



## State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION

NATURAL AND HISTORIC RESOURCES

DIVISION OF FISH AND WILDLIFE

P.O. BOX 420; MAIL CODE: 501-03

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Dave Golden, Director

PHILIP D. MURPHY  
*Governor*

SHEILA Y. OLIVER  
*Lt. Governor*

SHAWN M. LATOURETTE  
*Commissioner*

### MEMORANDUM

To: NJ Fish and Game Council members

Through: Carole Stanko

From: Jodi L. Powers

Date: October 29, 2021

Subject: Princeton Township application for a Community-based Deer Management permit

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Princeton Township is again requesting a Community-based Deer Management Permit (CBDMP) that would allow the Township to hire White Buffalo Inc. to cull deer through March 31, 2022. Princeton Township is proposing to allow White Buffalo to cull deer using silenced bolt-action .223 centerfire and .22 rim-fire rifles on nine private and six township properties. To accomplish the goal of increasing cull numbers, White Buffalo will attempt to acquire access to new and/or more properties and implement the use of the net and bolt management tool.

The Mayor and Council of Princeton passed a resolution endorsing the application for a CBDMP on September 13, 2021.

The Division is **not** recommending approval of .22 rim-fire rifles.

Last year, a total of 142 deer were culled and donated to Hunters Helping the Hungry equaling approx. 5,680 pounds. This equates to over 22,000 meals.

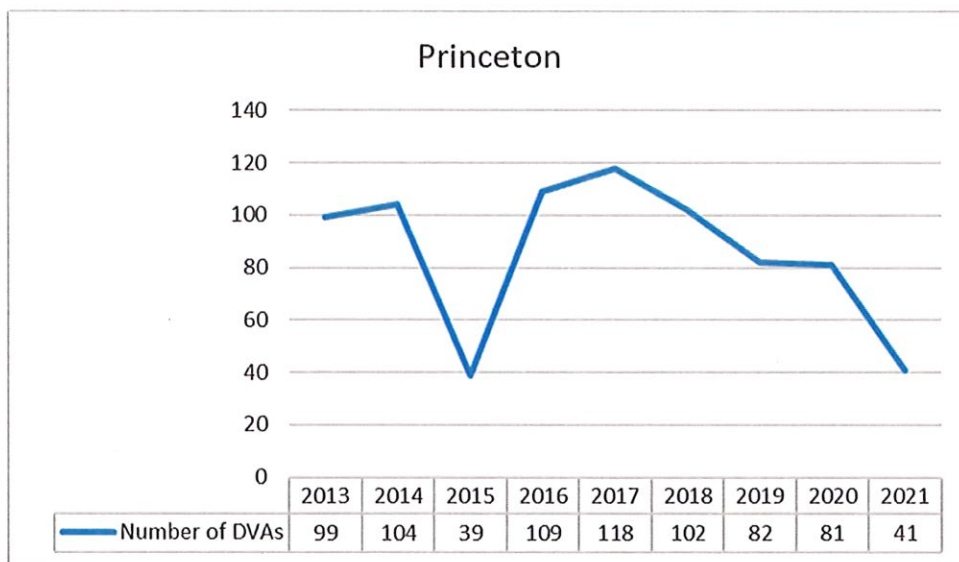
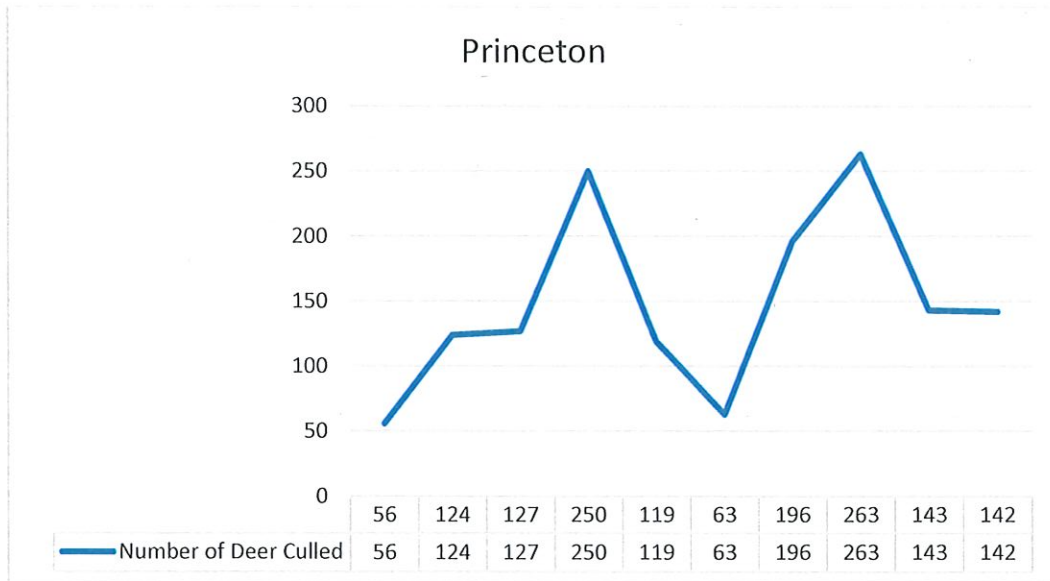
Since, 2016, Princeton's Council has retained the services of a hunting group that has successfully managed deer in the Duke Estate. This group continues to hunt public and private properties during the regular hunting season.

No chemical fertility control booster or initial vaccinations will be administered this year.

The Township experienced deer – vehicle collisions as high as 342 in 2000, when the first Community Based Deer Management permit was issued to Princeton. Deer – vehicle accidents have dropped to an average of 98 per year over the past five years. The goal is to maintain deer – vehicle accidents below 60-70 per year.

As a result of COVID-19, distance sampling surveys were cancelled in 2020. They will conduct a survey in early winter 2021 and conduct drone infra-red surveys in early 2022. Based on distance sampling conducted in March 2018, historical birth rates, current road-kill and harvest data, the cull target for this year is 150 deer.

Based on the significant number of vehicle accidents caused by an over-abundance of deer, I am recommending that the Fish and Game Council approve Princeton Township's application for a Community Based Deer Management permit. Exceptions to N.J.S.A. the Council would approve are: 23:4-13 Regulations concerning guns; 23:4-44 Weapons authorized for hunting deer; 23:4-45 Hunting by daylight and at designated times only; and 23:4-13.1 Outer garment of fluorescent hunter's orange.









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[dwilliams@princetonnj.gov](mailto:dwilliams@princetonnj.gov)

September 20, 2021

Jodi Powers, Senior Biologist  
NJ Division of Fish and Wildlife  
Bureau of Wildlife Management  
Central Region Office  
1 Eldridge Road  
Robbinsville, NJ 08691

**Re: Resolution 21-295-Resolution Endorsing Application for Designation of a Special Deer Management Area and Application for Community Based Deer Management Plan 2021-2022**

Dear Ms. Powers,

Enclosed is a certified copy of a resolution adopted by the Mayor and Council of Princeton on September 13, 2021 authorizing the deer management program.

Also enclosed is the original application for the Deer Management Program and copies of the contracts awarded to John Zampini/Suburban Deer Management Associates and White Buffalo, Inc. at the September 13, 2021 meeting of Princeton's Mayor and Council. Upon receipt of the signed contracts from both providers, copies of the fully executed contracts will be forwarded for your files.

If you have any questions please do not hesitate to contact us.

