CHARACTERISTICS OF WILDLIFE LAW VIOLATORS IN MISSISSIPPI AND THEIR ATTITUDES TOWARD CONSERVATION OFFICERS

By

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With little research available addressing violator attitudes, two important research questions arise. First, does the type of violation (i.e., no hunter orange, trespassing, baiting, and hunting from a public road) committed affect violator attitudes? Second, does motivation for committing the violation influence violator attitudes? This study examined these questions by investigating violator attitudes toward Conservation Officers. I collected information from a sample of licensed violators in 2002 and 2003 using self-administered mail questionnaires. Most (90%) of the violators studied had been cited while hunting white-tailed deer. I did not detect any differences in attitudes toward Conservation Officers among the four violation types investigated. Reasons for violating also did not influence attitudes toward Conservation Officers. Thus, I conclude that Mississippi wildlife law violators can be treated as a homogenous group when looking at attitudes toward Conservation Officers.

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TABLE OF CONTENTS

CHAPTER Page

LIST OF TABLES

TABLE Page

CHAPTER I

INTRODUCTION

Hunting is an important component of the economy and heritage of the United States. In 2001, more than 13 million individuals participated in hunting and spent an estimated $21 billion pursuing their favorite game (USFWS, 2001). In Mississippi, nearly 357,000 hunters older than 16 years of age took to the forests and fields and spent more than $360 million on hunting equipment, and goods and services associated with their trips in 2000 (USFWS, 2001). From a cultural perspective, many hunters believe this activity is an integral part of their heritage and a traditional right; hunting gives these individuals a sense of belonging and identity and helps bring cohesiveness to many resource-based communities (Decker et al., 2001). Although the rate of participation in hunting has declined the number of hunters is expected to rise because of continued growth in the U.S. population (USFWS, 2001). Thus, with limited wildlife resources, steps must be taken to ensure sustainability of wildlife and habitat.

Conservation Officers are challenged with enforcing laws and regulations used to protect wildlife. With increased human population, increasing numbers of Conservation Officers will be needed to protect wildlife and habitat, on both public and private lands, through the enforcement of wildlife and environmental laws. Furthermore, because Conservation Officers are the most visible state agency personnel, it is important that they portray a positive image to the public (Duda et al, 1998). This image is especially

important because the public primarily interacts with Conservation Officers and has less involvement with other entities of the agency. Additionally, because agency administrators have limited opportunity to evaluate Conservation Officers' performance in the field, knowing public sentiment toward them is critical to determine strategies to further their professional development.

Despite the existence of formalized conservation law enforcement in the United States since the late 1800's, researchers have focused little attention on the characteristics of wildlife law violators and their attitudes toward wildlife laws and Conservation Officers; most previous research has primarily focused on lawful hunters. Knowledge of violator sentiment can help to identify possible needs for Conservation Officer professional development. Additionally, with most existing violator research being descriptive, or qualitative in nature and geared towards theory development, the question arises as to what is the best way to approach the quantitative study of wildlife law violators? Specifically, are they a homogenous group with respect to their attitudes, or does 1) the type of violation committed, or 2) their motivations for committing the violation influence their attitudes? This study examined those two questions as well as how wildlife law violators differed from lawful hunters in Mississippi with regard to their demographic characteristics and attitudes toward Conservation Officers.

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CHAPTER II

CHARACTERISTICS AND ATTITUDES OF LAWFUL HUNTERS AND VIOLATORS IN MISSISSIPPI

Introduction

Hunting is an important component of the economy and heritage of the United States. In 2001, more than 13 million individuals participated in hunting and spent an estimated $21 billion pursuing their favorite game animals (USFWS, 2001). In Mississippi, nearly 357,000 hunters >16 years of age spent more than $360 million on hunting equipment and goods and services associated with their hunting trips in 2000 (USFWS, 2001). Many hunters believe this activity is an integral part of their heritage and a traditional right; hunting gives these individuals a sense of belonging and identity and helps bring cohesiveness to many resource-based communities (Decker et al., 2001).

