states, including those with high wildlife populations such as Colorado, forbid all wildlife relocation. Jennifer Churchill, spokeswoman for Colorado Parks & Wildlife, said, “Like many states, Colorado doesn’t relocate coyotes because they either cause the same problems or they perish quickly in unfamiliar habitat.”

“Moving ‘problem coyotes’ from one area to another is illegal in New York.”

Finally, we note that it is nearly impossible to trap a specific coyote. The coyote that is trapped and killed may have had nothing to do with the incident to which the trapper is responding.

SOLUTIONS: WHAT NEIGHBORING TOWNS ARE DOING

Our Committee firmly believes that wildlife management should be pursued using a regional approach, not just a local one. As a scientific discipline, wildlife management requires relatively large areas and sample sizes as consistent standards for monitoring and reporting.

With a regional perspective in mind, we canvassed neighboring municipalities to ascertain their coyote management policies, if any. Although none of the municipalities with which we spoke have adopted formal policies, a number of them have informal guidelines:

²³ “Evaluating Coyote Management Strategies Using A Spatially Explicit, Individual-Based, Socially Structured Population Model: by Mary M. Conner, Michael R. Ebinger and Frederick F. Knowlton, Ecological Modelling 219. 2008.

Seal Beach: From Killing to Coexistence

Dozens of reports of attacks on pets prompted officials in Seal Beach, California, to hire a pest control company to trap coyotes and asphyxiate them in a mobile gas chamber filled with carbon dioxide. The city was particularly concerned about safety in a local retirement community. The pest control company captured and asphyxiated four coyotes between September and December, 2014.

Many residents and animal rights activists objected strongly, including protest demonstrations at city council meetings. The backlash against lethal control was so strong (and the results of its extermination effort so weak) that Seal Beach reversed course, abandoning trapping/killing as a solution. Seal Beach currently is drafting a regional coyote management plan in cooperation with the Humane Society of the United States and nearby cities including Cypress, Los Alamitos, Garden Grove and Long Beach. The goal is co-existence, enforcement of laws prohibiting the feeding of wildlife and development of a system for determining the proper response to encounters with coyotes.

(Source: "In war on coyotes, some argue for learning to live with them" by Louis Sahagun. The Los Angeles Times. December 17, 2014.)

- **Mount Kisco:** According to the MKPD, Mount Kisco has a hands-off policy with regard to coyote incidents, of which there are very few. Mount Kisco never engages in trapping. If residents complain that a pet has been taken, they are given the number of a private trapper, and the resident will bear the cost. The Town takes no action if someone calls with a sighting.
- **Bedford Hills:** Animal Control Officer Ray Teesolde said that Bedford Hills relies on DEC guidelines. Bedford Hills does not sanction trapping or killing, but they will refer residents to a pest control company. If residents call with questions about coyote behavior, they will discuss this at length, hoping to educate them. For example, if someone calls saying that coyotes are appearing regularly on their property, the office will ask them what they think could be attracting the animal. One family was feeding chipmunks and soon noticed an increase in sightings of coyotes, skunks, raccoons and other mammals. Once the feeding was discontinued, the coyotes left and did not return.
- **Yorktown:** The Town of Yorktown website states, "Coyotes, foxes and various other wildlife are numerous in our area, and unless one is sick or injured no action will be taken." Yorktown's animal control officer tells us that the town will take action only in the event of an attack on a person or a pet under a person's control.
- **Westchester County:** We spoke with Maryann Liebowitz, ADA of Westchester County, who handles cases involving animals. She has not yet handled any cases involving coyotes, but is interested in what is happening in New Castle. She indicated that she would pursue cases in which individuals were engaged in unlawful trapping/killing of coyotes.
- **Putnam County:** Ken Ross of the Putnam County SPCA says trapping is useless. "You're not going to empty the ocean with a teacup," he stated. When people call with coyote complaints, they explain pet owners' responsibilities to their pets and the laws that protect wildlife. The vast majority of Putnam residents have a "live and let live" attitude toward wildlife. Those who complain are given a thorough education about the role of coyotes in their habitats. The county will not kill a coyote for attacking a pet that has not been properly supervised. However, if the description of the coyote indicates that it is rabid, lethal control measures will be taken immediately.

SOLUTIONS: WHAT OTHER CITIES AND TOWNS ARE DOING

Although coyotes have spread to virtually every part of the continental United States and much of Canada, few North American municipalities have adopted formal coyote management policies. Those that have policies typically are Western communities, where bears and mountain lions also present challenges. We could find no formal policies anywhere in the Northeast.

We note that of more than a dozen official coyote management policies we identified, only one specifically calls for lethal control when pets are attacked. None recommend lethal control of coyotes simply considered “habituated.”

Rather, a newly emerging community-based model for resolving human-coyote conflicts involves identifying attractants that bring coyotes near human settlements, and training local residents, park staff, or animal control wardens in hazing (i.e., scaring) techniques designed to rekindle coyotes’ natural wariness of people. In several communities, **hazing has been successful in reversing undesirable behaviors among coyote family groups and solitary coyotes, reducing pet attacks in neighborhoods, and reducing the overall number of complaints from residents.**²⁴

In addition to hazing, other techniques, such as the use of novel stimuli to “vex” coyotes in their travel lanes have also proven effective. These behavior modification techniques also tailor the use of stimulus control to permanently change the behavior of wildlife in human landscapes. The resultant behavior change is durable and resistant to extinction.

²⁴ “A New Technique in Coyote Conflict Management: Changing Coyote Behavior through Hazing in Denver, Colorado” by Lynsey A. White, Urban Wildlife Specialist, The Humane Society of the United States, Gaithersburg, MD, and Ashley C. Delaup, Wildlife Ecologist, City and County of Denver Parks & Recreation, Denver, CO

Please see **Appendix A** for a summary of coyote management policies adopted by cities and towns throughout the United States and Canada.

SOLUTIONS: OUR RECOMMENDATIONS

The Committee strongly believes that the humane, science-based wildlife management policies adopted by many of the communities listed in Appendix A provide appropriate templates for the Town of New Castle. In light of the ineffectiveness and potentially counterproductive impacts of trapping/killing, **we are convinced that awareness, education, and responsible pet ownership are the keys to balancing public safety with sustainable environmental practices.** We also recognize that lethal control measures may be appropriate in cases of objectively evaluated threats to human safety when all nonlethal interventions have failed to produce results.

