

Hunting for Balance

A LONG-TERM EFFORT TO CONTROL LOCAL DEER ABUNDANCE

By Raymond J. Winchcombe, CWB



Credit: John Halpern

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It's a little after 5 a.m. on a mid-November morning, and a steady stream of headlights winds along a quiet dirt road in central Dutchess County, New York. The vehicles' occupants are deer hunters headed to the Deer Hunter Check Station run by the Cary Institute of Ecosystem Studies, a non-profit research organization. The opening of New York's southern zone firearms deer season is less than two hours away, and these hunters are anxious to sign in and head for their favorite opening day deer stand. Yet this is no typical recreational deer hunt. What sets it apart is its history and its science.

Since the mid-1970s, hunters have been selected to participate in the Cary Institute's annual controlled-access deer hunt, a closely managed hunt designed by Institute biologists to control the abundance of local deer numbers and thereby mitigate the impacts of deer on the Institute's forested ecosystems and landscape plantings. Recreational deer hunting has long been the traditional tool used by managers to address deer population issues, but the Institute recognized that a structured program, rather than a purely recreational hunt, was needed to address concerns such as safety, efficiency, and effectiveness of the harvest.

Origin of the Hunt

The Cary Institute is located on the former estate of Mary Flagler Cary, a 2,000-acre site where deer hunting had long been prohibited. By the late 1960s, biologist Jeff Davis of the National Audubon Society noted deer starvation at the site, severe over-browsing of vegetation such as eastern red cedar, and minimal recruitment of trees beyond the seedling stage. His drive-survey estimate put the deer population at roughly 39 animals per square mile (later revised to 52 deer per square mile.) In 1970 Davis implemented the first controlled hunt on the estate to "prevent further damage to wildlife habitat."

Since then the Cary Institute has implemented systematic efforts to quantify trends in deer numbers, impacts of deer on forest vegetation, and effectiveness of the hunts. Several well-established ground rules help ensure the hunt's ongoing success.

By invitation only. Invitations go out to 40 to 45 hunters each year, with new hunters sponsored by experienced veterans of the hunt. To qualify, hunters must preregister, obtain a state-issued antlerless permit, and attend a pre-hunt meeting to learn about the ecological service that hunting provides and to reinforce hunter ethics and safety. Each year they also must pass a firearms proficiency test, placing three shots on a 12-inch-square target set 50 yards away. Hunters must commit to a minimum effort of five five-hour days, comply with state game laws and Institute rules (such as properly tagging harvested animals and respecting legal shooting hours), and actively hunt as diligently for does as for bucks. Failure to take a doe at least once every three seasons may result in a hunter being dropped from the program, as would unsafe or unethical behavior.

Pre-Hunt Orientation. One week before the hunt, all participants must attend an orientation conducted by Institute staff biologists, who emphasize the goals of the deer-control program. Hunters learn about the impacts of deer overabundance and see how harvest levels affect browse consumption and forest regeneration. Hunters also learn about distribution of the previous years' deer harvest,



Credit: Steven Dorney

Biologist Ray Winchcombe, left, and his son David display does they've taken to fulfill their doe harvest obligation at the Cary Institute. Hunters in the program must harvest a doe at least once every three years to help control local deer abundance and protect the forest ecosystem.



trends across 26 specific zones of the property, and biological specifics of harvested deer. Such data help hunters determine where they might be successful and which hunting method to employ. For example, a hunter who likes to stalk deer might want to choose a lightly hunted area where deer may be less wary due to lower hunting pressure.

Logistics. The Cary property includes mixed hardwood and softwood stands, old field habitats, open meadows, and wetland habitats. About 1,500 of its 2,000 acres are open for hunting. The state's 23-day southern zone shotgun deer season begins in mid-November, with legal hunting hours from sunrise to sunset and check-in beginning at 5 a.m. After checking in, each hunter places a pin in the property map showing where they plan to begin their hunt; later arriving hunters avoid these locations. Temporary tree stands are permitted, but no nails or cutting of live vegetation is allowed. Hunters bring all harvested deer to the hunter check station.

