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COMMITTEE MEMBERS:

Brandon McCullough, Chair
All Councilmembers

OFFICE OF THE COUNCIL

**MEETING PACKET FOR THE
COMMITTEE OF THE WHOLE
SEPTEMBER 18, 2024
7:00 P.M.**

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The official documents are on file in the City Clerk's office.

PUBLIC MEETING - COMMITTEE OF THE WHOLE
Wednesday, September 18, 2024
7:00 PM

Location:

Livonia City Hall Auditorium
33000 Civic Center Drive
Livonia, MI 48154

Members:

Brandon McCullough, Chair
All Councilmembers

AGENDA ITEM(S)

1. [The subject matter of what options are available concerning the culling and management of the deer and coyote populations in the city. \(CR 213-23\)](#)
2. [The subject matter of a proposed responsible contractor ordinance. \(CR 241-24\)](#)

AUDIENCE COMMUNICATION

THE FOLLOWING HAVE BEEN NOTIFIED AND ARE REQUESTED TO ATTEND:

Maureen Miller Brosnan, Mayor
Carter Fisher, City Attorney
Debbie Lichtenberg, Finance Director

**THIS IS AN OPEN MEETING AND
ALL INTERESTED PARTIES ARE WELCOME TO ATTEND.**

This meeting will be reported at the Regular Meeting of **October 7, 2024**

Minutes of this meeting will be available for public inspection in the City Clerk's Office
not more than eight business days following the date of the meeting.

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LORI L. MILLER, CITY CLERK



LETTER TO THE LIVONIA CITY COUNCIL

1.

Council Office
August 16, 2024

MEETING DATE

COW091824/R100724

PRESENTED BY

AGENDA ITEM

The subject matter of what options are available concerning the culling and management of the deer and coyote populations in the city. (CR 213-23)

BACKGROUND DETAILS

At the Regular Meeting of July 10, 2023

On a motion by Councilmember McIntyre, supported by Councilmember Morgan and unanimously adopted, it was:

#213-23 RESOLVED, that having considered the report and recommendation of the Public Safety and Health Committee, dated June 19, 2023, submitted pursuant to Council Resolution 18-22, regarding the subject matter of what options are available concerning the culling and management of the deer and coyote populations in the City, the Council does hereby refer this item to the Committee of the Whole for its report and recommendation.

Councilmember McIntyre reported on the Public Safety and Health Committee Meeting of June 19, 2023, regarding culling and management of the deer and coyote population.

At the Regular Meeting of September 29, 2019

Councilmember Scott Bahr requested the subject matter of what options are available concerning the culling and management of the deer and coyote populations in the city be referred to the Public Safety, Health and Environment Committee.

PREFERRED COUNCIL RECOMMENDATION/RESOLUTION (Please complete this field. Attachments are not to be used in lieu of the recommendation)

To discuss subject matter as presented

ATTACHMENTS

1. R071023 Subject matter of deer cull moved from PSH to COW CR 213-23
2. R071023 New Data - Resident Response recd 7-27-23
3. LetterToCouncil-Deer Population 7-19-23
4. Deer population info provided at R071023
5. Coyote info provided at R071023
6. R071023 New Data 6 - Resident Response
7. R071023 New Data 5 - Resident Response
8. R071023 New Data 4 - Resident Response

9. R071023 New Data 3 - Resident Response
10. R071023 New Data 2 - Resident Response
11. R071023 New Data 1 - LPD response - Deer Crashes
12. PSH061923 Min
13. PsH061923 New Data 2 - Management of Deer Population - Recd 6-19-23
14. PSH061923 New Data 1 - Resident response - Recd 6-19-23
15. PSH061923 LTC deer population
16. R092319 Subject matter of deer and coyote in the City CR 329-19 (MISC)

APPROVED BY

Regular Meeting Minutes of July 10, 2023

On a motion by Councilmember McIntyre, supported by Councilmember Morgan and unanimously adopted, it was:

#213-23 RESOLVED, that having considered the report and recommendation of the Public Safety and Health Committee, dated June 19, 2023, submitted pursuant to Council Resolution 18-22, regarding the subject matter of what options are available concerning the culling and management of the deer and coyote populations in the City, the Council does hereby refer this item to the Committee of the Whole for its report and recommendation.

<i>UNFINISHED BUSINESS ITEM 10 (Regular Meeting of July 10, 2023)</i>
--

Motion:	Toy
Second:	Bahr
Ayes:	McCullough, McIntyre, Toy, Bahr, Donovic, Morgan, Jolly
Nays:	None
Absent:	None

Kasprowicz, Sara

From: noreply@civicplus.com
Sent: Thursday, July 27, 2023 4:36 PM
To: CityCouncil
Subject: Online Form Submittal: City Council Inquiries

City Council Inquiries

This form is for any questions, comments, or concerns you may have for the City in regards to city council meetings or other city council inquiries. If you leave contact information, the City will reply within 2 business days. If this is an emergency, please dial 9-1-1.

First Name	Douglas
Last Name	Piazza
Address	29631 Nottingham Circle Livonia, Mi. 48152
Email Address	bond66@juno.com
Phone Number	3135822602
Topic	Other City Council Inquiry
Date of Issue	7/27/2023
Attachment (Optional)	<i>Field not completed.</i>
Comments	I have heard that Livonia is having a problem with surplus deer. I suggest that Livonia adopt the solution that the city of Dearborn found several years ago for the same problem. The city of Dearborn hired hunters. The deer meat was donated to charities. Douglas Piazza, a Livonia resident (phone:313 582 2602) email:bond66@juno.com

Email not displaying correctly? [View it in your browser.](#)

July 12, 2023

Members of the City Council
City of Livonia
33000 Civic Center Dr.
Livonia, MI 48154

Re: Deer Debate: Dilemma or Opportunity?

Dear Councilpersons,

Thank you for addressing the concerns of residents regarding the increased deer population - and other wildlife - taking place in Livonia. While watching the July 10th council meetings and listening to the discussion of possible abatement suggestions, I gazed out my front window to see two lovely doe sauntering slowly across my lawn. This is not an unusual sight in our neighborhood, but it still catches me off-guard -- and I love it!

As many Livonia residents can claim, I, too, have lived in this city for decades. First in 1965 as a child living on Bobrich west off Merriman, long before Rotary Park was developed. After marrying, my husband & I lived on Fairfax west off Purlingbrook for 11 years, then back on Bobrich for 10 years (Rotary Park was in full swing), and now we've lived on Munger east off Merriman since 2004 - with a yard that backs up to the Bell Creek. Not that my re-locations throughout Livonia are pertinent, however, it was not until 2005 that I ever set eyes on a single deer in any Livonia neighborhood! But now, witnessing a "herd" of 8-12 (or more) deer grazing in yards is commonplace. New fawns are plentiful. While working in my yard, I've been no farther than 25 feet from a deer who was not the least bit concerned with my presence. I've not seen any aggressive deer behavior towards humans or pets - only between bucks that get in a tussle every now and then.

The coyote-sightings on Munger over the last 20 years have dwindled considerably. Whatever Livonia's efforts were/are in this matter are appreciated. I realize all wildlife can contribute positively and negatively to the ecosystem but I wonder if the deer have helped cull the coyotes; I've witnessed groups of deer taking on single coyotes that threaten the fawns.

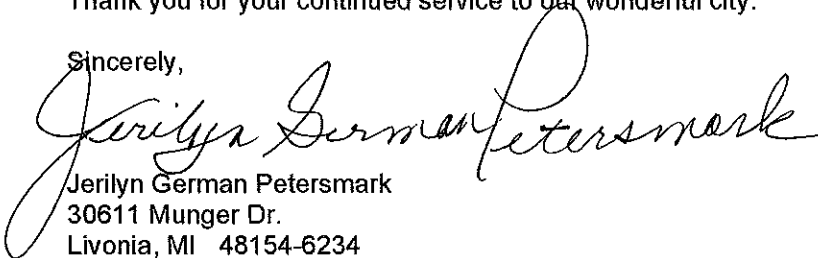
The lack of natural predators, continued in-fill housing throughout the city, and residents who actually FEED THE DEER make it obvious that Livonia's deer population is increasing at a rate that makes residents concerned and, sometimes, angry. I've adjusted; the deer have taught me I can't expect my blooming lilies to last more than a day or my roses to provide colorful enjoyment. I've also learned to drive slowly down my street at dawn & dusk. Live deer lounging on lawns have taken the place of those ceramic ornamental deer once sold from Martin's shop on Inkster Road.

Yes, I've seen deer crossing five-lane Merriman south of Six Mile and I've also seen a buck walking through my neighborhood with an arrowhead stuck in his hindquarters. And yes, I know deer are being struck and killed by vehicles throughout the city. I am not opposed to responsible culling, if that option is determined to offer the best chance of reducing the deer population, especially before a driver's or passenger's life is lost due to a vehicle/deer collision.

Now, let's talk turkeys. One extremely large tom and seven to eight hens have taken up residence in the ravine adjacent to my yard. They're not shy about walking down the middle of Munger and into open garages. This morning, two large hens and 12 poults waddled across my back patio. They were darling, but this influx of wild turkeys is possibly how the deer population came to be what it is now.

Thank you for your continued service to our wonderful city.

Sincerely,



Jerilyn German Petersmark
30611 Munger Dr.
Livonia, MI 48154-6234
JPetersmark@gmail.com
734.516.2297

Lethal Removal

It is commonly assumed that hunting or organized deer culling will decrease the deer population; however, there are issues with this approach:

1. **Increased reproduction:** Deer are very adaptable, and their productivity is keenly tied to their food resource. When there are fewer deer in an area and abundant food, they will maximize their reproduction – i.e. having twins and triplets in the spring instead of a single fawn. This causes their numbers to rebound quickly after any deer removal. Therefore, even if deer numbers can be lowered, they don't stay at that level.
2. **Immigration of new deer to area:** Deer from the surrounding area may take advantage of any vacated niche. This, combined with a high reproductive rate, can lead to deer numbers bouncing back quickly after any depopulation effort.
3. **Deer moving to sanctuary areas once hunting or professional culling commences:** Deer will move into unhunted "safe" areas within their habitat (or even make long distance movements) in response to hunting or culling activities. Once lethal control has ceased, they move right back into their original territory.
4. **Increased removal effort:** Even if deer numbers are lower after lethal removal efforts, it then requires more effort by hunters or sharpshooters to take out the same number of deer (since the deer will be scarcer and warier) in subsequent years. Lower deer numbers also make the environment less attractive to hunters, and drive up costs for professional culling.
5. **Recurring challenge:** Getting deer numbers to a low level, and then keeping them at that level, can be extremely difficult and result in the need for perpetual annual hunts or culling activities.

SPECIAL CHALLENGES FOR COMMUNITY LEADERS TO CONSIDER BEFORE INITIATING LETHAL CONTROL:

1. **Inaccessible hunting areas:** Many community hunts or culls are limited to larger public green space areas for safety reasons. This is particularly problematic in densely populated areas. Even where density is lower, some private landowners will not want hunters on their properties. These challenges of access, combined with localized deer home ranges in urban and suburban areas, mean that deer killed in one area may not be the ones causing conflicts elsewhere.
2. **Safety concerns:** Residents in urban and suburban communities may be concerned about safety issues such as stray arrows or shotgun slugs going into their yards or homes, and panicked or wounded deer darting onto roadways.
3. **Ethical concerns:** Before instituting any lethal control program, it should be determined that there are no humane alternatives available that could be used instead. Lethal control should only be used when necessary to protect human safety and when no humane alternatives are available. If lethal control is deemed necessary, any control method should predictably and effectively cause the least amount of harm to the least amount of animals.
4. **Controversy:** Any sort of cull or hunt will result in a certain amount of controversy. In the worst cases, for example when wounded animals are seen by distressed citizens, the public can become

divided and angry, drawing time and attention away from other issues of public concern.

5. **Logistical issues:** Wounded deer may run off huntable property onto private land. Therefore the town may need to consider:
 - Will adjoining landowners be asked to allow hunter trespass for blood trail tracking purposes?
 - Will public parks be closed during hunting periods?
 - Will other recreational activities be impeded?
 - Will set-back restrictions (pertaining to firearms discharge within a certain distance of a dwelling) be amended to allow for more hunter access?
6. **Additional liability insurance:** Town attorneys need to explore if the town or community is covered for all liability in regard to culling activity.
7. **High direct and indirect costs:** If sharpshooters are used, there will be a recurring annual cost. If public hunters are used, there are indirect costs for the community such as law enforcement staff time and overtime, and restricted use of town green space.
8. **Use of public funds:** Doing “something” (e.g. a deer cull) may appease those who want to see action taken, but if the conflicts aren’t solved, then it’s ultimately a waste of taxpayer dollars.



A Note on Deer Fertility Control

Deer fertility control is an innovative and advancing field with demonstrated applicability to suburban and urban deer populations. Options range from immunocontraception (using a vaccine that induces an immune response to block reproduction) to surgical sterilization (which involves surgically removing reproductive organs or interrupting the fertilization pathway).

Most of these tools are still in experimental phases, and thus are not available for general use at this writing. However, researchers are refining and field-testing deer fertility control methods, while policy managers pursue federal and state registration to allow for future management applications.

A more detailed description of fertility control methods is provided in Appendix I.

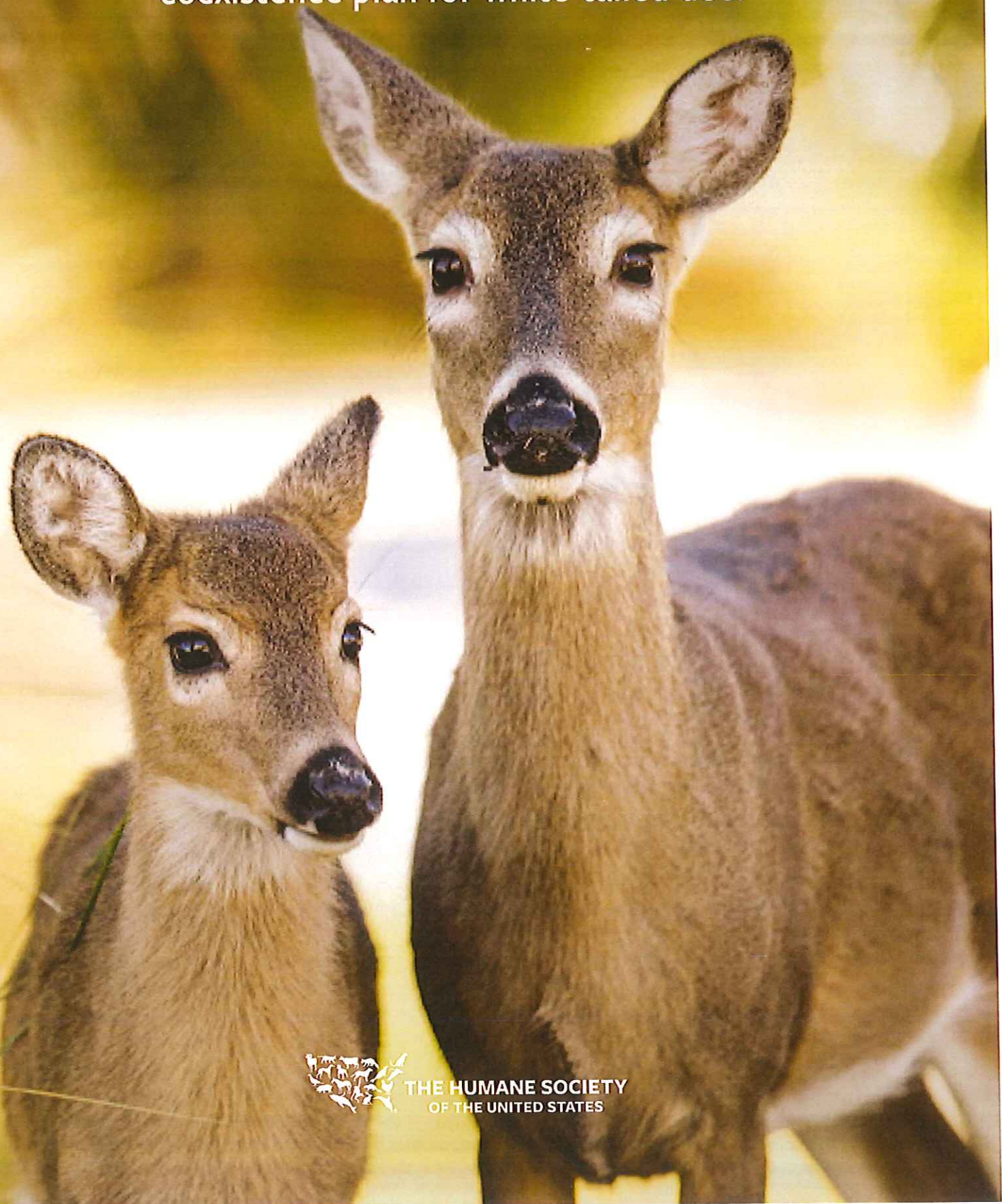
For more information about fertility control options or to further discuss the process of conducting a pilot project, please contact HSUS via email: wildlife@hsus.org.

Additional resources may also be found through The Botstiber Institute for Wildlife Fertility Control: www.wildlife fertility control.org, or through the Science and Conservation Center: www.sccpzp.org.



Solving Problems with Deer

A template conflict management and
coexistence plan for white-tailed deer



THE HUMANE SOCIETY
OF THE UNITED STATES

HOW TO USE THIS DEER CONFLICT MANAGEMENT & COEXISTENCE PLAN

This deer conflict management and coexistence plan has been prepared by The Humane Society of the United States (HSUS) for use by communities (including, but not limited to, cities, villages, towns, counties, homeowners associations, etc.) in humanely and effectively preventing and solving conflicts with white-tailed deer. The information in this plan has been gathered from scientific and peer-reviewed articles, from experts in the field of human-deer conflict resolution, and from successful deer conflict management models across the U.S. We invite you to use this plan as your own or modify it as necessary to suit the needs of your community.

ACKNOWLEDGEMENTS

The HSUS would like to specially thank Laura Simon for her expertise and work in the creation of this plan. We would also like to thank the following individuals for their expert review: John Hadidian, Allen Rutberg, and Colin Berry.

PHOTO CREDITS

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Introduction

As cities and towns develop land and make changes to the landscape that make it more attractive to white-tailed deer, the inevitable result is a growing number of human-deer conflicts, ranging from garden and ornamental browse damage to roadway collisions. One of the most publicly supported and sustainable ways for communities to resolve these conflicts is by promoting policies of co-existence, which acknowledge the need to resolve conflicts while also encouraging appreciation of wildlife. Community leaders can and should promote ways to resolve conflicts with deer effectively and humanely, on both an individual and community level.

The goal of this **deer conflict management plan is twofold:** 1) to provide a framework for evaluating community issues with white-tailed deer and 2) to recommend step-by-step actions that address conflicts with deer through a comprehensive, practical, effective, science-based, humane, long-term and community-supported plan.

The end result of putting a plan in place is a community that's more knowledgeable and better equipped to co-exist with deer and other wildlife.



Biology of white-tailed deer

White-tailed deer are North America's most abundant large herbivore, with a range extending from southern Canada down to South America. Because of their ability to adapt to human-dominated landscapes, white-tails are also the deer species most commonly encountered in urban and suburban areas. For this reason, this conflict-management plan focuses on white-tailed deer (referred to from here on as "deer"), although much of the content presented also applies to issues with other deer species.

Deer are most active around dawn and again at dusk but may be active at any time of day, traveling well-used trails to their preferred feeding and bedding areas. Their diet changes seasonally and varies locally based on what is available. As ruminants, their 4-chambered stomachs are very good at breaking down both high and low quality food, digesting a varied diet including leaves, buds, twigs, fruits and nuts, grass, corn, alfalfa, and even lichens and other fungi. They eat a wide variety of green succulent plants in spring and summer, and in the fall eager consumption of acorns, corn and other tree nuts allows them to build up a store of fat that enables them to survive the winter season, when only low-quality foods such as the buds and twigs of woody plants are available.

Deer prefer "edge" habitat, the boundary between forest and field, where abundant browse is accessible. Because suburban landscapes mimic this desired type of habitat, providing food, water, and safe bedding sites close together, it's no wonder deer exist at high densities in suburbs.

Deer live in matrifocal family groups consisting of the doe and her female offspring from this and previous years. Bucks may aggregate at some times of the year in small groups, but during the mating season are more solitary. In places like Canada and the northern U.S. (which have long winters with high snow cover), deer may "yard up" temporarily in large groups to limit exposure to weather. A deer's home range is usually less than a square mile, sometimes considerably less for does living in suburbs.

Mating season (or "rut") begins in November in the northern parts of their range and in January or February in the southern parts of their range. This rutting behavior, combined with the onset of hunting season, means deer are on the move, resulting in increased roadway crossings at this time of year.

Deer are highly adaptable; they adjust easily and quickly to changing environmental conditions. In lean years, deer tend to have just one fawn or none, reabsorbing their embryos when their nutritional status is poor. When their food supply is good, twins or triplets may be born.

When fawns are born they are reddish-brown, weighing about as much as a small cat, with those classic white spots on their sides and back that serve to camouflage them. They need this camouflage because the doe "parks" her fawns somewhere (often a suburban backyard) and only visits her fawns twice a day to nurse them, usually around dawn and dusk.

