

# A COMPARISON OF HUNTING SATISFACTION OF VIRGINIA WILDLIFE AND COLORADO OUTDOORS HUNTER-SUBSCRIBERS

KIRK H. BEATTIE, Department of Fisheries and Wildlife Sciences, Virginia Polytechnic Institute and State University, Blacksburg. 24061

*Abstract:* Two identical hunting satisfaction questionnaires were published in *Virginia Wildlife* (VW) and *Colorado Outdoors* (CO), both state wildlife agency conservation magazines. State resident hunter-subscribers responded to each of 11 dimensions of hunting satisfaction (identified by Potter et al. 1973) on a 5-point Likert-type category rating scale. The means of responses of VW and CO hunter-subscribers on each dimension of hunting satisfaction were compared statistically using 2-tailed t-tests. The means of responses of the 2 hunter-subscriber samples differed significantly ( $P < 0.05$ ) on the dimensions of nature, escapism, shooting, harvest, equipment, outgroup verbal contact, and outgroup visual contact. Although the means of responses of the 2 samples differed significantly on 7 of the 11 dimensions of hunting satisfaction, a comparison of the rank ordering of the means of responses on dimensions for the 2 samples evidenced a relationship of high magnitude (Spearman's rho = 0.95,  $P < 0.001$ ).

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Investigations of recreational satisfactions derived by consumptive users of fish and wildlife resources have increased since the early 1970's (Brown et al. 1977, Gilbert 1977, Hendee 1974, Kennedy 1970, Knopf et al. 1973, More 1973, Potter et al. 1973, Schole et al. 1973, Stankey et al. 1973). Researchers, particularly Hendee (1974), have questioned the desirability of traditional effectiveness measures of fish and wildlife management (i.e. "game (fish) bagged" and "sportsmen days afield"). Condemnations of traditional output measures have spurred interest in investigations of the diversity and relative importance of satisfaction elements of consumptive wildlife recreation. Adequate replacements of or additions to traditional output measures have as yet not been developed as outgrowths of research but continued investigation should increase the probability that "competitive" measures will become available.

This paper presents a comparison of hunting satisfactions of hunter-subscribers of the conservation magazines *Virginia Wildlife* (VW) and *Colorado Outdoors* (CO). The cooperation of L. Gillam, editor of *Virginia Wildlife*, and C. Hjelte, editor of *Colorado Outdoors*, in facilitating publication of a survey in each of their magazines is gratefully acknowledged

## METHODS

### Colorado Survey

A 4-page article/questionnaire insert was published in the March-April, 1977 issue of CO (Beattie and Pierson 1977). The article discussed traditional "output" measures of fish and wildlife programs and Hendee's (1974) multiple-satisfaction approach to game management. Potter et al. (1973) defined 11 dimensions of hunting satisfaction, 8 of which were based on multiple-item measures and 3 of which were based on a single-item measure. The CO article discussed aspects of and presented a description of each of the Potter et al. 11 dimensions of hunting satisfaction: nature, escapism, companionship, shooting, skill, vicariousness, trophy-display, harvest, equipment, outgroup verbal contact. The questionnaire portion of the article requested Colorado resident hunters to check a response category corresponding to the animal they most enjoyed hunting (e.g., deer, dove, bear) and to respond to each of 11 dimensions of hunting satisfaction on a 5-point Likert-type category rating scale. The response categories were "highly adds" (scored 5), "moderately adds" (scored 4), "neither adds nor detracts" (scored 3), "moderately detracts" (scored 2), and "highly detracts" (scored 1). Colorado resident

hunters were requested to respond to each of the 11 dimensions in relation to the game animal they most enjoyed hunting. Questionnaires were returned to the author's university address at VPI & SU.

A follow-up postcard requesting nonresponding individuals to complete and return the questionnaire was sent to a random sample of 300 resident CO subscribers 2 weeks following publication of the article/questionnaire. Postcards were mailed by the Colorado Division of Wildlife from their Denver office. Questionnaires received from "follow-up" individuals were identified by individuals writing "late respondent" on the questionnaire.

#### Virginia Survey

A 6-page article was published in the August, 1977 issue of *VW* (Beattie et al. 1977). The text of the article was very similar to that of the CO article. The article included a tear-out hunting satisfaction questionnaire and a readership preference questionnaire. The hunting satisfaction questionnaire was identical to that published to CO except for modification of the "animal most enjoy hunting" response categories. Only resident Virginia hunter-subscribers were requested to complete the hunting satisfaction questionnaire and return it to the author's university address.

