

PERCEPTION AND USE OF WILDLIFE BY NORTH CENTRAL FLORIDA PEOPLE*

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Abstract: Results of over 250 interviews and 600 mail questionnaires indicate that over 40% of north central Florida adults are hunters. This is a significantly larger proportion than buy licenses. There were no significant socioeconomic or demographic differences between hunters, nonhunters and antihunters except that males dominated the hunter group. Hunters appear to be more knowledgeable about wildlife than either the non-hunters or antihunters. Over one-half of present antihunters hunted in the past. Motivations for hunting are varied but simple enjoyment of the out-of-doors seems to be of primary importance while attaining a bag limit ranks very low. Quail (*Colinus virginianus*) and dove (*Zenaidura macroura*) were hunted more than any other species and were also listed as the primary game species sought by most hunters.

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Natural resource research from a biological perspective is common and the results of this research have aided in the development of scientific resource management. But an important function of natural resource planning and management is the adaptation of management policy to changes in resource demand as well as changes in the resource itself (Shaw 1974). Wildlife managers must, in large part, serve the public interest. To do this adequately, they must seek out and attempt to understand where public interest lies and how it is changing. Traditionally, wildlife management has been based upon an assumption that wildlife provides direct benefits to people and that this benefit is directly related to wildlife abundance (Leopold 1929, 1930; Allen 1972). Management has, therefore, been almost entirely biologically oriented (Hendee 1974). Times and conditions have changed. Benefit to people is still the basic aim of wildlife management but the kinds of benefits can no longer be presumed (Hendee 1972). To understand how or why policy should be changed, wildlife administrators are increasingly forced to look beyond the wildlife resource itself and focus on human factors since these are what ultimately determine the demands for various types of use and management policy.

In the majority of cases, wildlife user appraisals survey only hunters and fishermen. These surveys have established such characteristics as activity levels, motivations, socioeconomic status and factors such as species hunted and hunter success ratios (Peterle 1967, Lobdell et al. 1969, Garrett 1970, Klessig and Hale 1972). A recent shift toward identification of attitudes and motivations of all user groups indicates that people who hunt and fish do so for a wide variety of reasons but that killing is not of primary importance (Bevens et al. 1968, Applegate 1973, Knopf et al. 1973, Schole et al. 1973, Kennedy 1974). Enjoyment of nature, the stalking of game, solitude and just having a good time are all highly ranked motivations. But socio-demographic or descriptive information of this nature doesn't say anything about the relationship of hunters to the nonhunting population which should be a topic of major concern to responsible state agencies for several reasons.

Attitudes toward wildlife are continually evolving with 2 major developments occurring in recent years. First is an increasing concern for nonconsumptive wildlife appreciation. For example, the 1970 National Survey of Hunting and Fishing (U.S.D.I. 1970) cites 786 million recreation days of use for bird watching, wildlife photography and nature walks and 203 million days for hunting. The second is a growing criticism of traditional consumptive or hunting uses (Shaw 1974).

The proportion of Americans who are licensed hunters has remained at 7 to 8 percent for the last 15 years but a decrease is predicted as the United States population

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becomes increasingly urbanized (Hendee and Potter 1975, Bond and Whittaker 1971, Shaw 1974). There is evidence that a rural childhood and youth are important in formulating a commitment to hunting and fishing in adult life (Bevens et al. 1968).

Because of the above considerations, we initiated a project to monitor the abundance of hunters, nonhunters and antihunters in north central Florida and their relationships to each other and to the wildlife resource. The study combined the use of mail questionnaires and in-depth interviews. It was financially supported by the Florida Game and Freshwater Fish Commission and the Florida Agricultural Experiment Stations.

MATERIALS AND METHODS

The study area consisted of 11 counties designated as north central Florida by the regional planning councils. This area contains a broad demographic range (from extremely rural to urban), a continuum of hunter types from squirrel (*Sciurus spp.*) hunters to highly socialized fox (*Vulpes* and *Urocyon*) hunters, and a substantial non-hunting population. The population sampled was North Central Florida residents over 18 years of age.

