

**SOLEBURY TOWNSHIP BOARD OF SUPERVISORS**

June 15, 2021 – 6:00 P.M.

**VIRTUAL MEETING**

**MEETING MINUTES**

The June 15, 2021 at 6:00 p.m. Solebury Township Board of Supervisors meeting was duly advertised and held electronically through the Zoom Virtual Meeting Platform. The meeting was held in this manner due to the current State and Federal regulations in place from the COVID-19 pandemic.

Attendance: Mark Baum Baicker, Chair, Kevin Morrissey, Vice-Chair, Noel Barrett, John S. Francis, Robert McEwan, Dennis H. Carney, Township Manager, Michele Blood, Assistant Manager, and Catherine Cataldi, Secretary. Mark L. Freed, Township Solicitor and Curtis J. Genner Jr, Township Engineer were also in attendance.

Zoom recording device was turned on.

**I. The meeting was called to order followed by the Pledge of Allegiance.**

**II. Approval of Bills Payable – May 27, 2021 and June 10, 2021**

**Res. 2021-68 – Upon a motion by Mr. Morrissey, seconded by Mr. McEwan, the list of Bills Payable dated May 27, 2021 and June 10, 2021 were unanimously approved as prepared and posted.**

**III. Approval of Meeting Minutes – May 20, 2021 Virtual Meeting**

**Res. 2021-69 – Upon a motion by Mr. Barrett, seconded by Mr. Francis, the Minutes of the May 20, 2021 Virtual Meeting were unanimously approved as prepared and posted.**

**IV. Supervisors Comment**

- Mr. Francis commented on the letter drafted by the Environmental Advisory Council (EAC) encouraging local businesses to reduce the use of single use plastics.

**Res. 2021-70 – Upon a motion by Mr. Francis, seconded by Mr. Baum Baicker, it was unanimously agreed to approve the distribution of the Environmental Advisory Council’s draft letter.**

**V. Public Comment – No Public Comment**

**VI. Presentation**

- Infrared Deer Drone Survey Results – Raritan Valley Community College  
Jay F. Kelly, PH.D., Co-Director, Center for Environmental Studies Raritan Valley Community College presented a PowerPoint presentation (copy of which is attached) on the results of the infrared deer drone survey.

Barbara Zietchick, resident asked if the Township could encourage hunters to participate in the program with a payment incentive. Carey Furlo, USDA, advised this would cause a change in liability protection. Mr. Zietchick questioned if the Township could reduce the fee for the hunting license. Mr. Furlo advised that the fees are structured by the state.

**Res. 2021-71 – Upon a motion by Mr. Baum Baicker, seconded by Mr. Francis, it was unanimously agreed to move forward with a multifaceted plan to tackle Solebury Township’s deer situation:**

- 1) Dennis is to request heard reduction proposals for 1,000 deer from multiple entities that specialize in deer removal;**
- 2) Conduct annual infrared drone studies to better gauge the deer density and heard locations within the Township. This includes ending the spot light deer studies;**
- 3) Continue the Township’s Maintenance Program by building on the Deer Management Program. This includes: increasing contacts in the community to sign up more properties; sign up and manage more hunters; expand on the Agricultural Depredation Permit Program by contacting more farmers; and collaborating with surrounding Townships.**

## **VII. Public Hearing**

Conditional Use Application – Samantha Cook (6214 Sawmill Road, TMP # 41-002-093-003)

The agenda item was continued from the May 20, 2021 Board of Supervisors meeting. The applicant put in a request for an additional continuance.

**Res. 2021-72 – Upon a motion by Mr. Francis, seconded by Mr. Barrett, it was unanimously agreed to approve the continuance of the Samantha Cook (6214 Sawmill Road, TMP # 41-002-093-003) Conditional Use application until the July 20, 2021 Board of Supervisors meeting.**

Conditional Use Application – Lot 2 of Rolling Green II Subdivision (2723 Aquetong Road, TMP # 41-022-026-002)

The public hearing was opened by Mark Freed, Township Solicitor. A court stenographer was present to record the testimony.

The Applicants, Joseph Palmieri and Lauri Saft were present. Mr. Palmieri and Ms. Saft were represented by Russel Sacco, Council and Kris Reiss, Engineer.

Following an overview of the project, testimony, and conversation between the Board and Applicant, the hearing was closed.

**Res. 2021-73 – Upon a motion by Mr. Baum Baicker, seconded by Mr. McEwan, it was unanimously agreed to approve the conditional use application of Joseph Palmieri & Lauri Saft for disturbance of 43.3% of the productive agricultural soils at Rolling Green II – Lot #2, 2723 Aquetong Road, Solebury Township, with the following conditions:**

- The Applicant shall proceed in accordance with its application, the plans submitted, all supporting material, the evidence submitted, and all representations made by and on behalf of the Applicant.**
- The Applicant shall proceed in accordance with the recommendations of the Township Zoning Officer set forth in his letter of April 14, 2021 and the Township Engineer set forth in his memorandum of May 5, 2021.**
- The Applicant shall comply with the rules, regulations and ordinances of Solebury Township, the Commonwealth of Pennsylvania, the United States government and especially with the Solebury Township Zoning Ordinance and Subdivision and Land Development Ordinance.**
- The Applicant shall obtain of all permits and approvals from any agencies having jurisdiction over same to the extent applicable.**
- The Applicant shall pay all Township expenses related to the application to the extent not paid.**

## VIII. New Business

Mr. Baum Baicker announced a change in agenda order. New Business Topic: Aquetong Spring Park Committee – Recommendation was moved up in the agenda.