At about a month old, the fawns will start traveling around with their mother, and imitate what she does. In this way, they learn the features of their habitat, what and where to browse, who their predators are, and how to

avoid them. They are weaned sometime after ten weeks old. Male fawns usually leave after a year, but female offspring separate from their mothers over a couple of years and may share their mother's home range as adults.

Deer have quite a few predators, including coyotes, wolves, bobcats, dogs and people. They use speed and agility to outrun these predators, sprinting up to 30 miles per hour and leaping as high as 10 feet and as far as 30 feet in a single bound. Although they are great jumpers, fences that are 8 feet or higher typically deter them.



Deer conflicts and solutions

ROOT OF CONFLICTS BETWEEN DEER AND PEOPLE:

There are several root causes of conflicts between deer and people in urban and suburban areas:

- **Suburban development:** Conversion of farmland and forest to suburbs brings people and deer together in an environment where both species thrive, inviting conflict. Suburbia's golf courses, parks, grassy lawns and tree-lined or hedge borders and the flowers, ornamentals, bird feeders and vegetable gardens in suburban backyards provide more food for deer in suburbia than mature woods where most vegetation is out of reach in the forest canopy. For the deer, good nutrition means excellent physical condition and a high reproductive rate; for people, proliferating deer in suburbs means browse lines, depleted gardens, and road hazards.
- **Wildlife feeding:** Safe from harassment and hunting, suburban deer can quickly lose their fear of people and pets and make themselves at home in backyards and on playing fields. Intentional backyard feeding emboldens them even more, concentrating deer and worsening conflicts.
- **Clashing values and perceptions:** People vary in their values, perceptions and attitudes towards deer. Hunters, wildlife watchers, animal advocates and deer feeders see and relate to deer differently. As a result, residents will differ in their views on how deer issues should be handled, on what the deer conflict is, and even if one even exists! Their desires and perceptions may be incompatible, leading to discord and controversy.

BACKYARD AND GARDEN COMPLAINTS:

Much to the displeasure of gardeners, deer enjoy browsing on many of the ornamental plants (such as tulips, roses, and hostas) commonly and widely used in urban and suburban landscaping. The best way to prevent deer damage to gardens is to replace plants attractive to deer with more deer-resistant native species and to protect highly desirable plants with repellents or fencing.

SOLUTIONS:

1. **Alternative plantings:** Encouraging residents to plant deer-resistant flowers and ornamental varieties will bring the best results. There is a wide variety of less tasty yet equally beautiful flower and ornamental options, and many gardening resources which your community website can link to, such as the local Cooperative Extension Service, nurseries, and deer-resistant gardening specialty lists (see Resources).
2. **Repellents:** A variety of repellent products, used singly (or better yet) in combination, can create a very effective multi-sensory deterrent to repel deer. Commercial repellents work by creating unpleasant tastes or odors, gastrointestinal discomfort, or a sense of pain (hot pepper or peppermint) when the active ingredient comes in contact with the eyes, nose, or mucous membranes of the deer. There are a variety of repellents on the market, yet some work better than others. Some of the more effective repellents contain a sulphurous odor (e.g., rotten eggs), believed to induce fear by giving off smells that deer associate with rotten meat or a predator. The trick is to not only choose the right repellent, but to also apply it diligently – which means every 2 weeks and after any heavy rains. (Please see Appendix E for recommended repellents and application instructions).

3. **Physical Barriers:** There are many options for protecting garden and landscaping plants. An 8 foot woven wire fence will keep deer out of larger areas, plastic netting can be used over particular bushes, and individual protective “tubes” and fencing can be placed around prized seedlings until they grow out of reach of the deer. There are also various options with electric fences. Some contain scent attractants (to ensure quick contact with electrified material) or moveable polytape “fences,” which consist of nylon material with electric fibers running through it.
4. **Scare-based devices:** There are various scare-based products on the market, such as a motion-sensing “Scarecrow” sprinkler device that is hooked up to a hose and blasts any animal moving within a set range with a strong burst of water. Other devices pose a mild electric shock or emit deer distress calls. Although deer may acclimate to scare devices over time, if moved around and put on an alternating schedule, the deterrent effect will last longer.

DEER- VEHICLE COLLISIONS

It is estimated that each year there are roughly 1.5 million deer/vehicle collisions on U.S. roadways. Many factors contribute to deer-vehicle collisions, such as traffic volume, driver speed and distraction, extent to which roads bisect habitat, development patterns, extent of visual barriers, and speed limit.

Fortunately, there are many humane and effective ways to reduce the number of collisions involving deer, ranging from increasing individual awareness and caution to implementing new technology and structures. One community (Rochester Hills, MI) that implemented these solutions found a large drop in deer-car collisions in the first year, and has experienced success with a multi-faceted approach for approximately \$5000 a year (see Appendix D for more information).

SOLUTIONS:

1. **Public education:** Some of the best collision-reducing efforts focus on public education of both current and new drivers. The messaging should focus on the following points:
 - Be vigilant. Watch from side to side as you drive, especially in areas of low visibility or where shrubs or grasses are near the road.
 - Watch for group behavior. Deer often travel in groups. If one deer crosses the road, slow down and watch for more to follow. Females travel together in winter, and fawns follow their mothers in spring and summer.
 - Be extra cautious in the fall, when bucks are on the move due to rutting and hunting seasons, and in the spring (May to June), when yearlings are seeking new territories.
 - Be especially watchful at dusk and dawn, when deer tend to be more active.
 - Use your high beams at night and turn down interior lights to see farther ahead. Slow down and watch for the eye-shine of deer near road edges.
 - Try to drive straight, avoiding swerving around wildlife; rather, try to brake firmly and blow your horn. Animals are easily confused. If you swerve, deer may run into the vehicle rather than away from it. And swerving could mean driving into another vehicle or off the road into poles or fences.
 - Slow down! Speeds below 45 mph result in fewer accidents with deer.

1. The Black-legged tick has well over 100 hosts, including all mammals, lizards, and many popular songbirds.
2. Studies have shown that the removal of one host isn't enough to suppress the Lyme-disease causing tick (Ostfeld, 2011, Jordan et al, 2007). Even when a high proportion of deer are removed from a location, the ticks switch to other hosts or congregate in higher densities on the remaining deer.
3. Deer removal programs may also put the public more at risk by creating disease "hot spots" (S. Perkins et al, 2006; Ostfeld, 2011). That is, mature ticks that normally latch onto large hosts (i.e., deer) are more likely to end up on people and dogs after deer populations have been reduced.

There's good reason why the Centers for Disease Control (CDC) and health authorities don't recommend hunting to control Lyme disease - because it hasn't been shown to work.

SOLUTIONS:

1. **Public education campaign** about the need to routinely check oneself and family members for ticks after being outdoors, taking precautions like wearing light-colored clothing, tucking in sleeves and socks, using tick-repelling products on your skin and insecticidal sprays on properties, doing habitat alteration to reduce tick and tick-host habitat, and consulting a doctor immediately when signs of Lyme disease or the characteristic rash occur. (see CDC website: www.cdc.gov/lyme/index.html)
2. **The 4-poster:** This device uses deer to kill ticks. It contains a corn bait to attract deer, and when they eat the corn, a chemical (10% permethrin) is applied (by rollers) to their necks and shoulders, killing 95%-98% of the adult ticks. This device has been tested by the USDA in a 5 state, 7 year research program and has proven extremely effective in reducing tick numbers (McGraw and McBride, 1991). A study done at the Goddard Flight Center also found that by using the 4-Poster system, adult ticks were completely eliminated by the 2nd year of the study; and all stages were reduced 91-100% by year 3 (Solberg et al, 2003). The advantages granted by this kind of device seem to outweigh any disadvantages stemming from the supplemental feeding of deer. This device is well suited to a community level approach.
3. **Damminix Tick Tubes** consist of cardboard tubes filled with permethrin-treated cotton balls which mice use for nesting material. The ticks that feed on mice in the spring and fall are exposed to permethrin and killed. This product is commercially available and well suited to a property-level approach.

AGGRESSIVE DEER

Rarely, there have been cases of deer being aggressive towards dogs and people. The cause of this is often protectiveness over fawns, or sometimes humans going into enclosures where bucks are in rut. These incidents are very rare, not always verified, and often associated with different individual perceptions.

SOLUTIONS:

Educating the public about:

- Not approaching a deer with fawns
- Keeping dogs on a leash (particularly during fawn-rearing season, which occurs late spring to summer)
- Hazing methods such as approaching a deer and opening and closing an umbrella, clapping hands and yelling, or shaking an aluminum can with coins inside.

BIODIVERSITY LOSS/FOREST REGENERATION:

Deer can certainly impact ecosystems and have a strong influence on forest biodiversity. However, many other factors impact forest biodiversity in largely invisible ways, such as acid rain, insect damage, parasitic organisms, invasive and other competing plant species, pollution, and weather extremes. In addition, the natural process of forest growth stages (i.e. succession) means that as forests grow, trees mature and their canopies shade out the slower growing plants below. The result is that forests become less diverse as they age. Sun-loving flowers may be shaded out of existence with or without deer.

While we may want to see a certain flower grow somewhere, this doesn't mean it "should" be there. There is no forest blueprint for what should grow. What we want to see in the natural world is influenced by our aesthetic preferences—which may not be grounded in any biological reality. It's vital that community leaders have baseline data collected so that deer impacts can be measured, and make sure any action plan is tailored to achieving very defined and realistic goals which can be reliably assessed.

SOLUTIONS:

There are various ways to increase biodiversity and forest regeneration. Borrowing from the field of forestry, one can utilize the following techniques: permanent or moveable fencing, overstory thinning, small patch cuts, liming, fertilization of soil, stem protectors, etc. The first step, however, is defining exactly what is to be achieved, and understanding the growing conditions and type/extent of habitat manipulation required for the desired plant species and assemblages.



The Comprehensive Approach

There is no one solution to conflicts with deer. A good deer conflict mitigation program will be comprehensive and multifaceted. The focus needs to be on managing deer *conflicts*, not deer numbers. Many communities get mired in arguments about how many deer they have and how many deer they want, and lose sight of more effective, less costly, and more publicly acceptable ways to manage deer conflicts.

THE PROBLEM WITH NUMBERS

One of the biggest challenges with focusing on deer numbers, rather than deer conflicts, is that it's extraordinarily difficult to determine how many deer "should" live in an ecosystem or community. Often, the terms "biological carrying capacity" and "cultural carrying capacity" are used, but what do those terms mean?

Biological carrying capacity (BCC) is the number of deer a given piece of land (or ecosystem) can support. If BCC is exceeded, that means there's not enough food for all and some deer will starve. Except in the most extreme and prolonged winters, adult deer rarely starve in suburbs; before deer populations reach that point, fawn production and survival drop off. However, the term is often misapplied. You may hear that "BCC has been exceeded" because people see localized signs of heavy browsing. However, this doesn't necessarily mean that the deer are in critical condition – or that they are anywhere near exceeding their biological carrying capacity. It may just mean that they are eating certain kinds of plants more heavily than others. Likewise, you may hear that 25 deer per square mile (or another number) is what your community "should have." This one-size-fits-all recommendation is a political judgment that has nothing to do with biology. Depending on the type and quality of food and cover, different kinds of habitats can support different numbers of deer –there's no one magical number that any community "should" have.

Cultural carrying capacity is the number of deer that is desired or tolerated by people in a given community. Yet this concept is impossible to define because no one level of deer will satisfy all residents. For a gardener, 2 deer may be too many, yet for a nature lover or hunter, 25 deer might be welcome. Surveys show us that people tend to assume that wildlife numbers are parallel with conflict occurrence and severity. That is, people's desires for more or fewer deer are dependent on whether they're experiencing conflicts, and the severity of those conflicts. If the conflict is resolved without removing deer, their tolerance level goes up and they perceive there to be fewer deer, even if the number of deer remains exactly the same. Community leaders need to be aware of this phenomenon, and be careful to focus programs on reducing wildlife conflicts, rather than overly focusing on wild animal numbers.

Another problem with focusing solely on deer numbers, rather than conflicts, is that progress can be difficult to measure. Obtaining an accurate count of the number of deer in a community can be both expensive and difficult (with all survey methods involving biases and varying margins of error).

CRUCIAL ELEMENTS OF A DEER CONFLICT MITIGATION PLAN

The focus for an effective deer conflict management plan needs to be on addressing the root cause of conflicts with deer by using an adaptive management framework, i.e. one that is flexible and allows for modification as conflicts or unforeseen issues arise.

There are several elements that are crucial to the success of any deer conflict mitigation plan:

- **Collect site-specific data to indicate the localization and seriousness of the conflict.** The focus needs to be on assessing and defining your community's specific deer-related conflicts.
- **Set clear, achievable and measurable goals.** These goals need to be tailored to address specific conflicts and have clear benchmarks to assess program success.
- **Use strategies that are long-term and site specific.** Avoid "quick fix" strategies that don't provide long-term benefits.
- **Create an ongoing monitoring program.** A solid monitoring system is vital for assessing whether the program has achieved its goals, in addition to seeing what changes need to be made. This could be as simple as setting up a resident complaint and/or collision reporting system.
- **Clearly spell out the long term-costs and time-line.** The public needs to know how much public money is supporting the program, over what time period, and where and when certain activities will occur (including those which might impact them, such as park closings).
- **Public outreach, education and involvement are pivotal to program success & community support.** Make sure the public is part of the process, is solicited for their input, informed of all key meetings and decisions, is educated about how to co-exist with deer and resolve conflicts, and if possible directly involved in providing data and assessing outcomes. The community's web site and all other outreach and media avenues should be used to achieve this goal.



What communities can do: A step by step guide

The goal is to create a Deer Conflict Management Plan which clearly outlines the community's deer-related conflicts and attempts to resolve them in a site-specific manner. The focus needs to be on managing deer conflicts, not deer numbers!

STEP 1: GATHER LOCAL DATA:

- a. **Conduct resident surveys:** Surveys can be distributed through a town-wide mailing with either the survey itself attached (with a return envelope) or through a link to an online survey platform (such as SurveyMonkey). These surveys need to objectively measure residents' attitudes towards deer, the type and severity of their conflicts with deer, and their preferences regarding ways to manage these conflicts. Sample survey questions are included in Appendix B.
- b. **Deer-car collision data** should be collected through a robust accident-reporting system, with data collected by the Public Works or police department which includes date, time of day, exact location of accident, injuries (and severity), damage to vehicle, light conditions, etc. (see Appendix D- sample Collision Report form). Using this data, identify collision hotspots for warning sign/device placement and mitigation measures and flag the locations of roadway sightline barriers which need to be removed.
- c. A **complaint reporting system** is helpful for centralizing all deer- related complaints into one central source and logging them into a universal database which includes type of complaint (damage to garden/ornamentals, collisions, orphaned fawn, deer sighting), level of severity, and exact location.
- d. **Collect information on the location and type of deer attractants** in town, such as location of public flower exhibits, roadside or roadway- divider floral beds and who maintains them (ex: Garden Club), and to what extent they contain deer preferred flower species. Also record location of people who feed deer for follow-up visits.
- e. **Deer habitat** can be assessed by plotting on a map or Geographic Information System all parcels of public and private green space, noting areas of high deer density and possible deer corridors.
- f. **Deer feeder locations** and any areas where feeding stations have been reported should be identified.

STEP 2: DO MAP OVERLAYS

Once all the above data is collected, map overlays can be created showing accident hotspots, location and type of complaints, location of deer feeding activities, and where certain attractants are that entice deer into roadways. Plotting this type of data will give you a clear picture of what and where your community's specific deer conflicts are, and where solutions can be applied in a site-specific manner.

STEP 3: CREATE PUBLIC INPUT CHANNELS

The extent to which any deer program is accepted by residents mostly depends on their perception of how fair and open the process was and if their concerns were heard. To this end, the following can be done:

- a. **Conduct resident survey** (as outlined above)

- b. **Set up a deer task force.** To be effective and credible, this committee should be balanced, with all important stakeholder positions fairly represented.
- c. **Have open public forums** to discuss the deer situation. Residents should be encouraged to speak at these forums. Guest/expert speakers can also be very helpful, but again, credibility requires that diverse views are represented among speakers.
- d. **Present easily accessible information to public:** The town or city's website and other outreach/ media connections can be utilized to provide good information to the public about deer conflict management methods such as how to deer-proof your garden or yard and avoid collisions, and why not to feed deer. It can also be used to keep the public apprised about what the town is considering, any key meetings, and the work of its deer committee. Make sure that any report or information includes long and short-term costs (direct, indirect) and a specific timeline. The media and other information distribution channels should be utilized to maximize public awareness, education and outreach.

STEP 4: CREATE ACTION PLAN: UTILIZE RANGE OF NON-LETHAL OPTIONS FOR SITE-SPECIFIC APPLICATION

After completing the Evaluation phase, set out the Action Plan as approved by the Deer Task Force and community leaders, and based on public input. One designated person should be in charge of overseeing the deer program (i.e. serve as the Deer Program Coordinator). The Coordinator could develop a master list of volunteers who, after appropriate training, can speak to those residents who call with complaints, do site visits, and even give samples of repellents or information about deer-resistant plants for those who are having backyard deer issues. The deer program can and should be promoted as a source of community pride, as something that is achievable with some effort on the part of all residents, and something that can bring about a harmonious relationship between residents and their community wildlife. Components of the action plan should be specific, measurable, and specific to the root causes of conflicts with deer in the community:

A. Deer Damage to Gardens

- a. **Public Education:** Put conflict-solving information on community website (including web links to local resources), and informative flyers in community mailings on where to find deer-resistant plant lists, repellents, and fencing options. Local Cable TV and news media, electric bill inserts, and other information distribution channels should be considered along with special public presentations given for residents on conflict-solving methods.
- b. Host deer-resistant gardening workshops for residents which are presented in the evening or on weekends by an expert and also include site visits to homes for private consultations.
- c. Promote deer-resistant flower and ornamental species in all community landscaping and floral displays. Collaborate with garden club and local beautification committees to ensure that all town floral displays contain deer-resistant species and use these to publicize preventative gardening strategies.
- d. Set up town study plots. Have a deer-resistant garden plot next to a deer-attracting garden plot, plus various plots to which certain repellants are applied (along with control plots for comparison). Put photos of deer damage (or lack of) on website and use study plots to educate residents how to garden defensively.
- e. Host deer-proofing demonstration days – Utilize boy scouts and other local volunteer groups to put up fencing or tree guards at local parks and have “deer discount days” at local garden stores (i.e. where deer deterrent products are discounted on certain days, etc).

B. Deer-Car Collisions: Once local deer collision data has been collected and analyzed, the following solutions can be applied. Coordinate a roadway maintenance plan which is overseen by a designated person:

- a. Do educational outreach (i.e. “Don’t Veer for Deer” campaign): put information on community web site, PSAs, local media. Focus on peak months (Nov-Dec rut and May-July fawn rearing). (See Appendix D for more information)
- b. New driver education: get driving tips and Don’t Veer for Deer campaign literature to all new driver education programs (partner with high school, driving school, programs for the elderly, etc).
- c. Reduce visual barriers on roadways: do vegetative management and brush removal to increase visibility on major roadways and negotiate with private landowners about reducing roadway brush on private property adjacent to major roads or accident hotspots.
- d. Treat collision hot spots, utilizing speed bumps, fencing, movable changeable message boards, warning devices (ex: Streiter lites, Deer Deter Wildlife Crossing Guard (<http://strieter-lite.com> ; <http://deerdeter.com>), and evaluating hot spots for possible lower speed limit designation
- e. Investigate possible salt replacement alternatives for winter.
- f. Set up and maintains accident-reporting system and continue mapping accident locations and other details.
- g. Use Rochester Hills MI “Don’t Veer for Deer” campaign as a model – see <http://www.rochesterhills.org/index.aspx?NID=569>

C. Deer feeders

- a. Develop educational literature, publicizing how feeding is not good for the deer.
- b. Encourage neighbor-to-neighbor sit-downs and have town personnel conduct diplomatic visits to offenders.
- c. A deer feeding ban ordinance can be passed to discourage the feeding of deer, and contact information provided for the reporting of violators.

D. Lyme disease

- a. Public education campaign focusing on personal prevention steps, including links on community website to CDC and other expert resources regarding disease prevention methods (personal protection measures, landscaping practices, etc.
- b. Tick Management: Consider drawing up community –based plan for strategic placement of 4-Posters (see Lyme disease section for more information on 4-posters).

E. Biodiversity issues

- a. Seek out collaboration with local Natural Resource schools/universities to have college students do field survey work to objectively assess deer impacts and browsing levels on local flora and establish baseline data.
- b. Consider use of forestry methods (fertilizing, temporary or permanent fencing, stem protectors, etc) to protect valued plant communities.

F. Aggressive/Habituated deer

- a. Assessment: Have local animal care and control professional evaluate the situation.

- b. Educate residents about temporary and rare nature of aggressive deer situations, importance of keeping dogs and people away from fawns, and describe hazing methods they can use if a deer comes too close or becomes threatening.
- G. **Orphaned fawns:** This topic should be included in all educational materials and in spring-summer media (See Appendix F for more information):
- That the vast majority of seemingly “orphaned fawns” are NOT orphaned and should be left alone.
 - It is common to have fawns “parked” in yards and fields by their mother and as they rely on environmental camouflages for protection. The doe will nurse her fawn twice a day but stays away the rest of the time since her odor will attract predators (fawns are odorless). Once the fawn is about a month old, it will travel around with its mother.
 - Only if the fawn is injured, wandering and vocalizing all day, and/or a dead lactating doe is found in the road should the fawn go to a licensed wildlife rehabilitator.
 - If the fawn is picked up by a well-intentioned resident, the resident needs to be advised to quickly return the fawn to the original site for the mother to reclaim.