Therefore, we recommend that the Town adopt the following measures:

1. Conduct a Professional Environmental Assessment

To gain a better understanding of our local coyote population and its activities, we recommend that the Town engage a professional wildlife ecologist to evaluate our topography and ecosystem with an eye toward identifying travel corridors are areas of potential conflict.

“A newly emerging community-based model for resolving human-coyote conflicts involves the training of local residents, park staff, or animal control officers in hazing techniques.”

We propose to replace the current ad hoc, unscientific monitoring system with a professional evaluation by an experienced behavioral ecologist who specializes in conflict resolution techniques. This expert will be asked to:

Current Monitoring System Is Flawed

While recent efforts to gather citizen reports of coyote sightings have been well-intentioned, they fall far short of the scientific rigor such an effort should entail. The observations of untrained residents have sometimes been erroneous, including photos on social media misidentifying foxes and dogs as coyotes. We have no way of knowing how often a single animal was reported multiple times by different people. The site has attributed pet disappearances to coyotes without any real evidence that this was the case. The site has no provisions for reporting context, such as food left outside for stray cats, or dogs left completely unattended in their yards for hours on end. Reports of howling also are included, which may misrepresent the location and number of coyotes involved as sound carries over long distances and just one or two coyotes can sound like many more. Perhaps most important, the reporting system as currently established may give residents a false sense of security: many use it as an alert system for predators in their neighborhoods when, in fact, coyotes are constantly on the move and can be miles away by the time the sighting is posted. We believe it is better for residents to assume that coyotes are always in the neighborhood.

- **Visit our community**, observe coyote behavior, assess our ecosystem and interview affected residents in order to track and map animal activities in a way that identifies the true underlying causes of coyote-pet and coyote-human conflicts.
- **Design a customized plan** of action, including behavior modification techniques to change problematic behavior.
- **Provide training** to officers from the New Castle Police Department and workers from the New Castle Department of Public Works to prevent conflicts with wildlife and manage animals deemed a public safety concern.

2. Educate Residents and Town Personnel about Coyotes

If recent comments on social media provide even a rough picture of our community's understanding of wildlife issues, it is apparent that a number of misconceptions have been widely accepted as fact by New Castle residents. Education is sorely needed to debunk these misconceptions and teach residents how to coexist with wildlife.

We intend to find the best written and videotaped educational materials available from a variety of reputable sources, and we will customize them for New Castle. For example, Project Coyote, a coalition of wildlife scientists, educators, ranchers

and community leaders, has created a broad array of materials designed for a lay audience:²⁵

- **Coyote Hazing Field Guide:** This full-color brochure teaches about hazing, a powerful tool that reinforces the coyote's natural wariness of people.
- **Educational flyers:** One-page flyers help inform the public about coyotes and how to mitigate negative encounters. We recommend distributing these during Community Day, at Farmers Markets and other community events.
- **Educational signs** may be particularly appropriate for posting in areas known to be frequented by coyotes.

"A number of misconceptions have been widely accepted as fact by New Castle residents."

- **Educational Tips Cards:** Laminated and colorful cards provide tips on how to coexist with coyotes and mitigate conflicts. These cards could be distributed for free by area merchants.
- **Coexisting with Coyotes brochure:** This comprehensive, five-panel, full-color brochure includes information about coyote ecology, biology, and ways to mitigate negative

²⁵ <http://www.projectcoyote.org/index.html>

encounters with coyotes. We suggest sending one to every household, providing them to new residents, and as part of the fulfillment package when residents apply for dog licenses. We also suggest distributing the brochure through local veterinarians and sending it to residents who call the NCPD with coyote-related concerns.



Source: Project Coyote

This literature should be made available to New Castle residents by the spring of 2015. We recommend mailing literature to all New Castle residents and posting them on the Town's website and Facebook pages. Literature also can be distributed when dogs are licensed and through local veterinary offices, pet sitters and dog walkers.

We also recommend the following awareness techniques for use during pup rearing season in the spring of each year:

- **Banners** for display in the hamlets of Chappaqua and Millwood similar to those

used for the recent "Hands on the Wheel" anti-texting campaign.

- **Nixle alerts** to encourage residents to be coyote aware
- **Prominent signs** at the corner of Rt. 100 and Station Road in Millwood and in the triangle at the foot of the bridge in Chappaqua.
- **An annual workshop** on coyote/pet safety held each spring and videotaped as a webinar for use at other times of the year. He video will be made available on the Town's website and the Coyote Response Resources page.
- **Literature** distributed during the morning and evening rush hours at the Chappaqua train station, timed to coincide with the birth of a new generation of coyote pups.

"Times have changed. We must make small adjustments to ensure the safety of our pets."

3. Educate Residents about Techniques for Pet Safety

Times have changed. Behaviors that were common a few decades ago—such as smoking, riding bicycles without helmets, and driving without seat belts—now would be considered highly irresponsible. The same holds true for our pets.

Residents must understand that responsible pet ownership now includes accompanying and supervising dogs when outside, leashing dogs when on walks, keeping cats indoors, and never leaving food outside. These measures are not, as some have claimed, threats to our way of life. Rather, they are small adjustments that we must make to ensure the safety of our pets.

Fortunately, some residents can "have their cake and eat it too" when it comes to pets enjoying the outdoors:

- **Fences** can be effective deterrents to wildlife entering our yards. While coyotes are capable of digging under fences and jumping over those less than six feet high, the likelihood of their doing so is slim. Coyotes typically will seek easier prey instead of doing all that hard work. For those who want to guard against the remote possibility of a successful incursion, special rollers are available to prevent coyotes from scaling fences at least six feet tall.
- **Dog runs** are less expensive alternatives to fences as they encompass a smaller area. Many fenced-in sizes and styles are available, giving homeowners confidence that their pets will not be attacked while outside “doing their business.”
- We wholeheartedly support the creation of a **dog park** in New Castle where dogs can socialize and run off leash without risk of coyote conflicts.



Source: Indiana Wildlife Federation

The Town can help residents take these preventative measures by expediting building permit applications when they are required.

