

**NOTE: Act 2 of the 2013 South Carolina General Assembly removed the prohibition on baiting for deer on private lands in Game Zones 1 and 2. Therefore, baiting for deer is no longer prohibited on private land anywhere in South Carolina. Baiting or hunting over bait remains prohibited on WMA's statewide.**

## **A Retrospective on Hunting Deer Over Bait in South Carolina - Can Baiting Negatively Affect Hunter Success and Deer Harvest Rates?**

### Introduction

The use of bait for hunting deer is controversial and involves a complex set of biological, social, and ethical issues. Biologically, population influences related to baiting can be important in the dissemination and maintenance of disease and can affect the natural movement, distribution, and behavior of deer. Baiting can also influence survival and reproduction of deer, particularly when it moves towards supplemental feeding. Finally, concentrations of deer at bait sites may lead to effects on other species, habitats, and ecosystems.

From a social standpoint, baiting can create conflicts between hunters due to real and perceived unnatural or unfair partitioning of the deer resource. Legal baiting for deer can create illegal baiting situations for other species (e.g. migratory birds) that may cause conflict between local user groups. Finally, baiting may simply pit groups against one another from a philosophical standpoint.

Ethically, support for baiting is often split among hunters; however non-hunters and anti-hunting groups typically do not support the practice. Controversy or lack of public support related to baiting most often involves perceptions of fair chase and this fair chase challenge weakens public support for hunting programs, as well as, wildlife conservation and management programs that have historically been accepted by the public at large.

### History of baiting in South Carolina

From a legal standpoint, prior to 2013 baiting for deer in South Carolina was regionally divided with the practice being prohibited in the Piedmont and not prohibited in the Coastal Plain. This divergent legal situation was rooted in the history of the respective deer populations and in the tradition and politics of deer hunting in the two regions. As was the case in most of North America, South Carolina's white-tailed deer population was nearly extirpated by 1900 primarily as a result of overexploitation and habitat loss due to agricultural development.

The Coastal Plain held residual deer populations that were associated with major river flood plain systems that were relatively inaccessible and of little agricultural value. Even when deer populations were low and protection of deer high in other states, deer remained available and hunting of deer continued in some parts of the Coastal Plain. Pursuing deer with dogs was the customary method of hunting deer and notable figures like Archibald Rutledge frequently described this activity as it was carried out specifically in the Coastal Plain of South Carolina. Many laws governing deer related activities in the Coastal Plain originated prior to the existence of wildlife management as a science and prior to the establishment of a wildlife agency in South Carolina. Even today, most restrictions on deer hunting in the Coastal Plain are legislative rather than being regulatory functions of SCDNR.

Historically, there was no need for the South Carolina General Assembly to address the issue of baiting deer in the Coastal Plain because hunting deer with dogs was the only method used. However, due to changing land use and ownership patterns and the fact that hunters

determined that still hunting was an effective way to hunt deer, there was a relatively rapid shift from hunting with dogs to still hunting by the mid-1980s. Today less than 10 percent of the Coastal Plain is under a regime of hunting only with dogs. With this shift to still hunting and no restrictions on baiting deer, the practice began. Baiting is now widespread and used by the majority of hunters in the Coastal Plain. Baiting typically begins several weeks prior to the hunting season; therefore, this food source is available for about 6 months annually. In many cases, baiting has moved towards supplemental feeding since it is made available regardless of season and for the purpose of increasing deer condition and density.<sup>1</sup> In virtually all instances, shelled corn is the feed and it is typically provided free-choice, i.e. no timed feeders. Feeding rates on some properties are as high as 1,000 pounds per week per square mile.

In the Piedmont on the other hand, deer were nearly eliminated by the early 1900s and there are virtually no historical accounts of deer hunting in the Piedmont. By the 1950s, wildlife management as a science had emerged and a wildlife agency, now SCDNR, had developed in South Carolina. SCDNR was charged with restoring deer in the Piedmont and with this charge the agency was given regulatory authority over seasons, bag limits, and methods of hunting deer under Title 50 of the South Carolina Code of Laws. Deer restoration began in 1951 and the first open season for deer in the Piedmont was in 1958. Since deer numbers were low and there was no tradition of hunting deer with dogs, still-hunting was the only method prescribed. At that time, baiting was prohibited in the Piedmont by SCDNR regulation. This took place when virtually all deer hunting in the Coastal Plain was with dogs and baiting, though not prohibited by the legislature, was not an issue.