STEP 5: PROGRAM ASSESSMENT AND MONITORING:

1. Set up a robust resident complaint and deer-car collision reporting system and monitor over time to see if goals are achieved and if accidents and “nuisance” complaints decline over time (See Appendices B, C and G)
 - a. **Resident complaints:** record type, extent, duration, location of complaint, time and date
 - b. **Collision reporting:** accident location (exact), time of day, if injuries, damage to car(s), if just dead deer in road, etc.
2. Conduct resident survey every year to measure resident satisfaction with program, see if satisfaction ratings increase.



Appendix A: Sample Resolution

Resolution No. _____

A Resolution Approving a Deer Conflict Management Plan

WHEREAS the City of ____ has a duty and responsibility to protect their health, safety and welfare of its residents; and

WHEREAS it is recognized that deer are a natural part of the landscape and the ecology of the region, despite human encroachment upon their habitat; and

WHEREAS deer provide great pleasure to residents and are beneficial to the community as a whole, and

WHEREAS deer may create conflicts due to their browsing activities and movements and certain human activities may serve to unintentionally create or exacerbate such deer-human conflicts; and

WHEREAS due to the varied interests of persons and organizations regarding actions that can be taken in the management of deer, a written management plan is desirable to ensure that the varied interests are evaluated and considered when seeking to address conflicts with deer, and;

WHEREAS the purpose of the Deer Conflict Management & Coexistence Plan is to provide effective long term solutions to deer conflicts, including education, habitat modification, hazing, exclusion, repellent methods, and tolerance, to resolve and reduce human-deer conflicts within the City in a humane, ecologically sound, and effective manner; and

WHEREAS deer-related conflicts can be resolved through public education about deer-resistant gardening, defensive driving, tick-borne disease prevention, and feeding bans along with effective roadway signage and maintenance practices, among other recommended actions; and

WHEREAS the City is directed to prioritize nonlethal methods, including education and methods list within the Deer Management Plan, as primary methods in deer management; and ,

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF _____ that the Deer Conflict Management Plan attached hereto and incorporated herein by reference, is hereby approved. The resolution shall be effective immediately.

Adopted and approved this ____ day of _____

Attest _____

Appendix B: Sample Public Survey

Name _____

Address _____

Phone (cell) _____ (home) _____ Email: _____

1. Do you enjoy seeing deer in the community?

- a) Yes
- b) No
- c) Sometimes
- d) In the community, but not in my yard

2. Are you experiencing any deer issues currently?

___Yes ___No

3. What deer-related issues are you/ have you experienced in the past year? (*Browsing = eating of vegetation)

- a) Deer-auto collision
- b) Browsing* of vegetable gardens
- c) Browsing* on ornamentals/ flowers
- d) Browsing* of crops
- e) Human-habituated "too tame" deer
- f) Neighbor feeding deer and attracting them to my yard
- g) Other: _____

4. Rate the level of severity of any deer issue you've experienced in the past year:

Use a 1-5 scale here, with 1 being caused no problem to 5 being caused a severe problem:

- a) Deer-car collision ____
- b) Browsing on vegetable garden ____
- c) Browsing on ornamentals/ flowers ____
- d) Browsing of crops ____
- e) Human-habituated "too tame" deer ____
- f) Neighbor feeding deer ____
- g) Other: _____

5. Have you taken any actions to alleviate the deer issues?

Yes__ No__

6. What actions have you taken? (circle all that apply, and indicate how successful the action was on a 1-5 scale—with 1 being ineffective and 5 being highly effective)
- a) ☐ Tolerance / no action
 - b) ☐ Switched to planting deer-resistant flower/ plant varieties
 - c) ☐ Used fencing / netting / barriers
 - d) ☐ Used repellents
 - e) ☐ Scare devices
 - f) ☐ Hazing – i.e. using scare tactics to re-instill natural fear of humans
 - g) ☐ Other: _____
7. What kind of deer conflict management program is acceptable to you?
- a) Prefer non-lethal (no killing of deer) options only
 - b) Prefer Lethal (killing of deer) options only
 - c) Combination of both options above for managing issues
 - d) No opinion/Don't care
 - e) Other: _____
8. What specific actions are acceptable to you?
- a) Do nothing/ leave deer alone
 - b) Non-lethal population control measures –dart deer with contraception vaccine or use surgical sterilization
 - c) Non-lethal conflict mitigation measures – public education and workshops on deer resistant gardening, prevention of Lyme disease, preventing deer-vehicle collisions, etc.
 - d) Lethal measures – archery hunting
 - e) Lethal measures – shotgun hunting
 - f) Lethal measures –sharpshooting program
 - g) Other: _____
9. How do you feel about deer?
- a) I enjoy the presence of deer,
 - b) I enjoy the presence of deer, BUT I am experiencing some conflicts
 - c) I do not enjoy the presence of deer and regard them as nuisances
 - d) I'm concerned about collisions
 - e) I'm concerned about Lyme disease
 - f) Other: _____
10. Please provide additional comments or a description of issues that you would like to make the committee aware of regarding deer.

Appendix D: Tips for Avoiding Deer/Vehicle Collisions

This kind of information can be put into educational materials, posters, fliers and web site text to help residents reduce the likelihood of collisions with deer:

BE VIGILANT: When you drive, make a habit of watching from side to side, especially in areas of low visibility or where roadside shrubs or grasses are close to the road.

WATCH FOR GROUP BEHAVIOR: Deer tend to travel in groups. If one deer crosses the road, watch for more to follow. Female deer tend to stay together as “doe groups” in winter and have young fawns following them in the spring.

BE AWARE OF SEASONS: In the fall (Nov –Dec), bucks are on the move due to rutting and hunting seasons. In spring (May- June), fawns are following their mothers. Be extra careful driving at these peak times of year.

BE AWARE OF TIME OF DAY: Deer are most active at dusk and dawn. Be watchful, especially during early morning and evening, when wildlife may be moving across roads.

USE HIGH BEAMS: At night, use your high beams to see farther ahead. Slow down and watch for the eye-shine of deer near the road edges.

DRIVE STRAIGHT! Do not swerve to avoid wildlife but stay in your lane, brake firmly, and blow your horn. Animals are easily confused. If you swerve, you may collide with another car, telephone pole, fence or other roadside object. Also deer may run into the vehicle rather than away from it.

IF YOU HIT A DEER: Pull off the roadway. Turn on the vehicle hazard flashers, and be careful of other traffic when you leave your car. Don’t attempt to drag a deer off the roadway unless you know it’s dead and it’s safe to do so. An injured deer can cause serious injury.

See: <http://www.rochesterhills.org/index.aspx?NID=569> and www.deercrash.org for more information and http://www.michigandeercrash.com/Deer_Crash_Brochure.pdf for a sample brochure

Appendix E: Repellents & Scare Devices

Repellents are products that are meant to disrupt and reduce deer browsing. However, deer are very adaptable. Therefore, the effectiveness of repellents will depend on a number of factors:

- Seasonal changes in plant palatability
- Local deer taste preferences
- Availability of alternative foods
- Time of year
- Deer density
- Type of repellent and concentration of active ingredients
- Durability of the repellent and how often it is applied

Plants are most vulnerable in winter when snow cover or extreme cold reduces food availability, and in early spring when young, succulent spring growth on ornamentals may occur before native plants. In addition, most repellents require reapplication at regular 2-3 week intervals and after heavy rains. This is why people may consider repellents to be labor-intensive and not always cost-effective, particularly over larger acreage. On the more positive side, repellents are easy to apply and invisible, thus having much aesthetic appeal.

WHAT MAKES SOME REPELLENTS MORE EFFECTIVE THAN OTHERS?

Odor-Based Repellents: The most effective deer repellents tend to be those that produce sulfurous odors and are considered “fear-inducing.” These repellents depend completely on detection through odor. It is believed that deer associate a sulphur smell with the presence (or carnage) of a predator or spoiled food. Not all sulphurous odors are equally effective, however. For example, compounds containing garlic seem to be less effective than sulphur compounds in urine.

Aside from fear-inducing odors, repellents use other modes of action (some repellents combine several modes of action) which include:

- **Taste:** These include bitter ingredients that presumably create a bad flavor. Taste receptors in deer are different from those in humans; some compounds which are very bitter to people don't bother deer at all. Taste-based repellents must be continually applied to the growing parts of plants. Taste-based repellents seem to have a shorter duration of effectiveness than odor-based. This may be due to the lack of an associated odor cue, so deer repeatedly sample growing plants and quickly notice if the hot pepper flavor is absent from any plant parts.
- **Pain:** these include ingredients like hot pepper (capsaicin) or ammonia, which cause irritation on contact with the mucous membranes, eyes, mouth, nose or gut.
- **Conditioned aversion:** these products cause animals to form an association between the treated item and a feeling of sickness, usually gastrointestinal.

TIPS FOR SUCCESSFUL REPELLENT APPLICATION:

1. All repellents work best if applied before the deer's feeding pattern becomes established. This means applying repellents before bud-break and as new growth appears. The goal is not to break a browsing habit, but rather to prevent one from forming!
2. Repellents need to be reapplied after heavy rains. Routine reapplication every 2-3 weeks is vital so that new, growing plant parts are protected as well.
3. Deer may become accustomed to the same repellent and ignore it over time. Alternating repellents may help to keep the deer confused and more wary.
4. At the height of growing season, choose an odor repellent over a taste-based one. Taste-based repellents need to be constantly applied to any new growth to keep the whole plant tasting bad.

HOW DO I CHOOSE A REPELLENT?

Many repellents are stocked by local garden, farm supply or hardware store, and it's a good idea to ask what seems to be working best in your area.

NON-COMMERCIAL REPELLENTS:

Soap Bars: Hanging a bar of soap from a bush or tree will help protect it. Be sure to leave the soap wrapper ON and drill a hole through the center of the soap and suspend it with a string. The brand of soap must be high in tallow fatty acid, like Irish Spring. Glycerin and coconut-based fatty acid soaps do NOT seem to repel deer well. Disadvantage: the sphere of protection is limited to the immediate area around the tree/bush. Be sure to hang the soap bars no more than 3 feet apart, up to a height of 6 feet, all around the tree/bush.

Human Hair: Although hanging sachets of human hair costs very little, it does not consistently repel deer. Hair can be obtained from beauty salons and barbershops quite easily, however. Hair should be bagged in 1/8-inch mesh bags or nylon stockings, and contain at least 2 handfuls of hair apiece. Bags should be hung at least 3 feet apart from each other and up to a height of 6 feet if the tree/bush to be protected has a wide diameter. Refresh the bags monthly with fresh hair.

HOMEMADE SOLUTIONS:

- Mix 3 eggs well in a blender. Mix with 1 gallon of water. Spray on plants. Reapply after heavy rains. Disadvantage: this solution may clog sprayer.
- Mix 4 eggs, 2 oz. red pepper sauce, 2 oz. chopped garlic. Blend with enough water to make 1 quart. Strain and apply with spray can.

A SAMPLING OF COMMERCIAL REPELLENTS:

Deer Away Big Game Repellent (BGR): This product comes in both a powder and liquid) and has scored well in repellent studies. BGR is an odor-based repellent comprised mostly of putrescent egg solids. It is usually available in garden stores.

Miller's Hot Sauce and Deer Away Deer and Rabbit Repellent: Both of these products rely on trigeminal nerve irritation in the mouth caused by the hot pepper sensation. The effectiveness of any capsaicin-based (hot

pepper) product appears to depend largely on the concentration of capsaicin used and that the product be reapplied every 2-3 weeks (or less) so that any new plant growth is covered.

Hinder: This is an odor deterrent, based on ammonium soaps high in fatty acid. This is one of the few products that can be used on garden vegetables. It is usually available in garden stores.

Milorganite: This human sewage-based fertilizer is primarily an odor deterrent, available at most garden stores. Recommendation: Spread in a wide band around the perimeter of a garden, reapply as directed and after heavy rains. It is usually available in garden stores.

SCARE DEVICES:

Another way to deter deer is to scare them. However, deer tend to habituate to most scare devices over time. Their initial fear of a device that looks, moves, or sounds strangely may even result in curiosity followed by rapid habituation as the deer learns that the device is not harmful. Here are some examples but this list is not all-inclusive:

- **Scarecrow Motion Activated Sprinkler:** This is a motion sensor combined with a sprinkler that attaches to a spray hose. When a deer comes into its adjustable, motion detecting range, a sharp burst of water is sprayed at the animal. By combining a physical sensation with a startling stimulus, this device appears to be more effective than other devices that rely on sights or sounds alone. This device reportedly is effective for other mammals that may come into gardens.
- **Havahart #5250 “Electronic Deer Repellent”:** This highly portable “repellent” consists of 3 stake-like devices, cotton and a scent lure and is aesthetically colored to blend into the environment. The deer are attracted to the lure and receive a mild electric shock when they reach it. The concept is to train them, through aversive conditioning, to stay away from gardens. This 3-post device covers 1200 square feet of garden, according to the company. The current produced by this device has very low amperage and duration of only a few milliseconds.
- **Ultrasonic Devices:** There are several devices which are intended to repel wildlife by producing high-frequency, short-wave ultrasonic sounds that are inaudible to people but are heard by the target animals. While ultrasonic devices placed in yards and other outdoor areas can be effective for keeping deer away, devices like “deer whistles” meant to be affixed to car bumpers to prevent deer-auto collisions have not been shown to be effective.

Appendix F: Handling Orphaned Fawn Calls

In late spring and summer, residents may see a helpless-looking fawn curled up in their yard. They often assume the fawn is orphaned, and grab the animal. They don't realize that this is the worst thing they can possibly do.

What's happened is that the mother deer has "parked" her fawn somewhere that seemed safe in the night. The fawn is completely dependent on her spotted coat (blends into the landscape) and on being scent-less to avoid detection by dogs, coyotes, and other sources of danger.

Only when the fawn is a month old will she start traveling around with her mother. Until then, she stays put – more or less—and waits for her mother to come back and nurse her 2-3 times a day – usually in the early morning or at night. The doe does not stay with her fawn because she doesn't want to attract predators.

People don't realize this, and instead "kidnap" many healthy fawns, mistakenly thinking they're orphaned. They don't realize the mother is frantically looking for her baby, and that the fawn needs to be raised by its mother in order to learn vital survival skills.

If the caller has already picked up the fawn, they should be instructed to:

- Promptly return the fawn to exactly where she was found. (Let the caller know that, contrary to popular myth, the doe will not abandon her fawn due to human scent.)
- Do not stay at the site or the mother will stay away.

ONLY under the following circumstances should the caller be instructed to take the fawn to a licensed wildlife rehabilitator:

- If the mother is definitely dead (ex: if roadstruck – the undersides can be checked for signs of lactation).
- If the fawn has been crying and wandering around all day.
- If the fawn is definitely injured (i.e. broken leg --- not to be confused with their normal wobbly stage when they first start moving around.)

Rehabilitators can be located by going to: www.humanesociety.org/wildliferehab

Appendix G: Sample Public Complaint Form

Name _____ Date: _____

Address _____ City: _____

Email _____

Phone _____

Is complaint at your home? If not, location: _____

COMPLAINT TYPES:

___ Browsing flowers

___ Browsing vegetable garden

___ Browsing trees/ ornamental

___ Collision with own vehicle

___ Collision with other vehicle

___ Caught in netting or fence

___ Came into house or dwelling

___ At birdfeeder

___ Aggressive to pet

ADDITIONAL INFORMATION:

___ Aggressive to person

___ Neighbor feeding deer

CONCERNS (NO ACTUAL CONFLICT)

___ Concern about having collision

___ Concern about Lyme disease

___ "Too many deer"

___ Concern for deer welfare

___ Orphaned fawn

___ Want to hunt in town

___ Don't want hunting in town

Appendix H: Deer Fertility Control

OVERVIEW

The first step for a community considering the use of fertility control to manage deer population numbers is to closely evaluate whether it is justified based on the characteristics and severity of deer conflicts. It is important to determine whether fertility control will really address your community's particular concerns. Once this has been discussed, and your community's plan seeks to include a fertility control component, the next step would be to contact a fertility control researcher or service provider to further discuss your community's goals, problems, and possible solutions and learn about what options might be practical and logistically feasible. At this time, most fertility control programs for deer are multi-year research-based projects and require significant scientific justification and oversight in order to be carried out in the field.

Fertility control options may be initially expensive and labor intensive, but because these options result in few or no fawns being born, they provide a long-lasting effect and prevent that "bounce back" in deer numbers that would otherwise occur every spring fawning season. Laboratory and field researchers continue to develop, test, and refine deer fertility control tools and techniques. The following material will provide additional information on different methods and applications of current deer fertility control efforts.

IMMUNOCONTRACEPTION

Immunocontraception is a fertility control method that uses the body's immune response to prevent pregnancy. There are multiple immunocontraceptive products being utilized, researched, refined, and field-tested for use in deer.

The most extensively tested immunocontraceptive is **porcine zona pellucida (PZP)**, a protein based vaccine that is given to females via intramuscular injection (either by hand or with a dart delivered via CO₂-powered dart gun or blowpipe). This injection causes her to produce antibodies that bind to her egg coating and block sperm attachment, thereby blocking fertilization during breeding. Currently, PZP is being tested on deer in the field under state-issued scientific use permits.

Currently developed PZP formulations utilized include:

- **Native (PZP)** – Provides a year of contraception with two initial treatments. Contraception is extended for one or more years with annual boosters. May be delivered by dart or by hand. Native PZP is EPA-Registered for use in deer as *ZonaStat-D*, but is pending final revisions; state registrations, which will be needed for management use, are pending. Native PZP is manufactured at the Science and Conservation Center in Billings, MT. <http://www.sccpzp.org/>
- **PZP- 22** – Combines the native PZP vaccine with a set of controlled-release PZP pellets that extend contraception to approximately 2 years or more with a single injection. Past studies in deer have documented the success of hand-injections. Field studies testing effectiveness and longevity of remotely delivered PZP-22 booster treatments are underway. PZP-22 is not yet registered with the EPA, nor with any individual states. **SpayVac®** - Is a PZP vaccine produced by Immuno Vaccine Technologies, Nova Scotia, Canada which has demonstrated multi-year effectivity with a single dose. The mechanism of

action of SpayVac® may differ somewhat from that of native PZP and PZP-22. SpayVac® is not yet registered with the EPA, nor with any individual states.

Another immunocontraceptive agent that has been effectively used in deer fertility control programs is **GonaCon™**. In contrast to PZP-based vaccines, GonaCon™ works by specifically targeting the hormone GnRH (gonadotropin releasing hormone). GnRH is a normally occurring hormone that stimulates and regulates the production of sex hormones in males and females. Antibodies produced in response to GonaCon™ injections neutralize naturally-occurring GnRH and block the release of these sex hormones, resulting in infertility. Because the steroid hormones blocked by *GonaCon™ influence behavior and many physiological processes, it should be applied with caution until more field testing has been completed. In particular, use on males should be avoided because of its demonstrated effects on antler growth.*

- **GonaCon™** - was developed by the USDA/APHIS National Wildlife Research Center in Fort Collins, Colorado, and registered by the EPA for use in white-tailed deer in 2009. In captive studies, this vaccine has also demonstrated multi-year fertility control in female deer (approximately 2 to 4 years) with a single injection.

SURGICAL STERILIZATION

Surgical sterilization involves a much more invasive process than immunocontraception, but once performed is permanent. Like other methods of fertility control, surgical sterilization is still in the experimental stages (with the exception of the state of Maryland, where this method is permitted for deer management outside of research). This method requires the management team to have specific expertise in both chemical capture (sedation darting) and veterinary anesthesia and surgery.

Though sex-specific, there are multiple methods of surgical sterilization procedures being applied in the field, all of which are performed under anesthesia by a licensed veterinarian with adequate training in such techniques.

For female deer:

Ovariectomy - ovaries are surgically removed. This procedure yields permanent infertility, as animals cannot reproduce without ovaries and eggs present for impregnation.

Tubal Ligation - Fallopian tubes are clamped and separated so eggs won't travel from the ovary into the uterus. This method is commonly referred to as getting one's "tubes tied", and since the sex organs that produce and house eggs are still present, there is a very small chance that an egg could still find its way into the uterus and the animal could become pregnant. Therefore, since a pregnancy can technically still occur (although rare), this method does not guarantee permanent infertility 100% of the time.

For Male Deer:

Vasectomy - the vas deferens are clamped and separated to avoid the advance of sperm from the testicles into the seminal stream. Similar to tubal ligation, since the sex organs (testes) that produce and house sperm are still present, there is a very small chance that sperm could still find its way into the seminal stream. Therefore, since release of sperm can technically still occur (although rare), this method does not guarantee permanent infertility 100% of the time. Castration, or removal of both testes, is NOT recommended in deer. Given the role that testosterone plays in deer behavior and antler growth, the

testes should remain in the body to avoid potentially life threatening side effects related to inhibited antler development.