4. Recruit and Train a Coyote Response Team

Armed with the results of the environmental assessment conducted as outlined in recommendation #1 above, a Coyote Response Team (CRT) comprised of volunteer residents will

conduct a thorough audit of areas in which coyote conflicts occur to identify any attractants that may be creating problems. CRT members will provide “on site” hazing as needed. We propose that this volunteer force be advised by a local licensed wildlife rehabilitator.

Under certain circumstances, high intensity hazing may be required to reestablish wariness of humans in coyotes. Specially trained officials, such as the Animal Control Warden and other NCPD officers, will seek out coyote habitat in specific areas and engage the animals with nonlethal tools such as soft projectiles or bear spray.

See **Appendix C** for more information on the Coyote Response Team and hazing techniques.

5. Create an Online Resource for New Castle Residents

We recommend replacing the existing “Coyote Sightings” Facebook page with an interactive online resource that will provide residents with positive strategies for coexisting with coyotes.

To be administered by our Coyote Response Team, the website or Facebook page (or a combination thereof), tentatively called “Coyote Response Resources,” will provide a place where residents can ask questions, express their concerns, and report coyote conflicts or sightings that may be out of the ordinary. We will make available for download all of the resources specified in the education-oriented recommendations listed above, as well as videos produced by a variety of professional and scientific organizations about coyote behavior and coexistence strategies. Members of the CRT will be available to help concerned residents determine what might be attracting coyotes to their properties and to teach hazing techniques and suggest other deterrents.

For those who want to see where coyotes may be located, we further propose to incorporate into the Coyote Response Resources page a Westchester coyote sightings map that currently is maintained by Dr. Christopher Nagy of Mianus River Gorge

and Stephen Ricker of Westmoreland Sanctuary. This map has been created by wildlife scientists using professional standards, helping to eliminate many of the shortfalls that have rendered the current effort counterproductive.

6. Reserve Lethal Control for the Most Severe Incidents

The most significant difference between the “outlier” coyote management policy of Wheaton, Illinois, and the others listed in Appendix A is the stage at which government officials are willing to employ lethal control methods. In Wheaton, lethal methods be used when pets are killed. All others reserve lethal control for incidents in which human beings are attacked.

We strongly recommend the latter approach. To the coyote, a small dog or cat is a food source, just as a wild rabbit would be. **We do not believe it is appropriate to kill coyotes—and suffer the resulting reproductive biology consequences—when coyotes are simply doing what coyotes normally do.**

Therefore, we strongly recommend that trapping and other lethal control methods be limited to cases in which:

- Humans suffer an unprovoked coyote attack.
 - Coyotes physically attack pets under direct control of humans (i.e., held in arms or on leashes six feet or shorter).
 - Coyotes exhibiting problematic behavior also show signs of serious disease, such as rabies.
- Whenever a coyote is trapped, it must be checked to ensure it is not a lactating female. Lactating females should be freed to return to their pups.

7. Adopt a New Ordinance

DEC rules do not require residents to notify the Town or their neighbors when setting traps or hiring hunters to kill wildlife. This may create an unsafe environment for pets and small children, which have been known to be ensnared by traps meant for coyotes. Moreover, without any record of trapping by individuals, the Town is lacking critical information needed to monitor the coyote population and gauge the effectiveness of its own management efforts.



Source: TrapFree Oregon

Therefore, we propose a new ordinance that requires residents hiring hunters or setting coyote traps on their properties to notify both the Town and other homes within a quarter-mile radius. Notification should include removal service used, location, reason for removal, and, if caught/killed, species, size and condition of animal(s). We further recommend that this information be released quarterly to the public.

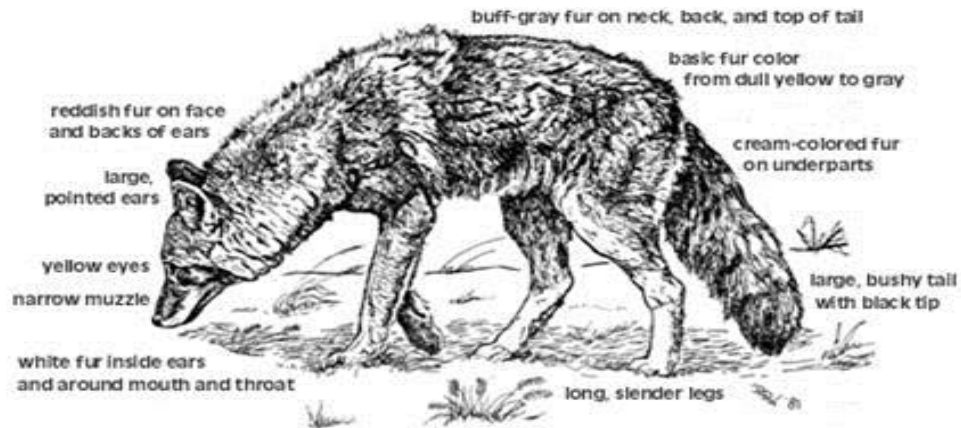
The ordinance also should make clear that the Town expects residents to first consider more environmentally sustainable solutions. We strongly suggest that this ordinance also stipulate that no Town funds will be used for trapping or hunting on privately-owned land, and that any proposal for Town-funded trapping or hunting on public lands be publicly disclosed in advance.

Situation/Response Guidelines

In our Committee's judgment, **each coyote report should be evaluated and responded to individually**. See **Appendix B** for an incident reporting form that will help obtain consistent and accurate information.