The study was executed in 4 phases. Phase 1 consisted of 105 unstructured interviews to provide background information and familiarity with the study area in order to formulate a relevant and valid mail questionnaire. Eight to 10 interviews in each county were conducted with residents in settings ranging from back porches and river banks to small businesses and covered topics such as wildlife, hunting and socioeconomic factors.

Phase 2 involved constructing and pretesting a mail questionnaire in order to validate the questions. A random sample of 200 names was generated from the tax and voter registration rolls of 2 rural (Dixie and Gilchrist) and 2 urban counties (Bradford and Alachua). A proportionate stratified random sampling procedure was used to generate 2 samples in each county, 1 from the tax rolls and 1 from voter registrations. These 2 samples were combined for each county and a final sample was randomly selected. The percent sample taken from each county was the same as that county's percentage of the regional population. Subjects were mailed a questionnaire with an introductory letter and a stamped return-addressed envelope. After 3 weeks, nonrespondents were sent a reminder. The return rate was 62 percent (124). These questionnaires were analyzed for content and clarity and a final questionnaire was then designed.

In phase 3, 2,300 revised questionnaires were mailed with an introductory letter and a self-addressed envelope to a new sample of north central Florida residents (all 11 counties) also selected by the proportionate stratified sampling procedure discussed above. A reminder was mailed 4 weeks later. The return rate was 26 percent (601) with 24 percent (59) usable for analysis. The returns were checked for representation from each county and county subdivision. Although the return rate was low, each county and subdivision was proportionally represented. Also, the socio-demographic character of the respondent population did not differ significantly from the character of the total regional population as characterized by 1970 U.S. Census statistics. It should be noted that this method does not sample the characteristics of nonrespondents and therefore, the possibility of nonrespondent bias exists. On the other hand, it is superior to surveys of hunters or fishermen usually drawn from license sales records, which do not consider people who view themselves as hunters although they may not have bought a licence in the year of the survey.

Phase 4 consisted of 150 structured in-depth interviews along the lines of the mail questionnaire. Area sampling was used to select interviewees in each of the 11 counties. In order to correlate interviews and questionnaire responses, each interviewee was subsequently sent a questionnaire and asked to complete it. Eighty-three percent (124) of the people interviewed returned the questionnaire.

The questionnaire, in general, required simple responses. Two specialized approaches require brief explanation here. Likert scales were used to quantify motivations for hunting. Likert scales present a problem or activity, such as hunting, and then a list of reasons or motivations. Respondents are asked to rank these reasons based on their importance to the respondent's attitude toward the problem. Responses are given numerical values. In this case, responses of "very important" were given 5 points and a response of "not very important" was credited with a 1. A weighted score for each particular response was then derived. For example, if 100 people thought a reason was very important, then $100 \times 5 = 500$. On the other hand, if 500 people thought a reason was not very important, then $500 \times 1 = 500$.

To analyze overall knowledge levels of the various groups we created a synthetic variable ("knowledge level") by grading responses to 5 straightforward questions such as, "Is the black bear a game species in your county?" Respondents received points for correct answers and in the case of a question on endangered species, points were subtracted for incorrect answers. The points were then summed and each respondent was given a score. The scores were subsequently classed as low, medium or high.

RESULTS AND DISCUSSION

A large proportion of the population, 41 percent, consider themselves to be hunters while 42 percent consider themselves to be nonhunters and 15 percent antihunters. Twenty-seven percent of the nonhunting segment of the population consider themselves to be antihunters (Fig. 1).

