Turkey Hunter Satisfaction in Florida

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Abstract: Responses from a mail survey of Florida Turkey Stamp purchasers were used to evaluate turkey hunter satisfaction. Using factor analysis, 7 dimensions of hunter satisfaction were interpreted from ratings of 31 aspects of turkey hunting. Individual aspects of turkey hunting poorly correlated with the rating of the overall hunting experience. The 7 dimensions (nature, social, hunting, management, harvest, disturbance, and preparation) accounted for 50% of the variance in responses; individually, dimensions accounted for 9% of total variance. Although traditional management strategies emphasize harvest and hunter man-days, we suggest that turkey hunting is a multidimensional sport and that no single aspect greatly influences hunter satisfaction.

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Goals of the Florida Game and Fresh Water Fish Commission (GFC) include maintaining healthy wild turkey populations consistent with habitat carrying capacity and providing use at a level compatible with the annual sustainable yield of the population (GFC 1988). Sport hunting is the primary use of the wild turkey resource, and a priority of Florida's wild turkey management program is to establish quantifiable hunter satisfaction objectives. Although most turkey hunting in Florida occurs on private lands, >2.4 million ha are open to public hunting as Wildlife Management Areas (WMA) which are used by about 34% of Florida's turkey hunters.

Hunter satisfaction should be considered in establishing management policies and harvest regulations for both public and private lands. Satisfaction is anything that brings pleasure or contentment; it is determined by complex interrelationships among culture, tradition, income, status, age, gender, and many other sociological parameters. The purpose of this study was to identify elements of turkey hunter satisfaction in Florida. Once identified, hunter satisfaction parameters can be used to increase hunter enjoyment and to more efficiently manage the wild turkey resource.

Many people were involved with this survey project. L. E. Williams, Jr., and M. D. Duda provided input on the survey instrument. L. S. Stanford, D. T. Cobb, and T. E. O'Meara reviewed the manuscript and provided helpful comments. T. G.

Wallace typed the questionnaire form, and P. S. McCranie and S. Conley-Samford assisted with compilation of returned surveys. This work was supported by the Florida Game and Fresh Water Fish Commission State Game Trust Fund.

Methods

Survey Design and Procedures

A step-down tactical planning procedure (Phenicie and Lyons 1973) was used to identify aspects of turkey hunter satisfaction, hunter safety, and hunter demographics. A turkey stamp is required to hunt turkeys in Florida and questions relating to hunter satisfaction were included in a 3-part mail survey of Florida turkey stamp purchasers. The mail survey was used to retrieve responses to questions related to hunter satisfaction. The survey instrument followed the general format of other attitude surveys (Heberlein and Baumgartner 1978, 1981; Hendee and Bryan 1978; Heberlein and Klepinger 1984. Questionnaires were mailed following the 1988 spring turkey season to a 4% random sample (1,000 individuals) of Florida's 1987 turkey stamp purchasers. The survey solicited information for the 1987 fall and the 1988 spring seasons. Respondents were asked to complete and return the survey via prepaid envelope. Two follow-up mailings were sent to non-respondents. A total of 536 surveys with at least partial responses were received for a response rate of 54%. Sample size was considered adequate for multivariate analysis (Tabachnick and Fidell 1983).

Respondents were asked to rate how 31 aspects of turkey hunting affected their hunting experience. Responses were converted to Likert scale ratings: 1 = adds greatly to enjoyment, 2 = adds some to enjoyment, 3 = neither adds nor detracts from enjoyment; 4 = detracts some from enjoyment; 5 = detracts greatly from enjoyment (Likert 1932). Respondents were also asked to rate both their fall and spring hunting experience. Responses were converted to a Likert scale rating: 1 = Excellent; 2 = Good; 3 = Fair; 4 = Poor; and 5 = Very Poor.

Survey Analysis

Factor analysis was used to analyze responses to determine turkey hunter satisfaction dimensions. Varimax rotation was performed and factors with eigenvalues greater than 1 were retained for interpretation. Factors with large loadings on only 2 of the 31 variables were discarded in the absence of strong intercorrelations (Tabachnick and Fidell 1983). Mean Likert scale response was calculated for the 31 aspects as well as for hunters' rating of their overall fall and spring experience.

Turkey stamp purchasers can hunt both fall and spring, and pooling responses from the fall and spring season may have affected attitudes regarding satisfaction since spring hunters are often thought to be the purists among turkey hunters. Many fall turkey hunters also hunt deer and other game which may skew their ideas on hunter satisfaction toward aspects that are not purely related to turkey hunting. We were unable to adequately test that hypothesis, but we suspect that respondents who participated only in the spring season would have strengthened our results.

