



TO: Council President Michael Ari Mandelbaum and Southfield City Council

FROM: Southfield Wildlife Advisory Commission: Chairperson David Sheaffer, Secretary Jennifer Ormond, Commissioner Janelle Konstam, Commissioner Tiffany Gotcher, Commissioner Joel Milinsky, Commissioner Sarah Vermiglio

CC: Mayor Ken Siver, City Administrator Fred Zorn, and Deputy City Administrator John Michrina

DATE: April 11, 2023

SUBJECT: 2023 Report on Deer and Wildlife Management Recommendations

Attached please find the Southfield Wildlife Advisory Commission's 2023 Report on Deer and Wildlife Management Recommendations based on work completed since January 2021.

If the City Council decides to proceed with any of the deer management recommendations proposed by the Southfield Wildlife Advisory Commission, (SWAC), City Council approval and appropriation of \$25,000 for future deer management activities with the expectation that some options will require amendments to ordinances and potentially the retention of contractors to further develop and implement a plan.

**2023 SOUTHFIELD WILDLIFE ADVISORY
COMMISSION REPORT TO CITY COUNCIL ON
DEER AND WILDLIFE MANAGEMENT
RECOMMENDATIONS**



ACKNOWLEDGEMENT

The Southfield Wildlife Commission is thankful for the assistance and input provided by the employees of the City of Southfield and the feedback and input provided by the residents of the City of Southfield, all of which was essential to the creation of this report. The Commission would also like to thank Commissioner Emeritus Michele Merritt who had to resign before this report was finished, but who also made invaluable contributions to the work of the Commission and this report during her time on the Commission. The Commission is also grateful to all the experts, public servants, and interested individuals who offered their time and knowledge for the benefit of the Commission and the residents of Southfield.

Table of Contents

1.0	Executive Summary	Page 4
2.0	Commission Background and Overview of Work	Page 6
3.0	Public Engagement and Prior Commission Actions	Page 19
4.0	Southfield Data and Analysis	Page 23
5.0	Deer Management and Related Recommendations	Page 31
6.0	Bibliography	Page 36
7.0	Appendix	Page 38

1.0 Executive Summary

Since its first meeting in January 2021, the Southfield Wildlife Advisory Commission (SWAC or the Commission) has been at work gathering data and public opinion concerning deer and other wildlife management issues within the City of Southfield. Deer conflicts have been the primary focus of the Commission's work during these first few years. As a part of these efforts, the Commission has held public meetings at least monthly since, hosted a town hall, conducted multiple surveys, consulted with officials from MDNR and other wildlife management professionals, and representatives for Meridian Township, Ann Arbor, and Farmington Hills. The Commission has already assisted the City Council with enacting a "don't feed the deer" ordinance (No. 1748), increasing road signage during deer mating season, engaging with the new Oakland County Community Deer Coalition, and administering an advisory ballot question concerning lethal deer management.

Data collected since 2018 shows that the observable deer population in Southfield and Farmington Hills has been on an upward trajectory, but not all residents experience Southfield's deer populations in the same way. The highest density populations (often exceeding 20 deer per sq/mile) have been observed in the western and northern portions of the City, typically near the Rouge River corridor and the shared borders with Farmington Hills, Franklin, and Berkley. These areas also tend to be hotspots for complaints and human-animal conflict, while there have been fewer conflicts in other portions of the City where deer populations tend to be less dense. For many residents who have had their property damaged, landscaping ravaged, or peace and enjoyment disturbed, it is long past time for the City to remove some deer, even if these same residents generally enjoy Southfield's abundant wildlife populations and natural areas. But for residents who have not experienced direct conflicts with deer, surveys suggest feelings ranging from indifference to very strong opposition managing the deer population with lethal means. A deer-browse impact study commissioned by the City in 2017/2018 revealed statistically significant over-browsing of the monitored native plant species in all parks or natural areas that was studied. Since 2018, known deer-related car crashes in Southfield have ranged between 50 and 67 per year. Since 2018, the City has been averaging over \$25,000 per year for the pickup and disposal of dead wildlife (over \$34,000 per year if employee benefits are considered) and between \$3,000 and \$5,000 to survey the local deer population.

In September 2022, in anticipation of an advisory ballot question, the Commission and the Mayor hosted a deer management town hall, at which over 150 residents were able to hear presentations from and ask questions of the Mayor, the Commission, Dr. Courteau (the botanist who conducted a deer browse survey for the City in 2017/2018), and Chad Steward (a MDNR deer biologist). The focus of this town hall was to provide objective, scientifically supported information about deer, deer reproduction, the potential effects of deer overpopulation, and management options. *Of the 32,259 ballots cast for the advisory ballot question in November 2022, which represented about 41% of Southfield residents, 61.7% voted in favor of the City implementing a lethal deer management program with harvested meat to be donated to food banks and other*

organizations when possible.

The following recommendations are based on the Commission's work and consultations, the data gathered and reviewed, and public opinion, and they are also described in more detail at page 31-35 of this report:

- For any wildlife management program to be successful and well-received by the community, the City must make it a priority to communicate with residents consistently, transparently, and continuously concerning local wildlife and conflict minimization. These efforts should include, at a minimum, maintaining up-to-date information on the City's website and conducting a deer/wildlife town hall at least annually to share information and receive complaints/concerns. Residents have also expressed support for more educational materials and programs on how to foster harmonious human-wildlife interactions.
- The Commission recommends that the City create a position for and hire a qualified full-time employee who can dedicate a substantial amount of time towards supporting the City Administration, the City Council, and Commission on all local wildlife issues moving forward.
- The Commission recommends that the City establish wildlife habitat restoration and management programs to focus on restoring native Michigan plant life in nature areas throughout the city both on public and private property. Any such programs will need participation or input from planning, parks and recreation, and other departments.
- There was not majority support on the Commission to say that a deer cull is necessary, as a matter of public policy or biology, but a majority of members agree that there are areas of the City where population control could be justified. The Commission recommends that the City Council authorize the City Administration to solicit proposals for a lethal deer population control program in those parts of Southfield with the highest population density, inclusive of more detailed information about the annual and total cost of such a program. The City Council should appropriate \$25,000 in the 2023/2024 budget for the first year of such a program, with the expectation that Council will need to make the final decision of whether to implement such a program and that population control is a multi-year, longer-term commitment.
- The Commission recommends that while the City should continue to work with the Oakland County Community Deer Coalition and SEMCOG to try and find a regional solution to shared deer-related concerns, the City should not wait in perpetuity while residents continue to demand action. A regional effort is a desirable long-term solution, but such a solution is likely years away, if it ever materializes.

2.0 Commission Background and Overview of Work

On June 22, 2020, the City Council formed the Southfield Wildlife Advisory Commission (SWAC or the Commission) with the mission to develop and propose to the Council a wildlife program to ensure the safety, health, and welfare of the residents and visitors to the City of Southfield. A copy of the resolution forming the Commission is attached as **Appendix 1**. As successful wildlife management requires a multidisciplinary and inter-governmental approach involving residents, the Commission was directed to, at a minimum:

- a) Actively seek out and receive input from residents and others with concerns regarding wildlife in the City of Southfield.
- b) Work collaboratively with individuals of all points of view regarding wildlife in the City of Southfield.
- c) Work collaboratively with wildlife commissions or similar organizations in nearby communities regarding wildlife in or near the City of Southfield.
- d) Work collaboratively with the Michigan Department of Natural Resources (MDNR) and other county, state, and federal entities responsible for wildlife management regarding wildlife in or near the City of Southfield.

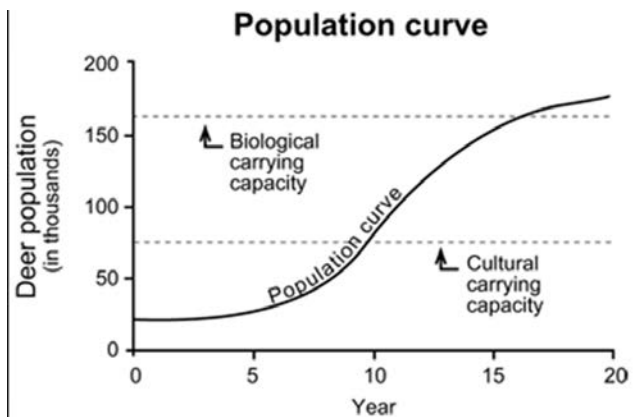
While the Commission's broad directive includes all wildlife matters within the City, the Commission has primarily focused on deer-related concerns during its first few years due concerns related to deer being the primary motivation for the formation of the Commission. Many vocal Southfield residents hold at least the perception that the Southfield deer population is getting too large and that the City is not doing enough about it. Along this vein, for years, residents (mostly homeowners) have reported concerns about deer damaging property, primarily to landscaping and gardens; causing vehicular accidents; perceived fearlessness of humans, and disease transmission. Property damage and vehicle accidents have been confirmed. While no evidence of health-related problems, such as chronic wasting disease or Lyme disease, have been reported in the Southfield area, residents have also expressed concerns about the potential for deer to spread diseases through ticks. Some parents have also expressed concerns about whether deer might be aggressive towards their children or pets, as well as concerns about deer feces making children or pets ill. A substantial portion of residential concerns with deer in Southfield seem to originate with residents living between Evergreen and Inkster Roads and 9 to 11 Mile Roads. These regions of the City are also among those in which the observed deer population density has been the highest.

In recent years there have also been concerns expressed about the seasonal increase in coyote sightings within the City. Most sightings have been after dark or around the dawn or dusk hours, but there have been some reports on the NextDoor app of coyotes attacking cats or small dogs near human residences or with humans nearby, but it is not clear how many of these reports have been verified. State law authorizes private landowners or a designee to eliminate nuisance coyotes without a license if the animal is doing or about to do damage to private property, pets, livestock, or humans. ([Link to MDNR Coyote Information](#)). Because it was deer related concerns that were the primary impetus of the Commission's formation and because there are already practical, legally permissible options for dealing with individual nuisance coyotes, coyotes were not a primary focus of the Commission's initial work.

2.1 Reasons For A Deer Management Plan

Management of a local wildlife population can be advisable when the animal population or its ecological impacts exceed the relevant biological carrying capacity or social carrying capacity. The *biological carrying capacity* is the maximum number of individuals in a population that a specific location can healthfully sustain, and a species' population size is typically limited by the availability of food, water, shelter, and mates.

The *cultural or social carrying capacity* can be thought of as the maximum number or density of species that humans in the relevant area are willing to tolerate based on the actual or perceived costs or benefits that the animal places on the relevant individuals or communities. *It is not unusual for the social carrying capacity for a particular species to be exceeded before the population exceeds the biological carrying capacity in an area.*

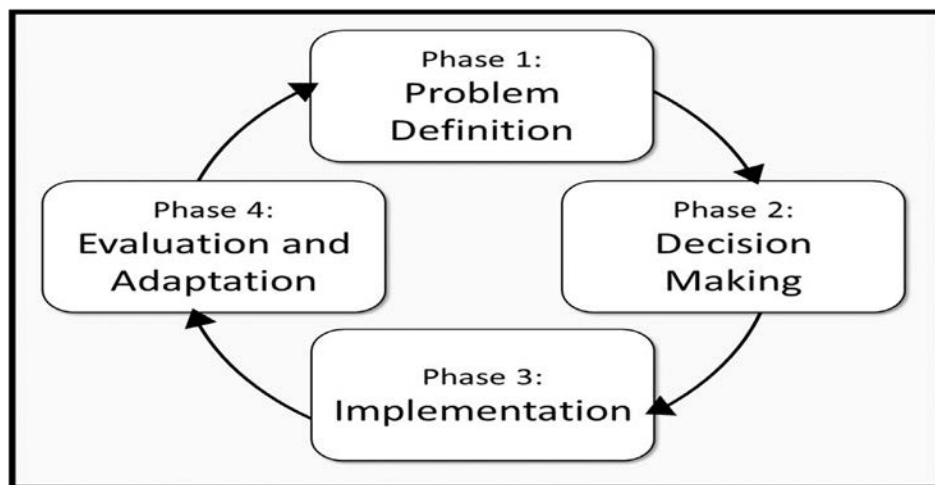


Southfield has white-tailed deer (*odocoileus virginianus*). The average lifespan of a white-tail deer is about 4.5 years (although the oldest known wild white-tailed deer was believed to be 19 years old). Female and male white-tailed deer reach sexual maturity around 18 months in age. Female deer (Does) typically give birth by age 2 and can produce one, two, or three fawns with survival rates as high as 87% in urban areas. Does remain fertile throughout their entire lifespan, and studies have shown that if left unchecked, deer populations can grow at an exponential rate through natural reproduction. A single male deer (a Buck) can reproduce with as many mates as it "wins" during the rut (October to December). Compared to "rural" or "wild" deer, deer in suburban

environments tend to have longer average lifespans, deer twins and triplets are born more frequently, and more than one deer fawn survives its first winter more frequently.

MDNR advises that 20 deer/square-mile in suburban areas is the advisable maximum density to ensure sustainable land use. MDNR further advises that Does generally remain within a ¼ mile core habitat area throughout most of the year. Bucks, however, have a much broader home range that could be several miles in diameter. Additionally, Bucks may travel many miles during the fall rutting season in search of mates. In natural environments, the average dispersal distance from the location of birth for young non-migratory Bucks ranges between 1.9 miles and 23.6 miles, with between 50% and 80% leaving their birth range within the first 1.5 years of life. However, habitat fragmentation across Michigan has more potential for human-deer conflict and fewer natural spaces for deer to reside away from humans.

MDNR recommends the following process for approaching community-based deer management:



A. Reasons the City of Southfield may want to consider spending resources to play a more active role in the management of the local deer population.

1. The City has documented numerous resident complaints concerning local deer.
2. The City has received numerous complaints of damage to personal property (landscaping/gardens).
3. A higher than desired number of deer/vehicle accidents exists within the city.
4. There is an increase of deer/human interface contact and an increase in habituation of deer in human environments. There have been concerns about nuisance

deer roaming into densely populated residential neighborhoods and whether deer might become aggressive towards children or pets.

5. There have been concerns about the potential for deer to carry and spread diseases (CWD, Lyme Disease, etc.) or pests (like ticks). Additionally, some residents have expressed concerns about the amount of deer feces on their property and whether this poses a health risk for children or pets.

6. In urbanized areas, remnant natural areas exist as fragmented landscapes. Deer may become highly concentrated in remaining greenspace that serve as habitat islands.

7. The City's parks and land preserves provide a variety of ecosystem services, such as: creating outdoor recreational opportunities for residents; protecting water quality and watershed management; and providing wildlife habitat. Overpopulation of deer or over-browsing by deer can disrupt the balance that is needed to preserve these habitats.

9. High deer populations may facilitate the introduction and spread of invasive species through preferential forage on certain native plant species and may serve as dispersal conduits along game trails.

10. Ongoing deer management through hunting or a cull is effective in reducing deer herd population density. If thinning the herd is coupled with habitat restoration and other habitat management activities, such efforts could be a useful component of the City's sustainability objectives and management of local parks and natural areas.

B. Reasons weighing against spending city resources on active deer management.

1. The lethal, or even non-lethal, management of deer has and will continue to be a polarizing social issue for City residents. At any given time, between 40% to 60% of residents may support or oppose such activities.

2. All population management programs are long-term commitments. Most management activities require 2 to 3 years to observe lasting impacts, and management activities generally must continue every 1 to 3 years, to be effective. Populations can rebound quickly if management is discontinued.

3. Deer do not respect municipal boundaries, and thus animals are likely to move between Southfield and other neighboring communities, such as Farmington Hills, Franklin, etc. Concerns have been raised about the effectiveness of management if neighboring communities with high deer numbers do not also engage in such activities.

4. Funds for deer management will likely be drawn from the general fund with few to no options for alternative funding, such as through existing grant programs.
5. Deer population management will not eliminate all deer-human conflicts.

C. Community-Endorsed Plan – Need for a Decision

A community-endorsed plan would define specific objectives and measures of success for deer management. Examples of objectives are to reduce damage to private property, protect public property, and reduce vehicle/deer collisions. Specificity would help guide how to accomplish the public policy goal of deer management. The plan would delineate the deer management area or areas and provide greater detail on the environmental damage caused by deer. The plan would recommend management methods and outline public safety considerations and requirements if lethal methods were recommended.

MDNR and staff responsible for deer management programs in other municipalities strongly recommend having broad public engagement as part of developing a deer management plan. Both online and public meetings would be utilized to receive community input, and public outreach should be an ongoing and continuous part of any deer management efforts. Over the past three years, the City has engaged in public outreach efforts, and it seems as though the time has come to decide whether to create and approve a plan that would remove deer from the local population.

2.2 Deer Management Techniques

Per Public Act 451 of 1994, the legal authority for the management of all wildlife species and populations in Michigan resides with the Michigan Department of Natural Resources (MDNR). At a statewide level. Under the [2016 Michigan Deer Management Plan](#), MDNR's guiding goals are: (1) Managing deer populations at levels that do not degrade the vegetation upon which deer and other wildlife depend; (2) Promoting deer hunting to provide quality recreational opportunities, as the primary management tool to achieve management goals, and as an important social and cultural activity; (3) Managing habitat to provide for long-term viability of white-tailed deer in Michigan while limiting negative impacts to the habitats of other wildlife species; (4) Reducing conflicts between humans and deer; and (5) Reduce the threats and impacts of disease on the wild deer population and on Michigan's economy. Thus, MDNR's management options focus on recreational hunting, habitat management, and disease control, with hunting, predation, car crashes, and natural death being the primary means of population control. A publication from the MDNR outlining different management techniques and the planning process, as well as providing a list of deer resistant plants is also attached as **Appendix 2**. The MDNR recommends the following minimum steps before taking any action related

to local deer populations: (1) monitoring deer-vehicle collisions, both in number and location, over time, (2) hiring a naturalist or botanist to survey/estimate deer impacts to natural areas, (3) recording complaints of landscape damage, and (4) surveying residents to express their opinions of deer within the community and conducting at least one public meeting to discuss the subject.

At the county and city level, both lethal and non-lethal methods are available for deer management. MDNR approval is needed prior to implementing a lethal management program outside the normal hunting season or reproductive-control management option. Some methods used or being considered in other states, such as certain forms of chemical contraception, are not currently approved by MDNR. [An Integrated Approach for Managing White-Tailed Deer in Suburban Environments: The Cornell Study](#) by Jason R. Boulanger, Paul D. Curtis, and Bernd Blossey, is an excellent base resource that provides insight into various management options, among other things. The consensus among experts and guides appears to be that a holistic, multi-faceted approach to deer management is best. Culling can help with population management and mitigate ongoing ecological damage, but it will not remedy past ecological harms unless combined with habitat restoration efforts. Educating residents and property owners about self-help behavioral or landscaping changes can minimize future animal-human conflicts.

<u>Management Technique</u>	<u>Pros</u>	<u>Cons</u>
<i>No Action or Response</i>	Could be perceived as a compromise; let nature take its course. Inexpensive for a municipality, however the “costs” associated with overpopulation will be borne by residents. If regional or joint-municipal action is preferred, this technique may be helpful as a temporary measure until other nearby municipalities decide how they are going to manage the growing deer population on a regional level.	Some will view this as “inaction” or unresponsiveness by the government. Any habitat degradation and conflicts that already exist will continue and potentially get worse until an equilibrium is reached through natural processes.
<i>Trap and Relocate</i>	Non-Lethal	Not approved by MDNR; not legal. Often cost-

		prohibitive. Studies have shown high stress for animals during transport and higher than average mortality after release. Not a viable option for the City of Southfield.
<i>Predator Reintroduction</i>	Recreates or intimidates natural ecological processes. Potential for low annual costs once natural predators are re-established and prey-predator equilibrium has been reached.	Not a viable option for the City of Southfield. Complex and cannot be performed at a purely local level, even if permitted by state wildlife management agencies. Could create different human-wildlife conflicts. May take many years to achieve balance between prey and predators.
<i>Regulated In-Season Hunting</i>	Low municipal cost because harvesting is performed by private citizens with the city administering local hunting activities. Licensing and administration primarily borne by MDNR with local administration if municipal lands are to be used for hunting. Excellent option for rural areas and areas with large swaths of publicly owned land. In urban/suburban areas, usually limited to archery.	Illegal under current City of Southfield ordinances. Likely not a viable option in Southfield due to the lack of large green spaces to support normal hunting. Requires large swaths of public land or more rural private land. Effectiveness for population control will vary with participation and success of local/regional hunters. Additional training/education of hunters and city staff will be needed for suburban hunting to ensure safety. Non-hunting residents could object and may raise safety concerns.
<i>Cull/Bait and Shoot - Non-hunting Season</i>	Highest efficiency within a few years of management. Moderate cost, although still expensive. Can be administered through	Costs vary depending on the contractor and nature of the hunt area. Non-hunting residents may object; there will be vocal

	<p>local/private partnerships or using private contractors or using local hunters with adequate training. Great safety record when implemented properly, usually with a shooting proficiency test and other education of hunters. Works best with naive deer herds that are unfamiliar with hunting.</p>	<p>dissenters. Public education needed to alleviate safety concerns. Requires annual or biannual population control and ongoing financial commitment to ensure long-term effectiveness. Long-term effectiveness can be somewhat dependent on deer immigrating from outside city limits.</p>
<p><i>Capture and Euthanize</i></p>	<p>Likely the most humane of lethal management techniques and effective.</p>	<p>Higher cost than a cull due training and equipment needed to capture deer prior to euthanasia (often with chemicals). Usually requires contracting with a government agency or private company. With chemical euthanasia deer meat cannot be donated. Always controversial, there will be vocal dissenters in any community.</p>
<p><i>Capture and Sterilize or Chemical Contraception</i></p>	<p>Humane and non-lethal. Low mortality for both sterilization and contraception. Can be effective as cull/bait and shoot if continued for multiple years. Very effective for high density residential areas and isolated deer populations.</p>	<p>Moderate to high cost per animal and requires special permitting and licenses. Does not immediately remove deer, which may be the problem, and takes several seasons to have measurable impacts. Surgical sterilization is cheaper than chemical contraceptives. Must use trained contractors. Requires treatment every few years to ensure effectiveness. Increased liability concerns for municipalities or contractors due to the</p>

		need to capture deer. Not all chemical contraceptives are currently approved in Michigan. Legislature previously imposed a freeze on issuance of licenses from MDNR, but law has not been reenacted since its sunset in 2018 or 2019.
<i>Deer-Resistant Planting; Fencing, Chemical Repellents, and Landscaping Changes</i>	Low municipal costs; self-help. Makes specific properties less attractive as habitat or food source in the short- and long-term. Repellants can be effective short-term options. Fencing effective long-term options.	Passes costs onto residents and thus is not immune from income disparities. Unlikely to resolve overpopulation or over-browsing issues in the short-term. Less effective with desperate animals. Some commonly recommended deer-resistant plants often are not native to Michigan; the City can recommend but not require the planting of native vegetation.

[An Integrated Approach for Managing White-Tailed Deer in Suburban Environments](#) recommends that communities begin population management activities before unwanted impacts become excessive. If deer are in the community now, they will likely be many more in a few years. Expenses can be saved, and negative impacts prevented by managing proactively rather than reactively. Long-term success of a deer management program should not be measured solely by resident response and the size of the local deer herd; rather, the City should set objective goals based on ecological and other indicators that can be assessed over time to validate the effectiveness of the program and to guide changes as needed. Whatever approach is taken should include continued assessment of conditions and periodic reports to residents. Local residential support for the program will be essential, because once started, deer management activities must be maintained over time to remain effective.

2.3 Other Michigan Cities/Organizations' Management Practices

The past actions of other municipal and governmental actors were surveyed to help frame potential options for Southfield.

The City of Ann Arbor operated a deer population control program from 2016 to 2020 as a four-year research project. The program is no longer active, but information relating to the prior programs, public education, non-lethal deterrents, and deer resistant gardening are still available online. In 2017, the city's deer population, as spotted by helicopter, was 214 within city limits (315 total). In 2020, using the same survey method, the city's deer population was 137 within city limits (214 total). This represents approximately a 53% reduction within city limits. The Ann Arbor program was unique in that it combined lethal management (sharpshooters) with surgical sterilization; although, sterilization only occurred in a specific study area that consisted of more densely populated suburban environments that were not suitable for effective lethal management. Lethal removal was capped at a maximum of 150 animals per year, but the actual figures were usually closer to 100. As to sterilization, the per year counts were: 55 in 2017, 19 in 2018), and 7 in 2019. In 2020, the sterilization program was suspended after the legislature passed a bill freezing sterilization permits until at least 2022. The contract predicted that if the non-sterilized deer in the sterilization study area were permitted to reproduce in 2020 to 2021, then population levels could approach pre-management levels in 2-3 years. No human safety issues were reported, and no animals died during the sterilization procedures. According to the final 2020 report at pages 20 to 21:

The overall cost of the sterilization effort was \$159,815.26, over four years, resulting in a 49% reduction in deer within the 2.8 mi¹ area of the SSA and NSA. Sharpshooting efforts cost \$255,800.49, over the four years, resulting in a 58% reduction in deer over an 8.3 mi² area outside of the northern and southern surgical sterilization areas (Wards 1 and 2). While the generalization could be made that it cost 2-3 times as much to sterilize deer as to sharpshoot (e.g., cost per area for similar outcome), this would not accurately portray the nuance of the situation. There are very few options to manage deer in areas like the SSA. Small lot size, with relatively little open space, limits the areas where one can safely and discreetly operate with firearms and archery equipment. This development pattern, combined with a female deer population that exhibits strong philopatry, limits management options to trapping (either sterilizing or euthanizing) or remote anesthesia (either sterilizing or euthanizing) within the existing non-lethal areas. In hindsight, and as we predicted, if sharpshooting were applied exclusively surrounding the SSA, there would have been minimal, if any,

population impact inside the SSA. The population would have likely continued to increase from the initial population, given the documented recruitment rates and relative mortality. This constraint will continue to apply to any lethal management approach, including hunting.

The University of Michigan culled 50 deer from a 300-acre forested area on its Dearborn campus in March 2022, reducing the on-campus population from 86 to 36. The cost of the 2022 cull was estimated to be \$20,000; it is not clear whether all the authorized funds were exhausted. Harvested meat was donated. Prior culls were in 2015 and 2018.

The City of East Lansing bans feeding deer. East Lansing administered a lethal removal program using USDA Wildlife Services biologists in 2021 and 2022. In 2021, 65 deer were removed from six locations over two nights in January. In 2022, 79 deer were removed from 7 locations over four nights in January. In 2022, East Lansing authorized up to \$19,500.16 for its Cooperative Service Agreement with USDA Wildlife Services, which was roughly the same as 2021. In 2021, the city only used \$6,000 of the authorized funds and the targeted animals were removed over just two nights. Harvested meat was processed through Michigan Sportsmen Against Hunger and donated to the Greater Lansing Food Bank.

The City of Jackson contracted with a wildlife management company to cull the deer population. Jackson used this method for at least eight years, with the last cull appearing to have occurred in 2016. The cull was done through a rifle hunt and over a nine-week period beginning in the middle of January. The city had a deer population density goal of 15 deer per square mile. During the first four years of the program 80 deer each year were culled, and after that it was about 50 to 60 deer per year. The meat was donated to local agencies. The annual cost was about \$12,000 in 2015, plus about 150 hours of staff time per year that was allocated to the deer management program.

The City of Muskegon approved a controlled cull of up to 30 deer by sharpshooters in January 2020. The cull took place in 2021; up to \$20,000 was approved for the cull, but the actual costs incurred were lower. It appears that the city did not authorize another cull in 2022. It also appears that the City Council voted down a measure that would have permitted bow or crossbow hunting within city limits.

Meridian Township has allowed hunting since 2011 and has data published online through 2021. According to the City's website, the program continued in 2022 and 2023, but data apparently has not been published online. Meridian Township's program started as archery only with no firearms allowed, but in 2020 and 2021 the township's police force performed a cull. For hunters, the township issues permits to individual hunters during the MDNR's archery season (October 1 to January 1). The police cull occurs out of season usually in January or February. The township pays for MDNR

permits. The township works with Michigan Sportsmen Against Hunger for hunters to donate the venison to local food agencies. In 2021, the initial goal was to harvest 300 deer; archery hunters harvested 130 deer and police harvested another 200. The police cull resulted in 6,110 lbs. of donated venison; enough to provide 24,400 meals. The annual cost of managing the program has historically been under \$20,000 (including staff time, securing permits, holding archery workshops, producing maps, etc.). Deer-vehicle accidents decreased by over 20% during the first 10 years of the program.

Oakland County, through its Parks department, has conducted recreational deer hunts on park properties since 1990. The public may bow hunt during the regular hunting season. Oakland County Parks establish safety zones of 450 ft from any occupied structure and define shooting lanes. In some parks they allow muzzleloaders and shot guns and close the parks completely to the public. The county's firearm deer management program has been on pause since 2018 due to a bait ban and other logistical concerns.

The Huron-Clinton Metroparks, in 2022, used sharpshooters to remove 330 deer from seven parks. About 9,567 pounds of venison was harvested, and the Metroparks Authority donated meat to food banks. This program is planned to continue through 2026.

2.4 Potential Partnerships

The City of Southfield and the City of Farmington Hills have both been engaged in an ongoing dialogue with other cities as a part of the Oakland County Community Deer Coalition that was formed in late 2021. That coalition has also been in communication with MDNR and the Southeast Michigan Council of Governments (SEMCOG). These discussions are in the very early stages. Preliminary results of a regional online survey are noted in Section 3.0 of this report. The hope is to work towards a regional management plan and solutions to help all communities in the area deal with concerns relating to deer. However, no comprehensive plan has been created and it is unclear how any regional effort would be funded. Any local efforts to directly reduce deer population levels will require collaboration and coordination with the MDNR for permitting, licensing, and administration. The group Michigan Sportsmen Against Hunger has offered to help to pay for processing and distribution costs if the City moves forward with a hunt or cull.

Some local golf course owners have informally expressed interest in allowing their property to be opened for deer hunting/culling activities. A few local hunters have expressed interest in helping with any city-administered archery hunt. Other potential, but thus far unengaged, partners or collaborators include the Oakland County Parks and Recreation Department, the Michigan Humane Society, and the Michigan United Conservation Clubs.

2.5 Cost Estimate and Logistical Concerns

There are different cost, logistical, and liability concerns for each active population management option, and all are multi-year commitments. All options require the closing of publicly owned lands for management activities, as well as potentially partnering with private landowners. Funding for a deer management program, unless provided by donation, would most likely come from the City's general fund; there is no known option to raise revenues for these activities using taxes or assessments. While there are numerous grant programs in Michigan and nationwide for wildlife habitat improvement, general ecological restoration, and wildlife monitoring and research, there do not appear to be grant programs that provide funding for deer population management programs.

Sharpshooting: About \$450 to \$750 per animal, plus staff time. The non-governmental contractor retained by Ann Arbor–White Buffalo Inc.–currently states on its website that costs can range from \$450 to \$750 per deer for sharpshooting and processing is an additional \$100 to \$125 per deer. Typically, all meat harvested is donated to area food shelters for distribution. In Michigan, there is the possibility of partnering with Michigan Sportsmen Against Hunger, who can cover animal processing costs and assist with distributing harvested meat to the needy. East Lansing appears to have spent about \$93 per deer under its 2021 agreement with USDA to use its sharpshooters, however, it is unclear how much staff time and city resources were burdened. Meridian Township has been able to keep its annual costs very low by utilizing local law enforcement as sharpshooters.

Managed Hunts: About \$200 to \$300 per animal, plus staff time. A managed hunt would be a cooperative arrangement between the City and local vetted, trained hunters to manage local deer populations. Archery is a discreet removal technique; however, it has lower success rates because limited shooting ranges may require a longer time frame of operation. Archery could be more likely to elicit a negative public reaction since archery is not typically immediately lethal, and some residents (especially nonhunters) would likely consider it inhumane. Firearms, when feasible, can be used to maximize efficiency. But, even if ordinances changes made it legal at a local level, the feasibility of firearm use by civilian hunters within City limits is questionable (and within the lower peninsula generally given states restrictions on rifle use for hunting). The non-governmental contractor retained by Ann Arbor–White Buffalo Inc.–currently states on its website that costs range from \$100 to \$200 per deer harvested depending on the manpower required and necessity of processing fees. The success or failure of a managed hunt program can hinge on the dedication and robustness of a local hunting population. Municipal costs could be offset by charging participating hunters a fee.

Fertility Control: About \$900 to \$1,500 per animal, plus staff time. There are two forms of fertility control: surgical sterilization and chemical contraceptives. Surgical

sterilization tends to fall on the cheaper end of the spectrum in the long run because only one treatment is needed for a female deer over her lifespan. The non-governmental contractor retained by Ann Arbor–White Buffalo Inc.–currently states on its website that costs can range between \$900 and \$1,500, but other sources suggest that some chemical contraceptive programs can cost as much as \$5,300 per animal over its lifespan; the higher figure appears to account for multiple treatments being needed (one every few years) to maintain infertility. State laws or regulations could be a limitation on this program. Ann Arbor previously had to put its surgical sterilization program on hold after the Michigan Legislature forbade the MDNR from issuing the required permits; that statute has since sun-setted. MDNR has informed the Commission that some of the chemical contraceptives on the market have not been approved for use in Michigan; and any deer injected with a chemical contraceptive must be tagged because the animal's meat is no longer considered fit for human consumption. Chemical contraceptives tend to be more effective on small, insular herds, whereas surgical sterilization can be effective for larger and less insular herds.

3.0 Public Engagement and Prior Commission Actions

While the Commission has met at least monthly since January 2021, public participation in those meetings has been very low and few public comments were submitted directly to the Commission. Therefore, the Commission pursued several additional avenues to solicit input from the public. The reasons for this are simple. All other communities that have considered active deer management, all MDNR and private experts, and all academics who the Commission has consulted with, as well as all published guides that have been reviewed have emphasized the need to include the public throughout the decision-making process. The Commission spoke with MSU Professor Alexa Warwick, who assisted East Lansing with the public outreach and planning side of its program; she emphasized the need for clear, consistent, and ongoing public engagement. [An Integrated Approach for Managing White-Tailed Deer in Suburban Environments](#) similarly advises that ongoing public support is critical for any wildlife management program, but especially for population management as the activities must be ongoing overtime to be effective.

Online Resident Survey: In Spring 2021 the Commission conducted an anonymous online survey that was promoted through the City's social media accounts and newsletter. The survey asked about demographic factors, residents' past experiences with wildlife, residents' concerns and perceived problems, and residents' views on wildlife related values and expectations. A total of 226 people responded to the survey, although not all respondents answered all questions. The survey and the tabulated results are attached as **Appendix 3**. Key findings included the following:

- Of 226 residents, 96% of respondents were homeowners with 71% having lived in the same home for 11+ years.

- Of 223 residents, 50% reported personal negative wildlife experiences, 27% reported no personal negative experience, but 23% reported they may or may not have had personal negative experiences, but the benefits of local wildlife outweighed the challenges.
- Of those who reported negative experiences, 71% identified damage to landscaping/property as the biggest concern (compared with 57% overall), and they identified the most problematic species as follows: deer (76%), woodchucks (55%), skunks (40%), and raccoons (33%). 130 respondents reported that they had already tried one or more self-help options to mitigate conflicts with wildlife.
- Of 223 residents, as to their overall opinion as to the negative impact of wildlife on residents, 34% checked not problematic, 28% checked slightly problematic, 21% checked moderately problematic. Many residents shared unspecified concerns about the risk of diseases, fleas, or ticks.
- Of 224 residents, as to their overall opinion as to the beneficial impact of wildlife on residents, 35% checked highly beneficial, 27% checked moderately beneficial, 21% checked slightly beneficial.
- Of 216 residents, 73% opined that the City should take a “more active role in wildlife management.” As to deer population management, residents were split with about 60% of respondents supporting both birth control and a cull. Note that the suggestions to support population management were made with no specific information as to associated costs or methods.
- As to future City actions, 68% supported an ordinance banning the feeding of deer and other wildlife, 70% supported programs to educate residents about deer resistant landscaping, 91-93% supported improving and restoring vegetation in local natural areas and better roadside vegetation maintenance, 97% supported public education on coyote behavior, 85% supported more signage and reflective warnings in locations where wildlife frequently crosses roads.

2021 Report to Council: Between June and August 2021, the Commission made its initial report to the City Council, which included the results of the previously described survey. The Commission recommended further study of local wildlife concerns before any decision be made on population management, however, the Commission supported continuing the annual aerial deer count survey, increasing public education and the online availability of online education resources, increasing deer crossing signage in roadkill hotspots during the rut, and looking into a no-feeding-wildlife ordinance. In September 2021, the Commission’s chairperson gave the same presentation as a courtesy to the Lathrup Village City Council. The Commission has made its membership available to speak with and present to any local organizations or homeowners’ associations who have requested a meeting.

No Feed Ordinance: Between December 2021 and January 2022, the Commission worked with the City Attorney and City Administrator to draft and propose a no-feeding-wildlife ordinance to dissuade residents from feeding deer, to avoid creating a public nuisance, avoid further desensitizing wild animals to humans, and to bring local rules into alignment with MDNR regulations. The City Council approved [Ordinance 1748](#) on March 7, 2022, and approved language is now located at Section 9.90, Feeding Deer Prohibited, of Chapter 113, Animals, of Title IX, Police Regulations, of the Code of the City of Southfield.

In Spring 2022, the Commission determined that an advisory ballot question would be an effective way to broadly gauge the support for a lethal deer population management program. The Commission worked with the City Attorney to draft language for an advisory ballot question, which was approved by the City Council for placement on the November 8, 2022, ballot.