### Aquetong Spring Park Committee – Recommendation

**Res. 2021- 74 – Upon a motion by Mr. Frances, seconded by Mr. McEwan, it was unanimously agreed to approve the following recommendations made by the Aquetong Spring Advisory Committee:**

- 1) Add “A Nature & Heritage Preserve” to the existing Aquetong Spring Park Sign.**
- 2) Officially name the structure known as the Judy House to the Bond House.**

### Land Preservation – Property # 164 – Inclusion into the Program

Property # 164 consists of 57 acres located on Upper York Road. The Land Preservation Committee recommended the inclusion of property # 164 into the Land Preservation Program.

**Res. 2021-75 – Upon a motion by Mr. Baum Baicker, seconded by Mr. Barrett, it was unanimously agreed to acknowledge the eligibility of Property # 164 into the Solebury Township Preservation Program**

### Omnibus Zoning and SLDO Ordinance Amendment – Authorization to Advertise

AN ORDINANCE OF THE TOWNSHIP OF SOLEBURY, BUCKS COUNTY, PENNSYLVANIA, AMENDING CHAPTERS 22 (SUBDIVISION AND LAND DEVELOPMENT), AND 27 (ZONING).

**Res. 2021-76 – Upon a motion by Mr. Barret, seconded by Mr. McEwan, it was unanimously agreed to advertise the Omnibus Zoning and SLDO Ordinance Amendment.**

### Zoning Officer Building Code Official Ordinance – Authorization to Advertise

AN ORDINANCE OF THE TOWNSHIP OF SOLEBURY, BUCKS COUNTY, PENNSYLVANIA, AMENDING CHAPTERS 5 (CODE ENFORCEMENT), 10 (HEALTH AND SAFETY), 11 (HISTORIC DISTRICT), 18 (SEWERS AND SEWAGE DISPOSAL), AND 26 (WATER).

**Res. 2021-77 – Upon a motion by Mr. Barrett, seconded by Mr. Morrissey, it was unanimously agreed to advertise the Zoning Officer Building Code Official Ordinance.**

### Stormwater Agreement Ordinance Amendment – Authorization to Advertise

AN ORDINANCE OF THE TOWNSHIP OF SOLEBURY, BUCKS COUNTY, PENNSYLVANIA, AMENDING CHAPTER 23 (STORMWATER MANAGEMENT).

**Res. 2021-78 – Upon a motion by Mr. Baum Baicker, seconded by Mr. Barrett, it was unanimously agreed to advertise the Stormwater Agreement Ordinance Amendment.**

### Brake Retarder Prohibition Ordinance – Authorization to Advertise

AN ORDINANCE OF THE TOWNSHIP OF SOLEBURY, BUCKS COUNTY, PENNSYLVANIA, AMENDING CHAPTER 15 (MOTOR VEHICLES AND TRAFFIC).

**Res. 2021-79 – Upon a motion by Mr. Baum Baicker, seconded by Mr. Barrett, it was unanimously agreed to advertise the Brake Retarder Prohibition Ordinance.**

## IX. Subdivisions/Conditional Uses/Land Developments

Release of Letter of Credit – Temple of Credit – Temple Partners I, LP (AKA Carversville Farm) – Voucher 1 (final)

**Res. 2021-80 – Upon a motion by Mr. Baum Baicker, seconded by Mr. Morrissey, it was unanimously agreed to acknowledge and approve the letter of credit release for Temple Partners I, LP (AKA Carversville Farm) in the amount of two hundred thirty-six thousand two hundred twenty-five dollars and ninety-four cents (\$236,225.94).**

**X. Public Comment – No Public Comment**

**XI. Adjournment**

The meeting was adjourned at 8:02 p.m.

