

Influence of Success on Hunter Satisfaction and Deer Management Objectives

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Abstract: We used the 1988, 1989, and 1991 annual mail surveys to Georgia hunters to compare attitudes of successful and unsuccessful deer hunters. All hunters rated seeing game and lack of crowding as the most important components of hunter satisfaction. Important factors contributing to a positive perception of hunting season quality included number of deer observed and harvest success. All hunters indicated the opportunity to hunt for trophies as more important than killing game; however, successful deer hunters rated trophy opportunity higher than did unsuccessful deer hunters. The presence of trophy deer ranked first among successful deer hunters and fourth among unsuccessful hunters, as factors encouraging use of wildlife management areas. The importance to all hunters of seeing game, the high rating of trophy hunting among successful deer hunters, and the high percentage of deer hunters who now are successful ($\geq 50\%$) may indicate that more hunters would be willing to accept antler restrictions or other regulations for protecting young bucks on traditional hunting areas. Changes in hunter attitudes resulting from increases in hunter success will require wildlife agencies to provide for a more diverse range of hunting experiences than were required in earlier years.

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White-tailed deer (*Odocoileus virginianus*) herds can be managed for a variety of population objectives. McCullough (1984) referred to *K* carrying capacity as the maximum residual population that an area will support on a sustained basis and *I* carrying capacity as the residual population which had the maximum sustainable yield. A population on any given range managed for *K* carrying capacity may have 80% more deer in the residual population than one managed for maximum sustainable yield.

Objectives for deer populations include maximum population (without long-

range habitat damage), maximum sustainable yield, quality buck, or trophy management (Ga. Dep. Nat. Resour. 1988). All of these management objectives can result in viable populations of white-tailed deer, thus there is no biological reason for selecting one set of objectives as opposed to another. The correct biological choice is the one that best meets the needs of the resource owner.

Understanding factors that motivate and satisfy deer hunters is important in developing and maintaining wildlife management programs that best meet the needs of the hunting public. Determining hunter opinion is the only way that wildlife managers can make the correct choice in setting objectives. If hunter attitudes and desires change with increases in harvest success, management strategies will have to change as well.

Success in harvesting a deer may be the most important factor governing hunting satisfaction. However, the overall importance of success is poorly understood. One study in California indicated that 28% of hunter satisfaction was attributable to hunter success and other variables strongly influenced by wildlife management (McCullough and Carmen 1982). This finding does not mean that success is unimportant. It is likely that no other quantifiable variable could account for so much of the variance in hunter satisfaction. In Montana, over two-thirds of the surveyed hunters indicated that quality big game hunting was success or game dependent (i.e. seeing or killing game was a major component of quality) (Stankey et al. 1973).

Crowding and competition with other hunters has an important negative influence on hunter satisfaction (Kennedy 1974), however, game dependent results of hunting appear to outweigh negative impacts of hunter crowding (Stankey et al. 1973, Thomas et al. 1973). In one study, hunters in crowded conditions (11.0 ha/hunter) were more likely to rate their hunt as good or very good, while hunters with little competition (25.0 ha/hunter) were more likely to rate their hunt as poor or fair. Hunters rated their hunts in this manner because those in crowded conditions saw and killed more deer (Heberlein et al. 1982). High hunter densities produced fewer excellent or perfect deer hunts because of interference from other hunters. Some excellent hunts were produced at low hunter densities. At high densities (2.8 ha/hunter) in Maryland, there was a strong association ($P < 0.001$) with being bothered and seeing other hunters (Kennedy 1974). Wildlife managers may increase the number of good hunts by increasing hunter density (to move deer), but this action will reduce the probability of a truly outstanding hunt (Heberlein et al. 1982).

Hunter satisfaction is a complex phenomenon that includes, but is not limited to, planning, getting away, positive and negative interactions with other hunters, seeing wildlife, the potential for success, and successfully killing game (McCullough 1984).

The purpose of this paper is to analyze attitudes of Georgia's successful and unsuccessful deer hunters to assist in selection of deer management objectives. In Georgia, the number of deer hunters killing one or more deer has increased from approximately 25% in 1974 to over 50%, for the first time, in the 1988-89 season. If attitudes differ significantly between successful and unsuccessful deer hunters,

management strategies appropriate for enhancing hunter satisfaction in the mid-1970s may not be appropriate for the 1990s.

Methods

Annual mail surveys used for monitoring hunter numbers, effort, and harvests were modified to assess hunter opinion. The 1987–88 questionnaire solicited information on factors that encouraged and discouraged deer hunters from hunting on Georgia Wildlife Management Areas (WMAs). The 1988–89 questionnaire solicited information on factors which generally create a good hunting experience and did not focus on WMA experiences. The 1990–91 questionnaire solicited information on attitudes about harvesting antlerless deer.