It is important to note that by Act 286 of the 2008 Session of the South Carolina General Assembly, the prohibition on baiting deer in the Piedmont of South Carolina was removed from SCDNR Regulation and placed into State Law. This Act did not address baiting in the Coastal Plain of the state. Also, due to pressure from some hunters and real and perceived problems with deer, there were a number of attempts by the legislature between 2000 and 2012 to eliminate the prohibition on baiting in the Piedmont. All along, there was a general lack of understanding among most hunters and legislators as to the history of baiting in South Carolina and how the conflicting legal situation arose. Hunters assumed that SCDNR had ultimate control over wildlife laws and that the agency was being arbitrary and capricious in allowing baiting in the Coastal Plain and prohibiting it in the Piedmont. Legislators, most having little or no experience in wildlife or hunting, either knew nothing about the issue or like hunters, felt the conflict was SCDNR's responsibility.

This historical account brings us to the present. South Carolina has a fully recovered statewide deer population, still-hunting is the dominant method of hunting deer, and prior to 2013 the state was divided regionally on the legality of baiting. In the Piedmont baiting was prohibited by the legislature, whereas, in the Coastal Plain baiting had not been addressed by the legislature.

SCDNR Wildlife Section biological staff opposes the practice of hunting deer over bait due to the aforementioned set of biological, social, and ethical concerns. The following discussion more fully describes those concerns and is based on data collected in South Carolina and other states.

#### The Extent of Baiting in the Coastal Plain

With the decline in popularity of dog hunting for deer in favor of still hunting, baiting began in earnest in the Coastal Plain in the mid 1980's. Initially the practice involved what most

people would consider true baiting, i.e. small amounts of bait being place in a few areas for the purpose of attracting deer to the gun. As time progressed, more hunters learned that the practice was not prohibited and the popularity of baiting increased. By the 1990's baiting had become very popular and it had become the typical way to hunt deer in the region. With this brought competition among hunters to insure that bait was readily available throughout the deer season so "their deer" would not be attracted to someone else's bait site. Additionally, some property owners and hunting clubs began to shift more towards what would be considered supplemental feeding, i.e. providing "bait" in quantity, time, and space for the purpose of affecting "management" of deer. In any event, by the year 2000 baiting was entrenched in the Coastal Plain and indications were that the magnitude of the activity could easily be affecting not only deer, but hunting as well.

In an effort to quantify the extent of baiting in the Coastal Plain, a survey was implemented in 2006. This survey involved participants in SCDNR's Antlerless Deer Quota Program (ADQP) and the survey elicited information on harvest strategies, habitat management, and baiting. The ADQP is a private lands deer management program that began in 1965 as a means for Coastal Plain landowners and lessees to harvest antlerless deer. Although the program is now available statewide, participation is dominated by properties in the Coastal Plain (98%). With approximately 1,800 properties, the ADQP is a very large program and includes significant acreage in all coastal counties. There are approximately 9.3 million acres of deer habitat in the Coastal Plain and the ADQP encompasses 3.7 million acres or about 40 percent of the available habitat.

Response rates for this survey were high, with 77 percent of program participants completing the survey resulting in direct data for 3 million acres of habitat. Ninety-four (94) percent of respondents indicated that bait or supplemental feed was used on their property. Corn was cited as the bait in virtually all cases. Eighty-five percent of participants indicated that bait was available outside of the deer season averaging 7.6 months per property. Feeding rates averaged 10,600 lbs./mi<sup>2</sup> annually which is the same as 342 lbs./mi<sup>2</sup>/week or 43 lbs./mi<sup>2</sup>/day during the 7.6 months that cooperators averaged feeding. Based on deer harvest rates which were part of the ADQP record, it required an average of 1,200 lbs. of bait for each deer harvested. Given current corn prices of approximately \$8 per bushel, this equates to about \$170 per deer harvested above and beyond the typical costs associated with deer hunting.

Total bait sites reported by respondents were in excess of 30,000 with one bait site for every 116 acres of habitat which calculates to a distribution of one site every 422 yards. If the average deer has a home range of one square mile, then the average deer would have access to 5.5 bait sites in its home range. As a group, survey respondents provided in excess of 40.8 million pounds (728,621 bu.) of bait with a total value of \$5.8 million at \$8 per bushel.

Due to the scope of the ADQP in both acreage and distribution of properties, it is believed that results of this survey are representative of the Coastal Plain in general. Extrapolating to the region yields approximately 80,000 bait sites and 2.33 million bushels of corn with a value of \$18.6 million annually.

### Biological Issues

Baiting has the potential to unnaturally increase the survival of individual deer and when used in extreme amounts, baiting has been demonstrated to cause unnaturally high local deer populations due to increased survival and reproduction (Figure 1).<sup>2</sup> Artificially high deer numbers is contrary to the goals of SCDNR's deer management program and is not in the best

interest of the state's natural resources nor the general public.