Situation	Response
1) Coyotes occasionally seen or heard at a distance	<ul style="list-style-type: none"> • Provide educational materials through Coyote Response Team (CRT) or animal control warden (ACW)
2) Coyote seen lingering within 30 yards of a dwelling	<ul style="list-style-type: none"> • Provide educational materials • Provide hazing instructions
3) Coyote frequently seen lingering in a specific neighborhood	<ul style="list-style-type: none"> • Dispatch CRT or ACW with educational materials and hazing instructions • Conduct a neighborhood workshop • Post signage
4) Coyote comes into close proximity of homes (e.g., onto porches)	<ul style="list-style-type: none"> • Provide educational materials and hazing instructions • Check homes and neighborhood for attractants (see Appendix D) • Consider high-intensity hazing program • Attempt to identify individual coyotes involved
5) Coyote seen watching or following pets or people	<ul style="list-style-type: none"> • Dispatch CRT or ACW with educational materials and hazing instructions • Check home and neighborhood for attractants • Consider high-intensity hazing program and/or VEXING™ • Attempt to identify individual coyotes involved
6) Coyote injures or kills an unattended or unleashed pet	<ul style="list-style-type: none"> • Dispatch CRT or ACW with educational materials and hazing instructions • Check home and neighborhood for attractants • Post signage in neighborhood • Consider high-intensity hazing and/or VEXING™ • Attempt to identify individual coyotes involved
7) Coyote appears diseased	<ul style="list-style-type: none"> • Dispatch CRT or ACW with educational materials • Post signage in neighborhood • Attempt to identify individual coyotes involved to confirm disease and determine if it can be treated • Consult with Certified Wildlife Rehabilitator to determine if trapping and rehab is appropriate • Implement lethal control measures that target the incurably diseased coyotes only
8) Coyote attack on a human or pet is provoked (e.g., person feeding coyote, disturbing den with pups, intervening in a pet-coyote conflict, dog attacking coyote)	<ul style="list-style-type: none"> • Dispatch CRT or ACW with educational materials and hazing instructions • Check home and neighborhood for attractants • Investigate other factors contributing to the attack • Attempt to specifically identify individual coyotes involved • Close den areas to human disturbance during whelping season

<p>9) Coyote attack is unprovoked on a human or a pet under direct human control (i.e., in arms or on leash 6 feet or shorter)</p>	<ul style="list-style-type: none"> • Dispatch CRT or ACW with educational materials and hazing instructions • Check home and neighborhood for attractants • Investigate factors contributing to the attack • Post signage in neighborhood • Attempt to specifically identify individual coyotes involved • Close den areas to human disturbance • Implement lethal control measures that target egregiously aggressive coyotes only • If any animals are trapped/killed, conduct a full necropsy to assess stomach contents and health factors
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Source: University of Connecticut Home & Garden Education Center

SUMMARY: WHAT KIND OF COMMUNITY DO WE WANT TO BE?

The Committee strongly believes, from a pragmatic perspective, a balanced approach that enhances public safety while respecting the environment is the best course for the Town of New Castle. The recommendations offered in this proposal provide a proportional response to the problem and will go a long way toward keeping our residents, children, pets and ecosystem safe and healthy. And they will help the Town avoid spending taxpayer dollars on trapping and other expensive and ineffective wildlife control strategies.

Adopting a balanced approach to wildlife management will position New Castle as a shining example of thoughtful, broad-minded governance. We would expect any publicity surrounding the adoption of our plan to be well received by the public. In contrast, adopting a fear-based, scientifically unsupported plan that calls for the needless killing of wildlife is likely to raise the ire of animal rights groups, potentially resulting in negative publicity for our Town and its elected officials. The media are aware that New Castle is considering measures to control the coyote population, and our Committee has received inquiries from publications ranging from *The Examiner* to *New York* magazine. A number of animal rights groups are prepared to object loudly

to any effort to implement lethal measures, as evidenced by their reactions to recent plans to cull the deer population by Teatown Lake Reservation and the Canada goose population by various Westchester municipalities.

From a broader perspective, we must ask ourselves what kind of community we want to be, and what kind of values we want to live by. Do we really want to trap and kill native wildlife for no beneficial effect? Do we want to teach our children to fear nature and wildlife instead of fostering appreciation and respect for natural processes that are older than human civilization?

Many of us believe that one of our greatest challenges in modern times is to instill respect for the value our environment—locally and globally—and the benefits of life support and life quality it provides. Coyotes have been challenged by the changes humans have made to their habitats, and still they have learned to adapt and thrive. We see no reason why humans cannot do the same.

After all, if we cannot figure out how to coexist with wildlife, how can we hope to live harmoniously with each other?

New Castle's Heritage of Environmental Advocacy

The Town of New Castle has a long and admirable history of sound environmental planning. We were one of the first New York communities to complete a comprehensive open space survey and appoint a town conservation board. We were one of the first to create a community land trust in order to preserve undeveloped woodlands and wildlife habitat for future generations. We were a pioneer in holding one of the region's first Earth Day celebrations in the early 1970s, an event that drew more than 20,000 people. Our elected officials have wisely enacted a number of environmentally sound ordinances regarding wetlands, steep slopes and clean water.

New Castle's environmental legacy remains alive today, as evidenced by five Saw Mill River Audubon Society nature sanctuaries and nine town parks that offer not just recreation opportunities for residents, but also havens for a broad array of trees, shrubs, flowers, grasses, birds, mammals, reptiles, invertebrates and other natural organisms.

Our town's reputation for smart environmental policies is well deserved and has become an integral part of what makes us unique. What a shame it would be to turn away from this proud heritage.

APPENDIX A: WHAT OTHER COMMUNITIES ARE DOING

Mainstream Coexistence Plans

Riverside, IL: Considered by many to be a model coyote policy, Riverside's recently enacted plan recognizes that "residents must attempt to correct coyote behavior problems before they rise to a safety risk. If appropriate preventative actions are taken before coyotes establish feeding patterns in neighborhoods, further problems can be avoided. This requires aggressive use of hazing, as well as correcting environmental factors that have attracted coyotes into the neighborhood (especially intentional and unintentional feeding)." Like many communities, Riverside had adopted a hierarchy of Human-Coyote Conflict Classification & Recommended Responses, including education, environmental audits to identify attractants, hazing, high intensity hazing, and municipal fines on uncompliant residents. Notably, Riverside reserves lethal control only for unprovoked human/coyote conflicts, i.e. those in which people have not encouraged the coyote to engage by hand feeding, approaching a coyote with pups, or intervening during a pet attack.²⁶

Austin, TX: The City of Austin has created a humane coyote management policy for solving conflicts among people, pets and coyotes within the city. The policy emphasizes coexistence and tolerance for coyotes, rather than cruel and ineffective trapping and killing programs.

The policy focuses on addressing coyote conflicts by reducing food attractants in neighborhoods, educating residents about how to protect their pets and using proven nonlethal aversive conditioning (or hazing) techniques to deter coyotes who have become too bold. It also stipulates that lethal control of coyotes would be limited to rare cases of a coyote attack on a person or an incident that presents a true risk to human safety.

