

# The Deer Dilemma: Methods of Managing Urban Deer in Southeast Michigan



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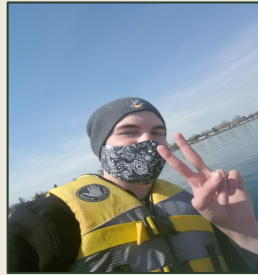
# INTRODUCTIONS



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Zach Cavanaugh



Tristan Compton



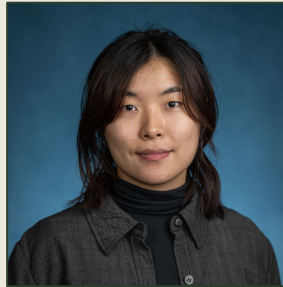
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# TABLE OF CONTENTS

*01* Background

*02* Client and Mission

*03* Management Plan Overview

## MANAGEMENT PLAN COMPONENTS

*04* Phase 1: Ecological & Social Surveying

*05* Phase 2: Management Initiation

*06* Phase 3: Implementing the Plan

*07* Phase 4: Engagement and Evaluation



01

Background

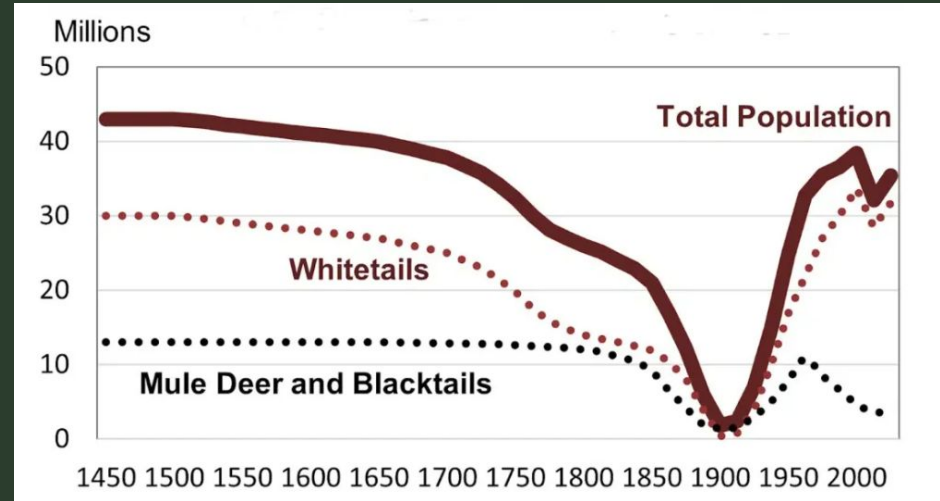
# History of Deer Overabundance

## The deer overabundance in Southeast Michigan is caused by:

1. Lack of natural predators
2. Overly strict hunting regulations
3. Changing habitat

<i>State</i>	<i>Est. Deer Pop. 2024</i>	<i>Acres (Sq. Miles)</i>	<i>Est. Deer Per Sq. Mile</i>
Michigan	2,000,000	56,539	35

Source: World Population Review. State Rankings, Deer Population by State. And Webb, G, 2018



Estimated US Deer Population, 1450-2021

# Ecological impact

## Forest Succession and Structure

- Loss of saplings and seedlings create significant regeneration issues
- Forests become dominated by fast-growing, unpalatable tree species



Overall decline in bird abundance and richness

## Herbaceous and Subcanopy

- Forests can lose up to 80% of their ground cover species
- Extirpations of rare plant species including lilies, orchids, and dicots
- Rise in invasive species