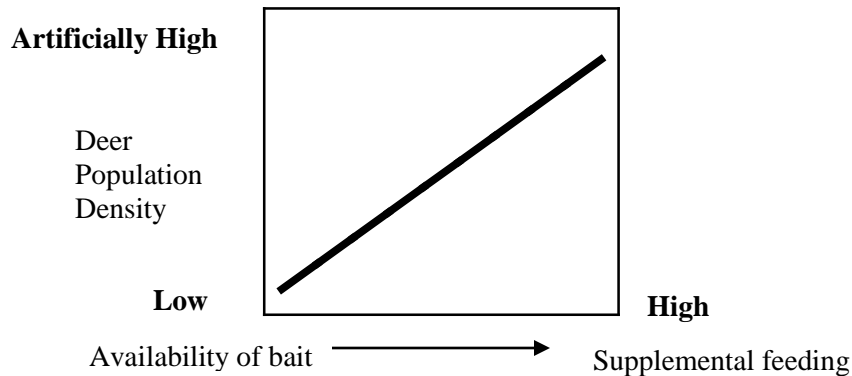


Figure 1. Relationship between deer population density and the amount of bait or supplemental feed that is provided. Note that as more food is available deer numbers increase.

Referring to the survey data the following example can be used to demonstrate how the magnitude of baiting may have affected deer density in the coastal plain. This example simply estimates the number of deer required to consume the amount of feed (corn) that is being provided to the landscape by hunters.

If we assume that the average deer needs approximately 2,000 calories per day and that one pound of corn has approximately 1,600 calories then we can deduce that the average deer needs 1.25 pounds of corn per day to meet its requirements. Survey results indicate that 43 pounds of feed are available per square mile per day, therefore, this would support approximately 35 deer/mi<sup>2</sup>. Although this is a relatively high deer density, there are regions of South Carolina that naturally support this number of animals without adverse affects.

However, deer would not restrict their diet only to feed that is being provided by hunters. Although corn is high in energy (carbohydrates) it is low in protein and other essential vitamins and minerals and should not be considered a complete feed. In fact, a study examining deer use of supplemental and natural feed in the Coastal Plain found that only about 50 percent of the diet was composed of feed (corn) with no statistical difference in deer sex, age, or month of sampling.<sup>3</sup> Therefore, the amount of feed being supplied by hunters would theoretically support approximately 70 deer/mi<sup>2</sup>. With few exceptions, this population density should be considered extremely high and unnatural in South Carolina. Without supplementation this population density should result in poor biological characteristics (reproduction, body weights, antler characteristics, etc.) and there is no evidence that is the case in the Coastal Plain. This analysis begs the question, “Are we unnaturally ‘propping-up’ the deer population in the Coastal Plain?”

Research has demonstrated that baiting can change natural movements, distribution, and behavior of wildlife, including deer.<sup>4</sup> It has been documented that changes in deer movements and behavior related to baiting lead to increased levels of nocturnal activity by deer and that younger animals are most susceptible to being seen/harvested during legal hunting hours.<sup>5</sup>

With increasing technology and decreasing cost, many hunters are now using trail cameras to monitor deer activity on the property they hunt. For obvious reasons, these cameras are typically located over bait sites. Although observations by cameras is high, hunters are learning that deer frequent bait sites much more at night than in the daytime. Data collected on one study site in the Coastal Plain yielded visitation rates of 25:1 night versus day (Figure 2, C. Ruth unpublished data). This data set includes approximately 30,000 observations and it was collected outside of the hunting season when deer should be exhibiting natural behaviors. If deer movements and behavior are being modified by bait, what impact could this nocturnal use of bait be having on hunters' ability to efficiently harvest deer?