Although the rate of participation in hunting has declined, the number of hunters is expected to rise because of continued growth in the U.S. population (USFWS, 2001). Thus, with finite wildlife resources, additional steps must be taken to ensure sustainability of wildlife and habitat. Conservation Officers are charged with enforcing laws and regulations to protect wildlife. With increased human population, increasing numbers of Conservation Officers will be needed to protect wildlife and habitat on public and private lands. Furthermore, because Conservation Officers are the most visible state-agency personnel, it is important they portray a positive image to the public (Duda et al.,

1998). This image is especially important because the public primarily interacts with Conservation Officers and has less involvement with other entities of the agency. Additionally, because agency administrators have limited opportunity to evaluate Conservation Officers' performance in the field, knowing public sentiment toward them is critical to determine strategies to further their professional development.

While most hunters abide by regulations used to sustain wildlife populations, wildlife violations have been a persistent problem facing natural resources management, and the illegal taking of wildlife has been a major concern (Gray & Kaminski, 1994; Eliason, 1999). Each year, an estimated $200 million are collectively earned by poachers who illegally take wildlife (Musgrave et al., 1993). Many believe this is a gross underestimate of actual monies earned by poachers and the problem much more widespread (Muth, 1998). As wildlife habitat dwindles, becomes fragmented by urban sprawl, and as the human population increases, more restrictive regulations will be needed to further protect and sustain viable wildlife populations; thus, poaching and other violations may become more prevalent.

Previous research has examined characteristics, participation patterns, harvest, and behavioral aspects of hunters (Beattie, 1976; Heberlein, 1991; Applegate, 2002; Heberlein & Kuentzel, 2002; Miller, 2002; Miller & Vaske, 2003; Zinn, 2003). Nevertheless, most research has primarily addressed lawful hunters' demographic characteristics, hunting experience preferences, participation levels, and attitudes toward wildlife and wildlife management. Numerous studies have focused on wildlife law violators (Gray & Kaminski, 1994; Muth & Bowe, 1998; Eliason, 1999). However, these

studies concentrated on characteristics of violators, compliance with hunting regulations, and techniques to reduce number of violations that occur rather than focusing on attitudes of wildlife law violators. Furthermore, little research has been conducted on hunter attitudes toward conservation law enforcement (Beattie, 1981; Duda et al., 1998). Even less research (Melnyk, 1977) has considered attitudes of wildlife law violators toward Conservation Officers. Given the resources expended on conservation law enforcement, there is a paucity of research on characteristics and attitudes of violators. To predict or prevent future wildlife law violations, attitudes of violators and groups of violators must be better understood.

Attitudes of people toward authority have been an area of continual concern (Miller, 2001; Campbell, 2003). Past research has examined attitudes of individuals toward police and police-community relations (Decker, 1981; Peek et al., 1981; Parker et al., 1995), but little research has inspected attitudes of hunters toward Conservation Officers (Melnyk, 1977; Hill et al., 1978). Despite little knowledge of the characteristics of wildlife law violators and attitudes toward conservation officers, reasons why people violate norms and laws, including wildlife laws, has been covered substantially in the sociological literature (Muth & Bowe, 1998; Eliason, 1999; Eliason & Dodder, 1999). However, a better understanding of the characteristics and attitudes of violators toward Conservation Officers must be obtained before researchers can predict and understand what motivates behaviors of wildlife law violators.

Previous research has found that individuals engaging in illegal behavior harbor more negative attitudes toward police and Conservation Officers (Decker, 1981; Peek et

al., 1981; Parker et al., 1995). However, research also has found that other sources affect deviant behavior and attitudes toward enforcement. Previous studies have examined basic demographic characteristics and behavioral characteristics of criminals. Some of the predominant characteristics include gender, age, race, education, income, and occupation. Age and race have been found to be the best indicators of negative attitudes toward authority (Mylonas & Reckless, 1963; Black & Reiss, 1970; Sawhill & Winkel, 1974; Hadar & Snortum, 1975; Berman, 1976; Peek et al., 1981). Nevertheless, some controversy exists on how demographic characteristics interact with and influence individuals' attitudes (Peek et al., 1981). Among wildlife violators, Glover (1982) found that male, blue-collar workers between the ages of 21-25, with a high school education, and an income of $7,000 to $13,000 were most likely to commit crimes. Gray and Kaminski (1994) also found that waterfowl law violators in the Mississippi Flyway were younger and had less experience with hunting than lawful hunters, but discovered income and education did not reflect lawfulness. Their findings contradict results from Glovers' (1982) research and calls into question what variables need to be used to best portray wildlife law violators, thus providing a need to identify the best demographic predictors of wildlife law violators. Based on the review of the sociological literature, I would expect wildlife law violators to harbor more negative attitudes toward Conservation Officers than lawful hunters who haven't had a ticketed encounter with a Conservation Officer. Furthermore, I would expect violator groups to consist of younger, less educated, and lower income individuals than lawful hunters.