Town Hall: Prior to the November 2022 general election the Commission held a Deer Herd Reduction Advisory Ballot Question Town Hall on September 22nd in the Southfield Public Library Auditorium to provide Southfield residents with detailed information pertaining to the current number of deer estimated in Southfield as well as potential herd reduction possibilities. The goal of this meeting was to provide residents with information in a neutral capacity. The event included welcoming remarks from Mayor Siver followed by a Wildlife Advisory Commission overview and activities update by Wildlife Chair David Sheaffer. Chad Stewart, Michigan DNR Deer & Elk Program Specialist, provided a presentation on the Ecological & Biological Aspects of Deer & Deer Management in addition to Plant Ecologist Dr. Jacqueline Courteau's presentation on the Impacts & Interactions of Deer on the Ecosystem, including the results of the study that Southfield hired her to conduct in 2017/2018. Copies of the town hall presentations Chad Stewart, and Dr. Courteau are attached as **Appendix 4A and 4B**. The town hall concluded with a Deer Herd Reduction Advisory Ballot Question overview provided by the Wildlife Commission as well an opportunity for questions from the audience. *At least 136 residents attended the Town Hall, which was also recorded and made available online and on Cable 15.*

An additional component of the September 22, 2022, Town Hall was a volunteer, anonymous written audience survey conducted by the Commission. The survey asked attendees to indicate their residence on a gridded map of Southfield, to select from four reasons for attending the Town Hall, to select from four responses concerning deer-caused property damage and the proper response, and to provide additional narrative comments. The survey questions, answers, and tabulated results are attached as **Appendix 5 and 6**. Of the 136 attendees who completed a survey:

- Most respondents resided in areas west of Telegraph Road.
- 60.4% reported attending due to concerns about the negative impact of deer on residential property, and 23.1% reported having mixed feelings about the same impacts.
- 71.3% reported having personally suffered property damage due to deer and believed that the herd needs to be reduced, and 7.8% reported no personal damages but still believed that the herd needed to be reduced.
- 13.9% reported having personally suffered property damage due to deer but did not want the herd reduced, and 7% reported no personal damage and did not want the herd reduced.

Ballot Question: The advisory question on the November 2022 general election ballot asked the following:

Do you support the reduction of the deer herd in the City of Southfield by humane, lethal means with the intent to engage local partners and ensure that donation of meat, deemed safe and where feasible, is made to local food banks and similar organizations?

Of the 32,259 residents who cast a vote for or against the advisory ballot question, 61.7% voted yes, indicating their support. This was a robust turnout for a back-of-the-ballot question during a midterm election. The 61.7% in support of the advisory ballot represents a majority opinion of residents who voted, but only 41.3% of the City's population cast a ballot for this question. Prior to the Town Hall meeting, there was an error printed in a local newspaper, on two separate occasions, stating that Southfield had 80 deer per square mile, which is not accurate. It is not known if this information influenced voters on the advisory ballot question.

2022 Oakland County Community Deer Coalition: In late 2021, several communities in Oakland County, including Southfield and Farmington Hills, formed a coalition that has partnered with the Southeast Michigan Council of Governments (SEMCOG) and MDNR. The motivating purpose was to develop regional solutions to the rising deer-related complaints and concerns from residents. Representatives from the Commission have attended some of these coalition meetings, but because the meetings often occur during normal working hours, most volunteer commissioners have not been available.

As a first step, the Coalition partnered Cobalt Community Research to conduct a survey to gather data from residents and business owners throughout Oakland County. The survey ran from October to November 11, 2022, and received 13,526 valid responses, with the most coming from zip codes in Farmington, Franklin, and West Bloomfield. As of the writing of this report the results of the survey had yet to be made

public, but the Commission was given a preview. Some general observations can be shared, as they demonstrate that residents across the tri-county area are divided on these issues and share many of the same concerns.

- As to *perceptions* about the local deer population over the past 3 years, 59% of respondents believed the population had increased, 29% believed it had stayed about the same, 7% believed it had decreased, and 5% said they did not know.
- As to *feelings* about deer, 38% enjoy seeing and having deer around, 39% enjoy seeing deer but have some concerns, 27% generally regard deer as a nuisance, 8% either had no particular feelings or checked the “other” category.
- The top themes in responses were: (1) fears about risks associated with ticks and tick-related diseases (Lyme disease) and auto accidents (although nearly 80% of respondents had not personally experienced an auto accident); (2) concerns about property damage (mostly landscaping and gardens), and (3) generalized concerns about overpopulation of deer. Less robust themes were concerns about ecological impacts from over-browsing by deer, aggressive deer, and declines in deer health.

4.0 Southfield Data and Analysis

As wildlife management decisions should not be based solely on public sentiment, the Commission has worked diligently to identify objective data points that could serve as useful indices for future wildlife management decisions.

4.1 Local Deer Population

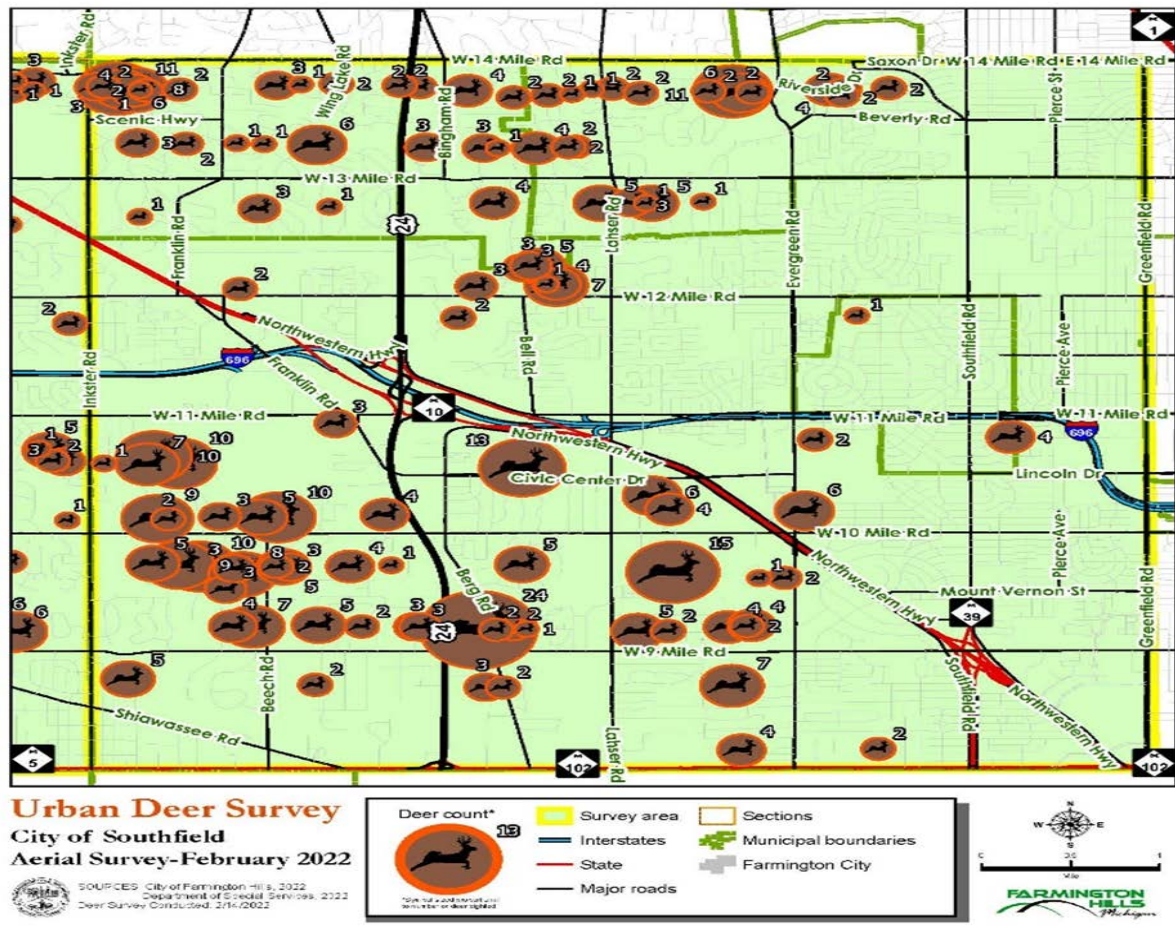
From 2018 to 2022, Southfield has collaborated with the Farmington Hills for an aerial helicopter survey of the deer population within and near Southfield and Farmington Hills. These surveys are performed in February and are dependent on favorable weather conditions and snow cover, and *DNR biologists have advised that aerial surveys tend to undercount rather than overcount.* No survey was conducted in 2023 due to a dramatic increase in costs, although weather conditions also were not suitable. Keep in mind that MDNR recommends no more than 20 deer/square-mile in suburban environments. A summary of the results follows.

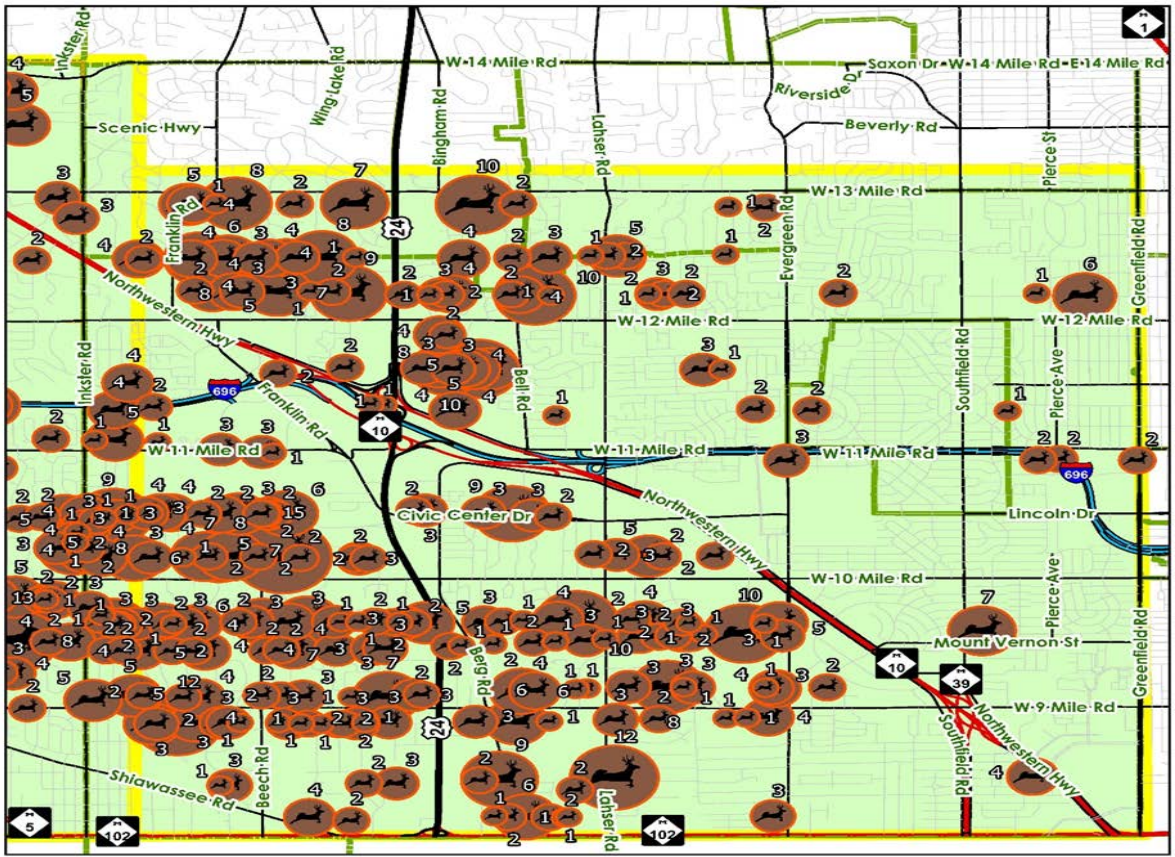
2022: 273 deer were observed within Southfield city limits or about 10.5 deer per sq/mile citywide

- There is a 5 square mile area located in western Southfield, near the Farmington Hills border, with an average population density of 38.6 deer per sq/mile.
- Two square miles of the area mentioned above have 48 deer per sq/mile, both are located along Inkster Rd., just east of Farmington Hills.
- **447** deer were observed within a larger 36 sq/mile – aerial survey area (12.4 deer per sq/mile) -- bordered by Inkster Rd, 14 Mile, Greenfield Rd, and 8 Mile.

- **520** deer were observed within the Farmington Hills survey area (14.4 deer per sq/mile) -- bordered by Haggerty Rd, 14 Mile, Inkster Rd, and 8 Mile.
- 2021:** **869** deer observed within "270 locations", which were primarily in Southfield with some areas being in Farmington Hills, just west of Inkster Rd. This represented an average of 33.4 deer per sq/mile; the reason for spike is unknown.
- 2020:** No survey conducted due to weather conditions.
- 2019:** **279** deer were observed within Southfield (10.7 deer per sq/mile); **447** deer were observed within Farmington Hills (12.4 deer per sq/mile).
- 2018:** **248** deer were observed within Southfield (9.5 deer per sq/mile); **379** deer were observed within Farmington Hills (10.5 deer per sq/mile).

Distribution Maps For The 2022 and 2021 Aerial Surveys





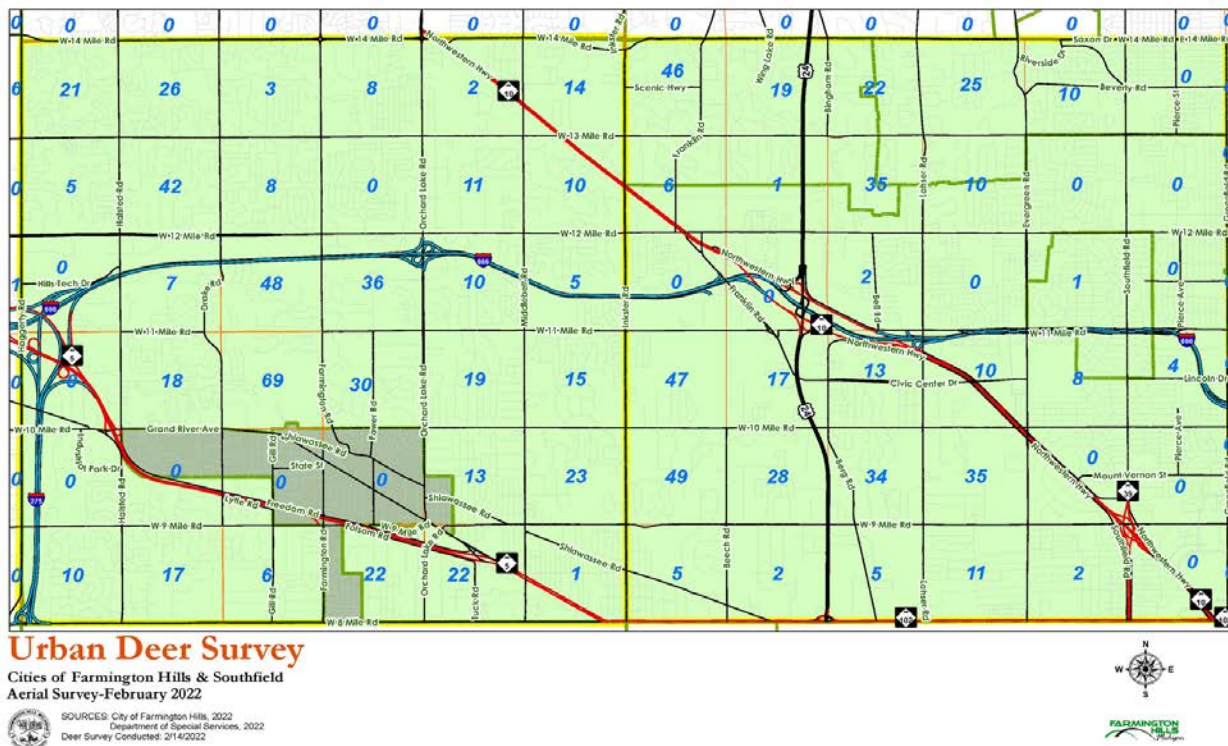
Urban Deer Survey

City of Southfield
Aerial Survey-February 2021

SOURCES: City of Farmington Hills, 2021
Department of Special Services, 2021
Deer Survey Conducted: 2/12/2021

Deer count*	Survey area	Sections
13	Interstates	Municipal boundaries
<small>*Symbol sized proportional to number of deer sighted</small>	State	Farmington City
	Major roads	

FARMINGTON HILLS
Michigan



Analysis: Except for an unexplained spike in 2021, the observed Southfield deer population has increased from 2019 but appears to have stabilized to some degree in the high 200's. However, the deer observed just across Inkster Road in Farmington Hills have steadily increased in number since 2019 and deer it is likely that deer are freely moving between Southfield and Farmington Hills. Deer are not evenly distributed in Southfield either. The majority of Southfield's deer herd appear concentrated west of Telegraph Road and north of 12 Mile Road, with numerous deer observed just outside of the Southfield city limits. In those areas of high concentration, observed densities often exceed 20 animals per square mile.

4.2 Known Deer-Vehicle Crashes

The number of *reported* deer-involved vehicle collisions in Southfield as reported by various agencies are in the following table.

Year	2018	2019	2020	2021	2022
------	------	------	------	------	------

Southfield Deer-Involved Car Accidents (MTCF - michigantrafficcrashfacts.org)	67	50	50	67	Not available yet
Oakland County Deer-Involved Car Accidents (https://semcog.org/traffic-crash-data)	5,958	6,552	6,277	6,441	Not available
Statewide Deer-Involved Car Accidents (Michigan State Police 2021 Report)	53,464	55,531	51,103	52,218	Not Included

Analysis: Reported deer-involved car crashes appear to be a moderate concern in Southfield. While deer-involved crashes are on the rise in Oakland County, the overall numbers in Southfield have remained stable with an average of 58.5 crashes between 2018 and 2021, but both 2018 and 2021 were on the higher end with 67 crashes. By way of comparison, MTCF shows 74 drinking-involved, 17 motorcycle-involved, 19 pedestrian-involved, and 11 bicycle-involved crashes in Southfield for 2021. The Commission is not able to opine on whether this is too many crashes, but the number of crashes is closer to drinking related crashes than any of the other categories listed above.

4.3 Deer Related Municipal Expenses

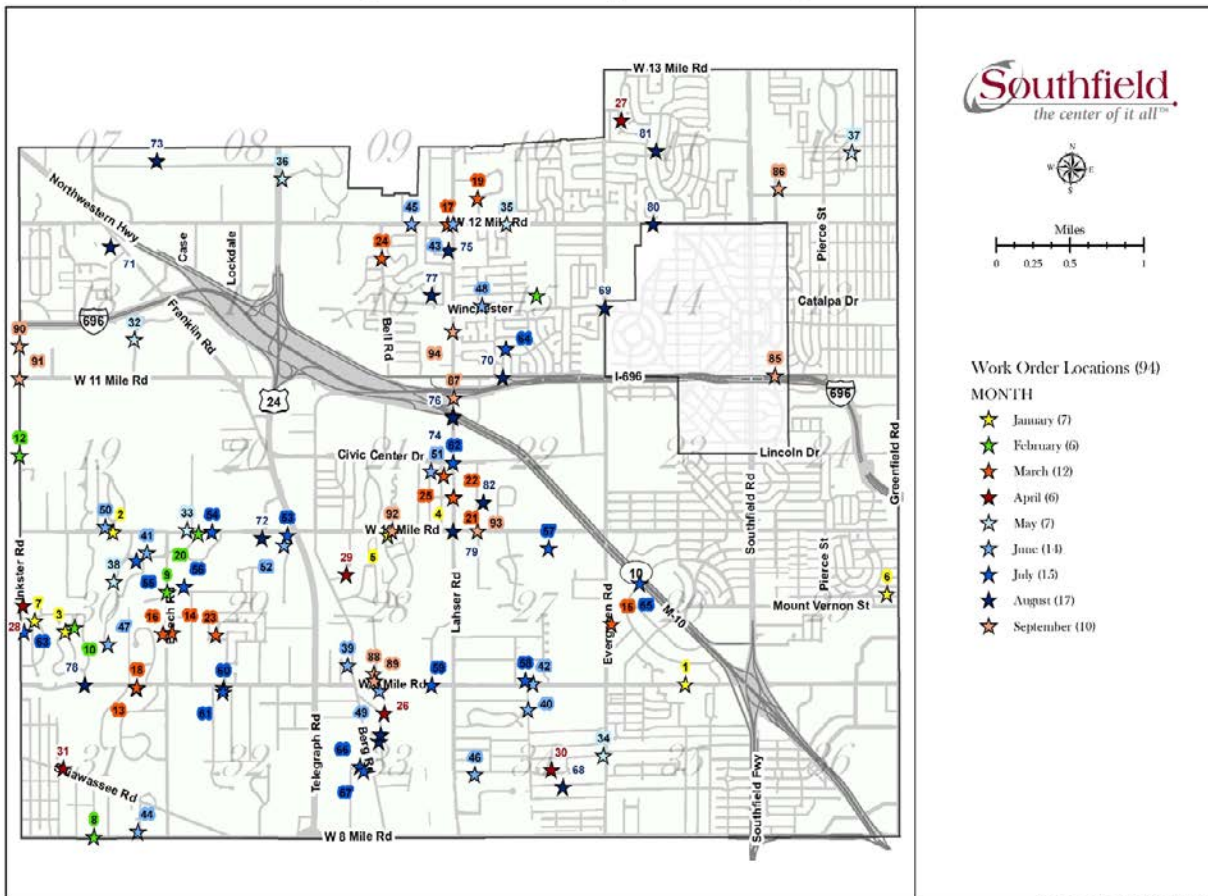
Southfield and Farmington Hills had conducted an aerial survey of the deer population in February since 2018. Southfield's share of the annual aerial survey has gone from about \$3,000 (2018) to about \$5,000 (2022). The aerial survey was discontinued in 2023 after costs to use the helicopter jumped from \$2,100/hour to

\$5,000/hour. Weather conditions in February 2023 would not have allowed for an effective aerial survey regardless.

Since 2018, the Southfield Department of Public Works (DPW) has been averaging over \$25,000 per year for the pickup and disposal of dead wildlife (over \$34,000 per year if employee benefits are considered). Each deer carcass pick-up requires about 1 hour of labor (often with two employees) costing the city about \$164.87, plus disposal costs. Between January and September 8, 2022, there were 94 deer carcass pick-up work orders processed by DPW (see 2022 location map below).

Year	2018	2019	2020	2021	2022
DPW Expense (including employee benefits)	\$38,071.36	\$34,906.41	\$42,454.03	\$66,277.74	\$55,561.19
Aerial Survey	\$3,000	\$3,000	No survey	\$4,000	\$5,000

Deer Pickup Locations: January 1, 2022 to September 8, 2022



Analysis: While not an insignificant expense, the current deer-related expenses for the City of Southfield are well under \$80,000 and represent a small portion of the City’s total annual budget considering that the anticipated 2022-23 general fund budget was just over \$86M, with personnel costs being about \$61.7M of the projected expenses. However, this when considered in proportion to the projected sanitation and streets & highways expenditures (\$3.095M and \$761k respectively) for 2022-23, the figure is more significant.

4.4 Health Concerns (Perceived and Potential)

Studies have shown that deer can carry Lyme Disease, Chronic Wasting Disease, and a form of the Covid-19 virus. There is no evidence that deer are playing a significant role in the spread of the Covid-19 virus. Between 2000 and 2020, there were only 111 cases of Lyme Disease reported in all of Oakland County; none originated in Southfield. There is no evidence of Chronic Wasting Disease (CWD), or transmission of other deer-

related diseases has been reported near Southfield, with one exception. There were reports of deer in the tri-county area dying from epizootic hemorrhagic disease (EHD), which is carried by midges, in Fall 2021, but this outbreak appears to have subsided, and there is no evidence that EHD can be passed to humans.

Analysis: Although many residents have expressed concerns or fears about the possibility of deer spreading diseases or tick-related diseases, there is no objective evidence that this is currently a problem in Southfield. Should this change, responsive actions might be warranted.

4.5 Deer Browsing Impacts on City Parks and Natural Areas

Between 2017 and 2018, Southfield hired Dr. Jacqueline Courteau, Ph.D., to study the impacts of deer browsing on vegetation in Southfield's parks (Carpenter Lake, Bauervic Woods, Berberian Woods, Lincoln Woods, and Valley Woods). Dr. Courteau presented her findings at the September 22, 2022, Town Hall, and her entire presentation, which includes the results of her study, are included as **Appendix 4B**. Her study revealed that 75% to 88% of woody plants in the study area had been browsed by deer (Lincoln Woods showed 57%), and between 40% and 72% woody plants had damage to half or more of the branches. Browsing of oak seedlings at >15% per year is likely to prevent oaks from regenerating, and thus, Dr. Courteau was able to infer that deer browsing was having an adverse effect on oak regeneration based on browsing levels of 40% or higher in all study areas. Dr. Courteau also observed heavy browsing of various native wildflowers (Trillium, False Solomon's Seal, Doll's-eyes, and Bladdernut). For example, with Trillium browsing of > 10-15% is likely to lead to population declines, and at all four sites where Trillium was observed, browsing rates were at 20% or higher.

Dr. Courteau opined that this deer browsing data matters for several reasons. Over-browsing of tree seedlings decreases survival rates and growth. This, in turn, decreases forest regeneration, which can be a particular concern for desirable Oak trees. If forest regeneration gets too low, this leads to "forest disintegration" which is effectively the conversion of a forest ecosystem to a different system that might be dominated by grasses, ferns, and sedges. This can lead to changes in ecosystem services like water quality and flood/erosion control, as well as changes or decreases in the system's carbon sequestration capacity, all of which can impact plant and animal species. Over-browsing of wildflowers can have similar impacts in that it reduces flowering and fruiting, which reduces reproduction, and overtime can lead to declines in the plant population. Wildflowers serve as direct or indirect food sources for many other species, including pollinators, songbirds, and small mammals.

However, Dr. Courteau cautioned that deer are one of many stressors on the ecosystem. Other stressors include habitat destruction & fragmentation, invasive species,

climate change, and acid rain. Over-browsing by deer can amplify other stressors in the system, which can make plants less able to recover and reproduce and lead to fewer desirable resources for other species overall.

Analysis: Dr. Courteau's study demonstrated that as early as 2017/2018 the deer population in Southfield was large enough that there were measurable concerns with over-browsing of desirable native plant species. The observations mirror the types of complaints received from residents about their gardens and landscaping (which are likely majority nonnative plants). From an ecosystem and habitat management perspective, the Southfield Parks Department likely does not want to see native plant species in its parks and natural areas replaced, over time, with invasive species. However, reducing the number of deer in the City will not reverse the course unless there are additional efforts to remove existing invasive species and replant/repopulate desirable native species. The study also suggests that additional protective measures could help to shield desirable tree seedlings from browsing. No follow up research has been done. If the City moves forward with deer population management, it would be worthwhile to conduct another baseline browse survey and a post-reduction survey to help measure whether population control efforts are having a noticeable positive impact on the City's parks and natural areas.

5.0 Deer Management and Related Recommendations

The Commission presents the following recommendations with at least two goals in mind. First, the Commission wishes to present the City Council with options concerning residential concerns about the local deer herd over both the short- and long-term future. Second, the Commission wishes to provide the City Council with suggestions about how the City and the Commission might better serve residents going forward, at least regarding the interaction of residents and wildlife within the City.

It has been clear from the start of this process and through the present day that Southfield residents are divided in their views about the local wildlife population and how to manage conflicts between residents and wildlife. Members of the Commission are also divided. This is, and is likely to always be, a polarizing subject for residents. Southfield residents generally value and enjoy seeing the wildlife that makes this City its home. But many residents are also very frustrated by damage caused by the large numbers of deer in some parts of the City, and there are growing concerns about the perceived (but unconfirmed) increase in the number of coyotes. It has also become clear that there is a substantial amount of incorrect or inaccurate information on the internet concerning local wildlife matters, and the City can and should do a better job at providing or directing residents to accurate and scientifically find information. The Commission can help the City in this regard, but to do so, it will need more precise guidance and more consistent administrative support moving forward. Thus, the Commission presents the following

recommendations to the City Council, along with an explanation of why certain options are not receiving a direct endorsement.

5.1 Actions Recommended By Commission

- 1) No matter what other actions the City takes, the Commission recommends that the City make it a priority to communicate with residents consistently, transparently, and continuously concerning local wildlife and conflict minimization. These efforts should include, at a minimum, maintaining up-to-date information on the City's website, conducting a deer/wildlife town hall at least annually to share information and receive complaints/concerns, and conducting workshops with other partners (i.e., Southfield Parks & Rec, Local Gardener Clubs, Audubon Society, etc.). There is a strong desire among city residents for more educational materials and programs to help them learn how to better live in harmony with the local wildlife populations.
 - a) The City needs a more centralized mechanism for receiving resident concerns and complaints about local wildlife issues and disseminating that information to Council and the Commission. The City should conduct at least one town hall annually to update residents and listen to concerns.
 - b) Since January 2021, the Commission has provided a number of resources concerning deer-resistant plants, deer deterrents, landscaping tips, information about native and invasive Michigan plants and animals, and related wildlife materials to the City Communications department with the request that this information be used to populate the City's wildlife commission page in a similar manner as the Cities of [Ann Arbor](#), [East Lansing](#), [Meridian Township](#), and others. The City Administration has not published a single piece of the provided information to the City's website.
 - c) The City should strive to speak with a unified and consistent voice as to local wildlife concerns. Neither the public nor the City are well-served if different departments, commissions, or elected officials are providing conflicting information to local residents or the media.
 - d) The City should investigate whether public funds might be available to assist lower income residents who own or rent single family homes to "deer proof" their yards as best as possible.
- 2) The Commission recommends that the City create a position for and hire a qualified full-time employee to dedicate a substantial amount of time towards supporting the City Administration, the City Council, and Commission on all local wildlife issues moving forward. The Commission consists of volunteers, only some of whom have training or experience in wildlife management or ecological principles, and the Commission has had no budget since its formation. Thus, the Commission's ability to study local wildlife issues and to act has been limited.

- a) Tasks for such an employee might depend on where they are housed, but responsibilities could include: (a) being a liaison between the City Administration, the Commission, and the City Council as to all complaints, concerns, and priorities concerning local wildlife and habitat improvement; (b) assisting the Commission and Council with setting wildlife priorities and drafting management plans; (c) administering any cull or hunting programs that the city might implement; (d) researching and applying for grants to fund wildlife management and habitat restoration projects.
- 3) The Commission recommends that the City establish wildlife habitat restoration and management programs to focus on restoring native Michigan plant life in nature areas throughout the city. Any such programs will need participation or input from planning, parks and recreation, and other departments.
 - a) The 2017/2018 studies from Dr. Courteau showed that even then local parks and natural areas were being damaged by deer over-browsing and the regeneration of native plant species was being impacted. If the City takes efforts to lower the local deer population, the City must simultaneously work to remove invasive species and replant native species if it hopes to repair pre-existing ecosystem damage to natural areas within the city.
 - b) A useful way to measure the success or failure of any population control efforts would be to perform a new baseline deer browse study pre-hunt or pre-cull and then again, each year or after a few seasons. Measurable decreases in over-browsing and increases in regeneration of desirable native plant species could be deemed and indicated of successful deer management.
 - c) While there are few, if any, grants available for wildlife population management, there are numerous state, federal, and other grants available for habitat restoration through the MDNR ([Link](#)), the federal government ([Link](#)), or national non-governmental organizations like the National Wildlife Foundation ([Link](#)).
- 4) There was not majority support on the Commission to say that a deer cull is necessary, as a matter of public policy or biology, but a majority of members agree that there are areas of the City where population control could be justified. The Commission recommends that the City Council authorize the administration to solicit proposals for a lethal deer population control program in Southfield, along with detailed cost estimates for the program. The City Council should appropriate \$25,000 in the 2023/2024 budget for the first year of such a program, but because a successful program requires a multi-year commitment, the Council may wish to delay commitment to such a program until the administration can provide a more detailed cost-benefit analysis based on actual proposals.

- a) While not all Commissioners support lethal deer management in principle, 61.7% of residents who voted in the 2022 general election supported some form of lethal management based on the response to the ballot question. Therefore, the Commission believes that the City Council should further explore this option and make the final policy decision.
- b) A majority of the Commission agrees that there are areas to the west of Telegraph Road, as well as north of 11 Mile Road, where the observed density of the deer herd exceeds MDNR's recommendation of 20 animals per square mile. Thus, while the local deer population does not appear to have reached its biological carrying capacity, there are areas where population management could be objectively justified.
- c) The city should solicit proposals and bids from both private contractors (like White Buffalo) and from the USDA division used by East Lansing to compare pricing. The founders of White Buffalo have published reports demonstrating that both lethal and non-lethal management techniques can be effective, although the latter is generally more expensive per-animal than the former. See **Appendix 7**. Ideally, these proposals should price out both a cull and of non-lethal management (such as sterilization or contraception) so the City Council can weigh the costs and benefits of each other. Use of a contractor would also be helpful given the need to coordinate with MDNR in developing and implementing a management plan, as well as licensing. Should the City move forward with a cull-type program, these activities would occur out of the normal hunting season pursuant to a special permit, most likely taking place in January or February.
 - i) The Commission is not opposed to non-lethal techniques, such as surgical sterilization or chemical contraception, but members are concerned about whether such programs are feasible from a financial perspective. Additionally, considering the prior Legislative ban on permits for these non-lethal methods in response to Ann Arbor's non-lethal deer management program, there is a risk that Southfield could face a similar response.
 - ii) Most Commissioners prefer hiring sharpshooter contractors over a locally administered hunt for liability reasons and due to a desire for a quick and humane dispatch of targeted animals. While not unanimous, a majority of commissioner's opposed a managed hunt using trained residents because of concerns that archery was a less humane method of dispatching a deer.
 - iii) The Commission unanimously rejected a trap and release program based on MDNR's advice that this generally is not legal in Michigan.

- d) The Commission unanimously agrees that if the City decides to move forward with a deer population control program, then the commitment should be for no less than 5 years, and all efforts should be made to entice the Farmington Hills to also engage in deer population control efforts over the same period to increase the effectiveness and efficiency of any efforts.
 - e) If the City moves forward with lethal population management, then the City should either reinstate the annual aerial population survey program or install trail cameras or other devices to estimate actual deer population numbers, in addition to monitoring habitat improvements, car crash data, and other metrics as ways to gauge the effectiveness of the program.
- 5) The Commission recommends that while the City should continue to work with the Oakland County Community Deer Coalition and SEMCOG to try and find a regional solution to shared deer-related concerns, the City should not wait in perpetuity. The Coalition's goals for a regional approach are laudable, but the project is also in its infancy and no such multi-community program currently exists in Michigan. No action plan has been disclosed, no commitment for support or funding from the state or counties have been provided, and no management plan has been drawn up. A joint regional effort is likely the most desirable long-term solution for Southfield and neighboring communities, but such a solution is likely years away, if it ever materializes.

6.0 Bibliography

1. Animal and Plant Health Inspection Service, U.S. Department of Agriculture. "Questions and Answers: SARS-CoV-2 Surveillance in Free-Ranging Deer and Other Cervids ." 2023.
2. "Apply for a Grant." *NFWF*, 14 Jan. 2021, <https://www.nfwf.org/apply-grant>.
3. Boulanger, Jason R, et al. *An Integrated Approach for Managing White-Tailed Deer in Suburban Environments: The Cornell Study*, 2014, <<https://deeradvisor.dnr.cornell.edu/sites/default/files/resources/IntegratedApproachForManagingWTDDeerInSuburbanEnvironments-28ax086.pdf>>.
4. City of Southfield. "Ordinance 1748." *Code of Ordinances*, Accessed 2022.
5. "Community Services." *City of Ann Arbor Deer Management*, <https://www.a2gov.org/departments/community-services/Pages/Deer-Management-Project-.aspx>.
6. "Coyote." *SOM - State of Michigan*, <https://www.michigan.gov/dnr/education/michigan-species/mammals/coyote#:~:text=If%20problems%20exist%20outside%20regular,pets%2C%20livestock%2C%20or%20humans>. Accessed 3 Apr. 2023.
7. *Deer Herd and Ecosystem Management Plan*, Huron-Clinton Metropolitan Authority, 2021.
8. "Deer Management Program." *Meridian Township*, <https://www.meridian.mi.us/community/living-with-wildlife/deer-management-program>.
9. "Deer Management." *Dearborn*, <https://umdearborn.edu/external-relations/key-issues/deer-management>.
10. "Deer Management." *Deer Management | East Lansing, MI - Official Website*, <https://www.cityofeastlansing.com/231/Deer-Management>.
11. "Deer Management." *White Buffalo Inc.*, <https://www.whitebuffaloinc.org/deer-management>.
12. Elliott, Emily Joan. "Ask Eli: What Is the Deer Cull Costing Taxpayers?" *East Lansing Info*, 9 Feb. 2023, <https://eastlansinginfo.news/ask-eli-what-is-the-deer-cull-costing-taxpayers/>.
13. "Financial Assistance." *FWS.gov*, <https://www.fws.gov/service/financial-assistance>.
14. Michigan Department of Natural Resources. *Managing Deer within Suburban Communities*.

15. Michigan Department of Natural Resources, Wildlife Division Report No 3512, 2016 *Michigan Deer Management Plan*. < https://www.michigan.gov/-/media/Project/Websites/dnr/Documents/WLD/Deer/mi_deer_management_plan.pdf?rev=19ecc9c9e4f046d2aa80bbf6d551f022>.
16. Michigan State Police. "2021 Statewide Traffic Crash Data Year End Report." 2021.
17. Mills, Jon. "Muskegon City Commissioners Pass on Hunting Season for Deer Inside City Limits." *WZZM13.Com*, 1 Oct. 2021, <https://www.wzzm13.com/article/news/muskegon-city-commissioners-pass-on-hunting-season-for-deer-inside-city-limits/69-82fc5c5f-84ec-468d-a001-5296f8227d0d>.
18. "Traffic Crash Data: Southeast Michigan." *Semcog*, <https://semcog.org/traffic-crash-data>.
19. Trapp, Theresa. *Deer Population Control Methods – Cost & Effectiveness Comparison*. Hilltop Conservancy, 16 Dec. 2012.
20. University of Michigan. *Michigan Traffic Crash Facts*, <https://www.michigantrafficcrashfacts.org/>.
21. Wagtendonk, Anya van. "Deer Cull by Sharpshooters Approved in Muskegon despite Some Citizen Opposition." *Mlive*, 14 Jan. 2020, <https://www.mlive.com/news/muskegon/2020/01/deer-cull-by-sharpshooters-approved-in-muskegon-despite-some-citizen-opposition.html#:~:text=MUSKEGON%2C%20MI%20%E2%80%93%20A%20controlled%20cull,at%20Kruse%20and%20Beachwood%20parks>.
22. Welle, Elissa. "5-Night Deer Cull Starts on University of Michigan-Dearborn Campus." *Detroit Free Press*, Detroit Free Press, 27 Feb. 2022, <https://www.freep.com/story/news/local/michigan/wayne/2022/02/26/deer-cull-university-of-michigan-dearborn-campus/6955631001/>.
23. White Buffalo Inc. *Deer Management Techniques: Surgical Sterilization*.
24. "Wildlife Habitat Grant Program." *SOM - State of Michigan*, <https://www.michigan.gov/dnr/buy-and-apply/grants/aq-wl/wildlife-hab>.