On 9 February 1988, questionnaires were mailed to 7,155 licensed, resident hunters (2.1% sample). On 10 January 1989, questionnaires were mailed to 6,463 licensed, resident hunters (1.9% sample). On 18 January 1991, questionnaires were mailed to 6,313 licensed, resident hunters (1.9% sample). Two follow-up mailings were conducted among non-respondents at 2-week intervals, and 2 weeks were allowed for response to final mailings. In total, 3,356; 2,798; and 3,191 hunters returned completed questionnaires in 1988, 1989, and 1991, respectively.

Percentages, calculated to evaluate hunter opinion, were obtained by frequency of occurrence for all mailings within each year. Frequencies were based on the number of hunters who indicated that a particular factor was most important for encouraging, discouraging, or creating a good hunting experience. Deer hunters who harvested ≥ 1 deer during the season covered by the questionnaire were considered successful. Chi-square tests for independence (Ott 1977) were used to determine if deer hunter opinion was dependent on success. If dependence between opinion and success was observed, the data were evaluated empirically to determine how opinion and motivating factors for successful deer hunters differed from that of unsuccessful deer hunters.

Results

Factors that motivated and discouraged licensed, resident hunters from hunting on Georgia WMAs were dependent ($P < 0.0001$) upon hunter success (Table 1). Unsuccessful deer hunters ranked high deer populations first and opportunity (longer seasons and close to home) second as motivation for using WMAs. Successful deer hunters ranked trophy opportunities first and high deer populations second as motivation for using WMAs.

Primary discouraging factors (too many other hunters and poor deer hunting) ranked highest for both groups of hunters (Table 2). Lack of familiarity with WMAs ranked third, and having better places to hunt ranked fourth for successful deer hunters. For unsuccessful deer hunters, extra regulations associated with WMAs and lack of familiarity with WMAs ranked third and fourth as discouraging factors, respectively.

Table 1. Factors that encourage licensed, resident deer hunters to hunt on Georgia WMAs, 1987–88.

Reasons	Successful deer hunters		Unsuccessful deer hunters	
	%	Rank	%	Rank
Primitive weapon ^a	10.2	5	6.4	6
Place to hunt ^b	9.2	6	12.7	5
Close to home	15.5	3	13.8	3
Longer seasons	11.3	4	15.6	2
Public dove fields	5.4	8	6.2	7
High deer populations	15.7	2	19.5	1
Traditional hunting area	1.8	10	2.9	10
Trophy deer present	20.2	1	13.2	4
Other	5.2	9	4.2	9
No opinion	5.6	7	5.6	8

^aOr other special hunts.^bWhere permission is not required.

Primary factors creating a good hunting experience were similar for successful and unsuccessful deer hunters (Table 3). The factors which were most important to both groups were seeing game (25.8%) and lack of crowding (19%) with other hunters. However, other criteria required for creating a good hunting experience varied greatly between successful and unsuccessful hunters. The next most important factors for successful hunters were trophy hunting opportunities, and socializing with hunting companions. For unsuccessful deer hunters, the next most important factors were natural beauty and convenience to home. Trophy hunting was most important to only 9.5% (ranking 6th) of unsuccessful hunters.

The importance of seeing game to deer hunters' satisfaction was further supported by the relationship between number of deer seen, and how deer hunters rated

Table 2. Factors that discourage licensed, resident deer hunters from hunting on Georgia WMAs, 1987–88.

Reasons	Successful deer hunters		Unsuccessful deer hunters	
	%	Rank	%	Rank
Too many hunters	49.9	1	49.7	1
Unfamiliar with area	9.3	3	8.7	4
Too many extra regulations	6.3	6	9.6	3
Poor small game hunting	2.1	9	3.2	7.5
Poor deer hunting	10.9	2	10.4	2
None close to home	6.8	5	5.5	6
Have better places	8.5	4	6.8	5
Other	3.3	7	2.8	9
No opinion	2.9	8	3.2	7.5

Table 3. Factors most important for creating a good hunting experience in Georgia during the 1988–89 season.

Factor	All deer hunters		Successful deer hunters		Unsuccessful deer hunters	
	%	Rank	%	Rank	%	Rank
Socializing	14.0	4	12.9	4	11.6	5
Convenient	12.2	6	9.1	6	12.4	4
Killing game	10.1	7	8.7	7	9.1	7
See nongame	0.8	10	0.7	9.5	0.7	10
See game	25.8	1	25.4	1	20.0	1
No crowds	19.0	2	15.9	2	17.5	2
Trophy hunting	14.1	3	15.1	3	9.5	6
Beauty	13.6	5	9.5	5	14.7	3
Other	2.9	8	2.1	8	3.2	8
No opinion	1.2	9	0.7	9.5	1.3	9

their season (Table 4). Of hunters who rated their season poor, 56.4% saw between 0 and 5 deer, and 2.6% saw ≥ 51 deer during the season. Of hunters who rated their season as excellent, 6.9% saw ≤ 5 deer, and 29% saw ≥ 51 deer during the season.