Respectfully submitted,  
Catherine Cataldi  
Secretary



# Results of Infrared Deer Surveys in Solebury Township, PA



Solebury Township  
June 15, 2021

**Jay F. Kelly, Ph.D., and Jessica Ray**  
Center for Environmental Studies  
Raritan Valley Community College

# Spotlight Surveys



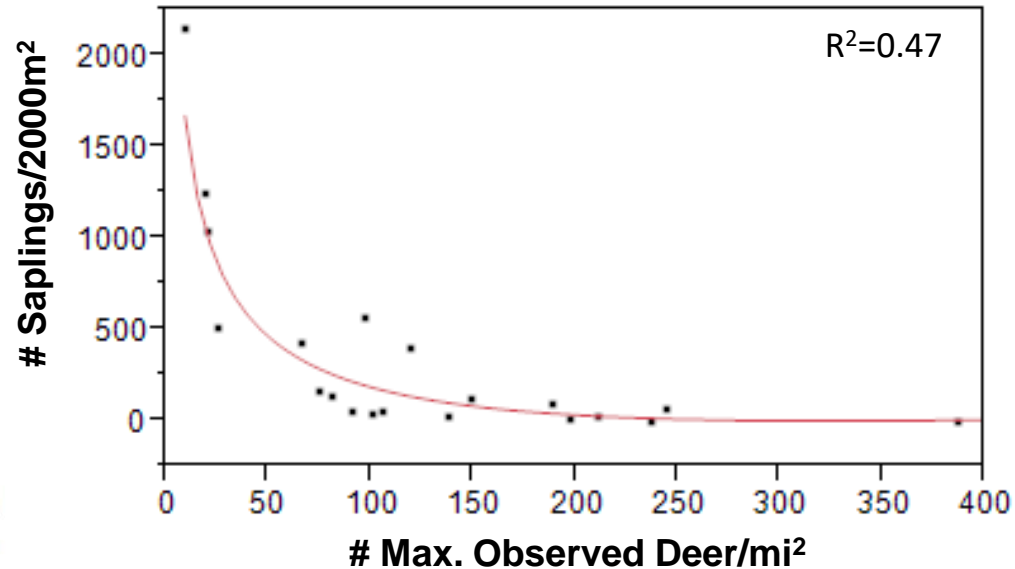
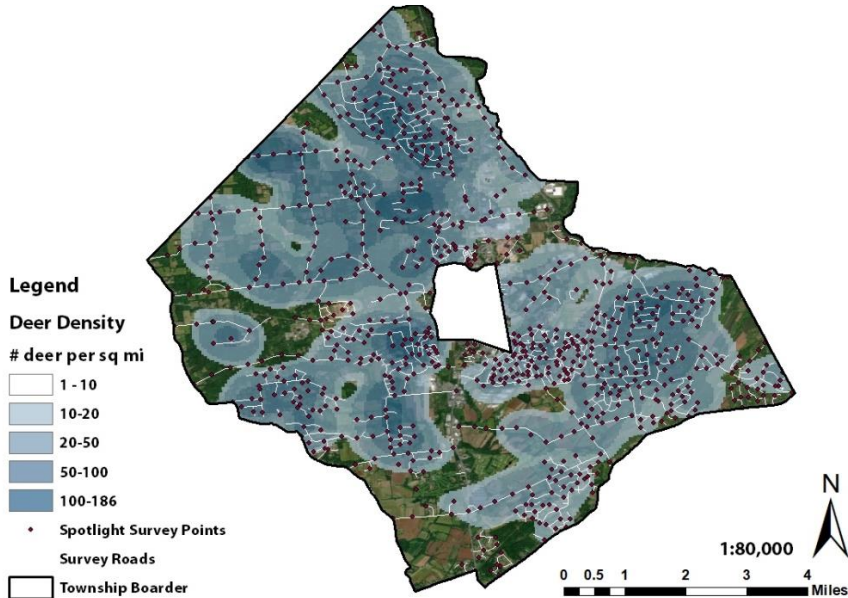
## RVCC Spotlight Surveys 2015-2018

Drake et al. (2005) – Duke Farms

Comparable results of spotlight and infrared

Kelly (2017) and Vision Air Research (2017)

Watchung Borough





## Spotlight Surveys –

Limited to deer visible from road

### Problem:

deer density varies in relation to landscape contexts

road density varies in relation to those landscape contexts

visibility varies by landscape contexts, vehicle, observer, etc.

**Plot-Based Sampling**

**Distance Sampling**

**Average = 31% of Mean!!!**

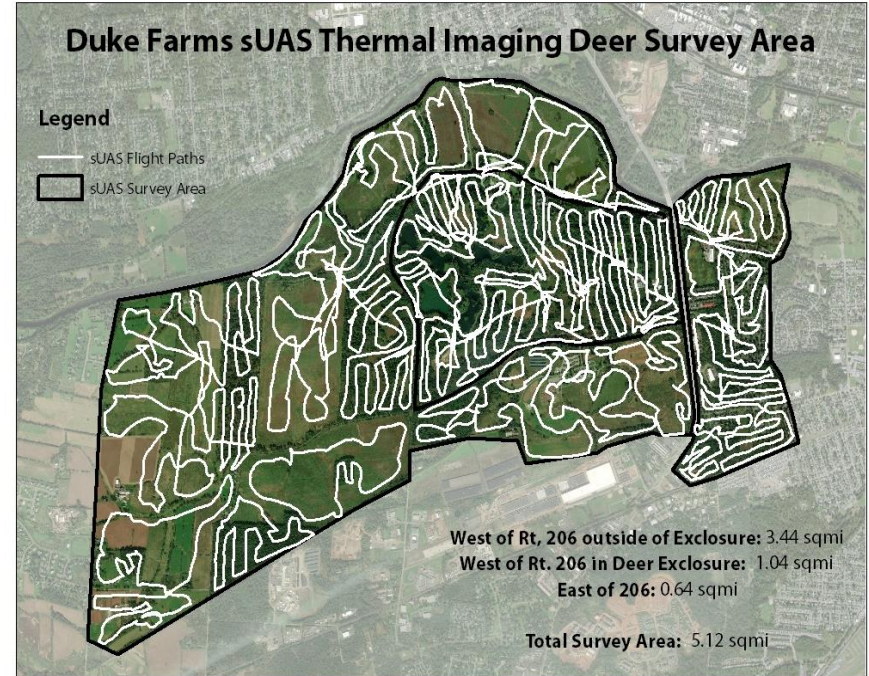
Location	Year	Density	Range	Standard Deviation as % Mean
Watchung	2019	61±15	(47-76)	25%
	2018	41±12	(29-53)	29%
Raritan	2019	112±13	(99-124)	12%
	2018	81±13	(68-95)	16%
Readington	2019	132±39	(93-170)	30%
Princeton	2015	36±11	(27-48)	31%
(deNicola	2014	45±17	(31-65)	38%
Unpubl.data)	2011	39±27	(20-74)	69%