Follow-up postcards were mailed by the Virginia Commission of Game and Inland Fisheries to a random sample of 300 resident VW subscribers during the week following publication of the article. A misunderstanding between the commission and the author concerning the day on which follow-up postcards should be mailed resulted in the postcards being mailed too early to be useful for analysis of potential survey nonresponse effects.

#### Analysis

Responses to questionnaire items on both surveys were punched on IBM cards and tabulations performed using subprograms CONDESCRIPTIVE and FREQUENCIES of the Statistical Package for the Social Sciences (SPSS, Nie et al. 1975). Responses on each dimension of hunting satisfaction by the 2 hunter-subscriber samples were tested for significant differences with Student's t-test.

### RESULTS AND DISCUSSION

Useable questionnaires were returned by 707 CO and 1047 VW resident hunter-subscribers. A comparison of responses to the question pertaining to the type of animal most preferred to hunt and each of the 11 dimensions for CO individuals responding to follow-up postcards and all other CO respondents revealed no substantial differences. Because a comparison of returns by individuals responding to VW follow-up postcards and non-postcard respondents would have been inappropriate, the representativeness of the VW hunter-subscriber sample is open to question.

A description of components of each of the dimensions discussed in the 2 articles is presented in Table 1. The components are those items having high item-to-average score correlations on the relevant dimension from the Potter et al. (1973) study.

Responses from all hunter classes within each of the respective samples were combined for the purpose of exploring significant differences in responses between hunters in general from the 2 samples. The distribution of responses of VW and CO hunter-subscribers on each of the 11 dimensions of hunting satisfaction is presented in Table 2. Table 3 presents a comparison of mean responses of VW and CO hunter-subscribers on each of the 11 dimensions.

Elements of the dimension of nature were perceived as being more important than all other dimensions presented to hunter-subscribers (Table 3). Although the mean response of 4.93 on the nature dimension for CO individuals was significantly different ( $P < 0.001$ ) from the mean response of 4.86 for VW hunter-subscribers, the absolute ("practical")

Table 1. Components of each of 11 dimensions of hunting satisfaction presented in the VW and CO articles.

<i>Dimension</i>	<i>Components<sup>a</sup></i>
Nature	Being close to nature, just being outdoors, and smell and sound of the woods and fields, getting away from civilization, camping while hunting, at least seeing some wildlife.
Escapism	Getting away from everyday problems, getting away from civilization, getting away from home, seeing very few other people while hunting.
Companionship	Being with my hunting companions, working my dog.
Shooting	Shooting my gun, at least getting some shots, seeing game fall as I shoot, making a difficult shot.
Skill	Outsmarting game, stalking game, being thought of as a skilled hunter, bagging more game than hunters in other parties, teaching someone else the skills of hunting, bagging as much game as my hunting companions, making a difficult shot.
Vicariousness	Watching hunting movies or TV programs, reading sportsmen's magazines, telling hunting stories and experiences.
Trophy-display	Showing game I bagged to family and friends, bagging a very large bird or animal, bringing game home, displaying game while going home, saving hides, horns, or feathers.
Harvest	Getting my bag limit, amount of game bagged, getting meat.
Equipment	Being a well-equipped hunter, having the best of hunting equipment, cleaning and maintaining my hunting equipment, comparing my equipment with other hunters', collecting guns.
Outgroup verbal contact	Talking with hunters in other parties.
Outgroup visual contact	Seeing hunters from other parties.

<sup>a</sup>Components of dimensions were taken from a study by Potter et al. (1973).

Table 2. Distribution of responses of VW and CO hunter-subscribers on each of 11 dimensions of hunting satisfaction. Table entries represent the percentage of individuals of the respective sample responding to a response category.