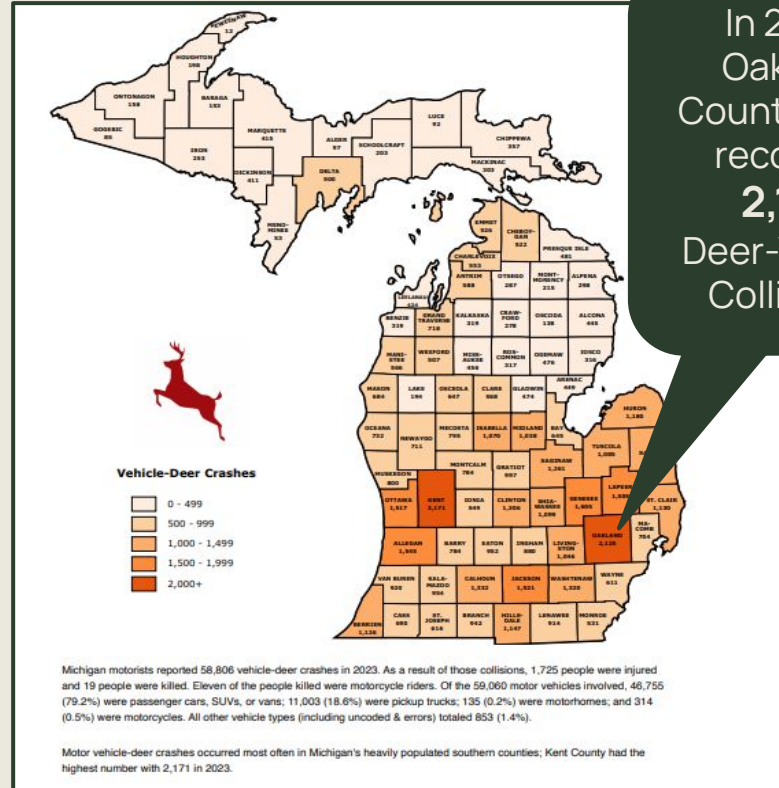
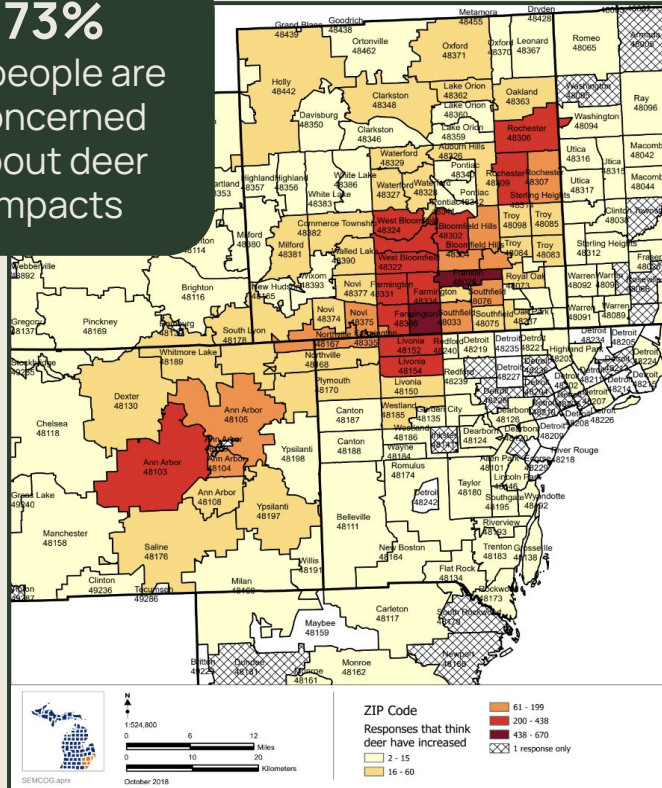
Specialist pollinators decline who rely on a specific plant species