²⁶ www.riverside.il.us/.../Coyote_Policy_Final_11-11-2014.pdf

Katie Jarl, Texas state director for The Humane Society of the United States said, "We commend the City of Austin for taking this proactive step in adopting a humane and effective plan for preventing and managing coyote conflicts. Austin can now serve as a role model for communities across the nation."

Vancouver, BC: The city's Co-Existing with Coyotes program aims to reduce conflict among people, pets, and coyotes by providing information to both targeted and general audiences as well as coordinating with organizations to provide a direct response to individual coyotes displaying aggressive or habituated behavior. Stanley Park Ecology Society staff use reports from the public to track and evaluate the level of habituation of coyotes throughout Vancouver while providing advice on nonlethal coyote deterrents with solid success in neighborhoods throughout Vancouver. In some cases, CwC recognizes that coexistence is not an option. Program staff work to identify and help coordinate the removal of any coyote that poses a risk to human safety. In Vancouver, Conservation Officers from the Ministry of Environment have destroyed fewer than one over-habituated coyote per year on average since the beginning of the program [2001-2006].²⁷

Town of Mount Pleasant, SC: The only formal policy we found from an East Coast municipality, the Coyote Management Plan calls for: 1) Creating and implementing an ongoing education program; 2) Providing information about the rights and responsibilities of private property owners; 3) Tracking and monitoring coyote activity; 4) Implementing a program for lethal control, only when it is determined to be necessary for public safety. For example, when the interactions

²⁷

<http://webapps.icma.org/pm/8811/public/feature4.cfm?author=Robert%20Boelens&title=Co-Existing%20with%20Coyotes%20in%20Vancouver%20%28and%20Anywhere%20Else%2C%20for%20That%20Matter%29&subtitle=>

between humans and coyotes change from sightings and encounters to potentially unsafe incidents or attacks. An “incident” is a conflict between a person and a coyote where a coyote exhibited behavior creating an unsafe situation. A coyote may show aggression towards a person without any physical contact. An “attack” is an aggressive action by a coyote that involves physical contact with a person and/or a person is injured by the actions of a coyote (example injured while trying to escape an incident or attack). [Notably, this plan makes no mention of incidents or attacks involving pets.]²⁸

City of Castle Pines North, CO: In the case of pet injuries or loss resulting from coyotes, City staff will complete a coyote report and will add to the database and GIS map. City staff may provide the pet owner with educational materials emphasizing pet safety, low-level hazing techniques, and habitat modification suggestions. In the event that a coyote continues to return to the same property, a uniformed officer (or other approved agency or individual) may carry out aggressive hazing techniques. In the case of incidents and attacks to humans, the city will notify a Colorado Division of Wildlife District Manager (DWM) immediately, who will respond to incidents involving dangerous coyotes and make a management decision to use aggressive hazing or lethal control based on the interest of public safety. City staff will work with DCSO and CDOW staff to notify residents in the area of the incident. City staff may provide educational materials, low-level hazing techniques, reporting intentional feeding, and habitat modification to area residents, homeowners associations’ and schools (if in the area).²⁹

Broomfield, CO: The four basic methods of response to coyote conflicts in Broomfield are public education, outreach community meetings, hazing, and lethal control as a last resort if there is a dangerous coyote or a public safety risk. City

and County of Broomfield will respond to each coyote situation based on the particular issues and variables of the situation, and in some cases it may be deemed that no response is necessary beyond taking the citizen call. While these guidelines define coyote behavior and the potential appropriate response, the Coyote Policy is not designed to dictate an automatic response but to help guide the response based on the specific situation. In any case, if a resident requests coyote information from Broomfield staff, materials and web site references will be provided.

If the attacked dog, cat or other type of pet was unattended, the following guidelines apply:

1. The citizen may call the CDOW to report the unattended pet attack/loss.
2. The CDOW will inform the Animal Control Unit of the unattended pet attack/loss.
3. The Animal Control Unit will inform the Open Space and Trails staff of the unattended pet attack/loss.
4. The Animal Control Unit will contact the citizen and direct the citizen to coyote educational information.
5. The Animal Control Unit will encourage the citizen to do low-intensity hazing.
6. The Animal Control Unit will send the Open Space and Trails staff the unattended pet attack/loss report. The Open Space staff will track and map the unattended pet attack/loss based on the information provided to the Animal Control Unit or CDOW.
7. The Open Space staff will also provide assistance to the Animal Control Unit if further communication is needed with the citizen.

If the attacked dog, cat, or other type of pet was attended, the following guidelines apply:

1. The citizen may report the attended pet loss to the CDOW and/or the Animal Control Unit of the Police Department.

²⁸ <http://www.tompsc.com/DocumentCenter/View/7767>

²⁹ http://www.castlepinesgov.com/sites/default/files/media/coyote_management_plan.pdf

2. The Animal Control Unit will inform the Open Space and Trails staff and CDOW staff about the attended pet attack/loss.
3. The Animal Control Unit will contact the citizen and direct the citizen to coyote educational information.
4. The Animal Control Unit will encourage the citizen to do low-intensity hazing.
5. The Open Space staff will also provide assistance to the Animal Control Unit if further communication is needed with the citizen.
6. If determined to be appropriate by the CDOW and Broomfield staff, high-intensity hazing may be conducted.
7. The Animal Control Unit will send the Open Space and Trails staff the attended pet attack/loss report. The Open Space staff will track and map the attended pet attack/loss based on the information provided to the Animal Control Unit or CDOW.
8. Upon request of the Open Space and Trails staff, the Public Works staff will place coyote warning signage in the vicinity of the attended pet attack/loss.
9. The Open Space and Trails staff may schedule a coyote public education meeting if the coyote exhibited dangerous behavior to the human attending the pet.
10. The Open Space and Trails staff, with assistance from the CDOW, may investigate the site of the attended pet attack/loss to determine possible attractants or potential causes of the loss.
11. If the coyote involved in the pet attack/loss exhibited dangerous behavior towards the human, CDOW may determine that lethal control should be used.³⁰

Boulder, CO: The City of Boulder Coyote Management Plan is designed to reduce the likelihood of human-coyote conflicts. As a top predator in eastern Boulder, coyotes regulate and balance prey populations including skunks, prairie dogs, raccoons, rabbits, mice, rats, geese, pigeons, insects and snakes. Coyotes are usually wary of people, but can become habituated when they have repeated, innocuous encounters with them. Habituated coyotes often become a nuisance in urban areas, and as they lose fear of humans, they may become bolder and more aggressive.