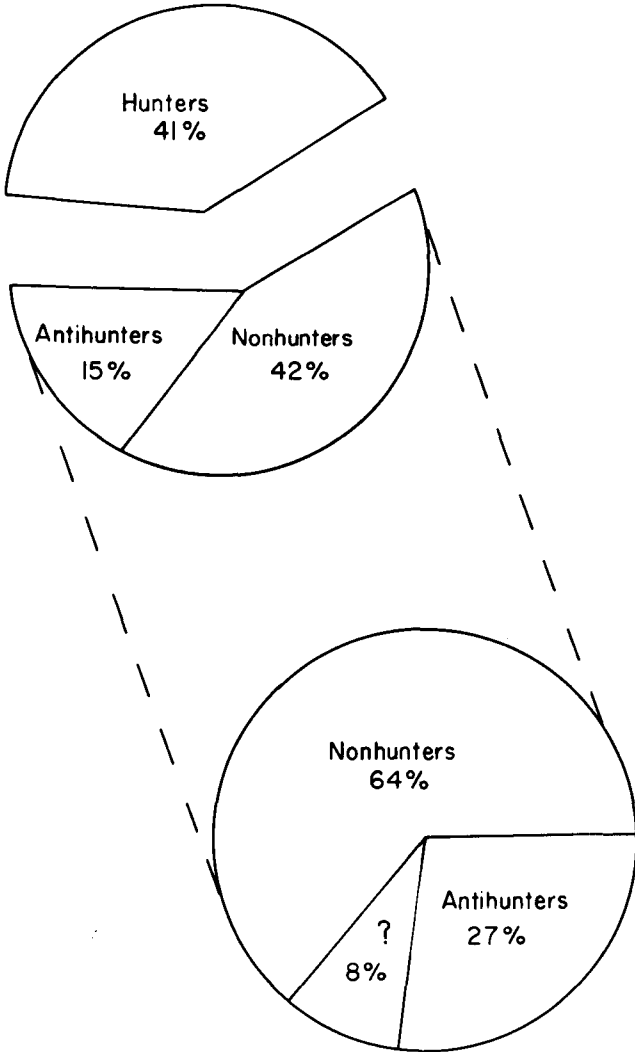


Fig. 1. Proportion of wildlife user groups in the population of north central Florida. The high proportion of hunters indicates self-avowed hunters rather than license buyers.

Hunting is also shown to be important when compared to other outdoor activities in which respondents participate (Fig. 2). Although both hunting and fishing rank high as primary outdoor activities, hunting ranks 1.3 times as high as fishing. This does not mean that more people hunt than fish. Actually, 70 percent of the population fished while only 41 percent hunted (Fig. 2 inset), but when responses were ranked by importance more people ranked hunting as a primary activity than fishing.

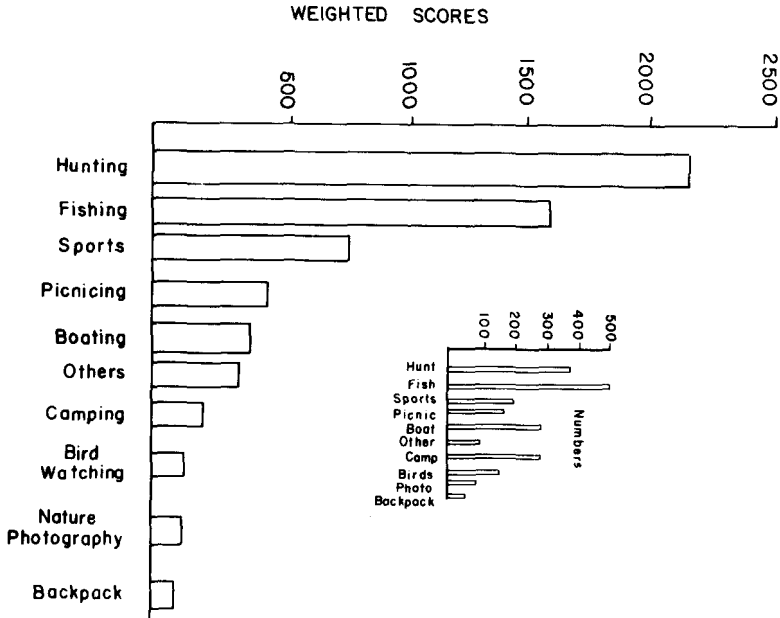


Fig. 2. Relative importance of primary outdoor recreational activities to residents of north central Florida. Each respondent rated the outdoor activities participated in on a 9 to 1 basis. Example: If 222 people rated hunting as a primary activity $9 \times 222 = 2043$: the weighted score for hunting.