Competition for food and destruction of suitable cover from predators

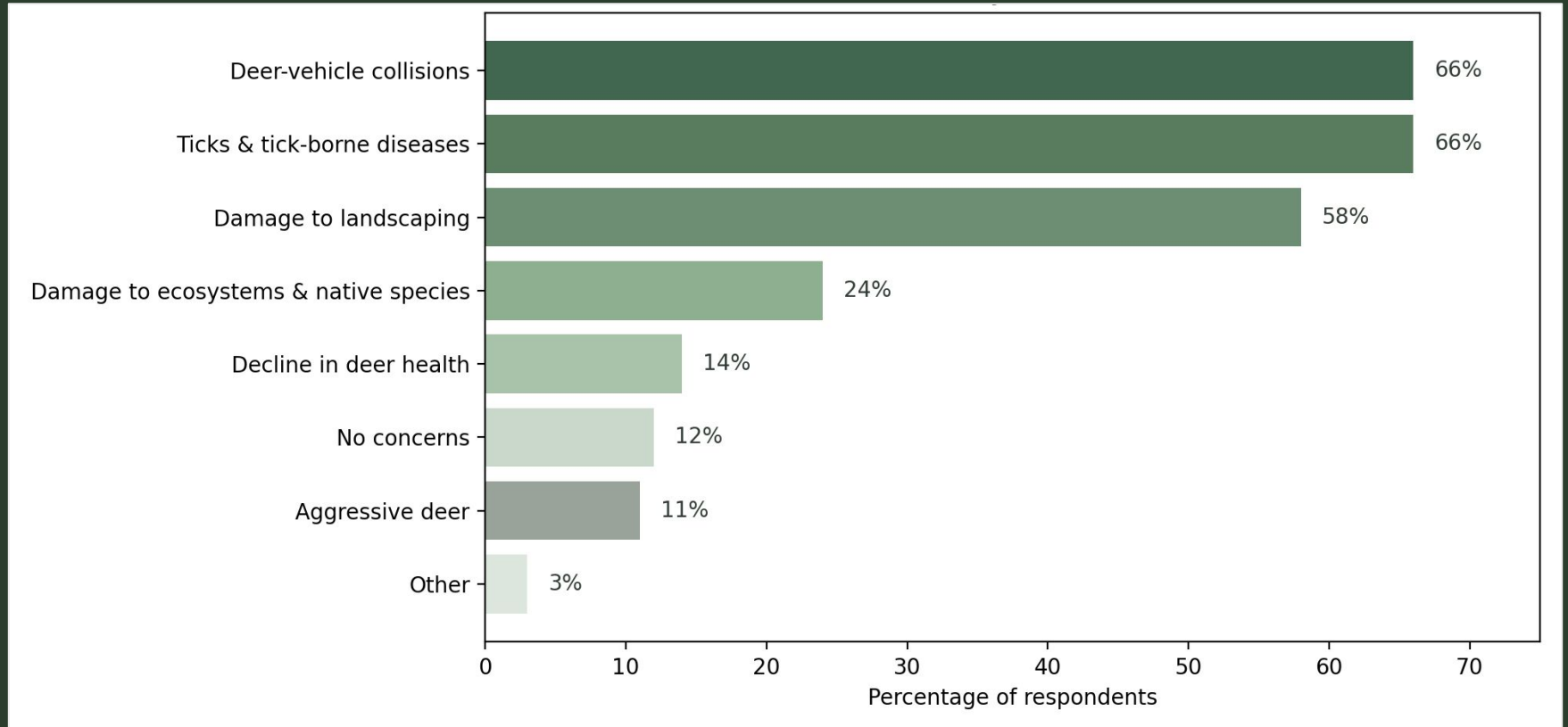
# SOCIAL IMPACT

73% of people are concerned about deer impacts



In 2023, Oakland County had a record of 2,125 Deer-Vehicle Collisions

# Oakland County's Deer Concerns



02



# Client & Mission

# FARMINGTON HILLS - HISTORY



2015

Began conducting **research**, collecting data, and working with the DNR

2017

Farmington Hills began the idea of taking a **regional approach** vs city by city

2021

Farmington Hills led regional approach to deer management by **establishing the Southeast Michigan Urban Deer Coalition (SEMIUDC)**

2022

SEMIUDC worked with SEMCOG on a **7 county deer survey**

2024

SEMIUDC invited to be part of **Statewide Deer Management Initiative (DMI)**

2025

**Passed deer management resolution**, part of first regional deer management with Southfield and Farmington

2026

Establishment of the Statewide **Urban Deer Management Plan** for Communities



# Southeast Michigan Urban Deer Coalition (SEMIUDC)

Established in 2021, and over **25** communities and organizations participate!

## GOALS

- Sustainable, healthy deer population
- Reducing socioeconomic impacts to residents
- Reinforcing the longevity of urban deer management practices.
- Coordinated, collaborative deer management in Michigan

## Current Priority

*Developing urban deer management guidelines for local governments*

## Membership:

Extended to representatives of local governments & allied organizations

03

MICHIGAN STATEWIDE  
**URBAN DEER  
MANAGEMENT PLAN**

Management Plan  
Overview

JANUARY 2026

# PILLARS OF THE MANAGEMENT PLAN



# GOALS OF THE MANAGEMENT PLAN

## STANDARDIZED

Following the same process and guidelines will allow for a coordinated regional approach to deer management rather than an isolated approach

## EASILY ADOPTABLE

Templates and resources provided so each community does not need to create their own from scratch

## FLEXIBLE

Methods can be tailored to the needs of the community, resident opinions, and scope of project.