Other characteristics of violators that may influence attitudes toward Conservation Officer professionalism include experience committing crimes, prior arrest records, and encounters with officers (Shafer et al., 1972; Sawhill & Winkel, 1974; Glover, 1982; Forsyth, 1993). Previous research suggests that prior arrests and convictions influence attitudes toward police and authority (Mylonas & Reckless, 1963; Brown, 1970; Alpert & Hicks, 1977). Brown (1970) reported that repeat offenders harbored less favorable attitudes toward police and authority than did first-time offenders. Those with multiple arrests held a higher degree of negative perceptions toward police (Mylonas & Reckless, 1963; Alpert & Hicks, 1977). First-time offenders also had negative attitudes, but not to the degree of repeat offenders. Alpert and Hicks (1977) stated that prisoners that had not been previously convicted prior to their current conviction were four times more likely to have relatively positive attitudes toward the police than prisoners which previously had been convicted. Regardless of past history, most prisoners reported negative attitudes toward police. LaFave (1965) and Skolnick (1966) discussed how convicts usually see police as agents of social control, which generates a negative association with police and authority. In general, "recidivists differed significantly from first offenders in terms of less favorable attitudes toward law and law enforcement and attitudes connoting greater negativism toward others" (Brown, 1970: 436). Therefore, I expect to find more negative attitudes toward Conservation Officers with increasing violations.

The number of encounters hunters have with officers could distinguish violators from lawful hunters and also influence individuals' attitudes toward Conservation

Officers professionalism. Shafer et al. (1972) found violators had more contact with officers than did lawful hunters. However, Beattie (1981) found that number of times a hunter was "checked" by a game warden did not appear to influence their attitudes toward game laws, wardens, or enforcement. These aspects of characterizing criminals and their attitudes need to be examined further before reliable conclusions can be made about what characteristics best portray wildlife violators. Nonetheless, I expect to find more negative attitudes toward Conservation Officers with increasing ticketed encounters.

There were two objectives for this study. First, I determined social and hunting participation characteristics of wildlife law violators in Mississippi. Second, I determined if scores on an attitudinal scale measuring professionalism of Conservation Officers differed between (1) lawful hunters, former violators, and violators (2) among different groups of violators, and (3) among encounter groups. Additionaly, this study presents the number of Mississippi hunters, number of citations written, number of hunters written a citation, and the number of hunters written a citation who possessed a valid hunting license in Mississippi.

Methods

Sampling Design

Data collected from the 2002 Mississippi Statewide Hunter Survey were used to test hypotheses. There were two sampling frames for this study (Table 2.1). First, the 2001-02 hunter license file maintained by the Mississippi Department of Wildlife, Fisheries

and Parks (MDWFP) was used to draw a random sample of 5,000 licensed Mississippi resident hunters. Licensed hunters included individuals between the ages of 16 to 64 who purchased a big or small game hunting license, or a combination Sportsman License. Second, a portion of the wildlife law violator file maintained by MDWFP was used; those who had purchased a hunting license in the 2001-02 license year and cited with one of four violations (no hunter orange, trespassing, baiting, and hunting from a public road) served as the sampling frame. Each of these violation types had a sufficient number of citations written to investigate the effect of violation type on attitudes. Those in other violation types and those who were cited for no hunting license were removed from consideration because I wanted to clandestinely obtain data from violators for purposes of truthfulness. By telling subjects, particularly unlicensed poachers, that their information was received from sources other than the hunting license files may bias responses. The Institutional Review Board (IRB) for the Protection of Human Subjects (Docket # 02-158) at Mississippi State University (MSU) approved this research because of steps taken to maintain confidentiality and de-link identities from data. A random sample of 230 violators from each of the four violation types was felt to be adequate to explore group differences. Expecting a lower response rate from wildlife law violators than lawful hunters, estimated at 45%, this sample size would achieve desired statistical power for the comparisons of wildlife law violators. Because some violators committed one or more violations, sampling occurred without replacement. Sampling procedures were as follows: First, baiters were randomly selected as a starting point, and a random sample of 230 was selected. Second, trespassing was selected; any of the initial 230 baiters were

removed from the violation category, and a second sample of 230 was selected. This process continued for the two remaining violation groups; road hunting was selected third and hunters cited for not wearing orange fourth. This sequential random sampling format kept wildlife law violators as mutually exclusive as possible. For analysis purposes, number and type of violations for each violator also were recorded for additional analyses.