The proportion of self-avowed hunters in the population is high when compared with other published data (U.S. Department of the Interior 1970, Horvath 1974) and is significantly greater ($P < 0.005$) than the number of hunting licenses sold (Table 1).

Table 1. Comparative proportions of county residents who assert that they are hunters versus the number who actually buy licenses.

County	License Buyers (Including Hunters Over 65 Yrs. Old)	License Buyers	Self-Avowed Hunters
Alachua	.07	.05	.43
Bradford	.09	.07	.38
Columbia	.12	.09	.61
Dixie	.27	.24	.57
Gilchrist	.24	.19	.75
Hamilton	.12	.07	.59
Lafayette	.23	.22	.85
Madison	.13	.08	.42
Suwannee	.18	.14	.66
Taylor	.23	.20	.67
Union	.13	.07	.54

Several factors need to be considered in this regard. North central Florida is very rural with 5 of the 11 counties having no urban population at all (an urban community is defined as having > 2,500 residents, U.S. Census Bureau 1970). Furthermore, in addition to license buyers this group of hunters includes the people who hold a "hunting attitude" or believe hunting to be a worthwhile activity. There is a difference. A person can consider himself a hunter even if he hasn't hunted in several years. These people still identify with the hunting ethic and will support the value of hunting in our society where this value is increasingly questioned.

Based upon this and related work we conclude that only about 60 percent of the self identified hunters buy licenses. The remaining 40 percent seem to fall into 4 groups. The first of these consists of disabled veterans, military personnel and citizens over 65 years of age. All of these are excused from buying a license by Florida law. The second group consists of recent and probably future license buyers who didn't buy a license (and probably didn't hunt) this particular year. This group also includes recent immigrants and people moving or on extended vacations out of state etc. The third group consists of people who hold a hunting attitude, may hunt occasionally, or are simply supporters of hunting. The fourth group of hunters who don't buy licenses are out and out law breakers. The number of people who bragged about hunting outside the law was surprising to us.

Who are north central Florida hunters and what are they like? Ten of the survey questions dealt with demographic and socio-economic attributes. We found no significant difference between the composite type description of hunters, nonhunters and anti-hunters. Similarly, there was no significant difference between groups when these various attributes (age, education, place of birth, etc.) were analyzed with the exception of gender; as expected, a significantly greater ($P < .005$) proportion of hunters were males.

Forty-one percent of hunters began hunting between ages 1-10 while another 46 percent started between ages 11-18. Such a high proportion beginning to hunt at an early age is significant because of the implications regarding the continued commitment to hunting.

North central Florida hunters obviously pursue some game species more than others. Quail and mourning dove are hunted by 62 percent of the hunters, 56 percent hunt squirrel and rabbit (*Sylvilagus spp.*), 29 percent hunt deer (*Odocoileus virginianus*), 24 percent hunt waterfowl, 10 percent hunt turkey (*Meleagris gallapavo*), and the remaining small percentage hunt raccoon (*Procyon lotor*), armadillo (*Dasybus novemcinctus*), gray fox (*Urocyon cinereoargenteus*), and wild hog (*Sus scrofa*). When hunters were asked what they primarily hunted, 44 percent said dove and quail, 29 percent white-tailed deer, 6 percent waterfowl and turkey and the remainder primarily hunt squirrel, hog and fox.

Motivations behind using the wildlife resource vary widely. When a Likert scale was applied to hunting motivations, the results supported a multiple satisfaction model wherein the hunting experience is a combination of many factors. People have multiple expectations of their experience and thus will or will not derive multiple satisfactions. When considering the motivations for hunting, enjoying nature ranks first followed by "the sport," search of peace and quiet, friendship, escapism, manifestation of skill and finally, achieving the bag limit (Fig. 3). Although the presence of game is obviously important to make the whole experience worthwhile, high populations and bag limits may not be as important as we commonly believe.