# Overview of Management Plan

## PHASE 1

### INITIAL DATA COLLECTION & PROBLEM DEFINITION

- Resident survey
- Deer Population Census
- Vegetation Survey and Natural Area Impacts

## PHASE 2

### MANAGEMENT INITIATION

- City Council Study Session & Public Hearing
- Passing a Resolution
- Educational Materials

## PHASE 3

### MANAGEMENT IMPLEMENTATION

- Site Selection
- Lethal and Non-lethal Management Strategies
- Conflict Resolution
- Venison Donations

## PHASE 4

### ADAPTIVE MANAGEMENT & FUTURE OUTLOOK

- Continued Data Collection
- Integration into Parks and Rec Plans
- Long-term Public Engagement

# IMAGINE YOUR LOCAL COMMUNITY

The plan is designed to be adoptable by any community, *no matter which part of this journey they are on.*

**Think about your community's landscape, the people, their interests, and the goals you want to achieve.**





04

PHASE 1

# Ecological & Social Surveying

# RESIDENT SURVEYS

*Surveys can show what aspects of deer management residents have the most concerns with.*

Community concerns can then influence management decisions going forward.

## Example Questions:

- What is your perception of how the local deer population has changed in your community over recent years?
- What are your main concerns with deer?
- What deer impacts have you experienced or observed?
- How much has deer browse on your property cost you?



# DEER POPULATION CENSUS

*Reliable estimates of deer density are essential for evaluating management methods.*

Annual/seasonal census shows how deer populations change over time and respond to management efforts.

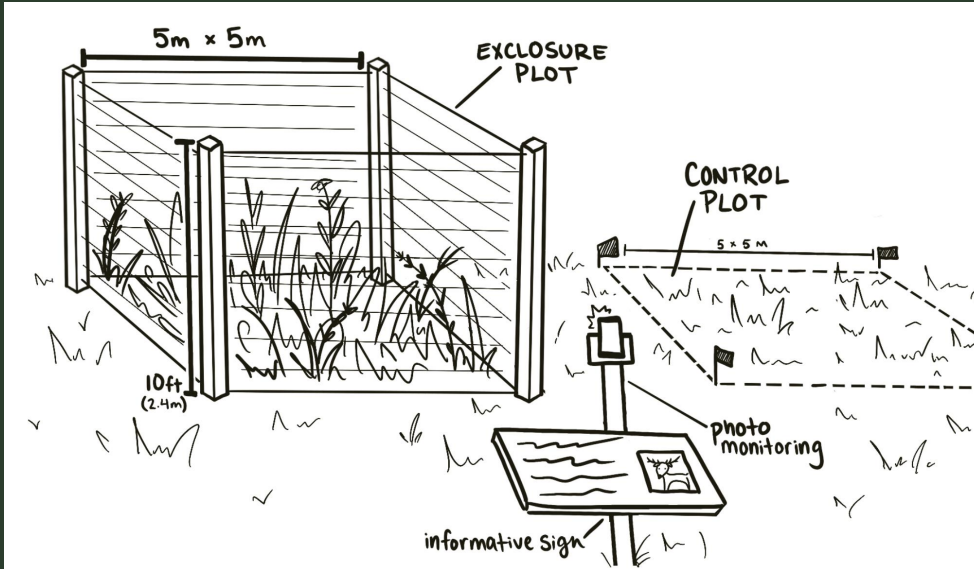
Methods can include:

- Drone surveys
  - Most cost/time effective, but some areas may be restricted.
- Aerial surveys
  - Can cover large areas quickly, but has been shown to underestimate deer count.
- Motion camera surveys
  - Cost varies depending on number/type of cameras, and requires manual labor to analyze footage.



# VEGETATION SURVEY AND ENCLOSURES

Vegetation assessments *before* management action occurs is **critical for setting a baseline** and **determining the extent of deer impacts**.



## METHODS

- **General Browse Study:**  
Best used to assess deer impacts in a large area.  
If done annually, this method can be effective at showing changes in browse over time.
- **Enclosure Study:**  
Low cost, easily adoptable, and can be useful as a public education tool



05

PHASE 2

# Management Initiation

# CITY COUNCIL STUDY SESSION & PUBLIC HEARING



Our team leading a study session for Farmington Hills in March 2025.