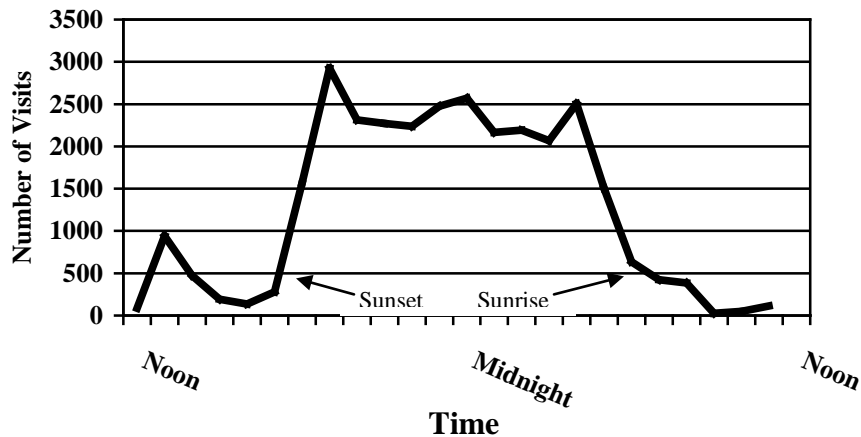


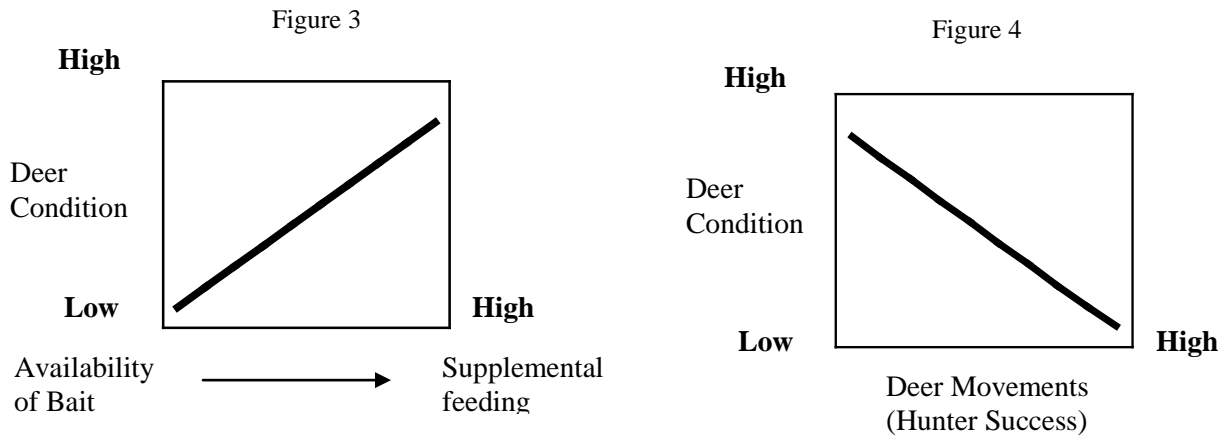
Figure 2. Visitation to supplemental feeding sites by deer monitored in South Carolina.

Also, as the availability of bait increases and ultimately moves towards supplemental feeding, there can be increased physical condition of deer at the local level (Figure 3).<sup>6</sup> As body condition increases, deer become more selective as to what and when they eat and they can spend less time feeding (Figure 4). Both of these factors, increased selectivity of foraging and decreased time spent foraging, reduce deer movements. Anything that decreases deer movements makes the animals less available to hunters and negatively impacts hunter success and deer harvest rates.

Data is available from the Coastal Plain that illustrates the relationship between supplemental feed and deer condition, as well as, the relationship between deer condition and hunter success.<sup>7</sup> Body weights and hunter effort data were collected from over 300 deer on each of two study areas located approximately 20 miles apart, in the same physiographic region, and on the same river system. One site is a public Wildlife Management Area (WMA) where baiting/feeding is prohibited and the other site is private land with a history of baiting/supplemental feeding. Neither area utilized selective harvest strategies and overall harvest pressure could be considered very high.

Results indicated that deer in 9 of 10 sex/age classes had significantly greater body weights from the area with a history of feeding compared to the area where feeding was prohibited. That is not to say that deer from the WMA were in poor condition, but rather, the deer from the area where feeding took place weighed more than would be expected naturally. On the other hand, it required nearly 3 times as much effort to harvest a deer on the area were

feeding took place (3.37 man-days/deer) compared to the area where it did not (1.16 man-days/deer). Again, this data demonstrates the positive relationship between feeding and deer body condition and the negative relationship between body condition and hunter success. Deer in better condition can be more selective in their feeding activities and in doing so they can more easily avoid hunters.



Figures 3 and 4. Physical condition of deer will increase as the availability of bait increases towards supplemental feeding and as deer condition increases deer movements decrease which decreases the success of hunters.

Changes in deer movements and distribution can increase the probability of spreading diseases and parasites because animals are concentrated at bait sites where they repeatedly come in contact with one another.<sup>8</sup> In 1994 bovine tuberculosis (TB) was detected in deer in an area of Michigan. It was determined that high concentrations of deer around bait sites were a primary factor in maintaining and increasing the prevalence of the disease. Similarly, chronic wasting disease (CWD) has emerged as the most significant disease threat that North America's deer and elk populations have ever faced. The disease is similar to mad cow disease that was so devastating to Europe's livestock industry. CWD has been diagnosed in 22 states and two Canadian provinces, however, it has not been detected in any Southeastern states in the vicinity of South Carolina.