# Complete Spatial Coverage – Fixed Wing vs. Drone

Watchung Borough (Vision Air Research 2017)



Duke Farms (RVCC 2020)





# Comparison of Deer Survey Methods

## Complete Coverage

- **Aerial surveys** (Helicopter) –  $\leq 80\%$  accurate, \$\$\$
- **Infrared Aerial Surveys** (Fixed-wing Aircraft) –  $\leq 90\%$ , \$\$\$
- **Infrared sUAS Surveys** (Drone) – 95-100% accurate, \$-\$\$

## Sampling

- **Spotlight Surveys** – 31-88% accurate, highly variable, \$
- **Fecal Pellets** – high variability, temperature dependent, \$
- **Trail Cameras** – high variability, error/double-counting, \$\$

# Comparison of Infrared Methods - Fixed Wing vs. Drone



[https://youtu.be/2H\\_JUae06ho](https://youtu.be/2H_JUae06ho)

Duke Farms 2020	Duke Boundaries			Overall Search Area		
	# Deer – Aircraft	# Deer – Drone	% Dif.	# Deer – Aircraft	# Deer – Drone	% Dif.
Outside Enclosure ( <i>Low Density Veg.</i> )	157	167	-6%	184	191	-4%
Inside Enclosure ( <i>High Density Veg.</i> )	20	27	-26%	20	27	-26%
Outside Enclosure ( <i>High Density Veg.</i> )	14	17	-18%	44	58	-24%
<b>TOTAL</b>	<b>191</b>	<b>211</b>	<b>-9%</b>	<b>248</b>	<b>276</b>	<b>-9%</b>

# 2019-2021 RVCC Infrared Drone Deer Surveys

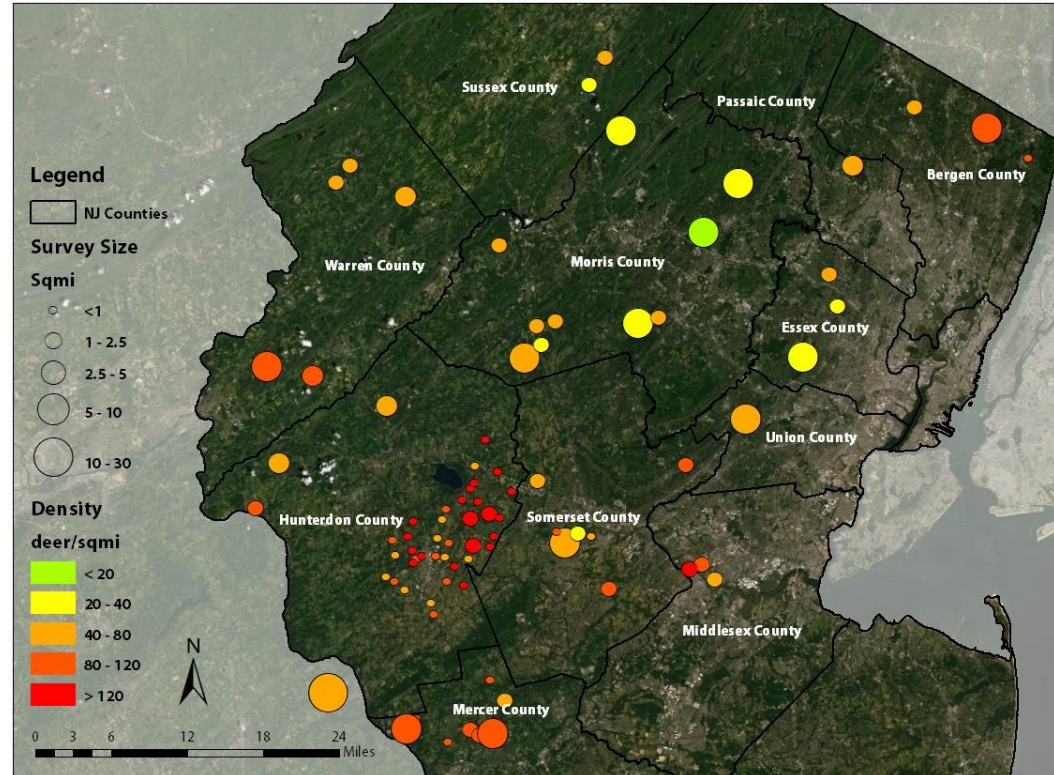
97 Towns/Preserves

106,677 acres

(165 mi<sup>2</sup>)