For hypothesis testing, three groups were used for analysis. First, licensed hunters with no violation in Mississippi since 1995 will be referred to as "lawful hunters". Second, licensed hunters who received a violation during the hunting season prior to survey implementation (2001-2002) will be referred to as "violators". Third, licensed hunters with no violation in the year prior to survey implementation but cited for one of the four violation types since 1995 will be referred to as "former violators." Former violators were found by searching the violator database that had been computerized since 1995. For comparative purposes, any other current or former wildlife law violator who was randomly selected in the sample of lawful hunters was identified and removed, providing three mutually exclusive groups (Lawful hunters, Violators, and Former Violators) to test hypotheses.

Survey Implementation and Response

Subjects (lawful, violator, and former violator) were sent an 11-page self-administered mail questionnaire designed to collect information about demographics, hunting experience, participation levels, attitudes toward Conservation Officer professionalism, and participation in a voluntary harvest reporting system. Questions

were based on previous research efforts and were developed in conjunction with the MDWFP. A subset of these questions was designed to test hypotheses presented earlier. The survey was pre-tested with students and faculty (n = 30) in the College of Forest Resources, Mississippi State University.

The questionnaire first sought information on the demographic characteristics and participation patterns. This included age, education, income level, and hunting experience. An open-ended question asked about age. Hunters were then asked to identify their approximate annual household income levels by categorizing them into $10,000 increments starting with "<$10,000" and ending with "$100,000 and ABOVE." Next, by using a close-ended question, hunters were asked to indicate their total years of formal education in 4 categories: elementary (grades 1-8), high school (grades 9-12), college (grades 13-16), or graduate school (grades 17-22+). A close-ended question asked hunters to indicate their race: 1) White or Anglo, 2) Black or African American, 3) Native American or Alaskan Native, 4) Asian or Pacific Islander, or 5) Other. Hunters were then asked about their level of hunting experience with two questions: "How many years have you been hunting?", and "At what age did you have your first hunting experience?" Next, hunters were asked "Have you ever been checked by a Mississippi Department of Wildlife, Fisheries and Parks (MDWFP) Conservation Officer during hunting season?" If hunters responded "Yes" to being previously checked, they were asked, "Were you checked by a MDWFP Conservation Officer during the 2001-2002 hunting season?" Individuals who had not encountered a MDWFP Conservation Officer were directed to a question elsewhere in the questionnaire. Also, it served as a measure

of truthfulness. Thus, an assessment of how many violators were not truthful about having an encounter with a Conservation Officer would be possible.

Second, a nine-item Likert measurement scale was developed to assess attitudes toward Conservation Officer Professionalism on their last encounter, henceforth referred to as the COP scale. Subjects were asked to indicate the extent to which they agreed with each of the following statements: "The Conservation Officer made me feel at ease;" "I believe the Conservation Officer was professional;" "The Conservation Officer was knowledgeable about wildlife in general;" "I believe the Conservation Officer treated me fairly;" "The Conservation Officer was knowledgeable about wildlife laws;" "The Conservation Officer listened to me;" "The Conservation Officer was effective in explaining wildlife laws;" "The Conservation Officer answered my questions satisfactorily;" and, "I was nervous talking with the Conservation Officer." Response format ranged from 1 to 5 with 1 = "strongly disagree," 2 = "disagree," 3 = "neutral," 4 = "agree," and 5 = "strongly agree." Cronbach's alpha, a measure of internal consistency, was used to assess the reliability of the COP scale (Cronbach, 1951; Miller, 1995). Raw Cronbach coefficient alpha scores for the COP measurement scale equaled 0.92, well above an acceptable alpha of 0.6 used in most human dimensions research (Nunnally, 1978). The item "I was nervous talking with the Conservation Officer" detracted from the scale reliability and was dropped from further analysis. This increased the alpha level of the COP scale to 0.94. Thus, it is most probable that a single construct was measured. Furthermore, an exploratory factor analysis of the COP scale confirmed there were no underlying factors. Therefore, scores on the individual items were summed and treated

as one measurement scale measuring Conservation Officer professionalism. Possible scores on the measurement scale ranged from 8 to 40, with 8 being the most negative attitude and 40 representing the most positive attitudes toward Conservation Officer professionalism on their last encounter.