Fertility Control Field Research Requirements

At this time, most fertility control methods are only permitted for use under the auspices of research by field scientists. Regardless of the method of fertility control, research projects require sound scientific study design, where the purpose and outcomes will contribute to the existing body of research and knowledge within the field. Research permits are awarded at the discretion of the individual state's wildlife and natural resource authorities, who generally require a full research proposal be submitted. Additional review and permissions from Institutional Animal Care and Use Committees may be required under the Animal Welfare Act and other applicable laws. Depending on the technology being tested, EPA authorization may also be needed.

For management applications, fertility control project plans must still be reviewed and permitted by the state wildlife authority. Each state wildlife authority will impose requirements that they see fit for their individual state's requirements and needs.

For more information about fertility control options or to further discuss the process of conducting a pilot project, please contact HSUS Staff via email: wildlife@hsus.org

ADDITIONAL FERTILITY CONTROL RESOURCES

- Botstiber Institute for Wildlife Fertility Control: www.wildlifefertilitycontrol.org
- Science and Conservation Center: www.sccpzp.org

Resources

DEER-VEHICLE COLLISIONS:

- www.deercrash.com - put together by various DOTs with methods and reviews
- www.michigandeercrash.com/Deer_Crash_Brochure.pdf - sample brochure

DEER –RESISTANT PLANTS:

- hwww.deerresistantplants.com
- www.easywildflowers.com – great native flower resource
- wildlifehotline.org/deer.html
- www.humanesociety.org/deer
- www.deerproofyourgarden.com –gardening expert Sandy Baker is available to give public presentations, private landowner garden assessments, and make deer-proofing recommendations for communities
- Local garden stores
- Local Cooperative Extension Service – for listing of native deer-resistant plants

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Controlling deer populations humanely

Wildlife fertility control

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Killing programs aimed at reducing deer populations are often controversial, difficult to execute safely in urban and suburban areas, and don't result in long-term population reduction. Wildlife fertility control offers a humane way to manage deer populations where necessary and appropriate.

PZP (porcine zona pellucida) is an immunocontraception vaccine that can be used to control fertility in adult female deer and other mammals. Unlike some fertility control vaccines and methods that can cause undesirable behavior changes, PZP simply prevents fertilization from occurring. Most importantly, because PZP is a natural protein, like all other proteins found in animals, it is safe to use and will not harm animals. PZP can be delivered to adult female deer by hand or remotely using darts shot from a dart gun.

Recent improvements in the PZP vaccine now prevent deer from having fawns for up to three years with just one treatment. These vaccines significantly reduce the time needed to dart animals and, more importantly, reduce the costs of treating deer.

Since the 1990s, the HSUS has conducted several successful PZP immunocontraception research projects on deer. The biggest and most successful have been at Fire Island National Seashore (FINS) in New York, on Fripp Island in

South Carolina and at the [National Institute of Standards and Technologies \(NIST\)](#) in Gaithersburg, Md.

Fire Island National Seashore was the HSUS's original deer study site. The primary goals there were to see how effective PZP was in deer and whether or not more than 200 of them could be darted each year. Both were easily accomplished, but more importantly, we found immunocontraceptives alone could be used to stabilize and reduce a deer population over time.

Recent improvements in the PZP vaccine now prevent deer from having fawns for up to three years with just one treatment.

The HSUS has also been using PZP to treat the deer population at NIST for 20 years. During this time, the number of deer collisions has dramatically decreased, the remaining deer have become healthier and the deer population growth rate remains low, despite the fact that urbanization and development around the facility results in constant migration of new deer into the facility's deer population.

The immunocontraception study on Fripp Island, S.C., has been the most successful. Over a five-year period, the deer population decreased by nearly 60 %. In addition, residents of Fripp Island are very pleased by the results, happy to see that the remaining deer population on the island is healthier and causing fewer conflicts.

Surgical sterilization

Sterilization programs are another option for humanely controlling the population growth of white-tailed deer and although sometimes cost-prohibitive, recent programs have shown great results.

Resources

[Deer advocate toolkit \[PDF\]](#)

[Deer Conflict Management & Coexistence Plan \[PDF\]](#)

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How to avoid vehicular collisions with deer

Slow down and be aware—especially at dawn and dusk and in the fall

SHARE    

Each year, there are roughly 1.5 million deer/vehicle collisions on U.S. roadways.

Fortunately, there are many humane and effective ways to reduce the number of collisions involving deer, ranging from increasing individual awareness and caution to implementing new technology and structures.

Public officials frequently attribute deer/vehicle collisions to increasing deer populations, while failing to consider the impact of humans on the landscape. We have created more roadways with more people driving on them, disrupted migration routes by roadways and given rise to ever-shrinking wildlife habitat.

Additionally, frequent mowing of roadsides (which creates succulent plant growth), along with road-salt use in the winter, attract deer to roads.

Road design, road condition and driving speeds are the factors that most strongly influence the number of deer/vehicle collisions. Bumpier, narrower roads with twists and turns, and slower travel speeds (under 45 mph) result in fewer collisions with wildlife.

Give Wildlife a Brake

Drive with deer in mind

Be vigilant. Watch from side to side as you drive, especially in areas of low visibility or where shrubs or grasses are near the road.

Watch for group behavior. Deer often travel in groups. If one deer crosses the road, slow down and watch for more to follow. Females travel together in winter and fawns follow their mothers in spring and summer.

Be extra cautious in the fall, when bucks are on the move due to rutting and hunting seasons, and in the spring (May to June), when yearlings are seeking new territories.

Be especially watchful at dusk and dawn, when deer tend to be more active.

Use your high beams at night to see farther ahead. Slow down and watch for the eye-shine of deer near road edges.

Try to drive straight, avoiding swerving around wildlife; rather, try to brake firmly and blow your horn. Animals are easily confused. If you swerve, deer may run into the vehicle rather than away from it. And swerving could mean driving into another vehicle or off the road into poles or fences.

Slow down!

Making roads safer

Enforce speed limits in areas with deer. The lower the speed, the fewer collisions with deer.

Erect fences. One of the most successful techniques for alleviating deer/vehicle collisions is to use fencing to prevent deer from crossing roads.

Install devices that warn deer of oncoming cars.

Streiter Lite® reflectors, which reflect headlights to create an optical illusion of a fence and alert deer to oncoming vehicles, have been reported to reduce deer/vehicle collisions by 60 to 100 %.

Deer Deter devices alert deer to oncoming vehicles by combining a strobe light effect with ultrasonic high-pitched sounds.

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Deer in the garden

When your backyard buffet draws hooved wildlife

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Deer conflicts in the garden can be easily avoided or minimized thanks to a variety of readily available solutions. There may not be a perfect answer, but we do have a good toolbox for you to work with.

Tolerance is a good thing

Tolerance is needed when figuring out the best solution for your particular deer problems. Some damage is bound to happen where there are deer, but you can minimize the damage. Under mild browsing conditions, a good repellent may be all that's needed. Under heavy browsing conditions, you may need to limit your plants to the more deer-resistant varieties and use deer-proof fencing around your garden.

Adjust what you plant

Take a look at what is attracting the deer and where it is planted. Replace hard-hit flowers and other plants with more deer-resistant species. There are many deer-resistant annual and perennial flowers, ornamentals and tree species to choose from.

A deer's taste buds vary geographically and seasonally and are affected by what alternative plants are available. Your local Cooperative Extension Service office can be an excellent source of information on what types of flowers and ornamentals deer usually avoid in your area.

Good fences make good deer neighbors

Where deer browsing is a serious problem, the only completely effective way to protect crops or plants is with fencing. However, when deer are really hungry, they will jump fences up to eight feet high (some say even higher).

Where deer browsing is a serious problem, the only completely effective way to protect crops or plants is with fencing.

There are a variety of fencing options ranging from eight-foot woven wire fencing to electric fence garden kits to poly-tape (electrified nylon) fences, which are portable and good for more temporary use. The best type depends on how large an area you need to protect and for how long, so check with your local garden store or local Cooperative Extension agents before buying anything. The eight-foot-high woven wire fence stands out as the most effective deer barrier and it lasts more than 20 years.

Electric fences

Electric fences can work very well for deterring deer, yet these provide more of a “psychological barrier” than a physical one. (Deer can jump over them, but the use of electric shock teaches deer to stay away.) They can be constructed in a variety of configurations (such as baited; single strand; five, seven or nine wires pitched either horizontally or vertically) and are powered by high-voltage, low-amperage chargers that provide timed pulses of short duration.

To ensure that deer learn their lesson, some electric fences have a scented bait attachment which entices the deer to make contact with the fence—after which they receive a mild jolt to their nose or tongue. Aluminum foil squares containing a dab of peanut butter can provide the same “enhancement” when folded over single or multi-strand electric fences.

Electric fences must be maintained with regular voltage checks and mowing so that overgrowth doesn’t short out the lower wires.

Netting, chicken wire and hardware cloth (wire mesh)

"Buck rubs" are the damage caused by bucks rubbing against trees to remove the velvet from their antlers. Prevent buck rubs by wrapping trees with any commercial product sold for that purpose, or by placing cylinders of hardware cloth or corrugated plastic sleeves around the trunks.

To prevent browsing on young saplings, use small-scale, temporary fencing enclosures or individual tree "shelters" (plastic or hardware cloth cylinders) until they reach a height of four to five feet.

You can drape mesh netting over low-growing plants or vegetables that are likely to get eaten or encapsulate them with protective netting, chicken wire or hardware cloth. We have received reports of birds getting caught in the netting, so use it with caution or consider using hardware cloth instead.

Repellents

A variety of repellent products used singly or—better yet—in combination, can create a very effective multi-sensory deterrent to repel deer. Commercial repellents work by creating unpleasant tastes or odors, gastrointestinal discomfort, or a sense of pain (hot pepper or peppermint) when the active ingredient comes in contact with the eyes, nose or mucous membranes.

Some of the more effective repellents contain a sulphurous odor (e.g., rotten eggs), believed to induce fear by giving off smells that deer associate with rotten meat or a predator. Some examples of popular repellents include Liquid Fence, Bobbex and Deer Away® Big Game Repellent. Liquid Fence and Deer Away Big Game Repellent score consistently high in studies assessing repellent effectiveness.

A variety of repellents is stocked at your local garden, farm supply or hardware store. Ask which particular repellent seems to work best in your area.

Tips for applying repellents

All repellents work best if applied before the deer's feeding pattern becomes established. Apply repellents before bud-break and as new growth appears, to prevent a browsing habit from forming.

Reapply repellents after heavy rains and at least every two to three weeks.

Deer may become accustomed to the same repellent, so alternate repellents to keep the deer confused and warier. At the height of growing season, use an odor repellent over a taste-based one. Taste-based repellents need to be constantly applied to any new growth to keep the whole plant tasting bad.

Hang bars of soap that are high in fatty acid (e.g., Irish Spring brand) on trees or shrubs you want to protect. With any strategy, moving things around and switching types of products will help keep deer on their toes and make them wary.

Predator urines make big promises but have scored poorly in studies. The source of predator urine products are fur farms, which raise wild animals for their pelts. The animals suffer from terrible, cramped conditions and die extremely inhumane deaths. For this reason alone, predator urine products should never be used.

Scare devices

The key to using scare devices is to couple them with other strategies (repellents, for example), to vary the kind used, and to change their location in the yard or garden.

The Scarecrow Motion-Activated Sprinkler attaches to a garden hose. When a deer comes into its adjustable, motion-detecting range, a sharp burst of water is sprayed at the animal. The combination of physical sensation and a startle effect provide effective aversive conditioning.

The Havahart Spray-Away Elite Motion Detector is similar in action to the Scarecrow, yet is hose-free and solar powered. This device uses infra-red technology to detect animal movement

The Havahart 5250 Electronic Deer Repellent consists of 3 stake-like devices and a scent lure. Deer are attracted to the lure and then receive a mild electric shock when they reach it.

The Deer Shield Electronic Deer Guard is a device which emits varied digital recordings of alarmed and territorial deer, thereby using their own form of communication to inspire deer to go elsewhere.

A final word

Deer are curious and motivated by their need to eat, so they may test and retest the barriers and deterrents you use. You can stay a step ahead of them by changing what you apply so they don't get accustomed to any one strategy. With a little ingenuity and diligence, you will find it really is possible to live in deer country—and have your flowers and vegetables too.

Resources

[Deer advocate toolkit \[PDF\]](#)

[Deer Conflict Management & Coexistence Plan \[PDF\]](#)

[Are deer responsible for biodiversity loss and forest growth failures?](#)

[Why killing programs don't solve deer conflicts](#)

[Controlling deer populations humanely](#)

Also of interest:

[4,000 Beagles](#)

[How to get your dog to stop digging](#)

[Fence out digging animals](#)

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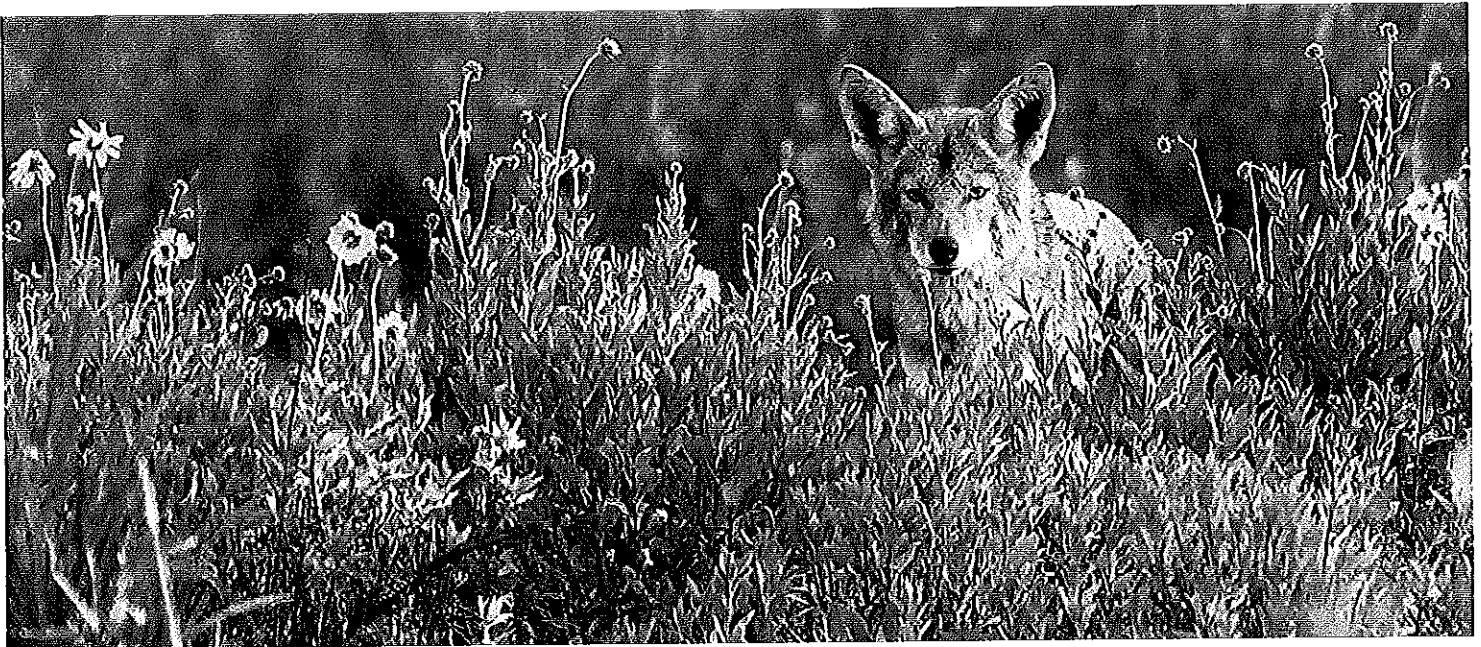
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Why killing coyotes doesn't work

Trapping and killing won't stop conflicts with coyotes

WILD NEIGHBORS (ADAPTED FROM THE BOOK)

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Charles Wood

For more than a century, human beings have waged a war on coyotes, killing them with poison, traps, guns, hunting dogs and a variety of other cruel coyote killing methods.

Nonetheless, the wary nature of coyotes and their remarkable adaptability has allowed them to quadruple their range throughout North America.

As a result, communities across the country are encountering coyotes and experiencing conflicts that they have never had to face before. The presence of

coyotes in a community can be alarming to those who are not used to living with them.

Occasional attacks by coyotes on pets and coyote aggression toward people (although rare) can trigger an alarm from people who fear for the safety of their pets and children. To allay this, communities may feel they need to initiate wide-scale programs to trap and kill coyotes.

These killing programs don't work and are inhumane. Better solutions exist.

What does work?

Coyotes are here to stay—it's up to us to find ways of coexisting with them. A program combining education in techniques to resolve coyote conflicts and how to discourage coyotes offers the best method for handling and preventing conflicts with coyotes and is working already in a number of communities.

HAZING

Hazing is the most effective method, making use of deterrents to move an animal out of an area or discourage an undesirable behavior or activity. Hazing can help maintain a coyote's fear of humans and deter them from backyards and play spaces.

[Read More](#)

Why don't coyote-killing programs work?

They are ineffective.

It is extremely difficult to ensure that the problem-causing coyote(s) will be the one(s) located and killed.

Coyotes removed from an area will quickly be replaced by others. Coyote pairs hold territories, which leaves single coyotes ("floaters") constantly looking for

new places to call home.

If attractants in a neighborhood are not removed (e.g., pet food, garbage, etc.) new coyotes in an area can quickly become "nuisance" coyotes.

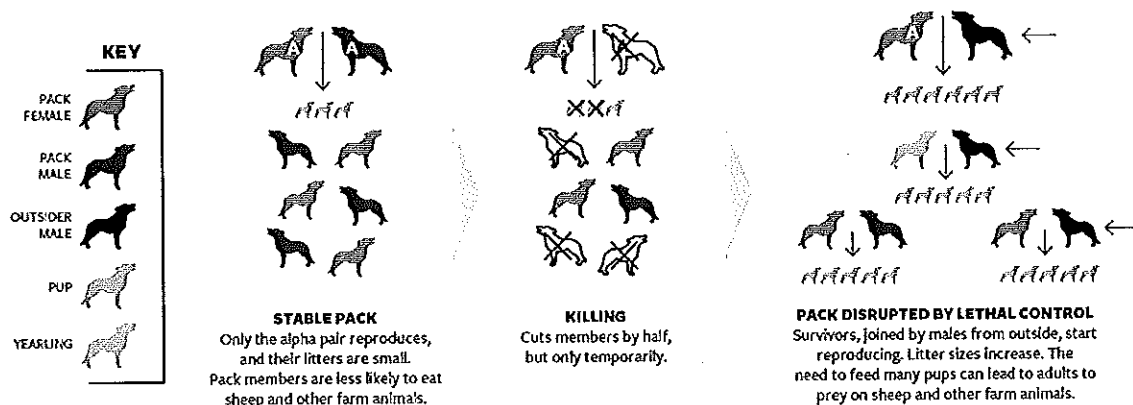
They won't reduce coyote populations.

Research suggests that when aggressively controlled, coyotes can increase their reproductive rate by breeding at an earlier age and having larger litters, with a higher survival rate among the young. This allows coyote populations to quickly bounce back, even when as much as 70 % of their numbers are removed. (see infographic below)

It is nearly impossible to completely eradicate coyotes from an area. Despite bounties and large-scale efforts to kill coyotes over the last 100 years, coyotes have in fact expanded their range throughout the U.S. and Canada tremendously. One study even found that killing 75 % of a coyote population every year for 50 years would still not exterminate the population.

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 pair who 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.



Removal is costly.

Coyotes are intelligent animals and are difficult to catch. Even a skilled trapper or sharpshooter, at a hefty price tag, will need many hours to catch a targeted coyote.

Trapping is inhumane.

The most common devices used to capture coyotes are leg-hold traps and neck snares. Both can cause severe injuries, pain and suffering.

Pets become unintended victims of traps set for coyotes. An informal search of media reports suggests thousands of unintended incidents have occurred, causing heartbreak for the families affected.

Non-target wild animals are also caught in traps, and many sustain injuries so severe that they die or must be killed.

What about diseased coyotes?

Some coyote trappers claim that diseased coyotes are to blame for pet attack incidents and that removing such animals from the population is the answer. This is not the case.

There is no evidence that coyotes with mange are more likely to attack people or pets. Mange-afflicted coyotes can simply appear threatening because they are weak, strange-looking (due to hair loss) and may be found resting in suburban areas during the daytime.

Attacks on dogs during the months of April-December are probably caused by coyotes who have lost their fear of people. This occurs when coyotes are being fed in residential areas and are not chased away by people.

A 10-year study of over 300 coyotes in the greater Chicago metropolitan area found only two coyotes who had attacked pets. Necropsies done on these coyotes showed that they had been eating pet food, but were otherwise healthy.

Can we relocate coyotes?

Although it may seem like a more humane alternative, relocating coyotes is not a good idea.

Relocating a coyote is most often a death sentence for that animal.

Coyotes are very territorial and occupy large home ranges up to 40 square miles.

If relocated, they will do almost anything to get back home.

Unfamiliar with their new terrain, they are often killed by cars.

They can be injured or killed during territorial disputes with coyotes already established in the area that they are released in.

In addition, state wildlife laws usually prohibit the relocation of coyotes, since they are a rabies-vector species (even though rabies is very rare in coyotes).