7.0 Appendix

APPENDIX 1

June 22, 2020

Honorable Mayor and Council
Municipal Building
Southfield, Michigan

Re: Formation of Southfield Wildlife Advisory Commission

Dear Sirs and Mesdames:

Background: Council viewed a presentation on Southfield wildlife at the May 18, 2020 meeting. There was a consensus from Council to form a Southfield wildlife advisory commission. The attached resolution is intended to initiate the formation of said commission.

This item was presented at the June 15, 2020 Regular City Council Meeting conducted as a Committee-of-the-Whole.

Fiscal Impact: No substantial financial impact is anticipated.

Recommendation: It is recommended that Council approve the proposed resolution establishing the Southfield Wildlife Advisory Commission.

If there is a consensus on this agenda item, it will be placed on consent agenda for the June 22, 2020 meeting.

Respectfully submitted,



Frederick E. Zorn, Jr., CEcD
City Administrator

FZ\JBM

Honorable Mayor and Council
Formation of Southfield Wildlife Advisory Commission
Page 2

RECOMMENDED RESOLUTION:

WHEREAS: Appropriate wildlife management is necessary to ensure the safety, health and welfare of the residents and visitors to the City of Southfield and of the wild animals within the City of Southfield, and

WHEREAS: Wildlife management requires a multidisciplinary and inter-governmental approach involving residents.

BE IT RESOLVED: That the Southfield City Council does hereby establish the Southfield Wildlife Commission.

BE IT FURTHER RESOLVED: That the commission shall consist of seven members who are residents of the City of Southfield and shall be appointed by council.

BE IT FURTHER RESOLVED: Members of the commission shall serve without compensation and may be removed for cause by the appointing authority. Any vacancy in office shall be filled by the city council for the remainder of the unexpired term.

BE IT FURTHER RESOLVED: That the terms of office of members of the commission shall be three (3) years, except that initial members of the commission shall be appointed for staggered terms with two (2) members appointed for one (1) year terms, two (2) members appointed for two (2) year terms, and three (3) members appointed for three (3) year terms, and

BE IT FURTHER RESOLVED: The commission shall elect a chairperson and secretary at its first meeting every year, which shall be held in January. At least five (5) members of the commission shall constitute a quorum for the transaction of business. The commission may adopt by-laws to outline the proper conduct and order of their meetings and the duties of the officers, and

BE IT FURTHER RESOLVED: The commission shall hold such regular meetings as it deems necessary and advisable; however, it shall generally hold at least one (1) meeting each month, and

BE IT FURTHER RESOLVED: The commission shall report its findings and recommendations to Council in a written report at least yearly in June of each year, and

NOW, BE IT FINALLY RESOLVED: That The commission shall be responsible for developing and proposing to Council a wildlife program within the city to ensure the safety, health and welfare of the residents and visitors to the City of Southfield and of the wild animals within the City of Southfield, and at a minimum shall:

Honorable Mayor and Council
Formation of Southfield Wildlife Advisory Commission
Page 3

- a) Actively seek out and receive input from residents and others with concerns regarding wildlife in the City of Southfield.
- b) Work collaboratively with individuals of all points of view regarding wildlife in the City of Southfield.
- c) Work collaboratively with wildlife commissions or similar organizations in nearby communities regarding wildlife in or near the City of Southfield.
- d) Work collaboratively with the Michigan Department of Natural Resources and other county, state and federal entities responsible for wildlife management regarding wildlife in or near the City of Southfield.

APPENDIX 2

Managing Deer Within Suburban Communities



Does your community have a deer problem?

One challenge for many community leaders is determining whether their community has a deer problem. In many situations, deer tend to impact certain neighborhoods more than others. This often causes varying opinions between residents on the local deer population. Community leaders should first begin by attempting to identify the level of impact within their community.

What is the best approach for your community to monitor local deer impacts?

It is important to focus on monitoring the impacts, rather than the number of deer within a community. Deer can have both biological impacts (ex. impact to forest health) and social impacts (ex. deer-vehicle collisions) within a community. Some items to consider monitoring to better understand the impacts of deer include:

- Monitoring deer-vehicle collisions, both in number and location, over time.
- Hiring a naturalist or botanist to survey/estimate deer impacts to natural areas.
- Recording complaints of landscape damage.
- Surveying residents to express their opinions of deer within the community.



For more information, visit mi.gov/deer



Managing Deer Within Suburban Communities



Once your community has decided there is a problem with deer, what should you do?

- Contact a local biologist to discuss available options. (Visit mi.gov/wildlife to find a list of wildlife biologists.)
- Cost effective and efficient methods are typically proposed as initial actions for communities to consider.
 - Fencing, repellents, prohibiting recreational feeding, and hunting are all options that are worth considering to mitigate deer impacts within your community.
- Review local ordinances that may contribute towards or alleviate deer conflicts.
 - Feeding can artificially concentrate deer in a small area. Ordinances that prevent feeding of deer may help alleviate some problem areas within the community.
 - Many solutions to resolving deer conflicts include removing the animals from the community. A review of ordinances that prohibit the discharge of firearms or archery equipment is prudent.

As a community, what else should be done?

- It is strongly encouraged that community leaders hold public meetings on the topic of deer management prior to any decisions being made.
- If your community wishes to pursue non-traditional techniques, such as sharpshooting, to address deer conflicts, a comprehensive plan will need to be developed and presented to the DNR for approval.



Managing Deer Within Suburban Communities



Lethal Management Considerations

Often, the best approach for long-term deer management in suburban areas is the implementation of lethal techniques, resulting in the immediate removal of deer from the population. If continued year-to-year, this approach can prove to be an effective permanent solution to suburban deer issues. Communities are encouraged to estimate support before beginning lethal removal, as these approaches can be controversial. Two of the most common practices are managed hunts and sharpshooting.

A managed hunt is a specialized hunt, generally with added restrictions, designed to meet the needs and objectives of communities. These limits may include limiting hunter numbers and equipment, restricting days or times to hunt, requiring shooting proficiency tests, and more. A managed hunt generally has some oversight within the community, as well as a reporting requirement to assist with safety measures. These hunts also require the purchase of licenses by hunters participating.

Sharpshooting, unlike a managed hunt, requires the deployment of experienced marksmen to quickly and efficiently remove deer from an area. This method is often employed where other methods are ineffective or in areas with limited access. Sharpshooting is typically done by using center-fire rifles. Compared to other deer management techniques, sharpshooting can be relatively costly, though remains highly effective in terms of number of deer removed over short periods of time.



For more information visit: www.mi.gov/deer



Managing Deer Within Suburban Communities



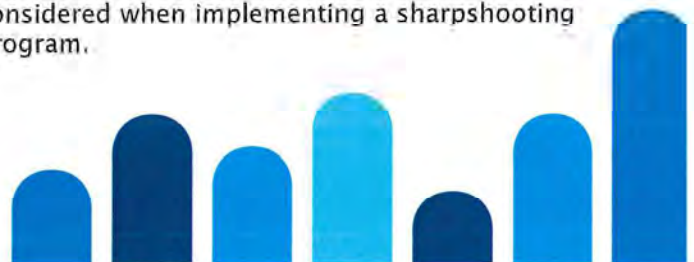
To help guide communities in considering each approach:

Managed Hunt

- A review of local ordinances and authority to implement hunting should be conducted.
- Hunts should be timed to coincide with statewide deer hunting seasons to increase efficiency and timeliness.
- A hunt manager should be assigned to oversee details of the program.
- Safety for participants and non-participants is the top priority during an urban managed hunt. Communities may want to limit equipment to short-ranged projectiles.
- It is recommended that some sort of proficiency exam be passed to verify the competency of the hunters participating.
- All hunters should participate in a brief informative session outlining the conditions or restrictions of participating in the hunt, the safety and visibility concerns of hunting within the community, overall conduct and appearance, etc.
- Hunt managers may wish to add restrictions to hunters that favor the taking of antlerless deer.
- Hunt managers may want to develop or adopt a liability waiver or form.
- Hunters should be assigned hunt locations and/or dates, depending on restrictions and program structure. It may also be prudent to inform landowners if private lands are involved.
- The hunt manager is encouraged to compile all relevant data to evaluate the success of the program and have this information publicly available for all to see and access.

Sharpshooting

- Safety is a top priority with deer removal, so a community hiring sharpshooters should pursue individuals or groups with a demonstrated safety record and proficiency.
- Sharpshooting with specialized equipment is authorized by permit only, issued by the DNR.
- Costs associated with sharpshooting are the responsibility of the permittee.
- Liability and safety of all sharpshooting efforts are the responsibility of the permittee.
- Donation of all venison from removed deer should be donated to local or nearby food shelters.
- Baiting to attract deer for removal efficiency can be permitted by the DNR.
- Conducting sharpshooting efforts in the winter is most likely to increase efficiency of removal.
- Humane euthanasia should be a priority. Deer shot in the brain are considered humanely euthanized by the AVMA, with cervical vertebrae and heart secondary options when safe head shots are not possible. Sharpshooters are encouraged to humanely dispatch deer.
- Equipment used for removal of deer should be powerful enough to humanely and instantly dispatch deer, while limiting safety concerns for community residents. Projectile size, frangibility, trajectory, and shooting locations should all be considered when implementing a sharpshooting program.



Managing Deer Within Suburban Communities



Planting Deer-Resistant Plants

Deer enjoy a variety of plants in their diet and tend to show preference for certain foods so long as they are available. Planting certain deer-repelling plants, while avoiding plants which are preferred by deer is one strategy to help reduce or eliminate landscape damage by browsing. These lists are meant to serve as a general guide when helping to aid landscaping decisions, but should not replace recommendations by local horticultural experts.

Trees, shrubs and vines that are seldom damaged by deer*:

Common Name	Latin Name	Common Name	Latin Name
Alder (Gray, Hazel)	<i>Alnus incana, Alnus serrulata</i>	Tamarack	<i>Larix laricina</i>
Serviceberry	<i>Amelanchier spp.</i>	Drooping Leucothoe	<i>Leucothoe fontanesiana</i>
Black Chokeberry	<i>Aronia melanocarpa</i>	Spicebush	<i>Lindera benzoin</i>
Pawpaw	<i>Asimina triloba</i>	Tulip Tree	<i>Liriodendron tulipifera</i>
Barberry	<i>Berberis spp.</i>	Magnolia	<i>Magnolia grandiflora</i>
Paper Birch	<i>Betula papyrifera</i>	Bayberry	<i>Myrica spp.</i>
Boxwood	<i>Buxus spp.</i>	Sweetgum	<i>Liquidambar styraciflua</i>
American Hornbeam	<i>Carpinus caroliniana</i>	Eastern Hop Hornbeam	<i>Ostrya virginiana</i>
American Bittersweet	<i>Celastrus scandens</i>	Spruce	<i>Picea spp.</i>
Eastern Redbud	<i>Cercis canadensis</i>	Japanese Pieris	<i>Pieris japonica</i>
Leatherleaf	<i>Chamaedaphne calyculata</i>	Pine	<i>Pinus spp.</i>
Dogwood	<i>Cornus spp.</i>	Aspen	<i>Populus spp.</i>
Hawthorn	<i>Crataegus spp.</i>	Locust (Black, Honey)	<i>Robinia spp.</i>
Russian Olive	<i>Elaeagnus angustifolia</i>	Elderberry	<i>Sambucus canadensis</i>
American Beech	<i>Fagus grandifolia</i>	Sassafras	<i>Sassafras albidum</i>
Ash	<i>Fraxinus spp.</i>	Elm	<i>Ulmus spp.</i>
American Holly	<i>Ilex opaca</i>	Arrowwood (Southern)	<i>Viburnum dentatum</i>
Mountain Laurel	<i>Kalmia latifolia</i>	American Cranberry Bush	<i>Viburnum trilobum</i>

* Certain species may prove more palatable within a specific genus

Trees, shrubs, and vines that are preferred and frequently damaged by deer#*:

Common Name	Latin Name	Common Name	Latin Name
Fir	<i>Abies spp.</i>	Honeysuckle	<i>Lonicera spp.</i>
Maple	<i>Acer spp.</i>	Magnolia	<i>Magnolia grandiflora</i>
Horse-Chestnut	<i>Aesculus hippocastanum</i>	Apple	<i>Malus spp.</i>
Barberry	<i>Berberis spp.</i>	Sweet Mock Orange	<i>Philadelphus coronarius</i>
Trumpet Creeper	<i>Campsis radicans</i>	White Pine	<i>Pinus strobus</i>
Dogwood	<i>Cornus spp.</i>	Cherry	<i>Prunus avium</i>
American Hazlenut	<i>Corylus americana</i>	Firethorn	<i>Pyracantha coccinea</i>
Smokebush	<i>Cottinus coggygia</i>	Bradford/Callery Pear	<i>Pyrus calleryana</i>
Bush Cinquefoil	<i>Dasiphora fruticosa</i>	Oak	<i>Quercus spp.</i>
Winged Euonymus	<i>Euonymus alatus</i>	Rhododendron	<i>Rhododendron spp.</i>
Forsythia	<i>Forsythia spp.</i>	Sumac	<i>Rhus spp.</i>
Witch Hazel	<i>Hamamelis virginiana</i>	Willow	<i>Salix spp.</i>
English Ivy	<i>Hedera helix</i>	European Mountain Ash	<i>Sorbus aucuparia</i>
Hydrangea	<i>Hydrangea macrophylla</i>	Lilac	<i>Syringa spp.</i>
Rose of Sharon	<i>Hibiscus syriacus</i>	Yew	<i>Taxus spp.</i>
Holly	<i>Ilex spp.</i>	Cedars/Arborvitae	<i>Thuja spp.</i>
Juniper	<i>Juniperus spp.</i>	Basswood	<i>Tilia spp.</i>
European Larch	<i>Larix decidua</i>	Hemlock	<i>Tsuga canadensis</i>
Privet	<i>Ligustrum spp.</i>	Viburnum	<i>Viburnum spp.</i>

* Certain species may prove more palatable within a specific genus.

List is not comprehensive. Other trees, vines, and shrubs may be frequently damaged by deer browsing.



Plants (flowers) that are seldom damaged by deer*:

Common Name	Latin Name	Common Name	Latin Name
Yarrow	<i>Achillea millefolium</i>	Lavender	<i>Lavandula spp.</i>
Monkshood	<i>Aconitum napellus</i>	Prairie Blazing Star	<i>Liatris pycnostachya</i>
Agrimony	<i>Agrimonia eupatoria</i>	Wild Lupine	<i>Lupinus perennis</i>
Wild Columbine	<i>Aquilegia canadensis</i>	Bugleweed	<i>Lycopus virginicus</i>
Milkweed	<i>Asclepias spp.</i>	Lemon Mint	<i>Monarda citriodora</i>
Butterfly Weed	<i>Asclepias tuberosa</i>	Mint	<i>Mentha spp.</i>
Blue Wild Indigo	<i>Baptisa australis</i>	Monkey Flower	<i>Mimulus aurantiacus</i>
Bluebeard	<i>Caryopteris spp.</i>	Bergamont	<i>Monarda fistulosa</i>
Lily of the Valley	<i>Convallaria majalis</i>	Bee Balm	<i>Monarda spp.</i>
Coreopsis	<i>Coreopsis spp.</i>	Daffodil	<i>Narcissus spp.</i>
Crocus	<i>Crocus sativus</i>	Catnip	<i>Nepeta cataria</i>
Larkspur	<i>Delphinium spp.</i>	Evening Primrose	<i>Oenothera biennis</i>
Common Foxglove	<i>Digitalis purpurea</i>	Pachysandra	<i>Pachysandra terminalis</i>
Purple Cornflower	<i>Echinacea purpurea</i>	Wild Quinine	<i>Parthenium integrifolium</i>
Rattlesnake Master	<i>Eryngium yuccifolium</i>	Beardtongue	<i>Penstemon spp.</i>
Joe Pye Weed	<i>Eutrochium purpureum</i>	Obedient Plant	<i>Physostegia virginiana</i>
Queen of the Prairie	<i>Filipendula rubra</i>	Christmas Fern	<i>Polystichum acrostichoides</i>
Fritillaria	<i>Fritillaria meleagris</i>	Heal-All	<i>Prunella vulgaris</i>
Geranium	<i>Pelargonium spp.</i>	Black-Eyed Susan	<i>Rudbeckia hirta</i>
Daylilies	<i>Hemerocallis spp.</i>	Spiraea	<i>Spiraea japonica</i>
Bluebell	<i>Hyacinthoides non-scripta</i>	New England Aster	<i>Symphotrichum novae-angliae</i>
Hyssop	<i>Hyssopus officinalis</i>	Common Mullein	<i>Verbascum thapsus</i>
Spotted Deadnettle	<i>Lamium maculatum</i>	Yucca	<i>Yucca filamentosa</i>
Bleeding Heart	<i>Dicentra spp.</i>	Zinnia	<i>Zinnia elegans</i>

* Certain species may prove more palatable within a specific genus



Appendix 3

All items are suggestions / examples

Survey Purpose: Obtain information from Southfield residents regarding wildlife and related habitat restoration.

Survey Hypothesis: Half of the respondents will be individuals who are unhappy with wildlife related challenges, and want some form of municipal wildlife intervention.

Measurable Objectives:

1. Conduct a survey of all residents in the City of Southfield to obtain anonymous information about their demographics, wildlife knowledge, experiences, attitudes and expectations.
2. Statistically analyze survey responses to reach objectively based conclusions.
3. Use survey results as a basis for discussions by the Wildlife Advisory Commission for potential recommendations to the Southfield City Council.

Part A: Demographics

1. With regard to your current residence, please check **one** of the following:
 - Apartment or Attached Condominium Complex
 - Single Family Home
2. Which of the following is **most accurate** for your situation?
 - I currently own my residence
 - I currently rent my residence
3. Which of the following is **most accurate** for your situation?
 - Resident for 21+ years
 - Resident 11- 20 years
 - Resident 5 to 10 years
 - Resident 1 to 5 years
 - Resident 1 year or less
4. From the list provided below, with regard to your current residence and the **nearest major crossroads**, please check **one** of the following:
 - 12 to 13 mile, between Lahser and Greenfield
 - 11 to 12 mile, between Lahser and Greenfield
 - 10 to 11 mile, between Inkster and Lahser
 - 10 to 11 mile, between Lahser and Greenfield
 - 9 to 10 mile, between Inkster and Lahser
 - 9 to 10 mile, between Lahser and Greenfield
 - 8 to 9 mile, between Inkster and Lahser
 - 8 to 9 mile, between Lahser and Greenfield

5. To which of the following **age groups** does the owner or renter of your household belong?

- 18 – 30 years
- 31 – 40 years
- 41 – 50 years
- 51 – 60 years
- 61 – 70 years
- 71 – 80 years
- 81 years or more

Part B: Wildlife Knowledge

Which of the following animal species could you **easily, visually, identify?**

Check **all** that apply.

- Deer
- Coyote
- Fox
- Raccoon
- Opossum
- Groundhog (Woodchuck)
- Skunk
- Squirrels (Southfield has several different species)
- Chipmunk
- Rabbit
- Bats
- Hawks (Southfield has a few different species)
- Turkey Vulture
- Wild Turkeys

Part C: Wildlife Related Experiences

1. Other than songbirds, are you aware of anyone in your neighborhood **feeding** wildlife?

- Yes No

2. Please check **one** of the following:

- a. I **have** had negative experiences with wildlife at my residence or the immediate vicinity, (if you checked this answer, **continue** to questions **3 - 8** directly below)
- b. I have **not** had any negative experiences with wildlife at my residence or the immediate vicinity, (continue to **questions 7 & 8** of **Part C** of the survey)
- c. I may **or** may not have had some negative wildlife interactions at my residence or nearby vicinity, but the benefits of having wildlife nearby outweigh the challenges, (continue to **question 7 & 8** of **Part C** of the survey)

3. With which of the following have you had **difficulty or negative experiences**?

Check **all** that apply.

- Deer
- Coyote
- Fox
- Raccoon
- Opossum
- Groundhog (Woodchuck)
- Skunk
- Squirrels (Southfield has several different species)
- Chipmunk
- Rabbit
- Bats
- Hawk
- Turkey Vulture
- Wild Turkeys

4. With regard to your answer(s) to number **3** above, which of the following is/are the **biggest** wildlife **difficulties or negative experiences** you have **personally experienced** at your residence or nearby vicinity? In the space provided, **rank** all that apply, beginning with the **number 1** for the **biggest** difficulty or negative experience.

- Damage to landscape/property
- Damage to my residence
- Damage to my vehicle
- Injury of my pet(s)
- Injury to humans
- None of these

5. In the past five years, if you experienced **damage to your vehicle** due to an accident with wildlife within the City of Southfield, **fill in** the **blanks** below. In each blank, enter the **number** of accidents and **number** of animals that apply.

- | | | |
|---|--|---|
| <input type="checkbox"/> Minimal Damage | <input type="checkbox"/> Moderate Damage | <input type="checkbox"/> Significant Damage |
| <input type="checkbox"/> Deer | <input type="checkbox"/> Coyote | <input type="checkbox"/> Other wildlife |

6. With regard to your answer(s) to question **4** above, which of the following have you tried? Check **all** that apply.

- Fencing
- Chemical repellants
- Growing wildlife resistant plants
- Poison (or other means of extermination)
- Trapping
- Using a form of frightening or startling device

Calling Animal Control

7. If any, which of the following is/are the **biggest** wildlife **difficulties** or **negative issues** you are **concerned** about at your residence or nearby vicinity? In the space provided, **rank all** that apply, beginning with the **number 1** for the **biggest** concern.

- Damage to landscape
- Damage to my residence
- Damage to my vehicle
- Injury of my pet(s)
- Injury to humans
- None of these

8. Regarding your **biggest wildlife concerns** in the City of Southfield, please enter any **comments** you wish to add.

Part D: Wildlife Related Values

1. With regard to wildlife species in the City of Southfield, what is your overall opinion about their **negative** impact on residents?

Not problematic Slightly problematic Moderately problematic Highly problematic

2. With regard to wildlife species in the City of Southfield, what is your overall opinion about their **beneficial** impact on residents?

Not beneficial Slightly beneficial Moderately beneficial Highly beneficial

Part E: Wildlife Related Activities

1. In which of the following outdoor, **nature related** activities do you **already** participate, (check **all** that apply)?

- | | |
|---|--|
| <input type="checkbox"/> Visit city parks | <input type="checkbox"/> Walking |
| <input type="checkbox"/> Visit Metroparks | <input type="checkbox"/> Photography |
| <input type="checkbox"/> Fishing | <input type="checkbox"/> Gardening |
| <input type="checkbox"/> Birdwatching | <input type="checkbox"/> Hunting |
| <input type="checkbox"/> Hiking | <input type="checkbox"/> Picnicking |
| | <input type="checkbox"/> None of these |

2. In which of the following outdoor, **nature related** talks or demonstrations would you like to participate? In the space provided, **rank all** that apply, beginning with the **number 1** for the talk or demonstration you are **most likely to attend**.

- Habitat restoration with native plants
- Identifying and controlling invasive plant species
- Creating butterfly gardens
- How to identify local wildlife species
- The natural history and value of local wildlife species
- How to attract native songbirds to your yard
- Understanding the food web ecology of the wild organisms native to the City of Southfield
- None of these

Part F: Wildlife Related Expectations

1. Are you aware that the City of Southfield has created a Wildlife Advisory Commission?
 - Yes No

2. Do you think that the City of Southfield should be taking a more active role in managing wildlife?
 - Yes No

3. This question deals with the **potential** management of wild populations of animals and natural areas, within the boundaries of Southfield, with a special emphasis on **deer**. For **each** statement, check the **one** answer that most closely represents your opinion.
 - a. Provide information intended to educate residents on deer resistant landscaping
 - Strongly disagree Disagree Agree Strongly Agree

 - b. Improve and restore the vegetation in the City of Southfield natural areas.
 - Strongly disagree Disagree Agree Strongly Agree

 - c. Provide information intended to educate residents on coyote behavior
 - Strongly disagree Disagree Agree Strongly Agree

 - d. Install more deer crossing signs and reflective warnings in locations where deer and other wildlife commonly cross busy roads
 - Strongly disagree Disagree Agree Strongly Agree

 - e. Install wildlife tunnels or bridges in locations where deer and other wildlife commonly cross busy roads
 - Strongly disagree Disagree Agree Strongly Agree

 - f. Manage the roadside vegetation to discourage deer and other wildlife from busy roadsides
 - Strongly disagree Disagree Agree Strongly Agree

g. Create an ordinance to ban the feeding of deer and other wild mammals within the city limits

Strongly disagree Disagree Agree Strongly Agree

h. Consider some form of birth control for wild deer populations

Strongly disagree Disagree Agree Strongly Agree

i. Use lethal methods to cull some of the deer populations

Strongly disagree Disagree Agree Strongly Agree

j. Use lethal methods to cull some of the coyote populations

Strongly disagree Disagree Agree Strongly Agree

4. Regarding the City of Southfield's **top priorities** related to **wildlife and natural resources management**, please enter any **comments** you wish to add.

5. In general, would you be willing to pay additional fees or taxes to offset costs for wildlife management in the City of Southfield?

Yes No

6. In general, would you be willing to pay additional fees or taxes to offset costs for natural habitat restoration in the City of Southfield?

Yes No

<u>Survey Item</u>	<u>Specifics</u>	<u>Raw #</u>	<u>Percent of Total</u>
Part A, Demographics			
(226 Respondents)	Single Family	217	96%
Type of Residence	Apart./Condo	9	4%
Residence Ownership	Home Owners	217	96%
	Renters	8	4%
	No Response	1	0%
Length of Residence	21 + years	117	52%
	11-20 years	42	19%
	5-10 years	28	12%
	1-5 years	33	15%
	< 1 year	6	3%
Approximate Location	8-9 mile, Lahser - Greenfield	15	7%
	8-9 mile, Inkster - Lahser	16	7%
	9-10 mile, Lahser - Greenfield	18	8%
	9-10 mile, Inkster - Lahser	39	17%
	10-11 mile, Lahser - Greenfield	17	8%
	10-11 mile, Inkster - Lahser	12	5%
	11- 12 mile, Lahser - Greenfield	19	8%
	11-12 mile, Inkster - Greenfield	15	7%
	12- 13 mile, Lahser - Greenfield	29	13%
	12-13 mile, Inkster - Greenfield	39	17%
	No response	7	3%
Age Group	18 - 30 years	8	4%
	31 - 40 years	40	18%
	41 - 50 years	26	12%
	51 - 60 years	35	15%
	61 - 70 years	68	30%
	71 - 80 years	41	18%
	81 years +	4	2%
	No response	4	2%

Part C, Wildlife Experiences			
Question 1, (224 Respondents)	Yes	64	29%
Neighbors Feeding Wildlife (other than birds)	No	160	71%
	No Response	2	1%
Question 2, (223 Respondents)	Negative	111	50%
Personal Wildlife Experiences	No negative	60	27%
	May/may not had negative, pro wildlife	52	23%
Question 3, (146 Respondents)	Deer	111	76%
Negative Wildlife Experiences	Coyote	4	3%
	Fox	8	5%
	Raccoon	48	33%
	Opossum	15	10%
	Groundhog (Woodchuck)	80	55%
	Skunk	59	40%
	Squirrels	29	20%
	Chipmunk	22	15%
	Rabbit	27	18%
	Bats	5	3%
	Hawk	2	1%
	Turkey Vulture	8	5%
	Wild Turkeys	6	4%
Question 4, (140 Respondents)	Damage to landscape/property	100	71%
Most Negative Experiences	Damage to my residence	27	19%
	Damage to my vehicle	6	4%
	Injury of my pet(s)	7	5%
	Injury to humans	0	0%
Question 6, (130 Respondents)	Fencing	51	39%
Solutions attempted	Chemical Repellents	81	62%
	Wildlife resistant plants	76	58%
	Poison/extermination	12	9%
	Trapping	40	31%
	Frightening/startle device	47	36%
	Calling Animal Control	0	0%
Question 7, (174 Respondents)	Damage to landscape/property	100	57%

Biggest Concerns	Damage to my residence	32	18%
	Damage to my vehicle	6	3%
	Injury of my pet(s)	23	13%
	Injury to humans	13	7%
Part D, Wildlife Values			
Opinion about negative impact (223 Respondents)	Not problematic	75	34%
	Slightly problematic	62	28%
	Moderately problematic	47	21%
	Highly problematic	39	17%
Opinion about beneficial impact (224 Respondents)	Not beneficial	37	17%
	Slightly beneficial	48	21%
	Moderately beneficial	60	27%
	Highly beneficial	79	35%
Part F, Expectations			
Question 1, (223 Respondents)	Yes	116	52%
Aware of W.A.C.	No	107	48%
Question 2, (216 Respondents)			
Should City take more active role in wildlife mgmt.	Yes	158	73%
	No	58	27%
Question 3: potential management			
a. Educate re: deer resist. Landscaping (219 Respondents)	Strongly Disagree	4	2%
	Disagree	12	5%
	Agree	38	17%
	Strongly Agree	117	53%
b. Improve, restore natural veget. (216 Respondents)	Strongly Disagree	3	1%
	Disagree	13	6%
	Agree	103	48%
	Strongly Agree	97	45%

c. Education re: coyote behavior	Strongly Disagree	0	0%
(218 Respondents)	Disagree	7	3%
	Agree	93	43%
	Strongly Agree	118	54%
d. More deer crossing signs	Strongly Disagree	6	3%
(217 Respondents)	Disagree	27	12%
	Agree	88	41%
	Strongly Agree	96	44%
e. Install tunnels or bridges	Strongly Disagree	13	6%
(218 Respondents)	Disagree	53	24%
	Agree	73	33%
	Strongly Agree	79	36%
f. Manage roadside vegetation	Strongly Disagree	3	1%
(217 Respondents)	Disagree	17	8%
	Agree	99	46%
	Strongly Agree	98	45%
g. Ordinance to ban feeding mammals within City	Strongly Disagree	15	7%
(217 Respondents)	Disagree	54	25%
	Agree	59	27%
	Strongly Agree	89	41%
h. Birth control for deer	Strongly Disagree	31	14%
(218 Respondents)	Disagree	58	27%
	Agree	57	26%
	Strongly Agree	72	33%
i. Lethal methods to cull deer	Strongly Disagree	66	30%
(219 Respondents)	Disagree	66	30%
	Agree	35	16%
	Strongly Agree	52	24%
j. Lethal methods to cull coyotes	Strongly Disagree	58	27%
(217 Respondents)	Disagree	60	28%
	Agree	56	26%
	Strongly Agree	44	20%

Question 5			
Increase \$ Wildlife Mgmt. (226 Respondents)	YES	130	58%
	NO	91	40%
	No Response	5	2%
Question 6			
Increase \$ Habitat Restoration (226 Respondents)	YES	144	64%
	NO	76	34%
	No Response	6	3%

SUMMARY OF NARRATIVE QUESTION RESPONSES

Survey Part C, Question 8 - Regarding your biggest wildlife concerns in the City of Southfield, please enter any comments you wish to add.

- Many residents said that they have no significant concerns and enjoy viewing wildlife in the city and some say that the wildlife was a factor in deciding to buy a home in Southfield.
- For many residents, their concerns were linked to conflicts between deer and their gardening/landscaping efforts. Several responses indicate that changing the vegetation/plant choices have helped, but some of those same responses complaint that deer-resistant vegetation is not as attractive.
- A number of residents specifically complained about groundhogs/woodchucks burrowing under foundations, crawlspaces, porches, and other home structures. A few residents also mentioned raccoons, skunks, Canadian geese, turkey, and/or feral cats.
- Many residents commented on a perceived dramatic increase in the number of deer over the past 5 to 10 years. Some believe the population is “out of control”/”out of hand” or that the natural food sources are no longer adequate for deer. Many of these residents are open to lethal population control (hunt/cull) but others favor non-lethal (birth-control/sterilization).
- Many other residents expressed concerns about the prospect of shooting, culling, or hunting deer or other wildlife but still wanted some population control measures (sterilization or relocation).
- Several residents noted concerns about neighbors feeding deer and disregarding requests that they stop. A least one resident complained about a neighbor shooting small mammals on their property.
- Some residents expressed concerns about (a) disease, (b) ticks/fleas, or (c) danger to pets or children. These complaints were primarily linked to deer or coyotes but some were non-specific.

Survey Part F, Question 4 - Regarding the City of Southfield’s top priorities related to wildlife and natural resources management, please enter any comments you wish to add.

- Maintaining and/or establishing a harmonious relationship with wildlife was a common priority; habitat restoration and preservation of wildlife was often linked with these suggestions.
- Public educations was a common theme and there was strong support for more public meetings and/or workshops.
- Numerous residents advocated for some form of deer population control, but residents were very divide on lethal vs. non-lethal methods. Many of those that supported lethal control stated a preference for a local/resident hunter method. Many of those that supported a non-lethal method suggested birth control.
- Minimizing the public expense and avoiding increased taxes/fees was often mentioned as a qualification or condition for other priorities. Some residents said they would be willing

to pay a little more for population control but would prefer shifting funds from other areas of the City's budget.

- A few residents suggested creating tunnels or bridges near busy roads.
- Several residents mentioned a need for data/studies to support any city actions and/or requested that studies/metrics be published. One resident suggested a complaint/comment hotline.

Appendix 4A

Urban Deer Management: Biology, Process, and Options

Chad M. Stewart

Deer Management Specialist

Michigan Department of Natural Resources



Characteristics of Urban Deer

- Survival

- Higher rates

- Reported as high as 87%

- Reproduction

- Increased in Urban Areas

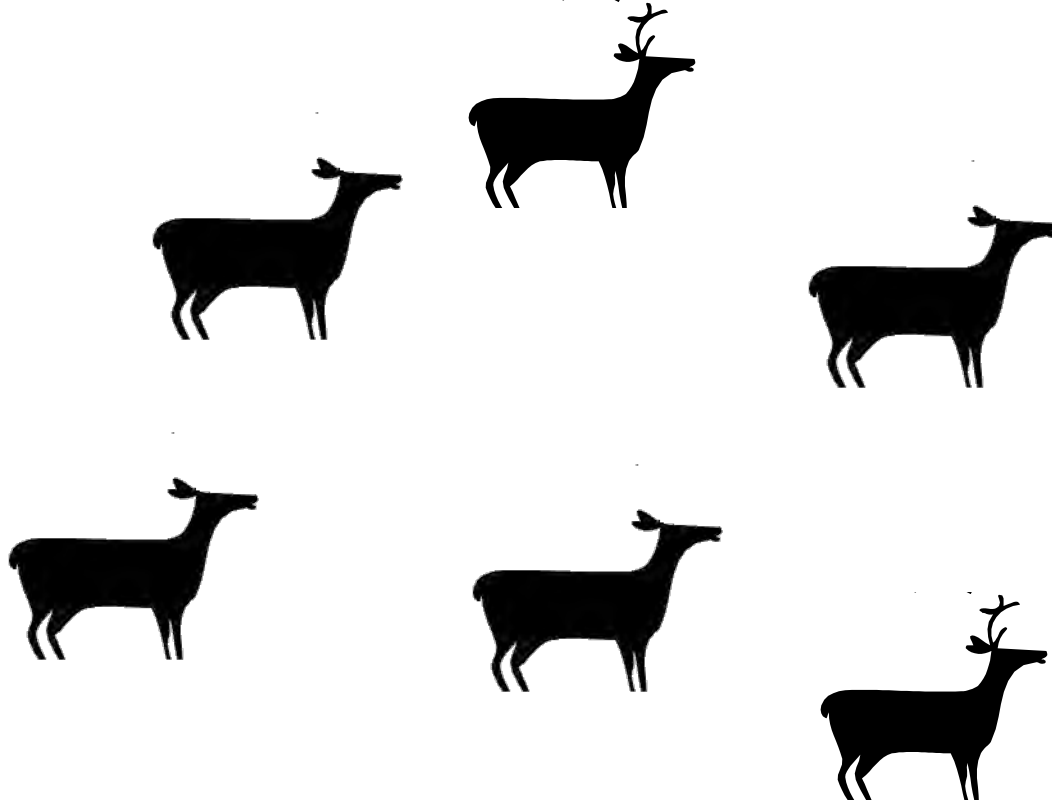
- Reported as high as 1.8 fawns/adult doe
 - No reproductive senescence

- Home Range Size

- Typically smaller



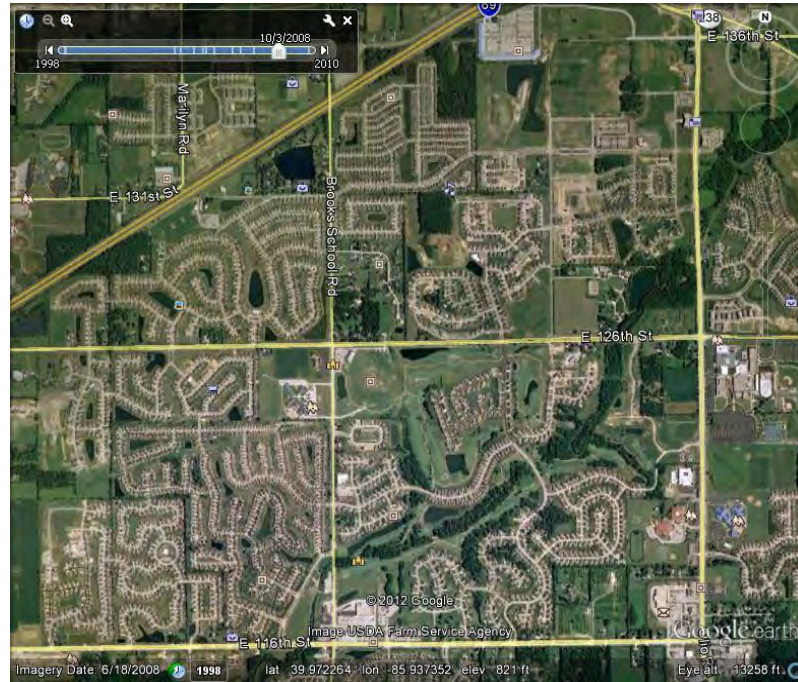
The George Reserve, Michigan: Year 1



The George Reserve, Michigan: Year 7



Changes on the landscape



1999

2008



Carrying Capacity

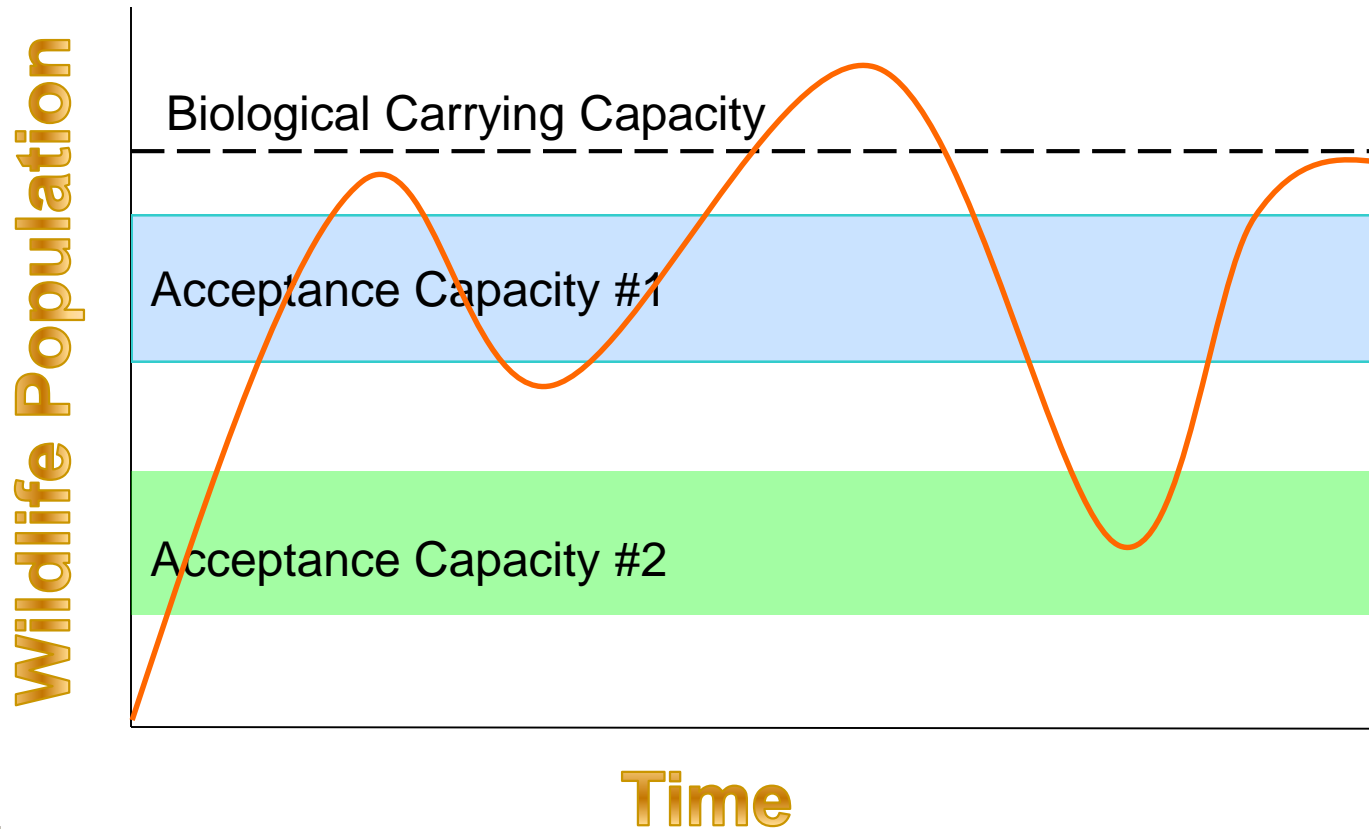
■ Biological



■ Social



Measures of Capacity for Wildlife Populations





The Process of Community-Based Deer Management & Decision Making

Adapted From:
Emily Pomeranz
Human Dimensions Research Specialist, Michigan DNR

Phase 1:
Problem
Definition

Phase 2:
Decision
Making

Phase 3:
Implementation

Phase 4:
Evaluation and
Adaptation



Do we have a problem?