Avg. Density =

70 deer/mi<sup>2</sup>



# Infrared Deer Surveys in Solebury in 2021

## Methods:

### Consecutive Nights

(March 2-3, 6-11, 2021)



### Weather Conditions

(No Precip, Winds <15 mph)

**FAA Remote Pilot License (w/Waivers for Night-time Operations, Certified Visual Observers)**

**Autel Evo II Dual Drone, w/FLIR 640 Thermal Sensor**

**Class G Airspace, <400' Above Ground**



# Deer Surveys in Solebury in 2021

## Methods:

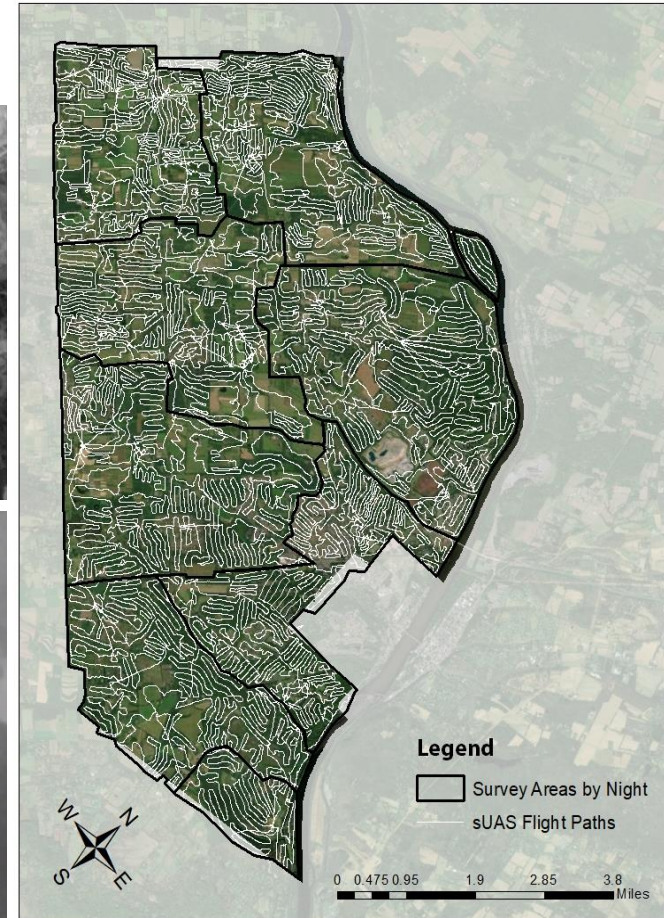
**Location/# Deer recorded  
in real-time**

(ArcCollector App)

Survey width varies by  
Visibility/cover

Methods optimized for  
accuracy and to minimize  
double-counting

**Data processed in  
ArcMap (ArcGIS 10.0)**



# Results of Deer Surveys in Solebury in 2021

## Results:

2,054 deer

27.02 mi<sup>2</sup> area

= **76 deer/mi<sup>2</sup>**

(67-175 deer/mi<sup>2</sup>  
per night)