Each of these diseases pose a significant risk to South Carolina because of the potential negative impacts it could have upon the deer resource, the deer hunting tradition, and the State's economy (200 million dollars in annual retail sales related to deer hunting). Due to changes in deer movements, their congregations and behavior, baiting presents a major hurdle in managing these diseases. As was the case in Michigan with TB, states that have detected CWD and allow baiting have been forced to take immediate steps to address the issue.

Deer are normally selective browsers with feeding activities occurring widely over their home range. However, due to changes in movements associated with bait, deer concentrate their foraging activities around the baited area and research has documented that the habitat around artificial feeding locations can be negatively impacted due to this concentrated foraging.<sup>9</sup> The unnatural movements and congregations of deer associated with bait sites may suppress the ability of plants to regenerate which can change plant species composition and ultimately affect the entire local ecosystem.<sup>10</sup>

The inferior quality of typical deer bait (corn) is also a concern since it is being consumed

by many species of wildlife including deer. Although the effects of certain feed contaminants are documented in livestock, the effects are not well known in wildlife. Research conducted by the Southeastern Cooperative Wildlife Disease Study at the University of Georgia indicates that aflatoxin, one contaminant of concern, has been found at “above acceptable” levels for animal feed in approximately 50 percent of deer bait sites sampled in South Carolina.<sup>11</sup> Although deer appear to be somewhat resistant to low levels of aflatoxin, it is documented that birds and monogastric mammals are more susceptible than ruminants.<sup>12</sup> Therefore, the effects on these “non-target” species are a concern. (Note: the national incident in 2005 with contaminated pet food and mortalities in dogs was related to aflatoxin).

Finally, the baiting of deer may artificially increase, or at least concentrate, the local population of turkey and quail nest predators such as raccoons, opossums, foxes, etc.<sup>13</sup> These animals may affect local turkey and quail nest success and/or contribute to pathogens contaminating such a site.

### Social or Public Relations Issues

Due to changes in deer movements, distribution, and behavior, baiting impacts adjacent landowners or clubs as the deer resource is unnaturally “partitioned.” This is particularly the case where small land ownerships are dominant such as in the Piedmont.

When baiting occurs in an area, hunters feel that they must bait in order to have any expectation of seeing deer on their property. This “baiting in self-defense” creates hostilities between adjacent landowners and among hunters, even hunters utilizing the same property.

Similarly, many hunters believe that they can make any piece of property a good deer hunting tract if they can bait. This mind set devalues the skills and challenges inherent in hunting because rather than the hunter hunting the deer, the roles become reversed as the deer hunts the hunter. It becomes only a matter of buying bait, having some place to put it, and being a good shot. The traditional aspects of developing hunting skills and woodsmanship, as well as, an intimate knowledge of the habitat and the animal’s habits, are no longer part of the equation with bait.

Complaints are frequent about individuals using bait to “draw” deer onto small properties and in-holdings within larger tracts.<sup>14</sup> These properties typically lack suitable deer habitat, however, deer are often harvested at disproportionately high rates, often at the expense and frustration of neighboring landowners who have expended effort and expense on a traditional deer and habitat management program.

Baiting for deer has created situations in South Carolina where dove and turkey hunting could not be allowed because the area was considered “baited” for these activities.<sup>15</sup> In these situations, the hunter(s) and SCDNR are placed in difficult situations. Further, it could be argued that legal baiting for deer (which attracts turkeys) may “lead” some hunters to consider or practice illegal baiting for turkeys in order to prevent the turkeys from leaving their property.

### Habitat Management Issues

Many hunters suffer from the misconception that baiting is a form of habitat management. It is not and it should not be characterized as an acceptable alternative to traditional habitat management techniques. This is all too evident in the Coastal Plain in years when abundant natural foods like acorns persist during the hunting season. Under these conditions, hunters who depend on bait frequently comment that they are unable to harvest deer because “they aren’t coming to the corn” (Figure 5). If this natural food availability is such that

baiting is not effective over much of the season, then deer harvest levels may be insufficient to meet harvest management goals.