Gather information, assess, define the problem

What problems are occurring? Where, when, who, severity?

How are you going to gather the data you need?

- Questionnaire of residents
- Tracking of tick-borne illnesses
- DVC (deer-vehicle crashes, struck deer calls)
- Agricultural and horticultural losses
- Monitoring deer browse to assess forest health (sentinel seedlings)



Management Options



Management Options

- No Action or Response

- Pros

- A compromise?
 - Inexpensive

- Cons

- Some will view as “inaction”
 - Continued degradation of habitat and conflicts



Management Options

■ Hunting

□ Pros

- Inexpensive to communities
- Can provide economic stimulus
- Supported by many

□ Cons

- Some types of hunting (i.e. trophy) not appealing to many
- Local concerns regarding hunting in a community
- Access issues



Management Options

■ Sharpshooting

□ Pros

- Reduces deer population quickly
- Safe

□ Cons

- Expensive
- Controversial



Management Options

■ Trap and Relocate/Remove

□ Pros

- No projectile
- Removes deer from difficult areas

□ Cons

- High stress to deer
- Expensive
- Relocation not allowed in Michigan



Management Options

■ Contraception

□ Pros

- Doesn't fire lethal projectile
- Prevents future fawns from being born

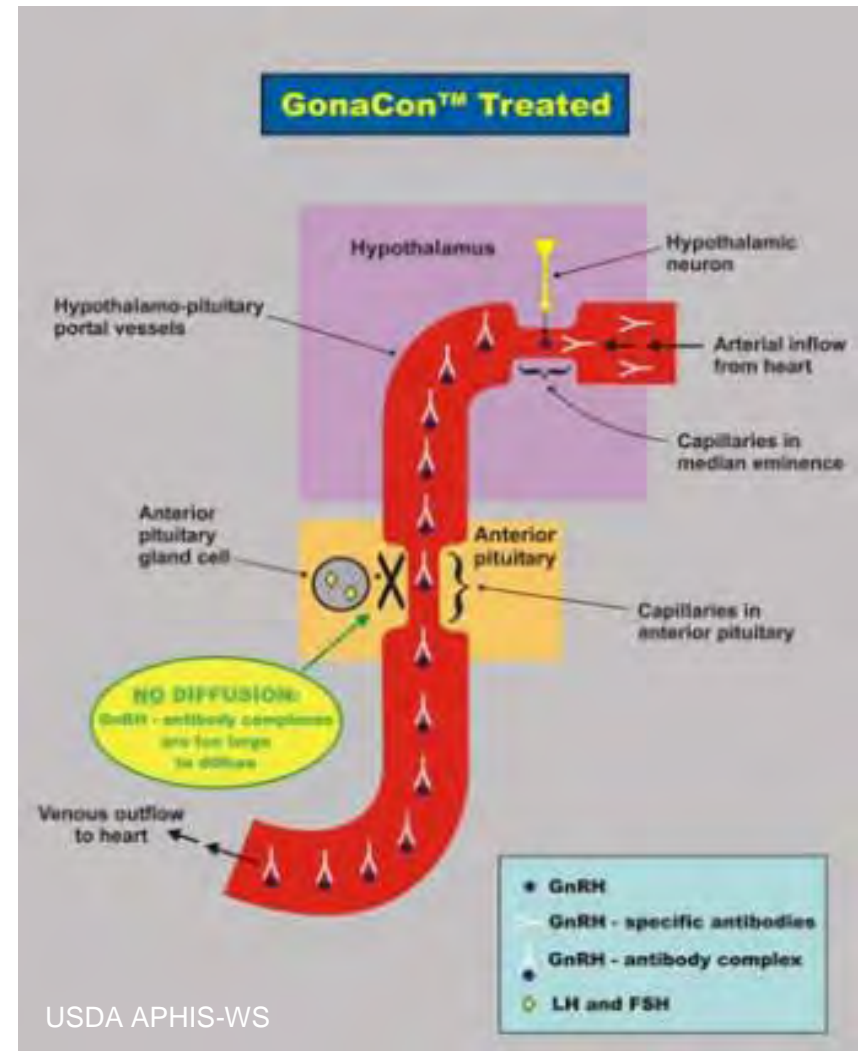
□ Cons

- Expensive
- Doesn't remove deer which may be the problem
- Difficult (impossible?) to achieve results in free-ranging deer herds



Management Options-GonaCon

- ❑ Hand injection required
- ❑ Multi-year efficacy requires a booster administered within one year
- ❑ Not registered for use in Michigan (MDARD)



United States
Environmental Protection Agency
Office of Prevention, Pesticides and Toxic Substances
(7505P)



Pesticide Fact Sheet

Name of Chemical: Mammalian Gonadotropin Releasing Hormone (GnRH)
Reason for Issuance: New Chemical
Nonfood Use
Date Issued: September 2009

I. Description of Chemical

Peptide Chain: pyr-Glu1-His2-Trp3-Ser4-Tyr1-Gly6-Leu7-Arg8-Phe9-G10NH2(GnRH)

Common Name: Mammalian Gonadotropin Releasing Hormone (GnRH)

EPA PC Code: 116800

Chemical Abstracts Service (CAS) Number: 9014-40-6

Chemical Class: Steroid/Hormone

Registration Status: New Chemical, animal use

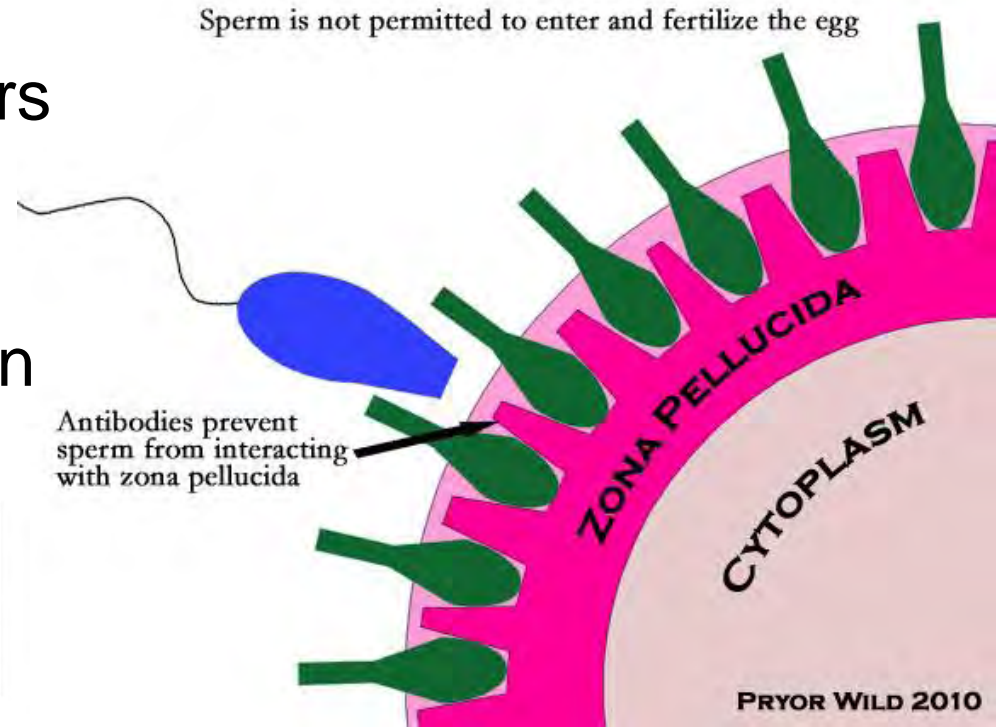
Pesticide Type: Stimulant/Contraceptive

U.S. Producer: U.S. Department of Agriculture, APHIS, Pesticide Supply Depot
229 East Dallas Street
Pocahontas, ID 83201



Management Options-Zonastat

- ❑ Hand, jab-stick, or remote dart delivery
- ❑ Recommended boosters at 2-weeks and each year
- ❑ Not registered for use in Michigan (MDARD)



RESTRICTED USE PESTICIDE

For retail sale to and use only by Certified Applicators or persons under their direct supervision of the following organizations and their designated wildlife management personnel and only for those uses covered by the Certified Applicator's certification:

- Department of Interior and all its designated agents
- National Park Service, US Fish & Wildlife Service, Bureau of Land Management
- USDA and all its designated agents (i.e., U.S. Forest Service, Animal and Plant Health Inspection Service)
- State Agencies for agriculture/livestock & wildlife
- Federally recognized Indian Tribes
- Department of Defense
- Humane Society of the United States

Each Responsible Authority for deer intended to be treated with Zonastat-D must sign a certification of use prior to the administration of the vaccine to any animals. The certification statement is attached to this label.

Sublabel II:

ZONASTAT-D

Zonastat-D is a porcine zona pellucida immunosuppressive vaccine indicated for use in limiting the populations of white tailed deer (*Odocoileus virginianus*) and other members of the family Cervidae.

Active Ingredients:

Porcine zona pellucida (ZP1) (0.1%)	0.071%
Porcine zona pellucida (ZP1, ZP2, ZP4) (1%)	0.029%
Other Ingredients	99.900%
Total	100.000%

This product contains 100 µg of PZP per 0.04 ml (0.2 mL).

EPA Reg. No. 86833-x
EPA Est. No. 090192-MT-001

Humane Society of the United States
700 Professional Drive
Gaithersburg, MD 20879

Expiration date: xx-xx-xxxx

Net Contents: 0.5 mL

081114082A.2



Management Options

■ Sterilization

□ Pros

- Doesn't fire a lethal projectile
- Prevents fawns from being born permanently

□ Cons

- Expensive
- Doesn't remove deer which may be problem
- Difficult to achieve results



Ann Arbor Sterilization Program



YEAR FOUR SUMMARY REPORT

2019-20 Deer Research Program

Ann Arbor, Michigan

26 May 2020

Submitted by

Dr. Anthony J. DeNicola
White Buffalo Inc.

- ❑ Sterilization of game was prohibited under PA 390 (2018) until April 1, 2022



Melanie Maxwell, The Ann Arbor News



Management Options

■ Reintroduce Predators

□ Pros

- Opportunity to return historical species

□ Cons

- Socially unacceptable
- Expensive
- Complicated interactions requires study



Management Options

■ Fencing and Repellants

□ Pros

- Can exclude deer from problem areas
- Relatively inexpensive

□ Cons

- Requires maintenance
- No guarantees
- Does not solve community wide problem



Chad M. Stewart
Deer, Elk, and Moose Management Specialist
4166 Legacy Parkway
Lansing, Michigan 48911

stewartc6@Michigan.gov

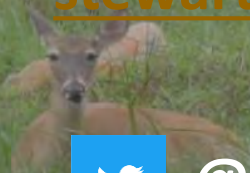
Ph:517-282-4810



@chad_m_stewart

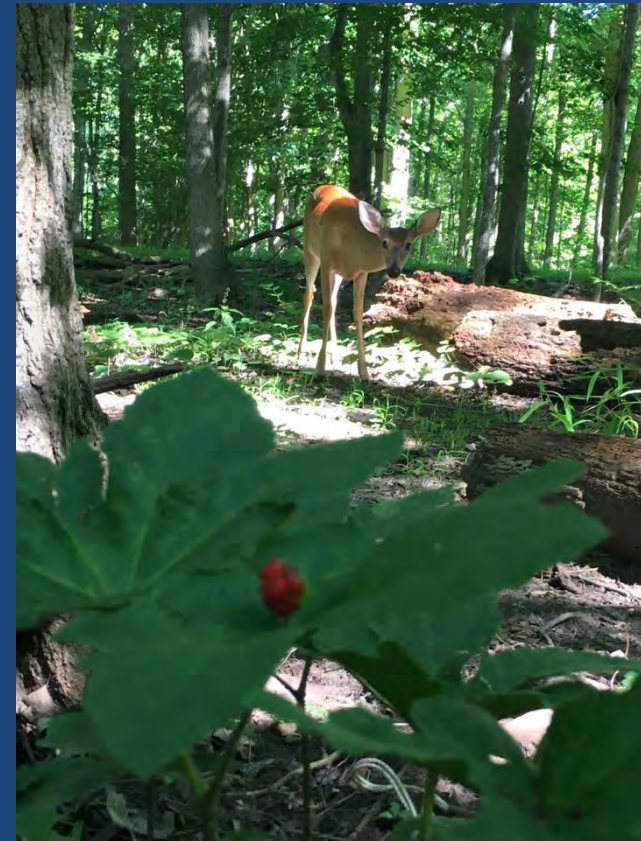


Chad Stewart



Appendix 4B

Impacts and Interactions: Deer and Southfield's Ecosystems



YOUR EYE ON NATURE

· ECOLOGICAL MONITORING · CONSULTING · WRITING ·

Jacqueline Courteau, Ph.D.
Ecologist & Natural Resources Consultant
jbcourteau@gmail.com

Overview

- Deer impacts on plant communities
 - Background
 - Research findings in Southfield
 - Implications
- Deer vs. other threats
- Options for managing deer impacts

Overview

- **Deer impacts on plant communities**
 - **Background**
 - Research findings in Southfield
 - Implications
- Deer vs. other threats
- Options for managing deer impacts

Direct effects: deer eat and damage plants in other ways

- Deer are generalist browsers that damage or remove plant parts, whole plants, flowers, & fruits (consumptive effects)



Browsing



Antler
rubs



Trampling &
bedding



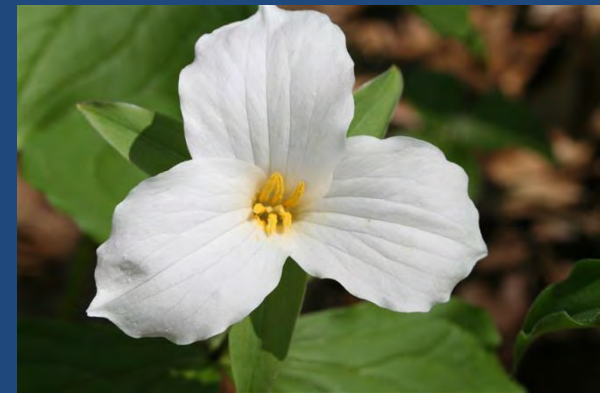
Direct impacts on individual plants

- Mortality
 - Outright: plant uprooted, broken off, mostly browsed
 - Delayed: browsing reduces resources, increases susceptibility to drought, disease, pests
- Reduced growth (slow to none)
 - Prevent tree saplings from escaping “molar zone” 0.5–1.5 m (observed: 0.05–2.25 m)
 - Forest regeneration declines
- Reproduction reduced or prevented
 - Fewer flowers, fruit produced



Impacts on individuals lead to impacts on populations, species

- Reduced growth may delay reproduction
 - e.g., spring flora spp. need 7–15 years to bloom
- Reduced flowering may lead to reduced pollination, fruit set (density effects)
- Reduced fruiting, fruit predation may lead to population declines, local disappearance
- Species range may decline



By directly affecting plants, deer indirectly affect other species

- Communities or food webs including multiple interacting species
- Deer browsing can affect
 - Flowers for pollinators
 - Fruit for birds, small mammals
 - Food (leaves, fruit) for insects that birds eat
 - Web sites for spiders that birds eat
 - Nest sites for forest birds
- Ecosystems (nutrient and water cycling)

Ants and trillium

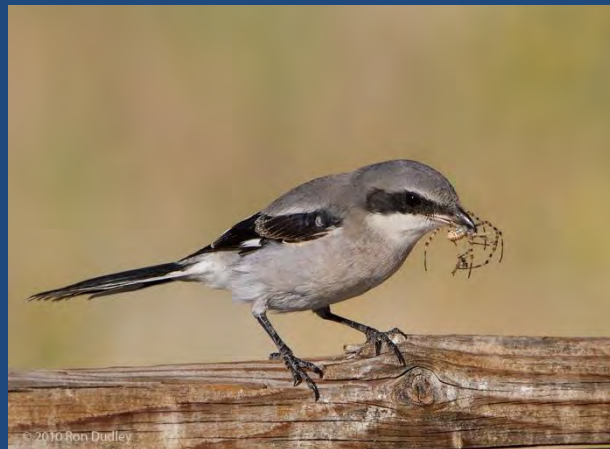
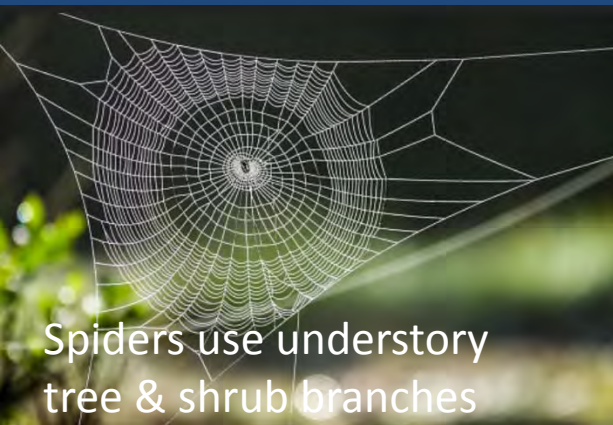


Native bees and wild geranium



Various songbird species eat ants, bees, spiders that rely on plants that deer eat

Spiders use understory tree & shrub branches



Community & ecosystem impacts harder to assess

- “Non-consumptive effects” like soil compaction, reduced vegetation affects microclimate—plants more susceptible to drought
- Disturbed soil: seed sites for weeds; erosion
- Deer disperse seeds—but often weeds, invasive species
- Nutrient addition, pH changes; alters N cycling



Soil disturbance



Soil compaction



Nutrient addition

Many studies have found deer impacts on forest plants

- Declining tree regeneration
- Decreased native shrub, wildflower diversity, abundance, flowering, reproduction
 - 85% of forest biodiversity is in species other than trees!
- Declines of sensitive species (orchids, trilliums, others)



Waller & Alverson 1997, Rooney 2001, McShea et al. 2003, Rawinski 2008, Frerker & Waller 2014, Pendergast et al. 2016, Averill et al. 2017, Waller et al. 2017

Deer affect forest food webs

- Declines in forest arthropods (affects birds)
- Altered food, habitat, nesting sites for birds; songbird declines
- Seed dispersal of invasives (including long-distance transport)
- Increase in invasives with differential herbivory or recovery can further affect habitat

Overview

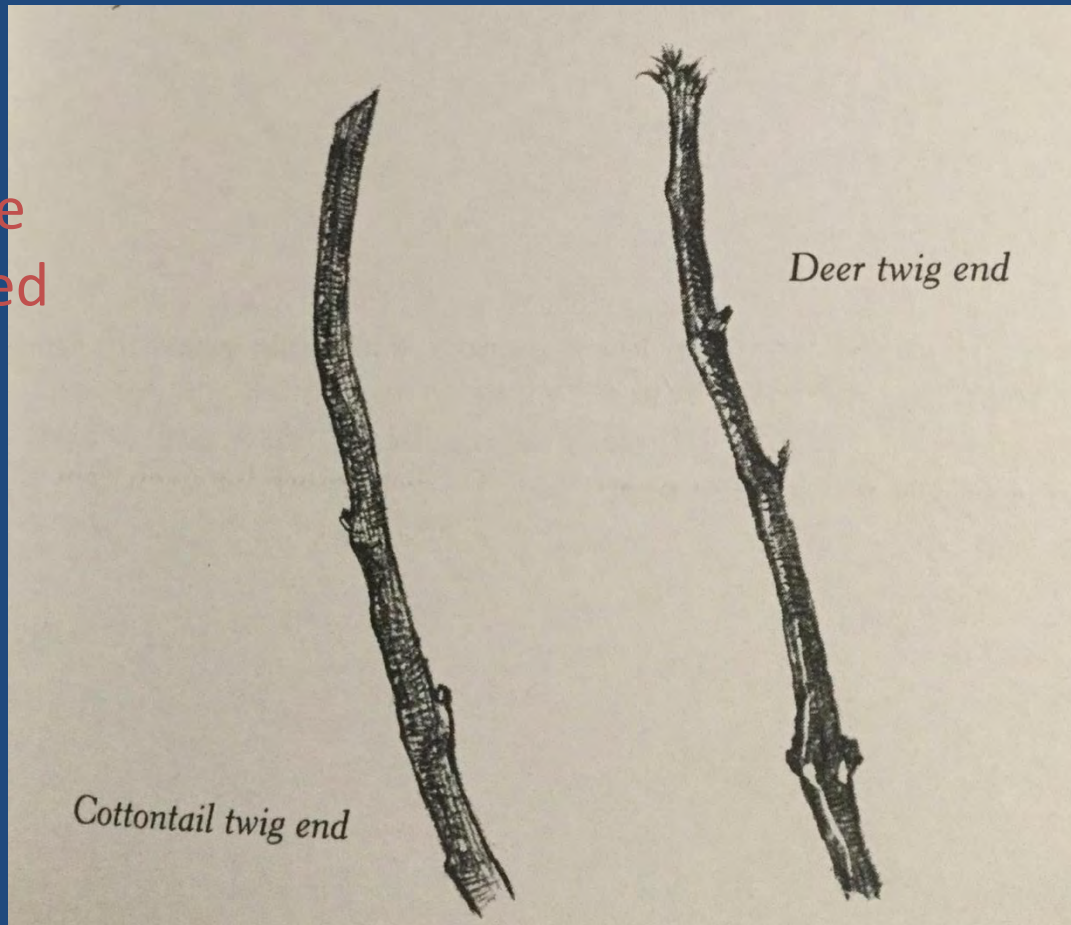
- Deer impacts on plant communities
 - Background
 - **Research findings in Southfield: How deer are affecting...**
 - **Trees**
 - **Wildflowers?**
 - **Rare species**
 - Implications
- Deer vs. other threats
- Options for managing deer impacts

How are deer affecting trees and shrubs in Southfield parks?

- Preliminary browse damage survey 2017
- Experimental study 2018–19
 - Red oak seedlings grown from MI acorns
 - 24+ seedlings transplanted into each of 5 parks
 - Seedlings tagged, monitored for deer damage 3–4 times during year
 - Offers standardized way to compare impacts
- Permanent plots to track tree growth, 2018–19

How do we know it's deer browse?

Rabbit,
woodchuck:
Incisors leave
cleanly angled
mark, 45°

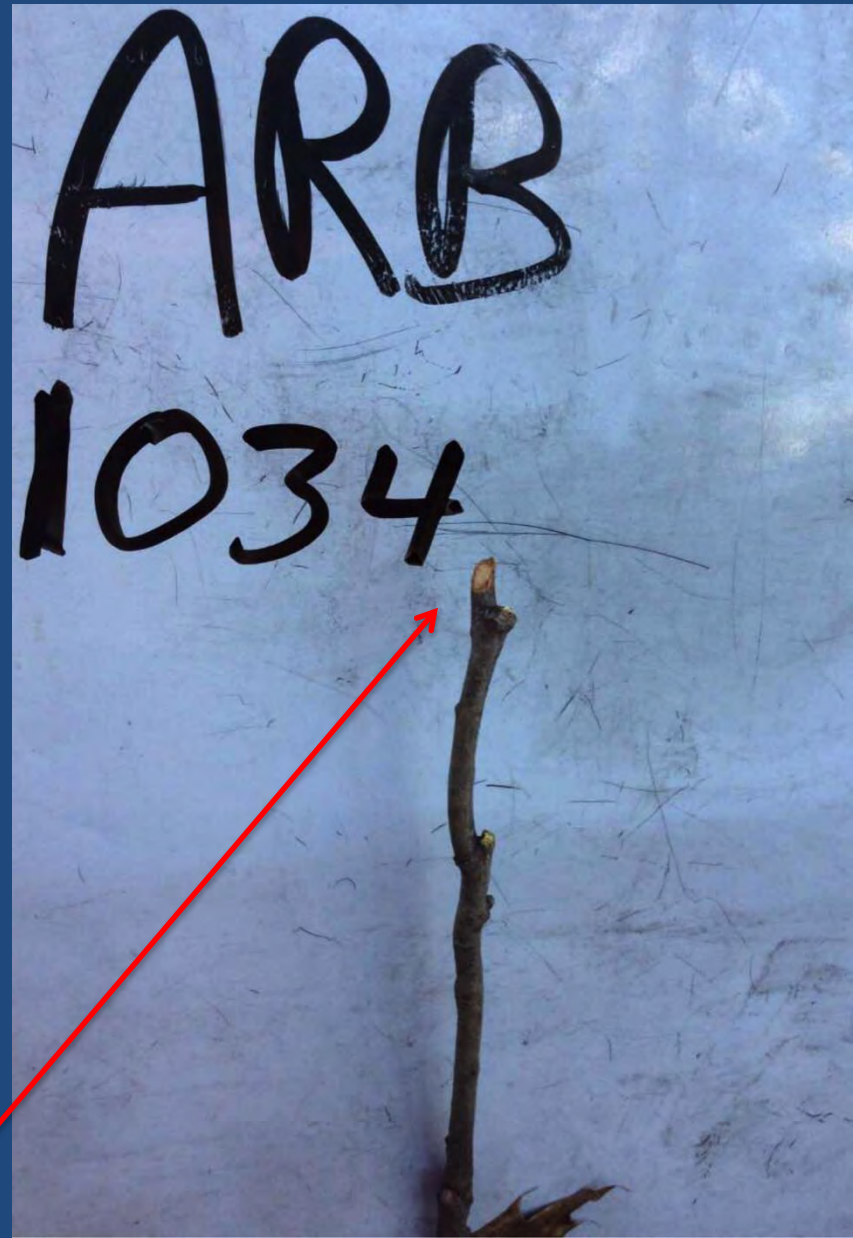


Deer: Lack
incisors; edges
are shredded,
not cleanly
angled; edge
often crimped

Also squirrels, chipmunks, voles, mice

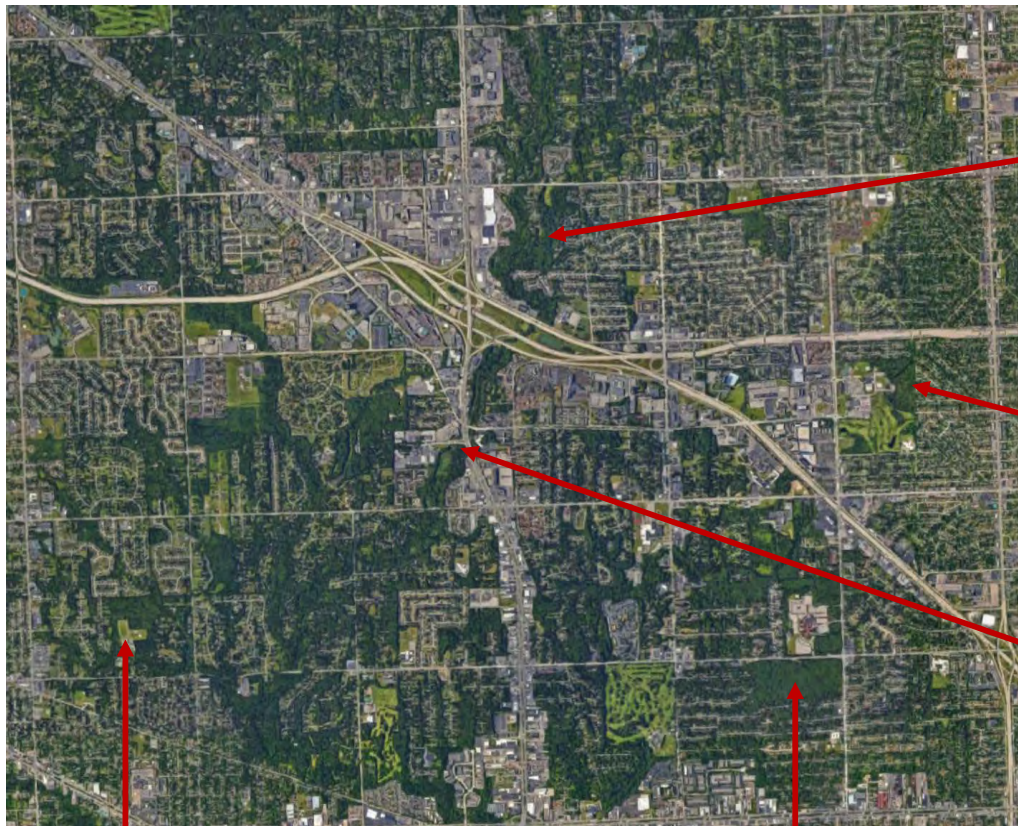


Deer browse: shreddy



Rabbit browse: angled

2017 browse damage surveys



Berberian Woods

- 88% of woody plants browsed by deer
- 72% have half or more branches damaged
- Sensitive species: Bladdernut
 - 100% of stems browsed
 - 96% have half or more branches damaged
 - 20% show signs of dieback
 - 22% dead

Lincoln Woods

- 57% of woody plants browsed by deer
- 33% have half or more branches damaged
- 15% show signs of dieback

Valley Woods

- 88% of shrub stems deer browsed

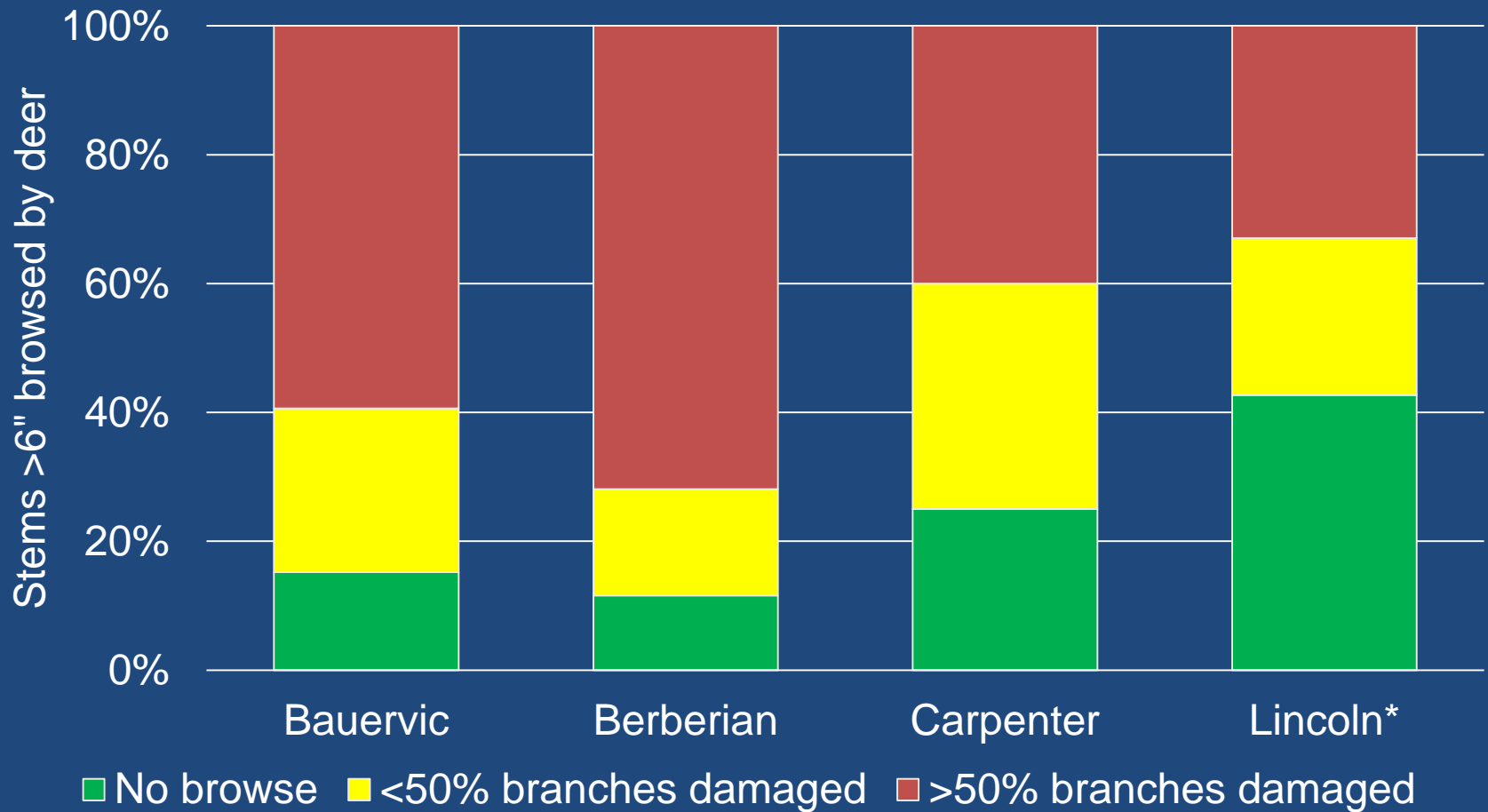
Carpenter Lake

- 75% of woody plants browsed by deer
- 40% have half or more branches damaged
- 23% show signs of dieback

Bauervic Woods

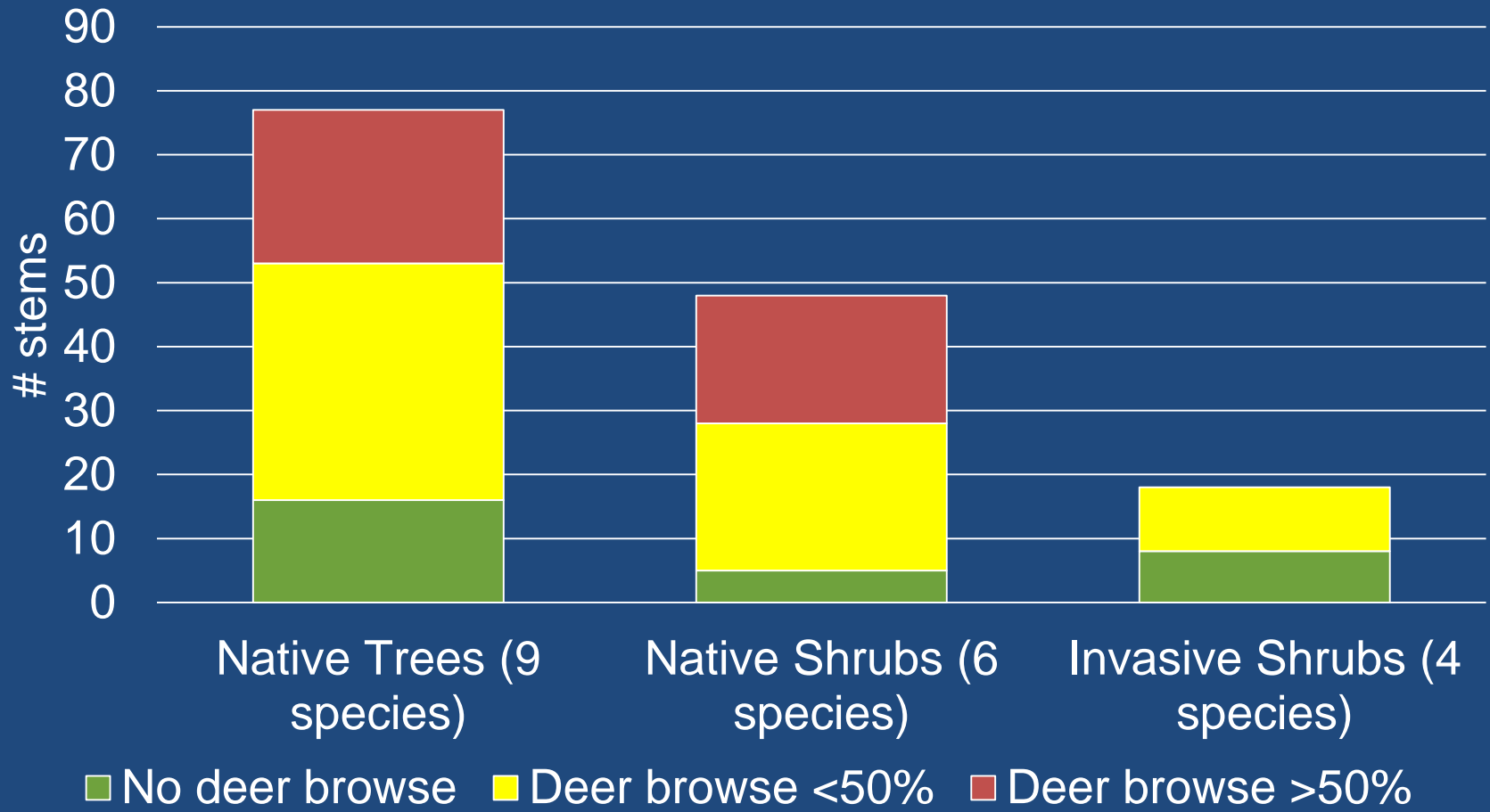
- 85% of woody plants browsed by deer
- 59% have half or more branches damaged
- 39% show signs of dieback