Sincerely,

Delores A. Williams  
Municipal Clerk

Enclosures

cc: Bernard Hvozdovic, Administrator  
Brittany Spanos, Administrative Coordinator  
Chris Morgan, Chief of Police  
Jeffrey Grosser, Director of Health  
Jim Ferry, Animal Control Officer  
Trishka Cecil, Municipal Attorney



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**RESOLUTION 21-295**

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**Resolution Endorsing Application for Designation of a Special Deer Management Area and Application for Community Based Deer Management Plan 2021-2022**

WHEREAS, P.L. 2000, c. 46 ("deer management law") authorizes municipalities and the New Jersey Division of Fish and Wildlife to develop and implement site specific community-based deer management plans; and

WHEREAS, in 2000, the municipality formerly known as the Township of Princeton ("the Township") developed and began to implement a multi-year community-based deer management plan pursuant to the deer management law to combat the negative impacts of the overpopulation of deer in the Township; and

WHEREAS, the Township's goal was to reduce the size of the deer herd to approximately 350 overwintering deer and maintain it at that level; and

WHEREAS, as of January 1, 2013, the Township of Princeton and Borough of Princeton consolidated pursuant to the New Jersey Municipal Consolidation Act, *N.J.S.A. 40:43-66.35* to become the new municipality of Princeton ("Princeton"); and

WHEREAS, Princeton desires to continue the deer management and deer removal program formerly implemented by the Township in order to reduce the size of the deer population to a manageable level; and

WHEREAS, it continues to be necessary to employ alternate deer management methods in addition to traditional hunting in order to maintain the deer population at or near goal level, and to that end wishes to apply to the New Jersey Division of Fish and Wildlife and the New



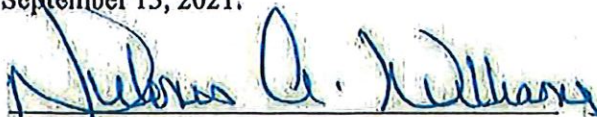
Jersey Fish and Game Council for a special deer management permit and approval of a community-based deer management plan pursuant to P.L. 2000, c. 46;

NOW, THEREFORE, BE IT RESOLVED by the Mayor and Council of Princeton as follows:

1. The preamble to this resolution is incorporated herein and made a part hereof as if set forth in full.
2. Princeton hereby adopts and endorses the Application for Designation of a Special Deer Management Area and the Application for Community Based Deer Management Plan for 2021-2022, copies of both of which are on file in the Office of the Princeton Clerk, and authorizes the submission of both applications to the New Jersey Division of Fish and Wildlife.
3. The Mayor, Clerk, Administrator and Municipal Attorney are hereby authorized to undertake any and all acts and sign any and all documents as may be deemed necessary and prudent in order to enable the implementation of Princeton's 2021-2022 community-based deer management plan.
4. This resolution shall take effect immediately.

| Councilperson      | Absent | Present | 1 <sup>st</sup> | 2 <sup>nd</sup> | Yea | Nay | Abstain | Disqualified |
|--------------------|--------|---------|-----------------|-----------------|-----|-----|---------|--------------|
| Mr. Cohen          |        | X       | X               |                 | X   |     |         |              |
| Ms. Fraga          |        | X       |                 |                 | X   |     |         |              |
| Ms. Niedergang     |        | X       |                 | X               | X   |     |         |              |
| Ms. Pirone Lambros |        | X       |                 |                 | X   |     |         |              |
| Ms. Sacks          |        | X       |                 |                 | X   |     |         |              |
| Mr. Williamson     |        | X       |                 |                 | X   |     |         |              |
| Mayor Freda        |        | X       |                 |                 |     |     |         |              |

I, Delores A. Williams, Municipal Clerk of Princeton, do hereby certify that the above is a true copy of a resolution adopted by the Mayor and Council of Princeton at a meeting held September 13, 2021.

  
Delores A. Williams, Municipal Clerk

**Municipality of Princeton  
Mercer County, New Jersey**

**2021-2022 Application for Designation of a Special Deer Management  
Area**

*Name the municipality (municipalities), county, airport or county board of agriculture making application.*

Princeton, Mercer County, New Jersey.

*State the purpose of the proposed deer management plan, i.e. reduce deer-vehicle collisions, reduce damage to forest understory or reduce damage to ornamental landscape plants.*

All of the above, with an emphasis on reduction of deer-vehicle collisions and reduction in ecological damage/restoration of the health of Princeton's woods and especially native species and songbird habitat. As set forth in Princeton's prior applications,<sup>\*</sup> from its inception in 2000, the goal of the deer management program has been to reduce the size of Princeton's overwintering deer herd to an average of 20-30 overwintering deer per square mile. This was determined in 2002 after detailed study to be the upper limit of the herd size most likely to allow for both ecological balance and a minimal number of complaints about deer/human interactions, i.e., deer-vehicle collisions, Lyme disease rates, and damage to gardens and landscaping. In addition, in 2002 the Deer Management Program Evaluation Committee recommended, among other things, that the former Township continue its efforts at herd reduction until deer-vehicle accidents fall to a range of between 60 and 70 collisions per year (double the accident rate in 1972, when the herd was estimated to number about 300 Township-wide). This remains the goal today.

Based on the number of deer-vehicle collisions since 2000, as well as periodic deer counts<sup>†</sup>, Princeton's herd has been substantially reduced, with positive effects, but ongoing removal remains critical. As is self-evident, because the deer breed and reproduce each year, the population will begin to increase exponentially unless Princeton continues with its annual removal efforts. Princeton has worked hard to increase bow hunter access to public lands and since 2016 has entered into annual service agreements with Suburban Deer Management to hunt on municipally-owned properties. Princeton also works actively with private and institutional landowners, including Princeton University, to increase hunter access for deer management. Last, Princeton continues to use White Buffalo consistently every winter to bring the deer population back down. White Buffalo removed 196 deer in

<sup>\*</sup> Submitted by the former Township of Princeton.

<sup>†</sup> The most recent deer count was conducted in 2018 using the distance sampling method. Princeton has retained White Buffalo to perform a new count in late fall/early winter 2021 using distance sampling. In addition, it is considering conducting a second count in early 2022 using drones equipped with infra-red cameras.



2017-2018, 263 deer in 2018-2019, 143 deer in 2019-2020, and 142 in 2020-2021.<sup>†</sup> This year's goal is to remove up to 150 deer.

*If the purpose is to reduce damage to ornamental landscape plants, enumerate the extent of damage to landscape plants in the proposed special deer management area. Be specific. Include an estimate of the number of residents experiencing damage to landscape plants and the monetary loss due to deer depredating on gardens. Include photographs of deer damage, if possible.*

See 2009 Report, submitted with Princeton's applications in 2009, 2010, 2011, 2012, 2014, and 2015. Over the course of the next several months, Princeton's Animal Control Advisory Committee will be gathering updated information in order to prepare a comprehensive new report to evaluate and document the progress that Princeton has made toward achieving the goals of the deer management program. This report will be submitted to the Division of Fish and Wildlife upon completion.

*If the purpose is to reduce damage to the forest understory, enumerate the damage to forest understory plants.*

See 2009 Report submitted with Princeton's applications in 2009-2015. In addition, census data of ovenbirds at the Institute for Advanced Study woods and the Rogers Wildlife Refuge in Princeton maintained by naturalist Sharyn Magee, who was president of the Washington Crossing Audubon Society, show a sharp increase in the number of ovenbirds between 2004 and 2013, from 13 ovenbirds in 2004 to 36 ovenbirds in 2013. Ovenbirds are ground nesting birds that rely on a healthy understory, so this significant increase in their population is indicative of a healthy understory, which, in turn, is associated with a reduction in deer population. This information is encouraging, and demonstrates that Princeton's deer removal efforts are having a positive effect on Princeton's goal of restoring songbird habitat and native species in our woods.

As set forth above, over the course of the next several months, Princeton's Animal Control Advisory Committee will be gathering updated information in order to prepare a comprehensive new report to evaluate and document the progress that Princeton has made toward achieving the goals of the deer management program, including detailed information regarding the program's impact on the health of Princeton's woods. This report will be submitted to the Division of Fish and Wildlife upon completion.

*If the purpose is to reduce deer – vehicle accidents, state the number of vehicle collisions caused by deer in the proposed special deer management area and estimate of costs to motorists caused by deer – vehicle accidents.*

A map and table setting forth the number and location of vehicle collisions caused by deer in Princeton are being updated and will be submitted under separate cover. Princeton does

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<sup>†</sup> These harvest numbers are in addition to the deer removed from Princeton's parks by Suburban Deer Management, which works in close coordination with White Buffalo. Suburban Deer Management's results are as follows:

not have an estimate of the costs to motorists caused by these accidents; any accident that results in injury or death to the drivers and passengers of these automobiles is unacceptable, however, regardless of the monetary cost.

*If the stated purpose is to reduce deer – vehicle collisions, state the number of miles of road in the deer management area.*

90.

*If the purpose is to reduce damage to agricultural crops, enumerate the number of farms experiencing damage from deer, and enumerate the extent of damage to crops.*

See 2009 Report. It should be noted that the primary goals of the program are to reduce deer-vehicle collisions, reduce or eliminate the harmful impacts of the deer on Princeton's woods, mitigate tick-borne diseases, and reduce damage to private properties.

*Describe that portion of the Municipality (Municipalities) or Airport proposed for designation as a special deer management area. Attach a map and indicate the size of the area.*

The consolidated municipality of Princeton is 18.1 square miles in area; the former Township is 16 square miles in area. As shown on the attached map, the deer-vehicle accidents are distributed throughout the former Township. Princeton therefore is continuing to apply for designation of the entirety of the former Township as a special deer management area, as it has in prior years. Princeton is not seeking at this time to include the area encompassing the former Borough.