Results and Discussion

A minimum of 366 respondents rated at least 1 of the 31 aspects relating to hunting enjoyment. Non-response (46%) to the survey was higher than we expected. The questionnaire was lengthy and required a great deal of effort to complete, and many hunters may have been reluctant to participate. A subsequent short post-card survey to a larger sample of the same target group of turkey stamp purchasers using identical mail-out procedures resulted in a much lower (29%) non-response rate.

Respondents produced the following demographic profile of turkey hunters in Florida. Almost all are males between the ages of 18 and 76 with an average age of 40 years. They have resided in Florida for an average of 33 years; 41% live in rural areas, 32% live in small cities or towns, and 27% are from large cities or urban areas. Most began turkey hunting at about 20 years of age and went hunting the first time with a friend or parent. Total annual gross income was between $20,000 and $39,000 for most; a few earn in excess of $100,000. They are well educated; about a third had only completed high school, a fourth had completed some college, and nearly a third had finished college. Eighteen percent had finished graduate school and considered themselves to be professionals.

Respondents rated most of the 31 items relating to aspects of turkey hunting favorably (i.e., mean Likert scale rating <3). Only 3 items clearly detracted from hunting enjoyment: 1) wearing orange-colored clothing; 2) seeing and hearing other hunters; and 3) seeing and hearing other non-hunters (Table 1).

Ten principal components were retained using eigenvalues >1 as the criterion. Of these, 7 hunter satisfaction dimensions were interpreted and labeled according to apparent functional and practical relationships:

1. Nature: Scenery, natural beauty of the hunting area, observing other wildlife, and getting away from problems;
2. Social: Being with hunting companions, hunting with partner, teaching others to hunt, and talking with turkey hunters;
3. Hunting: Locating turkeys, seeing or hearing turkeys, calling turkeys, and preseason scouting;
4. Management: The presence of law enforcement, reporting a bagged turkey at a check station (on public lands), and management of the hunt area;
5. Harvest: Shooting at a turkey, killing a turkey, and showing a bird to others;
6. Disturbance: Seeing and hearing other hunters or non-hunters and wearing orange clothing;
7. Preparation: Getting equipment ready, planning the hunt, and learning about turkey hunting.

The 7 dimensions accounted for 50% of the variance in hunter satisfaction; each dimension accounted for 6%–9%. Each dimension was poorly correlated ($-0.20 < r < 0.15$) with hunters' ratings of both fall and spring hunting experience. Addition-

Table 1. Mean Likert scale response of Florida turkey hunters to 31 aspects which affected their overall hunting enjoyment.[a]

Item	*N*	Mean response	SD	Item	*N*	Mean response	SD
Seeing or hearing a turkey	388	1.05	0.26	Natural beauty of hunting area	379	1.30	0.57
Locating turkeys	388	1.12	0.35	Planning and preparing for hunt	383	1.49	0.68
Observing other wildlife	377	1.21	0.44	Shooting at a turkey	379	1.50	0.80
Opportunity to appreciate nature	381	1.22	0.48	Getting away from problems	376	1.58	0.69
Having the proper equipment	387	1.24	0.54	Being with hunting companions	381	1.66	0.81
Calling turkeys	387	1.26	0.56	Getting equipment ready	380	1.73	0.83
Bagging a turkey	387	1.28	0.54	Preseason scouting and calling	376	1.75	0.83
Learning about turkeys/hunting	383	1.28	0.53	Talking with other hunters	373	2.42	1.05
Showing turkeys to others	380	1.78	0.82	Reporting a bagged turkey at check station	374	2.48	1.01
Teaching turkey hunting to others	377	2.07	0.92	Having partner call turkeys	372	2.52	0.98
Combining recreational opportunities	374	2.14	0.90	Hunting only gobblers during fall season	377	2.73	1.34
Hunting either sex during fall season	376	2.19	1.24	Hunting turkeys during squirrel season	370	3.01	1.17
Timing of hunting season	371	2.26	1.02	Competing with other hunters for a turkey	378	3.04	1.28
Presence of law enforcement	378	2.34	1.09	Wearing orange-colored clothing	366	3.91	1.21
Man-made management of hunting area	369	2.40	0.97	Seeing, hearing other non-hunters	377	4.30	0.97
Seeing, hearing other hunters	382	4.08	1.01				

[a]Categorical response converted to Likert scale: 1 = adds greatly to enjoyment; 2 = adds some to enjoyment; 3 = neither adds nor detracts from enjoyment; 4 = detracts some from enjoyment; 5 = detracts greatly from enjoyment.

ally, low correlation coefficients ($r < 0.16$) were observed between each of the 31 aspects and ratings of fall and spring hunting implying that no dimension or aspect singly exerted great influence on hunter satisfaction.