Third, number of ticketed encounters was noted for each violator and former violator using the MDWFP violator file. To reach a desirable sample size and to satisfy hypotheses, violators with more than one violation were placed into one group. This allowed a comparison between violators with one ticketed encounter and violators with multiple ticketed encounters. The scores of repeat offenders among violation types were not analyzed because statistical power was too low for meaningful comparisons. Additionally, the number of violations that each violator had received since 1995 was noted and recorded. Numerous wildlife law violators received more than one citation whereas others received only one. Number of violations/person ranged from 1 to 8. To achieve sufficient sample size for analysis purposes, individuals with ≥ 3 violations were grouped together. Again, statistical power was too low to conduct meaningful comparisons of multiple ticket violators' scores among violation types.

The Total Design Method (TDM) was used to implement the survey (Salant & Dillman, 1994). A series of four mail-outs were administered. The first mailing, sent to all individuals in the sample, contained a letter stating the purpose of the survey and that they would be receiving a survey in about a week. The second mailing, sent 7 days after the first mailing, consisted of a survey, a letter explaining the purpose of the survey, and a business reply envelope (i.e., a complete packet). The third mailing included a post

card reminder/thank you that was sent 7 days after the second mailing (day 14). Finally, a complete packet was sent twenty-one days after the postcard mailing (day 35) to individuals who had not yet responded. All mailings were personalized to enhance response rate and a phone number was listed on all mailings so respondents could call with questions, or to request a replacement questionnaire if they had misplaced it. All surveys were numbered using a bar code printed on clear adhesive labels which facilitated the processing of returns through an automated system, and prevented individuals who had returned their survey from receiving further mailings.

After surveys were received, non-numeric responses were coded numerically. After all responses were converted into a numeric framework, responses from the surveys were data entered using Microsoft Access. Final data were checked and converted to a SAS and SPSS format for analysis purposes. To ensure that data had been entered correctly, a verification process was initiated. First, a list of 200 random identification numbers was generated from the computer file containing all returned surveys. Second, the list of identification numbers was used to locate that respondent's corresponding survey. Third, after the surveys were located, they were taken from the hard copy set and compared to the computerized data version. If any errors were found, the incidents were recorded and corrected in the final dataset. After all data were verified, minimal errors were found in the initial data entry process; only 106 errors were found among 39,800 questions resulting in an error rate of 0.27%. Errors were random and no pattern was found for any particular variable.

Effective response rate to the survey was calculated for each group by dividing number of returned useable questionnaires and number of questionnaires returned non-useable by total number of surveys sent minus non-deliverables (Hunt & Ditton, 2002). Lawful hunters had the greatest response rate among all groups (Table 2.2). The response rate of lawful hunters (47.4%) was significantly greater than wildlife law violators (41.3%) and former violators (39.4%; $\chi^2_2 = 19.02$, $P < 0.01$). Ten questionnaires were returned unusable because the respondent was deceased ($n = 7$), refused to complete the questionnaire ($n = 2$), or indicated that they did not hunt ($n = 1$).

Completion of the mail survey process occurred when surveys were no longer being received (day 90). Phone surveys were made to a random sample of 443 non-respondents (340 lawful hunters and 103 violators) to allow comparisons with respondents. Individuals' phone numbers were located on the Internet using their name and address information. Phone calls were made during weekday evenings (6:00 to 9:00 p.m.), and 15 questions from the mail questionnaire were selected to ask each non-respondent. Successful calls (a call resulting in the caller collecting data from the intended non-respondent) totaled 106 (24%), while 273 calls (61%) were unsuccessful. Calls reaching only an answering machine totaled 64 (15%). Calls to lawful hunters totaled 340 which resulted in 86 successful (25%), 200 unsuccessful (59%), and 54 (16%) reaching an answering machine. Violator calls attempted totaled 103, with 20 being successful (19%), 73 unsuccessful (71%), and 10 reaching an answering machine (10%). Respondents and non-respondents significantly differed in their age and hunting experience. Non-respondents were older ($\bar{x}$ = 47 years; n = 25) than respondents ($\bar{x}$ =

42 years; n = 1992), while respondents had more years of hunting experience ($\bar{x}$ = 30; n = 1943) than non-respondents ($\bar{x}$ = 26; n = 81). No other significant differences were found. Insufficient sample size prohibited me from looking at differences between violators who responded and those who did not.