**Municipality of Princeton  
Mercer County, New Jersey**

**2021-2022 Community Based Deer Management Plan**

*Describe the proposed alternative control methods to be used to reduce the number of deer in the special management area. Include detailed information including but not limited to the capture methodology, the type of traps and destination of deer to be removed, or the method of euthanasia; the culling methodology, shooting methodology such as baiting, shooting from elevated platforms or detailed information on other methods to be employed.*

As it has every year, the program will incorporate the use of non-lethal and lethal methods to manage the herd, with particular focus on bow hunting and on lethal alternative deer management methods. The program will include the following components:

1. Traditional bow hunting on public properties. Princeton has once again retained the services of John Zampini and Suburban Deer Management Associates (SDMA) to further Princeton's deer removal efforts under the supervision of the Princeton Police Department by bow hunting on designated public properties in Princeton. Mr. Zampini and his team were first retained by Princeton in 2016, and from the beginning have demonstrated a commitment to Princeton's deer reduction efforts, including by working with private property owners to provide hunters with access to their properties. SDMA's agreement with Princeton allows it to hunt throughout all of the permitted bow hunting seasons for Zones 12 and 14.

A copy of Princeton's agreement with Mr. Zampini/SDMA is attached.

2. Continued removal of deer using a combination of alternate deer control methods.

Princeton has retained the services of White Buffalo to implement alternate deer control methods using silenced .223 centerfire and .22 rim-fire rifles to remove deer as well as netting and bolting. (See enclosed agreement). As has been the case since the program's inception in 2000, the deer will be shot over bait either from elevated tree stands or from the back of a pick-up truck, and/or trapped under a net and euthanized using a bolt gun. All bait sites will be selected to provide adequate backdrops by elevating the shooting position or by using topographical features to ensure that no projectiles travel beyond the target area.

White Buffalo removed 143 deer during 2021-2022 season, and 142 deer during the 2020-2021 season. The goal this year is to remove between 125 and 150 deer (see attached agreement and 10 August 2021 White-Tailed



Deer Management Proposal, as well as White Buffalo's year-end summary report dated February 22, 2021).

*On what properties will the alternate control methodology be employed? Who is the property owner of each of these sites? What is the property size of each of the sites employed? Does traditional sport hunting occur on any of the sites? If the property size of a site exceeds 60 acres and traditional hunting does not occur on the site, state the reasons.*

The list of participating property owners will be provided directly to the Division of Fish and Wildlife by White Buffalo, Inc. Please note that this list of addresses must be kept confidential at all times to protect the privacy interests of the homeowners who have agreed to participate in the program.

*On what dates or during what period will the alternate control methodology be employed?*

White Buffalo would like to begin removing deer in mid to late January 2022, to maximize baiting leverage and lessen the risk that warm weather will impede its efforts. For maximum flexibility, Princeton is requesting that the permit be effective from January 1 to March 31, 2022. White Buffalo has set a target of removing 125 to 150 deer this season.

*During what hours will the agent operate?*

Depending on the location of the specific property being used that day, the weather conditions, and other factors, the agents could begin operating in late afternoon, with the majority of the operations taking place after sundown.

*What type of weapon and ammunition will be used?*

As it has every year since the program's implementation in 2000, White Buffalo will use silenced bolt-action .223 caliber rifles primarily. On occasion .22 caliber rimfire rifles will be employed.

*Will unplugged guns be used?*

Shotguns will not be used. Question does not apply to centerfire or rimfire firearms.

*Will the agent shoot from a motor vehicle?*

Yes. Depending on the location of the bait site and the local topography, deer will be shot either from elevated tree stands or from the back of a pick-up truck.

*Will the agent have an uncased gun in the vehicle?*

Yes.



*Will the agent shoot across closed roads?*

No. White Buffalo will not shoot across any roads, open or closed.

*Will the agent carry a loaded firearm in the vehicle for culling purposes?*

Yes.

*Will the agent be required to wear hunter orange?*

No.

*Is there a number of deer culled or trapped and transferred above which will not be exceeded?*

No. The goal is to remove as many deer as necessary to ensure a deer herd of approximately 30 overwintering deer per square mile. As set forth in the attached agreement with White Buffalo and proposal entitled "White-tailed Deer Management Proposal, Township of Princeton, New Jersey, 10 August 2021," White Buffalo's objective is to remove 125 to 150 deer, weather and other conditions permitting. No cap on the culling will be imposed, however.

*To where will trapped deer be transferred?*

All trapped deer will be euthanized immediately on site. No deer will be transferred.

*What is the quantitative estimate of the deer population or the deer population density in the special management area? How was this estimate obtained? What is the intended target population or density?*

The last deer count took place in 2018, so we do not have an exact number for the current size of Princeton's deer population. Princeton has retained White Buffalo to perform a new deer count in late fall/early winter 2021 using the distance sampling method. In addition, Princeton is considering conducting a second count in early 2022 using drones equipped with infrared cameras.

In the meantime, Princeton continues to rely on historical harvest data and deer-vehicle collisions to determine how many deer to remove each year. See 10 August 2021 White Buffalo proposal, which states as follows:

[W]e do have the availability of robust data sets that include deer vehicle collision (DVC; i.e., dead deer pickups on the roadways), deer harvest, reported deer related motor vehicle accidents (MVA), and deer-related homeowner complaints, which we can use as deer population indices to help determine appropriate harvest levels.

DVCs have been shown to be related to deer density (Gkritza et al. 2010). By comparing recent vs. historical DVC data, factoring in the number of homeowner complaints, and comparing these data to known harvest data from

previous years, we can recommend a harvest level appropriate to maintain the municipality's goals of mitigating Lyme Disease risk, reducing the deer population to 30 deer/mi<sup>2</sup>, reducing the number of DVCs to a maximum of 70 per year, and mitigating forest understory and landscape damage.

Between January 1 and July 29, 2021, 41 DVCs were recorded in Princeton. Compared to historical data, this number of DVCs resembles 2009 data, where 41 DVCs occurred during the same period. During the winter of 2010, 148 deer were harvested by White Buffalo, Inc. and 83 deer were harvested by recreational hunters. This harvest level resulted in 69 DVCs during the 2010 calendar year. Factoring in a below average number of homeowner complaints and a robust harvest from recreational hunters in 2020, we believe between 125 and 150 deer should be culled through sharpshooting and drop-netting next year.

Princeton's target is to reduce and maintain the deer population at 30 (or fewer) overwintering deer per square mile.

*How will you measure the success of the program?*

Princeton measures the success of the program in the same way as it has from the outset: through road-kill data, population estimates (based on mortality data as well as periodic counts), and monitoring of ecological and other damage in Princeton using both enclosures constructed in various parks, and anecdotal/observational evidence provided by local biologists, naturalists, and others. Over the course of the next several months Princeton's Animal Control Advisory Committee will be conducting an in-depth review of the program's results to date, in order to prepare a comprehensive new report that documents the progress that Princeton has made toward achieving the goals of the deer management program. This report will be submitted to the Division of Fish and Wildlife upon completion.

*If the goal is to reduce deer – vehicle collisions, what level of deer – vehicle collisions is an acceptable level?*

No number of deer-vehicle collisions is acceptable. The goal, however, is to ensure that the number of such collisions is kept to a maximum of sixty to seventy per year. Princeton has met this goal in the past few years. It is imperative that Princeton be allowed to continue working aggressively to further reduce the number of deer-vehicle collisions.

*If the goal is to reduce damage to landscape plants, how often will residents be re-surveyed, and what will be the acceptable level of damage?*

No level of damage is acceptable. The goal is to maintain the deer population at a level that is in balance with the environment. Over the course of the next several months Princeton's Animal Control Advisory Committee will be conducting an in-depth review of the program's results to date, in order to prepare a comprehensive new report that documents the progress that Princeton



has made toward achieving the goals of the deer management program. This report will be submitted to the Division of Fish and Wildlife upon completion.

*If the goal is to minimize damage to the forest understory, how often will forest health be re-evaluated? What is the level of damage that will be considered acceptable?*

No level of damage is acceptable. Enclosures have been constructed in certain municipally-owned parks but due to limited resources, these have not been monitored consistently. Princeton over the years has also solicited anecdotal information from local biologists, naturalists, and others regarding the return of long-absent song birds and the resurgence of understory growth in Princeton's woods. Last, over the course of the next several months Princeton's Animal Control Advisory Committee will be conducting an in-depth review of the program's results to date, in order to prepare a comprehensive new report that documents the progress that Princeton has made toward achieving the goals of the deer management program. This report will be submitted to the Division of Fish and Wildlife upon completion.