The percent variance explained by a factor (dimension) may depend upon the number of variables (related items or aspects) that load on that factor. In this study, only 3 or 4 variables loaded on each of the 7 factors. All 31 variables relating to hunter enjoyment were considered potentially to be part of the turkey hunting experience, but there was not a preponderance of items relating to any particular turkey hunting element. Accordingly, we believe our results are not a statistical artifact and that they truly reflect that turkey hunting satisfaction depends on a number of factors of nearly equal importance.

Satisfaction Dimensions

The nature dimension of hunting apparently reflected the importance of the opportunity to appreciate natural surroundings and to observe other wildlife while refraining from the daily routine. A survey of Florida hunters using the impact area of a proposed Cross Florida Barge Canal suggested that hunters enjoyed hunting in the more scenic and aesthetically pleasing forest types and that they also enjoyed nature study, wildlife watching, photography, camping, and other nature-associated activities (Eichholz 1976). Similar responses were reported for southeastern hunters who indicated a preference to hunt on unmanaged fields and woods (Environ. Res. Group 1974). A recent survey of Arkansas National Wild Turkey Federation (NWTF) members reported that of 19 reasons for turkey hunting, hunters primarily sought to experience the outdoors and nature, preferred the establishment of more wilderness areas, and enjoyed birds and other wildlife (Cartwright and Smith 1990). Spring wildflowers, photography, and camping added to the enjoyment of Missouri turkey hunters (Vangilder et al. 1990).

The social dimension included hunting with companions, having partners call turkeys, teaching turkey hunting to others, and talking to other hunters about hunting. Spring turkey hunting has been popularized as a somewhat solitary activity pitting the hunter one-on-one against a turkey gobbler. In this study, however, many hunters apparently enjoyed group hunting excursions, with others contributing to overall satisfaction. Attempting to call a bird for a friend was included as adding to a satisfactory hunt under this dimension. Being with friends and having stories to tell was considered important to Arkansas turkey hunters (Cartwright and Smith 1990) and hunting with friends added to the enjoyment of Missouri turkey hunters (Vangilder et al. 1990).

Activities that are involved in the actual hunt and the role these activities play in overall enjoyment was represented by the hunting dimension. Seeing, hearing, and locating turkeys and preseason scouting or calling were aspects that added positively to the hunting experience under this dimension. Researchers have reported similar findings in other states. Norman et al. (1987) reported that turkey hunters in a Virginia survey had a good season because they ". . . enjoyed hearing and working gobblers." Seeing hens with gobblers (when hens are not legal) and calling turkeys

for another hunter added to the enjoyment of Missouri turkey hunters (Vangilder et al. 1990). Arkansas turkey hunters reported that "high gobbling activity" added greatly to their spring turkey hunting enjoyment (Cartwright and Smith 1990). A Michigan turkey hunter attitude survey indicated that favorable ratings of the hunt were most dependent on the number of turkeys heard per day (Hawn et al. 1987).

The management dimension included reporting kills at check stations and seeing law enforcement and signs of habitat management. Some hunters apparently prefer obvious participation by the managing wildlife agency. This may have conveyed to hunters on public hunt areas that management agencies were active on the hunt area. Manned check stations with a law enforcement presence at exit points and visible management practices may increase hunter confidence in the hunting area. Evidence of management probably suggests to hunters that wildlife should be more abundant due to the increased attention by those responsible for the resource.

The harvest dimension included shooting at a turkey, bagging a turkey, and showing the bagged bird to others. Although harvest plays an important role in hunter satisfaction and enjoyment (Hawn et al. 1987, Vangilder et al. 1990), it did not explain any more variance than the dimensions of nature, social, hunting, and management.

The interaction of hunters and the importance of an uncrowded area for providing a satisfying hunting experience was described by the disturbance dimension. Competing with other hunters during both the fall and spring turkey season was negatively correlated with overall hunting pleasure. This indicated that turkey hunters prefer not to compete with or to be interfered with by other hunters.

The preparation dimension included characteristics of planning, learning about turkey hunting, and having the proper equipment. Preparation for the hunt, although important to hunter satisfaction, is not usually dealt with by wildlife managers.

Management Implications

Wildlife management practices traditionally have been oriented toward providing some level of hunter success, with success usually measured by the number of animals harvested or man-days hunted. Findings of this study, however, suggest that hunter success might be more appropriately expressed by the satisfaction of the total hunting experience. Optimization of management practices requires a realization of how success relates to the hunters' wants and needs.

The mean response to harvest-related aspects were not as favorable as several aspects from the nature and hunting dimensions (Table 1). Harvest is important, but only as a part of the overall experience. The importance of harvest is more meaningful when viewed in association with the dimensions of nature, social, hunting, and management. For example, harvest plays a role in the story-telling aspects of the hunt, and is a part of the seeing, hearing, and overall success of the social group. Hawn et al. (1987) reported that respondent turkey hunters in a Michigan survey gave their hunting experience high ratings according to the number of turkeys heard/day; hunters hearing at least 2 birds/day but not harvesting a bird, had almost the same rating as those who bagged a turkey.