Statistical Analysis

Because assumptions of normality were not met by any variable in this study and most data were ordinal, non-parametric tests were used to analyze data. However, means are presented along with medians for reference purposes. Kruskal-Wallis tests (PROC NPAR1WAY WILCOXON; SAS 1999) were conducted to detect differences among hunter groups, and among the various groups of violators on all characteristics and attitudinal variables. Differences among violator groups were examined using post-hoc comparisons (DWASS-STEEL CRICHLOW FLEGNER; SAS 1999). Correlation analysis (PROC CORR; SAS 1999) was used to investigate if attitude scores differed with number of offenses and number of ticketed encounters.

Limitations

Certain limitations existed in my study. First, I only sampled hunters between the ages of 16 and 64. Therefore, data did not portray the attitudes and participation of the entire hunter population. Second, wildlife law violator records have only been computerized since 1995. Thus, I could not investigate the history of wildlife law violations beyond eight years. Third, I assumed that the last contact that violators had with a Conservation Officer was the ticketed encounter believing it would be the most

memorable. I also assumed that by clandestinely sampling, violators would be more truthful in their responses, and would be more willing to respond if they did not know they were sent a questionnaire because of their past illegal hunting behavior. Nevertheless, some violators may not have been truthful in their responses because of prestige bias by responding how they thought the researchers wanted them to respond, or with a socially acceptable answer. Finally, whereas response rates to mail surveys nationwide have been continually declining over the past two decades (Hunt and Ditton, 1996), response from violators was even lower than expected. This may affect the generalizability of my research findings, especially with the identified problems in conducting non-respondent checks.

Results

I found statistically significant differences among legal hunters, former violators, and wildlife law violators on most demographic and participation variables. First, lawful hunters ($\bar{x}$ = 43; m = 44; n = 1879) were older than wildlife law violators ($\bar{x}$ = 40; m = 40; n = 332) and former violators ($\bar{x}$ = 38; m = 38; n = 142). Second, annual income level significantly differed among all hunter groups (Table 2.3). Lawful hunters had a median annual income (m = $55,000; n = 1756) significantly greater than former violators (m = $45,000; n = 130) and wildlife law violators (m = $45,000; n = 311). Third, education levels differed among hunter groups (Table 2.3). Lawful hunters had significantly higher levels of education (m = college; n = 1305) than former violators (m = high school; n = 139) and wildlife law violators (m = high school; n = 240). Fourth, groups differed on the number of years hunted (Table 2.4). Lawful hunters participated

in the activity the longest of any group ($\bar{x}$ = 29.4; m = 30; n = 1758); violators had hunted longer ($\bar{x}$ = 27.5; m = 28; n = 322) than former violators ($\bar{x}$ = 25.0; m = 25; n = 137) but less than lawful hunters. Finally, lawful hunters began hunting later ($\bar{x}$ = 11.8; m = 10; n = 1762) than both former violators ($\bar{x}$ = 11.2; m = 10; n = 137) and violators ($\bar{x}$ = 10.5; m = 10; n = 322; Table 2.4).

COP Measurement Scale

I found significant differences among lawful hunters, violators, and former violators on each of the 8 attitude items used in the final COP scale (Table 2.5). As for the total score on the COP scale, lawful hunters ($\bar{x}$ = 31.6; m = 32; n = 1,314) rated officers' professionalism significantly better than both former violators ($\bar{x}$ = 30.1; m = 32; n = 122) and wildlife law violators ($\bar{x}$ = 26.6; m = 28; n = 318). Wildlife law violators' scores among violation types did not significantly differ (Table 2.6). Results showed attitude scores of baiters ($\bar{x}$ = 27.1; m = 29; n = 98), road hunters ($\bar{x}$ = 26.2; m = 27; n = 74), trespassers ($\bar{x}$ = 26.6; m = 29; n = 50), and no orange ($\bar{x}$ = 26.5; m = 28; n = 96) were statistically similar.