- *Presenting data* from Phase 1
- *Educates stakeholders*
- Study Sessions include:
  - Background information
  - Impact assessment
  - Ways to manage deer
  - Costs and benefits
- Hear concerns from...
  - Municipal Authorities
  - Public

# RESOLUTION

*Developing the core legislation that allows for management to begin!*

*Core aspects:*

- Data supporting program
- Management partners
- Venison donation
- Suspension of relevant ordinances
- Future planning
- Safety

RESOLUTION OF THE CITY COUNCIL/TOWNSHIP BOARD OF \_\_\_\_\_ CITY/CHARTER TOWNSHIP, MICHIGAN FOR DEER MANAGEMENT WITHIN THE CITY/TOWNSHIP OF \_\_\_\_\_

RESOLUTION NO. [XXXX]

**WHEREAS**, the overpopulation of white-tailed deer in the State of Michigan, including the CITY/TOWNSHIP OF \_\_\_\_\_, has led to increased public safety and public health concerns, such as increased deer-vehicle collisions, destruction of natural and residential landscapes, and potential exposure to diseases; and

**WHEREAS**, research conducted by the Michigan Department of Natural Resources (MDNR) supports appropriate management of deer populations to mitigate these negative impacts; and

**WHEREAS**, the Southeast Michigan Council of Governments conducted an independent study, which indicated that approximately RELEVANT SEMCOG SURVEY STATISTICS and 66% of all southeast Michigan residents have concerns related to deer overpopulation; and

Template deer management resolution

# EDUCATIONAL MATERIALS

*Educating residents will pave the way for productive public engagement with the management program.*

- Deer Coexistence
- Common Methods
  - Brochures
  - Websites
  - Park Signage
  - Press Interviews
- *Goals*
  - Informed & empowered public
  - Managing conflict
  - Foster collective understanding

**SEMIUDC**  
SOUTHEAST MICHIGAN  
UNIVERSITY DISTRICT COMMUNITY

Coexisting with  
**WHITE-TAILED DEER**  
In Southeast Michigan

While there are very few plants that are completely resistant to being eaten by deer, there are steps that you can take to help protect your gardens. In general, deer tend to avoid plants with either fuzzy or prickly leaves, such as Lamb's Ear. They will also generally avoid plants with particularly strong aromas, such as garlic, or lavender. While there is no guarantee that deer will never eat these plants, they are likely to avoid them if there is other food available in the area.

Other options for repelling deer include:

- Physical barriers, such as fences
- Deer repellants. Apply regularly, and especially after rainfall.
- Decoys of predators of deer, such as coyotes

Often, a multi-pronged approach utilizing multiple of these strategies will be most effective at keeping your plants safe from deer predation.

**DEER ON THE ROADS**

Deer-vehicle collisions are increasingly common in the state of Michigan. Although they may occur year round, they are especially common during the months of April through June, and October through December. In order to remain safe on the road, there are several tips you can follow:

- Stay Alert! Take note of deer crossing signs wherever they are posted. Be aware of your surroundings, as deer may be present at the side of the road, and may dash in front of you.
- Follow general road safety! Wear your seatbelt at all times, and drive the speed limit.
- If you do see a deer cross in front of you, slow down and be prepared to stop. Honking and flashing headlights are not effective to deter deer. If the deer does not move, do not try to go around it. And remember that where there is one deer, it is likely that there are more nearby.

If a crash is unavoidable:

- **DO NOT SWERVE!** It is instinct to do so, but this can cause you to lose control of the vehicle, and lead to a much more serious crash, and may also endanger other drivers.
- Brake firmly, grip the steering wheel with both hands, and stay in your lane.
- If you do hit a deer:
- Stay buckled up, and turn on your emergency lights.
- If you are able, move your vehicle to the side of the road. If your vehicle is unable to move, carefully exit the vehicle and stand at the side of the road, away from traffic.
- Call the police to report the crash.
- Do not approach the deer. If it is dead, it is unsafe to remove it from the road yourself. If it is alive, it is likely wounded and frightened, and could be dangerous.

Example of a brochure pages made as part of our project



06

PHASE 3

# Implementing the Plan

# SITE SELECTION

## Land Area Characteristics


- Health, terrain, and deer population density

## Public Land

- Large parcels or parks with ecological importance
- Chosen based on...  
Accessibility, habitat, topography, land area, and impacts or concerns

## Private Land

- Minimum property sizes
- Shared agreement of adjacent property use
- Private landowner engagement
- Pre-management preparation



**Property Volunteer Form - Deer Management**

This is the official form to submit your interest in offering your property to support the City's deer management program.

While these programs primarily focus on managing deer on City parkland, we have received interest from residents who would like to volunteer their private property as potential management sites as well. Completing this form is the first step in addressing deer-related challenges on your property.

Please fill out the form as thoroughly as possible. If you have any questions or concerns, contact us using the links provided at the bottom of the form.