*If the goal is to minimize crop damage, what extent of crop damage is tolerable, and how will that level be measured?*

See above.

*Describe the extent to which traditional hunting is currently being used to control deer numbers in the special management area, or why traditional hunting is not applicable.*

Traditional hunting takes place on private properties in Princeton and on those municipally-owned properties that are suitable for hunting. Due to Princeton's size, configuration, and development density, however, traditional hunting alone will never be sufficient to control the size of the deer herd. Most areas of Princeton are densely developed, limiting the number of properties that can be hunted through traditional means. In addition, the majority of the municipally-owned parks and public lands are either topographically unsuitable for hunting, are deed-restricted against recreational hunting, or both. Traditional hunting does contribute to the overall number of deer that are killed each year in Princeton, and Princeton is actively working to increase hunter access to public and private properties alike. Nevertheless, the use of alternate control methods remains a necessary supplement to traditional hunting.

Since 2016, Princeton has sued the services of Suburban Deer Management Association and John Zampini, and it makes its public properties available to Mr. Zampini's group through all three bow hunting seasons, beginning on opening day. Princeton no longer imposes limitations on the dates during which the properties can be hunted, and it covers the costs of processing any deer taken by Zampini/SDMA. Princeton staff and members of Princeton's police department who are familiar with local residents make every effort to assist Mr. Zampini in identifying suitable private properties for bow hunting and securing landowner permission, and Princeton has worked successfully with Princeton University to enable to Mr. Zampini to hunt certain University-owned properties. Zampini, White Buffalo and Princeton are committed to working cooperatively with one another to rely to the greatest extent possible on traditional hunting to control the deer on



public lands, utilizing White Buffalo only when and where necessary to maximize the number of deer removed each winter.

***Identify any organization and all individuals that will participate in the implementation of the alternative control methods. Include appropriate credentials and references.***

White Buffalo, Inc., whose credentials can be found at [www.whitebuffaloinc.org](http://www.whitebuffaloinc.org).

***List the names of the individuals that will participate in the alternative control methods. List their current firearm license number, the valid rifle permit number and the New Jersey Firearms Purchaser Identification number, or provide proof that the person(s) is in compliance with the applicable laws of the person's state of residence.***

See 10 August 2021 White Buffalo proposal. White Buffalo, Inc. will submit each individual's firearm purchaser identification cards and/or proof of compliance with the applicable laws of that individual's home state of residence directly to the Division of Fish and Wildlife.

***Describe the methods that will be used to notify the public, including residents located within and adjacent to the special deer management area, of the alternative control methods and the specific places when and where they will be used. Such methods shall include written notice to adjacent landowners when the control method includes culling deer.***

As it has every year since the program's inception, Princeton will provide written notice to all adjacent property owners that White Buffalo will be removing deer during the dates set forth on its permit. This method has proved effective in past years and has protected not only the neighbors, but the property owners who give permission to White Buffalo to use their properties. In addition, each day White Buffalo will fax to the Division and to the Princeton Police Department the list of street locations on which it anticipates conducting deer removal activities in the ensuing 24 hours. That list will be updated as White Buffalo further refines the anticipated locations within hours of initiating its activities. Both the 24-hour notice and any subsequent refinements to that notice will be posted on Princeton's web site and in the Police Department. Finally, a notice will be published in the Princeton's official newspaper notifying the public of the general dates on which White Buffalo will conduct deer removal activities in those of Princeton's parks that are included in the deer management plan.

***Describe the precautions that will be taken to ensure the safety of the public. Such provisions shall include the use of local police or appropriate law enforcement authority to enforce the closure of roads if necessary, and the restriction of the normal use of public land not normally open to hunting.***

Again, the same methods will be employed this winter that have been employed every year since the inception of the program. Princeton police officers will monitor the activities of White Buffalo's three agents closely. White Buffalo will keep the Police Department apprised on a daily basis of the specific properties on which it will be working that day, and by what methods. The police will then respond appropriately, by closing roads where necessary, riding in or behind the vehicle with White Buffalo's agents where necessary or appropriate, or posting officers along the

roads. Likewise, if White Buffalo operates in any of the public parks, White Buffalo's activities will take place only after sundown, when the parks are closed to the public (if for any reason they take place in late afternoon, police officers will be posted at the entrances, or the parks will be closed, to ensure the public's safety). As stated above, these are the precautions that have been taken every year for the past fourteen years, and they have proved more than adequate to ensure the safety of Princeton's residents.

*Document the written consent of each affected landowner for access to that person's land, if access to private property is necessary to implement the plan.*

Signed landowner consent forms have been and/or will be forwarded to the Division of Fish and Wildlife under separate cover.

*Describe the proposed disposition of any deer captured or culled as part of the plan. Whenever practicable, ensure donation of venison to the needy in accordance with New Jersey's venison donation program. Describe the means of transportation of the deer carcasses to a USDA approved butcher.*

All of the deer that are removed from Princeton by White Buffalo will be processed by a butcher who participates in the State's Venison Donation Program and will be donated to a New Jersey food bank.

*What butcher will be used to process the deer culled?*

To be determined.

*Please outline the costs of the previous year's deer management program, and the number of deer culled.*

White Buffalo culled 142 deer in 2021-2022.

*Describe plans to be implemented to discourage the feeding of deer*

Princeton Township adopted and enforced an ordinance that prohibits the knowing or purposeful feeding of deer on any property in the former Township. The ordinance's validity has been confirmed by the Appellate Division of the Superior Court of New Jersey. This ordinance remains in effect in the consolidated municipality of Princeton and continues to be enforced.

*Describe plans to support traditional hunting where practical*

See above. Princeton is committed to using traditional hunting wherever practicable to manage the deer population.



***Is there currently a township ordinance that prohibits the discharge of firearms and/or bows? Please describe how that ordinance will be modified to allow for a deer culling program and attach a copy of the ordinance***

There is no such ordinance.

***Attach a resolution adopted by the Cooperator's governing body endorsing the application for a community based deer management plan.***

A resolution of the Mayor and Council of Princeton has been submitted along with the within application.

***Attach a notarized letter stating that all agents involved in culling deer using firearms have passed the following shooting qualifications. Agents using rifles are required to pass that portion of the New Jersey Division of Criminal Justice, Scoped Rifle Qualifications from 50 and 25 yards which requires shooting two-inch and one and one-half inch targets from a sitting or kneeling position with artificial support. Agents using shotguns with slugs must be able to shoot a three-inch group, twice at 40 yards. Unless otherwise authorized, qualified agents using rifles must shoot deer at no more than 50 yards. Unless otherwise authorized, qualified agents using shotguns must shoot deer at no more than 40 yards.***

To be provided under separate cover.

***If the alternate deer control includes the use of silencers or suppressors, the application shall include written authorization from the county prosecutor of the county in which the special deer management area is located.***

To be provided under separate cover.

**Attachments:**

- 2021-2022 agreement with John Zampini/Suburban Deer Management Associates
- 2021-2022 agreement with White Buffalo, Inc.
- 10 August 2021 deer management proposal by White Buffalo (attached to agreement)
- 22 February 2021 year-end report by White Buffalo

**To be provided under separate cover:**

- Landowner authorization forms
- Notarized letter of shooting qualifications
- Authorization from Mercer County Prosecutor's Office for use of suppressors

## **2021 Suburban Deer Management Program Summary Report**

**Princeton, New Jersey**

**by**

**White Buffalo, Inc.**

**22 February 2021**

### **EXECUTIVE SUMMARY**

One hundred and forty-two deer were harvested over the 25-day work period, 44 using drop-nets and 98 via sharpshooting. Additional culling emphasis was placed on areas where deer vehicle collisions continue to be problematic. Illegal deer feeding activity decreased efficiency of the program by luring deer away from cull sites and hampering our ability to address deer in several locations, thereby increasing program cost. However, harvest per zone and harvest sex ratios remain similar to the previous 19 years of deer management within the municipality.

### **SITE DESCRIPTION AND MANAGEMENT HISTORY**

Princeton Township contains a matrix of suburban/commercial development, agricultural fields, parks and open grasslands. As a result of limited legal hunting opportunities and good deer habitat, the deer population had increased to a level incompatible with some land uses and human activities. Although deer physical condition was not a primary issue, there was concern regarding numerous deer/vehicle collisions and damage to garden and landscape plantings. In response, deer population reduction efforts were implemented in 2001–2010 and 2012–2021 under the New Jersey Division of Fish and Wildlife community-based deer management program (Table 1).