COP Scores among Encounter Groups

I found no significant differences on Conservation Officer Professionalism scores between ticket encounter groups (χ^2_2 = 3.74, P = 0.05) or 2003 (χ^2_2 = 0.26, P = 0.61). Individuals with one ticketed encounter ($\bar{x}$ = 26.8; m = 28.5; n = 269) had similar attitudes to those with more than one ticketed encounter ($\bar{x}$ = 24.3; m = 25; n = 60). However, I did detect significant differences in COP scores among groups of individuals

with multiple violations (χ_2^2 = 7.56, P = 0.02). Individuals having one violation rated conservation officer professionalism significantly better ($\bar{x}$ = 27.0; m = 29; n = 192) than individuals with two violations ($\bar{x}$ = 26.4; m = 27; n = 85), and those with three or more violations ($\bar{x}$ = 23.4; m = 24.5; n = 52).

Discussion

Social and Hunting Participation Characteristics

The findings of social and hunting participation characteristics in this study are consistent with most findings of previous research examining the same variables. As with past research, I found that violators were younger than lawful hunters (Melnyk, 1977; Glover & Baskett, 1984; Gray, 1992), had lower income levels than lawful hunters (Melnyk, 1977; Glover & Baskett, 1984), and had lower education levels than lawful hunters (Glover, 1982). The levels of hunting experience found among groups were consistent with Melnyk's (1977) findings that violators have less hunting experience than lawful hunters. However, the finding that violators started hunting at an earlier age had not been documented elsewhere. Overall, demographic and participation variables appear to be important in distinguishing violators from lawful hunters. Differences among groups suggest that the "violation problem" may stem from certain social circles or sub-groups, and peer pressure could play a part in the actions of young inexperienced hunters, especially in lower income areas (Melnyk, 1977; Eliason, 2003). The notion that young individuals are impressionable and their behavior easily influenced by peers has been expressed in previous literature (Eliason, 2003). Nevertheless, some findings did

contradict prior violator studies. For example, Gray (1992) did not detect a difference in income levels between legal and illegal waterfowl hunters. Additionally, Gray and Kaminski (1994) found that education levels did not indicate lawfulness. This may because of the different sampling frames used in this study. Gray and Kaminski (1994) studied duck hunting violators whereas this study consisted primarily of deer hunting violators. Most of their demographic results differed from my study findings indicating that violators' demographic characteristics may vary according to which species of game they prefer to hunt.

COP Measurement Scale

Results are somewhat analogous to previous studies that have examined attitudes of hunters toward law enforcement personnel and found favorable attitude trends (Melnyk, 1977; Hill, 1978.) Melnyk (1977) inspected attitudinal differences between violators and lawful hunters and found that violators, while generally possessing a positive attitude toward Conservation Officers, have significantly more negative attitudes than lawful hunters. The results on the COP scale indicate former violators and wildlife law violators had more negative attitudes toward Conservation Officers professionalism than lawful hunters. Additionally, former violators had more positive attitudes than did wildlife law violators indicating that time from a ticketed encounter may be a viable factor influencing violators' attitudes toward Conservation Officer professionalism. One possible explanation is that former violators have had time to "cool down" while recent recipients of citations may still harbor more negative attitudes toward Conservation

Officers because the incident is still fresh in their mind. Nevertheless, the process of reverting from a negative to a positive attitude needs further investigation.

Wildlife law violators scored the lowest on questions dealing with the encounter itself rather than how knowledgeable the Conservation Officer was about laws and wildlife. Therefore, part of the reason why violators have negative attitudes toward Conservation Officers could be due to their interaction with the Conservation Officer at the time of their encounter. The largest difference between wildlife law violators and lawful hunters dealt with how fairly the groups thought they were treated by Conservation Officers. This could indicate why wildlife law violators showed a stronger resentment toward Conservation Officers. Violators could view the encounter negatively just because they received a citation or because the Conservation Officer did indeed unfairly treat the individual. Specifically, violators may believe they are not deserving of the citation for various reasons, or think the Conservation Officer did not have adequate proof or evidence to warrant a citation. Also, violators may report negative attitudes toward Conservation Officers simply because they were caught doing something illegal, regardless of the reason for the citation.