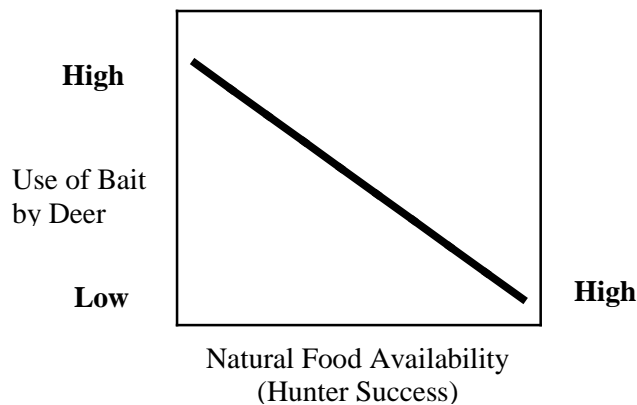


Figure 5. As natural food availability increases the use of bait by deer decreases, therefore, hunters who depend on harvesting deer using bait will have decreased hunter success.

Many argue that baiting is no different than habitat management techniques such as food plots or agricultural plantings. However in the case of bait, deer can more easily be manipulated with respect to space (location) and time to suit the desires of the hunter. Although traditional techniques have space and time elements as well, the level of manipulation is not comparable to baiting (i.e. once a food plot is planted, its location does not change and it is always available to the deer). Traditional wildlife management activities such as agriculture or food plot establishment create food sources and habitat/cover for many species of wildlife that are available over broader areas and for longer periods of time. Also, since food plots are measured in acres there is much less concern about disease transmission because deer are not forced to repeatedly feed, urinate, and defecate at the exact same spot as they do with a bait “pile”.

#### Fair Chase Issues

Baiting is controversial among hunters, and research has shown that Piedmont and Coastal Plain hunters differ in their opinion about baiting, likely a result of differences in traditional regulations and customs.<sup>16</sup> In fact, baiting was one of the topics discussed at 5 public meetings that were held in the Piedmont in 2003. Once the issues and potential effects of baiting were discussed, only 4 percent of meeting attendees indicated support for legalizing baiting in the upstate. Furthermore, non-hunting and anti-hunting constituent groups do not support baiting. This controversy and lack of public support for baiting involves perceptions of fair chase. Many believe that killing deer (or other wildlife) over bait demonstrates that hunting is all about killing and has nothing to do with fair chase, conservation, or wildlife management. This fair chase challenge weakens public support not only for public hunting programs, but also for wildlife conservation and management programs that have historically been accepted.<sup>17</sup> Hunting wildlife over bait does not improve or heighten the skills of the hunter.<sup>18</sup> Hunting is a tradition and an important tool with respect to deer management; however issues such as hunting deer over bait jeopardize the continued acceptance of hunting by an increasingly skeptical public at large.<sup>19</sup>



Deer Harvest and Hunter Effort Data from South Carolina

Although baiting may increase deer harvest rates under certain conditions, statewide deer harvest figures indicate that in the Piedmont, where baiting was prohibited, hunters harvested 28 percent more deer per square mile than hunters in the Coastal Plain where baiting has been the norm.<sup>20</sup> Also, coastal hunters expended 22 percent more time afield in harvesting this reduced number of deer. Harvesting female deer is the key to deer management and data indicates that in the Piedmont, where baiting was prohibited, hunters harvest equal numbers of does and bucks while in the Coastal Plain, where baiting was never prohibited, hunters took more bucks than does. Many proponents of baiting claim that the incidence of deer-vehicle collisions can be reduced if hunters bait. However, in spite of a 33 percent greater human population in the Piedmont, the per capita deer-vehicle collision rate was 9 percent less than in the Coastal Plain prior to the change in the Piedmont baiting law.

In total, the evidence strongly suggests that baiting does not increase the harvest of deer over broad regions in South Carolina. In fact, deer harvest and hunter effort data voluntarily submitted as part of the Deer Hunter Survey which is sent randomly to 25,000 hunters annually indicate that baiting may have negatively impacting harvest rates and hunter effort in the Coastal Plain (Table 1).<sup>21</sup>

SCDNR Wildlife Section staff attributes these negative impacts of baiting in the Coastal Plain to hunter dependence on bait, increased nocturnal behavior by deer around bait and increased body condition which affects deer movements. Each of these factors erodes hunter effectiveness leading to decreased harvest rates.

Table 1. Parameters from South Carolina regions when baiting was prohibited (Piedmont) and not prohibited (Coastal Plain), 2000-2007. Data was voluntarily submitted by hunters as part of annual Deer Hunter Survey.

