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## RELATIONSHIPS BETWEEN HUNTING SUCCESS AND SATISFACTION<sup>1</sup>

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### INTRODUCTION

In the United States game management objectives traditionally have focused on the maximization of game numbers using such programs as transplanting and habitat improvement (ORRRC 1962). This was a logical orientation, based on the assumption that success (game bagged) was the principal source of hunter satisfaction. The concept that sport hunting provides a wide range of human satisfactions and benefits that are independent of or only indirectly linked to success have received only limited attention (Crissey 1971).

Certain trends indicate the traditional "game bagged" concept of hunting satisfaction will become more difficult to fulfill. Generally, it appears we can expect to see increased hunting pressures on game species and reduced habitat, so as a result, success ratios should decline. In light of these forces, our traditional beliefs about the relationship between hunting success and satisfaction need to be re-examined.

We need to develop more adequate concepts as to what constitutes quality hunting (Ream 1972) and how variations in quality affect the character of satisfactions derived by hunters. As Wagar (1966) points out, quality is a human concept, dependent upon the fulfillment of needs. Thus, in attempting to describe hunting quality, we are trying to characterize those aspects of hunting that fulfill certain needs and motivations. Quality definitions are certainly varied and dynamic (Mohler 1972). However, if we carefully articulate those elements that constitute quality in sport hunting, we can better prescribe management objectives that will insure satisfaction.

The number of animals harvested has been a traditional measure of management success. However, under increasing use pressure, a "days afield" model of hunting satisfaction has gained support (Crissey 1971). Under this concept, an increased number of hunted in the field is seen as producing an increased amount of satisfaction. There is an implicit assumption of a constant quality per unit undergirding this concept, raising the possibility that management.

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might tend to emphasize programs that maximize participation at the expense of programs providing diversity in the quality of experience (Webb 1968).

We know little about what hunters seek, apart from some intuitive and untested notions. We know even less about how satisfaction is linked to "game in the bag." Some studies have reported on hunter estimations of satisfaction (e.g., Nobe and Gilbert 1970; Garrett 1970; Kirkpatrick 1965), but in most of these satisfaction has been examined only in relation to game or hunting conditions as is pointed out by Hendee and Potter (1971). Other values, such as health, esthetics, challenge, or so forth, have been investigated only in a few studies.

#### **RESEARCH ISSUES**

Two contrasting hypotheses regarding the role of success can be defined. In the first, success is the dominant source of satisfaction. The seeming paradox of declining success ratios and growing numbers of hunters is resolved by arguing that success ratios have not yet dropped to some unspecified threshold where hunters stop hunting. In an alternative hypothesis, success is only one of a multiple set of satisfactions derived from hunting (Potter, Hendee, and Clark 1973).

Within the framework of those alternative hypotheses, we set up a study in which we sought answers to the following questions. (1) What role does success, defined as the taking of an animal, play in definitions of hunting quality? (2) How does the relative significance of success vary between successful and unsuccessful big game hunters and between different types of successful hunters? (3) How does success, or the lack of it, affect the choice of a future hunting location?

#### **STUDY METHODS**

Names and addresses for more than 1,000 hunters were obtained at field check stations on four major access roads to the Sapphire Mountains, south of Missoula, Montana, during the fall hunting season in 1971. From these, a systematic sample of 540 hunters was mailed a 6-page questionnaire. After using one follow-up reminder, 418 useable responses were obtained (77 percent response).

Hunting success for both deer and elk in the Sapphire area had varied considerably in the past. In a 14-year period (1958-1971), an annual average of 750 deer hunters took 359 animals (a success ratio of 48 percent). However, success ratios ranged from 85 percent to 19 percent; in the last three years, they averaged only 31 percent. Elk hunting has shown a similar pattern. Over the 14 years, an annual average of 788 hunters took 175 animals a year (a 22 percent success

ratio). In the last three years, the success ratio declined to an average of only 11 percent. The recent declines in these success ratios appear related to an increase in the number of hunters rather than a decline in herd numbers.<sup>2</sup>

In an open-ended question, hunters were asked "In your own words, what does 'quality big game hunting' mean to you?" Up to three responses per individual were tabulated and grouped into the following intuitively similar categories:

1. *Success-dependent*. Responses included such statements as "meat for the freezer," "getting a trophy buck," and "getting an animal."
2. *Game-dependent*. Responses were distinguished from success-dependent responses by lack of specific reference to success, such as "chance to see game," "game sign," and the presence of a "well-managed game population."
3. *General outdoor enjoyment*. Responses suggested respite from normal day-to-day affairs, such as "exercise," "getting away from it all" and "a chance to see wildlife, not necessarily game species."
4. *Environmental amenities*. Responses were primarily related to physical characteristics of the area such as "natural," "unmodified," and "lack of human developments."
5. *Non-mechanized access*. Responses related to the access to the hunting area, such as "no roads" and "foot travel only."