Strategies. Institute hunters employ three basic methods. Most hunt from stands, waiting for deer to approach—a tactic that accounts for 60 to 80 percent of the harvest in any given year. Some quietly stalk deer on the move, an approach that requires more skill and patience and contributes about 16 percent to the annual harvest. Others walk in small groups to drive deer out of the thickest cover or off the highest ridges to a member of the group, a method accounting for an average of 12 percent of the harvest and particularly effective for does, as 63 percent of deer taken through drives are females.

Data Collection. Dates, hours, and areas hunted are recorded in a daily log at the hunter check station. Trained staff process all harvested deer, recording dressed weights, lactation status, antler points, antler beam diameters, and deer age. They also record time and location of kill, method of hunt (drive, stand, or stalking), distance of shot, number of shots, distance deer traveled, and number of deer present at time of shot.

Harvest Levels. Harvest is controlled not by bag limits but by limiting the number of hunters and antlerless permits. For the first 21 years of the hunt, fall counts of deer via night spotlighting were conducted to index trends in deer numbers. Today, these data are derived from a group of bowhunters (prior to the firearms season) reporting deer observed per hour afield. Most years, Institute hunters



Credit: Ray Winchcombe

A white "vegetation density board" stands clearly visible in a heavily grazed forest (above) managed to favor deer abundance to benefit recreational hunting. In contrast, robust sapling growth obscures a density board in a Cary Institute forest (below), where aggressive doe harvests limit deer abundance and encourage understory growth.



Credit: Ray Winchcombe

have access to a single buck tag and two doe tags. For the past ten years the average deer harvest has been 41 deer (13.7 per square mile), while the average for the previous ten years was 67 deer (22.3 per square mile).

Measures of Success

Institute biologists conduct annual spring browse surveys to measure deer impacts on forest vegetation, the best metric of program effectiveness. These surveys, done at 45 sites in the Cary forest, quantify the percent of available buds actually browsed by deer. On average we'll examine 6,100 buds on seven of the most abundant tree species to determine whether browsing levels are low enough to accommodate forest regeneration. The long-term, overall browsing rate of buds examined each spring has



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fluctuated between 10 and 16 percent, with oak species averaging 15 percent browsing pressure. (Where deer concentrate during severe winters, browsing rates have approached 30 percent.) The average browse rates are considered low, which suggests that the hunts are effectively protecting the forest environment from deer.


For hunters, success depends upon effort and attitude. A small number of participants consistently take two or more deer, and, not surprisingly, the hunters who put in the greatest number of days and hours have the highest success rates. Over the past 15 years, the successful hunters have averaged 30 percent more hours of effort, 27 percent more days hunted, and 36 percent more days with five or more hours hunted.

Harvest numbers are getting lower, however, as the program successfully trims deer abundance. In the early years of the hunt, a harvest of 60 to 70 deer per season was the norm. In recent years, that's been cut in half, and hunter success has averaged 59 percent for the past 10 years, down from 76 percent in the previous 10 years. I remind the hunters that the goal of the program has always been to reduce and stabilize the local deer herd, not to sustain the high numbers of the past, and I encourage them to improve their skills. Most see that persistence and patience pay off, and nearly 90 percent return year after year.

A Season Ends

It is mid-December, the days are bitter cold, and the season is drawing to a close. Almost 2,000 hours of hunting have been spent pursuing deer, a typical season's effort. Deer tracks mark recent snow, spurring on the few remaining hunters. At season's end, most go home with venison after a harvest sufficient to keep deer numbers in check. The Cary Institute program proves that, when well-organized and managed with science, the age-old method of using hunters to control deer is still a viable conservation tool for sustaining healthy forests. ■

This article has been reviewed by subject-matter experts.



In 2007, the Northeast Section of The Wildlife Society presented the Cary Institute with a Certificate of Recognition in appreciation of its deer management program to protect forested ecosystems. To see additional research related to the Institute's hunt, go to www.wildlife.org.