When the wildlife knowledge level of the north central Florida population was assessed, it was discovered to be surprisingly low with scores falling in a range from -3 to 12 (13 was the maximum possible). Fifty-five percent had scores that fell in the low category while only 4 percent had scores in the high range (9 points to 13 points) and 41 percent fell in the medium range (3 points to 8 points). There is a highly significant chi square contingency ($P < 0.005$) between knowledge level and participation in hunting activities. Whereas 5 percent of hunters had scores in the high range, only 1 percent of nonhunters and 3 percent of antihunters had scores in this range.

Conversely, 69 percent of antihunters and 65 percent of nonhunters fell in the low knowledge level group while only 46 percent of hunters fell in this group (Fig 4). It is important to stress that the 5 questions graded were not biased toward hunting and yet hunters seemed to possess greater knowledge levels about wildlife in general than non-hunters or antihunters. Yet the overall knowledge levels demonstrated is disappointing. These low knowledge levels are not only of importance to wildlife managers but everyone associated with the conservation movement. Florida voters are extremely concerned about environmental problems (Schneider and Roberts 1974) but with such apparently limited knowledge from which to vote and make decisions, wildlife problems surely become more

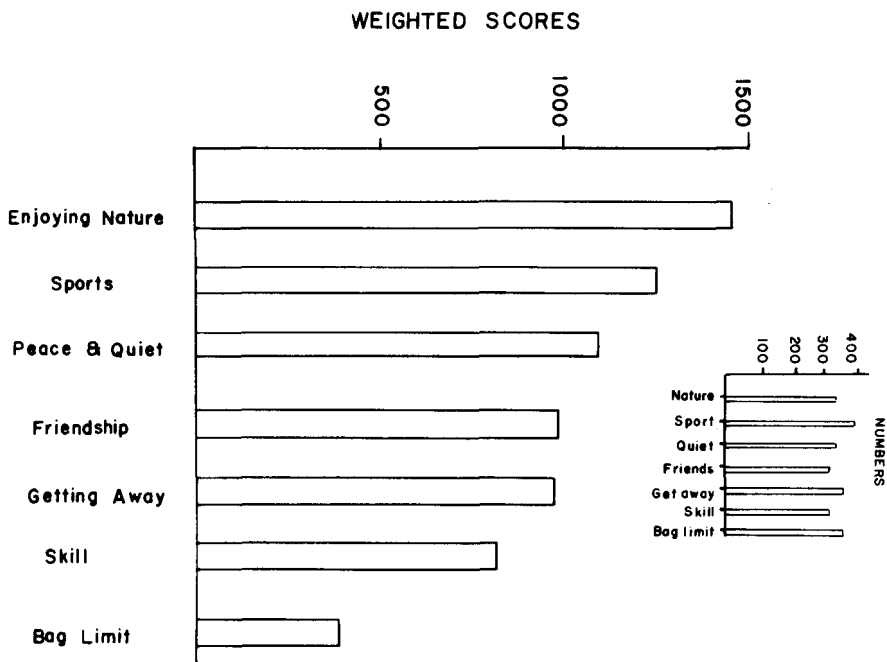


Fig. 3. Multiple satisfaction model of hunter motivations in north central Florida based on Likert scale scores.