Deer browse on trees and shrubs in the “molar zone” (6” to 6’)

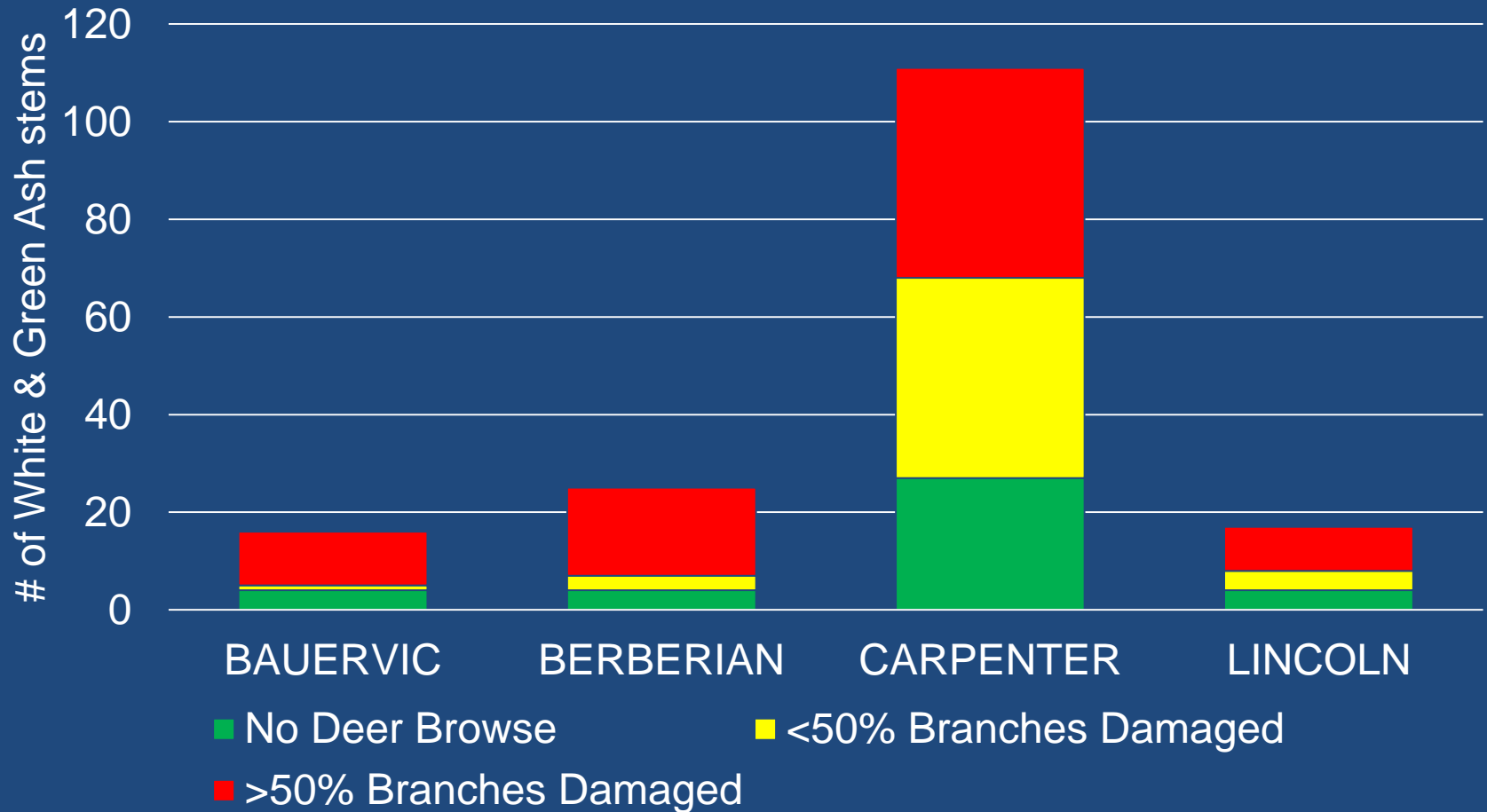


Damage to >50% of branches significantly increases mortality risk

Bauervic (175 stems)

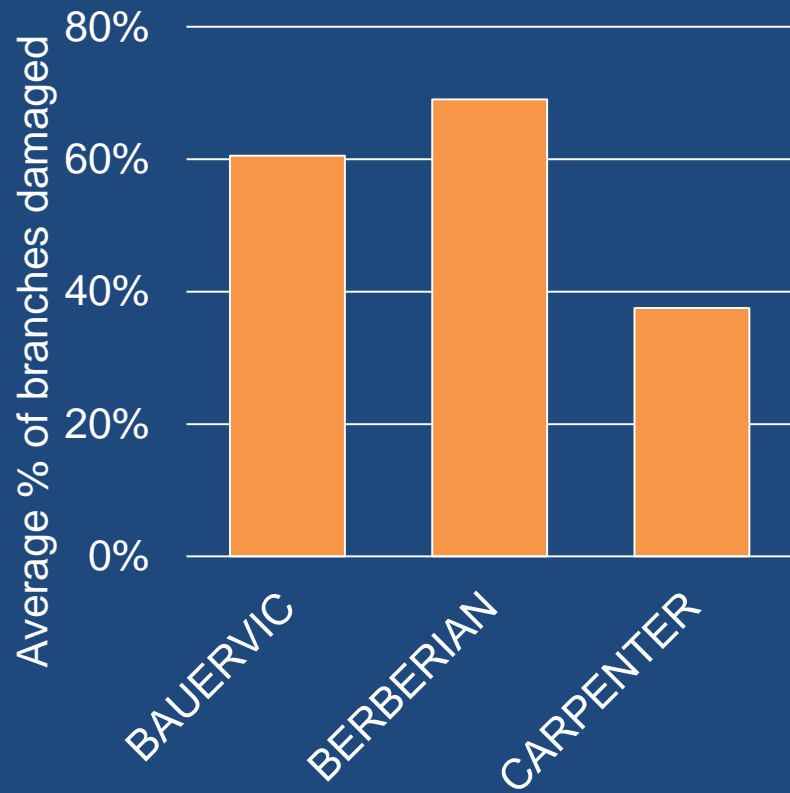


White and Green Ash (found in all parks)

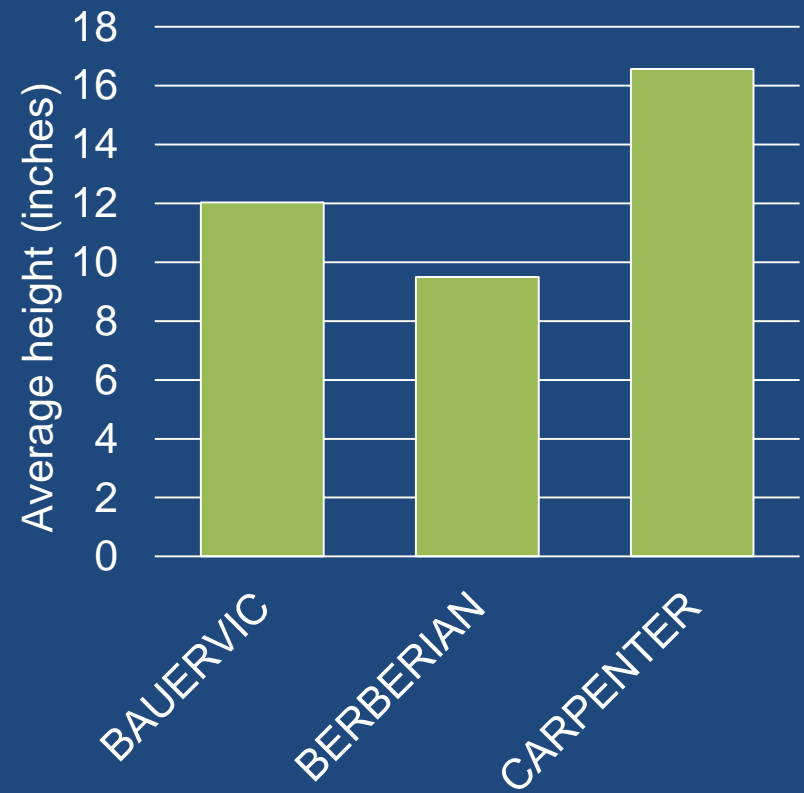


Intense browsing reduces ash seedling/sapling size

Browse intensity (% damaged)



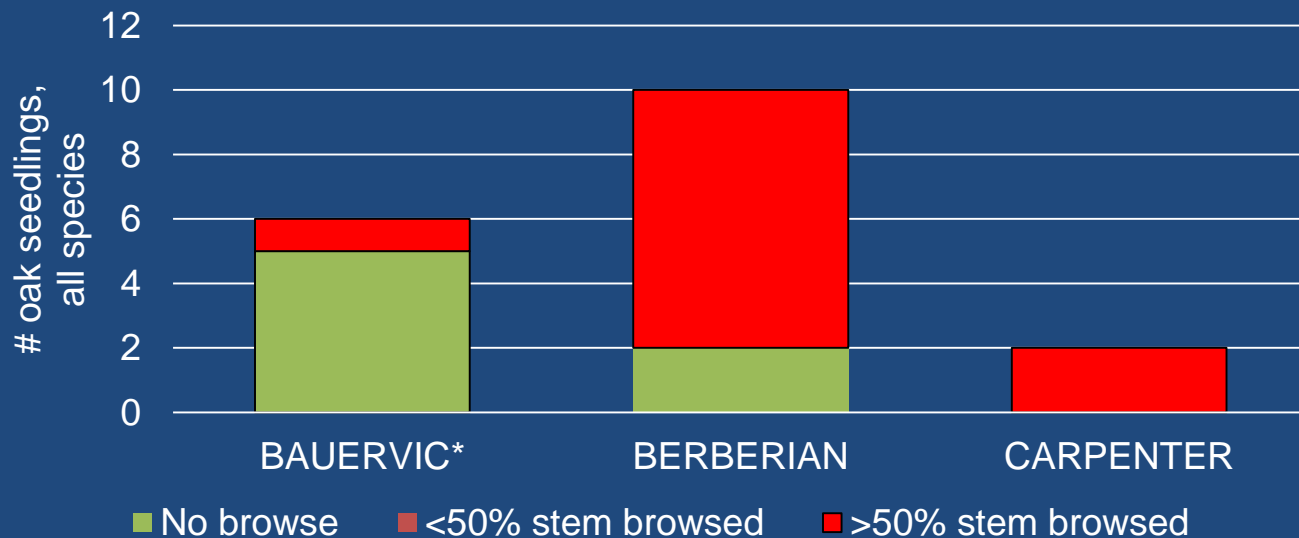
Plant height



What about oaks?

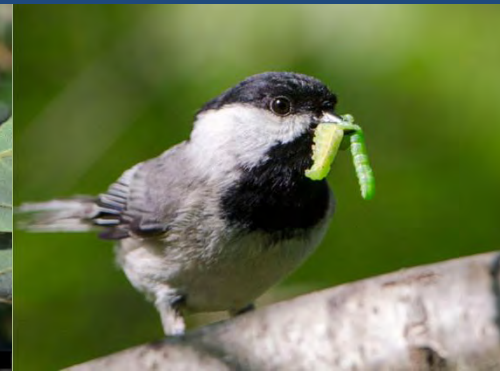
Seedlings rare, mostly deer browsed

742 square meters assessed; 1041 woody plant stems examined: just 19 oak seedlings



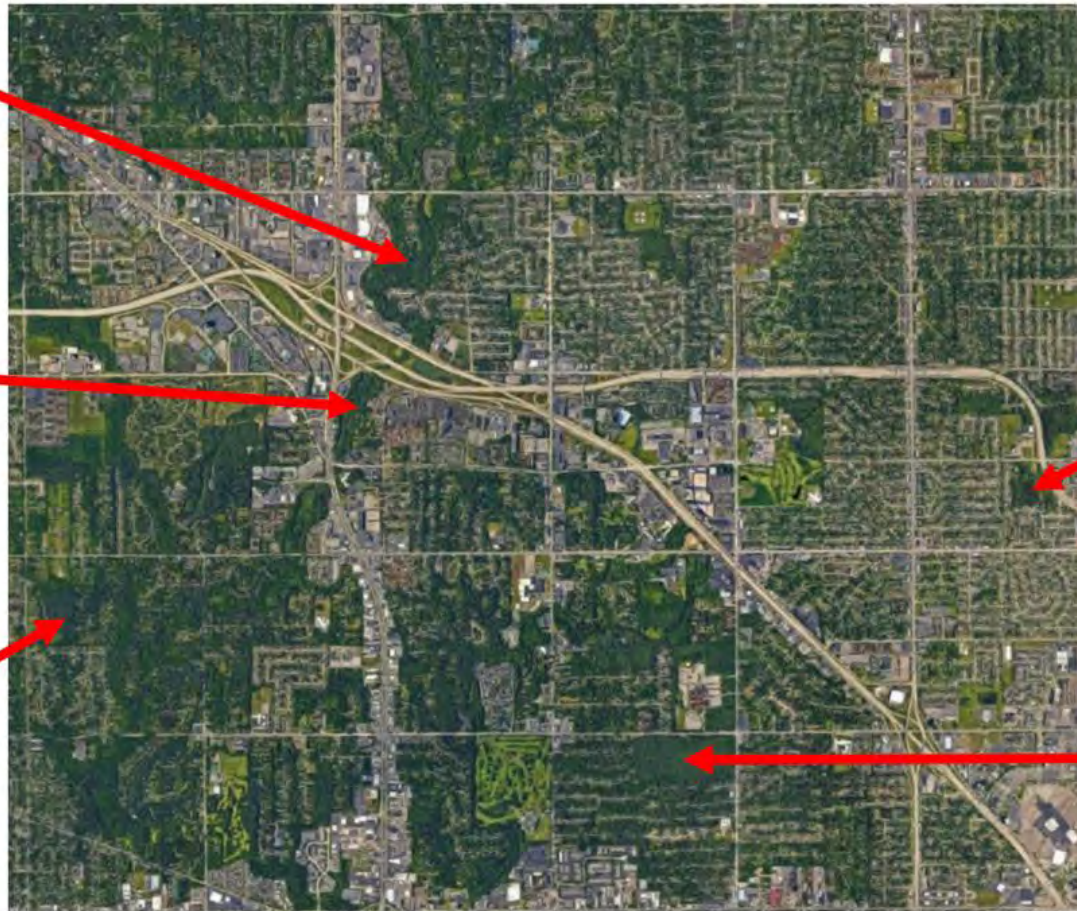
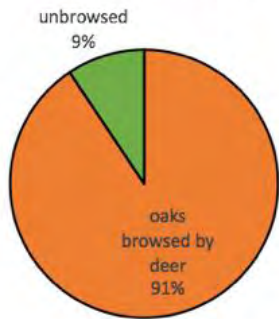
* Unbrowsed seedlings all <8"

Different oak species common to dominant in these forests, providing food for over 400 species of insects—which in turn feed birds.

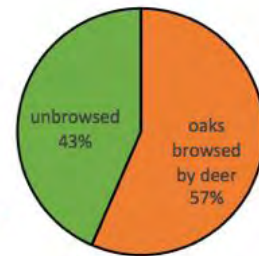


Red oak experimental seedlings 2018–2019

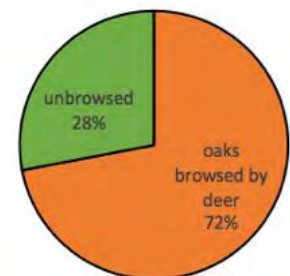
Berberian Woods



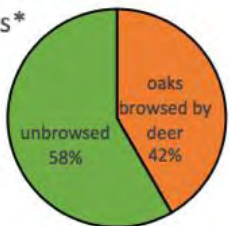
Lincoln Woods*



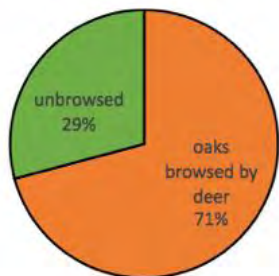
Bauervic Woods



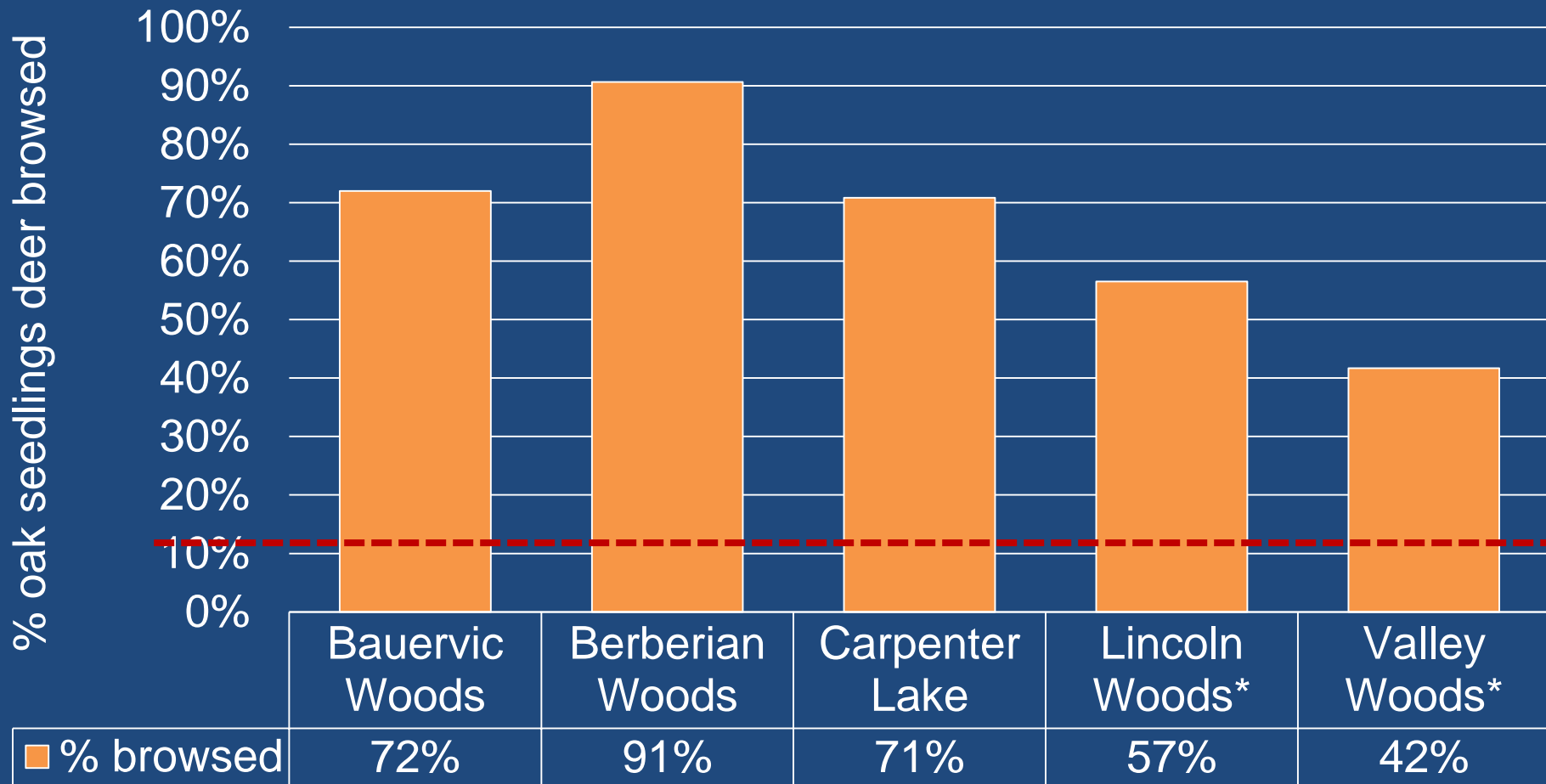
Valley Woods*



Carpenter Lake



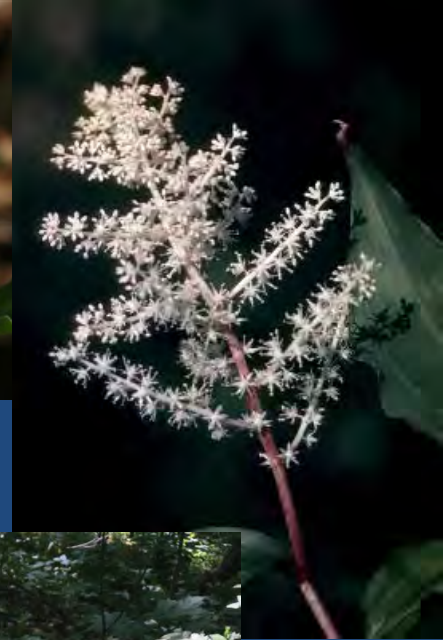
Deer browse at all sites was >15%...



...the level over which oak regeneration is likely to fail (Blossey 2017)

How are deer affecting wildflowers?

- Trillium
- False Solomon's seal
(False spikenard)
- Doll's-eyes
- Bladdernut



Why study deer impacts on trillium?



- Previous local studies, A2 observations of impacts
- Useful browse indicator
 - Decreased height (Anderson 1994)
 - Flowering rates <30% suggested as indicator that deer impacts are too high (Pavlovic 2014)
 - Observational & demographic modeling studies: browse rates >10–15% lead to decline
(Knight et al. 2003, 2004, 2009; Rooney & Gross 2003)





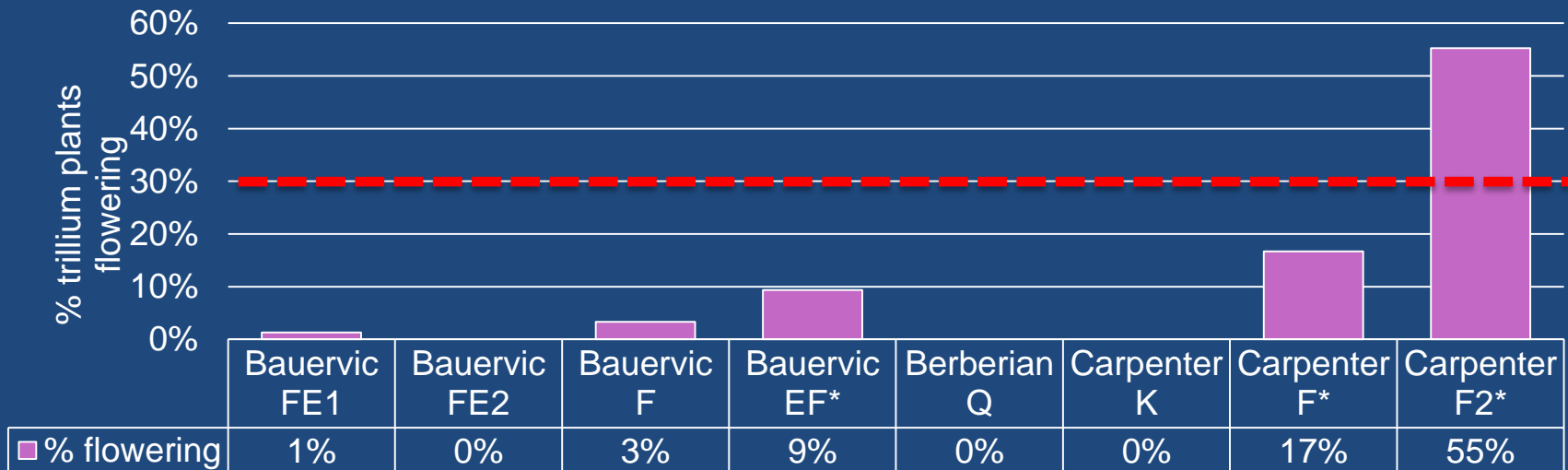
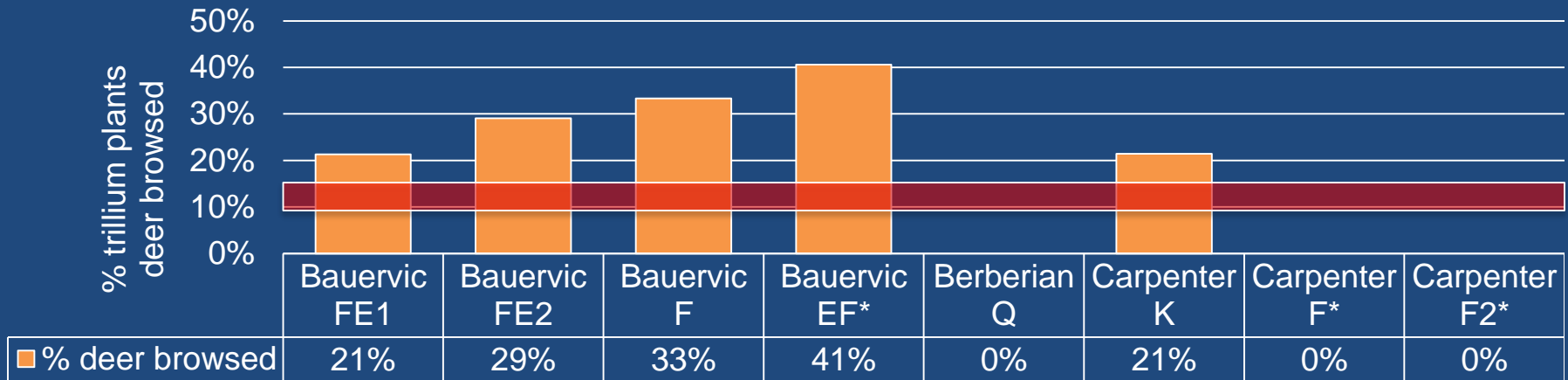
Hard to
see
absence

Unbrowsed:
12

Browsed: 27
stems + 1 leaf

According to other studies...

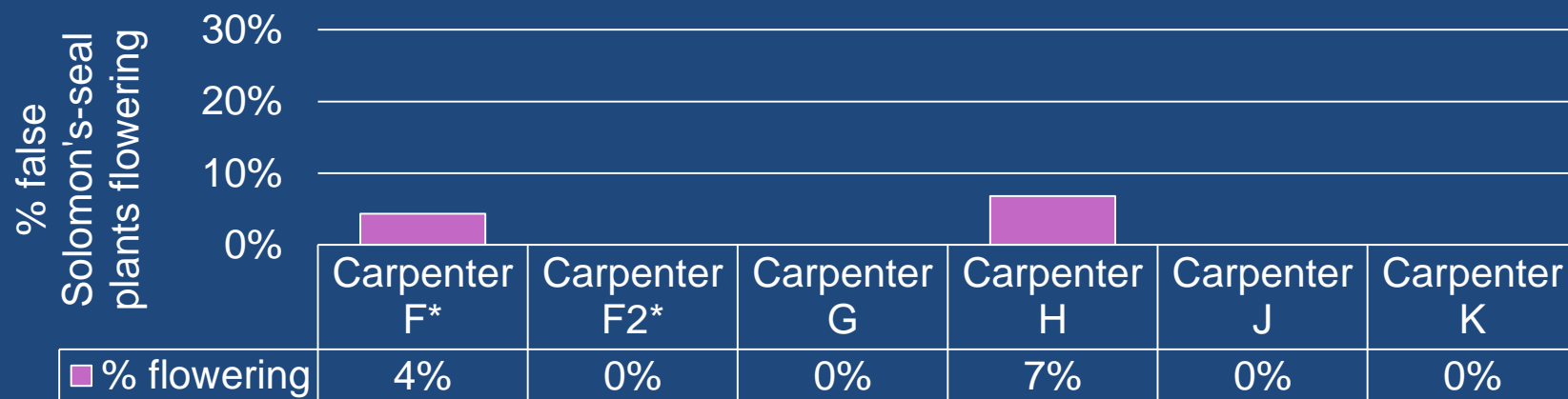
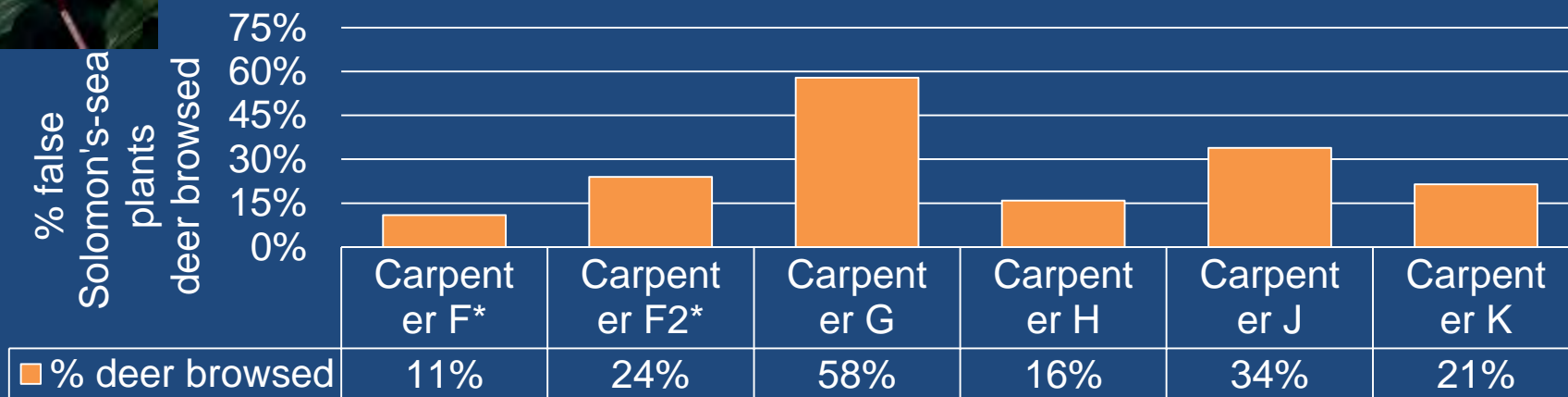
Deer browse rates >10-15% likely to lead to population declines



Flowering rates <30% suggest the need for deer management



High rates of deer browse are correlated with low rates of flowering



BERBERIAN DOLLS-EYES



Keep an eye on this!



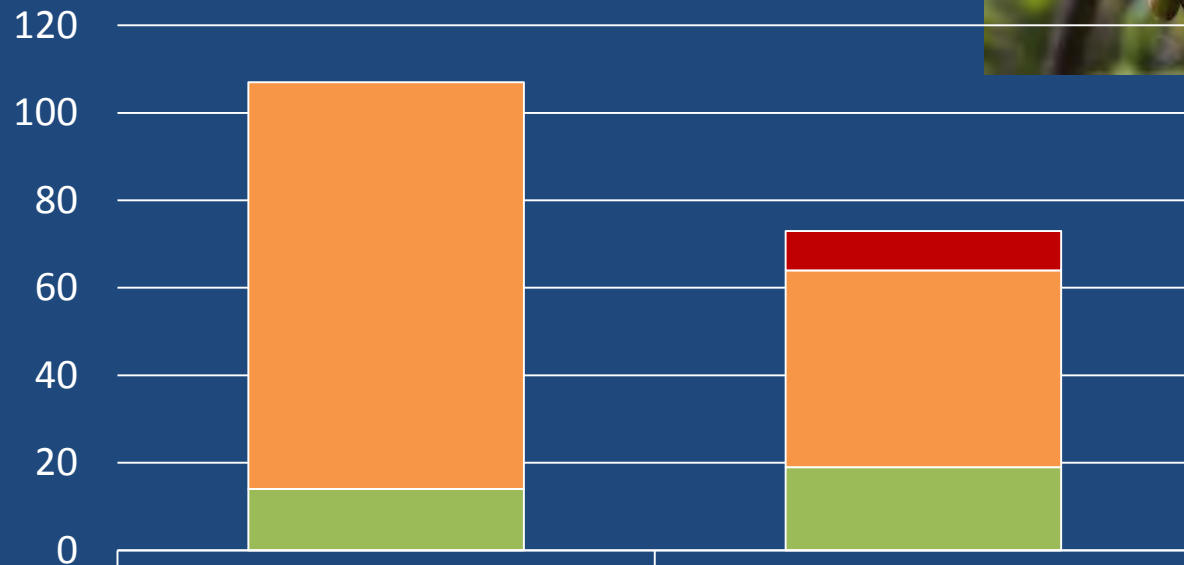
- 31 of 37 deer browsed (2018); only 11 fruits remaining (compared to 66 on 3 sheltered plants)
- 7 of 7 plants deer browsed (2019), but late in season so others might have died back



Bladdernut (A bee-loved shrub)



stems, bladdernut



	Berberian 2018	Berberian 2019
# dead (after browse)		9
# deer browsed	93	45
# un browsed	14	19

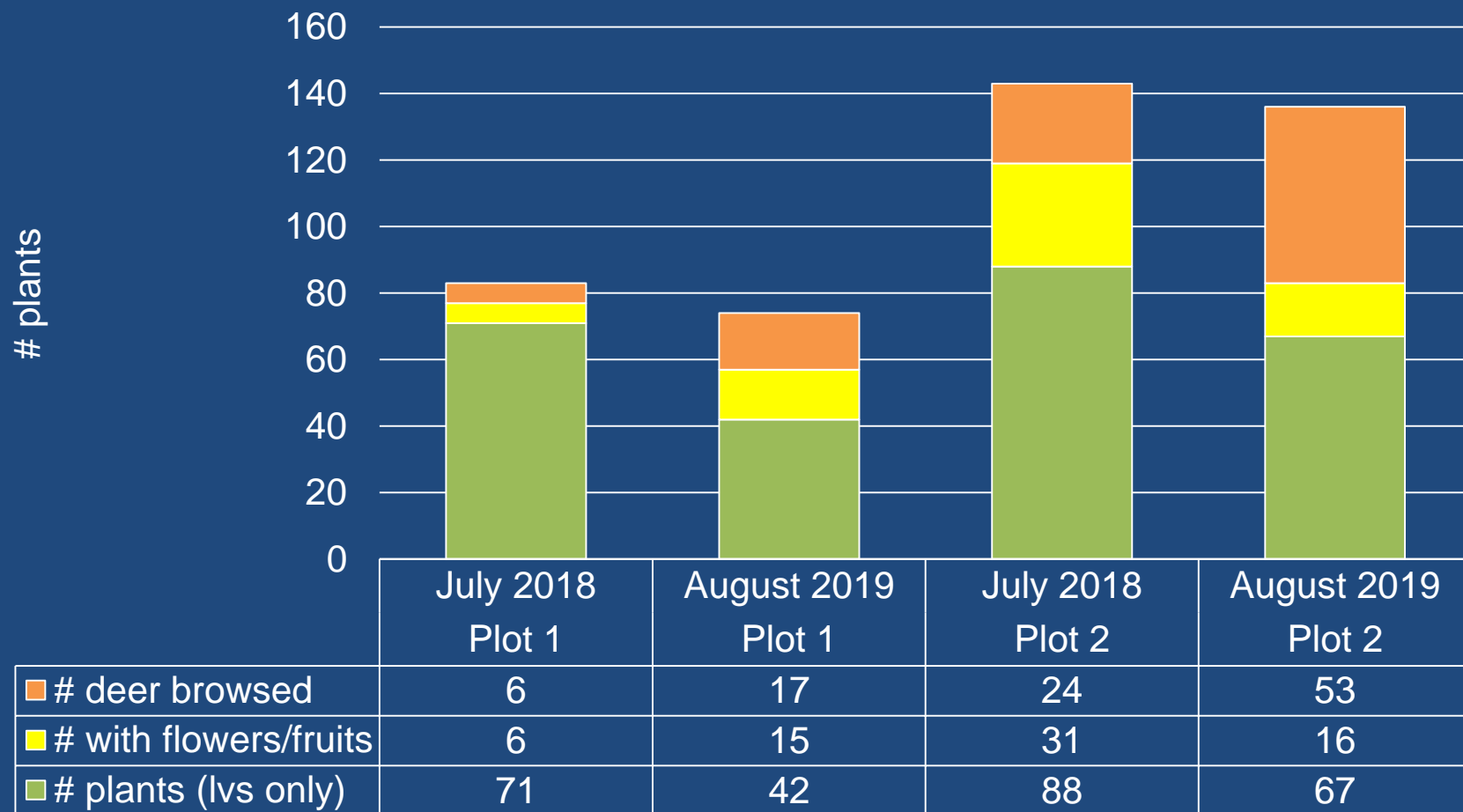
dead after browsing not recorded 2018

State threatened (protected) species: Goldenseal



Deer browse ↑ Abundance ↓

2018–2019



Overview

- Deer impacts on plant communities
 - Background
 - Research findings in Southfield
 - How are deer affecting trees?
 - How are deer affecting wildflowers?
 - **Implications**
- Deer vs. other threats
- Options for managing deer impacts

Why does deer browse on tree seedlings matter?