**Table 1.** Year and number of deer removed under the New Jersey Division of Fish and Wildlife community-based deer management program, New Jersey, USA, 2001–2021.

| <b>Years 2001–2010</b> |      |      |      |      |      |      |      |      |      |      |
|------------------------|------|------|------|------|------|------|------|------|------|------|
| <b>Year</b>            | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
| <b>Harvest</b>         | 322  | 303  | 280  | 276  | 119  | 151  | 126  | 107  | 154  | 148  |
| <b>Years 2011–2021</b> |      |      |      |      |      |      |      |      |      |      |
| <b>Year</b>            | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
| <b>Harvest</b>         | 116  | 159  | 127  | 250  | 119  | 63   | 196  | 263  | 143  | 142  |



## DEER MANAGEMENT PROGRAM OVERVIEW

We conducted pre-baiting 5–24 January 2021 and deer removal activities 25 January 2020–16 February 2021. During the 23-day removal period, 19 days of fieldwork were required to achieve the harvest of 142 deer (Appendix A). We harvested 98 deer with sharpshooting methods while 44 were harvested utilizing drop-nets.

## METHODS

We followed the operations protocol outlined in the contract. Twenty-five bait sites were used throughout the area of operation, including 19 sharpshooting sites and 6 drop-net sites. We harvested no deer at 3 of the sharpshooting locations. We accessed sharpshooting sites from tree stands and deer were harvested on a first opportunity basis. Specifically, deer were harvested only when a safe opportunity presented itself, and maximal harvest efficiency would be achieved. We subsequently tagged carcasses and transported for processing and data collection.

## RESULTS

### Harvest Demographics

We depict 2021 results (Table 2) along with a historical, comparative distribution of deer harvested during the last 20 years of management efforts (Table 3). In 2021, we harvested 65 females (46%) and 77 males (54%). Fifty-three deer (37%) were yearling or older males, whereas 89 deer (63%) were “antlerless”. Twenty-four male fawns were included in the antlerless harvest. Forty-eight fawns (34%) and 94 (66%) adults were harvested. We summarize female deer pregnancy status (Table 4). We sampled 65 females, including 24 fawns; 43 (66%) were pregnant.

### Harvest by Deer Management Zone

To allow for a more comprehensive population management program, we summarized all harvest data by management zone (Table 5). Zone 1 covered land west of Great Road, east of the Town line, south of Cherry Valley Road and north of Rosedale Road. Zone 2 was delineated on the north by Rosedale Road, the east by the old Borough of Princeton, and the south and west by old Township lines. Zone 3 was located to the east of Great Road, south of Cherry Valley Road, west of Route 206 and north of Mountain Avenue. Zone 4 included land east of Route 206, south of the Town line, west of the County line and north of Route 27. The harvest was nearly even across zones 1, 3 and 4 with 33, 31, and 55 deer harvested, respectively. Zone 2 only had three active sites which accounted for 23 deer. We also present a comparison of harvest totals by zone over the 20-year management program (Table 6).

**Table 2.** Age class and sex distribution of deer harvested in Princeton, New Jersey, USA, 25 January–16 February 2021.

| AGE   | MALE (%)  | FEMALE (%) | COMBINED (%) |
|-------|-----------|------------|--------------|
| Fawn  | 24 (17%)  | 24 (17%)   | 48 (34%)     |
| Adult | 53 (37%)  | 41 (29%)   | 94 (66%)     |
| Total | 77 (54 %) | 65 (46 %)  | 142 (100%)   |

**Table 3.** Comparative age class and sex distribution of deer harvested in Princeton, New Jersey, USA, 2001–2021.

| Year | Male Adult | Female Adult | Male Fawn | Female Fawn |
|------|------------|--------------|-----------|-------------|
| 2001 | 52 (16%)   | 139 (43%)    | 77 (24%)  | 54 (17%)    |
| 2002 | 63 (21%)   | 122 (40%)    | 84 (28%)  | 34 (11%)    |
| 2003 | 37 (13%)   | 103 (37%)    | 78 (28%)  | 62 (22%)    |
| 2004 | 39 (14%)   | 102 (37%)    | 85 (31%)  | 50 (18%)    |
| 2005 | 23 (19%)   | 40 (34%)     | 24 (20%)  | 32 (27%)    |
| 2006 | 47 (31%)   | 52 (34%)     | 29 (19%)  | 23 (15%)    |
| 2007 | 27 (21%)   | 43 (35%)     | 38 (30%)  | 18 (14%)    |
| 2008 | 40 (37%)   | 31 (29%)     | 19 (18%)  | 17 (16%)    |
| 2009 | 51 (33%)   | 48 (31%)     | 25 (16%)  | 30 (19%)    |
| 2010 | 54 (37%)   | 39 (26%)     | 28 (19%)  | 27 (18%)    |
| 2011 | 0          | 0            | 0         | 0           |
| 2012 | 40 (34%)   | 33 (29%)     | 24 (21%)  | 19 (16%)    |
| 2013 | 47 (30%)   | 60 (37%)     | 30 (19%)  | 22 (14%)    |
| 2014 | 47 (37%)   | 37 (29%)     | 21 (17%)  | 22 (17%)    |
| 2015 | 59 (23%)   | 104 (42%)    | 45 (18%)  | 42 (17%)    |
| 2016 | 38 (32%)   | 37 (31%)     | 28 (24%)  | 16 (13%)    |
| 2017 | 22 (35%)   | 19 (30%)     | 10 (16%)  | 12 (19%)    |
| 2018 | 74 (38%)   | 59 (30%)     | 31 (16%)  | 32 (16%)    |
| 2019 | 103 (39%)  | 83 (32%)     | 39 (15%)  | 26 (14%)    |
| 2020 | 58 (41%)   | 52 (36%)     | 14 (10%)  | 19 (13%)    |
| 2021 | 53 (37%)   | 41(29%)      | 24 (17%)  | 24 (17%)    |



**Table 4.** Comparison of pregnancy status of female deer harvested in Princeton, New Jersey, USA, 2001–2021.

|              | TRIPLETS | TWINS     | SINGLE   | NOT PREGNANT |
|--------------|----------|-----------|----------|--------------|
| <b>ADULT</b> |          |           |          |              |
| 2021         | -        | 33 (80%)  | 1 (2%)   | 5 (12%)      |
| 2020         | 3 (6%)   | 39 (75%)  | 4 (7%)   | 6 (12%)      |
| 2019         | -        | 56 (68%)  | 20 (25%) | 6 (7%)       |
| 2018         | 3 (5%)   | 35 (59%)  | 12 (20%) | 9 (15%)      |
| 2017         | 2 (10%)  | 13 (68%)  | 1 (5%)   | 3 (16%)      |
| 2016         | 1 (3%)   | 25 (67%)  | 4 (11%)  | 7 (19%)      |
| 2015         | 1 (1%)   | 59 (56%)  | 36 (35%) | 8 (8%)       |
| 2014         | -        | 29 (78%)  | 5 (14%)  | 3 (8%)       |
| 2013         | 5 (8%)   | 33 (55%)  | 14 (24%) | 8 (13%)      |
| 2012         | 3 (9%)   | 25 (76%)  | 3 (9%)   | 2 (6%)       |
| 2010         | 2 (5%)   | 28 (72%)  | 5 (13%)  | 4 (10%)      |
| 2009         | 1 (2%)   | 34 (71%)  | 8 (17%)  | 5 (10%)      |
| 2008         | 5 (16%)  | 20 (65%)  | 4 (13%)  | 2 (6%)       |
| 2007         | 1 (2%)   | 24 (56%)  | 3 (7%)   | 15 (35%)     |
| 2006         | 3 (6%)   | 26 (50%)  | 13 (25%) | 10 (19%)     |
| 2005         | 4 (10%)  | 23 (58%)  | 7 (18%)  | 4 (10%)      |
| 2004         | 1 (1%)   | 71 (71%)  | 19 (19%) | 1 (1%)       |
| 2003         | 6 (6%)   | 75 (73%)  | 12 (11%) | 6 (6%)       |
| 2002         | 4 (3%)   | 93 (76%)  | 16 (13%) | 4 (3%)       |
| 2001         | -        | 101 (73%) | 18 (13%) | -            |
| <b>FAWN</b>  |          |           |          |              |
| 2021         | -        | 1 (4%)    | 1 (4%)   | 22 (92%)     |
| 2020         | -        | -         | -        | 19 (100%)    |
| 2019         | -        | -         | 1 (3%)   | 33 (97%)     |
| 2018         | -        | -         | 3 (9%)   | 29 (91%)     |
| 2017         | -        | 2 (17%)   | -        | 10 (83%)     |
| 2016         | -        | -         | 1 (6%)   | 15 (94%)     |
| 2015         | -        | -         | 2 (5%)   | 40 (95%)     |
| 2014         | -        | -         | 2 (9%)   | 20 (91%)     |
| 2013         | -        | 1 (5%)    | 1 (5%)   | 20 (90%)     |
| 2012         | -        | 1 (5%)    | 4 (21%)  | 14 (74%)     |
| 2010         | -        | -         | 4 (15%)  | 23 (85%)     |
| 2009         | -        | -         | 5 (17%)  | 25 (83%)     |
| 2008         | -        | 2 (12%)   | 4 (23%)  | 11 (65%)     |
| 2007         | -        | 2 (11%)   | 7 (39%)  | 9 (50%)      |
| 2006         | -        | 1 (4%)    | 5 (22%)  | 17 (74%)     |
| 2005         | -        | 1 (3%)    | 2 (6%)   | 29 (91%)     |
| 2004         | -        | -         | 2 (4%)   | 47 (96%)     |
| 2003         | -        | 1 (2%)    | 10 (16%) | 51 (82%)     |
| 2002         | -        | -         | 6 (18%)  | 28 (82%)     |
| 2001         | -        | 4 (7%)    | 1 (2%)   | 49 (91%)     |