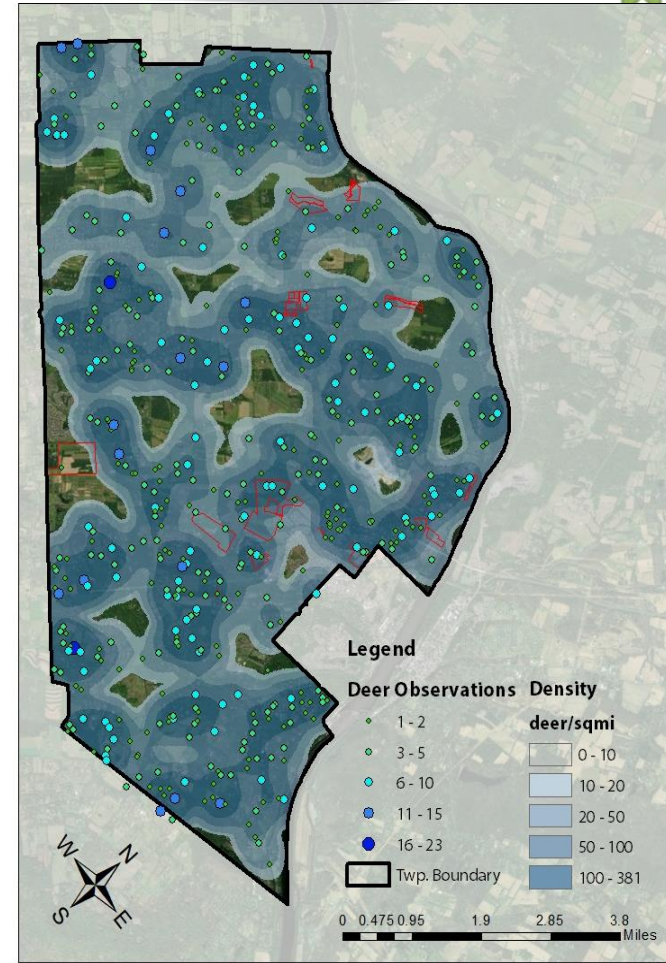
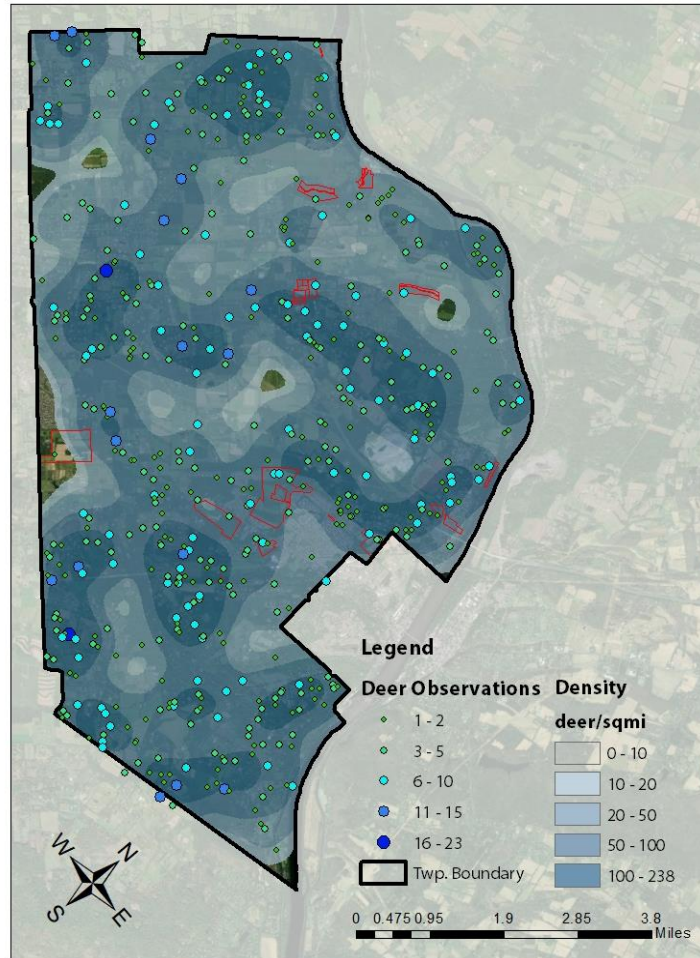
## Local Densities

Up to 238-381

deer/mi<sup>2</sup>

89-98% of town

>10/mi<sup>2</sup>





# Deer Population Benchmarks – *Thresholds for Ecological Impacts*

**>10 deer/mi<sup>2</sup>**

Impact preferred  
browse species

**>20 deer/mi<sup>2</sup>**

Impacts to forest  
understories, wildlife

**>100 deer/mi<sup>2</sup>**

Without deer  
management

Historic: **8-11 deer/mi<sup>2</sup>**



Healthy forest with dense understory  
vegetation and native plant species.

Present: **70 deer/mi<sup>2</sup> (17-136)**

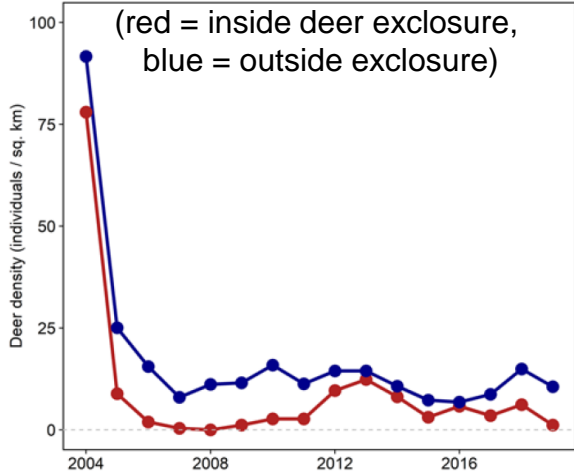


Overbrowsed forest at Hutcheson  
Memorial Forest in Franklin Township  
(2012)



Overbrowsed forest with invasive  
barberry shrubs at Peter's Tract in  
Bernardsville (2016)

# Duke Farms, NJ



		Deer Population and Management Goals (T. Almendinger, Unpublished Data)							
Population after management	Avg. winter mortality rate (5%)	Breeding female = approx. 40% of total pop.	State reproductive rates 1997= (1.42 for yearling ♀ & 1.78 for adult ♀), average of 1.6 per doe	Average survivability (of fawns)	Population of adults and yearlings + the addition fawns	Reduction goal 40%	Reduction goal 50%	Reduction goal 60%	Reduction goal 70%
column D - harvest total	Pop.- (Pop.* 0.05)	Population * 0.4=	# of breeding age ♀ * 1.6=	# Fawns* 0.75	New population total =	j4 x .4=	j4 x .5=	j4 x .6=	j4 x .7=
2054	1951.3	780.52	1248.832	936.624	2887.924	1155.17	1443.962	1732.754	2021.547





