

CROP DAMAGE BY WHITE-TAILED DEER IN THE SOUTHEAST

W. GERALD MOORE, Division of Wildlife and Freshwater Fisheries, S.C. Wildlife and Marine Resources Dept., Yemassee

ROBERT H. FOLK, III, Division of Wildlife and Freshwater Fisheries, S.C. Wildlife and Marine Resources Dept., Green Pond

Abstract: A survey of state wildlife resource agencies in the Southeast was conducted regarding deer crop damage problems during 1977. Affected crops were listed and the extent and degree of damage was evaluated by each agency. Methods used for alleviating deer crop damage were outlined. Antlerless deer harvest during legal hunting seasons was reported to be the most successful damage control measure practiced, however, most states utilized a combination of procedures. Deer season lengths, bag limits, and 1977-78 deer harvest data in the Southeast were summarized.

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Wildlife resource agencies have attempted to expand and increase white-tailed deer (*Odocoileus virginianus*) populations to provide sport hunting and other recreational opportunities. Success in this endeavor has often resulted in conflicts with other land uses. Deer depredation on agricultural crops has become a serious and widespread problem. This paper summarizes current deer crop damage problems and solutions utilized in the Southeast.

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METHODS

A questionnaire on crop damage caused by deer during 1977 was completed by the wildlife resource agency in each of the 15 southeastern states. The states also outlined methods used to alleviate damage and provided 1977 hunting regulations and procedures for administration of antlerless deer harvests. Telephone interviews with various wildlife agency personnel provided harvest data and supplementary information.

RESULTS AND DISCUSSION

Deer Damage to Crops

White-tailed deer caused damage to agricultural crops in all of the states surveyed. The crops most often damaged were soybeans in 11 states and corn in 9 states. Truck crops, including tomatoes, watermelons, sweet potatoes, stringbeans, peas, squash, cucumbers, and okra were damaged in 8 states. Peanuts were damaged in 5 states, small grains in 4 states, and alfalfa and tobacco in 2 states. Other damaged crops mentioned were Christmas trees, citrus, cotton, lespedeza, and strawberries.

Private vegetable gardens were damaged throughout the Southeast. Thirteen states indicated deer damage occurred to fruit orchards and 10 states reported losses of nursery stock and/or forest tree seedlings.

The degree and extent of deer damage reported in the Southeast during 1977 is presented in Table 1. Landowner complaints and damage related harvest estimates are provided in Table 2. Assessment of deer damage over large areas is extremely complex and difficult for wildlife resource agencies to quantify. A major factor contributing to this difficulty is the variability in landowners' responses. Some are willing to tolerate reasonable losses but others complain bitterly over minimal damage.

The data in Table 1 provide an interesting comparison with those of McDowell and Pillsbury (1959). They reported that in 1957, Georgia and Oklahoma did not consider

Table 1. Crop depredation by white-tailed deer in the Southeast during 1977.

	<i>Number of States</i>	<i>%</i>	<i>List of States</i>
<i>Degree</i>			
Negligible	0	0	None
Slight	3	20	Oklahoma, Tennessee, Texas
Moderate	5	33	Georgia, Kentucky, Mississippi, Virginia, West Virginia
Serious	2	14	Alabama, Florida
Varying	5	33	Arkansas, Louisiana, Maryland, North Carolina, South Carolina
<i>Extent</i>			
Localized	6	40	Florida, Maryland, South Carolina, Tennessee, Texas, West Virginia
Widespread	7	47	Alabama, Arkansas, Georgia, Kentucky, Louisiana, Oklahoma, Virginia
Varying	2	13	Mississippi, North Carolina

Table 2. Damage related complaints and deer destroyed in the Southeast during 1977.

<i>State</i>	<i>Damage Related</i>	
	<i>Number of Complaints</i>	<i>Number of Deer Destroyed</i>
Alabama	50	500
Arkansas	15	25
Florida	750	40
Georgia	1,000+	511
Kentucky	1,000	2-5
Louisiana	250	0
Maryland	200	100
Mississippi	127	360
North Carolina	126	1,735
Oklahoma	100	30-50
South Carolina	100	25-30
Tennessee	20-30	20-30
Virginia	500	510
West Virginia	534	974
Totals	4,777	4,851

damage by deer to be a problem. In addition, they reported that deer damage in Alabama, Mississippi, North Carolina, South Carolina, Tennessee, and Virginia was either slight or restricted to local areas.

Methods of Alleviating Damage

The methods used by wildlife resource agencies to assist landowners with deer depredation problems are presented in Table 3. All states had provisions for antlerless deer harvests during the hunting season. Harvests were conducted where the biological

need was substantiated, landowner cooperation was obtained, and the resource agency had regulatory authority. These harvests were regulated by limiting season length, areas, numbers of hunters, numbers of deer killed, or some combination of these. Eight states preferred either-sex seasons where days were designated for antlerless harvests on specified areas. Antlerless deer quotas or permits were issued in Arkansas, Florida, South Carolina, and Texas. This method provided for the harvest of specific numbers of antlerless deer on designated areas. South Carolina used a combination of either-sex days and antlerless quotas. Maryland, Oklahoma, Tennessee, and West Virginia utilized permits limiting the number of hunters participating in antlerless harvests.

Various other methods of alleviating crop damage by deer were used by the states surveyed. Ten states recommended use of deterrents such as firecrackers, carbide guns, rotating lights, fencing, lime, moth balls, lion scent, tankage, and commercial deer repellents such as Magic Circle and SS-268. Four states supplied landowners with some of these repellents. None of the state agencies reported making damage payments although landowners in several western Virginia counties may receive compensation for deer damage losses from special county funds.

Table 3. Methods used to alleviate deer crop damage in the Southeast during 1977.