**Table 5.** Age class and sex distribution of deer harvested by management zone in Princeton Township, New Jersey, USA, 25 January–16 February 2021.

**ZONE 1** (n =33)

| Age   | Male   |         | Female |         |
|-------|--------|---------|--------|---------|
|       | Number | Percent | Number | Percent |
| Fawn  | 5      | 15%     | 3      | 9%      |
| Adult | 19     | 58%     | 6      | 18%     |
| Total | 24     | 73%     | 9      | 27%     |

**ZONE 2** (n =23)

| Age   | Male   |         | Female |         |
|-------|--------|---------|--------|---------|
|       | Number | Percent | Number | Percent |
| Fawn  | 0      | 0%      | 9      | 39%     |
| Adult | 2      | 9%      | 12     | 52%     |
| Total | 2      | 9%      | 21     | 91%     |

**ZONE 3** (n =31)

| Age   | Male   |         | Female |         |
|-------|--------|---------|--------|---------|
|       | Number | Percent | Number | Percent |
| Fawn  | 9      | 29%     | 5      | 16%     |
| Adult | 9      | 29%     | 8      | 26%     |
| Total | 18     | 58%     | 13     | 42%     |

**ZONE 4** (n =55)

| Age   | Male   |         | Female |         |
|-------|--------|---------|--------|---------|
|       | Number | Percent | Number | Percent |
| Fawn  | 10     | 18%     | 7      | 13%     |
| Adult | 23     | 42%     | 15     | 27%     |
| Total | 33     | 60%     | 22     | 40%     |

**Table 6.** Comparison of annual harvest by Zone in Princeton, New Jersey, USA, 2001–2021.

| Year | Zone 1 | Zone 2 | Zone 3 | Zone 4 | Zone 5 | Total |
|------|--------|--------|--------|--------|--------|-------|
| 2001 | 72     | 74     | 61     | 115    |        | 322   |
| 2002 | 44     | 60     | 80     | 113    | 6      | 303   |
| 2003 | 38     | 42     | 69     | 131    |        | 280   |
| 2004 | 53     | 62     | 73     | 88     |        | 276   |
| 2005 | 30     | 18     | 21     | 50     |        | 119   |
| 2006 | 22     | 23     | 30     | 74     |        | 151   |
| 2007 | 38     | 28     | 24     | 36     |        | 126   |
| 2008 | 22     | 15     | 23     | 47     |        | 107   |
| 2009 | 50     | 17     | 46     | 41     |        | 154   |
| 2010 | 26     | 38     | 43     | 41     |        | 148   |
| 2011 | 0      | 0      | 0      | 0      |        | 0     |
| 2012 | 33     | 17     | 23     | 43     |        | 116   |
| 2013 | 58     | 22     | 25     | 54     |        | 159   |
| 2014 | 28     | 21     | 28     | 50     |        | 127   |
| 2015 | 65     | 21     | 44     | 120    |        | 250   |
| 2016 | 31     | 20     | 34     | 34     |        | 119   |
| 2017 | 17     | 13     | 14     | 19     |        | 63    |
| 2018 | 64     | 15     | 58     | 59     |        | 196   |
| 2019 | 76     | 28     | 71     | 88     |        | 263   |
| 2020 | 28     | 40     | 28     | 47     |        | 143   |
| 2021 | 33     | 23     | 31     | 55     |        | 142   |



## DISCUSSION

There was nothing remarkable about deer physical condition or pregnancy rates, as they have been consistent for several years. Interestingly, we note a high percentage of adult males harvested again in 2021 when compared to earlier years. This disproportionate harvest of adult males may be the result of a combination of deer feeding behavior and greater immigration of male deer. Our removal efforts coincide with an adult male's poorest annual body condition, a time when they are more susceptible to bait. Once males locate bait, they dominate those sites, often hazing females and their offspring from the site until the males have been removed. Juvenile males disperse each year from their natal range and are more likely to immigrate to new locations, which, in part, may also explain a disproportionate number of males present each year. With minimal deer management in the surrounding communities, there is a significant source of dispersing male deer that could immigrate into the management area.

Harvest per site at sharpshooting locations ranged 0–14 deer. Sharpshooting remains effective; we harvested  $\geq 8$  deer at 25% of the sharpshooting locations. For the third consecutive year, however, we incorporated drop nets in areas where sharpshooting was not possible because of the 450-foot firearm discharge setback requirement. This included one new netting location for a total of six net sites. This method resulted in the removal of 44 deer, or 31% of the overall harvest. The new net sites accounted for the removal 19 deer, or 13% of the overall harvest, and deer were harvested at all six nets sites. It is highly unlikely that any of the deer we captured with drop nets would have been accessible from our current sharpshooting locations.

Continued integration of the Animal Control Officer (ACO) was vital to the success of the program. The ACO handled the majority of the baiting duties and carcass transport for processing. This cooperation greatly increases harvest efficiency by allowing shooters to remain at their sites longer each night. The additional time each night, when accrued across multiple shooters and over 23 days, contributed significantly to the overall harvest. The involvement of the ACO was also of great benefit to the drop netting activities. If capture and euthanasia methods are employed in the future, we recommend that the ACO becomes the primary operator of the drop nets during daily removal operations. This will increase efficiency by allowing WBI staff to remain primarily focused on sharpshooting sites.

Looking forward, increased efficiency may result from enforcing illegal feeding activities and procurement of additional drop net and sharpshooting locations. Illegal deer feeding has occurred in Mt. Lakes Park and along Littlebrook Road, as first noted in the 2015 final report. We experienced inefficiencies at two separate locations (Littlebrook Road and Mountain Road) due to individuals attempting to lure deer away from culling sites with bait. If allowed to continue, and not pursued vigorously, this activity will eventually erode the success of the deer management program. As noted in the 2015 report, "an individual was observed attempting to lure deer away by placing bait 57 feet outside of the netting location." Two summonses were issued but later dismissed. This same individual continues to illegally feed deer. In the second instance, at Mountain Lakes in 2015, photographic evidence was obtained but identification of the individual was never determined. Again in 2021 we have photographic evidence of feeding but without the resolution or clarity for a positive identification. Neither of these issues have been resolved, although both the ACO and law enforcement towards a solution. We also recommend that future employment of drop nets be dependent on guaranteed access to 4 or more viable sites. This will ensure that the effort in transporting, erecting and maintaining this

equipment in the field is offset by sufficient access to areas where sharpshooting is not feasible. Similarly, we suggest the importance of exploring the possibility of increasing the number of sharpshooting sites. Current sharpshooting sites remain viable, however having more sites available will further increase harvest and provide alternatives should we lose any current sites. Increasing access will also help alleviate Deer Vehicle Collisions (DVCs) in areas of town that are currently unmanaged.

Overall, the 2021 program was a successful removal effort, and provides a good example of how the consistent application of management techniques refined since program commencement in 2001 can lead to a positive outcome.

## **ACKNOWLEDGEMENTS**

We thank Jeff Grosser, James Ferry, Trishka Cecil, Lt. Geoff Mauer, the scheduled officers of the Princeton Police Department and all the participating landowners for their cooperation and support. In addition, we would like to acknowledge Farmers' Butcher Shop, LLC for processing the venison for donation.