Item	Piedmont Averages	Coastal Plain Averages	% Difference
Total deer harvest (mi <sup>2</sup> )	14.2	11.1	27.9
Doe harvest (mi <sup>2</sup> )	7.1	5.3	33.9
Buck harvest (mi <sup>2</sup> )	7.1	5.8	22.4
Doe:Buck harvest	1.00	0.91	9.1
Man-days/hunter	15.7	19.2	22.3
Man-days/deer harvested	8.4	8.6	1.6
Humans/deer-vehicle collision	1,533	1,389	9.3

Conclusion

Wildlife Section staff recognizes that hunting deer over bait has taken place in the Coastal Plain for a number of years. However, staff also understands that this situation exists only as a result of the history of deer hunting in that region, the fact that there has been a relatively recent change from dog hunting to still hunting, and the fact that the baiting issue has never been addressed in state law. Now, baiting is the norm rather than the exception in the Coastal Plain yet state law does not prescribe the practice in that region.

Staff is concerned with the obvious role that baiting can play in the biology of deer and in the dissemination and maintenance of disease. Baiting affects other “non target” species and habitats, as well. It should also be understood that social issues involving bait pit hunters and landowners against one another in a “competitive” atmosphere related to the distribution, behavior, and harvest of deer. There are ethical considerations and it is important to recognize that the public at large does not support baiting and this point undermines hunting and wildlife management programs that have historically been accepted by the public.

Finally, although some believe that baiting increases hunter success and deer harvest rates, data collected in South Carolina over an 8 year period indicate just the opposite. In the Piedmont where baiting was historically prohibited, hunters killed more deer per unit area and spend less time doing it than in the Coastal Plain where baiting has been the norm. The most significant concern of SCDNR Wildlife Section staff is the likelihood that decreased hunter efficiency and deer harvest rates will occur over time now that the prohibition on baiting has been eliminated in the Piedmont.

In the end, Piedmont hunters who support the change in the baiting law must answer one question. What was broken about deer hunting and management in the Piedmont that will be fixed with bait?

## Endnotes

- 1 *See* Ruth (1990).
- 2 *See* Kammermeyer and Thackston (1995), Ruth (1990), Simmons and Ruth (1990).
- 3 *See* Ruth and Simmons (1995).
- 4 *See* Jacobson and Darrow (1992), Kammermeyer and Marchinton (1977), Synatzke (1981).
- 5 *See* Darrow (1993), Jacobson and Darrow (1992), Kammermeyer and Marchinton (1977), Georgia DNR (1992), Synatzke (1981).
- 6 *See* Ozoga and Verme (1982).
- 7 *See* Ruth (1990).
- 8 *See* Schmitt et al. (1977), Williamson (2000).
- 9 *See* Doenier et al. (1997), Georgia DNR (1992), Michigan DNR (1993), Ozoga and Verme (1992).
- 10 *See* Brown (2001), Cheatum (1956), Michigan DNR (1993), Williamson (2000).
- 11 In 1993 SCDNR was asked by the Southeastern Cooperative Wildlife Disease Study to collect samples of corn that were being used as bait in coastal counties of South Carolina. Laboratory results of this effort indicated that 15 of 21 samples were positive and aflatoxin levels ranged from trace amounts to 266 parts per billion (ppb). Twenty ppb is the action level for corn in interstate commerce. Ten (approximately 50%) of the samples contained aflatoxin levels in excess of 20 ppb.
- 12 *See* Davidson and Nettles (1997), Davis (1998)
- 13 *See* Cooper and Ginnett (2000)
- 14 SCDNR has received numerous contacts from coastal plain landowners or lessees voicing concern over the issue of individuals using bait on small properties adjacent to or within properties (in holdings) that have a history of traditional deer management. Similarly, these complaints typically involve large quantities of bait and deer harvests that would be considered exceptionally high considering the locality, habitat type, and size of the area in question. *See* Georgia DNR (1992)
- 15 SCDNR Law Enforcement Division has documented numerous incidences in which deer bait has resulted in cases being made, warnings being issued, or notification of illegal status related to properties where dove or turkey hunts were being conducted or considered. Also, both Wildlife Management and Law Enforcement personnel are frequently asked if hunting of certain species

can take place in the vicinity of deer bait. This fact places personnel and constituents in an awkward position with respect to the issue of bait and species that are clearly not legal to hunt over bait.

16 A 1998 SCDNR Deer Hunter Survey asked the question “Do you favor or oppose the practice of hunting deer over bait” to a randomly selected survey of approximately 12,000 statewide deer hunting license type holders. Response rate for the survey was approximately 40 percent. Based on hunters who most frequently hunted in piedmont counties, this survey indicated that piedmont hunters had a significantly different ( $\alpha = 0.05$ ,  $X^2 = 390.8$ ) opinion related to the appropriateness of hunting deer over bait.