Resources

[Solutions for Coyote Conflicts \[PDF\]](#)

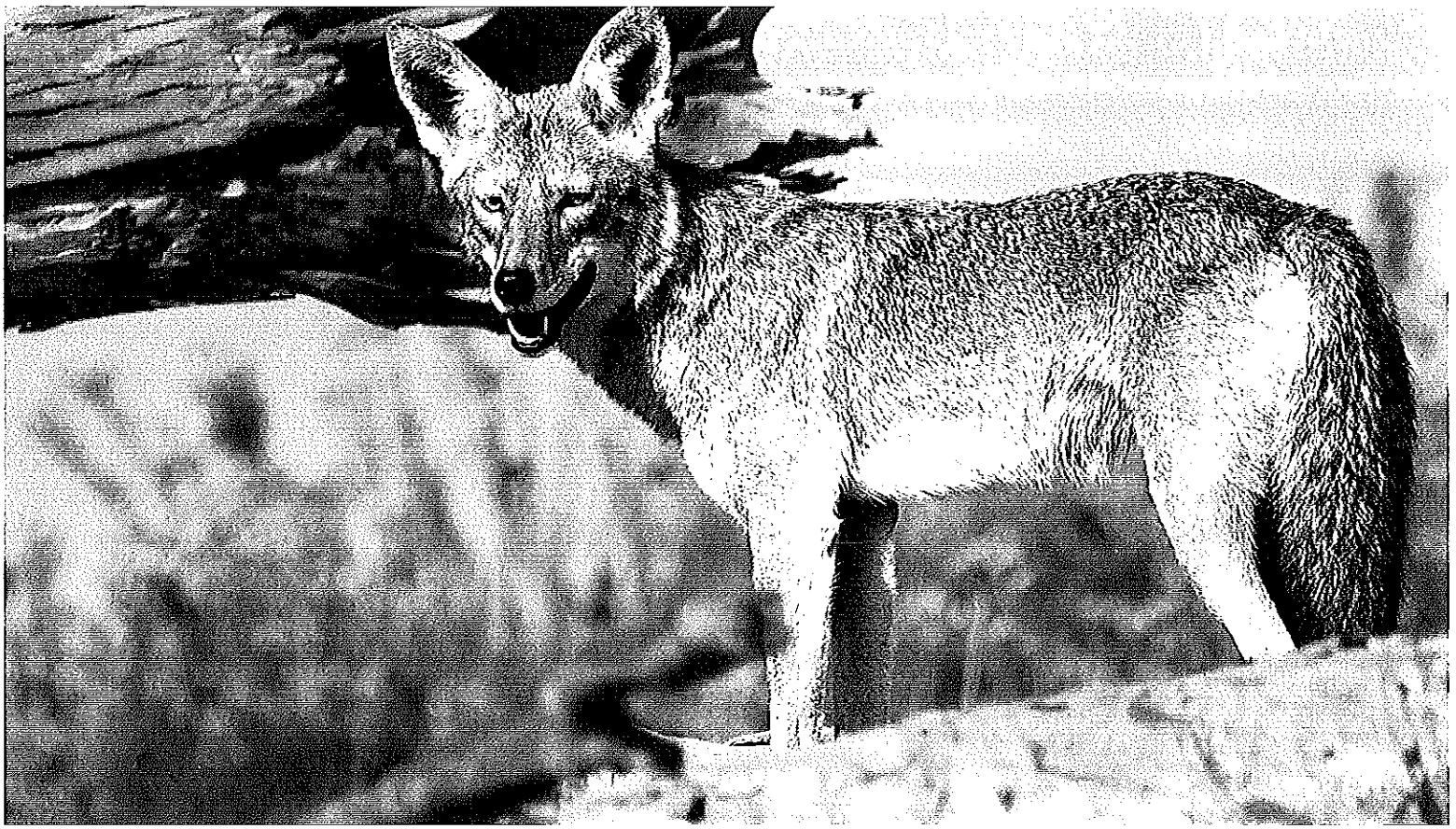
[Preventing Coyote Conflicts \[PDF\]](#)

[Coyote Hazing Guidelines \[PDF\]](#)

[Coyote Management Plan \[PDF\]](#)

[Coyote Advocate Toolkit \[PDF\]](#)

Your gift can do so much for animals in need.



Introduction and goals

The goal of this template coyote management and coexistence plan is to provide a program for reducing human-coyote conflicts while prioritizing human safety. The suggested actions outlined in this plan are designed to increase citizens' knowledge and understanding of how coyotes behave and make clear how such behavior can be managed to reduce or eliminate conflicts with coyotes.

This coyote management and coexistence plan is based on scientific research, a thorough understanding of coyote ecology and biology in urban settings, and the best known management practices and management tools. This plan is guided by the following basic principles:

1. Human safety is a priority in managing human-coyote interactions.
2. Coyotes serve an important role in ecosystems by helping to control the population of rodents, Canada geese, rabbits and other urban mammals.
3. Preventive practices such as reduction and removal of food attractants, habitat modification and responding appropriately when interacting with wildlife are key to minimizing potential interactions with coyotes.
4. Solutions for coyote conflicts must address both problematic coyote behaviors (such as aggression toward people and attacks on pets) and the problematic human behaviors (intentionally or unintentionally feeding coyotes and letting pets outside unattended) that contribute to conflicts.
5. Non-selective coyote removal programs are ineffective for reducing coyote population sizes or preventing human-coyote conflicts.
6. A community-wide program that involves residents is necessary for achieving coexistence among people, coyotes and pets.



How to use this template coyote management plan

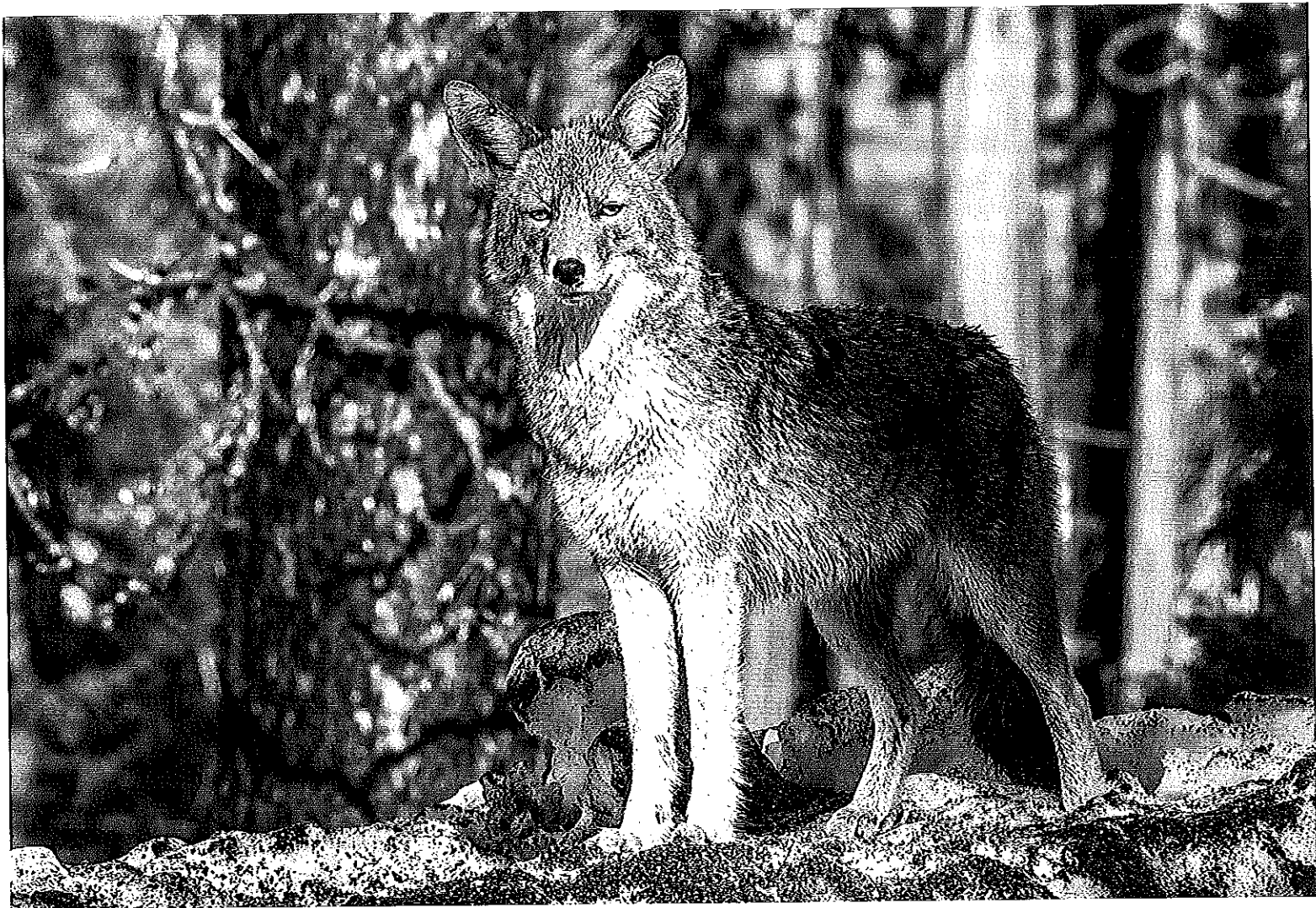
This coyote management and coexistence plan has been prepared by the Humane Society of the United States for use by communities (including, but not limited to, cities, villages, towns, counties, homeowners associations, etc.) in humanely and effectively preventing and solving conflicts among coyotes, people and companion animals. The information in this plan has been gathered from scientific and peer-reviewed articles, from experts in the field of human-coyote conflict resolution, and from successful coyote management plans across the U.S. We invite you to use this plan as your own or modify it as necessary to suit the needs of your community.

Acknowledgements

The HSUS would like to specially thank Paula-Marie Lewis, a Ph.D. student at Griffith University, Australia, for her work in the creation of this management plan.

We would also like to acknowledge the following coyote management plans, which helped to influence the ideas and guidelines presented in this plan:

- City and County of Broomfield (CO) Coexistence with Wildlife Policy
- City of Calabasas (CA) Coyote Management Plan
- City of Centennial (CO) Coyote Management Plan
- City of Davis (CA) Coyote Management and Coexistence Plan
- City and County of Denver (CO) Coyote Management Plan
- Portland (OR)-Vancouver (BC) Model Coyote Management Policy
- Village of Riverside (IL) Coyote Home Audit Checklist
- City of Wheaton (IL) Coyote Policy



The coyote

Due to their intelligence and adaptability—in addition to extensive urbanization and the subsequent decline of larger predators—coyotes have successfully expanded their range across North America. Coyotes are now found in all states in the U.S. except Hawaii and have become well established in nearly every ecosystem. They live in deserts, swamps, tundra and grasslands, brush, dense forests, cities and suburbs. People can live among coyotes yet never see them. Often it's only an evening chorus or group howling and yipping that alerts us to the presence of this wild canid in our neighborhoods. It is important to keep in mind that coyotes have been interacting with and adapting to people for at least the last 100 years.

ECOLOGICAL IMPORTANCE

Coyotes are curious, smart and adaptable creatures and our urban areas provide the perfect balance of food, shelter and water for them. What you may not know is that even in fragmented and urbanized landscapes, coyotes can play an integral role in their environment by providing ecosystem services and helping to maintain species diversity. Coyotes in urban areas not only provide free rodent control by feeding on mice and rats, but also help to regulate the population size of other species that may cause conflicts with people in urban areas (such as voles, wild turkeys, white-tailed deer and Canada geese).

GENERAL BIOLOGY, REPRODUCTION AND BEHAVIOR

Appearance and signs: Most coyotes weigh approximately 25-35 pounds, although their long legs and thick fur make them appear larger. Coyote fur varies in color from gray-brown to yellow-gray. They have a black-tipped tail which helps to distinguish them from other canids such as foxes. Coyotes also have yellow/amber eyes (which help to distinguish them from domestic dogs), large ears and narrow, pointed muzzles (which help to distinguish them from wolves).

Since coyotes are naturally very skittish and afraid of humans, they are rarely seen. Thus, their signs (including prints, scat and vocalizations) may be a better indicator of their presence. Coyote prints are similar to those of a domestic dog's, but are usually observed in a straight line (as opposed to the meandering path of domestic dog tracks). More commonly, coyote howling or other vocalizations may be heard. Coyotes produce a variety of sounds (including howls, barks, whines and yips) to communicate with one another and defend their territory. Small groups of two or three coyotes can distort their voices and sound like a group of 20. Coyotes also use scat (feces) to communicate by depositing it in the middle of a trail or on the edge of their territory. Coyote scat is similar to dog scat in size and appearance, but unlike dog scat, it is rope-like and typically filled with hairs, seeds and bones.

Diet: Coyotes are opportunistic omnivores with great flexibility in their diet. They generally hunt small mammals such as mice, rats, voles, rabbits and prairie dogs, but will also eat fruit and berries and will even scavenge road-killed animals. In urban areas, coyotes are also known to eat pet food, unsecured garbage and compost. They may also prey on unattended domestic pets such as cats and small dogs if given the opportunity. This does not indicate a danger to humans, but is rather a natural coyote behavior. This behavior can be prevented by reducing human-associated food attractants in urban areas and not letting pets outside unattended (unless protected by a coyote-proof enclosure or fence).

Social structure: Most coyotes (called resident coyotes) live in family groups with one breeding pair and three to four other related individuals. Coyotes do not hunt in packs, but work together to defend their territory from other coyote family groups. Other coyotes (called transient coyotes) live alone or as an isolated mated pair.

Coyotes mate once per year during their breeding season (which occurs from January through March). During the pup season (April through August), the breeding pair will give birth to pups (typically in April or May). Litter size depends on available resources and the number of coyotes in the area. The average litter size is four to seven pups. Coyotes will place their pups in a den for the first 6 weeks, after which the pups will learn to hunt with their parents. Coyote dens are found in steep banks, rock crevices and underbrush, as well as in open areas. During dispersal season (September through December), the pups from the previous year (yearlings) will leave the family group and become transient coyotes in search of a new home range.

Habitat: Coyotes are naturally diurnal (most active at dawn and dusk), but often shift to more nocturnal activity in urban and suburban areas in an effort to avoid people. Coyotes prefer open space and natural preserve areas over human-dominated landscapes, but are extremely adept at living in proximity to people. Coyotes thrive in these areas because food, water and shelter are abundant.

Home range sizes vary for each individual coyote. Research has shown that home range sizes for resident coyotes average 2-5 square miles, while transient coyotes have larger home ranges (averaging 10 square miles). Home range size can be an important indicator of resource distribution and abundance and also may correlate with population density.

Coyote attractants in urban areas

Coyotes are drawn to urban and suburban areas for the following reasons:

1. **Food.** Urban areas provide a bounty of natural food choices for coyotes, who primarily eat rodents such as mice and rats. However, coyotes can be further attracted into suburban neighborhoods by human-associated food such as pet food, unsecured compost or trash, and fallen fruit in yards. Intentional and unintentional feeding can lead coyotes to associate humans with sources of food, which can result in negative interactions among coyotes, people and pets. To reduce food attractants in urban and suburban areas:
 - Never hand-feed or otherwise deliberately feed a coyote.
 - Avoid feeding pets outside. Remove sources of pet food and water. If feeding pets outside is necessary, remove the bowl and any leftover food promptly.
 - Never compost any meat or dairy (unless the compost is fully secured).
 - Maintain good housekeeping, such as regularly raking areas around bird feeders, to help discourage coyote activity near residences.
 - Remove fallen fruit from the ground.
 - Keep trash in high-quality containers with tight-fitting lids. Only place the cans curbside the morning of collection. If you leave trash cans out overnight, they are more likely to be tipped over and broken into.
 - Bag especially attractive food wastes such as meat scraps or leftover pet food. If it is several days before garbage will be picked up, freeze the food temporarily or take it to a dumpster or other secure storage container.
2. **Water.** Urban areas provide a year-round supply of water in the form of storm water impoundments and channels, artificial lakes, irrigation, pet water dishes, etc., which support both coyotes and their prey.
 - In dry conditions, water can be as alluring as food, so remove water bowls set outside for pets and make watering cans unavailable.
3. **Access to shelter.** Parks, greenbelts, open spaces, golf courses, buildings, sheds, decks and crawl spaces, etc., increase the amount and variability of cover for coyotes. They allow coyotes to safely and easily remain close to people, pets, homes and businesses without detection.
 - In the spring, when coyotes give birth and begin to raise young, they concentrate their activities around dens or burrows in which their young are sheltered. Coyotes may take advantage of available spaces under sheds or decks for use as a den, bringing them into close contact with people and pets.
4. **Unattended pets.** Pets are a normal part of an urban landscape. Within their territory, coyotes may consider pets as potential prey or potential competitors. **Free-roaming pets**, especially cats and sometimes small dogs, may attract coyotes into neighborhoods. The best way to minimize risk to pets is to not leave them outside unattended.
 - **Cats.** Coyotes primarily eat small mammals such as mice and rats, but will also prey on slightly larger mammals such as rabbits and groundhogs. Approximately the same size as a groundhog or rabbit, free-roaming outdoor cats may also be seen as eligible prey items by coyotes. It is important to note that attacks on cats are normal coyote behavior and do not indicate a danger for people. The only way to protect cats from coyotes (and the other dangers of outdoor life such as cars, disease, dogs and other wildlife) is to keep cats indoors (or only let them outside in a secure enclosure or when accompanied by a person and under the control of a leash and harness).
 - **Feral cats.** People who feed feral cats are often concerned that coyotes might prey on the cats. These concerns are well founded, as coyotes will be attracted to both the outdoor pet food and the cats themselves as prey. Although there is no sure way to protect feral cats from coyotes, the following tips can be helpful:
 - Feed cats only during the day and at a set time—and pick up any leftovers immediately.

- Provide escape routes for cats.
- Haze coyotes seen on the property (see Appendix B). Making them feel uncomfortable will encourage them to stay out of the area.
- **Dogs** are also vulnerable to coyote confrontations. These incidents generally involve coyotes who are accustomed or habituated to people (usually due to wildlife feeding) or coyotes who are protecting their territory and pups (usually during breeding season).
 - Small, unattended dogs may be seen as potential prey for coyotes. It is important to either keep dogs on a leash 6 feet long or shorter when outdoors or to stay within 6 feet of them when outside. (Coyotes may view a dog on a leash longer than 6 feet as an unattended pet.) Attacks on unattended small dogs are normal coyote behavior and do not indicate a danger for people.
 - Although attacks on larger dogs are rare, coyotes will sometimes go after a large dog when they feel that their territory is threatened. This generally occurs during the coyote breeding season, which takes place from January through March. During this time, it is especially important not to let dogs outside unattended and to keep them on leashes (6 feet long or shorter) when in public areas.
- Fences can be used to keep coyotes out of residential yards, but they must be “coyote-proof.” Coyote-proof fences are at least eight feet tall and made of a material that coyotes cannot climb or at least 6 feet tall with a protective device on top such as a “coyote roller (coyoteroller.com) that rolls off any coyotes (and dogs) that try to scramble over the fence. To prevent coyotes from digging under a fence, it should extend underground at least twelve inches or include an L-shaped mesh apron that extends outward at least 18 inches and is secured with landscape staples.
- **Other domestic animals** kept outside, such as chickens and rabbits, may also be viewed as prey by coyotes. Protect poultry or other outdoor animals from coyotes (and other predators) with protective fencing (both structural and electric), by ensuring that they are confined in sturdy cages or pens each evening and by using livestock-guarding animals where possible.

EDUCATION AND OUTREACH

A critical element of a successful coyote management plan is the education and awareness of residents.

Education is the key to having residents make appropriate decisions regarding their safety and managing their property and pets. This involves decreasing food attractants, taking precautions with pets and creating tolerance of normal coyote behavior.

An educational campaign should focus on how residents can coexist with coyotes successfully. Educational outreach opportunities include:

1. **Educational materials.** These can include brochures, informational postcards mailed or hand-delivered to specific neighborhoods with a high number of coyote sightings and interactions, detailed information and appropriate links made available on local websites, e-newsletters, development of various public service announcements to run on public access channels, or coyote signage posted in appropriate parks and open spaces.
2. **Trainings.** Incorporate coyote education in schools and make educational seminars and trainings available to the public.
3. **An outreach and education team.** Composed of trained community volunteers (Appendix B), a team can help with community outreach by tabling at community events, presenting in classrooms and/or following up directly with individuals and neighborhoods who may have concerns.

HAZING: AN INTERVENTION TECHNIQUE

Generally, coyotes are reclusive animals who avoid human contact. Coyotes in urban and suburban environments, however, may learn that neighborhoods provide easy sources of human-associated food while presenting few real threats. These coyotes, having lost their fear of humans, may visit yards and public areas even when people are present and may cause conflicts with people and pets. Humans have contributed to this habituation of coyotes by not reacting when they see a coyote. We have a tendency to either ignore them due to fear or to be enamored by them because they are wild and it is “cool” to see one. To coexist safely, it’s important to modify this behavior and attitude in resident coyote populations.

The best solution for addressing problematic coyote behavior is by instituting a community-based hazing program (See Appendix B).

Hazing is an activity or series of activities that is conducted in an attempt to change behaviors of habituated coyotes and/or to re-instill a healthy fear of people in the local coyote population. Hazing techniques include generating loud noises, spraying water, shining bright lights, throwing objects, shouting, etc. Hazing can help maintain coyotes’ fear of humans and deter them from neighborhood spaces such as backyards, greenbelts and play spaces.