**Appendix A - Township of Princeton, New Jersey, USA, Deer Harvest by Date: 25 January-16 February 2021.**

| Date      | Tag # | Sex | Age | Zone |
|-----------|-------|-----|-----|------|
| 1/25/2021 | 4900  | F   | A   | 4    |
| 1/25/2021 | 4899  | M   | A   | 4    |
| 1/25/2021 | 4898  | M   | A   | 4    |
| 1/25/2021 | 4897  | M   | A   | 4    |
| 1/25/2021 | 4801  | M   | A   | 4    |
| 1/25/2021 | 4802  | M   | A   | 4    |
| 1/25/2021 | 4803  | M   | A   | 4    |
| 1/25/2021 | 4804  | M   | A   | 4    |
| 1/25/2021 | 4805  | M   | Y   | 4    |
| 1/26/2021 | 4806  | M   | A   | 3    |
| 1/26/2021 | 4807  | F   | A   | 3    |
| 1/26/2021 | 4808  | F   | A   | 3    |
| 1/26/2021 | 4809  | F   | F   | 3    |
| 1/26/2021 | 4810  | F   | F   | 3    |
| 1/26/2021 | 4811  | F   | A   | 3    |
| 1/26/2021 | 4812  | M   | A   | 4    |
| 1/27/2021 | 4813  | F   | F   | 1    |
| 1/27/2021 | 4814  | F   | A   | 1    |
| 1/27/2021 | 4815  | F   | A   | 1    |
| 1/27/2021 | 4816  | M   | A   | 1    |
| 1/27/2021 | 4817  | M   | A   | 1    |
| 1/27/2021 | 4818  | M   | A   | 1    |
| 1/27/2021 | 4819  | M   | A   | 1    |
| 1/27/2021 | 4820  | M   | F   | 1    |
| 1/27/2021 | 4821  | M   | F   | 1    |
| 1/27/2021 | 4822  | F   | A   | 4    |
| 1/27/2021 | 4823  | F   | A   | 4    |
| 1/27/2021 | 4824  | F   | F   | 4    |



|           |      |   |   |   |
|-----------|------|---|---|---|
| 1/27/2021 | 4825 | F | A | 4 |
| 1/27/2021 | 4826 | M | F | 4 |
| 1/27/2021 | 4827 | F | A | 4 |
| 1/27/2021 | 4828 | M | F | 4 |
| 1/27/2021 | 4829 | M | A | 4 |
| 1/28/2021 | 4830 | M | A | 3 |
| 1/28/2021 | 4831 | M | F | 3 |
| 1/28/2021 | 4832 | F | F | 3 |
| 1/28/2021 | 4833 | M | A | 3 |
| 1/28/2021 | 4834 | F | A | 3 |
| 1/28/2021 | 4835 | M | F | 3 |
| 1/30/2021 | 1436 | M | Y | 1 |
| 1/30/2021 | 1437 | M | A | 1 |
| 1/30/2021 | 1438 | M | A | 1 |
| 1/30/2021 | 1439 | M | F | 1 |
| 1/30/2021 | 1440 | F | A | 1 |
| 1/30/2021 | 1441 | M | A | 1 |
| 1/30/2021 | 1442 | M | A | 1 |
| 1/30/2021 | 1443 | M | A | 1 |
| 1/30/2021 | 1444 | M | A | 1 |
| 1/30/2021 | 1445 | M | A | 1 |
| 1/30/2021 | 1446 | F | A | 4 |
| 1/30/2021 | 1447 | M | F | 4 |
| 1/30/2021 | 1448 | F | A | 4 |
| 1/30/2021 | 1449 | F | F | 4 |
| 2/3/2021  | 4850 | M | F | 4 |
| 2/3/2021  | 4851 | M | F | 3 |
| 2/3/2021  | 4852 | F | A | 1 |
| 2/3/2021  | 4853 | M | F | 1 |
| 2/4/2021  | 4854 | F | A | 4 |
| 2/4/2021  | 4855 | F | F | 4 |
| 2/4/2021  | 4856 | M | F | 4 |
| 2/4/2021  | 4857 | F | A | 4 |

|           |      |   |   |   |
|-----------|------|---|---|---|
| 2/4/2021  | 4858 | M | A | 4 |
| 2/4/2021  | 4859 | M | A | 1 |
| 2/4/2021  | 4860 | F | F | 1 |
| 2/4/2021  | 4861 | M | F | 1 |
| 2/5/2021  | 4862 | F | A | 4 |
| 2/5/2021  | 4863 | M | F | 4 |
| 2/5/2021  | 4864 | F | A | 1 |
| 2/5/2021  | 4865 | F | F | 1 |
| 2/5/2021  | 4866 | M | A | 2 |
| 2/5/2021  | 4867 | M | A | 2 |
| 2/6/2021  | 4868 | M | Y | 3 |
| 2/6/2021  | 4869 | M | A | 3 |
| 2/6/2021  | 4870 | M | F | 3 |
| 2/6/2021  | 4871 | F | A | 3 |
| 2/6/2021  | 4872 | F | F | 3 |
| 2/6/2021  | 4873 | F | A | 3 |
| 2/6/2021  | 4874 | M | F | 3 |
| 2/6/2021  | 4875 | F | A | 1 |
| 2/6/2021  | 4876 | M | A | 1 |
| 2/6/2021  | 4877 | M | A | 1 |
| 2/9/2021  | 4878 | M | F | 3 |
| 2/9/2021  | 4879 | M | F | 3 |
| 2/9/2021  | 4880 | M | A | 3 |
| 2/10/2021 | 4881 | M | A | 1 |
| 2/10/2021 | 4882 | M | A | 4 |
| 2/10/2021 | 4883 | M | A | 4 |
| 2/11/2021 | 4884 | M | F | 4 |
| 2/11/2021 | 4885 | F | F | 4 |
| 2/11/2021 | 4886 | F | F | 4 |
| 2/11/2021 | 4887 | F | A | 4 |
| 2/11/2021 | 4888 | F | A | 4 |
| 2/11/2021 | 4889 | F | F | 4 |
| 2/11/2021 | 4890 | M | Y | 4 |



|           |      |   |   |   |
|-----------|------|---|---|---|
| 2/11/2021 | 4891 | M | A | 4 |
| 2/11/2021 | 4892 | M | A | 4 |
| 2/11/2021 | 4893 | M | F | 4 |
| 2/11/2021 | 4894 | F | A | 2 |
| 2/11/2021 | 4895 | F | A | 2 |
| 2/11/2021 | 4896 | F | F | 2 |
| 2/11/2021 | 4901 | F | F | 2 |
| 2/11/2021 | 4902 | F | F | 2 |
| 2/12/2021 | 4903 | M | A | 1 |
| 2/12/2021 | 4904 | F | A | 2 |
| 2/12/2021 | 4905 | F | A | 2 |
| 2/12/2021 | 4906 | F | F | 2 |
| 2/12/2021 | 4907 | F | A | 2 |
| 2/12/2021 | 4908 | F | A | 2 |
| 2/12/2021 | 4909 | F | F | 2 |
| 2/12/2021 | 4910 | F | A | 2 |
| 2/12/2021 | 4911 | F | A | 2 |
| 2/12/2021 | 4912 | F | A | 2 |
| 2/12/2021 | 4913 | F | F | 2 |
| 2/12/2021 | 4914 | F | A | 2 |
| 2/13/2021 | 4915 | M | Y | 4 |
| 2/13/2021 | 4916 | F | A | 4 |
| 2/13/2021 | 4917 | F | F | 4 |
| 2/13/2021 | 4918 | F | A | 4 |
| 2/13/2021 | 4919 | M | F | 4 |
| 2/13/2021 | 4920 | M | F | 4 |
| 2/13/2021 | 4921 | M | F | 3 |
| 2/13/2021 | 4922 | F | A | 3 |
| 2/13/2021 | 4923 | F | A | 3 |
| 2/13/2021 | 4924 | M | F | 3 |
| 2/13/2021 | 4925 | M | A | 3 |
| 2/13/2021 | 4926 | F | F | 3 |
| 2/13/2021 | 4927 | F | A | 4 |

|           |      |   |   |   |
|-----------|------|---|---|---|
| 2/15/2021 | 4928 | M | Y | 1 |
| 2/15/2021 | 4929 | M | A | 1 |
| 2/15/2021 | 4930 | M | A | 3 |
| 2/15/2021 | 4931 | M | A | 3 |
| 2/15/2021 | 4932 | M | A | 4 |
| 2/15/2021 | 4933 | M | A | 4 |
| 2/15/2021 | 4934 | M | A | 4 |
| 2/15/2021 | 4935 | M | A | 4 |
| 2/16/2021 | 4936 | F | A | 2 |
| 2/16/2021 | 4937 | F | A | 2 |
| 2/16/2021 | 4938 | F | F | 2 |
| 2/16/2021 | 4939 | F | F | 2 |
| 2/16/2021 | 4940 | F | F | 2 |
| 2/16/2021 | 4941 | M | A | 4 |
| 2/16/2021 | 4942 | M | A | 4 |



## EXHIBIT A.1



# White Buffalo Inc.

Conserving Native Species and Ecosystems

### White-tailed Deer Management Proposal

Princeton, New Jersey

10 August 2021

#### Harvest Quota

No deer population estimate was conducted after the 2021 deer management program. The last deer population estimate was conducted in 2018. Since then, we have few years of data, precluding confidence in accurate population modeling. However, we do have the availability of robust data sets that include deer vehicle collision (DVC; i.e., dead deer pickups on the roadways), deer harvest, reported deer related motor vehicle accidents (MVA), and deer-related homeowner complaints, which we can use as deer population indices to help determine appropriate harvest levels.