Results of our study suggest that turkey hunting has an important social component consisting of hunters and companions sharing their time and hunting experiences. Being with friends and sharing aspects of the hunt contributed to overall group success and enjoyment. Many public hunting areas are open to turkey hunting through a quota system. To facilitate hunter satisfaction gained through social and group interactions, public hunting areas with quota hunts might consider giving individual and group permit applications equal consideration. Applicants selected to participate in quota hunts could be given at least 2 days to afford greater opportunity for social interactions.

Many Florida hunters felt that seeing field sign and seeing or hearing turkeys was important to their overall turkey hunting enjoyment. Management practices to enhance this element of satisfaction would include increasing turkey populations through more conservative regulations and habitat improvement. Higher turkey numbers increase the hunter's opportunity to see and hear birds and to encounter field sign.

Similarly, managers on areas featuring spring turkey hunting could strive to increase the adult male segment of the turkey population since males do the most vocalizing and are the most sought after during spring season. Birds that vocalize are more available to calling. Locating turkey gobblers by listening for their mating call and luring them to within gun range is the essence of spring turkey hunting. Prohibiting the harvest of subadult males is a management strategy that would provide a high number of adult males in a given population. Missouri hunters preferred a reduced bag limit and shorter hunting season resulting in a greater percentage of adult gobblers in the harvest to that of a longer season and a more liberal bag limit which would result in a high percentage of juvenile gobblers in the harvest (Vangilder et al. 1990). In areas with low turkey population levels, hens should also be protected to insure the reproduction potential of the population.

Rules requiring the wearing of orange-colored clothing for turkey hunting should be carefully evaluated. Requiring hunters to wear orange-colored clothing detracts from turkey hunter enjoyment in several ways. The ability of a hunter to successfully call, attract, and harvest turkeys is more difficult when a hunter is wearing orange-colored clothing. Studies conducted in several states reported that hunters using blaze-orange material as a vest or as a marker resulted in lowered success at calling and harvesting male wild turkeys (Eriksen et al. 1985, Anon. 1983). In this survey, 93% of turkey hunters responding wore camouflage clothing, and 81% indicated that they were not in favor of a mandatory requirement to wear orange outer garments. Missouri reported 82% of spring turkey hunters never wore orange clothing and 82% were against requiring hunters to wear it (Vangilder et al. 1990). A survey of Arkansas NWTF members showed that 88% would not support mandatory hunter-orange requirements (Cartwright and Smith 1990).

No state requires wearing orange-colored clothing during spring turkey season. This again suggests that turkey hunters prefer not to wear such clothing. However, turkey hunters are concerned about safety. Perhaps less restrictive strategies should be considered such as requiring hunters to wear brightly colored outer garments

while walking to and from hunting sites where hunter safety is a concern. In addition, wildlife managers and hunter safety instructors could emphasize the many other factors involved in how to be safe while turkey hunting.

We conclude that turkey hunting encompasses a broad spectrum of activities and that hunter satisfaction is derived from the interplay of many factors. No single factor determines hunter satisfaction. Management strategies on public lands should reflect hunter preferences in order to optimize satisfaction and enjoyment. As competition for available hunting land increases, wildlife managers will be pressured to provide more efficient and meaningful management. Knowledge of what constitutes hunter pleasure will assist wildlife managers to fit management practices with hunter preferences.

Wildlife management areas featuring turkey hunting should be managed for aesthetically pleasing scenery, other wildlife, and an abundance of turkeys. Providing aesthetic scenery can be difficult since everyone has an individual perspective for what constitutes aesthetics. Old growth forests are often considered scenic, but they often require very specific management strategies or long periods of no-action management. Mature forests also provide habitat for other wildlife that adds pleasure to the hunting experience. Increasing turkey numbers by using more conservative management practices such as restricting harvest to adult gobblers or to no fall hen shooting can result in hunter satisfaction trade-offs, but more turkeys are usually worth the price.

Our analyses identified dimensions of hunter satisfaction that included scenic natural surroundings; sociological factors; seeing, hearing or shooting wild turkeys; active wildlife management; and a lack of disturbance by other hunters. Traditional wildlife management emphasizing harvest and hunter opportunity may be out of step with hunter desire. In our study, harvest was less important to satisfaction than seeing, hearing or locating turkeys and the opportunity to appreciate nature. Increasing hunter opportunity by expanding hunter man-days can be counter to providing a satisfying hunt because it tends to increase hunter disturbance due to interference by other hunters. Knowing hunter preferences and incorporating them into management strategies can assist the wildlife manager to provide hunter satisfaction and enjoyment without necessarily having to increase harvest or hunter man-days.

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