	Virginia					Colorado				
	HD <sup>a</sup>	MD <sup>b</sup>	N.A.N.D. <sup>c</sup>	MA <sup>d</sup>	HA <sup>e</sup>	HD	MD	N.A.N.D.	MA	HA
Nature	---	---	---	6.7	93.3	---	0.2	1.4	10.6	87.8
Escapism	0.3	0.4	7.2	30.2	61.9	0.5	0.1	8.9	38.9	51.6
Skill	0.1	0.4	11.9	35.7	51.9	0.1	0.5	12.1	36.6	50.7
Companionship	2.2	3.2	18.9	40.7	35.0	1.9	4.3	18.4	37.3	38.1
Shooting	0.5	1.8	24.1	48.7	25.0	0.7	0.9	18.5	46.5	33.3
Harvest	0.7	1.9	30.5	44.5	22.4	2.1	2.7	37.5	41.9	15.9
Vicariousness	1.3	4.6	32.8	45.3	16.0	1.4	2.2	33.8	43.7	18.8
Equipment	2.0	3.6	39.2	35.4	19.8	1.3	2.4	35.0	39.4	21.9
Trophy-display	4.7	8.4	41.2	37.4	8.2	4.4	6.8	44.4	33.1	11.3
Outgroup-verbal contact	15.0	26.2	35.6	19.8	3.4	10.4	18.4	38.1	24.9	8.2
Outgroup-visual contact	28.0	34.8	27.9	7.8	1.5	19.9	26.4	35.9	13.4	4.4

<sup>a</sup>Highly detracts.

<sup>b</sup>Moderately detracts.

<sup>c</sup>Neither adds nor subtracts.

<sup>d</sup>Moderately adds.

<sup>e</sup>Highly adds.

difference was small (0.07 scale units). Again employing the mean response, escapism and skill were judged second and third in importance by CO and VW hunter-subscribers, respectively. CO hunter-subscribers considered companionship and shooting to be fourth and fifth in importance, respectively, while VW hunter-subscribers "switched" the importance of the 2 dimensions. Harvest was sixth in importance for CO hunter-subscribers but eight in importance for VW hunter-subscribers. Using the mean response, vicariousness was seventh in importance for both groups. Equipment was eighth in importance for CO hunter-subscribers but sixth in importance for VW hunter-subscribers. Both groups were in agreement concerning trophy-display as being ninth in importance. Outgroup verbal and visual contact rated tenth and last in importance, respectively, for both samples.

Although mean responses on 7 of the 11 dimensions were significantly different ( $P < 0.05$ , Table 3) between the 2 samples, there was generally only a small absolute difference between means. The relatively large sample sizes resulted in even very small differences being detected as statistically significant. It may therefore be more appropriate to compare the absolute difference between means in Table 3. Five of the absolute differences in means were less than 0.10 scale unit, 4 were greater than 0.10 but less than 0.20 scale units, and 2 were between 0.30 and 0.40 scale units. There appear to be only small differences between the 2 samples in their expressions of the absolute importance of dimensions of hunting satisfaction presented in the surveys.

Hunter-subscribers within each of the 2 samples were in highest agreement on ratings of the nature dimension (VW s.d. = 0.40, CO s.d. = 0.25) and lowest in agreement on the outgroup verbal contact (VW s.d. = 1.05) and outgroup visual contact dimensions (VW s.d. = 1.09, CO s.d. = 1.03). More than 50% of the individuals in both samples thought the dimensions of nature, escapism, companionship, shooting, skill, vicariousness, harvest, and equipment moderately or highly added to hunting satisfaction (Table 2). The trophy-display dimension neither added to nor detracted from hunting satisfaction for 41% and 44% of VW and CO hunter-subscribers, respectively. More persons in both groups considered outgroup visual contact to detract from hunting satisfaction than to add to hunting satisfaction. However, it is significant to note that approximately 9% of VW hunter-subscribers and 18% of CO hunter-subscribers considered outgroup visual contact to be a positive asset to the hunting experience (Table 2).

Table 3. Comparison of responses of VW and CO hunter-subscribers on each of 11 dimensions of hunting satisfaction.

Dimension	Colorado			Virginia			t-statistic	P
	Mean	S.D.	N <sup>b</sup>	Mean	S.D.	N <sup>c</sup>		
Nature	4.93	0.25	701	4.86	0.40	994	4.093	0.001
Escapism	4.52	0.67	692	4.41	0.70	981	3.217	0.01
Skill	4.38	0.72	690	4.37	0.72	972	0.279	0.5
Companionship	4.03	0.93	692	4.06	0.95	969	0.640	0.5
Shooting	3.96	0.77	688	4.11	0.78	964	3.861	0.001
Harvest	3.86	0.81	692	3.67	0.85	957	4.579	0.001
Vicariousness	3.70	0.84	682	3.76	0.83	934	1.431	0.1-0.2
Equipment	3.67	0.90	689	3.78	0.86	948	2.508	0.01-0.02
Trophy-display	3.36	0.92	681	3.40	0.93	948	0.857	0.2-0.4
Outgroup-verbal contact	2.70	1.05	682	3.02	1.09	951	5.946	0.001
Outgroup-visual contact	2.20	1.03	681	2.56	1.09	949	6.366	0.001

<sup>a</sup>Standard deviation of responses.

