

Do Deer Really Disappear During the Hunting Season?

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Minimizing crop damage from deer is an important component to the Division's deer management program. In order for farmers to relieve crop damage on their property, we need to understand how deer use crop areas during the growing season, hunting season, and different times of the day. This information will help managers address crop damage problems with farmers and will also provide insight into how hunters can be more successful in harvesting deer. Additionally, understanding how long deer live (survival rate) and how deer die (mortality factors) is imperative for managers to develop management strategies to achieve desired population densities. Comprehensive management approaches need to be developed to maintain deer populations at a level that can reduce their impact on crops while maintaining sustainable populations. In order to increase our knowledge of white-tailed deer ecology in agricultural landscapes, we investigated white-tailed deer use of different habitats and survival rates in Sussex County, Delaware.

We trapped deer from December 2009 – May 2010 and December 2010 – April 2011 on Redden State Forest and the surrounding private lands. To capture deer, we baited large drop nets with whole kernel corn to attract deer under the nets. We also used Clover traps and dart guns in areas where drop nets were not feasible. Drop-nets are large nets (20'x20' or 60'x60') suspended at each corner by poles with a bait pile placed at the center of the net, when deer walk under the net a researcher waiting nearby releases the holding mechanism and the net drops onto the deer. A clover trap is a box shaped trap that is also baited with corn and when a deer walks inside the trap to feed on the corn it trips a wire which causes the door behind the animal to fall shut capturing the deer. Using all 3 methods, we captured 112 deer between both years, 44 of which received radio collars and became the focus of the study. Each deer that we captured received 2 set of ear tags, uniquely numbered per deer. Each adult female (≥ 1.5 years) received a VHF radio-collar (650g) that allowed us to follow her throughout the study to collect information on where animals were on the landscape and document causes of mortality. We located deer every 3-5 days using radio telemetry. Using the locations we collected, we were able to investigate how deer used different habitats during two main seasons, the growing season (May

1st through August 31st) and the hunting season (October 1st through January 31st). In each month, we located each deer in our study 30 times, 15 times during the day (½ hour before sunrise until ½ hour after sunset) and 15 times at night.

A home range is the area where an animal lives and has the food, water, and cover it needs to survive. The home ranges sizes differed by year and season (growing season 2010 = 341 acres, growing season 2011 = 270 acres, hunting season 2010 = 314 acres, and hunting season 2012 = 203 acres) but not for time of day (day versus night). Deer had larger home ranges during the 2010 than 2011. Deer had smaller home ranges during the hunting season than they did during the growing season. Season, time of day, and amount of crop available were important factors for predicting how deer used different habitats. Deer used crops most during nighttime growing season and least during the daytime hunting season. Deer are less visible to farmers late in the growing season and during hunting season because their habitat use changes. This shift in habitat use often makes people think that deer move to a new location once the hunting season starts when in fact they are still in the same general area but are simply less visible in the agricultural fields. Although deer were using crop fields less during the hunting season, they remained on the same property (i.e., the same property owner) where they used a crop during the growing season. Therefore, deer causing crop damage during the growing season are still on the same property during the hunting season so farmers and hunters can still successfully control the deer population on their property. Hunters should focus their hunting efforts within forested habitat surrounding crop fields to increase the likelihood of encountering deer. Stands or elevated box blinds setup on the edges of fields may not be the best place to harvest deer during

the hunting season, as the deer spend more of their time within the interior of the forests and not out in the fields or they only moved into fields at night. To increase the chance of deer remaining near crop fields where they cause damage, farmers should plant their winter cover crop soon after harvest of their summer crop. If cover crops are planted early to reduce the amount of time the ground is bare and to produce quality forage before heavy frost, deer are likely to stay. In a previous University of Delaware study, researchers found that deer browsing on winter wheat before it developed its seed head had no impact on yield. These cover crops can act as food plots on a property and should help hunters and farmers harvest additional deer during the hunting season.

The amount of deer surviving each year differed drastically during the two years of the study (2010 = 43% and 2011 = 72%). Most deer mortalities were caused by hunter harvest (2010 = 83% and 2011 = 75%). In 2010, 80% of harvests occurred during the early hunting season (38% in September, 62% in October) whereas only 33% of harvests occurred during the same time period in 2011 (all in October and none in September). The second most common mortality cause was deer-vehicle collisions (2010 = 8% and 2011 = 25%). We also observed a single natural mortality. During February 2010, almost 8 times more snow fell in the Delaware than normal and female deer likely increased foraging in the fall to compensate for winter stress which may have been the reason they had larger home ranges in 2010 and may have also been why hunter harvests occurred earlier in the 2010 hunting season than in 2011. Because deer were more active as they moved more in search of food, they had a greater likelihood of passing by a waiting hunter and being harvested. Harvest in Sussex County, Delaware during the 2010 hunting season was greater than the 5-year average (2005-2009) and was the third highest year on record. Our results suggest that extreme winter snowfalls had a delayed effect on harvest risk and survival rates of white-tailed deer.

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