DVCs have been shown to be related to deer density (Gkritza et al. 2010). By comparing recent vs. historical DVC data, factoring in the number of homeowner complaints, and comparing these data to known harvest data from previous years, we can recommend a harvest level appropriate to maintain the municipality's goals of mitigating Lyme Disease risk, reducing the deer population to 30 deer/mi<sup>2</sup>, reducing the number of DVCs to a maximum of 70 per year, and mitigating forest understory and landscape damage.

Between January 1 and July 29, 2021, 41 DVCs were recorded in Princeton. Compared to historical data, this number of DVCs resembles 2009 data, where 41 DVCs occurred during the same period. During the winter of 2010, 148 deer were harvested by White Buffalo, Inc. and 83 deer were harvested by recreational hunters. This harvest level resulted in 69 DVCs during the 2010 calendar year. Factoring in a below average number of homeowner complaints and a robust harvest from recreational hunters in 2020, we believe between 125 and 150 deer should be culled through sharpshooting and drop-netting next year.

Under the best-case scenario, we may achieve the projected harvest of 150 deer in the time allocated for removal efforts (see budget below). Therefore, our recommendation is to budget processing for 150 deer. As always, we only bill for hours worked. If it becomes apparent through harvest efficiency that our projection was high, then we will discontinue operations and only charge for the work conducted.

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a 501(c)(3) nonprofit organization

**EXHIBIT A.1**  
**WHITE BUFFALO PROPOSAL**



# White Buffalo Inc.

Conserving Native Species and Ecosystems

We have **NOT** included carcass processing or carcass transportation in the budget for 2022. Separating these from the sharpshooting budget will allow the municipality to explore additional options for deer processing services.

## Other Recommendations

We recommend that Princeton conduct a deer population estimate in fall 2021 or winter 2022 via the Distance Sampling method, as it would benefit the community to reinforce the indices presented in this proposal. We have found that in developed areas Distance Sampling provides the most accurate estimates of deer abundance. Other methods to estimate deer abundance have been less reliable. For example, helicopter snow counts conducted in Ann Arbor, Michigan during 2018 detected less than 65% of known deer within the community with higher levels of development (DeNicola 2018). Another technique, Forward Looking Infrared (FLIR), also struggles in these more developed landscapes, providing only a minimum count with no mechanism for providing a probability detection function to provide a population estimate. Aerial surveys conducted on Staten Island in 2016 detected less than 50% of the true deer population (Sanders 2016). An additional benefit of Distance Sampling is that it is a cost-efficient, when compared to helicopter snow and FLIR counts.

## Removal Methods

We will attempt to retain our traditional bait sites throughout the Township and add new ones where possible. We would like to continue our activities on the public properties that we have used in the past and add any new properties that the Township may have acquired. We prefer the use of sharpshooting where it can be conducted safely and legally. Sharpshooting protocols will not differ from those used in the past. Drop-nets will be used in areas where 450' firearms discharge authorizations cannot be obtained and conducive sites with cooperative landowners exist.

We will integrate the Animal Control Officer in all phases of this program, including obtaining property access, 450' authorizations, baiting, and carcass delivery. We propose starting deer removal efforts in late-January or early-February to maximize baiting leverage and lessen the risk that weather conditions impede successful achievement of the management objective.

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## **EXHIBIT A.1 WHITE BUFFALO PROPOSAL**





# White Buffalo Inc.

Conserving Native Species and Ecosystems

## Principal Contractor

White Buffalo, Inc. is a nonprofit research and management organization that specializes in wildlife population control. White Buffalo, Inc. is recognized nationally for its efforts to resolve wildlife management conflicts and for the development of new techniques and technologies. Ryan Rodts, the project coordinator, and field supervisor, has extensive experience in deer population control projects. Additional personnel include Sam Friederichs, Anthony Kaczmarek, Dane Stevens, Daniel Ellingwood, Nathan Kotschwar, Clay Arnold, Jack Magee, Heith Hinds, and Steven Kremp who will serve as wildlife biologists and marksmen for this project. White Buffalo, Inc. is at the forefront of deer management techniques, and all projects are thoroughly documented, and data generated are published in professional journals or presented at professional conferences for the benefit of other wildlife management professionals.

## **Literature Cited**

DeNicola A. 2018 *Year Two Summary Report 2018 Deer Research Program* Ann Arbor, MI

Gkritza, K., M. Baird, and Z. N. Hans. 2010. *Deer— vehicle collisions, deer density, and land use in Iowa's urban deer herd management zones*. *Accident Analysis and Prevention* 42:1916–1925.

Sanders A. 2016 *D'oh Just 527 Deer on Staten Island in City's latest Count*. SILive.com  
Accessed 10 August 2021, <<https://www.silive.com> >

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## **EXHIBIT A.1 WHITE BUFFALO PROPOSAL**

## **EXHIBIT A.2**

### **DEER MANAGEMENT PROGRAM BUDGET 2021-22**

#### **WHITE BUFFALO, INC. EXPENSES**

##### **PERSONNEL (With assistance from animal control officer)**

###### **Wildlife Biologist**

###### **Sharpshooting Supervisor**

|                                           |          |
|-------------------------------------------|----------|
| 1 person X 20 days X \$115/hr X 10 hr/day | \$23,000 |
|-------------------------------------------|----------|

###### **Sharpshooting**

|                                           |          |
|-------------------------------------------|----------|
| 1 person X 20 days X \$100/hr X 10 hr/day | \$20,000 |
|-------------------------------------------|----------|

###### **Drop-nets/Sharpshooting**

|                                           |          |
|-------------------------------------------|----------|
| 1 person X 20 days X \$100/hr X 10 hr/day | \$20,000 |
|-------------------------------------------|----------|

##### **DIRECT COSTS**

|                              |       |
|------------------------------|-------|
| Supplies (ammunition, misc.) | \$875 |
|------------------------------|-------|

###### **Travel**

|                                                                      |         |
|----------------------------------------------------------------------|---------|
| Mileage (4,000 miles @ \$0.575/mile)<br>(CT to NJ, and local travel) | \$2,300 |
|----------------------------------------------------------------------|---------|

|                                      |         |
|--------------------------------------|---------|
| Per diem (60 person-days @ \$60/day) | \$3,600 |
|--------------------------------------|---------|

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**TOTAL**

**\$69,775**



## **PRINCETON EXPENSES**

Housing, bait, carcass transportation, and carcass processing provided by Princeton Township

## **EXHIBIT A.3**



# **White Buffalo Inc.**

Conserving Native Species and Ecosystems

### **Proposed Budget 2021-22**

### **Distance Sampling Deer Population Estimate**

### **Independent of Culling**

#### **PERSONNEL**

##### **Project Supervisor**

##### **Data analysis, and report writing**

1 person X 3 hours X \$150/hour \$450

##### **Distance Sampling methods**

1 person X 4 days X \$1,100/day \$4,400

##### **Technician**

##### **Distance Sampling methods**

1 person X 4 days X \$950/day \$3,800

#### **DIRECT COSTS**

##### **Travel**

Flight (IN to NJ) \$400

Mileage (800 miles @ \$0.575/mile) \$460

Hotel (3 room-nights) \$600

Food (\$60 per diem/person X 8 person-days) \$480

**TOTAL** **\$10,590**

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## **EXHIBIT A.3 DISTANCE SAMPLING BUDGET**