As shown in Table 1, over two-thirds of 402 hunters gave reasons related either to the *success- or game-dependant* categories or to both. Such reasons are closely related, therefore, responses assigned to the *game-dependent* category might have simply reflected different expressions of success. When viewed together, the frequency of these responses provides some insight on the shortcoming of "days afield" as a measure of hunting satisfaction. Obviously, taking or seeing an animal is clearly a dominating focus in hunter definitions of quality and continued dilution of the probability of success will lead to a decline in satisfaction levels.

However, the hunter's definitions of quality definitely indicate that aspects other than game are important. Responses that were assigned to the combined *general outdoor enjoyment* and *environmental amenities* categories were cited by about one-third of the hunters; thus, for a significant minority of hunters, quality hunting suggests the opportunity for escape from the turmoil of everyday life. Furthermore, the character of the hunting landscape is an important component of such quality. Although hunters might believe there is some relationship

<sup>2</sup>Derived from unpublished figures by the Montana State Fish and Game Department.

between environmental quality and the probability of hunting success, this dimension of hunting quality appears conceptually independent of success. Furthermore, the successful and unsuccessful hunters responded in much the same ways (chi-square was only 1.39 with 2 degrees of freedom, insignificant at the 0.95 level). This appeal of the natural environment for hunters was documented by More (1970).

In the nonmechanized access category, there was considerable range in terms of the number of hunters citing reasons related to it. Only about one in ten of the unsuccessful hunters mentioned such reasons as compared to one out of four of the successful elk hunters. Forty-four percent of the unsuccessful hunters "road hunted" most or all of the time as compared to one-fourth of the successful hunters. Eighty-three percent of the successful elk hunters indicated they either never or only occasionally "road hunted."

Two conclusions can be drawn from these data. (1) Success represents a major component of quality; thus, when designing programs to provide satisfactory hunting experiences, we need to insure hunters some reasonable expectation of success. Management

TABLE 1. PERCENTAGE VARIATIONS IN DEFINITION OF HUNTING QUALITY

Item	No. hunters	Success-dependent	Game dependent	General outdoor enjoyment	Environmental amenities	Non-mechanical access
Unsuccessful	305	29	65	14	21	11
Successful deer	68	29	62	12	26	16
Successful elk	29	48	66	21	21	24
Average		30	64	14	21	13

Chi-square = 5.86, 3 d.f., insignificant at .95 level.

<sup>1</sup>Up to three answers were coded for each respondent; therefore, row totals exceed 100 percent.

programs that emphasize other returns (e.g., man-days of recreation) at the expense of insuring some minimum probability of success, should be discouraged. (2) The definitions of hunting quality (Table 1) showed no statistically significant differences either between successful and unsuccessful hunters or between successful deer and successful elk hunters. The appeals of quality big game hunting appear to have a broad, generic base that is independent of the individual's particular record of success, at least in the short run.

#### AREA QUALITY, SUCCESS, AND FUTURE HUNTING BEHAVIOR

Sixty-five percent of the hunters surveyed had previously hunted in the Sapphires. This prior experience was positively associated with success; 31 percent of the returning hunters were successful in 1971

as compared to 18 percent of the newcomers (This difference is significant at the 0.95 level).

A majority of the respondents perceived that the quality of hunting was declining in the Sapphire Mountains; 62 percent of the unsuccessful hunters and 51 percent of the successful hunters. However, the reasons cited for this decline varied. Forty-eight percent of the unsuccessful hunters and 42 percent of the successful deer hunters as compared to 18 percent of the successful elk hunters attributed the decline to dwindling game populations. On the other hand, increasing numbers of hunters was cited by 19 percent of the unsuccessful hunters as compared to 32 and 36 percent of the successful deer and elk hunters, respectively. Similarly, only 13 percent of the unsuccessful hunters mentioned excessive road development as the problem as compared to the 23 and 36 percent of the successful deer and elk hunters. Thus, while unsuccessful hunters placed predominant emphasis on "fewer animals" as a reason for declining quality, successful hunters-especially elk hunters-tended to perceive a variety of influences not only related to game numbers, but also to hunting pressure and road development. Unsuccessful hunters appear to view success as primarily a matter of supplying adequate game numbers, irrespective of hunting pressure, access, and habitat condition. Successful hunters seem to more fully recognize the interrelationships between these variables.

One manifestation of hunting satisfaction is an expression of intent to hunt the same area in the future.<sup>3</sup> About 60 percent of the unsuccessful hunters indicated they either "weren't sure" or definitely would not hunt the Sapphires the following year. One-third of the successful hunters did not plan to return to the Sapphires; this suggests that success is not the only factor determining satisfaction.