Coyotes that have become habituated and too comfortable in close proximity of people have learned that humans are not something to fear. To safely coexist, it's important to modify this behavior and attitude in resident coyote populations. The purpose of hazing is to reshape coyote comfort with humans and to encourage coyotes to avoid contact with humans. This approach to behavior change has been implemented in Denver, CO and is considered successful. Hazing is not intended to replace lethal control of individual animals involved in serious aggressive interactions with humans. It is considered more appropriate to attempt to haze all coyotes that show signs of habituation, than to lethally control all coyotes in the area. If an individual aggressive coyote is identified, lethal control remains an option to remove that coyote.³¹

Lone Tree, CO: The City may implement a program of lethal control when interactions between humans and coyotes change from encounters and incidents to attacks on humans or the coyote behavior changes from nuisance to dangerous. Lethal control may be utilized when education and hazing have been employed and are not effective in changing the behavior of a habituated coyote and that coyote has become dangerous, or if a coyote poses an immediate danger to a human. The City recognizes that it may be difficult to identify the specific coyote that

³⁰

<http://www.broomfield.org/DocumentCenter/View/1392>

³¹ https://www-static.bouldercolorado.gov/docs/coyote_management_plan_2013-1-201304111157.pdf

has become problematic and will take all reasonable measures to obtain information that is as accurate as possible so that any lethal control measures employed are aimed at the offending coyote and not used indiscriminately. [All coyote-pet interactions are considered “incidents” and are not subject to lethal control.]³²

Superior, CO: Coyote Coexistence Plan:

Coexisting with coyotes in urban and suburban areas requires balancing respect and protection of wildlife and their habitats with maintaining public safety. The main strategy is two-pronged, consisting of educating the public about coexistence, and ensuring public safety by implementing appropriate responses to coyote activity. [Only attacks in which coyotes attack or injure a person are subject to lethal control; coyote-pet incidents are not.]³³

Wheat Ridge, CO: Guidelines for response to nuisance and dangerous coyotes:

1. CSOs will respond to the encounter location and document the encounter in a Police report. In the event of a dangerous encounter, a Police Officer will also respond, and CPW notified to respond, and the Police report will be distributed to the Chief of Police, CPW, and the Parks Department (if the incident is located in a park or open space area). If the encounter occurred in or adjacent to city parks or open space, the Parks Department will post temporary educational signage in the area
2. The Police Department will provide press release notifications to the public regarding the encounter.
3. CSOs will provide educational materials to the reporting party and refer the party to the city website/animal control/CPW link for further information on conflicts with wildlife.
4. In the event of a nuisance coyote, CSOs will consult with CPW on initiating a hazing program and providing on-site public

education. In the event of a dangerous coyote encounter, a high intensity hazing program will be initiated. Police staff will be notified of the location, times and dates the hazing will occur. CPW will provide on-site public education programs in the area on hazing and the habits and behaviors of the coyote.

5. CSOs will continue to monitor the area, provide directed patrols, and update any previous press release notifications to the public.
6. CSOs will follow up by mailing educational postcards on “Coyote Conflicts” to the neighborhood or area where the encounter occurred.
7. If the encounter is with a dangerous coyote, CSOs will consult with CPW to determine if lethal control is appropriate. A coyote may be defined as dangerous using the following guidelines: A) A coyote that has attacked or is attacking a person; B) A coyote that exhibits aggressive behavior towards human(s) and/or poses a significant threat to human safety.³⁴

Calabasis, CA: City strategy for managing coyotes is based on balancing respect and protection for wildlife and their habitats without compromising public safety. The main strategy is comprised of a two-pronged approach consisting of public education designed around co-existence with coyotes and ensuring public safety by implementing appropriate responses to a coyote attack on a human.

Education is the key to having residents make appropriate decisions regarding their safety, or managing their property and pets. This involves decreasing attractants, increasing pet safety and creating reasonable expectations of normal coyote behavior. Learning how to respond to a coyote encounter empowers residents and supports reshaping undesired coyote behavior. The public should understand what normal coyote behavior is when living in close proximity with coyotes. For example, vocalization is normal acceptable behavior and does not indicate aggression.

³²

<http://www.cityoflonetree.com/DocumentCenter/Home/View/2519>

³³<http://superiorcolorado.gov/Portals/7/PROS/Forms/Coyote%20Coexistence%20Plan%20Superior%2012%20June%202014.compressed.pdf>

³⁴ <http://www.ci.wheatridge.co.us/1183/Coyote-Management-Plan>

An “attack” is defined as: when a human is injured or killed by a coyote. If a human is attacked and physically injured by a coyote, City staff will inform the California Department of Fish and Game. City funds will not be spent on trapping. However, according to State laws, coyotes are considered “non-game wildlife,” therefore any resident or homeowner association can initiate, at their own expense, action to protect themselves and their property from coyote attacks. However, Proposition 4 passed by California voters in 1998 prohibits leg-hold traps statewide and severely restricts use of other body-gripping traps. No private individual is authorized to discharge a firearm within the City of Calabasas.³⁵

Long Beach, CA: Encounters between coyotes and people sometimes trigger alarm in people who fear for the safety of their pets and children. To allay this, communities may feel they need to pay for wide scale programs to remove coyotes from the population. These killing programs don’t work and are inhumane. Better solutions exist. What Does Work? A program combining education and hazing offers the best method for handling and preventing conflicts with coyotes, and is working already in a number of communities.³⁶

Municipalities Using Lethal Control When Pets Are Attacked

We found only one example of a formal coyote management policies that explicitly calls for lethal control when incidents involve unattended pets:

Wheaton, IL: The city’s response depends on the circumstances:

Condition: Coyotes are occasionally seen at night, more rarely during dusk and dawn. Occasional howling. Response: Education, prohibit/limit

feeding of wildlife, use negative stimuli for coyotes such as shouting, chasing, throwing objects.

Condition: Coyotes are occasionally seen during the day, frequently seen at night, an occasional house cat disappears. Response: Education, posting signage, prohibit/limit feeding of wildlife, free-ranging pets are at risk, use negative stimuli for coyotes such as shouting, chasing, throwing objects, consider aggressive hazing.