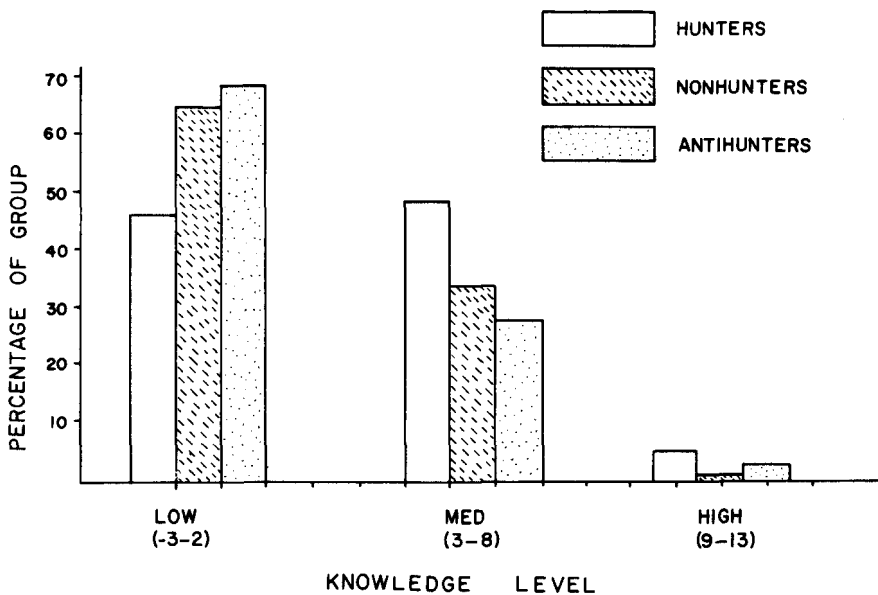


Fig. 4. Percentages of hunters, nonhunters and antihunters ranking in three knowledge level classes. A lower percentage of hunters ranked in the low knowledge level class while a higher percentage of them ranked in the high knowledge level class.

political than rational. Because of the increasing predominance of nonhunters and antihunters, wildlife professionals must communicate with the entire voting public rather than just hunters and fishermen.

Hunters and wildlife professionals frequently assert that antihunters are not in a position to criticize hunters because they themselves have never hunted. This is not a legitimate argument in all cases. Over half (57%) of the self-avowed antihunters responding to our survey indicated that they had hunted previously. We did not pursue the questions of how much or for how long. Moreover, the question of why they abandoned hunting and became antihunters remains unanswered although the importance of this information for the wildlife profession is fairly obvious.

Actually, antihunters can be subdivided into a more benign group who reject hunting themselves but are not against it for others and a more active group who would like to see hunting abolished. A wildlife user model shows that hunters, nonhunters and antihunters fall along a continuum of wildlife user types (Fig. 5). Hunters as well as

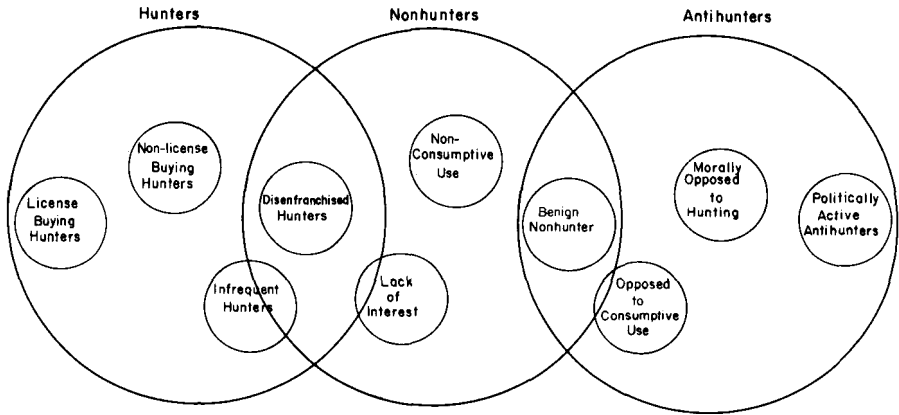


Fig. 5. Model of degrees of wildlife user types. A continuum of personal attitudes along which people with feelings about wildlife are positioned.

antihunters should be viewed in terms of their intensity of participation and their motivations rather than as homogeneous user groups.

CONCLUSION

In conclusion, then, wildlife managers appear to have 2 roles—1) resource protection, and 2) distribution of a product to a very diverse set of user groups. The product is an experience which can have many dimensions depending upon who the users are and what their expectations are. The information presented here reveals the diversity of this “clientele.” Much more in-depth analysis will be necessary before we fully understand our position relative to the overall public. Just as our clientele is not homogeneous neither is it static. It is continually changing and we must understand and change accordingly. From a purely economic standpoint it behooves us to pursue the disparity between “hunters” and license buyers. If it is true that only 6 of 10 hunters buy a license the implications for direct revenue and P-R rebates are considerable.

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