A hazing program encourages the use of harassing actions without employing weapons or causing bodily harm to the coyote. The more often an individual animal is hazed, the more effective hazing is in changing coyote behavior. Being highly intelligent animals, coyotes who are hazed quickly learn to avoid neighborhoods, people and pets.

The goals of hazing are to:

- Reverse the habituation of coyotes to people, teaching them to once again fear and avoid humans
- Discourage coyotes from entering public areas such as parks, playgrounds and yards when people are present
- Discourage coyotes from approaching people and pets
- Empower residents by giving them tools to use when they encounter a coyote, thereby reducing their fear of coyotes
- Increase awareness about coyote behavior among residents and involve the community in coyote management efforts

Basic hazing: Consists of directly facing the coyote and being “big and loud” by waving your arms over your head, making loud noises or squirting the coyote with water until the coyote(s) chooses to leave. Using a variety of different hazing tools is critical because coyotes can become desensitized to the continued use of just one technique, sound or action (see Appendix B). Basic hazing can be performed by anyone and includes the following techniques:

Coyote coexistence strategies and techniques

MONITORING AND COLLECTING DATA

Monitoring and data collection are critical components of an effective coyote management plan. This is best accomplished with input from both residents and city officials using a coyote hotline and/or an online reporting form.

The purpose of monitoring human-coyote interactions is to document where coyotes are frequently seen, to count how many coyotes are within an area and to identify human-coyote conflict hotspots. Gathering specific data on incidents will allow for targeting of educational campaigns and conflict mitigation efforts, as well as the ability to measure success in reducing conflicts over time.

A standard Coyote Incident Form (Appendix A) should be made available to residents and employees to allow for consistent reporting of coyote incidents. Contact information—including the date, time, name, address and phone number of the individuals submitting the report—should be included, as well as specific information about the incident.

HUMAN-COYOTE CONFLICT DEFINITIONS

The following definitions will be used for the process of categorizing human-coyote conflicts:

Coexistence:

Humans and coyotes exist together. Humans take an active role in helping coyotes in their community stay wild by removing attractants, taking responsibility for pet safety, hazing coyotes in their neighborhood and learning about coyote ecology and behavior.

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 the 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.

The following definitions will also be used for the process of categorizing conflicts among coyotes, pets and livestock.

Pet attack:

Coyote(s) kills or injures a domestic pet.

Attended: Pet is on a leash less than 6 feet in length or is in the presence of a person less than 6 feet away.

Unattended: Pet is free-roaming, walking off-leash more than 6 feet from a person, or on a leash longer than 6 feet.

Livestock loss/depredation:

Coyote(s) kills or injures livestock.

reproductive rates), allowing for quick regeneration of their population numbers. The disruption of their family group structure leads to an increase in the number of females breeding in the population, and the increase in available resources leads to larger litter sizes, earlier breeding ages among females and higher survival rates among pups. This allows coyote populations to bounce back quickly, even when as much as 70 percent of their numbers are removed through lethal control efforts. For these reasons, lethal programs are not effective at reducing coyote populations, and non-selective coyote trapping programs are not effective at solving conflicts.

In addition, coyotes removed from an area will quickly be replaced by transient coyotes looking for a vacant home range. If the root causes of human-coyote conflicts have not been addressed, incoming coyotes may quickly become nuisance coyotes as well. It is far better to have well-behaved resident coyotes who will hold territories and keep transients at bay than to risk having to deal with newcomers who do not know the “rules.”

Lethal responses (coyote removal) should be considered only in the event of an unprovoked, confirmed attack on a human. If implemented, lethal control efforts should focus on the offending coyote(s) only, rather than the coyote population at large. This

requires significant surveillance efforts to make sure that the correct animal(s) is targeted and removed.

Lethal control should be considered as only one of a suite of management interventions (e.g., removal of attractants, hazing, etc.) that involve an array of humane and non-lethal measures. It is worth remarking that if non-lethal control techniques are effective enough to reduce human-coyote interactions and conflicts to acceptable levels, then the lethal control limited option may remain in the toolbox without being used.

LOCAL ORDINANCES

In addition to the suggested responses below, the following community-wide ordinances may be helpful:

Leash law. Implementing a leash law and monetary fine for off-leash dogs can help address problematic behavior that could lead to coyote-pet conflicts. Residents should be instructed to keep pets on a leash 6 feet long or shorter.

Anti-feeding ordinance. Banning the feeding of wildlife (exceptions may be made for bird feeders) and establishing a monetary fine may be helpful in addressing problematic feeding behavior that can lead to the habituation of coyotes.

- Yelling and waving your arms while approaching the coyote.
- Making loud noises with whistles, air horns, megaphones, soda cans filled with pennies, pots and pans.
- Throwing projectiles such as sticks, small rocks, cans, tennis balls or rubber balls at the direction of the coyote.
- Squirting water from a hose, water gun or spray bottle (with vinegar water).

See this fun and educational video for more hazing tips:
bit.ly/19hkRB2

High-intensity hazing: Consists of approaching the animal quickly and aggressively, throwing projectiles, paint balls, pepper balls, sling shots, clay pellets or pepper spray at the coyote. High-intensity hazing should only be carried out by trained professionals such as animal control and police officers. High-intensity hazing should be used in specific areas and only in response to more egregious incidents.

LETHAL CONTROL

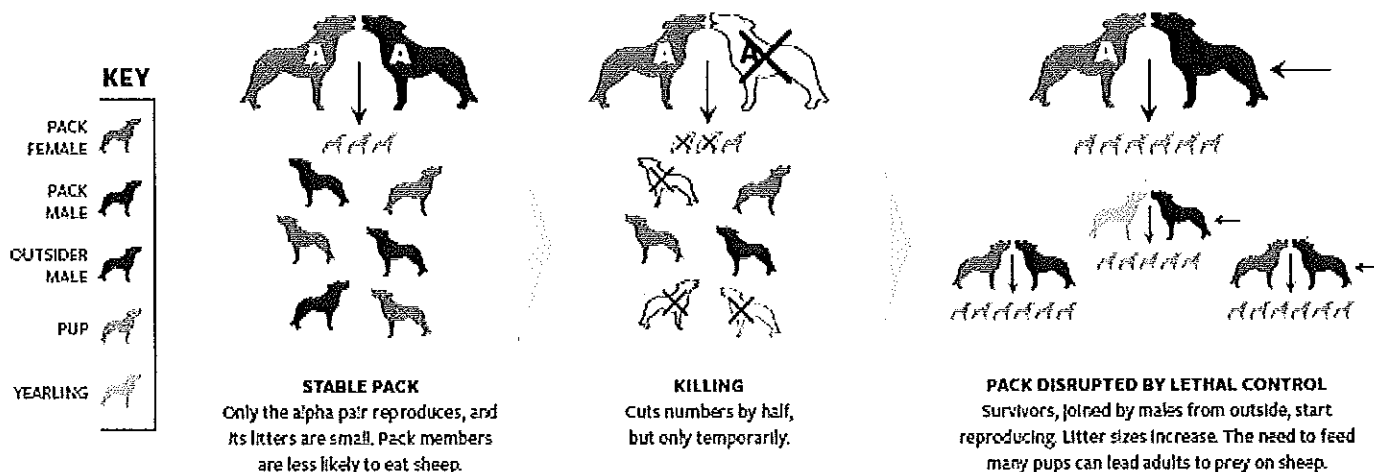
Lethal control programs may seem like a quick fix to problems among coyotes, people and pets. However, removal programs are not effective in reducing coyote populations or addressing the root causes of conflicts. Coyote removal programs are costly (due to the difficulty of catching coyotes) and controversial among the public.

When implementing lethal control, it is extremely difficult to ensure that problem-causing coyote(s) will be the ones located and killed. Since firearms are usually unsafe to use in urban and suburban areas, traps (which are by design non-selective for particular coyotes) are generally the method used. Because coyotes are so intelligent and wary of human scent, it is very difficult to catch any coyote in a trap, never mind the problem-causing coyote.

Research has shown that when lethally controlled, coyotes exhibit a “rebound effect” (a surge in their

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.



Coyote Behavior	Classification	Response
Coyote injures or kills pet off-leash with human nearby (within 6 feet)	Attended Pet Attack	Gather information on specific animals involved and report circumstances. Educate on pet management, coyote attractants and hazing. Perform yard/neighborhood/public area audit*. Post education signs and/or send educational materials to residents in the area. Implement high intensity hazing techniques (by ACOs, police, etc.)—using rubber bullets, paintball guns, etc.
Coyote injures or kills pet on-leash (within 6 feet)	Attended Pet Attack	Gather information on specific animals involved and report circumstances. Educate on pet management, coyote attractants and hazing. Perform yard/neighborhood/public area audit*. Post education signs and/or send educational materials to residents in the area. Implement high-intensity hazing techniques (by ACOs, police, etc.)—using rubber bullets, paintball guns, etc.
Coyote aggressive toward person, showing teeth, back fur raised, lunging, nipping without contact	Incident	Gather information on specific animals involved and report circumstances. Educate on pet management, coyote attractants and hazing. Perform yard/neighborhood/public area audit*. Post education signs and/or send educational materials to residents in the area. Implement high-intensity hazing techniques (by ACOs, police, etc.)—using rubber bullets, paintball guns, etc.
Coyote has bitten human (Human encouraged coyote to engage by hand feeding, approaching coyote with pups, intervening during pet attack, etc.)	Provoked Human Attack	Identify and gather information on all details of attack (including action of victim before and after attack, whether feeding or pets were involved, action of victim towards coyote and how incident was resolved.) Any human bitten by a coyote(s) will need to seek the advice of their physician concerning the administration of a post-exposure rabies vaccination. If the offending coyote is killed, he/she should not only be tested for rabies, but should be also given a full necropsy (to determine general health and whether feeding was involved). Educate residents on coyote attractants, yard/neighborhood audits, hazing and pet management. Levy fines (for wildlife feeding or leash law violations) when appropriate. Implement high-intensity hazing techniques (by ACOs, police, etc.)—using rubber bullets, paintball guns, etc. for any other habituated or bold coyotes in area.
Coyote has bitten human (Human did not encourage coyote to engage)	Unprovoked Human Attack	Identify and gather information on all details of attack (including action of victim before and after attack, whether feeding or pets were involved, action of victim towards coyote and how incident was resolved.) Any human bitten by a coyote(s) will need to seek the advice of their physician concerning the administration of a post-exposure rabies vaccination. If the offending coyote is killed, he/she should not only be tested for rabies, but should be also given a full necropsy (to determine general health and whether feeding was involved). Lethal control efforts, if implemented, should focus on the offending coyote(s), rather than the coyote population at large. Educate residents on coyote attractants, yard/neighborhood audits, hazing and pet management. Levy fines (for wildlife feeding or leash law violations) when appropriate. Implement high-intensity hazing techniques (by ACOs, police, etc.)—using rubber bullets, paintball guns, etc. for any other habituated or bold coyotes in area.

* (See Appendix C)

Human-coyote conflict classification and recommended responses

Coyote Behavior	Classification	Response
Coyote heard; scat or prints seen	Observation	Distribute educational materials and information on normal coyote behavior.
Coyote seen moving through the area (day or night)	Sighting	Distribute education materials and information on normal coyote behavior.
Coyote seen resting in area (day or night)	Sighting	If area frequented by people, educate on normal coyote behavior and how to haze to encourage animal to leave. Look for and eliminate attractants.
Coyote entering a yard (no person present)	Sighting	Educate on coyote attractants; provide hazing information and yard audit*.
Coyote following or approaching a person with no incident	Encounter	Educate on hazing techniques. Look for and eliminate attractants.
Coyote following or approaching a person and pet with no incident	Encounter	Educate on hazing techniques and pet management. If an open area, post education signs to alert other residents to keep dogs on leash and to haze coyotes. If it is pup season and there is a known den nearby, consider blocking off the path or area until pup season is over.
Coyote entering a yard with pets, no incident	Encounter	Educate on coyote attractants and pet management, provide hazing information and yard audit*.
Coyote entering yard with people and pets, no pet attack occurring	Encounter	Gather information on specific animals involved and report circumstances. Educate on coyote attractants and pet management, provide hazing information and yard audit*.
Coyote injures or kills unattended pet in back yard	Unattended Pet Attack	Gather information on specific animals involved and report circumstances. Educate on coyote attractants and pet management, provide hazing information and yard audit*.
Coyote injures or kills pet off-leash in open space area	Unattended Pet Attack	Gather information on specific animals involved and report circumstances. Educate on pet management and hazing, Look for and eliminate food attractants. Post education signs in open area to alert other residents to keep dogs on leash and to haze coyotes. If it is pup season and there is a known den nearby, consider blocking off the path or area until pup season is over.
Coyote injures or kills livestock	Livestock Loss/Depredation	Gather information on specific animals involved and report circumstances. Educate on proper livestock husbandry (including the use of secure enclosures, livestock guarding animals, and/or proper fencing).

OFFICE USE ONLY:

Outcome of incident: _____

Human injuries: _____ Post-exposure rabies vaccination recommended: Yes ☐ No ☐

Pet injuries: _____ Pet killed: Yes ☐ No ☐

Coyote injuries: _____ Coyote euthanized: Yes ☐ No ☐

Coyote necropsy results: _____

Stomach contents: human food: Yes ☐ No ☐

Sign of disease: Yes ☐ No ☐

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:

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.

LIVESTOCK LOSS/DEPREDATION:

Coyote(s) kills or injures livestock.

Appendices

Appendix A:

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, Human Attack: Provoked/Unprovoked?* (See reverse for definitions) _____

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

Was the coyote being intentionally fed? Yes ☐ No ☐

Was there pet food present? Yes ☐ No ☐

Was unsecured garbage present? Yes ☐ No ☐

Were other food attractants present? Yes ☐ No ☐

(e.g., bird seed, compost, fruit, etc.) If yes, describe: _____

Was a pet involved? Yes ☐ No ☐

Type of pet: Cat ☐ Dog ☐ Other ☐ _____

Breed/weight of pet: _____

Was pet on leash? Yes ☐ No ☐

(If yes, was leash longer than 6 ft.?) Yes ☐ No ☐

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.) _____

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 effect 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 B:

GUIDELINES FOR IMPLEMENTING 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:

- Basic coyote ecology and behavior.
- Seasonal behavior changes—breeding season, pups, denning behavior.
- Influences of human behavior on coyotes.
- How to identify and remove food attractants.
- Safety tips for pets.
- 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 VOLUNTEER HAZING TEAM

A group of volunteers trained in coyote hazing techniques can be quite useful to respond to coyote conflicts in public areas (such as parks, playgrounds, etc.). 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 Community Citizen Volunteer 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 Community Citizen Volunteer group 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:
 - Date, location, time of day, number of coyotes.
 - Initial coyote behavior, hazing behavior, coyote response.
 - Effectiveness ratings.
 - Tools and techniques used.
 - 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.

Appendix D:

EXAMPLE COYOTE RESOLUTION

RESOLUTION NO. _____

A RESOLUTION APPROVING A COYOTE MANAGEMENT PLAN

WHEREAS, the City of _____ has a duty and responsibility to its residents to protect the public health, safety, and welfare of its residents; and

WHEREAS, the city of _____ desires to identify and achieve a balance between the importance of human safety and the ecology of the region; and

WHEREAS, due to the varied interests of persons and organizations regarding actions that can be taken in the management of coyotes, a written management plan is desirable to ensure that the varied interests are evaluated and considered when seeking to address conflicts with coyotes, and;

WHEREAS, the City of _____ has developed a Coyote Management Plan to provide recommendations for educating the community regarding living and interacting with wildlife and addressing perceived or actual conflicts with coyotes including sightings, attacks on pets, aggressive behavior of coyotes, and a general fear of harm to life and property caused by coyotes, and;

WHEREAS, the purpose of the Coyote Management Plan is to provide effective solutions to coyote conflicts, including a behavior classification and recommended response chart, to resolve and reduce human-coyote conflicts within the City in a humane and effective manner; and

WHEREAS, a combination of education and hazing have been found to be the most effective methods to alleviate the potential dangers that may result from coyote-human interactions, and

WHEREAS, the _____ is directed to utilize non-lethal methods, including education and hazing methods, as primary methods in coyote management, considering lethal responses (coyote removal) only in the event of an unprovoked attack on a human,

NOW, THEREFORE, BE IT RESOLVED by _____, that:
The Coyote Management Plan attached hereto and incorporated herein by reference, is hereby approved.
The resolution shall be effective immediately.

APPROVED AND ADOPTED THIS _____ **DAY OF** _____

ATTEST: _____

Appendix C:

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			Remove bird feeders or 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 an 8-foot fence (or a 6-foot fence with an additional extension or 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.
			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.

Our Promise



We fight the big fights to end suffering for all animals.

Together with millions of supporters, we take on puppy mills, factory farms, trophy hunts, animal testing and other cruel industries. With our affiliates, we rescue and care for thousands of animals every year through our animal rescue team's work and other hands-on animal care services.

We fight all forms of animal cruelty to achieve the vision behind our name: a humane society.
And we can't do it without you.



**THE HUMANE SOCIETY
OF THE UNITED STATES**

1255 23rd Street, NW, Suite 450 Washington, DC 20037
humanesociety.org

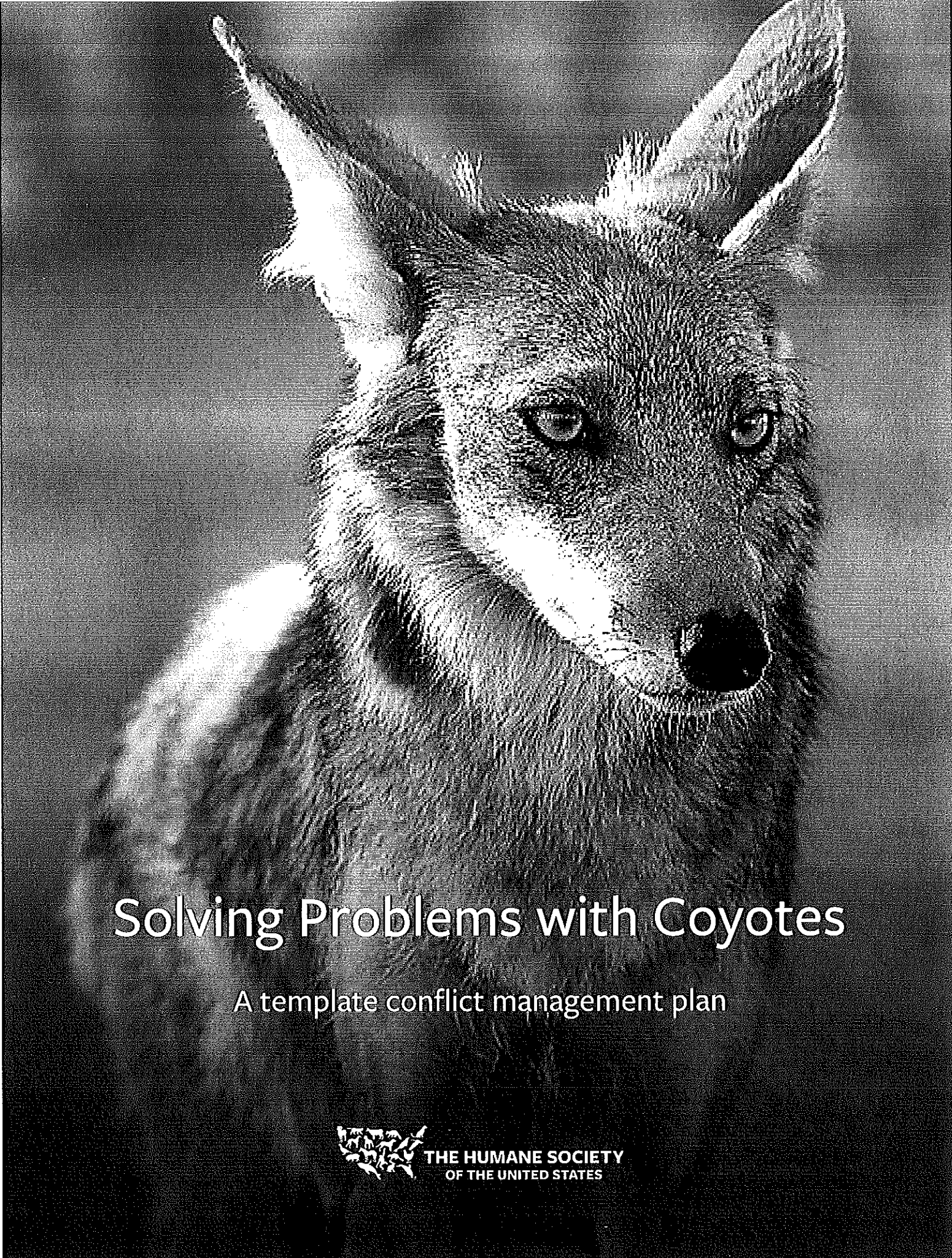
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Solving Problems with Coyotes

A template conflict management plan



THE HUMANE SOCIETY
OF THE UNITED STATES

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From: [Marlene Katafias](#)
To: [CityCouncil](#)
Subject: Deer Management in Livonia
Date: Thursday, June 29, 2023 2:00:45 PM

Hello,

My name is Marlene Katafias, 15100 Merriman. I was at the special meeting to discuss the deer problem. I didn't speak since I didn't have anything additional to say. The deer population has indeed expanded in recent years. I have lived at this address since 1952 and never saw deer here prior to 15 years ago or so. I believe one of the council members was going to check out how other municipalities have done with culling and I looked into a few myself. Please check with the following that seem to have had some success, although it does have to be an annual event.