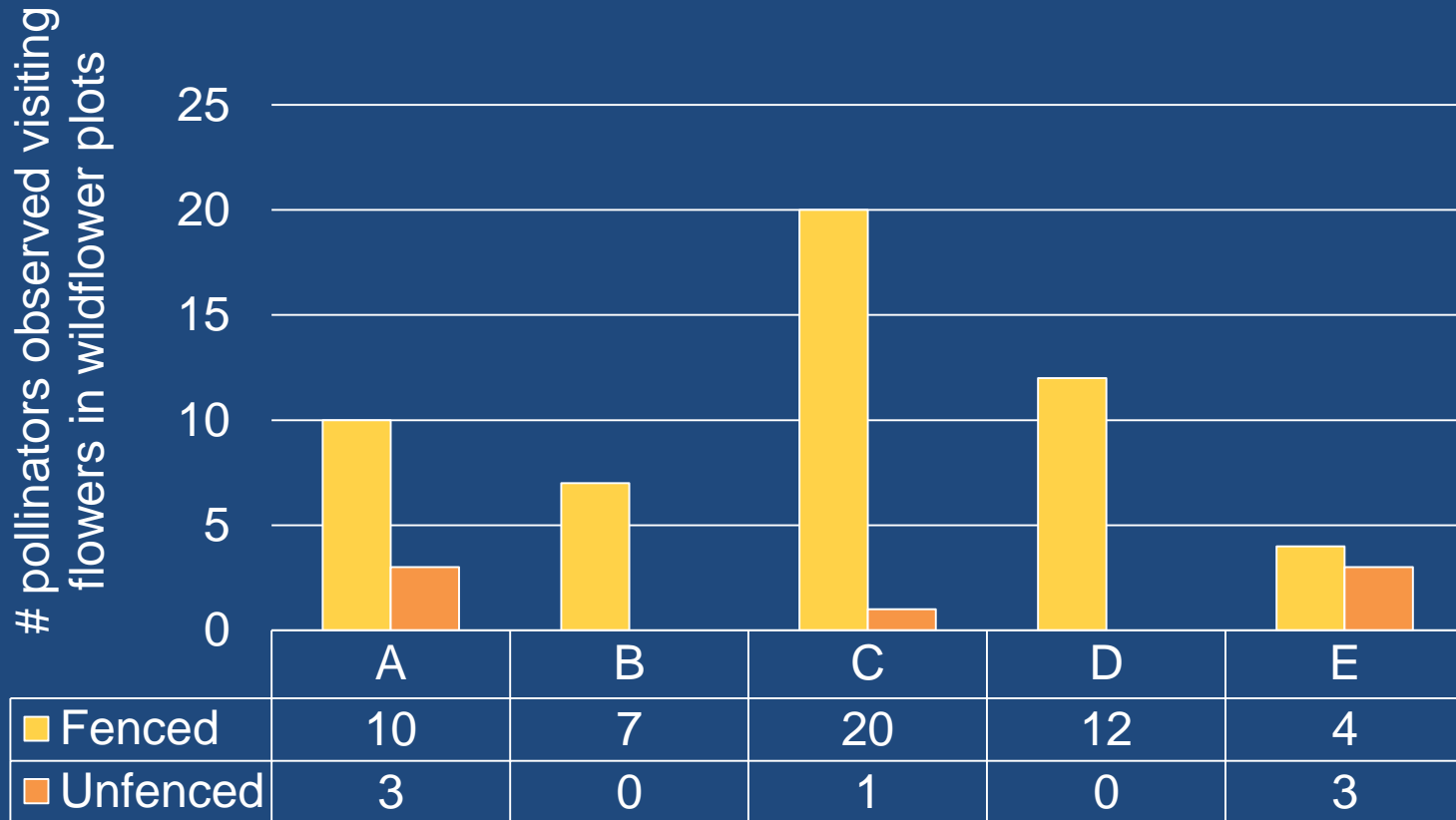
- ↓ tree seedling survival, growth
- ↓ forest regeneration
 - oak regeneration a particular concern in NE U.S.
- “Forest disintegration”
 - Conversion to grasslands, ferns, sedges
 - Affects many species
- ↓ ecosystem services (water quality, flood & erosion control)
- Carbon sequestration

Why does deer browse on wildflowers matter?

- Reduced flowering, fruiting leads to reduced reproduction; over time, population declines
- Fewer resources for other species
 - Pollinators
 - Songbirds
 - Small mammals



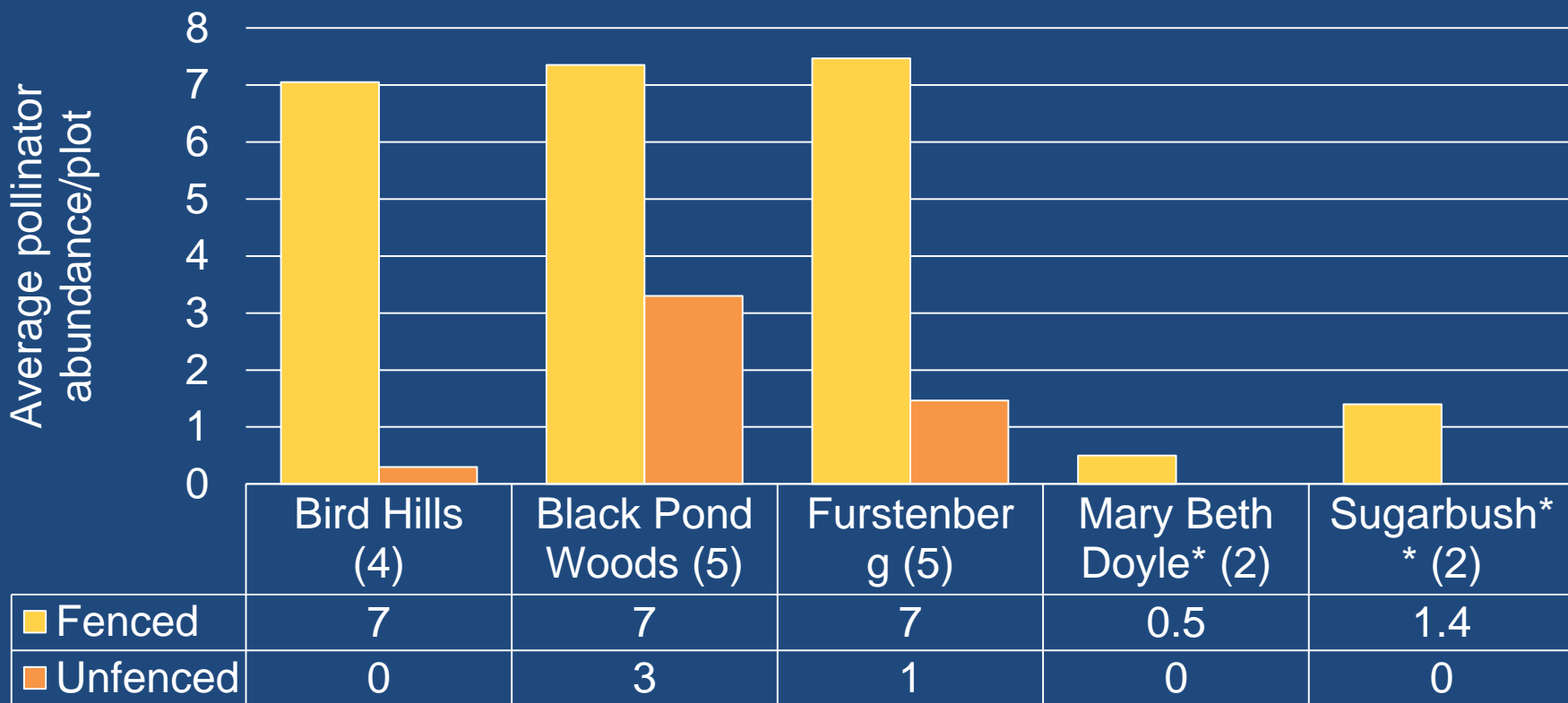
Pilot study: where there are fewer flowers, fewer pollinators



Pilot study of pollinator visitors in 1 site, 5 plot pairs, 15-minute time intervals. Ann Arbor park, 10/5/2018



Fewer pollinators in deer-accessible unfenced plots, 2019



Pollinator abundance assessed 5 Ann Arbor parks in repeated 3-5 minute counts, 2-5 plot pairs per site (# in parentheses). * Few pollinators out during 2 visits. ** Just 2 unfenced plots had flowers.

Typical forest asters and goldenrods hard to find in Southfield parks



Bluestem goldenrod

Zigzag
goldenrod



(Big-leaved aster)



Heart-leaved aster

Overview

- Deer impacts on plant communities
 - Background
 - Research findings in Southfield
 - Implications
- **Deer vs. other threats**
- Options for managing deer impacts

Multiple stressors: Not either/or, but both/and

- Deer are one of many stressors
 - Habitat destruction & fragmentation
 - Invasive species (including insects, disease)
 - Global warming/climate change
 - Acid rain, etc.
- Deer amplify the stresses
- Plants less able to recover, reproduce
- Fewer resources for other species

Overview

- Deer impacts on plant communities
 - Background
 - Research findings in Southfield
 - Implications
- Deer vs. other threats
- **Options for managing deer impacts**

Options for managing deer impacts

Option	Home landscapes	Natural areas	Possible outcomes
Do nothing	X		Population controlled by vehicle crashes, starvation, disease
		X	Lose plants, species, communities over time; convert to grasslands, novel ecosystems?
Plant deer-resistant species	X		Varies over time, place--deer preferences not all the same
		X	Grasses, sedges, ferns less damaged than wildflowers
Deer repellents	X		Varying effectiveness; may need repeat application
		X	Costly, impractical for large areas; need for repeat treatments
Fencing	X	Limited	Costly, impractical for large areas; needs continued maintenance; indirect effects (more small mammal damage?)
Deer management	?	X	Can protect natural areas with continued effort



Questions?
jbcourteau@gmail.com



Acknowledgments

- **Southfield staff:** John Michrina (Deputy City Administrator); Kost Kapchonick (Parks & Operations Supervisor)
- **Methods:** Bernd Blossey, Cornell University; Don Waller, University of Wisconsin; Tom Rawinski, USFS
- **Field technicians:** Sam Holtzman; Manuel Anderson; Kyle Lough; Calvin Floyd; Jack Floyd; Ethan Hiltner; Irene Hochgraf-Cameron.

References (see also wc4eb.org)

- Averill, KM, DA Mortensen, EAH Smithwick, E Post. 2016. Deer feeding selectivity for invasive plants. *Biological Invasions* 18 (5): 1247 DOI: [10.1007/s10530-016-1063-z](https://doi.org/10.1007/s10530-016-1063-z)
- Floyd, M. A. 2014. *Trophic Cascade Effects of Deer Overabundance on Connecticut's Native Vegetation and Small Mammal Populations*. Master's Thesis. Paper 647. http://digitalcommons.uconn.edu/gs_theses/647
- Frerker, K. A. Sabo, and D. Waller. 2014. Long-term regional shifts in plant community composition are largely explained by local deer impact experiments. *PLoS ONE* 9(12): e115843. doi:10.1371/journal.pone.0115843.
- Hines, S. 2016. Development of a biologically centered habitat-monitoring technique: SPIDER transect method. *Southeastern Naturalist* 15(3): 518–22.
- Myers, JA, M Vellend, S Gardescu , and PLMarks. 2004. [Seed dispersal by white-tailed deer: implications for long-distance dispersal, invasion, and migration of plants in eastern North America](#). *Oecologia*. 139(1): 35-44.
- Pendergast, T.H., S.M. Hanlon, Z.M. Long, A.A. Royo, and W.P. Carson. 2016. The legacy of deer overabundance: long-term delays in herbaceous understory recovery. *Canadian Journal of Forest Research* 46(3): 362-369. 10.1139/cjfr-2015-0280
- Rawinski, T.J. 2014. *White-tailed deer in Northeastern forests: Understanding and assessing impacts*. Report for U.S. Department of Agriculture Forest Service, Northeastern Area State and Private Forestry, www.na.fs.fed.us. Reprinted January 2016 NA-IN-02-14. 28 p.
- Rawinski, T.J. 2008. *Impacts of White-Tailed Deer Overabundance in Forest Ecosystems: An Overview*. Report for U.S. Department of Agriculture Forest Service, Northeastern Area State and Private Forestry Forest Service. www.na.fs.fed.us. June 2008. 8 p.
- Rooney, T.P., and D.M. Waller. 2003. Direct and indirect effects of white-tailed deer in forest ecosystems. *Forest Ecology and Management* 181: 165–176.
- Stohlgren T.J., L.D. Schell, & B.V. Heuvel. 1999. How grazing and soil quality affect native and exotic plant diversity in Rocky Mountain grasslands. *Ecological Applications* 9: 45–4.
- Strohmayr, K.A.K., and R.J Warren. 1997. Are overabundant deer herds in the eastern United States creating alternative stable states in forest plant communities? *Wildlife Society Bulletin* 25(2): 227–234.
- Williams, SC, JS Ward and U Ramakrishnan. 2008. [Endozoochory by white-tailed deer \(*Odocoileus virginianus*\) across a suburban/woodland interface](#). *Forest Ecology and Management*. 255(3-4): 940-947.

Appendix 5

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: _____

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

_____ I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

_____ I have personally suffered property damage due to deer, and I think the herd needs to be reduced

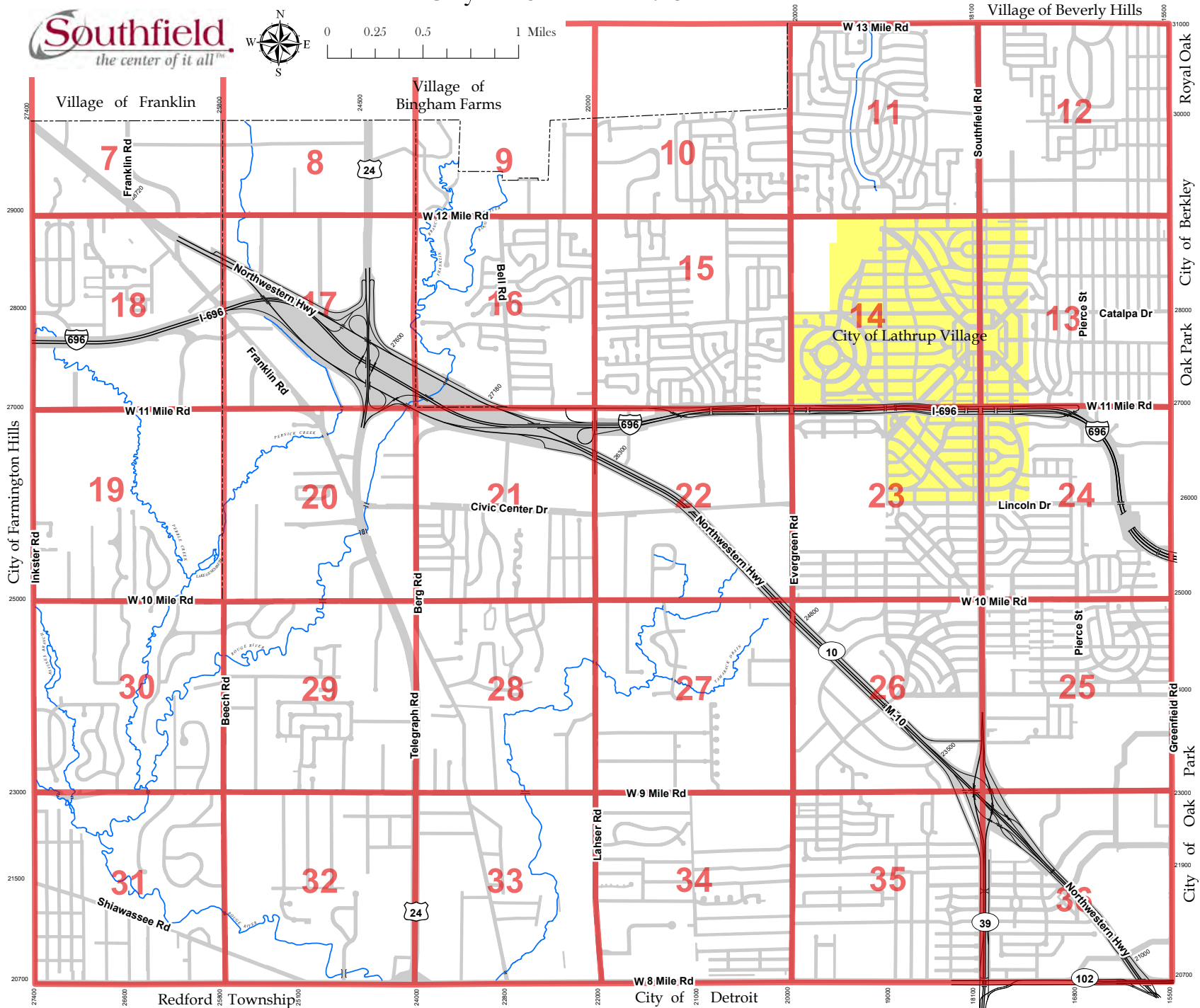
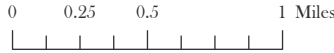
_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

City of Southfield Sections



Appendix 6

Q1. Map Section No.	Q2. Reason for Attending	Q3. Personal Impact /Herd Reduction	Transcriber's Notes	Q4. Narrative Comments
13		3	No Answer to Q3	
13		1	1 Lathrup Village	
		1	1 No answer to Q1	
21		1	1	
			Multiple answers to Q3, selected answer that	
21		3	1 reflected Q4 answer	
			No answer to Q1 but	
		1	1 Southfield resident	
		1	1 No answer to Q1	
			No answer to Q1. Two answers to Q2, selected answer that reflected Q4	
		3	2 response	
9		1	1	
			Two answers for Q1,	
9		2	4 selected 9 over 8	
9		3	3	None
10		4	2	
10		1	1	
10		1	1	
10		1	1	
10		1	1	
10		2	3	
10		1	1	None
11		3	4	none
21		3	1	
11		2	4	none
11		3	1	
11		1	1	
11		1	1	none
11		1	1	

11	3	2	none
			multiple answers selected for Q2, selected the
11	3	3	answer that reflected Q4
			multiple answers selected for Q2, selected the
11	4	4	answer that reflected Q4
11	1	1	
11	1	1	
11	1	1	
12	1	1	
12	4	2	
12	1	1	
12	3	4	none
12	1	1	none
13	1	1	none
13	1	2	
13	1	1	
13	1	1	
13	3	2	
13	4	2	
			Wrote in for Q4: I have had damage and have mixed feelings on deer removal
14	4		none
			marked two for Q2, selected #3 as it better
15	3	1	reflected comments in Q4
15	3	3	
15	1	1	
15	1	1	

15	1	1	none
15	2	3	
15	1	1	none
16	1	1	
		no answer for Q3; Q4 appears to support removal/cull	
16	1		
		Q1 marked #1, 3, and 4 so	
19		1 no answer was tabulated	none
19	2	3	
19	1	1	
19	1	1	
19	1	1	
19	2	4	
21	1	1	
21	3	3	none
21	3	3	none
21	3	3	
21	1	1	none
21	3	3	
21	3	no answer to Q3	"here to learn"
21	1	1	
21	4	3	none
21	3	1	none
21	1	1	
22	1	1	none
23	2	4	none
24	4	3	
24	1	1	
24	1	1	
26	1	1	
26	3	no answer to Q3	none
26	4	no answer to Q3	

27	1	1	
			two answers were selected for Q1, #3 was picked as
27	3	1	mixed feelings none
27	1	1	none
27	3	2	
27	1	1	none
28	1	1	
28	1	1	
28	1	1	none
28	2	3	none
28	2	3	"culls do not work" "add more deer crossing signs"
28	2	3	none
28	3	3	"50 years ago you rarely seen the deer now they are out of control"
29	1	1	none
29	1	1	none
29	1	1	none
29	4	1	
			Q1 was both sec # 30 and
29	3	1	29. none
29	1	1	
29	1	1	none
29	1	1	none
29	1	1	
29	1	1	
29	1	1	none
29	1	1	
29	1	1	
30	1	1	
30	3	1	

30	1	1	none
30	1	1	none
30	1	1	
30	1	1	none
30	3	1 Q1 had 3 & 4 selected	
30	1	1	none
30	1	1	
30	1	1	
		Q1 said could be 29 or 32, depending on side of	
29	1	1 street.	none
30	1	1	none
31	2	4	
31	1	2	
		Q2 had 1 and 3 selected, marked 3 for mixed	"Just had to stop for 4 deer on my street on my way here"
32	3	1 feelings	
32	3	1	none
32	1	1	none
32	1	1	none
34	2	3	
			"not sure of the most economically resolution of the deer problem"
34	3	4	
35	1	1	none
35	1	1	none
35	1	1	
35	1	1	none
		Q2 had 1 and 3 selected, marked 3 for mixed	
35	3	1 feelings	none
			"Please make sure the ballot is clear to what you are voting on."
35	3	2	

35	1	1	
35	1	1	none
35	1	1	
35	1	1	none
35	1	1	none
35	2	3	none
38	1	1	"please remove the deer by the least expensive way as possible just then use sharp shooting to get intended result."

Q2

60.40%
9.70%
23.10%
6.70%

Q3

71.30%
7.80%
13.90%
7.00%

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 13

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

_____ I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

_____ I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

I have mixed feelings because I don't have an issue personally with the deer, especially since I believe my church (which had to cut down an huge woodlot area to expand bus parking lot & children's church) may be part of the problem. Finally, I have an issue with raising Southfield taxes, which is one of the highest in the state.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 13

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Reduce the DHR population, they are awful!

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: _____

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

_____ Hoping to hear a plan
 _____ for reduction - will vote
 _____ in favor

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: See back

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: Southfield

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Although I use Liquid Fence and other sprays to keep deer from eating my plants and flowers, they still end up damaging them. This is caused by not being able to go around the house daily. The deer will rest in my yard -- usually three to four at a time. Deer browse daily and eat.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: Sec back

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

BY ANY MEAN NEEDED

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: _____

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: Southfield

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

The deer have eaten my trees in my backyard at their height, and continue to eat them and other plants.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: _____

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: _____

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

_____ I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

The deer deserve to have a safe & decent home. Perhaps they could be moved to a more convenient (to deer life) location

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 9

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

After the presentation my desire to cull
the herd is even higher due to the
evidence of overall damage to plant
environment

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 908

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

can't
sell

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

IT WOULD BE CHEAPER TO MAKE
AVAILABLE TO OUR RESIDENTS TO PROVIDE
LIQUID FENCE WHICH WORKS PERFECTLY IN
KEEPING DEER & RABBITS FROM EATING THE
LANDSCAPE. IT ABSOLUTELY WORKS.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 9

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 10

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

_____ I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

_____ I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

I am attending this event because I have
a general curiosity of how the deer herd will
be mitigated. The large deer herd seems to have
been a long on going 'issue'

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 10

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

I AM concerned about the impact the deer are having
on people + property. It is impossible to have plants of
any type in the yard. They are ruining the landscaping,
causing car accidents and the potential for disease is
enormous.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 10

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

I THINK WE SHOULD CONTROL THE
HERD LIKE THE REST OF THE STATE DOES
EVERY YEAR, I DO ENJOY SPRING THEM
AS WELL

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 10

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

The deer are forced to eat whatever is available in their area due to over population. I've went to deer resistant plants and the deer then switch to plants that they had never eaten before (Hortas, conifers, etc). The problem only gets worse as the number of deer in the area increase. They have no place to go.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 10

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

I am also concerned about the deer have on PEOPLE, not just property. I am afraid of driving at night for fear of hitting a deer. I am also concerned about the health of the deer - what diseases they might bring - and also fear that the deer are roaming farther & eating plants that they did not eat before because there is insufficient food in their natural habitat.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 10

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

_____ I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

_____ I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

IS Culling The Deer Herd our
ONLY option? Can we spend the
funds to capture & Relocate?

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 10

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 11

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

_____ I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

_____ I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 21

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

_____ I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Fine w/ having deer around but would like
some herd reduction & other actions to re-introduce
a fear or hesitancy of humans. Cull or Bow hunt or
both/hybrid would be a good idea in my opinion

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 11

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 11

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered ^{plants, etc.} property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Concerned About Deer Safety as well

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 11

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: SOUTHFIELD

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

The deer population is ridiculous the animals
are in our yard daily. They poop, eat our
plants and made it impossible to have a
vegetable garden & made the back yard impossible
like in Michigan for our grand children

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 11

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced *humanely*

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 11

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

We have small herds (10 or 12) of deer that wander our backyards, The deer bring ticks with Lyme disease and are a health hazard to residents. During the winter they come on our patio and try to sleep next to our patio sliding door. In summer they eat my flowers. In winter they eat the shrubs and sometimes the bark on the trees. They wander on the roads and are a driving hazard. Recently we had a 10 point buck in the backyard.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 11

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

_____ I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

X I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

_____ I have personally suffered property damage due to deer, and I think the herd needs to be reduced

X I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 11

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

How would they be reduced if that decision is
reached

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 11

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: Southfield

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

I Love to see the Deer around
our home. They spend days in my
Backyard. I just love they.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 11

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

They are not afraid of people. They are aggressive towards my dogs (~80 lbs)

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 11

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

The deer have eaten my hosta
lilies and other plants, but I don't consider that
damages. I have bumped into a deer with my car
and I think that is dangerous for both parties.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 11

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Too many deer! Please reduce the herd!
Please!

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 12

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

I DON'T WISH TO ELIMINATE
THE DEER HERD, BUT THEY DO
NEED TO BE DRASICLY REDUCED.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 12

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

_____ I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

X I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

_____ I have personally suffered property damage due to deer, and I think the herd needs to be reduced

X I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

THE DEER AT TIMES VISIT OUR PROPERTY. THEY LOVE OUR HOSTA

PLANTS AND FEAST ON THEM. SOMETIMES WE HAVE TO

3-5 DEER IN OUR BACKYARD. THOUGH ITS A NUISANCE THE

DEER SEEM RELAXED AND DON'T BOTHER US. THE QUESTION

IS WILL THE DEER MULTIPLY AND WHAT NEEDS TO BE ACCOMPLISHED TO CURTAIL THE DEER POPULATION.

IT IS 10.8 DEER PER SQ. MILE AND NOT 80!

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 12

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

THOUGH I DO ENJOY THE FAWN'S & SEEING THE
DEER, I DON'T ENJOY THE TREE DAMAGE OR EATING
OF PLANTS / FLOWERS

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 12

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

_____ I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

X I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

_____ I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

X I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 12

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 13

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 13

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

The deer population has increased to the
point of being a traffic hazard in some
areas

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 13

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Who decides on what
will happen?
If nothing; can a legitimate
question be placed on a ballot
in the future?

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 13

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

We have 7 deer that travel in
our neighborhood consistently.
2019- I had tick bite + got Lyme disease

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 13

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

_____ I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

I think other options should be explored before
challenging -

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 13

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: Southfield

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced ✓

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

I think we should be
able to manage the size of the
herd.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 14

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

_____ I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

_____ I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

have had damage and have mixed feelings on deer removal

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 15

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

COYOTES Kill PETS AND DEER

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 15

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: Southfield

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

I Love Seeing The Deer

I just wish it was

an easy way to control them

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 13

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Help please reduce or
Remove the deer, I paid to much
on shrubs, flowers.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 15

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Deer were here but best "beautification" and
property damage are incompatible. We need
an animal/people sensitivity to possible solutions

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 15

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 15

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

_____ I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

_____ I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Reduce road kills 9 miles
to the current area
deer numbers high 50 miles a top.

Anonymous Survey About The Southfield Deer Herd

- 1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 15

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

- 2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

- 3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

- 4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 16

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

We need to reduce the
population soon!

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 16

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

The Deer population is out of control and their destructiveness has caused extensive damage to my landscape.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 19

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 19

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

The deer are a pleasure to watch.
and we can plant deer resistant plants
and shrubbery to keep them off our
property without eliminating them
altogether.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 19

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

There are entirely too many deer in Southfield now and they keep having babies every year. I'm tired of buying deer repellent and so I had to dig up my beautiful plants and give them away. How are we going to have a beautiful city if the deer destroys our property? Enough is enough !!!

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 19

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

I CANT KEEP FLOWERS OR BUSHES

DEER EAT THEM ALL. PERSONALLY COUNTED

12 TO 15 DEER AT ONE TIME, FOR SEVERAL TIMES

WITHIN THE LAST 15 YEARS.

RD GRAYBILL
25230 WYCLIFFS
48033

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 19

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

The deer have reduced me to metal
flowers only. This after 20th yrs. winning a head of the estate
award. All my in ground flowers are gone and they
are now eating my shrubs and small trees.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 19

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

I MOVED TO SOUTHFIELD BECAUSE
OF THE DEER, AND THE WILDLIFE.

I LOVE TO SEE DEER ON MY
PROPERTY, THEY ARE "NOT" DOING ANY
HARM TO MY PROPERTY AND MY
NEIGHBORS. MY NEIGHBORS COULD NOT
ATTEND BUT SUPPORT KEEPING THE DEER.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 21

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Please give-us some
help. To much is being
destroyed.

Thank you

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 21

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: N/A

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 21

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

_____ I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

_____ I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 21

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

_____ I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

* I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

_____ I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

* I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

* We enjoy deer but recognize there is a population issue. We adjusted landscaping to plants that are resistant to them and not attractive to them. Our question regards exactly how and where a cull would be executed.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 21

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

I like the deer, but there are
too many. They even eat all
the bushes!

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 21

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: N/A

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

- yes they eat my hosta's and other plants but what a beautiful sight they make!
- I only see the Deer 4 months out of the year.
- AND ONLY when my spring flowers are blooming!
- they have forced me to be a cautious driver on residential streets
- why can't they be moved to Belle Isle?

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 21

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

_____ I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

_____ I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

have to learn

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 21

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Deer have crushed down Spruce
A eaten flowers & destroyed
Rose bush.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 21

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

_____ I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

_____ I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 21

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

_____ I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 21

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

I think the city should consider allowing Resident
hunters to archery hunt before pay non-Res
to call. Archery proficiency can be done at
the police station as done in other states.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 22

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 23

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

_____ I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

_____ I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 24

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

_____ I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

_____ I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

DEER EAT A LOT OF
My FLOWERS.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 24

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

there are way too many in
my area, too many deer
and deer waste/poop.
Terrible smell on warm days.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 24

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 24

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Deer have destroyed landscape around home & I am tired of investing money in it. I suggest shooting deer

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 26

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

_____ I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

_____ I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 26

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

_____ I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

_____ I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

I didn't know that Southfield was "over" populated with deer. How do you plan to reduce the herd if the decision is made to do that. I never see deer in my area. Mt. Vernon Rd. + Southfield Rd.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 27

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

→ ON ANY day, I can see 10 deer out my window
→ I am concerned for
- ENVIRONMENT & tree growth → Deforestation
- Deer are killing new growth
- DISEASE: Ticks & Lyme Disease
- Health of the deer herds - they do not look healthy
- LANDSCAPE / Gardens - None existant in SFID
→ # of car accidents & impact on CAR Insurance in SFID

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 37

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 27

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 27

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

_____ I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

X I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

_____ I have personally suffered property damage due to deer, and I think the herd needs to be reduced

X I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 27

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

THEY ARE DEVASTATING THE ECO-SYSTEM!
THEY NEED TO BE BROUGHT BACK IN
BALANCE

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 28

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

THE DEER POPULATION NEEDS TO BE
REDUCED TO INSURE PLANT & TREE
SURVIVAL!

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 28

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

I hope that we CAN hire ^{SHARP} shooter to reduce these,
There are no predators to reduce them and
they keep multiplying,
They are distrestful.

Anonymous Survey About The Southfield Deer Herd

- 1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 28

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

- 2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

- 3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

- 4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

- 1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 28

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

- 2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

- 3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

- 4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 20

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

_____ I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

_____ I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

_____ calls do not work, _____

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 28

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Add more deer crossing signs

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 28

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

_____ I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

_____ I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 29

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

50 YEARS AGO YOU RARELY SEEN
A DEER NOW THEY ARE OUT OF CONTROL

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 89

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

- 1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 29

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

- 2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

- 3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

- 4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 29

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

_____ I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

I have stopped buying flowers because the deer eat everything. I have at least 8 deer a day going through my 1/2 acre. If you cant control the birth rate, then they must be reduced another way.

Anonymous Survey About The Southfield Deer Herd

0094
MSB

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 30 ~~29~~

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

_____ I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 29

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

3 The deer have damaged my fence line, trampled grass, eaten flowers and literally have given birth to yours in my back yard; grouse feeders, etc.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 29

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 29

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: Southfield

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: ~~20~~ 29

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

The Deer is procreating in large numbers

I have spent hundreds of dollars only to have the Deer destroy my Hostas and Plants. They carry Tick and diseases. I want to control these animals

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: ~~29~~ 29

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

There can be no cuts appear in the community the deer are taking everything
* Also what about the possible problems with deer ties

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 29

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 29

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

The deer herd is far to large. There are no predators to control the population. We regularly see 8-10 deer at a time on our property & they eat everything they can reach including "deer resistant vegetation". Right now, the woods are devoid of any green vegetation on the ground.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 29

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Other wild creatures & vegetation
will benefit from having habitat
restored, which has been destroyed
due to over-grazing.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 30

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

I'M A 35+ YEAR RESIDENT OF SOUTHFIELD AND DUE TO THE UNCONTROLLED DEER POPULATION GROWTH, I AM COMPLETELY DISCOURAGED TO CONTINUE ANY EFFORT TO LANDSCAPE AND BEAUTIFICATION BECAUSE THE DEER HAVE CONTINUED TO AGGRESSIVELY DESTROY ANYTHING & EVERYTHING IN MY YARD. THEY HAVE LOWERED MY PROPERTY VALUE AND DESTROYED MY DESIRE TO HAVE A NICE GARDEN AND YARD. ENOUGH! PLEASE TAKE ACTION TO MAKE IT SAFE & HEALTHY FOR HUMAN AND DEER POPULATIONS.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 30

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

_____ I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

I wish there was more education about using products such as fox urine to protect our flower beds

1220
00105

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 30

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 30

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 30

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

I LIKE TO LOOK AT THEM
 BUT THEY HAVE COST US THOUSANDS
 IN LOST/DAMAGED LANDSCAPE ~~MS~~

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 30

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 30

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

_____ I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

New To The Community - 1 yr -
LAKE RAVEN

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 30

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 30

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Have tried standard methods to prevent
damage, but all have failed. Even barriers have been
occasionally destroyed.
Also have had close calls while driving.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 30

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

I love watching the deer, but they damage
all my gardens and have fallen on my bike
due to deer traffic.

Anonymous Survey About The Southfield Deer Herd

29 or 32 ?

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here:

98 Beech

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: _____

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: 30

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 31

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

_____ I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

_____ I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

A lot of this talk is so irrelevant!

The woman about the plants was

boring + has nothing to do with
the issue.

We caused the problem
by building without caring
about wildlife

*The deer
are
welcome
to my thing
or my
property!*

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 31

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

_____ I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

The deer Herd while enjoyable has reached
a level both unhealthy for the deer them selves
and for residents

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 32

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Just had to stop for 4 deer on my street on my way here.

Anonymous Survey About The Southfield Deer Herd

- 1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 32

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

- 2. Please check **one** of the following:

_____ I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

X I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

- 3. Please check **one** of the following:

X I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

- 4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

~~2018~~
~~2018~~
2019

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 32

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 32

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 34

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

_____ I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

_____ I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

The information presented was skewed
as deer as a nuisance. Is there any
positive information?

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 34

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

_____ I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

_____ I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Not sure of the most economically
resolution for the deer problems.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 35

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

- 1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 35

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

- 2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

- 3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

- 4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 35

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

The deer have destroyed our landscape. I am unable to keep any flowers in my yard!! They roam throughout our subdivision during the late evenings. I almost ran into a herd of them while driving home. Something needs to be done!! We're frustrated

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 35

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 35

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 35

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

_____ I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

_____ I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

 Please make sure the Ballot
 is clear to what you are
 voting on.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: ~~35~~ 35

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

- I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property
- I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them
- I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property
- I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

- I have personally suffered property damage due to deer, and I think the herd needs to be reduced
- I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced
- I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced
- I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

The deer destroyed 5 boarder
 2 shade trees
 trees, 2 Apple trees, AND year after year
 (eat me over 2000 a year)
 They eat up my flower bed. They Nest Next
 Door under Trees. Dogs getting their ticks and
 fleas, cause they come over to my yard, Defecate
 on my lawn.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 35

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 35

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Ticks, smell, poop cant enjoy my yard my Dog cant enjoy yard spent hundreds of dollars on sprays or anything they dont suppose to like or smells

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 35

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

- 1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 35

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

- 2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

- 3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

- 4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 38

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Anonymous Survey About The Southfield Deer Herd

1. On the reverse side of this informal survey is a **numbered grid** of a map of Southfield and Lathrup Village. If you are a resident in one of these cities, locate the **number** on the map closest to your **residence** and write it here: 58

If you are **not** a resident of one of the two cities mentioned above, please print the name of your city here: _____

2. Please check **one** of the following:

I am attending this educational event because I am concerned about the **negative** impact Southfield deer are having on residential property

_____ I am attending this educational event because I **enjoy** the presence of deer in Southfield and want to learn more about them

_____ I am attending this educational event to learn more about the Southfield deer herd, and have **mixed feelings** about the impact Southfield deer are having on residential property

_____ I am attending this educational event to learn more about the Southfield deer herd, and am **neutral** about the impact Southfield deer are having on residential property

3. Please check **one** of the following:

I have personally suffered property damage due to deer, and I think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, but I think the herd needs to be reduced

_____ I have personally suffered property damage due to deer, but I **do not** think the herd needs to be reduced

_____ I have **not** personally suffered property damage due to deer, I **do not** think the herd needs to be reduced

4. Please feel free to add any comments or questions that you wish in the space provided below.

Please remove the deer by the
least expensive way as possible first
then use sharp shooting to get intended
results

APPENDIX 7

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Human–Wildlife Interactions

Wildlife Damage Management, Internet Center
for

2008

Sharpshooting suburban white-tailed deer reduces deer–vehicle collisions

Anthony J. DeNicola
White Buffalo Inc.