# Recommendations for Deer Management

- Setting Deer Management Goals
- Tools for Deer Management
  - Management Hunting on Township-Owned/Other Lands
  - Depredation Permits on Agricultural Lands
  - Enhanced Results via Deer Drives and/or Sharpshooting
- Data Collection
  - Deer Population - Harvest Results, Annual Surveys, Other Stats
  - Indicators – Forest Monitoring, Collisions, Ag. Damages, Lyme's



# Costs and Effectiveness of Deer Management Methods

Recreational Hunting (Private Clubs/Permit) –

*Revenue-positive/low cost but Less effective*

Sharpshooters –

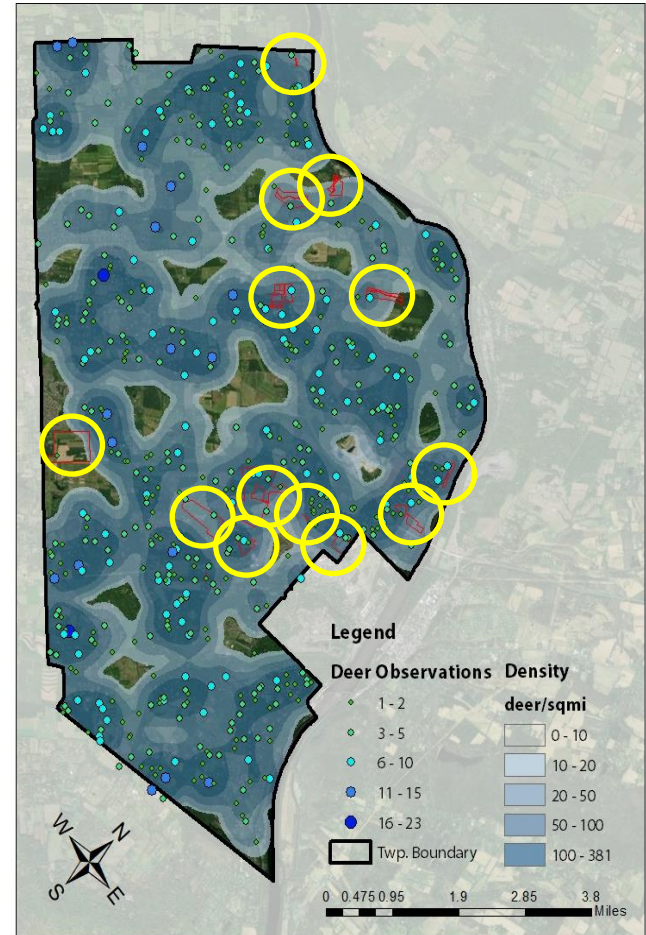
*High-cost (\$208-292/deer) but Very effective*

Management Hunting –

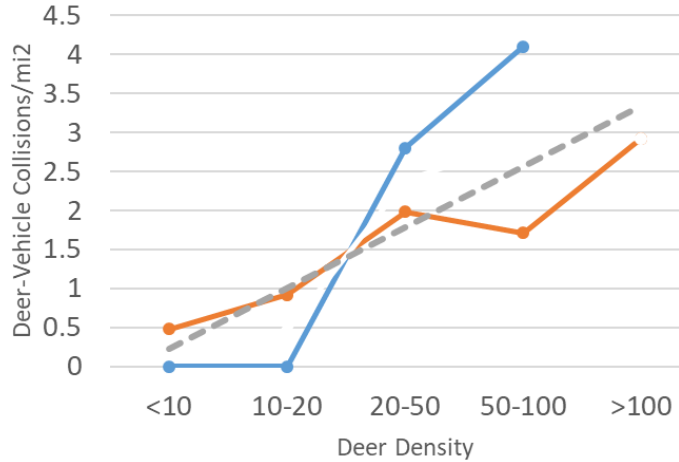
*Low cost (\$30-50/deer) and Very effective*

Non-lethal Methods (Contraceptives) –

*High-cost (\$430-1,100/deer) and Ineffective/experimental*



# Data Collection: Deer-Vehicle Collisions



Average \$4,000 vehicle damage per reported collision  
(State Farm Insurance 2018)

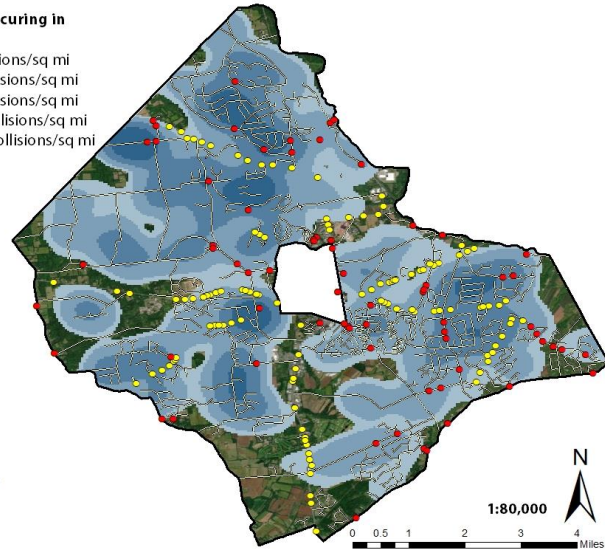
Princeton reduced population by 60%,  
and collisions declined by  
the same amount that year  
(Williams et al. 2013)