Those hunters indicating they would hunt elsewhere were asked to specify why they did not plan to hunt the Sapphires again as well as what characteristics of another location were perceived as making it a desirable alternative. Forty-five percent of the unsuccessful hunters cited the lack of adequate game numbers and poor hunting as reasons for leaving the Sapphires. No discernible pattern could be detected for successful hunters.

Preference for the character of access in alternative hunting locations was a distinguishing characteristic between successful and unsuccessful hunters. Only 11 percent of the unsuccessful hunters indicated "fewer roads" and "less accessible" as reasons for choosing

<sup>3</sup> We recognize many hunters derive considerable satisfaction from a "searching" or "exploratory" kind of behavior that permits them to see new country each season. However, the decision to hunt in a different area in the future is one possible expression of hunter dissatisfaction.

another location, but 40 percent of the successful hunters noted these characteristics. Thus, excessive road development and attendant problems of easy access (increased hunting pressure, road noise, harassment of animals) appear to be important criteria against which successful hunters judge desirable hunting area.

#### CONCLUSIONS

Success, defined as the taking of an animal, constitutes a significant component of a satisfactory hunting experience, at least within the particular big game hunting group surveyed. As success ratios decline, those satisfactions dependent on a successful hunt will diminish. Although the significance of other satisfactions might be tightened in the face of reduced probabilities of success, there is probably a threshold to the extent to which these satisfactions play a supplementary role.

Success-dependent satisfactions are probably largely nonsubstitutable. Consequently, management programs that insure some minimum probability of success should have high priority and should not be sacrificed at the expense of programs that provide satisfactions that can be obtained in other settings. The continued reliance on "days afield" as a measure of output without a subsequent effort to maintain reasonable expectations of success will lead to a decline in those satisfactions uniquely associated with hunting.

Although hunting is a necessary variable in determining satisfaction, success alone is not sufficient. Success might be more accurately characterized as serving a "catalytic" function in that its presence or absence might influence both the type of additional satisfaction experienced by the hunter and their relative importance to him. In other words, satisfactions other than success-dependent might become especially significant as the hunter becomes satiated in his primary goal: getting an animal (Potter, Hendee, and Clark 1973).

Many, hunters, both successful and unsuccessful, reported they would seek an alternative location to hunt the following season. Improved opportunities for success was a major reason cited by the unsuccessful hunters. However, it was not the only one, and for successful hunters, did not account for a majority of the reasons given. Success is only one outcome to which hunters aspire; satisfactions derived from esthetic enjoyment, solitude, sociability, challenge, and other aspects of the experience represent significant, and perhaps at times, superior returns to the individual. Thus, management strategies should emphasize a variety of settings that yield a mix of returns to the hunter. The general pattern of behavior for hunters seems to be

one that attempts to provide the individual with a broad set of satisfactory outcomes rather than one that simply tries to maximize one outcome, namely success. This type of behavior-striving only for "satisfactory" outcomes or in other words aiming for "good enough" instead of maximizing- has been termed a "satisficing" theory of human behavior by Simon (1957).

This behavior has important implications for game managers. To provide the wide mix of satisfactions hunters attribute to quality hunting, diverse management programs will be needed. Alterations in land management practices, variations in seasons, and the control of hunter numbers are examples of ways in which diversity can be achieved. For example, although some minimum level of access is necessary to permit sufficient harvest of game herds, we suspect that it has been reached already in most places. "Excess access" is probably leading to changes in traditional styles of hunting while opportunities to hunt elsewhere in these more traditional styles are dwindling. Closure of temporary logging roads, for example, might not only provide relief for animals harassed by continuous traffic but would also provide many hunters with an opportunity to derive satisfactions difficult to achieve in an area laced with roads (e.g., a quiet vigil at the head of a draw, etc.).

Hunters indicated that clearcut areas were not attractive hunting locations. While the "edge effect" and increased browse production in clearcuts can yield benefits to game, the kind of clearcuts common now have little appeal for hunters. However, small clearcuts interspersed with areas either uncut or selectively cut could provide not only desirable habitat for game, but a pleasing and interesting hunting landscape.

Wildlife managers will always be concerned with the production of wildlife populations, and rightfully so. However, the ultimate objective of resource management is the provision of human benefits. As we have discussed here, the ability to produce wildlife populations for harvest in sport hunting yields important human satisfactions that are dependent in varying degrees upon these populations. Understanding the nature of this dependence provides criteria by which issues of wildlife population production, habitat improvement and rationing might be resolved.

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242 THIRTY-EIGHTH NORTH AMERICAN WILDLIFE CONFERENCE

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