Condition: Coyotes are frequently seen during the day, appearing in yards on an increasing basis, but they flee when approached by people. Pets in yards are attacked. Response: Education, posting signage, prohibit/limit feeding of wildlife, hire trapper to track coyotes leading to feeders, supervise pets, consider removal program, use negative stimuli for coyotes, aggressive hazing.

Condition: Coyotes taking pets from yards, approaching people without fear, acting aggressive, growling and barking when subject to a negative stimuli, following children. Response: Initiate removal program in conjunction with education, posting signage, prohibit/limit feeding of wildlife, hire trapper to track coyotes leading to feeders, supervise pets, use negative stimuli for coyotes, aggressive hazing.³⁷

Cook County, IL: *Although no official plan has been adopted by Cook County, which includes Chicago, in fairness we are including the recommendations of Stanley Gehrt, Ph.D., who has conducted extensive research into coyote urban ecology in Chicago.*

Dr. Gehrt believes that management programs for urban coyotes should begin with public education and untangling facts from myths. People should become aware of coyote signs and understand the differences between true threats and coexistence. It is important to stress that our relationship with coyotes is directly affected by our behavior—coyotes react to us, and we can foster mutual respect or a lack of respect through cues we send to coyotes. People should be discouraged from inadvertent feeding where coyotes are present.

³⁵

<http://www.cityofcalabasas.com/environmental/pdf/Coyote-Management-Plan.pdf>

³⁶

<http://www.longbeach.gov/civica/filebank/blobdload.asp?BlobID=32444>

³⁷ <http://www.wheaton.il.us/coyote/>

This includes leaving pet food outside at night and maintaining large bird feeders that attract multiple species of wildlife. Where coyotes are more obvious, pets should be supervised.

Removal may be warranted when habituation is so severe that the coyotes can be considered an immediate threat to people, especially children and pets. Lethal removal is accomplished either through trapping/euthanasia or shooting. Coyotes are difficult to trap or shoot, and these actions should be undertaken by professionals, especially in urban areas. Removal efforts should observe state and municipal codes. Removal programs designed to target specific nuisance coyotes will be more successful than broad removal programs that have a goal of removing a complete population of coyotes. It is difficult to capture all coyotes residing in an area, and as coyotes are removed, they are replaced by solitary ones. Removal, especially lethal removal, is often controversial within communities. This is especially true when the perceived threat by coyotes is somewhat ambiguous to residents. Removal programs can also be expensive, either for residents or municipalities, and traps can occasionally capture pets. For these reasons, as well as ethical reasons, coyote removal is best employed only after education has been attempted or if there is an immediate, and obvious, threat to human safety.³⁸

Informal Coyote Management/Coexistence Plans

We have identified a number of other communities that don't have formal coyote management plans, but are using similar, nonlethal guidelines (education and hazing) to manage coyote conflicts:

Huntington Beach, CA:

http://www.huntingtonbeachca.gov/i_want_to/coyote-info.cfm

Bayside, WI: <http://www.bayside-wi.gov/index.aspx?NID=152>

Lake Oswego, OR:

<http://www.ci.oswego.or.us/planning/coyotes-and-other-urban-wildlife>

Edina, MN:

http://edinamn.gov/index.php?section=patrol_and_malcontrol

Eagan, MN:

<http://www.cityofeagan.com/index.php/police/animal-control/coyote-information>

Bloomington, MN:

<http://bloomingtonmn.gov/cityhall/dept/police/specops/animal/coyote/coyote.htm>

St. Louis Park, MN:

<http://www.stlouispark.org/keeping-informed/coyotes-are-among-us.html>

Plaquemines Parish, LA:

<http://www.plaqueminesparish.com/departments-detail.php?refID=4&index=1>

Ranchos Palos Verdes, CA:

<http://palosverdes.com/rpv/planning/code-enforcement/coyotes.cfm>

Windermere, FL:

<http://www.town.windermere.fl.us/pview.aspx?id=28162>

Orange County, NC:

<http://www.co.orange.nc.us/AnimalServices/Coyotes.asp>

Decatur, GA:

<http://www.decaturga.com/index.aspx?page=569>

Carol Stream, IL:

http://www.carolstream.org/index.php?option=com_content&view=article&id=636:your-wild-neighbors-coexisting-with-coyotes&catid=121&Itemid=145

Parkland, FL:

<http://www.cityofparkland.org/540/Coyotes>

³⁸ <http://ohioline.osu.edu/b929/pdf/b929.pdf>

APPENDIX B: COYOTE INCIDENT REPORT FORM

Date:_____ Time of interaction:_____ Duration of Interaction: _____

Name of reporting party: _____

Address of reporting party: _____

Phone number of reporting party: _____

Address of interaction: _____

Location type (park, commercial property, residential property, natural preserve, vacant land, other):

Type of interaction: Observation, Sighting, Encounter, Incident, Pet Attack: Attended/Unattended, or Human Attack: Provoked/Unprovoked? (*See Below for Definitions*)

Activity of reporting party prior to interaction (e.g. walking, running, riding bike):

Was the coyote being intentionally fed?	Yes	No
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Was there pet food present?	Yes	No
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Was unsecured garbage present?	Yes	No
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Were other food attractants present? (e.g. bird seed, compost, fruit, etc. If yes, describe:	Yes	No
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Was a pet involved?	Yes	No
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Type of pet: Cat Dog Other

Breed/weight of pet: _____

Was pet on leash?	Yes	No
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(If yes, was leash longer than 6 ft.?)	Yes	No
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Description of interaction/what happened:

Actions taken by reporting party (e.g. ran away, hazed coyote, none, etc.):

How did coyote respond? (e.g. ran away, approached, etc.)

OFFICE USE ONLY:

Outcome of incident:

Human injuries:

Post Exposure Rabies Vaccination Recommended:	Yes	No
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Pet injuries: _____

Pet killed:	Yes	No
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Coyote injuries: _____

Coyote euthanized	Yes	No
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Coyote necropsy results:

Stomach contents: human food	Yes	No
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Sign of disease: If yes, describe

DEFINITIONS:

OBSERVATION:

The act of noticing signs of a coyote(s), such as tracks, scat, or vocalizations, but without visual observation of the coyote(s).