<sup>b</sup>Sample sizes vary slightly because of missing responses for some dimensions by 1 or more respondents.

<sup>c</sup>Two-tailed test.

The greatest discrepancy in ratings between the 2 groups occurred on the outgroup verbal contact dimension. Thirty-three percent of the CO sample and 23% of the VW sample expressed the belief that outgroup verbal contact added to the hunting experience. An unexpected finding was the difference between ratings on the outgroup-verbal and outgroup-visual dimensions. The verbal contact dimension had a considerably higher mean rating for both samples and approximately 1.5 times more hunters in both samples considered visual contact to detract when compared with verbal contact. A possible explanation for the greater detractiveness of visual contact is that, while verbal and visual contact may not differ in dissatisfactions produced, most encounters while hunting are predominantly visual rather than verbal. Verbal contact may occur primarily around the camping area and while traveling to and from hunting locations. Hunters may be less sensitive to contacts that occur during "non-hunting" hours.

Table 4 presents a comparison of the rank order of the mean of responses for dimensions of hunting satisfaction for the 2 samples. The rank order of means is very similar for the 2 samples (Spearman's rho=0.95, P<0.001). The rank of means is identical except for a switching of rank on the companionship and shooting, and harvest and equipment dimensions.

Harvesting or "game bagged" has traditionally been considered a very important dimension, if not *the* most important dimension, of hunting satisfaction by game managers (Potter et al. 1973, Hendee 1974). Counter to this intuition or belief, the mean of responses on the harvest dimension ranked sixth and eight for CO and VW hunter-subscribers, respectively. Potter et al. (1973) reported that harvest ranked eight on 11 dimensions of hunting satisfaction in their study of Washington hunters. Various studies have presented conflicting findings concerning the absolute or relative importance of harvest ("trophy-hunting," "getting meat," "bagging an animal," "getting my limit"). Plausible explanation may involve 1 or more of the following conditions or combination of conditions: 1) population of hunters studied, 2) exact phrasing of questionnaire or interview item, 3) self-administered mail questionnaires versus personal interviews (cf. Sudman and Bradburn 1974), 4) location of the questionnaire item or orally-presented

Table 4. Comparison of rank order of response means for dimensions of hunting satisfaction.

<i>Dimension</i>	<i>Rank of mean response for Colorado hunters</i>	<i>Rank of mean response for Virginia hunters</i>
Nature	1	1
Escapism	2	2
Skill	3	3
Companionship	4	5
Shooting	5	4
Harvest	6	8
Vicariousness	7	7
Equipment	8	6
Trophy-display	9	9
Outgroup-verbal contact	10	10
Outgroup-visual contact	11	11

<sup>a</sup>Ranks of 1 to 11 represent largest to smallest means.

question in the questionnaire or interview schedule, 5) chronological period during which the survey is taken (e.g. spring versus fall, before the hunt versus after the hunt), 6) representativeness of the sample, and 7) potential factors affecting the social desirability of responding positively to an “importance of harvest” question. The last factor may be particularly important in affecting response to a “harvest” question (cf. Edwards 1957). It may be socially undesirable under certain conditions to report to a scientist that harvest and shooting are very important (if they are) to hunting satisfaction (i.e., perception of “protecting” the image of the sporting fraternity). It may be possible to design quasi-experimental field studies to provide an additional measure of the relative or absolute importance of components of a harvest dimension of hunting satisfaction.

An important limitation of the 2 hunting satisfaction surveys should be mentioned. The single-item-based dimensions of hunting satisfaction in the VW and CO surveys were not desirable from the standpoint of specificity, differentiation, and reliability but were necessitated by magazine space and other limitations. Specificity refers to delineating and obtaining measures on all relevant aspects of a concept. For example, 10 or more aspects or elements of the “nature” dimension could be defined and measurements made on items indicative of each aspect. Differentiation refers to the degree to which responses (or respondents) can be separated on a unidimensional or multidimensional continuum. A 5-point scale allows differentiation of respondents into 5 categories. Ten 9-point scales depicting different aspects of a “nature” dimension allows for a maximum of 81 categorizations (i.e., total dimension scores of 10 to 90). Single-item scales require a stability or equivalency reliability approach while multiple-item scales allow computation of an internal consistency estimate of reliability.

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