Big Rapids, Michigan. They have been partnering with the USDA Wildlife Services and Michigan Sportsmen Against Hunger since 2014 and appear to have some success with the program, plus the venison goes to feed the hungry.

Michigan Parks Authority has been culling deer in the Metro Parks system since 1999 and consider the program a success.

Since I agree that something must be done, I just wanted to pass the above information on.

I have been sitting in on Council Meetings lately to become familiar how are local government works and would like to let all of you know that I think you are doing an outstanding job.

Thank you

Marlene Katafias
734-891-7297
mkatafias@gmail.com



Virus-free. www.avg.com

NEW DATA RECEIVED FOR REGULAR
MEETING OF JULY 10, 2023

From: [Simmons, Jennifer](#)
To: [CityCouncil](#); [Mayor Staff](#)
Cc: [Brosnan, Maureen Miller](#)
Subject: FW: Deer issue
Date: Tuesday, June 27, 2023 10:26:27 AM

Jennifer Simmons
Constituent Relations Specialist
City of Livonia | Mayor's Office
(734) 466-2204
jsimmons@livonia.gov

From: Jennifer Jerore <forev099@yahoo.com>
Sent: Monday, June 26, 2023 10:57 PM
To: Mayor Maureen Miller Brosnan <mayor@livonia.gov>
Subject: Deer issue

I cannot attend the meeting regarding the deer population but wanted to send a comment as I feel strongly about the subject. Deer are in there natural habitat and I don't think we should give into a few noisy citizens because they are eating there hostas. Up north in the middle of the woods at our cottage we plant things deer don't like and that solves the problem, we need to be respectful of Wildlife, what is next squirrels or chipmunks? My voteleave the deer ALONE we have other things we can be using tax dollars to address....

Thank you
Jennifer Jerore

[Sent from Yahoo Mail for iPhone](#)

Kasprowicz, Sara

From: Kenneth Kettenbeil <kketten@umich.edu>
Sent: Friday, June 23, 2023 10:18 AM
To: CityCouncil
Subject: Deer cull information

Dear Livonia City Council,

I saw on the news this week the story about the deer issue in Livonia.

I work at the University of Michigan-Dearborn and we have conducted culls on our campus, three times since 2015. We created a website to inform the community about all aspects of the cull, including: why it is necessary, options explored, safety and related issues. Our situation may be a little different than yours since we do culls to maintain a 300-acre natural area tied to faculty research and community engagement.

I thought the site may be helpful as you explore solutions to the local deer population. We have biologists on campus that may be helpful to you as you discuss this issue in your city.

Please let me know if we can be of any help to you.

<https://umdearborn.edu/external-relations/key-issues/deer-management>

Ken

--

Ken Kettenbeil
Vice Chancellor
External Relations
4901 Evergreen Road
1161 AB
Dearborn, MI 48128
313-593-5518
kketten@umich.edu



Kasprowicz, Sara

From: clerk
Sent: Thursday, June 22, 2023 11:46 AM
To: CityCouncil; Mayor Staff
Cc: Nash, Susan M.; Kasprowicz, Sara
Subject: FW: Deer Management, My Opiniom

|

clerk@livonia.gov

From: Faten Fawaz <faten111@hotmail.com>
Sent: Wednesday, June 21, 2023 4:43 PM
To: clerk <clerk@livonia.gov>
Cc: Sabine Neighbor <dreikatzenspielen@gmail.com>
Subject: Deer Management, My Opiniom

Hello,

My name is Faten Fawaz, and I reside on Wentworth St., 48154. Here is my opinion on the recent deer mgmt. discussion:

- Based on the number of deer killed per year (200+ as stated by the rep from the Mayor's office at the public hearing on 6/19), it is likely nature is taking care of the issue. As stated by the rep, this number is not entirely due to automobile accidents.
- Repeated research shows that culling results in an increase of deer, referred to as the "Rebound Effect". Deer will reproduce at higher rates and will birth more females when a sudden population decrease occurs.
- Strongly encourage the input of DNR for well-studied options and associated impacts.
- Regarding ticks: "Deer are immune to Lyme disease and do not carry the disease. If an infected tick bites a deer, the disease does not spread to other ticks that may bite the deer as it would if the tick bit a mouse. Reducing the number of deer may reduce the number of ticks, but because of the dilution effect, the result can be a higher percentage of remaining ticks with the disease since the ticks will choose other hosts that may be carriers of the disease. Deer also browse on the vegetation that provide tick habitat. While deer may provide a meal for the adult tick, research shows the risk of Lyme disease is statistically correlated to mice, chipmunks, and ground dwelling birds. Deer groom themselves, eliminating many ticks." <https://www.deerfriendly.com/lyme-disease>

I have a suggestion... Research indicates that the number of deer remain constant or may decrease when they live in conditions unsuitable for sustaining new reproduction.

We should investigate solutions for long-term results.

For example...

- Host a yearly Livonia Flower Fest Sale in the Spring, showcasing deer-proof flowers, vegetation, landscaping, etc.
- Instruct residents to spray non-hazardous solutions to vegetation and respray after it rains, and make recommendations what sprays to use.
- Loosen the regulations around residential fence heights, and offer fence installers incentives to build fencing in this city that will deter deer where fencing is installed, and in turn preferred fencers can offer discounts to Livonia residents.

This will reduce the number of deer that tread into residential properties, also decreasing tick spread.

It will be the benefit of our community to look for sustainable solutions to serve our now, near, and far needs.

Thank you for allowing us the opportunity to share in this matter with our community leaders and elected officials!

Mrs. Faten Fawaz
248 818 0891

Sent from my iPhone

Kasprowicz, Sara

From: noreply@civicplus.com
Sent: Wednesday, June 21, 2023 9:04 AM
To: CityCouncil
Subject: Online Form Submittal: City Council Inquiries

City Council Inquiries

This form is for any questions, comments, or concerns you may have for the City in regards to city council meetings or other city council inquiries. If you leave contact information, the City will reply within 2 business days. If this is an emergency, please dial 9-1-1.

First Name	Laura
Last Name	Gerhardinger
Address	14119 S Livonia Cres
Email Address	lgerha1991@gmail.com
Phone Number	4199447212
Topic	City Council Meetings
Date of Issue	6/19/2023
Attachment (Optional)	<i>Field not completed.</i>
Comments	I could not attend the meeting on deer and coyote populations, but I wanted to write in to confirm that the deer are a significant problem in my neighborhood. I continually see the same herd (between 3 to over 10 at times) wandering my neighborhood. Recently two deer were laying in my neighbor's yard in the middle of the day. It took a lot of yelling to get them to leave. The other day I confronted two deer to get them to leave my yard, and they were not scared, and came closer to me. This confrontation made me very nervous. I am trying to create an ecosystem in my yard by replacing lawn with native plants. The deer are eating a lot of plants before they have a chance to grow. They also nearly killed an apple tree that was planted last fall. I am in support of a deer cull and anything the DNR recommends to decrease the deer population. I love seeing them, but I also have a lot of concerns about their population as they have no natural predators.

Email not displaying correctly? [View it in your browser.](#)

From: [Paul Walters](#)
To: [Donovic, Rob](#); [Mayor Maureen Miller Brosnan](#); [CityCouncil](#)
Cc: [Leadership Staff](#)
Subject: Re: Management of Deer Population
Date: Tuesday, June 20, 2023 9:50:46 AM
Attachments: [CitySeal100x100_8f7d9122-2022-4a3b-86d9-f05a096c6a3c.png](#)
[Livonia-Logo-250_2521acb0-d42c-429b-900f-b59ac98c1049.png](#)
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[SocialLink_Youtube_32x32_9b8afb50-3b86-4678-b53d-7e423a9d8771.png](#)

All,

I know the question was brought up by citizen's last night in the meeting about deer involved crashes resulting in injuries. I wanted to provide you all with that information. Over the last 5 years there have been a total of 235 deer involved crashes in Livonia, which resulted in 9 reports of possible injury, 4 reports of suspected minor injury and 1 report of suspected serious injury.

Sgt. Paul Walters
Traffic Services Bureau
Livonia Police Department
734-466-2107

From: Donovic, Rob <rdonovic@livonia.gov>
Sent: Monday, June 19, 2023 5:39:30 PM
To: Mayor Maureen Miller Brosnan; CityCouncil
Cc: Leadership Staff; Paul Walters
Subject: Re: Management of Deer Population
Hello,

Thank you for sending all of this very detailed information—an hour and a half before a very important meeting. I appreciate all of the dedication and detail oriented work done by city staff to better inform us. Unfortunately, we can't research it minutes before a meeting.

Thank you



Rob Gjonaj Donovic
Council Member
City of Livonia | City Council
(734) 466-2254
rdonovic@livonia.gov
www.livonia.gov



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From: Mayor Maureen Miller Brosnan <mayor@livonia.gov>
Sent: Monday, June 19, 2023 5:23:08 PM
To: CityCouncil <CityCouncil@Livonia.gov>
Cc: Leadership Staff <LeadershipStaff@Livonia.gov>; Walters, Paul
<paul.walters@livoniapd.com>
Subject: Management of Deer Population
Good afternoon,

Please see the attached letter and correlated correspondence.

Best,

Maureen Miller Brosnan
Mayor
City of Livonia | Mayor's Office
(734) 466-2201
mayor@livonia.gov

This message is intended only for the use of the individual or entity to which it is addressed, and may contain information that is privileged, confidential, and/or exempt from disclosure under applicable laws. If the reader of the message is not the intended recipient, or the employee or agent responsible for delivering the message to the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone and/or reply to this e-mail message. Thank you.

PUBLIC SAFETY, HEALTH AND ENVIRONMENT COMMITTEE

MONDAY, JUNE 19, 2023

A Public Safety, Health and Environment Committee meeting was held on Monday, June 19, 2023, in the Livonia City Hall Auditorium.

Committee Members Present: Kathleen McIntyre, Chair
Rob Gjonaj Donovic, Vice Chair
Scott Morgan

Committee Members Absent: None

Other Councilmember Present: Council President Jim Jolly
Brandon McCullough, Councilmember

City Officials and Others Present: Lynda Scheel, City Treasurer
Susan Nash, City Clerk
Sgt. Paul Walters, Traffic Services Bureau, LPD
Dave Varga, Chief of Staff
Ted Davis, Superintendent of Parks and Recreation
Don Rohraff, Director of Public Works

Additional attendees: See attached sign in sheet.

The meeting convened at 7:02PM

1. CR 18-22 Subject matter of what options are available concerning the culling and management of the deer and coyote populations in the city.

The Public Safety and Health Committee was led by the Chair, Kathleen E. McIntyre. Background information was given to explain how this subject matter was placed into Committee 2019, clarifying why it has taken so long for such a complicated topic to be discussed.

Councilmember McIntyre gave a slide presentation provided by both the DNR and SEMCOG, showing their research and data regarding deer management.

Dave Varga, Chief of Staff, gave additional information provided by our Livonia Police Department, indicating the calls, reports and complaints regarding deer-related situations in the city.

Many residents shared their stories and encounters with the deer in their yards. The following were consistent complaints and concerns regarding the overpopulation of deer:

- Ticks carrying Lyme disease.
- Destroyed vegetation.
- Dangerous to small pets and children
- Dangerous to drivers

Various suggestions were made to control the population, which include:

- Organized deer cull
- Protect vegetation with coverings.
- Taller fences
- Spray solution to deter the deer.

Councilmember Rob Donovic offered a motion to join the Urban Deer Coalition

Councilmember Brandon McCullough offered a motion to put this item into Committee of the Whole

Councilmember Brandon McCullough requested the Administration to provide a report and recommendation to remove deceased deer from residential property.

The Committee recommends:

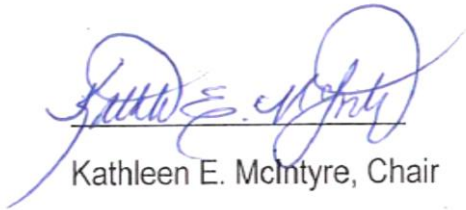
- A resolution to join the Urban Deer Coalition
- A resolution to put this subject matter into Committee of the Whole
- That the Administration provide a report and recommendation to remove deceased deer from residential property.

Note: This item will remain in committee

The meeting adjourned at 8:44PM

This item is to be placed on the **Regular Meeting Agenda of July 10, 2023**

Respectfully submitted,



Kathleen E. McIntyre, Chair

MEETING: PUBLIC SAFETY AND HEALTH COMMITTEE

DATE: MONDAY, JUNE 19, 2023

TIME: 7:00 PM

NAME

DEPT OR CONTACT INFO FOR
NOTIFICATIONS*

*PERTAINING TO THE SUBJECT
MATTER OF THIS MEETING

Marlene Kotajian

Victoria Trygion

Nancy Kusch

NKUSCH@AOL.COM

Jim Kronz

John Schuler

15638 Brookfield

Sara Schatz

VERI JOHNSON

14847 Ingram site clean up

Rick Smith

19851 FLAMINGO

ROSEMARY MARTIN

33023 CURTIS

BARBARAGAL

31062 Pembroke St

MARIA JOHNSTON

19132 Gill Rd

Donna Manusale

35203 Oatdale

David & Sharon Crook

30339 Rayburn

Martha + Kevin Webb

16885 Canterbury

Lisa Kovalski

15429 Oparto

DORIS FURMANSKI

30219 PERTH

Soc Plaza 16007 Oak Dr 48154

Michael J. Bauer 33621 N. HAMPSHIRE

Mary Bauer 33621 N. Hampshire

Dennis Martell. 18620 Filmore 48152

Gini Krenz 34075 Pembroke 48152
18313 STAMFORD 48152

Lewis J. Krenz

Edmund Kozal 11790 JARVIS 48150

Jill Pavlat 33130 Curtis 48152

Sally Rowe 19200 Antago 48150

DEBRA Wheelock 18741 Lathes 48152

Greg & Charly Gould Cary Ln 48154

Frank & Doris 30920 RAYBURN 48154

Barbara Dave St. Clair 17730 Fairfield 48152

Diane Pietrzyk 18692 Goddard 48152

PAT & DACEY HALLMAN 15137 RIVERSIDE ST 48154

Linda Summers 14647 Bainbridge 48154

Susan Flotley 14621 Riverside 48154

Libbie Ann Jari 31523 Merrimack 48152

BRUCE TENNISWOOD 34921 BRACON LIVONIA 48150

Chris Fernitz 11141 Garden Livonia 48150

Robin Bosak 18380 Leeward Livonia 48152

Margot McCormack 30616 Cooley Rd Westland 48152

Margaret Innis 34105 Burton Ln. Livonia 48154

Linda Marchant 16239 Riverside, Liv. 48154

MEETING: PUBLIC SAFETY AND HEALTH COMMITTEE

DATE: MONDAY, JUNE 19, 2023

TIME: 7:00 PM

NAME

DEPT OR CONTACT INFO FOR
NOTIFICATIONS*

*PERTAINING TO THE SUBJECT
MATTER OF THIS MEETING

MARTHA PTASNIK	
BRIAN CULLTON	
Sheila Malkowski	
PAULA SUCHANEK	35369 Banbury
CHERYL CHAMPINE	35200 Banbury Ct.
Conni SPOKA	17499 DORIS Liv.
Melissa Wogner	20445 Hubbard Liv
Diane Buden	
Jim Beebe	14050 Stark
Roger + Ellen Stacey	19474 Polkanna
Valerie Burton	29748 Puritan
Susan Nye	35016 Bristol Ct.
DAVID SMITH	15382 COMSTOCK ST.
Jeff + Kristin Davis	15130 Padernewski
DAVE LUMLEY	14954 GARY LANE 48104
GLORIA DEARNED	14072 STARK RD 48154
ERIK KUSZYNSKI	37734 PICKFORD DR
A. SOCIA	19263 GILL RD
P. MALO	35164 Scone St. Liv.

CLAUDETTE ELAM	27545 BENTLEY
BONNIE MOTTIA	14632 Bainbridge
Deb Christiansen	LIVONIA 48150
John MORRISON	35364 CURTIS
Susan MORRISON	" "
Laurie Phelps	18355 Loveland
Deb Stoner	18505 Loveland
Bernie Weiss	14265 Norman
Cheryl Mandville	17271 Lathers
Andrea Masters	17275 Lathers
Annette Wojcik	30449 Barkley
FRED & LAURA MCGEE	17435 BROOKVIEW DR.
Diane Peters	35260 Schoolcraft
PHYLLIS NOFZ	16399 BELL CREEK LANE
DEBBIE RAIS	17343 FRANCAVILLA
Donna McGeorge	17940 Fairfield
Jim McDonald	16859 BILLYANNA
Irene Grysiwicz	16112 Burton Ct
GARY McCristow	14217 Livonia Crescent
Susan Nash	Clerk
LARRY BERNHARDT	14744 FLEMING LN 48150
Christopher BAK	34620 Northland Dr. Livonia 48152
Craig R. Juedstodt	19099 FAIRWAY Liv. 48152
Tom Birchler	17309 Doris Liv 48152
Lori Miller	11788 Farmington 48150
Math Colby	34570 N. Main CT. Livonia 48152
WILLIAM RAMROTH	15561 FOCH ST. LIVONIA, 48154

From: [Paul Walters](#)
To: [Donovic, Rob](#); [Mayor Maureen Miller Brosnan](#); [CityCouncil](#)
Cc: [Leadership Staff](#)
Subject: Re: Management of Deer Population
Date: Monday, June 19, 2023 6:44:08 PM
Attachments: [CitySeal100x100_8f7d9122-2022-4a3b-86d9-f05a096c6a3c.png](#)
[Livonia-Logo-250_2521acb0-d42c-429b-900f-b59ac98c1049.png](#)
[SocialLink_Facebook_32x32_15fe2196-de42-486f-ac8c-bd89c9da8fd7.png](#)
[SocialLink_Twitter_32x32_a844deab-cb87-48f2-9175-647012b70cfe.png](#)
[SocialLink_Youtube_32x32_9b8afb50-3b86-4678-b53d-7e423a9d8771.png](#)
[Covote Stats.docx](#)

Attached is the data in regard to calls for service involving coyotes over the last five years.

Sgt. Paul Walters
Traffic Services Bureau
Livonia Police Department
734-466-2107

From: Donovic, Rob <rdonovic@livonia.gov>
Sent: Monday, June 19, 2023 5:39:30 PM
To: Mayor Maureen Miller Brosnan; CityCouncil
Cc: Leadership Staff; Paul Walters
Subject: Re: Management of Deer Population
Hello,

Thank you for sending all of this very detailed information—an hour and a half before a very important meeting. I appreciate all of the dedication and detail oriented work done by city staff to better inform us. Unfortunately, we can't research it minutes before a meeting.

Thank you



Rob Gjonaj Donovic
Council Member
City of Livonia | City Council
(734) 466-2254
rdonovic@livonia.gov
www.livonia.gov



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From: Mayor Maureen Miller Brosnan <mayor@livonia.gov>
Sent: Monday, June 19, 2023 5:23:08 PM
To: CityCouncil <CityCouncil@Livonia.gov>
Cc: Leadership Staff <LeadershipStaff@Livonia.gov>; Walters, Paul
<paul.walters@livoniapd.com>
Subject: Management of Deer Population
Good afternoon,

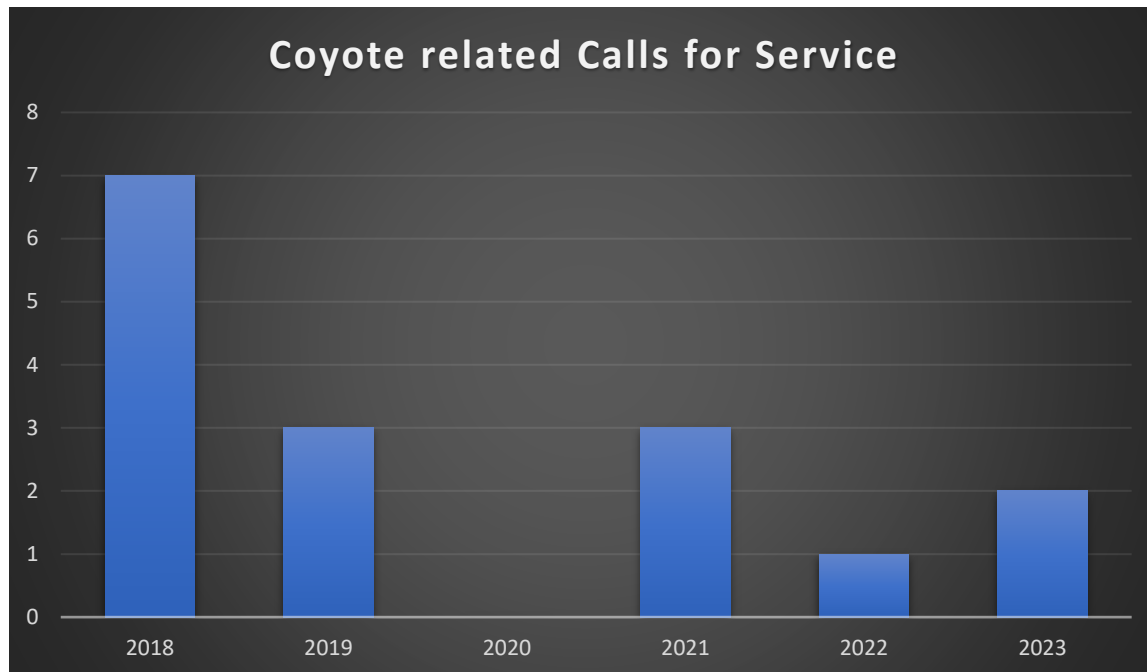
Please see the attached letter and correlated correspondence.