Hunter opinions reflecting a lack of importance of killing game to deer hunter satisfaction was not supported by the relationship between number of deer harvested and how hunters rated their season. Mean harvest for hunters rating their season as poor, average, better than average, or excellent were 0.55 (SD = 1.037, $N = 775$); 1.24 (SD = 1.373, $N = 1,377$); 1.61 (SD = 1.571, $N = 261$); and 2.23 (SD = 1.693, $N = 233$); respectively.

Non-response bias was not evaluated for this paper. However, the presence of a substantial bias in attitudes of non-respondents was not supported by chi-square tests for independence which showed that average hunt season rating was independent ($P > 0.1$) of the mailing (1st, 2nd, or 3rd) returned by respondents. Hunters

Table 4. Percent of Georgia hunters rating their season as poor, average, better than average or excellent in relation to the number of deer seen during the 1988–89 season.

Deer seen	Poor	Average	Better than average	Excellent
0–5	56.4	26.3	12.4	6.9
6–15	28.7	33.8	27.9	19.5
16–30	9.0	22.9	24.8	26.0
31–50	3.3	8.8	19.3	18.6
≥ 51	2.6	8.2	15.6	29.0
Total	100.0	100.0	100.0	100.0

who were more reluctant to respond to the surveys did not rate seasons differently from those who responded readily.

Attitudes on harvesting antlerless deer were similar for both groups of hunters. In general, all hunters supported harvest of antlerless deer and favored having either-sex hunting days early in the deer season. More unsuccessful deer hunters were resistant to doe harvest (5.8% of those surveyed) than were successful deer hunters (2.2%) ($P < 0.005$).

Discussion

During the early years of population restoration of white-tailed deer in Georgia, and all of the southeastern United States, successful deer hunters were a minority (Southeast. Assoc. Fish and Wildl. Agencies 1983). Hunter success (percent of hunters killing one or more deer) exceeded 50% for the first time in Georgia during the 1988–89 season, while the ratio of deer harvested per hunter was 0.912 (Georgia Dep. Nat. Resour. 1989). In just 6 years, average hunter success ratios (total kill/total hunters) in southeastern states increased from 0.38 to 0.65 (Southeast. Assoc. Fish and Wildl. Agencies 1983, 1989). Fifteen states experienced increases in success ratios, and success ratios nearly doubled in 8 of those states.

These data strongly indicate that wildlife agencies must consider changes in success rates when designating future deer management strategies. Our data show a dependence between hunter success and attitudes. Successful hunters were inclined toward trophy hunting, likely because they already experience success as measured by killing a legal deer. The opportunity to hunt for trophy deer was the most important single factor that would encourage this large group to use state WMAs. Interestingly, both successful and unsuccessful hunters indicated that the opportunity to hunt a trophy animal was more important than harvesting just any deer. However, harvesting a deer is an important component of satisfaction in Georgia. Georgia has attempted to address the growing interest in trophy hunting by establishing 6 WMAs as quality buck areas where regulations are imposed to protect yearling bucks.

Among factors important in creating a good hunting experience, seeing game ranked first among both successful and unsuccessful deer hunters, and lack of crowding ranked second in importance among both groups. Obviously, high deer populations and low hunter densities create good hunting experiences, as has been found in other studies (Stankey et al. 1973, Thomas et al. 1973, Kennedy 1974, McCullough and Carmen 1982). Unfortunately, these likely cannot be provided along with trophy hunting opportunities on the same management units.

As successful deer hunters become the majority, techniques for meeting hunter objectives must change. The challenge then, in our state and others experiencing similar changes in success rates and hunter attitudes, is to provide a variety of experiences on different management units. In Georgia, our large WMA system, comprised of 68 areas and 1.01 million acres, provides ample opportunity to create the diversity of experiences desired by both successful and unsuccessful deer hunters. Recent changes in season structure, an overt attempt to establish specific management

goals for each area, an increase in the number of specialty hunts, and quality buck regulations for some areas hopefully will provide the range of hunting experiences desired by our changing clientele.

Hunters may be willing to accept, or even demand, antler restrictions or other regulations reducing buck harvest on traditional hunting grounds. The recreational benefit of seeing game may be important enough to offset some reduced harvest of bucks. Additionally, general acceptance of harvesting antlerless deer may allow for increased harvests of does to replace bucks. However, it remains to be seen whether hunters will accept the increase in regulations necessary to achieve recreational diversity once the regulations are in place.

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