<i>Method</i>	<i>Number of States</i>	<i>%</i>	<i>List of States</i>
None	0	0	None
Recommending deterrents	10	67	Florida, Georgia, Kentucky, Louisiana, Mississippi, Oklahoma, South Carolina, Tennessee, Virginia, West Virginia
Providing deterrents	4	27	Georgia, Maryland, Oklahoma, Virginia
Landowner has right to kill without permit	5	33	Kentucky, Mississippi, North Carolina, Oklahoma, Tennessee
Shoot to scare permits	4	27	Kentucky, Mississippi, Oklahoma, South Carolina,
Kill permits	12	80	Alabama, Arkansas, Florida, Georgia, Kentucky, Maryland, Mississippi, North Carolina, South Carolina, Texas, Virginia, West Virginia
Antlerless harvest during hunting season	15	100	Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia

Four states issued permits which allowed landowners to shoot deer with small shot to scare them from their fields. In 5 states, landowners had the right at anytime, without a permit, to kill deer damaging their crops. Three of these states encouraged landowners to obtain a kill permit before destroying such animals and 1 state issued these permits to wildlife resource agency personnel. The number of deer legally destroyed in crop damage cases varied from 0 in Louisiana to 1,735 in North Carolina with an estimated total of 4,851 (Table 2). Most states indicated that significant numbers of depredating deer were also killed illegally or without reports being given to their agency.

Deer destroyed in damage related cases were donated to non-profit or state-supported institutions in 12 states, left in the field in 6 states, and landowners received 1 or more carcasses for personal consumption in 4 states. A combination of disposal methods was utilized in 9 states. Agency personnel were responsible for disposing of animals in 12 states. In the remaining 2 states, carcasses were left in the field or were picked up by the institutions. Many deer destroyed in damage related cases were not utilized because of difficulties involved in handling, processing, and disposition.

Literature reviews of deer damage and control measures by Loomis (1975), Strickland (1976), and Hill (1977) concluded that herd reduction by antlerless harvests is sound economically and in principle and may be the best means of controlling damage. Strickland (1976) further emphasized that population control is necessary before alternate methods of control can be expected to succeed. It was also the consensus of the respondents in this study that the most desirable damage control method was antlerless deer harvest during the legal hunting season.

Regulations and Harvests

Firearm seasons for deer varied widely within and among states. Deer seasons were uniform statewide in Arkansas, Kentucky, Maryland, Mississippi, and Oklahoma. Seasons varied by counties in Alabama and Texas and by area, zone, or region in the remaining states. Extremes ranged from closed seasons in small portions of most states to a maximum of 140 days in the South Carolina coastal plain.

Bag limits ranged from 1 antlered deer per season in all or parts of 7 states to no limit in coastal South Carolina. Alabama and Mississippi had statewide bag limits within the state. Table 4 lists season lengths and bag limits for each state.

The estimated legal deer harvest during the 1977-78 hunting season in the Southeast is presented in Table 5. Deer killed in damage related cases (Table 2) represented only a small percentage of the annual harvests (Table 5). Although killing deer in the act of destroying crops should have a positive effect in reducing damage, it is often questionable whether it is physically possible to remove sufficient numbers to achieve desired levels of control. Also, many deer killed under these circumstances are not utilized.

CONCLUSIONS

Crop damage by deer is an increasing problem in the Southeast. It often involves unique interrelationships between natural habitats, crop species, deer population densities, land management objectives, and landowner profit margins. Wildlife resource agencies utilize various methods to assist in alleviating this problem. States in the Southeast are currently recommending and/or providing deterrents, issuing shoot to scare and kill permits, allowing landowners to kill deer in the act of destroying their crops without permit, and providing for the harvest of antlerless deer through sport hunting.

Table 4. Deer season lengths and bag limits in the Southeast during 1977.^a

State	Season Length (Days)		Season Limit	
	Max.	Min.	Max.	Min.
Alabama	65	51	1/day	1/day
Arkansas	14	14	2	2
Florida	72	58	3	3
Georgia	80	26	2	2
Kentucky	6	6	1	1
Louisiana	56	33	6	6
Maryland	8	8	1	1
Mississippi	34	34	1/day	1/day
North Carolina	78	6	4	2
Oklahoma	9	9	1	1
South Carolina	140	22	No Limit	5
Tennessee	32	3	4	1
Texas	51	5	3	1
Virginia	61	13	2	1
West Virginia	13	6	1	1

^aExcludes statewide archery and primitive weapons hunts and special hunts on wildlife management areas.

Table 5. Deer harvest estimates in the Southeast during 1977.

State	Season Harvest			Estimation Method
	Bucks	Does	Total	
Alabama	---	---	144,155 ^a	Mail Survey
Arkansas	28,266	826	29,092	Check Stations
Florida	52,000	3,000	55,000	Mail Survey
Georgia	57,525	16,131	73,656	Mail Survey and Tag Reports
Kentucky	12,105	425	12,530	Check Stations
Louisiana	68,484	18,204	86,688 ^a	Mail Survey
Maryland	7,276	4,340	11,616	Check Stations
Mississippi	86,267	7,604	93,871 ^a	Mail Survey & Warden Estimates
North Carolina	22,844	5,800	28,771 ^b	Tag Reports
Oklahoma	8,510	2,362	10,872	Check Stations
South Carolina	28,816	7,547	36,363	Check Stations & Warden Estimates
Tennessee	17,249	4,050	21,299	Check Stations
Texas	220,203	67,029	287,232	Mail Survey
Virginia	46,453	67,059	20,606	Check Stations
West Virginia	34,362	6,156	40,518	Check Stations
Totals	690,360	164,080	998,772	

^a1976 data.

^bIncludes 127 deer of undetermined sex.

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