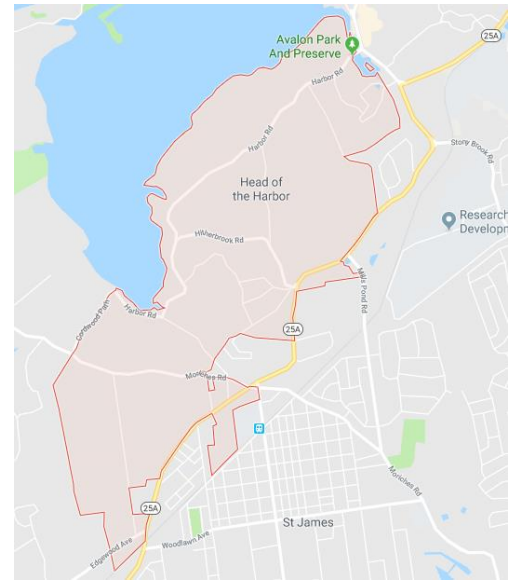


HOTH White Tailed Deer Immunocontraception Project: Fall 2020 Work Plan

This project is primarily intended to test technologies that will improve cost-effectiveness and practicality of PZP contraceptives for management of suburban deer. Specifically, our objectives are to:

- Test remote delivery of priming doses of controlled-release PZP vaccines (“PZP-22”).
- Test individual identification systems, including implantable microchips and Artificial Intelligence (AI) systems, that could ultimately reduce the need to capture all deer prior to treatment.
- Test and cross-check a variety of population estimation techniques, including drone surveillance, distance sampling, mark-resight, and AI-based identification of deer in camera trap grids.
- *Contingent on successful outcomes in accomplishing goals 1 and 2, develop and test tools to deliver PZP-22 and PIT tags remotely in a single package.*



Treating Target Does – REMOTE PRIMER DELIVERY ONLY

Of the 56 previously tagged animals, 10 individuals must still be treated remotely with their initial dose of PZP-22. **To achieve Goal 1 of the study objectives, this field session is required to remotely inoculate those animals.**

The Police Department will be notified when field teams are actively darting, and if the field team ever requires police escort or assistance.

Darting & Treatment

Animals will be darted opportunistically at the discretion of the darter, so long as the situation is safe for the animal and any persons or property in proximity. When possible, the field team will dart from a field vehicle marked with signs that read “Deer Project”. For work carried out during times of low lighting, spotlights will be used to locate, observe, and identify deer as needed.

Vaccines will be delivered using a Dan-Inject Model JM Standard CO2 Rifle at distances of approximately 8 to 24 yards. Animals will be inoculated with an intramuscular injection of “PZP-22” which consists of 0.5 cc PZP emulsified in 0.5 cc modified Freund’s Complete Adjuvant (mFCA) and 3 time release pellets (University of Toledo, OH) via self-injecting 1.0 cc RDD Implant P-Dart with a 1” needle (Pneu-Dart®, Williamsport, PA).

All field operations and treatments will be documented on “The HSUS DEER REMOTE INNOCULATION DATA FORM” where information on darting mechanics, field conditions, animal evaluation/visible health status, and vaccine delivery will be recorded.

Dart Recovery

Field team members will retrieve all darts deployed. In the event a dart is not recovered, village authorities and affected private property owners will be notified. All darts will be properly disposed of in medical sharps containers.

Animal Emergency

Given that this field session does not involve capturing, anesthetizing, or performing direct animal handling, the risk of an adverse incident is not likely. In the event of an animal emergency related to the project, field staff will contact the supervising veterinarian, Dr. Chris Miller and Associates, and perform necessary situational management.

Should a medical incident affecting a human take place, police and emergency services will be contacted immediately.

Utilizing added precautions with respect to COVID-19:

Given that field personnel will be travelling from Maryland to carry out this work, additional efforts will be made to adhere to New York's COVID-19 Travel Advisory. To maintain compliance with Executive Order 205 issued by Governor Cuomo, field personnel travelling from states with significant rates of transmission of COVID-19 will quarantine for a 14-day period upon arrival, prior to performing the listed field activities. (<https://coronavirus.health.ny.gov/covid-19-travel-advisory>)

At the time of this draft (17 Sept 2020), Maryland is NOT listed as a restricted state, although field staff have arranged for such quarantine measures to be maintained and will adhere to the executive order should there be a change in status prior to project staff arrival in the state.

Though the nature of this work is low risk for social interaction, or utilizing community-wide resources, we will take additional steps to further minimize exposure to or spread of COVID-19.

Tailored focus of field efforts

- Outside of an emergency situation, ***no chemical immobilization, capture, or trapping will be carried out during this timeframe.***
- In addition, vaccine darting efforts will remain limited to:
 - a. Darting from blinds or structures on previously authorized private properties including Avalon Nature Preserve and Harmony Vineyard, where owner interaction is not required.
 - b. Roadside darting only from a marked vehicle, where field staff only exits the vehicle to retrieve a deployed dart. During these efforts, field staff will wear PPE and maintain a minimum of 6 feet distance with community members in the unlikely event interaction is required. Residents will continue to be encouraged to connect with field staff by phoning the Deer Hotline or submitting observations via email to deer@avalonparkandpreserve.org.