## Deer Collision and Road Based Spotlight Survey Density in Raritan Township

**Deer Collision Density Occuring in Each Deer Density Range**  
 1-10 deer/sq mi: 1.14 collisions/sq mi  
 10-20 deer/sq mi: 3.54 collisions/sq mi  
 20-50 deer/sq mi: 5.24 collisions/sq mi  
 50-100 deer/sq mi: 5.12 collisions/sq mi  
 100-186 deer/sq mi: 3.39 collisions/sq mi

\*note that all deer collisions are included in this summary\*

- Legend**
- Density Calculated from Road Survey Observations
- 1 - 10
  - 10-20
  - 20-50
  - 50-100
  - 100-186
- Deer Collisions
- occurring on survey roads
  - not occurring on survey roads
  - Roads Surveyed
  - Township Boundary

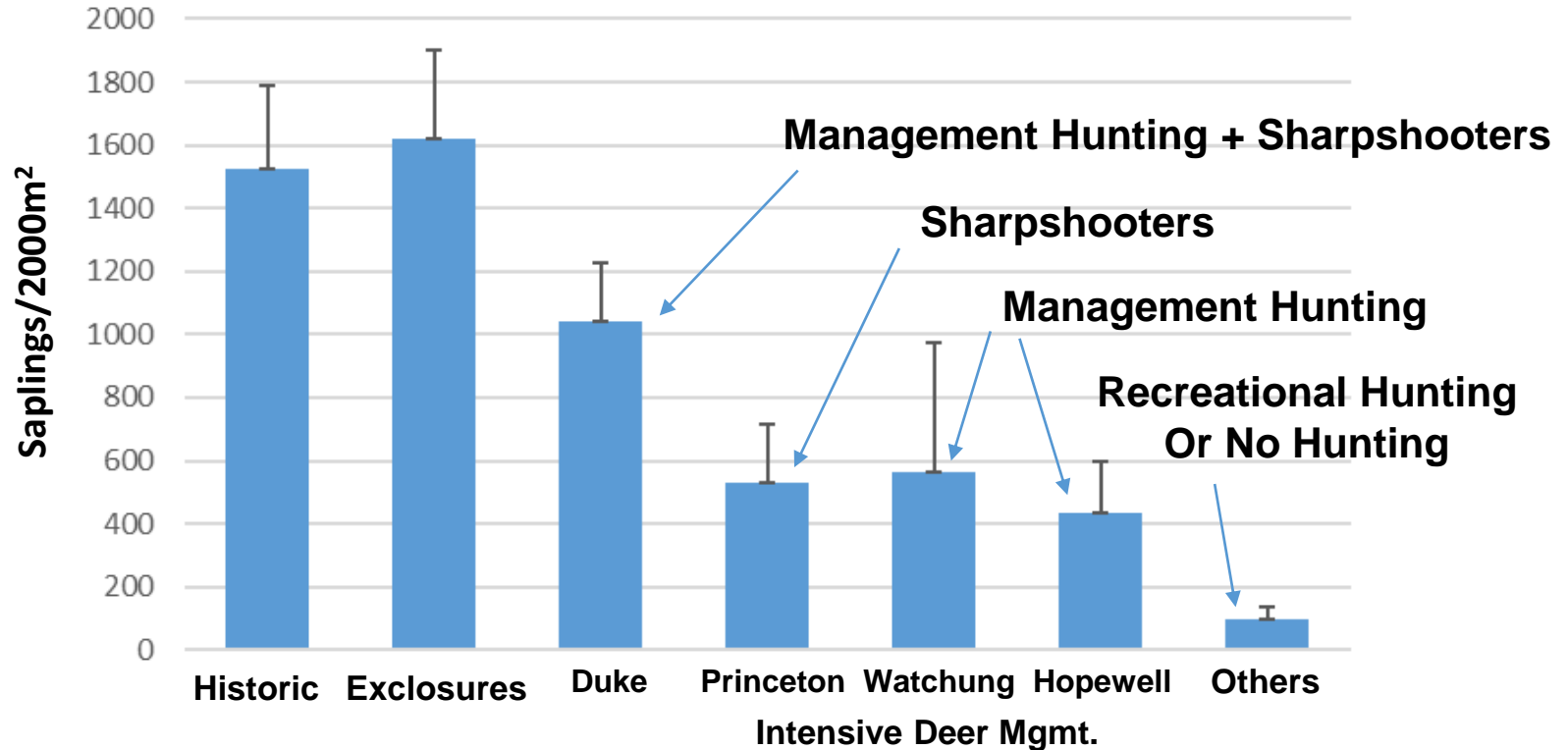


## River Vale sUAS Heat Map





## Data Collection: *Forest Monitoring/Ecosystem Health*





# CENTER FOR ENVIRONMENTAL STUDIES

Thanks!!!

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<https://www.raritanval.edu/Environmental-Studies>