Scott C. Williams
Connecticut Agricultural Experiment Station

Follow this and additional works at: <https://digitalcommons.unl.edu/hwi>



Part of the [Environmental Health and Protection Commons](#)

DeNicola, Anthony J. and Williams, Scott C., "Sharpshooting suburban white-tailed deer reduces deer–vehicle collisions" (2008). *Human–Wildlife Interactions*. 69.
<https://digitalcommons.unl.edu/hwi/69>

This Article is brought to you for free and open access by the Wildlife Damage Management, Internet Center for at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Human–Wildlife Interactions by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

Sharpshooting suburban white-tailed deer reduces deer–vehicle collisions

ANTHONY J. DENICOLA, White Buffalo Inc., 26 Davison Road, Moodus, CT 06469, USA
wbuffaloinc@aol.com

SCOTT C. WILLIAMS, Connecticut Agricultural Experiment Station, 123 Huntington Street, New Haven, CT 06511, USA

Abstract. Too many deer–vehicle collisions (DVCs) are one of the primary reasons local governments implement lethal deer management programs. However, there are limited data to demonstrate that a reduction in deer (*Odocoileus* spp.) densities will result in a decline in DVCs. We conducted sharpshooting programs in 3 suburban communities to reduce deer numbers and to address rising DVCs. Annual or periodic population estimates were conducted using both helicopter snow counts and aerial infrared counts to assess population trends. Management efforts were conducted from 3 to 7 years. Local deer herds were reduced by 54%, 72%, and 76%, with resulting reductions in DVCs of 49%, 75%, and 78%, respectively. These projects clearly demonstrate that a reduction in local deer densities using lethal methods can significantly reduce DVCs.

Key words: deer–vehicle collisions, human–wildlife conflict, *Odocoileus virginianus*, sharpshooting, suburban, white-tailed deer, wildlife damage management

DEER–VEHICLE COLLISIONS (DVCs) and their related public safety concerns are one of the most significant conflicts that arise when white-tailed deer (*Odocoileus virginianus*) become abundant in urban and suburban environments (Ng et al. 2008). Conover et al. (1995) estimated that there are >1 million DVCs in the United States annually, and >200 human deaths are attributed to these events.

It has been demonstrated that DVCs increase as local deer populations increase (Hygnstrom and VerCauteren 1999, Etter et al. 2000, Hussain et al. 2007, Grovenburg et al. 2008, Rutberg and Naugle 2008). One could logically conclude that a reduction in deer abundance would lead to a decline in DVCs (Mastro et al. 2008). The only way to reduce deer numbers efficiently and effectively is through the removal of deer from a local population (DeNicola et al. 2000, Rutberg et al. 2004). In most states, live-trapping and relocating deer is not an option because of high costs, disease transmission risks (e.g., chronic wasting disease), unavailability of suitable release sites, and concerns over stress to captured deer. Furthermore, most relocated deer do not survive a year in their new environs (Conover 2002). Therefore, only lethal management options (i.e., hunting, sharpshooting, and live capture followed by euthanasia) can potentially reduce deer densities in the short term.

There is often considerable controversy associated with discussions about how to address conflicts associated with an abundance of

deer (Storm et al. 2007). Our experience is that elevated numbers of DVCs are often the only conflict that local politicians feel comfortable using to justify the authorization of lethal deer management options. However, no one has demonstrated a clear correlation between reductions in deer densities and a reduction in DVCs. Therefore, our objective was to examine if the implementation of a sharpshooting management program reduced the number of DVCs in 3 suburban counties.

Study areas

We implemented sharpshooting management projects in Iowa City, Iowa; Princeton, New Jersey; and Solon, Ohio. Management efforts were conducted in Iowa City during January 2000, December 2000–January 2001, and December 2001–January 2002. We implemented the sharpshooting program in Princeton during February–March 2001, January–February 2002, February–March 2003, January–February 2004, January 2005, and February 2006. We culled deer in Solon during February–March 2005 and January–March 2006.

Management activities were focused in a 15.5 km² area in Iowa City, all of Princeton Township (36.3 km²), and all of Solon (51.8 km²). These communities were typical suburban developments that were composed of a matrix of suburban and commercial development, with intermingled small agricultural plots and undeveloped open spaces. Public safety concerns



Anthony DeNicola sharpshooting deer.

over increasing DVCs was the reason elected officials approved the use of sharpshooting to reduce the local deer herds.

Methods

We used sharpshooting techniques to kill deer (DeNicola et al. 1997). We selected bait sites throughout the area of operation before beginning sharpshooting efforts in order to maximize the efficiency and safety of removal efforts. We would attempt to have a minimum of 2 bait sites per km². Whole kernel corn was placed on the ground 3 weeks in advance of shooting efforts at select shooting locations. We would place approximately 0.5 to 1 kg of corn per deer daily at each site. Sharpshooting sites were accessed from a vehicle or from a tree stand, during the daytime and after dark. Human safety was ensured by shooting only when there was a known earthen backstop created through the shooter's relative elevation (e.g., tree stand) or topography. Deer were shot only when circumstances were safe (i.e., with no humans in the removal zone). To prevent educating deer to the procedure, we shot when fewer than 9 deer were present. Although we shot deer on a first opportunity basis, when possible antlerless deer were prioritized.

Population estimates were derived using helicopter counts over snow following methods described in Beringer et al. (1998) in Princeton (February 2002). Biologists from the Iowa Department of Natural Resources conducted less systematic helicopter counts over snow in Iowa

City (1999–2002). These counts were done by the same personnel using the methods annually. Therefore, the Iowa City counts were minimum estimates and were not adjusted for detection rates. Aerial infrared (IR) censusing techniques (Naugle et al. 1996) were used over the entire management area in Princeton (December 2004) and Solon (March 2004, December 2005) to estimate population size. All IR counts were conducted by Davis Aviation (Kent, Oh.). Infrared counts were conducted using a single-engine Cessna 182 with a fuselage-mounted, high-resolution Mitsubishi M-600 thermal imager. Transects were designed at 100-m intervals and flown at 500 m above ground. At this elevation 100% coverage was achieved and verified with Global Positioning System (GPS) moving map software. Flights were conducted after 2200 hours to ensure adequate ground cooling and good thermal contrast. The thermal imager output was routed through a video encoder-decoder and recorded on digital videotape for later review. Count data in Princeton and Solon were complemented by conducting simple population projections based on observed demographics (DeNicola 2008). We assumed that 60% of the populations were female, 33% of females were fawns, and recruitment rates were 1:1 (doe:fawn ratio). We then included approximations of non-culling mortality (i.e., DVC and hunter harvest data, when available, and approximate mortality rates for urban deer from the literature (Etter et al. 2002). Immigration and emigration were assumed to be equal.

DVCs were tallied using police reports in Iowa City and a combination of police reports and road-kill collection records (i.e., location of carcasses removed from the roadway) of animal control officers in Princeton and Solon. Data collection methods were consistent among years at all locations. Using Microsoft Excel, we conducted linear regression analyses comparing recorded DVCs to estimated deer densities.

Results

During 49 days over 3 years of sharpshooting at the Iowa City site, we removed 950 deer, with a culling rate of 19.3 deer per day. We culled 1,455 deer during 118 days from Princeton (12.3 deer/day) during a 6-year period. We spent 77 days sharpshooting during 2005 and 2006 to

remove 1,002 deer from Solon (13.0 deer/day). At all communities, we removed more deer and at a higher culling rate per day the first year we started sharpshooting than in subsequent years (Table 1).

Following the implementation of sharpshooting program, deer numbers and the annual number of DVCs were reduced from 49% to 78% in the study sites (Table 2). The highest percentage reduction (78%) occurred in Iowa City where the deer density was reduced by 76%. Reductions in deer densities and DVCs remained suppressed during the entire period of the sharpshooting program and did not rebound in later years (Table 3). There was a direct correlation between annual deer population and DVCs in all study sites (Iowa City, $r^2 = 0.72$, $F = 5.0$, $df = 1, 2$; $P > 0.05$; Princeton, $r^2 = 0.98$, $F = 203.5$, $df = 1, 5$; $P < 0.05$; Solon, $r^2 = 0.99$, $F = 85.1$, $df = 1, 1$; $P > 0.05$; Figure 1).

Discussion

DVCs become more frequent with an increase in deer densities (Etter et al. 2000, Mastro et al. 2008). However, our study is the only one we are aware of that

by accounting for harvest numbers, recruitment rates, and natural mortality occurring within the community. This further supports the observations by McNulty et al. (1997) of local deer management effects on deer movements.

In this study we also found that the percentage

TABLE 1. Number of days sharpshooting was conducted and deer shot and removed from 3 suburban communities during different winters (a winter may include December of the prior year).

Location	Winter	Days of effort	Number deer killed	Number deer killed/day
Iowa City, Ia.	2000	10	360	36.0
	2001	21	340	16.2
	2002	18	250	13.8
Princeton, N.J.	2001	15	322	21.5
	2002	27	303	11.2
	2003	21	280	13.3
	2004	27	276	10.2
	2005	13	124	9.5
Solon, Oh.	2006	15	150	10.0
	2005	37	602	16.3
	2006	40	400	10.0

TABLE 2. Number of deer and annual DVCs, both before (pre-cull) and after (post-cull) implementation of a deer sharpshooting program within 3 suburban communities.

Site location	Winter culling period	No. deer pre-cull	No. DVCs pre-cull	No. deer post-cull	No. DVCs post-cull	% pop. decline	% DVC decline
Iowa City, Ia.	2000–2002	371	63	91	14	76	78
Princeton, N.J.	2001–2006	1600	342	450	85	72	75
Solon, Oh.	2005–2006	1400	171	650	88	54	49

demonstrates that reducing local deer densities through a culling program reduces DVCs (Table 2). Although this relationship is quite intuitive, it is important to demonstrate it because most lethal management programs of suburban deer are motivated by the desire to protect citizens from the cost and danger of injury from DVCs. In our 3 study sites, we found no indication that there was any significant level of immigration of deer into the communities from outside areas or emigration out of the communities. Instead, deer density trends could be predicted

of the deer population killed annually in DVCs consistently ranged from 13% to 20% (Figure 1). Solon had the lowest percentage of the deer population killed by vehicles each year (13.2%), and Princeton had the highest (20.7%). Anecdotal observations of high traffic volumes on narrow roads with low lateral visibility in Princeton may explain why deer are more vulnerable to DVCs there than in Iowa City or Solon.

Even though a management method may be proven effective, the relative implementation

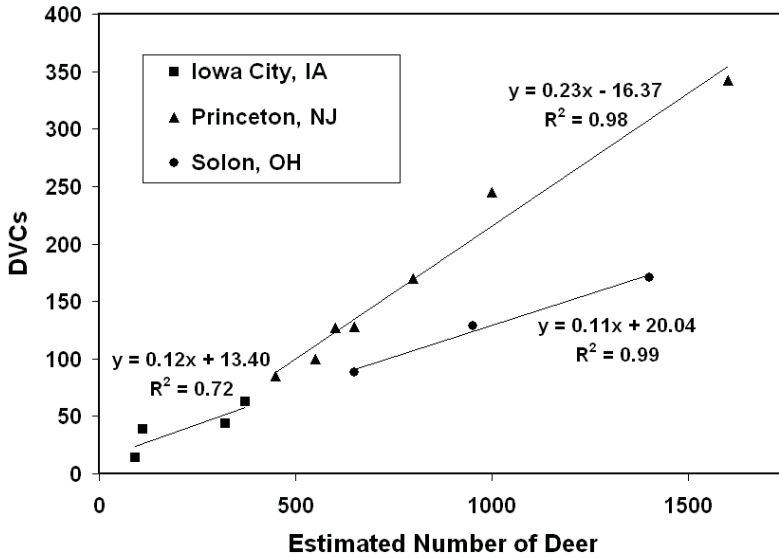


FIGURE 1. Linear regression analysis of deer population size and annual number of DVCs in Iowa City, Iowa, 1999–2002, Princeton, New Jersey, 2000–2006, and Solon, Ohio, 2004–2006.

TABLE 3. Annual changes in the density of deer and recorded DVCs for 3 suburban communities prior to (pre-cull) and after implementation of sharpshooting program to cull deer (data marked with an asterisk [*] were collected pre-cull).

	1999	2000	2001	2002	2003	2004	2005	2006
Iowa City, Ia. (15.5 km²)								
Deer/km ²	23.9*	20.6	7.1	5.9				
DVCs/km ²	4.1*	2.8	2.5	0.9				
Princeton, N.J. (36.3 km²)								
Deer/km ²		44.1*	27.5	22.0	17.9	16.5	15.2	12.4
DVCs/km ²		9.4*	6.7	4.7	3.5	3.5	2.8	2.3
Solon, Oh. (51.8 km²)								
Deer/km ²						27.0*	18.3	12.5
DVCs/km ²						3.3*	2.5	1.7

cost-to-benefit ratio must be considered before it can be determined to be a practical solution. For example, culling costs would be balanced by savings from preventing damage to a vehicle involved in a DVC when the cost to cull a deer equals \$354, based on data from the Princeton site (DeNicola, unpublished data). Moreover, money saved by averting accidents does not include cost benefits associated with a reduction in human injuries and fatalities associated with DVCs (Bissonette et al. 2008). Additional benefits of reducing deer densities include a

reduction in landscape damage (Ward 2000, DeNicola et al. 2000), reduced numbers of black-legged ticks (*Ixodes scapularis*) and associated cases of Lyme disease (Stafford et al. 2003), and reduced ecological damage to forested areas (Kelty and Nyland 1983, Kittredge et al. 1992, Conover 1997).

Acknowledgments

We would like to thank the local municipal governments and police departments of Iowa City, Iowa, Princeton, New Jersey, and Solon,

Ohio, as well as all the cooperating landowners. In addition, we would like to extend our gratitude to the Iowa Department of Natural Resources, the New Jersey Division of Fish and Wildlife, and the Ohio Department of Natural Resources for all their cooperation and assistance.

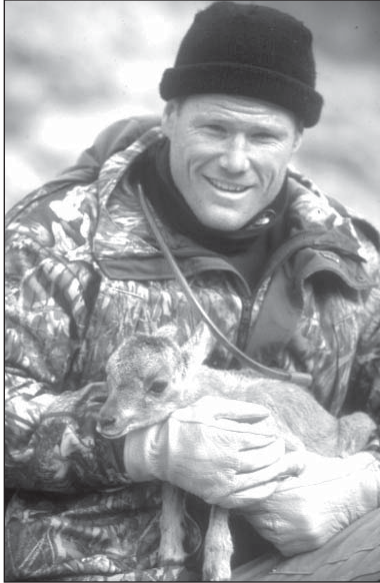
Literature cited

- Beringer, J., L. P. Hanson, and O. Sexton. 1998. Detection rates of white-tailed deer with a helicopter over snow. *Wildlife Society Bulletin* 26:24–28.
- Bissonette, J. A., C. Kassar, and L. J. Cook. 2008. An assessment of costs associated with deer–vehicle collisions: human death and injury, vehicle damage, and deer loss. *Human–Wildlife Conflicts* 2:17–27.
- Conover, M. R. 1997. Monetary and intangible valuation of deer in the United States. *Wildlife Society Bulletin* 25:298–305.
- Conover, M. R. 2002. Resolving human–wildlife conflicts: the science of wildlife damage management. Lewis, Boca Raton, Florida, USA.
- Conover, M. R., W. C. Pitt, K. K. Kessler, T. J. DuBow, and W. A. Sanborn. 1995. Review of human injuries, illnesses, and economic losses caused by wildlife in the United States. *Wildlife Society Bulletin* 23:407–414.
- DeNicola, A. J., D. R. Etter, and T. Almendinger. 2008. Demographics of non-hunted white-tailed deer populations in suburban areas. *Human–Wildlife Conflicts* 2:102–109.
- DeNicola, A. J., K. C. VerCauteren, P. D. Curtis, and S. E. Hygnstrom. 2000. Managing white-tailed deer in suburban environments. Cornell Cooperative Extension, Ithaca, New York, USA.
- DeNicola, A. J., S. J. Weber, C. A. Bridges, and J. L. Stokes. 1997. Nontraditional techniques for management of overabundant deer populations. *Wildlife Society Bulletin* 25:496–499.
- Etter, D. E., T. R. Van Deelen, D. R. Ludwig, S. N. Kobal, and R. E. Warner. 2000. Management of white-tailed deer in Chicago, Illinois, Forest Preserves. *Vertebrate Pest Conference* 19:190–196.
- Etter, D. R., T. R. Van Deelen, D. R. Ludwig, S. N. Kobal, and R. E. Warner. 2002. Survival and movements of white-tailed deer in suburban Chicago, Illinois. *Journal of Wildlife Management* 66:500–510.
- Grovenburg, T. W., J. A. Jenks, R. W. Klaver, K. L. Monteith, D. H. Galster, R. J. Schauer, W. W. Morlock, and J. A. Delger. 2008. Factors affecting road mortality of white-tailed deer in eastern South Dakota. *Human–Wildlife Conflicts* 2:48–59.
- Hussain, A., J. B. Armstrong, D. B. Brown, and J. Hogland. 2007. Land-use pattern, urbanization, and deer–vehicle collisions in Alabama. *Human–Wildlife Conflicts* 1:89–96.
- Hygnstrom, S. E., and K. C. VerCauteren. 1999. Ecology of white-tailed deer in the Gifford Point-Fontenelle Forest area, Nebraska. Final Report. University of Nebraska, Lincoln, Nebraska, USA.
- Kelty, D. B., and R. D. Nyland. 1983. Hardwood browse production following shelterwood cutting. *Journal of Wildlife Management* 47:1216–1220.
- Kittredge, D. B., M. J. Kelty, and P. M. S. Ashton. 1992. The use of tree shelters with northern red oak natural regeneration in southern New England. *Northern Journal of Applied Forestry* 9:141–145.
- Mastro, L., M. R. Conover, and S. N. Frey. 2008. Deer–vehicle collision prevention techniques. *Human–Wildlife Conflicts* 2:80–92.
- McNulty, S. A., W. F. Porter, N. E. Mathews, and J. A. Hill. 1997. Localized management for reducing white-tailed deer populations. *Wildlife Society Bulletin* 25:265–271.
- McShea, W. J., C. M. Stewart, L. J. Kearns, S. Liccioli, and D. Kocka. 2008. Factors affecting autumn deer–vehicle collisions in a rural Virginia county. *Human–Wildlife Conflicts* 2:110–121.
- Naugle, D. E., J. A. Jenks, and B. J. Kernohan. 1996. Use of thermal infrared sensing to estimate density of white-tailed deer. *Wildlife Society Bulletin* 24:37–43.
- Ng, J. W., C. Nielsen, and C. C. St. Clair. 2008. Landscape and traffic factors influencing deer–vehicle collisions in an urban environment. *Human–Wildlife Conflicts* 2:34–47.
- Rutberg, A. T., and R. E. Naugle. 2008. Deer–collision trends at a suburban immunocontraception site. *Human–Wildlife Conflicts* 2:60–67.
- Rutberg, A. T., R. E. Naugle, L. A. Thiele, and I. K. M. Liu. 2004. Effects of immunocontraception on a suburban population of white-tailed deer *Odocoileus virginianus*. *Biological Conservation* 116:243–250.
- Stafford, K. C., III, A. J. DeNicola, and H. J. Kil-

patrick. 2003. Reduced abundance of *Ixodes scapularis* (Acari: Ixodidae) and the tick parasitoid *Ixodiphagus hookeri* (Hymenoptera: Encyrtidae) with reduction of white-tailed deer. *Journal of Medical Entomology* 40:642–652.

Storm, D. J., C. K. Nielsen, E. M. Schaubert, and A. Wolf. 2007. Deer–human conflict and hunter access in an exurban landscape. *Human–Wildlife Conflicts* 1:53–59.

Ward, J. S. 2000. Limiting deer browse damage to landscape plants. *Connecticut Agricultural Experiment Station Bulletin* 968:1–15.



ANTHONY J. DENICOLA is president of White Buffalo, Inc., a nonprofit research organization dedicated to conserving ecosystems through wildlife population control. He received a B.S. degree in biology from Trinity College of Hartford, Connecticut, an M.S. degree from the Yale School of Forestry and Environmental Studies, and a Ph.D. degree in wildlife ecology from Purdue University. His Ph.D. research involved the examination of the efficacy of contraceptives on 2 enclosed deer herds. He has conducted field trials using contraceptives on several hundred white-tailed deer in 7 study areas over the last 15 years. He also has implemented sharpshooting programs in 11 states, removing >7,000 deer from suburban communities. He is a member of the National Animal Damage Control Association, the Society for Conservation Biology, and The Wildlife Society. He holds research affiliate positions with Trinity College, the Denver Zoological Foundation, and Rutgers University. His professional interests are behavioral-ecological approaches to wildlife damage control, wildlife reproductive control, and control of introduced vertebrate species.




SCOTT C. WILLIAMS is employed at the Connecticut Agricultural Experiment Station, Department of Forestry and Horticulture. He has his B.A. degree in environmental studies from Connecticut College, and his M.E.S. degree from the Yale School of Forestry and Environmental Studies. He is a Ph.D. degree candidate in wildlife management at the University of Connecticut. He has been collaborating with White Buffalo, Inc., on his Ph.D. research, investigating behavioral changes of white-tailed deer subjected to sharpshooting, controlled hunting, and baiting. His research interests include the ecological and public health impacts of overabundant white-tailed deer herds, including deer–vehicle collisions, ecological damage, alteration of forest species composition, avoiding damage to ornamental vegetation, and deer as exotic seed dispersal agents. In his limited free time, he is an avid hunter and angler, and in early spring, he runs his own maple syrup operation.

Research Article

Ovariectomy As a Management Technique for Suburban Deer Populations

ANTHONY J. DENICOLA, *White Buffalo Incorporated, 26 Davison Road, Moodus, CT 06469, USA*

VICKIE L. DENICOLA ¹, *White Buffalo Incorporated, 26 Davison Road, Moodus, CT 06469, USA*

ABSTRACT Overabundant suburban deer (*Odocoileus* spp.) are a source of human-wildlife conflict in many communities throughout the United States. Deer-vehicle collisions, impacts to local vegetation, tick-borne pathogens, and other negative interactions are typical reasons cited for initiating deer management programs. Social attitudes, legal constraints, and perceived safety concerns lead many communities to examine nonlethal management options. Surgical sterilization is currently the only nonlethal method available to permanently sterilize females with a single treatment. However, there are limited data demonstrating methods and outcomes in management programs that sterilize a high percentage (>90%) of local populations of females, particularly regarding the impact of immigration on non-isolated populations. We present data from 6 surgical sterilization sites with geographically open populations in California, Maryland, Michigan, New York, Ohio, and Virginia, USA. From 2012 to 2020 we sterilized 493 deer, primarily via ovariectomy, and conducted annual or periodic population estimates using camera surveys, road-based distance sampling, and intensive field observations to assess population trends. Study sites ranged from 1.2 km² to 16.5 km² with ~47–169 individuals, resulting in approximate densities of 6–63 deer/km². For all sites we noted an average reduction of ~26% (17%–36%) from Year 1 to Year 2. **Four years after initial treatment, we documented an average population reduction of ~45% (29%–56%).** During the first year, the average cost per deer sterilized at locations where bait was used was US\$1,185 (\$927–\$1,572). Surgical sterilization projects demonstrate that significant reductions in local deer densities using high-percentage, surgical sterilization programs can be achieved in non-insular locations, where baited deer are approachable by vehicle for darting. Sustained sterilization efforts may be necessary, as is the case with all deer management programs, in areas where immigration is possible, and all the animals are not sterilized. © 2021 The Wildlife Society.

KEY WORDS deer management, human-wildlife conflicts, nonlethal, *Odocoileus* spp., ovariectomy, local population management

In many urban and suburban situations, lethal management techniques for deer (*Odocoileus* spp.) such as controlled hunting and sharpshooting are ineffective or not feasible because of legal, social, public safety, or economic considerations (Williams et al. 2013, Kilpatrick et al. 2014). As a result, various nonlethal management techniques such as trap and relocation or fertility control have been explored (DeNicola et al. 2000). Fertility-control options have been prioritized because trap and relocation has been demonstrated to be stressful and result in high post-release mortality (Beringer et al. 2002).

Extensive research has been conducted on injectable or implantable wildlife fertility-control agents for nearly 5 decades, with numerous studies conducted in the 1970s

and 1980s (Harder and Peterle 1974, Bell and Peterle 1975, Matschke 1977, Kirkpatrick and Turner 1985, Plotka and Seal 1989). Recent research has transitioned focus to vaccines and surgical sterilization as the most promising approaches (Patten et al. 2007). Given the scope of research, there has been relatively little improvement in the function of vaccines tested in the late 1980s on horses (Liu et al. 1989, Kirkpatrick et al. 1990) or deer in the 1990s (Turner et al. 1992, McShea et al. 1997, Miller et al. 1997, Miller et al. 2000). For long-lived species, at least one booster is necessary to predictably maintain >90% effectiveness for >2 years, even for vaccines formulated as a single dose (Gionfriddo et al. 2011, Rutberg et al. 2013a, Roelle et al. 2017).

Wildlife professionals have discussed the potential of fertility control as a wildlife management technique for as long as efficacy trials have been conducted (McCullough 1987, Bomford and O'Brien 1992, Garrott 1995, Warren 1995, Miller et al. 1998). The primary research focus has been on

Received: 15 May 2020; Accepted: 8 April 2021
Published: 13 September 2021

¹E-mail: vickie.denicola@whitebuffaloinc.org

delivery methods and treatment efficacy, with very few assessments of management outcomes (Massei and Cowan 2014). Research to date has primarily described the limitations of fertility control versus its potential to effectively manage deer overabundance in geographically open environments, and several studies have concluded that for fertility control to be successful, its use must be limited to small, insular, or fenced areas (Seagle and Close 1996, Merrill et al. 2006, Boulanger et al. 2012, Boulanger and Curtis 2016). The conclusion that the method is not viable in open populations is founded on population-level field studies conducted at the Cornell University Campus, Ithaca, New York, USA (Boulanger and Curtis 2016), Fripp Island, South Carolina, USA (Rutberg et al. 2013b), National Institute of Standards and Technology, Gaithersburg, Maryland, USA (Rutberg and Naugle 2008), and Fire Island National Seashore, Patchogue, New York, USA (Naugle et al. 2002), as well as various modeling efforts (Seagle and Close 1996, Merrill et al. 2006). We note that one modeling effort projected a reduced local population using surgical sterilization at Cumberland Island, Georgia, USA (Boone and Wiegert 1994).

Conclusions on the potential management benefits of fertility control have been based on treatment methods that resulted in undesirable behaviors and the assumption that female immigration would negate fertility control impacts. In the Cornell University study, in which tubal ligation was the surgical method, it was concluded that surgical sterilization would not work in geographically open environments without a lethal component (Boulanger and Curtis 2016). Boulanger and Curtis (2016) reported that adult female and fawn numbers declined significantly, reflecting an effective program, but male abundance increased 9-fold, preventing an overall population decline. Given that the sterilization method used caused extended estrous cycles, males were potentially attracted to females during later estrus periods. Antlered males also likely sought refuge in the non-hunted study site, given the earn-a-buck hunting program that occurred around the site (Williams et al. 2008, Boulanger et al. 2014). Another study found limited immigration and no increase of adult males following sterilization of adult females via tubal ligation in an open suburban environment with no nearby hunting (MacLean et al. 2006).

The first assessment of surgical sterilization on deer was conducted in the early 1990s (Frank and Sajdak 1993), and additional research on surgical methods occurred in the 2000s (MacLean et al. 2006, Boulanger et al. 2012). Surgical sterilization efforts were initiated in recognition that immunocontraceptive vaccines were limited in their long-term effectiveness, and an alternative was needed in areas where treating the same animal more than once was too difficult or costly. As a result, we decided to conduct additional fertility control research using surgical sterilization via ovariectomy to reduce population abundance, while eliminating extended breeding behavior associated with tubal ligations. Our interest was to identify a method that could be used as an infertility treatment and have population-level impacts on white-tailed

deer (*O. virginianus*). Our research focused on the potential of surgical sterilization by ovariectomy of female deer as a management tool in geographically open suburban environments, including areas with security fences that were permeable to deer. Given the strong philopatry of female white-tailed deer, immigration could be minimal (Porter et al. 2004). We selected research locations based on fundamental need for extensive access and approachability of deer by vehicle (McCullough 1987, Garrott 1995, Rudolph et al. 2000). It was concluded that 60–80% or more of a deer population needs to be rendered infertile to stabilize or begin to reduce a local population (McCullough 1987, Hone 1992, Garrott 1995, Grund 2011, Boulanger et al. 2012). Our objectives in each designated study area were to: 1) capture and permanently sterilize >95% of females; 2) assess immigration rates, mortality, and changes in population abundance; and 3) assess effort to capture and sterilize deer.

STUDY AREAS

We applied surgical sterilization treatments to free-ranging deer on 6 study sites during 2012–2020: east-central Ann Arbor, Michigan (AA); the Clifton neighborhood of Cincinnati, Ohio (CLIF); Fairfax City, Virginia (FC); National Institutes of Health campus in Maryland (NIH); the Village of Cayuga Heights; New York (VCH); and the Villages Golf and Country Club in California (VGC), USA.

Sites were typified by a mixture of developed urban or suburban landscapes with intermingled wetlands or other small to moderate-sized open spaces. Regional differences in climate among the various study sites affected local natural plant communities. Xeric shrublands with dry oak (*Quercus* spp.) savanna surrounded VGC. Temperate, mesic hardwood forests predominantly composed the open areas of the other 5 study sites. Except for the NIH campus, the sites were primarily single-family residential communities with property sizes ranging from 0.4 to 2.0 ha, interspersed with some larger private properties such as golf courses. Only the NIH campus and the VGC community had security fencing. However, our data from this research show that neither fence prevented deer from entering or exiting, with documented emigration from both locations and annual immigration at NIH. Remaining sites were not isolated from the surrounding areas that contained resident deer populations. Hunting was not permitted at any site because of safety concerns associated with high-density development and considerable human activity; however, hunting-deer management activities occurred in communities adjacent to AA, FC, and VCH.

The AA site (N42.2709, W83.7263) consisted of 4.3 km² located in the east-central section of Ann Arbor, Michigan. The area was dominated by single-family residential communities surrounded by wooded corridors (Fig. S1, available online in Supporting Information). The community opted to incorporate culling into the broader program scope because of the disparity in development patterns. Sharpshooting occurred adjacent to the northern and eastern borders of the site. The areas where sharpshooting occurred were distinct with minimal deer overlap, given there were

few tagged deer observed in culling areas. The few sterilized deer that were observed in the adjacent areas were not culled during sharpshooting operations. The City's management goal was to reduce deer densities to the point where 75% of surveyed residents reported satisfaction with the deer abundance.

The CLIF site (N39.1531, W84.5248) was 2.4-km² located in the north-central section of Cincinnati, Ohio, and contained Mt. Storm, Rawson Woods, and Edgewood Grove parks, as well as single-family residential communities and apartment complexes (Fig. S2, available online in Supporting Information). The parks were generally undeveloped and included steep wooded hillsides and some mowed open space. Deer densities had reached a level that was considered incompatible with the Cincinnati Park Board's goal of a healthy park ecosystem.

The FC site (N38.8462, W77.3064) was located in the western suburbs of Washington, D.C., and was ~16.5 km² (Fig. S3, available online in Supporting Information). The City's management goal was to alleviate concerns about deer densities in a few neighborhoods where there were complaints. The study area consisted of single-family residential communities, apartment complexes, and commercial-use properties with wooded corridors. The use of bait for capture or camera-survey population estimates was not permitted during the first year. After we demonstrated that baiting would be instrumental to the project's success and improved accuracy of camera surveys, Virginia Department of Game and Inland Fisheries (VA DGIF) amended the research permit to allow its use.

The NIH site (N38.9992, W77.1025) was an office park complex located in Bethesda, Maryland, USA (Fig. S4, available online in Supporting Information). The study area was 1.2 km² and consisted of more than 95 office buildings in a campus-like environment. The site contained small natural wooded and landscaped areas interspersed with dense commercial development. Landscape damage and deer-vehicle collisions were of concern.

The 4.6 km² VCH site (N42.4687, W76.4856) was located adjacent to and contiguous with the City of Ithaca, NY (Fig. S5, available online in Supporting Information). Lyme disease and landscape damage were of concern. The area consisted of single-family residential communities, apartment complexes, and commercial-use properties with wooded corridors. At the start of the VCH study, New York State law prevented discharge of a weapon such as a bow, muzzleloader, or firearm within 152 m of an occupied dwelling without owner permission. As a result, and given local opposition to a lethal management program, there were no legal locations to cull deer in VCH. Therefore, elected officials voted to implement a surgical sterilization initiative starting in 2012, given the abundance of deer and associated conflicts. We only include sterilization data collected during 2012–2014 in our analysis. In 2014 the law changed, reducing the minimum distance for archery discharge to 76 m, which permitted a cull that was conducted from 2015 to 2017. Community leaders decided to incorporate archery culling to accelerate the population

decline. The State of New York then prohibited baiting within 91 m of a public road in 2017, and only 2 properties remained legal given the road density. As a result, VCH decided to transition to a remote immobilization program followed by euthanasia during 2018–2019 to obtain reduced deer densities. We included data and discussion on subsequent culling activities to allow for immigration insights as the population declined.

The VGC site was located in San Jose, California, USA (N37.2878, W121.7466), and consisted of a 2.7-km² private community with 2,536 homes and an 18-hole golf course (Fig. S6, available online in Supporting Information). Landscape damage and replacement costs exceeded \$250,000 annually because of deer impacts (B. Barncord, Villages Golf and Country Club, personal communication), and the community elected to execute a nonlethal management program as a result.

METHODS

Licensed and trained veterinarians conducted all surgical procedures. White Buffalo Inc. employees, trained by a wildlife veterinarian in humane capture and chemical restraint methods, conducted all capture efforts. We performed all field procedures under Michigan Department of Natural Resources Scientific Collectors Permit #1600, Ohio Department of Natural Resources Scientific Collection Permit #18-48, VA DGIF Scientific Collection Permit #058581, Maryland Department of Natural Resources Deer Cooperator Permit 55832-NIH-2014-2019, and NIH Office of Research Services Animal Study Proposal Animal Care and Use Committee #ORS-54, New York State Department of Environmental Conservation License to Collect and Possess #2558, and California Department of Fish and Wildlife Scientific Collection Permit #SC-012522.

Deer Capture

White-tailed deer were the target species at every site except VGC where we captured and treated black-tailed deer (*O. hemionus columbianus*). Deer capture efforts and sterilization activities were conducted between August and March of 2012–2020 to minimize stress related to annual reproductive status on deer and maximize baiting success. We immobilized female deer of all age classes using CO₂-powered projectors (G2 X-Caliber, Pneu-Dart, Inc. Williamsport, PA, USA) with 2-ml radio-transmitter Type P darts (Pneu-Dart, Inc.) to administer tiletamine-zolazepam (4.4 mg/kg) and xylazine hydrochloride (2.2 mg/kg; Kilpatrick et al. 1997). We approached deer in a vehicle on public roadways and on private roadways and properties where permission was granted. In AA, FC, and VCH, capture professionals were accompanied by a police officer during mobile darting efforts (Evans et al. 2016). We also darted deer over 20–25 kg of whole-kernel corn bait in the late afternoon and early evening where state regulations permitted. Ten minutes after a dart was deployed we located deer via radio telemetry if not visibly recumbent. In VCH, we also captured deer with drop nets during the first year. We chemically immobilized adult deer under drop nets with

an intramuscular injection of 400 mg ketamine hydrochloride (HCl) and 150 mg xylazine HCl <2 minutes after capture. We administered 300 mg ketamine HCl and 100 mg xylazine HCl to fawns. We fitted all captured deer with ear tags for individual identification (Destron Fearing Duflex X-Large Cattle Tag, Dallas, TX, USA) with the backplate of each labeled Call Before Consumption and a phone number. We transported all individuals to temporary surgical facilities, except for NIH and for 2 years in CLIF, where we used a veterinary facility. We followed previous deer handling, tagging, very high frequency (VHF) radio-collaring, and transport methods (Evans et al. 2016). We used VHF collars intentionally placed on matriarchal females to track yet untreated females to maintain capture efficiency when we attained high percentage capture rates (Rudolph et al. 2000).

Surgical Sterilization Procedure

Initially, we conducted bilateral ovariectomies using a combination of clamping, electrocautery, and excision for removal and coagulation to prevent hemorrhage (Evans et al. 2016). We transitioned to a vessel sealer (Valleylab LigaSure, Medtronic, Minneapolis, MN, USA) in fall 2016 to expedite the procedure and minimize risks associated with post-surgical bleeding. We conducted fallopian tubal ligectomies ($n = 26$) only when deemed necessary by veterinarians due to extensive adhesions that complicated the extraction of the ovaries or during late gestation.

We also followed previous post-surgical release and monitoring procedures (Evans et al. 2016). The one exception was that we relocated 30 deer outside the fence at VGC to adjacent VGC-owned property to assess whether they would return or remain outside and increase the rate of population decline. To differentiate relocated deer from the rest of the local deer, they received a differing ear tag color combination.

Effort

We recorded start and stop times to assess the person-hours required for capture, handling, transport, and sterilization surgery. Trained biologists and volunteers conducted capture, handling, and transportation to and from surgical locations. In CLIF and AA, volunteers participated in pre-baiting, site preparations, surgery, and transport of animals. Volunteers participated in pre-baiting and site preparations at FC. Volunteers participated in surgeries at NIH. Volunteer hours are not included, but overall represent minimal impact given the effort needed to train volunteers. We did not track staff time in AA.

For each study site, we divided the number of person-hours devoted to capture, handling, and transport by the number of deer processed to derive an estimate of effort per deer. Each surgical team consisted of 2 people, including trained and licensed veterinarians and veterinary technicians. We had 2 veterinary teams performing surgeries during the first year at all project sites. Each capture-night's surgical effort was recorded starting when the first deer was darted and ending when the last deer was recovered. We reported person-hours per deer for surgical effort.

Population Estimates

We conducted population monitoring using camera data from baited locations, driving distance transects, and intensive field observations. We noted immigrants, antlered males, fawns, and both tagged and untagged females. We defined immigrants as untagged adult deer that were not identified the previous year. Combined field observations could be considered a form of total count census in relatively small areas (Lancia et al. 1994).