Restricted participation

- The field team will be comprised of a maximum of 4 individuals, including Kali Pereira and John Griffin from the HSUS, and Katharine Griffiths and Kayla Kraker from ANP
- Those individuals will wear PPE when working, and maintain social distancing and isolation behaviors during and directly following the work session to further reduce potential exposure to or spread of the virus.

Limited public engagement

- Given the team will only be carrying out remote vaccination darting, and not trapping or handling animals, along with reduced areas of active work within the community, public interaction will be limited to telephone or electronic communications.
- When in public spaces, all field team members will wear PPE and avoid interaction with any individual not on the field team.

Accommodations & Travel

- Accommodations for field staff are provided by Avalon Nature Preserve and allow for individual isolation, and laundering of apparel and supplies at 153 Harbor Rd and 17 Shep Jones Lane. Both locations are private, gated and surveilled, and have remained vacant since April 2019.
- Equipment will be stored at 153 Harbor Rd, and disinfected daily, prior to returning from field use.
- Field personnel will bring food items, PPE, medications, necessary field supplies, and general cleaning supplies for the duration of the workplan period. Except for fuel purchases, field staff will not require use of public facilities such as grocery stores or pharmacies, etc.
- Field personnel will travel via field vehicle to and from the project location to avoid utilizing mass transit such as air/rail/bus travel.

Vaccine Darting Schedule

9/22/2020 – 10/9/2020

- Site Prep: Property flagging has been initiated to offer guidance to field personnel as to which properties have provided permission to work on deer ahead of time. Residents seeking to provide permission of property use or those that wish to decline permission should contact Avalon Park and Preserve: deer@avalonparkandpreserve.org
- Darting Shifts: The field team will resume vaccine darting efforts during the time period listed above in order to inoculate tagged does as outlined in the study design. **Darting will begin no earlier than September 22nd and continue through October 9th unless the targeted does are successfully treated prior to the last scheduled field day.**

Approximate darting times are listed below but subject to change based on animal and human behavior.

AM: 04:00 – 11:00

PM: 16:30 – 23:00

- Camera Traps: Trail cameras are placed at bait stations and other authorized private property (with landowner permission) to monitor and search for target animals.
- Inventory & Storage: Field staff will inventory all equipment and supplies prior to storage in locations within the Village. Unused PZP will be stored in a freezer, unused adjuvant will be kept refrigerated. All other supplies and equipment specific and pertinent to the Deer Project will be stored onsite with Avalon Nature Preserve or remain in the custody of the HSUS.

Using PZP in the Field

Mixing PZP

1. Set up a working station on a flat surface if possible- otherwise sit down and use your lap, placing a towel down as a clean workspace.
2. Don a pair of nitrile or latex gloves
3. Thaw frozen PZP dose.
4. Attach the Luer-Lock connector to one of the glass syringes
5. Attach the 1.5 inch needle on the second glass syringe
6. Gently agitate the vial of adjuvant to distribute cells. Draw out 0.5 cc.

7. Using the same syringe, draw up the 0.5 cc of thawed PZP – be sure to tap the vial a few times to ensure no solution remains in the cap before drawing up.
8. Holding the syringe containing the vaccine very carefully (to prevent the plunger from slipping out), take off the needle and attach the syringe to the second syringe using the Luer-Lock connector. (The empty syringe should have the plunger pushed all the way forward to avoid additional air pressure).
9. Push the PZP solution-adjuvant mixture back and forth through the two syringes 100 times. The resulting emulsion will become thick and look white.
10. Make sure that all of the emulsion is in one syringe.
11. Holding the syringe containing the emulsion very carefully, remove the other syringe.

Preparing for Remote Dart Delivery

For deer receiving PZP & Time Release Pellets:

12. Select a 1.0 cc IMPLANT RDD dart w/ 1" barbless needle.
13. Attach a 20 g x 2" needle to the glass syringe containing the emulsion. Insert needle into the body of the dart through the dart needle, and inject the contents of the syringe into the dart.
14. Ensure hands and workspace are dry – pellets are reactive to moisture and liquids.
15. Select one set of pre-sorted pellets (3 color coded time release pellets).
16. Carefully insert each pellet into the dart needle. Be mindful that the dart needle is very sharp.
17. Apply a small amount of Vaseline to the dart tip to keep pellets in.
18. Keep cool and dry until use.
19. If possible, store loaded darts upright in a protective dart sleeve to avoid accidental needle stick.

Storage & Disposal

*Do not contaminate water, food or feed

Storing PZP:

- Keep vials of PZP frozen until ready for use.
- When transporting for use in the field, keep PZP in a cooler, with ice packs.
- Once defrosted the PZP antigen expires after 24 hours. If transportation takes longer than 8 hours, store PZP antigen on dry ice in the cooler.

Storing Adjuvant:

- Keep adjuvant refrigerated at +2 C to +8 C, but not frozen, until ready to be mixed with the PZP antigen.
- When transporting for field use, keep in a cooler with ice packs.

Vaccine & Sharps Disposal: For any unused product dispose of as medical waste according to Federal, State, and Local regulations. All used darts and needles are to be placed in a Sharps container and disposed of as medical waste according to applicable Federal, State and Local regulations.

Vaccine mixing kit will be cleaned and dried daily after use with warm, soapy water, and isopropyl or ethyl alcohol.