17 *See* Peyton (1998)

18 *See* Georgia DNR (1992)

19 *See* Duda et al. (1998), Georgia DNR (1992)

20 SCDNR harvest data voluntarily submitted by hunters clearly show that the top counties in South Carolina for deer harvest per square mile are located in the Piedmont of the state. Harvest reports available at [www.dnr.sc.gov](http://www.dnr.sc.gov). *See* Ruth (1990), Simmons and Ruth (1990).

21 *See* Ruth and Shipes (2005)

## References

- Brown, R.D. 2001. The case against supplemental feeding of white-tailed deer. Proceedings of the 24<sup>th</sup> Annual Meeting of the Southeast Deer Study Group. St. Louis, MO. 59pp.
- Cheatum, E.L. 1956. Too many deer. New York State Conservationist 10(6): 2-4.
- Cooper, S. M. and T. F. Ginnett. 2000. Potential effects of supplemental feeding of deer on nest predation. Wildl. Soc. Bull. 28(3):660-666.
- Darrow, D.A. 1993. Effects of baiting on deer movement and activity. Master of Science Thesis. Department of Wildlife and Fisheries, Mississippi State University, Starkville, MS. 107 pp.
- Davidson W.R. and V. F. Nettles. 1997. Field manual of wildlife Diseases in the Southeastern United States. Southeastern Cooperative Wildlife Disease Study. College of Veterinary Medicine, The University of Georgia, Athens, GA 417pp.
- Doenier, P.B., G.D. DelGiudice, and M.R. Riggs. 1997. Effects of winter supplemental feeding on browse consumption by white-tailed deer. Wildl. Soc. Bull. 25(2):235-243.
- Duda, M.D., S.J. Bissell, and K.C. Young. 1998. Wildlife and the American Mind: Public opinion on and attitudes toward fish and wildlife management. Responsive Management, Harrisburg, VA. 804 pp.
- Georgia Dept. of Natural Resources. 1992. Position Statement: Georgia Game and Fish Division: Hunting Deer Over Bait. Unpublished document. GA Dept. Natural Res. Social Circle, GA 3 pp.
- Jacobson, H.A. and D.A. Darrow. 1992. Effects of baiting on deer movements and activity. 15<sup>th</sup> Annual Southeast Deer Study Group Meeting 15:23.
- Kammermeyer, K.E. and R.L. Marchinton: 1977. Seasonal change in circadian activity of radio monitored deer. J.Wildl. Manage. 41(2): 315-317
- Kammermeyer, K.E. and R.E. Thackston. 1995. Habitat management and supplemental feeding. Pages 129-154. In Quality Whitetails. Editors K.V. Miller and R.L. Marchinton. Stackpole Books. Mechanicsburg, PA.
- Michigan Dept. of Natural Resources. 1993. Deer and bear baiting: biological issues. Michigan Department of Natural Resources, unpublished report. 17 pp.
- Ozoga, J.J., and L.J. Verme. 1982. Physical and reproductive characteristics of a supplementally fed white-tailed deer her. JK. Wildl. Manage. 46(2): 281-301.
- Peyton, R.B. 1998. Defining management issues: dogs, hunting and society. Trans. N.Am.

Wild. And Naur. Resour. Conf. 63:544-555.

Ruth, C.R., Jr. 1990. A comparison of three white-tailed deer management strategies in the coastal plain of South Carolina. M.S. Thesis, Clemson Univ., Clemson, S.C. 63pp

Ruth, C.R., Jr. and H.L. Simmons, Jr. 1995. Relationships between supplemental and natural feed in a free-ranging, supplementally-fed white-tailed deer herd. Annu. Meet. Southeast Deer Study Group 18:18.

Ruth, C.R., Jr. and Derrell A. Shipes. 2005. Potential negative effects on regional white-tailed deer harvest rates in South Carolina: A state with conflicting baiting laws. Annu. Meet. Southeast Deer Study Group 28:18.

Schmitt, S.M., S.D. Fitzgerald, T.M. Cooley, C.S. Bruning-Fann, L. Sullivan, D. Berry, T. Carlson, R.B. Minnus, J.B. Payeur, and J. Sikarskie. 1997. Bovine tuberculosis in free-ranging white-tailed deer from Michigan J. Wildl. Diseases. 33(4):749-758.

Simmons, H.L., and C.R. Ruth. 1990. White-tailed deer management at the Cedar Knoll Club. Annu. Meet. Southeast Deer Study Group 13:8.

Synatzke, D.R. 1981. Effects of baiting on white-tailed deer hunting success. Job 37 W-109 R4. Texas Parks and Wildlife Department, Wildlife Division, Austin, TX. 18pp.

Williamson, S.J., 2000. Feeding wildlife...just say no! Wildlife Management Institute, Washington, D.C. 34pp