Best,

Maureen Miller Brosnan
Mayor
City of Livonia | Mayor's Office
(734) 466-2201
mayor@livonia.gov

This message is intended only for the use of the individual or entity to which it is addressed, and may contain information that is privileged, confidential, and/or exempt from disclosure under applicable laws. If the reader of the message is not the intended recipient, or the employee or agent responsible for delivering the message to the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone and/or reply to this e-mail message. Thank you.

Livonia Police Department Coyote Statistics 2023



Reason for CFS:

2018- Deceased x3, Seen/Concerned x4

2019- Deceased x1, Seen/Concerned x2

2020- None

2021- Seen/Concerned x3

2022- Seen/Concerned x1

2023- Seen/Concerned x2

Only CFS of interest relating to a possible coyote related attack.

CFS #230018956

On 05/06/2023 at 0748 hours, PO Garcia, PO Naumovski and I, PO Alghazaly were dispatched to Seven mile and Hillcrest for a coyote running around chasing the caller and also possibly bit her dog. Upon arrival, I observed the coyote running around on 7 Mile and Purlingbrook. PO Garcia attempted to apprehend the coyote by providing it treats with no luck. I drove back to LPD to obtain a dog stick to attempt to restrain the coyote with the dog stick. After multiple failed attempts on trying to apprehend the coyote, I decided to deploy my taser cartridge Serial Number: C620DATDC in attempt to not run away from officers anymore and hurt nearby civilians. The taser deployment took effect on the coyote. I attempted to place the dog stick around the coyote's neck, but I was unable to sinch the rope around and it fled the location. The coyote took off east towards Doris and officers lost sight of it. ACO Polovich made the location in attempt to locate the coyote with no luck. While on scene officer's made contact with Cynthia Eckley. Eckley stated that she has had the coyote at her residence for a month. Eckley stated she found the coyote when it walked up to her residence and has had it since then. Eckley stated she had a DNA test done on the coyote because she believes it is a mixed dog.

OFFICE OF THE MAYOR

MAUREEN MILLER BROSINAN
MAYOR



33000 CIVIC CENTER DRIVE
LIVONIA, MICHIGAN 48154-3097
mayor@livonia.gov
(734) 466-2201

June 19, 2023

TO: Public Safety and Health Committee Meeting of the Livonia City Council

RE: Culling, management of Deer Population

Council Members:

As part of this upcoming committee meeting, we are providing you with some data and information regarding the deer population and issues related to it in Livonia.

Overall, there is a sense that the deer population has been increasing and we have data that supports that.

Police, Sanitation data

For example, a Livonia Police Department report (*see attached*) shows that deer vehicle crashes, dispatches for deer issues, and calls for dead/injured deer in 2022 (the last full year) were significantly higher than previous years. So far, 2023 looks to have similarly high numbers.

Another data point focusing on deer/vehicle crashes in the LPD report shows that Livonia's numbers are generally below some neighboring communities (Farmington Hills, Novi and Southfield), but higher than others (Dearborn, Plymouth, Westland, etc.)

Since DPW took over Sanitation last year (first quarter of 2022), the City recorded 205 calls for dead deer. So far this year, we have 115. All of those dead deer are collected by GFL Environmental. Unfortunately, previous years' records are not available from GFL or our paper records.

SEMCOG survey

The interest in Livonia's deer population seems significant, based on social media. When Livonia Today shared a link to the SEMCOG Deer Survey in September of 2022, the reach was 30,729, including 56 shares. In total, 755 comments were recorded on the initial post and the shares – and those reactions were mixed between initiating a cull and leaving the deer population alone.

The survey was conducted in October and November of 2022 and had only 12% of the 13,526 respondents from Wayne County. Overall, 60% of survey takers believed the deer population had increased in the last three years.

City Ordinances

Neither the Zoning Ordinance nor the Code of Ordinances addresses anything specific to deer. However, there are ordinance provisions in Code Section 6.01.510, that ban hunting and trapping, and 6.01.530, that ban ground feeding. These would be applicable to deer.

Per section 6.01.530, it is unlawful:

to feed any wild animal, whether directly or indirectly, or place or permit placement on the ground, any fruit, berries, grain, vegetables, nuts, salt or other edible material or bait which may reasonably be expected to feed wild animals.

Additionally, Section 6.01.510 provides that:

It is unlawful for any person, at any time, to hunt, trap, or ensnare any animals, [except] for ... use of a live trap any animal thereon for the purpose of live release thereafter.

Requests for action

The Mayor's Office has received 3 complaints a year identified as deer overabundance/nuisance during 2021 and 2022, whereas by June of this year, we've received 6 such calls.

Similarly, requests for "Deer Crossing" signs have been higher: 2 in 2021, 6 in 2022, and 4 over the first half of 2023. Those recent requests were in neighborhoods.

However, the Traffic Commission has not approved any new signs in recent years, though there are several in place near parks and on main roads. The threshold to add a sign is based the number of deer/vehicle crashes in a year.

Neighboring communities

Some communities have taken specific action, including Ann Arbor, which used sharpshooters to kill a certain number of deer from 2016-2020.

That community, along with Farmington Hills and Rochester Hills, have tips and suggestions on their websites, focusing on plants that can repel deer, co-existing with deer and other ideas.

Southfield voters approved an advisory measure in November 2022 calling for the city to reduce the community's deer herd by humane, lethal means. If a deer cull were allowed, the city intends to donate meat, when deemed safe and where feasible, to local food banks and similar organizations. Any culling would require the approval of the Michigan Department of Natural Resources. Southfield is still weighing their options and will have to budget for whatever they decide to do.

Coyote data

This report has focused largely on deer. However, over the last seven years, Livonia has averaged about 19 calls to Animal Control a year for coyote. Numbers are fairly steady and not increasing.

Calls per year have been:

- 2016 – 15
- 2017 – 18
- 2018 – 21
- 2019 – 24
- 2020 – 21
- 2021 – 16
- 2021 – 20

Thus far this year, the City has received seven calls.

Moving forward on the deer population

It should be noted that Livonia's deer population is part of a larger ecosystem that obviously moves from area to area. At this point, we believe that any solution deemed appropriate to try to reduce the herd should be a regional solution.

However, we are open to further discussion of the issue. If the Council is interested in participating in the conversation the administration is having on the issue of the deer population, we would ask for two Council members who would like to participate to volunteer through my office.

Sincerely,

A handwritten signature in black ink, appearing to read "Maureen Miller Brosnan".

Maureen Miller Brosnan
Mayor

Cc: Leadership Staff, Sgt. Walters
Attachment

Livonia Police Department



Departmental Correspondence

Date: 06/19/2023

Subject: Deer Related Incidents

To: Chief Goralski (through channels)

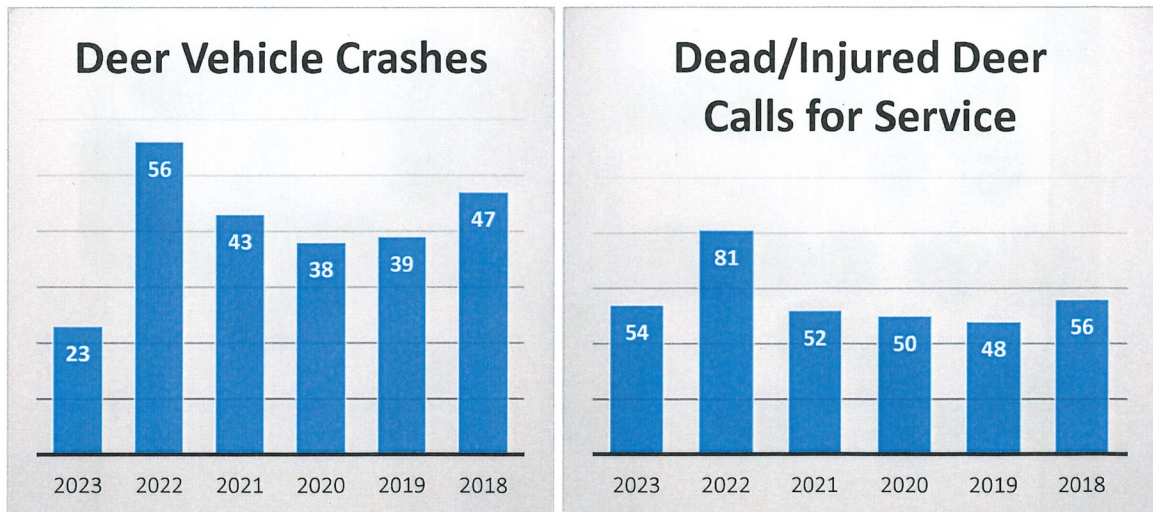
Dept: Administration

From: Sergeant Walters

Dept: Traffic Services Bureau

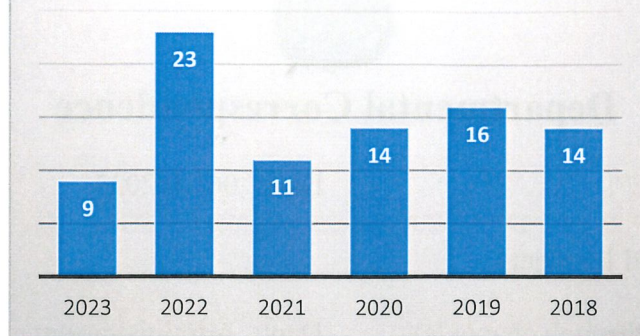
Sir,

I have compiled all of the data you requested about deer related incidents in Livonia. Below is a graph of all deer related traffic crashes over the last five years that occurred in Livonia. I also completed a Clemis search of all reports of dead or injured deer over the last five years. This was performed by a narrative search using the keywords: deer, dead, injured and is displayed in the graph below.

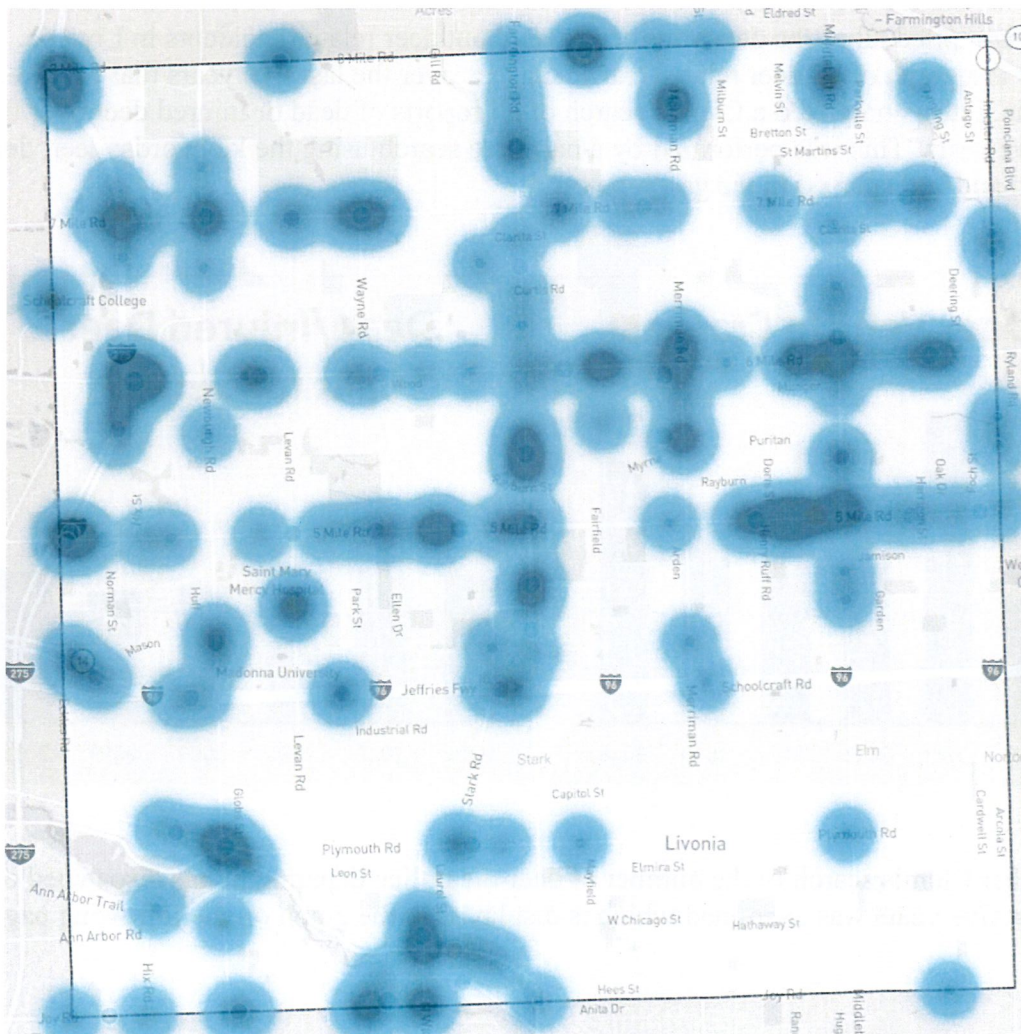


A further Clemis search of the number of deer the police department has dispatched over the last five years was examined which is displayed in the graph on the following page.

Deer Dispatched by Livonia PD



Below is a cluster map of all deer related traffic crashes that have occurred in Livonia over the last five years. The darker the area indicates a higher volume of incidents in that area.



Since the city of Livonia is debating about joining the Urban Deer Management Coalition, I checked the traffic crash data over the last five years comparing our deer related crashes with the neighboring cities. Below is a chart of all deer related traffic crashes over the last five years sorted by the city they occurred in.

	Canton Twp	Dearborn	Dearborn Heights	Farmington	Farmington Hills	Garden City	Livonia	Northville Twp	Novi	Plymouth Twp	Redford Twp	Southfield	Westland
2018	34	7	4	4	119	1	47	30	82	31	5	69	15
2019	37	7	5	8	116	1	39	44	68	34	3	50	24
2020	42	14	5	5	92	0	38	32	87	23	3	50	19
2021	68	14	4	4	125	1	43	29	109	36	2	67	29
2022	64	10	4	5	122	2	56	29	104	42	3	64	23
2023	21	1	2	3	43	1	23	11	30	13	1	20	5

Based on the data, it is apparent Livonia has a large deer population, however, we appear to have less deer related vehicle crashes than cities to the north of us. The data also does show a spike in deer related incidents in 2022 and by the end of 2023 we will know if there is an upward trend of deer related incident in our city.

Respectfully submitted,

Sergeant Paul Walters #665
Traffic Services Bureau

Incl.:
cc:

From: noreply@civicplus.com
To: [CityCouncil](#)
Subject: Online Form Submittal: City Council Inquiries
Date: Monday, June 19, 2023 9:26:44 AM

City Council Inquiries

This form is for any questions, comments, or concerns you may have for the City in regards to city council meetings or other city council inquiries. If you leave contact information, the City will reply within 2 business days. If this is an emergency, please dial 9-1-1.

First Name	Ewa
Last Name	Kedzierska
Address	20310 Mayfield
Email Address	ewalicja1@gmail.com
Phone Number	3139294434
Topic	Other City Council Inquiry
Date of Issue	6/19/2023
Attachment (Optional)	<i>Field not completed.</i>
Comments	Please distribute to pertinent members of the Public Safety and Health Committee and those invited to attend today Monday 19th June 2023 for CR 329-19 concerning opinions available concerning culling and management of deer and coyote populations. 1. The City of Livonia is a City and as such cares for the health and safety of its residents. Deer and coyote populations have grown out of proportion in the city and should be managed. Deer have become a nuisance as well as the coyotes. I have nothing against deer but as the numbers are so large - Not in my back yard! 2. A suggestion is a strong campaign in the City to make residents aware that feeding and "looking after" deer should not be done - difficult to enforce but an awareness campaign goes in the right direction. Also, bird feeders should be in places where the deer cannot reach them as they are easy pickings! 3. Ease up on ordinance, restrictions, on back yard fencing. On my street 10 houses with long back yards and fencing would not prevent the deer jumping them but would probably discourage them and hopefully push them back into the wild park and river that they normally would live in. 4. Distributing the "pill" could help prevent new fawns

5. Culling - deer are clever and in Ann Arbor have learnt not to gather in the parks where the culls take place and the problem there has not been ameliorated. Suggestion - cull in one area at a time - I and my neighbours would be happy to stay indoors or away for a day if an organized cull took place in our back yards. In one day at least 20 deer walk through our yards, many have been born in our area and that's why they keep coming back.

6. I cannot walk barefoot or even in shoes in my back yard due to the droppings, of which there are many - this is unhealthy, deer do carry some disease as well as ticks which are dangerous. It is an unpleasant and I won't start about the damage the deer do to all of our yards by eating every plant in sight! Deer are not afraid of "us" and do attack.

This is a difficult situation which has been ignored for too long and I look forward to some resolution from the City.

Thank you,

ewa kedzierska

313 929 4434

6/19/23

Email not displaying correctly? [View it in your browser.](#)



LETTER TO THE LIVONIA CITY COUNCIL

1.

Council Office
May 17, 2023

MEETING DATE

PSH061923/R071023

PREPARED BY

Sara Kasprowicz, Council Office Manager,

AGENDA ITEM

Subject matter of what options are available concerning the culling and management of the deer and coyote populations in the city. (CR 329-19)

BACKGROUND DETAILS

At the Regular Meeting of September 29, 2019, Councilmember Scott Bahr requested the subject matter of what options are available concerning the culling and management of the deer and coyote populations in the city be referred to the Public Safety, Health and Environment Committee.

PREFERRED COUNCIL RECOMMENDATION/RESOLUTION (Please complete this field. Attachments are not to be used in lieu of the recommendation)

To discuss subject matter as presented

ATTACHMENTS

1. R092319 Subject matter of deer and coyote in the City CR 329-19 (MISC)

APPROVED BY

AUDIENCE COMMUNICATION

Councilmember Bahr stated that at the August 26th, 2019 meeting he offered the subject matter of culling and management of the deer and coyote populations in the City of Livonia to the Public Safety, Health and Environment Committee, and that he failed to get support on the motion and is now reiterating his request.

On a motion by Bahr, supported by McIntyre, and unanimously adopted,
it was:

MISC

Subject matter of what options are available concerning the culling and management of the deer and coyote populations in the City of Livonia.

(Refer to the Public Safety, Health and Environment Committee)

#329-19 RESOLVED, that upon the motion by Councilmember Scott Bahr, seconded by Councilmember Kathleen McIntyre, at the Regular Meeting held September 23, 2019, regarding the subject matter of what options are available concerning the culling and management of the deer and coyote populations in the City of Livonia, the Council does hereby refer this item to the Public Safety, Health and Environment Committee for its report and recommendation.

AUDIENCE COMMUNICATION (Regular Meeting of September 23, 2019)

Motion by: Jolly

Seconded by: Kritzman

ROLL CALL:

Ayes: Jolly, Kritzman, Bahr, White, McIntyre and Toy

Nays: None

Absent: Meakin



LETTER TO THE LIVONIA CITY COUNCIL

2.

Council Office
September 10, 2024

MEETING DATE

COW091824/R100724

PRESENTED BY

AGENDA ITEM

The subject matter of a proposed responsible contractor ordinance. (CR 241-24)

BACKGROUND DETAILS

At the Regular Meeting Minutes of July 15, 2024

On a motion by President McCullough, supported by Councilmember Budzinski and unanimously adopted, it was:

#241-24 RESOLVED, that upon the motion by Council President Brandon McCullough, seconded by Councilmember Carrie Budzinski, at the Regular Meeting held July 15, 2024, the Council does hereby refer the subject matter of a proposed responsible contractor ordinance to the Committee of the Whole for its report and recommendation.

PREFERRED COUNCIL RECOMMENDATION/RESOLUTION (Please complete this field. Attachments are not to be used in lieu of the recommendation)

To discuss the subject matter of a proposed responsible contractor ordinance.

ATTACHMENTS

1. R071524 Prop responsible contractor ordinance to COW CR 241-24

APPROVED BY

Regular Meeting Minutes of July 15, 2024

President McCullough passed the gavel at 7:26 p.m. He wished City Treasurer, Susan Nash, a happy birthday. He also announced the Public Hearing to be held on 7/22/2024.

On a motion by President McCullough, supported by Councilmember Budzinski and unanimously adopted, it was:

#241-24 RESOLVED, that upon the motion by Council President Brandon McCullough, seconded by Councilmember Carrie Budzinski, at the Regular Meeting held July 15, 2024, the Council does hereby refer the subject matter of a proposed responsible contractor ordinance to the Committee of the Whole for its report and recommendation.

President McCullough resumed the chair at 7:29 p.m.

<i>RESOLUTION REQUESTED BY COUNCIL PRESIDENT MCCULLOUGH (Regular Meeting of July 15, 2024)</i>

Motion:	McCullough
Second:	Budzinski
Ayes:	Donovic, Budzinski, Morgan, Toy, Jolly, Ptashnik, McCullough
Nays:	None
Absent:	None