\* Indicates required question

# LETHAL MANAGEMENT

*Considered to be the most effective strategy*

(Curtis, 2020)

## Who to Work With

- Federal
- State organizations
- Municipalities or collaborative organizations

## Sharpshooter Culls

- The use of professionally trained marksmen
- After hunting season to hit target deer amount
- Average of \$5,000 per evening

## Organized Hunts

- Selected archery hunters
- Designed to take place a certain number of times
- Lower cost than professional culls



### CONFLICT RESOLUTION PLAN FOR URBAN DEER MANAGEMENT - SHARPSHOOTING -

CITY OF FARMINGTON AND CITY OF FARMINGTON HILLS, 2026

#### INTRODUCTION

##### History of Conflict

The municipalities of Farmington and Farmington Hills are located in Oakland County, covering a total area of 35.97 square miles and having a combined population of 95,720 residents as of 2024. Farmington and Farmington Hills have faced deer impacts to a degree that warrants the implementation of a deer management program. According to a SEMCOG survey, approximately 73% of Farmington Hills residents have concerns over deer impacts (Figure 1). Over the past five years, deer-vehicle collisions have steadily increased (Figure 2). In 2023, there were nearly 288,000 deer-vehicle collisions in the state of Michigan, 2,100 in Oakland County, and 144 reported crashes in Farmington Hills (Figure 3). Other significant concerns include destruction to private property and landscaping, spread of disease and tick-borne illnesses, and disturbance to native ecosystems in public parks (Figure 4).

##### Designation of Authority

In response to these conflicts, the municipalities and City Councils of Farmington and Farmington Hills have passed resolutions on April 28, 2025 (Farmington Hills) and May 5, 2025 (Farmington), respectively, to allow for the legal authority to implement an urban deer management plan.

##### Goal of Management Plan

# NON-LETHAL MANAGEMENT

*Can be utilized by private property, areas of lower deer density, and as a supplement for lethal management*

Includes:

- Fencing (cost varies)
- Repellents
- Deterrents
- Habitat and landscape alteration
- Signage



# VENISON DONATIONS

*Create a partnership with local food banks!*

Substitute for ground beef

Great way to help feed the public

Process requirements:

- Reporting the amount of lbs.
- High quality meat safety
- Adequate distribution networks

*Each deer can provide about 120-160 meals!*



*07*



PHASE 4

# Engagement and Evaluation

# PILLARS OF EVALUATION

## CONTINUE DATA COLLECTION TO MEASURE SUCCESS

**Deer management is a long-term effort** that requires **continued monitoring and adaptation** to changing conditions and population dynamics.

Oftentimes, deer management impacts cannot be observed until **about 5 years after** the management program begins.

## LONG-TERM PUBLIC ENGAGEMENT

It is vital to **continue to engage with the public** and **stimulate relationships with residents** as management programs are implemented

Creating opportunities for residents to engage, learn, and discuss management decisions **strengthens transparency and trust.**

# PUBLIC ENGAGEMENT STRATEGIES

## 01 CITIZEN SCIENCE ACTIVITY

*Citizen science can be a means of educational programming & lighthearted engagement.*

Opportunity to use submissions as supplementary data for exclosures (if executed well).

## 02 PUBLIC EDUCATION PROGRAMMING

Host meetings at an accessible time and location to *stimulate collaboration and conversation for all*

Informational hikes, easy-to-read and understandable flyers or brochures, nature classes...

## 03 RESIDENT SURVEYS

Ongoing surveys can offer managers insight into how residents feel about the program and identify opportunities for greater engagement and more effective educational initiatives. These engagement surveys can provide insight into whether deer impacts are increasing, decreasing, or moving around within the community.

# CONCLUSION

**Implementing deer management on a *regional* scale is vital for ensuring both healthier ecosystems and safer communities.**

Utilizing these phases in your management plan can help ensure an effective *regional* response to deer overabundance in Michigan. Your participation matters!

Effective collaboration between local governments, resident communities, scientists, and organizations is vital for success.



# ACKNOWLEDGEMENTS

*A special thanks to those who have supported our project.*

**Michael Kost** - Advisor, SEAS and MBGNA

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**Southeast Michigan Urban Deer Coalition**

**City of Farmington Hills**

Interviewees and enthusiastic community participants

Previous and current deer researchers whose work provided the foundation for this project.



# THANK YOU!

## Questions?

Please contact us with any lingering questions!  
*[urbandeer@umich.edu](mailto:urbandeer@umich.edu)*