At AA, CLIF and FC, we conducted baited camera surveys using tagged antlerless deer (adult females of which ~90% were tagged, female fawns, and incidental male fawns) to estimate abundance (Jacobson et al. 1997, Koerth et al. 1997, Curtis et al. 2009). We used game cameras (D-80 White Flash Trail Cameras, Moultrie, Alabaster, AL, USA) set on motion activated single shot with a 5-minute delay to optimize capture rates relative to photo storage. We used camera coverage of $\sim 1/0.61 \text{ km}^2$ with one camera placed in each block. Project staff pre-baited sites for at least 7 days. We placed each camera 5–6 m from the center of bait, elevated 0.6 m, oriented north, and left for about 2 weeks. We retrieved cameras once we obtained about 300 photos from each baited location. There were some situations where we retrieved cameras with <300 photos due to low deer activity. In the first year of work at FC baiting was not permitted. To conduct the unbaited camera survey, we divided FC into 12 quadrants and allocated 1 camera to each quadrant. We placed cameras on public property in each quadrant at locations proximate to heavily traveled deer trails and pinch points through which deer were forced to pass.

We studied each image for all legible ear tag numbers, and images of insufficient quality were excluded due to lens flares or poor image quality. We recorded the total number of tagged and untagged antlerless individuals, unidentifiable tagged antlerless deer, identifiable and unidentifiable antlered males, and untagged fawns in each photo. If a tagged deer was not observed on camera or by direct observation for 2 years, we eliminated the individual from that year's population estimate.

We entered the number of tagged antlerless, untagged antlerless, and tagged but unidentifiable antlerless observations from each photograph into Program NOREMARK (White 1996). We used the Bowden estimator that assumes sightability is not influenced by tag status, many animals are sighted repeatedly, and the population is closed (Bowden 1993, Bowden and Kufeld 1995). Our study areas did not have fully closed populations, but there was likely minimal outside exchange given deer philopatry, relatively small suburban home ranges, and the camera surveys' short duration. Because the resulting population estimate and confidence intervals for our method were for antlerless deer only, we used the buck:doe ratio (BDR) method to estimate the number of individual antlered males (Jacobson et al. 1997). We then added the number of individual antlered males identified using the BDR method to the antlerless estimates from Program NOREMARK to obtain an overall population estimate. We also used a census approach

to derive the population size. We determined the number of adult females, antlered males, and fawns by intensive field observations, capture observations, bait-site camera data, known mortality, and known dispersal data. We then averaged the methods used to derive a final estimate. We also used field observations and photographic data to determine the percentage of females sterilized after each annual capture session and antlerless immigration.

In VCH, the municipality conducted independent baited camera surveys and population estimates using NOREMARK from 2013–2016, after capture efforts were completed in 2013–2014 and prior to culling efforts in 2015–2017 (Curtis et al. 2013, 2014; Curtis and Ashdown 2015, 2016, 2017). Two NOREMARK estimates were made, one using all deer identifiable in photographs and a second using the maximum number of marked deer potentially available in the study area. The 2 NOREMARK estimates were averaged to obtain a final estimate. In 2018, we used a census through field observations and camera data to estimate the population.

In VGC, we used distance sampling to derive a population estimate. We established a non-overlapping, 14.6-km transect that was surveyed 3–5 times 2 hours before sunset and 1 hour after sunrise from 7–8 September 2011 and 9–11 October 2012. While driving 15–20 kph in a golf cart, 2 spotters searched their respective side of the road. Upon sighting deer, the number in each social group, age and sex of the individuals, whether deer were tagged or untagged, and perpendicular distance to the group's center using a laser rangefinder (Rangemaster 1600-R, Leica Cameras, Wetzlar, Germany) were recorded. We entered data into the software program Distance (Version 6.0; Thomas et al. 2010) to determine a population estimate and 95% confidence interval.

In VGC, beginning in fall 2014, 10–12 volunteers were assigned to separate neighborhoods and recorded observations of every deer they encountered, including tag numbers and antler patterns. We tallied the number and age class of individual animals observed as an estimate of the population because the deer were very visible. Observers were active for 2–3 hours before sunset for 5 days.

Given the small area and relatively open landscape at NIH, we walked the available habitat areas 2–3 hours before sunset and recorded tagged individuals, males based on antler configuration, and untagged antlerless animals, noting any fawns. We walked the facility twice during each field operation to confirm our census. We used individual animals observed as a census of the population because the deer were highly visible.

RESULTS

Capture and Surgical Sterilization

We handled 570 deer, including 493 surgical sterilization procedures, incidental male captures ($n = 61$), recaptures ($n = 10$), and animals euthanized due to pre-existing conditions ($n = 2$) or capture related injuries ($n = 4$; Table 1). We experienced 15 capture and handling related mortalities;

4 individuals were euthanized prior to surgery due to capture related injuries (0.7%) and there were 11 post-surgical mortalities (2.2%). During one field session at VCH we captured 29 incidental males under the drop net, otherwise incidental antlerless males accounted for 32 captures across all other sites.

We observed 6 failed surgeries where treated females were later detected with fawns. When surgeries failed, single fawns were recruited, and in all cases, animals were recaptured and retreated. One deer with a failed surgery in VCH had an ovary remaining that was extracted upon recapture. Veterinarians were unable to locate the uterus in one deer in AA, a suspected previous prolapse, and the individual was later recaptured and successfully sterilized. We documented 4 surgical failures in CLIF due to a deficient surgical method that left remnant ovarian tissue. The entire ovarian capsule was not removed, allowing for regrowth of tissue. At CLIF, we recaptured 2 females to confirm lactational status and check for failed surgeries, and at VCH 2 treated females

Table 1. White-tailed deer surgical sterilization study site locations, field implementation dates, quantity of females sterilized, capture and handling related mortalities, and the associated number of deer captured during each field session from 2012 to 2020.

Study sites and program dates	Females sterilized	Mortality	Captured ^a
AA ^b			
22–29 Jan 2017	49	0	52
2–6 Jan 2018	10	0	14
28–30 Nov 2018	1	0	1
22 Jan–20 Feb 2020	0	0	0
CLIF ^c			
1–7 Dec 2015	41	2	44
16–19 Jan 2017	10	0	10
8–14 Jan 2018	8	0	11
24–27 Aug 2018	4	0	6
24–28 Jan 2019	7	0	9
1 Nov 2019–8 Feb 2020	9	1	10
FC ^d			
31 Jan–6 Feb 2014	18	0	21
26–31 Jan 2015	18	0	20
14–16 Dec 2015	6	1	8
6–7 Dec 2016	5	0	5
16–18 Jan 2018	4	0	4
NIH ^e			
14–16 Dec 2014	24	2	27
2 Dec 2015	5	1	5
3 Dec 2016	8	1	8
4 Dec 2017	2	0	2
8 Dec 2018	3	0	3
VCH ^f			
1–15 Dec 2012	137	3	172
2–6 Dec 2013	11	0	13
26–27 Mar 2016	5	0	8
VGC ^g			
25 Jan–4 Feb 2013	99	4	107
8–12 Oct 2013	9	0	10
Total	493	15	570

^a Includes females sterilized, recaptures, incidental male captures, and capture-pre-existing conditions related euthanasia.

^b AA = Ann Arbor, Michigan, USA.

^c CLIF = Clifton area, Cincinnati, Ohio, USA.

^d FC = City of Fairfax, Virginia, USA.

^e NIH = National Institutes of Health, Bethesda, Maryland, USA.

^f VCH = Village of Cayuga Heights, New York, USA.

^g VGC = Villages Golf and Country Club, San Jose, California, USA.

were incidentally recaptured with the drop net. We treated an average of 84% (31–100%) of females in the first year, and 94% (89–100%) in the second year at each project site.

Surgical and Capture Effort and Cost

Effort by field staff in Year 1 averaged 4.9 person-hours/deer captured (SD = 3.4; range = 2.7–10.9) and veterinary effort averaged 2.5 person-hours/deer sterilized (SD = 2.0, range = 1.3–6.1; Table 2). Local volunteers participated at AA, CLIF, FC, and NIH, and as appropriate, volunteers handled tasks such as prebaiting, site preparations, transportation, and surgery when qualified. We could not accurately account for volunteer hours and our time spent training and providing oversight to volunteers. We used effort per deer and not total person-hours, which included pre-capture preparations and travel. Annual increases in capture effort per deer occurred as fewer untreated deer were available in each study area. The total cost for Year 1, including all projects, was US\$434,440, with 423 deer captured and 368 female deer sterilized (Table 3). If FC Year 1 is removed from the analysis as a logistical outlier, then the average cost per deer sterilized was US\$1,185 (Table 3).

Population Estimates and Immigration

For all 6 sites combined, we noted a mean reduction in deer abundance of about 26% (17%–36%) from Year 1 to Year 2 (Tables 4 and 5). Four years after the first treatment at sites managed with only surgical sterilization (CLIF, FC, NIH, VGC), we noted a mean total population reduction of 45% (29%–56%), and a mean reduction of 90% in fawn-to-adult female ratio. Overall, we demonstrated annual population declines of 3–36%, with an average annual reduction of 16%. We did not include the last 2 years of population data from NIH in annual population declines and average annual reductions because very small changes in abundance with few deer remaining resulted in a relatively large percentage population change (Table 5). We detected 85 antlerless immigrants across all study sites between 2012 and 2020, with 52 immigrant individuals detected at VCH. From 2015–2018 130 deer were culled in VCH using archery and remote immobilization equipment (Table 6), resulting in a decline from 137 to 9 deer (Table 5).

Table 2. Field staff and veterinary effort at 5 study sites where deer were surgically sterilized from 2012 to 2020. Hours accrued for veterinarians are summarized as veterinary person-hours/deer sterilized (VT H/S), and hours accrued for field staff are summarized as field staff person-hours/deer captured (FS H/C).

Study sites	Year 1		Year 2		Year 3		Year 4		Year 5	
	VT H/S	FS H/C	VT H/S	FS H/C	VT H/S	FS H/C	VT H/S	FS H/C	VT H/S	FS H/C
CLIF ^a	1.6	3.0	3.3	6.6	6.8	9.8	9.1	13.3	NA	15.0
FC ^b	6.1	10.9	6.8	12.3	5.2	7.7	5.0	9.8	5.0	10.1
NIH ^c	2.0	4.3	2.2	4.4	1.5	2.8	2.0	3.0	1.3	2.7
VCH ^d	1.3	3.7	2.2	9.1						
VGC ^e	1.6	2.7	6.0	9.0						
Mean	2.5	4.9	4.1	8.3	4.5	6.8	5.4	8.7	3.2	9.3

^a CLIF = Clifton area, Cincinnati, Ohio, USA.

^b FC = City of Fairfax, Virginia, USA.

^c NIH = National Institutes of Health, Bethesda, Maryland, USA.

^d VCH = Village of Cayuga Heights, New York, USA.

^e VGC = Villages Golf and Country Club, San Jose, California, USA.

Table 3. Cost per white-tailed deer handled, study site area (km²), and cost per deer sterilized in Year 1 at 6 surgical sterilization study sites, 2012–2020.

Study sites	Area (km ²)	Program cost	Cost/deer handled	Cost/deer sterilized
AA ^a	4.3	\$77,036	\$1,481	\$1,572
CLIF ^b	2.4	\$38,000	\$864	\$927
FC ^{c, d}	16.5	\$41,959	\$1,998	\$2,331
NIH ^e	1.2	\$33,000	\$1,222	\$1,375
VCH ^f	4.6	\$148,945	\$866	\$1,087
VGC ^g	2.7	\$95,500	\$893	\$965
Mean baited		-	\$1,221	\$1,376
Site mean		-	\$1,065	\$1,185

^a AA = Ann Arbor, Michigan, USA.

^b CLIF = Clifton area, Cincinnati, Ohio, USA.

^c FC = City of Fairfax, Virginia, USA.

^d Decreased Year 1 efficiency due to no bait use and low initial densities.

^e NIH = National Institutes of Health, Bethesda, Maryland, USA.

^f VCH = Village of Cayuga Heights, New York, USA.

^g VGC = Villages Golf and Country Club, San Jose, California, USA.

DISCUSSION

Improvements in efficacy and longevity of nonsurgical, wildlife infertility methods have stagnated, and under some circumstances, surgical sterilization has been shown to be more cost-effective with longer-term efficacy (Evans et al. 2016). Cost for vaccine treatments exceeded US \$700 > 20 years ago (Curtis et al. 1998), with minimal improvements in vaccine administrative methods since that time (Massei and Cowan 2014). We documented that the average price per deer treated using a surgical approach and bait was US\$1,185, similar to the amount reported by others (Mathews et al. 2005, Boulanger and Curtis 2016). Vaccine treatment options have changed minimally since early summaries of fertility control technology (Bomford and O'Brien 1992, Warren 1995, Miller et al. 1998). Reduced efficacy to ~50% after one year with single-dose vaccines is still a considerable limitation for both gonadotropin-releasing, hormone-based and porcine zona pellucida-based preparations (Gionfriddo et al. 2011, Rutberg et al. 2013a). Therefore, we found in field trials

Table 4. White-tailed deer population estimates at 3 study sites derived by Program NOREMARK, buck:doe ratios (BDR), and census methods (Census), 2012–2020. The final estimate was an average of the methods (N-hat, BDR, and Census).

Survey dates	NOREMARK (95% CI)	BDR Males	N-hat ^a	BDR	Census
AA^b					
4–12 Feb 2017	95 (81–113)	6	101	-	90
7–22 Jan 2018	60 (55–65)	11	71	-	70
1–13 Dec 2018	43 (40–47)	13	56	-	54
22 Jan–20 Feb 2020	39 (38–41)	11	50	-	50
CLIF^c					
8–26 Dec 2015		31	-	102	99
19–29 Jan 2017	53 (51–56)	29	82	-	83
16–27 Jan 2018	58 (53–63)	23	81	-	78
3–24 Feb 2019	64 (57–72)	14	78	-	70
13–28 Feb 2020	56 (54–58)	16	72	-	72
FC^d					
20–30 Jan 2014			-	91	-
1–11 Feb 2015			-	66	-
29 Nov–13 Dec 2015			-	53	-
7–20 Dec 2016	34 (32–38)	15	49	47	48
17–26 Jan 2018	27 (25–30)	13	40	41	40

^a N-hat = NOREMARK estimate for antlerless deer and the total number of antlered males found using BDR method.

^b AA = Ann Arbor, Michigan, USA.

^c CLIF = Clifton area, Cincinnati, Ohio, USA.

^d FC = City of Fairfax, Virginia, USA.

prior to this study (Gionfriddo et al. 2011) that the permanence and 99% effectiveness of surgical methods (MacLean et al. 2006) were necessary to assess localized impacts of deer management via fertility control.

We have demonstrated that permanently sterilizing $\geq 85\%$ of female deer in 6 study sites resulted in average annual population declines of 16%, with the largest local population decline occurring between Year 1 and Year 2. The 25% average decline between Year 1 and Year 2 was the result of regular mortality, a substantial reduction in fawn recruitment, and dispersal of male fawns as they aged to yearlings. There were few yearling males present during Year 2 capture efforts relative to the abundance of male fawns during Year 1, reflecting that a high percentage dispersed the spring and fall after the first field session. Given nearly 20% of nonhunted populations are composed of male fawns (DeNicola et al. 2008), dispersal behavior contributed substantially to the initial population reduction. This level of reduction is contrary to most previous study projections when using fertility control treatments for managing deer in geographically open environments (Seagle and Close 1996, Merrill et al. 2006, Boulanger et al. 2012).

Other fertility control programs in geographically-closed island or fenced environments have documented similar rates of annual population decline (Naugle et al. 2002, Rutberg and Naugle 2008, Rutberg et al. 2013b). Of our study sites, only NIH and VGC had security fencing, and neither fence prevented deer from entering or exiting. Our tagged and VHF collared deer at VGC were often observed outside of the property. Despite the open population, we reduced the local deer population by $\sim 73\%$ over 7 years at VGC by sterilization alone. The program has successfully met the community's deer population goals, and some residents are now concerned that the population will be reduced too low (A. DeNicola, White Buffalo Inc., personal

communication). This level of population decline is an improbable outcome based on previous expectations of fertility control methods for managing deer populations. Nearly all females need to be treated in populations with annual survival rates $>90\%$ to achieve a population decline (Grund 2011). With nearly 90% treatment rates, we obtained about an 8% population reduction from Year 3 to Year 4 in CLIF, and about 28% over 4 years, where we documented 2 VHF collared female mortalities out of 17 collared over the first 3 years.

We selected research locations based on the fundamentals that emphasized the need for extensive access and approachable deer (Garrott 1995, Rudolph et al. 2000). Mobile darting from a vehicle on public roads and use of bait was critical in our case studies. By using an approach method to which deer were exceptionally accustomed, we were able to capture nearly all the females before they fully recognized the threat and began to avoid capture efforts (Kilpatrick et al. 1997). We experienced minimal diminishing returns even after $>80\%$ of the females were treated. Our capture efficiency rate contrasts with previous modeling projections for suburban fertility control treatments that depicted increased effort per deer treated as higher percentages are handled (Rudolph et al. 2000). If we had used vaccines that required repeated treatments and only afforded 90–95% efficacy, our ability to capture and effectively prevent conception in enough females to achieve the significant population reductions we documented would likely have been compromised.

We did not observe an increase in the number of adult males in any of our study sites. The abundance of adult males remained the same or decreased over time in all locations. This stable or declining abundance of adult males contrasts with Boulanger and Curtis (2016), who used tubal ligation treatments, where a 9-fold increase in male

Table 5. White-tailed deer population demographics derived from population estimates and field operations for 6 surgical sterilization study sites from 2012 to 2020. Survey types included Baited camera survey (BC), Census (C), Distance sampling (DS), and Non-baited camera survey (NBC).

Survey dates	Survey type	Population estimate (95% CI)	Deer/km ²	Adult F sterilized (%)	Fawn:adult F	Antlered M	Antlerless immigrants
AA ^a							
4–12 Feb 2017	BC, C	96	21.9	90%	1.1:1	6	-
7–22 Jan 2018 ^b	BC, C	71	16.3	96%	0.2:1	11	1
1–13 Dec 2018 ^c	BC, C	55	12.8	97%	0.1:1	13	1
22 Jan–20 Feb 2020	BC, C	50	11.6	88%	0.1:1	11	2
CLIF ^d							
8–26 Dec 2015	BC, C	101	41.3	86%	0.6:1	32	-
19–29 Jan 2017	BC, C	83	34.6	89%	0.1:1	29	1
16–27 Jan 2018	BC, C	80	33.3	91%	0.1:1	23	1
3–24 Feb 2019	BC, C	74	30.8	94%	0.2:1	14	2
13–28 Feb 2020	BC, C	72	29.9	98%	0.1:1	16	1
FC ^e							
20–30 Jan 2014	NBC	91	5.5	31%	1.3:1	6	-
1–11 Feb 2015	BC, C	66	4	91%	0.5:1	9	-
29 Nov–13 Dec 2015	BC, C	53	3.2	93%	0.2:1	16	0
7–20 Dec 2016	BC, C	48	2.9	84%	0.1:1	15	1
17–26 Jan 2018	BCS, C	40	2.4	91%	0.2:1	13	0
NIH ^f							
14–16 Dec 2014	C	47	39.2	100%	1.4:1	11	-
12–13 Dec 2015	C	30	25.0	100%	0.1:1	7	5
2–3 Dec 2016	C	24	20.0	100%	0.1:1	3	8
1–2 Dec 2017	C	23	19.2	100%	0:1	5	1
7–8 Dec 2018	C	25	20.8	100%	0.1:1	4	5
21 Nov 2019	C	14	11.7	89%	0:1	4	1
VCH ^g							
4–12 Jan 2013	BC	225	48.9	99%	0.6:1	-	-
17–24 Jan 2014	BC	160	34.8	98%	0.03:1	-	3
6–13 Jan 2015	BC	137	29.8	100%	0.04:1	-	14
18–25 Jan 2016 ^h	BC	68	14.8	100%	0.1:1	-	9
12–19 Dec 2016 ^h	BC	45	9.8	91%	0.02:1	-	7
2–8 Apr 2018 ^h	C	9	2.0	71%	0.3:1	-	19
VGC ⁱ							
7–8 Sep 2010	DS	80 (48–95)	29.6	-	1.0:1	-	-
9–11 Oct 2012	DS	169 (105–223)	62.6	-	0.9:1	-	-
1–4 Feb 2013 ^j	C	140	51.9	100%	0.9:1	40	0
8–12 Oct 2013	C	128	47.4	100%	0.2:1	37	2
5–9 Nov 2014	C	102	37.8	100%	0:1	30	0
20 Sep–4 Oct 2015	C	86	31.9	100%	0:1	23	0
17–26 Oct 2016	C	75	27.8	100%	0:1	18	0
20–28 Aug 2017	C	59	21.9	100%	0:1	10	0
1–17 Oct 2018	C	56	20.7	100%	0:1	6	0
1–31 Aug 2019	C	46	17.0	98%	0.02:1	6	1

^a AA = Ann Arbor, Michigan, USA.

^b Population estimate is pre-cull and includes the 7 adult males culled on nearby properties.

^c Population estimate is pre-cull and includes the 8 adult males culled on nearby properties.

^d CLIF = Clifton area, Cincinnati, Ohio, USA.

^e FC = City of Fairfax, Virginia, USA.

^f NIH = National Institutes of Health, Bethesda, Maryland, USA.

^g VCH = Village of Cayuga Heights, New York, USA.

^h Population estimate is post-cull efforts.

ⁱ VGC = Villages Golf and Country Club, San Jose, California, USA.

^j Population estimate does not include 30 deer relocated to outside of the fenced area. Fawn:adult female ratio based on initial population of ~169 deer.

abundance occurred due to immigration. We demonstrated a 39% population reduction over 2 years in the adjacent VCH using surgical sterilization. At each study site, we had treated at least 89% of the adult females by the second year. The reduced number of untreated deer in later years also facilitates the rapid transition to local volunteers and veterinarians conducting field operations, if this transition is a program objective.

Behavioral changes associated with surgical sterilization treatment via tubal ligation in Highland Park, Illinois, USA, were noted with increased dispersal and mortality of treated females (Gilman et al. 2010). We had many female deer become unaccounted for, both collared and uncollared, but we could not always determine if they dispersed or died locally because they were never detected or recovered. We only tracked VHF collared females each year during

Table 6. Annual white-tailed deer cull data segregated by total culled, tag status (tagged, untagged), sex, and age at Village of Cayuga Heights, New York, USA, from 2015 to 2018.

Cull dates	Cull type	Total culled	Adult F (tagged)	Adult F (untagged)	Fawns	Antlered M
6–14 Mar 2015	Archery	48	26	10	5	7
4–25 Mar 2016	Archery	24	13	5	4	2
2–23 Mar 2017	Archery	13	8	3	1	1
2–8 Apr 2018	Dart, Euthanasia	45	18	15	9	3

subsequent capture sessions. We could not validate all mortalities of collared females, and therefore, could not differentiate our inability to locate collared female deer due to mortality or dispersal. Consequently, it was not possible to accurately quantify dispersal rates.

Although fertility-control programs can be costly, there are real costs from doing nothing as deer-related impacts increase. In Fairfield County, Connecticut, it was estimated that each household incurred an average of ~\$900/year associated with DVCs, landscape damage, environmental impacts, tick treatments, and Lyme disease-associated medical costs (Arno and Viola 2010). Also, the cost of management options is relative, given that lethal methods may be severely constrained in their effectiveness in the same location because of development density (AA, VCH, VGC), social or political resistance (FC, NIH), logistical and technical limits of archery hunting (CLIF), or legal constraints (VCH). Therefore, in situations where lethal methods are limited or not an option, fertility control methods can reduce deer densities similar to or to lower levels than archery hunting (Williams et al. 2013) if deer are approachable by vehicles. We demonstrated deer reductions at or below the threshold density of ~17 deer/km² achieved using archery (Williams et al. 2013) at 4 locations. Longer-term data will allow us to assess whether culling or hunting in adjoining open spaces reduces immigration rates at lesser densities. In AA, we documented similar population decline rates in the first few years to the other study sites that lack nearby culling programs. In some unique locations, when politics permit, the most cost-effective management approach might be a hybrid program using lethal methods in conjunction with fertility control treatments (Garrott 1995).

MANAGEMENT IMPLICATIONS

There are an increasing number of developed areas where lethal deer management options do not exist or cannot meet stated objectives alone. Although not a deer management panacea, treating a high percentage of adult does via ovariectomy can reduce local deer populations and meet community goals in areas with the necessary vehicle access and approachable deer. As with any management technique, the project scale and relative deer abundance will affect cost and feasibility of meeting stated objectives, but some communities are willing and able to pay program costs, particularly when other costs of status quo of chronic deer overabundance are much greater. Social attitudes in rural and developed landscapes align with lethal and nonlethal methods' relative applicability, respectively. It may be

necessary to incorporate lethal methods combined with a nonlethal approach, if possible, when immigration precludes meeting management objectives, or a shorter management timeline is desired. Finally, it is important to note that fertility control treatments may be a necessary co-management technique with existing hunting or culling programs when local populations cannot be reduced to objective levels due to legal and logistical constraints.

ACKNOWLEDGMENTS

We are grateful for the cooperation and permitting by the involved state wildlife agencies. We thank local law enforcement agencies for assistance and oversight. Our research would not have been possible without collaboration and support from partners such as P. Curtis from Cornell University, who was instrumental in the organizational and population estimation phases in VCH, the staff at NIH for field and surgical support, and the Cincinnati Parks Department for help in CLIF. We thank numerous veterinarians, including K. Dyer, R. Junge, J. Newman, K. Ortved, and, most of all, S. Timm, who helped refine the surgical procedure to make it both field efficient and humane. We thank the local volunteers who provided valuable field assistance. We are grateful to the many homeowners who allowed us to capture deer on their properties. Projects would not have been funded or authorized without the thoughtfulness of City Council members, local board members, and donors. Finally, we are thankful to S. Williams, S. Haskell (Associate Editor), A. Knipps (Editorial Assistant), and 2 anonymous reviewers for their reviews, which improved the manuscript.

LITERATURE CITED

- Arno, P. S., and D. Viola. 2010. Economic impacts of deer overpopulation. Department of Health Policy and Management, School of Health Sciences and Practice, New York Medical College, Valhalla, USA.
- Bell, R. L., and T. J. Peterle. 1975. Hormone implants control reproduction in white-tailed deer. *Wildlife Society Bulletin* 3:152–156.
- Beringer, J., L. P. Hansen, J. A. Demand, J. Sartwell, M. Wallendorf, and R. Mange. 2002. Efficacy of translocation to control urban deer in Missouri: costs, efficiency, and outcome. *Wildlife Society Bulletin* 30:767–774.
- Bomford, M., and P. O'Brien. 1992. Potential use of contraception for managing wildlife pests in Australia. Pages 205–214 in T. J. Kreeger, editor. *Contraception in Wildlife Management*. U.S. Government Printing Office, Washington, D.C., 1997.
- Boone, J. L., and R. G. Wiegert. 1994. Modeling deer herd management: sterilization is a viable option. *Ecological Modeling* 72:175–186.
- Boulanger, J. R., and P. D. Curtis. 2016. Efficacy of surgical sterilization for managing overabundant suburban deer. *Wildlife Society Bulletin* 6:273–282.
- Boulanger, J. R., P. D. Curtis, and B. Blossey. 2014. An integrated approach for managing white-tailed deer in suburban environments: the

- Cornell University study. Cornell Cooperative Extension, Department of Natural Resources, Ithaca, New York, USA.
- Boulanger, J. R., P. D. Curtis, E. G. Cooch, and A. J. DeNicola. 2012. Sterilization as an alternative deer control technique: a review. *Human-Wildlife Interactions* 6:273–282.
- Bowden, D. C. 1993. A simple technique for estimating population size. Department of Statistics, Colorado State University, Fort Collins, USA.
- Bowden, D. C., and R. C. Kufeld. 1995. Generalized mark–resight population size estimation applied to Colorado moose. *The Journal of Wildlife Management* 59:840–851.
- Curtis, P. D., and M. L. Ashdown. 2015. Population Analysis for White-tailed Deer in the Village of Cayuga Heights, New York. Department of Natural Resources Cornell University, Ithaca, New York, USA.
- Curtis, P. D., and M. L. Ashdown. 2016. Population Analysis for White-tailed Deer in the Village of Cayuga Heights, New York. Department of Natural Resources Cornell University, Ithaca, New York, USA.
- Curtis, P. D., and M. L. Ashdown. 2017. Population Analysis for White-tailed Deer in the Village of Cayuga Heights, New York. Department of Natural Resources Cornell University, Ithaca, New York, USA.
- Curtis, P. D., M. L. Ashdown, and J. R. Boulanger. 2013. Population Analysis for White-tailed Deer in the Village of Cayuga Heights, New York. Department of Natural Resources Cornell University, Ithaca, New York, USA.
- Curtis, P. D., M. L. Ashdown, and J. R. Boulanger. 2014. Population Analysis for White-tailed Deer in the Village of Cayuga Heights, New York. Department of Natural Resources Cornell University, Ithaca, New York, USA.
- Curtis, P. D., B. Bazartseren, P. M. Mattison, and J. R. Boulanger. 2009. Estimating deer abundance in suburban areas with infrared-triggered cameras. *Human-Wildlife Conflicts* 3:116–128.
- Curtis, P. D., A. N. Moen, and M. E. Richmond. 1998. When should wildlife fertility control be applied? Pages 1–4 in P. D. Curtis, editor. Workshop on the status and future of wildlife fertility control. The Wildlife Society, Buffalo, New York, USA.
- DeNicola, A. J., D. Etter, and T. Almendinger. 2008. Demographics of non-hunted white-tailed deer populations in suburban areas. *Human-Wildlife Conflicts* 2:102–109.
- DeNicola, A. J., K. C. VerCauteren, P. D. Curtis, S. E. Hygnstrom. 2000. Managing white-tailed deer in suburban environments: a technical guide. Cornell Cooperative Extension, Ithaca, NY, USA.
- Evans, C. S., A. J. DeNicola, and R. J. Warren. 2016. Immunocontraceptive vaccines or surgical sterilization for deer? A question of effort and efficacy. *Wildlife Society Bulletin* 40:593–598.
- Frank, E. S., and S. L. Sajdak. 1993. Sterilization as a method of controlling an urban white-tailed deer population. *American Association of Zoological Parks and Aquariums Regional Conference Proceedings* 1:485–490.
- Garrott, R. A. 1995. Effective management of free-ranging ungulate populations using contraception. *Wildlife Society Bulletin* 23:445–452.
- Gilman, R. T., N. E. Mathews, B. G. Skinner, V. L. Julis, E. S. Frank, and J. Paul-Murphy. 2010. Effects of maternal status on the movement and mortality of sterilized female white-tailed deer. *The Journal of Wildlife Management* 74:1484–1491.
- Gionfriddo, J. P., A. J. DeNicola, L. A. Miller, and K. A. Fagerstone. 2011. Efficacy of GnRH immunocontraception of wild white-tailed deer in New Jersey. *Wildlife Society Bulletin* 35:142–148.
- Grund, M. D. 2011. Survival analysis and computer simulations of lethal and contraceptive management strategies for urban deer. *Human-Wildlife Interactions* 5:23–31.
- Harder, J. D., and T. J. Peterle. 1974. Effect of diethylstilbestrol on reproductive performance of white-tailed deer. *The Journal Wildlife Management* 38:183–196.
- Hone, J. 1992. Rate of increase and fertility control. *Journal Applied Ecology* 29:695–698.
- Jacobson, H. A., J. C. Kroll, R. W. Browning, B. H. Koerth, and M. H. Conway. 1997. Infrared-triggered cameras for censusing white-tailed deer. *Wildlife Society Bulletin* 25:547–556.
- Kilpatrick, H. J., A. M. LaBonte, K. C. Stafford III. 2014. The relationship between deer density, tick abundance, and human cases of Lyme disease in a residential community. *Journal of Medical Entomology* 51:777–784.
- Kilpatrick, H. J., S. M. Spohr, and A. J. DeNicola. 1997. Darting urban deer: techniques and technology. *Wildlife Society Bulletin* 25:542–545.
- Kirkpatrick, J. F., I. K. M. Liu, and J. W. Turner, Jr. 1990. Remotely-delivered immunocontraception in feral horses. *Wildlife Society Bulletin* 18:326–330.
- Kirkpatrick, J. F., and J. W. Turner, Jr. 1985. Chemical fertility control and wildlife management. *Bioscience* 35:485–491.
- Koerth, B. H., C. D. McKown, and J. C. Kroll. 1997. Infrared-triggered camera versus helicopter counts of white-tailed deer. *Wildlife Society Bulletin* 25:557–562.
- Lancia, R. A., J. D. Nichols, and K. H. Pollock. 1994. Estimating the number of animals in wildlife populations. Pages 106–153 in T. A. Bookhout, editor. Research and management techniques for wildlife and habitats. The Wildlife Society, Bethesda, Maryland, USA.
- Liu, I. K. M., M. Bernoco, and M. Feldman. 1989. Contraception in mares heteroimmunized with pig zonae pellucidae. *Journal Reproduction Fertility* 85:19–29.
- MacLean, R. A., N. E. Mathews, D. M. Grove, E. S. Frank, and J. Paul-Murphy. 2006. Surgical technique for tubal ligation in white-tailed deer (*Odocoileus virginianus*). *Journal of Zoo and Wildlife Medicine* 37:354–360.
- Massei, G., and D. Cowan. 2014. Fertility control to mitigate human-wildlife conflicts: a review. *Wildlife Research* 41:1–21.
- Mathews, N. E., J. Paul-Murphy, and E. S. Frank. 2005. Evaluation of a trap-sterilize-release program for white-tailed deer management in Highland Park, Illinois, 2002–2005. Gaylord Nelson Institute for Environmental Studies, University of Wisconsin-Madison, USA.
- Matschke, G. H. 1977. Fertility control in white-tailed deer by steroid implants. *The Journal Wildlife Management* 41:731–735.
- McCullough, D. R. 1987. Demography and management of wild populations by reproductive intervention. *Contraceptives in Wildlife Conference*, 13–14 November 1987. Philadelphia, Pennsylvania, USA.
- McShea, W. J., S. L. Monfort, S. Hakim, J. F. Kirkpatrick, I. K. M. Liu, J. W. Turner, Jr., L. Chassy, and L. Munson. 1997. The effect of immunocontraception on the behavior and reproduction of white-tailed deer. *The Journal of Wildlife Management* 61:560–569.
- Merrill, J. A., E. G. Cooch, and P. D. Curtis. 2006. Managing an over-abundant deer population by sterilization: effects of immigration, stochasticity and the capture process. *The Journal of Wildlife Management* 70:268–277.
- Miller, L. A., B. E. Johns, and D. J. Elias. 1998. Immunocontraception as a wildlife management tool: some perspectives. *Wildlife Society Bulletin* 26:237–243.
- Miller, L. A., B. E. Johns, D. J. Elias, and K. A. Crane. 1997. Comparative efficacy of two immunocontraceptive vaccines. *Vaccine* 15:1858–1862.
- Miller, L. A., B. E. Johns, and G. J. Killian. 2000. Immunocontraception of white-tailed deer with GnRH vaccine. *American Journal of Reproductive Immunology* 44:266–274.
- Naugle, R. E., A. T. Rutberg, H. B. Underwood, J. W. Turner, and I. K. M. Liu. 2002. Field testing of immunocontraception on white-tailed deer (*Odocoileus virginianus*) on Fire Island National Seashore, New York, USA. *Reproduction Supplement* 60:143–153.
- Patten, M. L., W. Jochle, and L. M. Penfold. 2007. Review of contraception in ungulate species. *Zoo Biology* 26:311–326.
- Plotka, E. D., and U. S. Seal. 1989. Fertility control in female white-tailed deer. *Journal of Wildlife Diseases* 25:643–646.
- Porter, W. F., H. B. Underwood, and J. L. Woodard. 2004. Movement behavior, dispersal, and the potential for localized management of deer in a suburban environment. *The Journal of Wildlife Management* 68:247–256.
- Roelle, J. E., S. S. Germaine, A. J. Kane, and B. S. Cade. 2017. Efficacy of SpayVac as a contraceptive in feral horses. *Wildlife Society Bulletin* 41:107–115.
- Rudolph, B. A., W. F. Porter, and H. B. Underwood. 2000. Evaluating immunocontraception for managing suburban white-tailed deer in Irondequoit, New York. *The Journal of Wildlife Management* 64:463–473.
- Rutberg A. T., and R. E. Naugle. 2008. Population-level effects of immunocontraception in white-tailed deer (*Odocoileus virginianus*). *Wildlife Research* 35:494–501.
- Rutberg A. T., R. E. Naugle, J. W. Turner, Jr., M. A. Fraker, and D. R. Flanagan. 2013a. Field testing of single-administration porcine zona

- pellucida contraceptive vaccines in white-tailed deer (*Odocoileus virginianus*). *Wildlife Research* 40:281–288.
- Rutberg A. T., R. E. Naugle, and F. Verret. 2013*b*. Single-treatment porcine zona pellucida immunocontraception associated with reduction of a population of white-tailed deer (*Odocoileus virginianus*). *Journal of Zoo and Wildlife Medicine* 44:75–83.
- Seagle, S. W., and J. D. Close. 1996. Modeling white-tailed deer population control by contraception. *Biological Conservation* 76: 87–91.
- Thomas, L., S. T. Buckland, E. A. Rexstad, J. L. Laake, S. Strindberg, S. L. Hedley, J. R. Bishop, T. A. Marques, and K. P. Burnham. 2010. Distance software: design and analysis of distance sampling surveys for estimating population size. *Journal of Applied Ecology* 47:5–14.
- Turner, J. W., I. K. M. Liu, and J. F. Kirkpatrick. 1992. Remotely delivered immunocontraception in captive white-tailed deer. *The Journal of Wildlife Management* 56:154–157.
- Warren, R. J. 1995. Should wildlife biologists be involved in wildlife contraception research and management? *Wildlife Society Bulletin* 23:441–444.
- White, G. C. 1996. NOREMARK: population estimation from mark-resighting surveys. *Wildlife Society Bulletin* 24:50–52.
- Williams, S. C., A. J. DeNicola, T. Almendinger, and J. Maddock. 2013. Evaluation of organized hunting as a management technique for overabundant white-tailed deer in suburban landscapes. *Wildlife Society Bulletin* 37:137–145.
- Williams, S. C., A. J. DeNicola, and I. M. Ortega. 2008. Behavioral responses of white-tailed deer subjected to lethal management. *Canadian Journal of Zoology* 86:1358–1366.

Associate Editor: Haskell.

SUPPORTING INFORMATION

Additional supporting material may be found in the online version of this article at the publisher's website. The supporting material contains figures that delineate each of the 6 study areas.