SIGHTING:

A visual observation of a coyote(s). A sighting may occur at any time of the day or night.

ENCOUNTER:

A direct meeting that is between human and coyote(s) with no physical contact and that is without incident.

INCIDENT:

A conflict between a human and a coyote where the coyote exhibits any of the following behaviors: growling, baring teeth, lunging or making physical contact with person. A human is not bitten.

HUMAN ATTACK:

A human is bitten by a coyote(s).

Provoked: An attack where the involved human encourages the coyote to engage. Examples include a human hand-feeding a coyote, approaching a coyote with pups or intervening in a coyote attack on a pet.

Unprovoked: An attack where the involved human does not encourage the coyote to engage.

PET ATTACK:

Coyote(s) kills or injures a domestic pet.

Attended: Pet is on a leash less than six feet in length or is in the presence of a person less than six feet away.

Unattended: Pet is free-roaming, walking off-leash more than six feet from a person, or on a leash longer than six feet.

APPENDIX C: GUIDELINES FOR A COMMUNITY-BASED HAZING PROGRAM

Because coexisting with wildlife involves the community, the most successful coyote hazing programs involve residents and volunteers. Residents are best equipped to respond consistently and at the most opportune times in their own neighborhoods, greenbelts, parks and open spaces. Coyotes will also learn to fear the general public faster if they are hazed by the residents that they already encounter in their home ranges.

Involving the community in coyote hazing efforts has the additional benefit of empowering residents and reducing their fear of coyotes by giving them tools to address coyote conflicts themselves.

Before attempting to haze coyotes on their own, residents should first be properly trained on the following topics:

- a) Basic coyote ecology and behavior
- b) Seasonal behavior changes—breeding season, pups, denning behavior
- c) Influences of human behavior on coyotes
- d) How to identify and remove food attractants
- e) Safety tips for pets
- f) Hazing techniques, tools and tips for success

When possible, in-person trainings and meetings are the best way to relay this information to residents and to train them in coyote hazing techniques. Supplemental materials, such as handouts, brochures and websites, can also provide this information when necessary.

Creating a Coyote Response Team

A group of volunteers trained in coyote hazing techniques can be quite useful to respond to coyote conflicts. The following guidelines are suggested for managing a volunteer hazing team:

1. Volunteers should be trained in proper coyote hazing techniques (as discussed above).
2. Volunteers should be added to a Coyote Response Team email list, from which they will be notified of “hot spots” and asked to haze in the area.
3. Updates, additional coyote information, electronic flyers and handouts should be sent to members of the Coyote Response Team to disseminate to the general public.
4. Volunteers should fill out a Hazing Interaction Report after each hazing activity.
5. Hazing Interaction Reports will include the following details:
 - a) Date, location, time of day, number of coyotes
 - b) Initial coyote behavior, hazing behavior, coyote response
 - c) Effectiveness ratings
 - d) Tools and techniques used
 - e) Additional details/comments

Coyote Hazing Tips for Success

1. Hazing is most effective when an individual coyote is hazed by a variety of people using a variety of tools and techniques.
2. The coyote being hazed must be able to recognize that the potential threat is coming from a person. Therefore, hiding behind a bush and throwing rocks or hazing from inside a car or house (for example) isn't effective.
3. When hazed for the first time, a coyote may not respond at first or may run a short distance away. If this happens, it is important to continue hazing (and intensify the hazing if possible) until the coyote leaves the area. Otherwise, the coyote will learn to wait until the person gives up. Inconsistent hazing will create an animal more resistant to hazing instead of reinforcing the notion that "people are scary."
4. Make sure to provide an escape route for the coyote. Do not corner the coyote or chase the animal in the direction of traffic or other people.
5. A group of coyotes should be hazed in the same manner as a single coyote. In a group, there will always be a dominant coyote who will respond first, and once he runs away, the others will follow.
6. Hazing efforts should be exaggerated at the beginning of a hazing program, but less effort will be needed as coyotes learn to avoid people and neighborhoods. Coyotes learn quickly, and their family members and pups will emulate their behavior, leading to a ripple effort throughout the local coyote population.
7. Certain levels of hazing must always be maintained so that coyotes do not learn or return to unacceptable habits.
8. Obviously sick or injured coyotes should not be hazed by the general public. In these cases, police or animal control officers should be contacted.
9. People should never run from or ignore a coyote. Running from a coyote can initiate a chasing instinct, while ignoring a coyote creates habituation and negates the positive effects of hazing.
10. It is important to identify and remove possible coyote attractants in conjunction with hazing. Hazing will be less effective if food attractants are plentiful in a neighborhood.

APPENDIX D: COYOTE YARD AUDIT CHECKLIST

(For municipal or homeowner use)

	OK	FIX	Ways to Mitigate
FOOD			NEVER hand-feed or intentionally feed a coyote!
Pet Food			Never feed pets outdoors; store all pet food securely indoors.
Water Sources			Remove water attractants (such as pet water bowls) in dry climates.
Bird Feeders			Clean fallen seed to reduce the presence of small mammals that coyotes prefer to eat.
Fallen Fruit			Clean up fallen fruit around trees.
Compost			Do not include meat or dairy among compost contents unless fully enclosed.
BBQ Grills			Clean up food around barbeque grills after each use.
Trash			Secure all trash containers with locking lids and place curbside the morning of trash pickup. Periodically clean cans to reduce residual odors.
LANDSCAPING			Trim vegetation to reduce hiding places and potential denning sites.
Structures/Outbuildings			Restrict access under decks and sheds, around woodpiles, or any other structure that can provide cover or denning sites for coyotes or their prey.
FENCING			Enclose property with a 6-foot fence with a roller-top to deter coyotes. Ensure that there are no gaps and that the bottom of the fence extends underground 6 inches or is fitted with a mesh apron to deter coyotes from digging underneath.
PETS			Never leave pets unattended outside.

			Never allow pets to “play” with coyotes.
			Fully enclose outdoor pet kennels/dog runs.
			Walk pets on a leash no longer than 6 feet in length.

We encourage you to take steps to eliminate attractants on your property in order to minimize conflicts with coyotes. We also urge you to share this information with friends and neighbors because minimizing conflicts is most effective when the entire neighborhood works together.