The primary purpose of this study was to look at attitudes of lawful hunters and violators toward Conservation Officer professionalism. However, I obtained certain information to help better understand methodology concerns regarding studying wildlife law violators. Melnyk (1977) described violator attitudes toward Conservation Officers as negative compared to lawful hunters, but failed to examine how negative attitudes differed between hunters with different violation types. My study indicated

attitude scores did not differ among violation types. This may suggest that violators have negative attitudes toward Conservation Officers primarily because they received a citation rather than the violation for which it was written. Additionally, my data suggest that attitudes of violators may not depend on the seriousness of the violation. For example, an individual who does not wear orange and an individual who hunts from the road will view Conservation Officers similarly.

Considering that approximately 35,000 hunters (existing hunters in Mississippi with one or more violations) have more negative attitudes toward Conservation Officers, it appears that a reduction in the number of tickets written would help alleviate the problem. But, writing fewer citations surely is not the key nor is it plausible. Negative attitudes of this many individuals can influence and impact other hunters' behaviors, hunter compliance, and the public image and effectiveness of Conservation Officers and resource agency. Because issuing citations serves as a means to ensure hunter compliance, it would be unwise to reduce the number of citations written. Agencies could move toward focusing more on deterrence, but "Enforcement and its deterrent impact through public knowledge about arrests can't do the job alone" (Sparrowe, 1989, p. 263). Hunter education programs may alleviate some of the perceptions some may have of Conservation Officers. This may be accomplished, for example, by familiarizing hunters with regulations using hunter education programs strongly focused on game law clarification. Further, continually informing Conservation Officers of new regulations as well as the rationale behind them may be useful; "Complicated laws which the wildlife

officer does not understand, let alone the average hunter and fisherman, only results in poor enforcement and public resentment to the agency" (Stockdale, 1993, p.739).

Hunter education is needed in conjunction with other law enforcement techniques to reduce violations and improve negative attitudes. "Wildlife professionals agree that educating the public and our decision makers about the need to preserve our wildlife heritage, and enforcing laws against those who would otherwise destroy this heritage, are both essential to protect wildlife" (Musgrave, 1993, p.1014). Agencies should be willing to change and adapt education programs to meet existing enforcement challenges. A movement away from static hunter education programs toward a more dynamic program could be beneficial. First, more emphasis should be placed on hunter compliance in initial hunter education courses. Second, mandating a second hunter education course within five years of the initial course may head off compliance problems before they become irreversible; most violations tend to occur in younger age groups. Third, providing additional courses that focus specifically on wildlife laws in turn for license price reductions could enhance hunter compliance through awareness. Fourth, mandating that violators receive some type of additional hunter education in addition to their fines should be investigated. Whereas most hunters are law abiding and consequently have positive impacts on wildlife resources, the negative actions and attitudes will reduce benefits accrued by lawful hunters and the non-hunting public. Ignoring illegal behavior also may add anti-hunting groups' fuel for their cause and hunting may ultimately be reduced or outlawed due to illegal activities of a relatively small portion of hunters.

Whereas it is the responsibility of each hunter to be aware of wildlife laws, it is the enforcement agency's responsibility to make sure it's Conservation Officers are properly educated in wildlife laws and interpersonal relations. Both could be beneficial in promoting compliance and agency image. In addition to officer training programs implemented before officers reach the field, administrators should assist them throughout their career with courses designed to prepare them for handling unpleasant encounters, keep them abreast of new complex regulations, and how to leave a good impression on hunters. Further, administrators need to develop better ways to evaluate officer professionalism in the field. Information such as that reported my study is useful, but it is only one way to investigate Conservation Officer professionalism.

Future Research Needs

The advancement of this research area should involve examination of characteristics, attitudes, and possibly behaviors of "serious" violation types. The examination of serious violation types cannot usually be conducted because of sample size limitations. Therefore, whenever researchers find ample sample size to conduct research on the more serious violation types they should take advantage of the opportunity. The determination of what constitutes a serious violation will indelibly be reserved for the researcher to decide. However, Hill et al. (1978) described the seriousness of a violation to be related strongly to the acceptable level of non-compliance. Second, an area of study focusing on young and inexperienced hunters may also be beneficial to gaining a better understanding of violators. Such studies could provide insight into how and where inexperienced youth learn illegal hunting behaviors.

A base of knowledge could help in determining the best strategies to reduce illegal behavior. A further inquisition should be made into how attitudes of young violators change over time, and what influences the change from negative attitudes to positive ones. Third, traditional law enforcement research has primarily examined hunter attitudes without linking them to other variables. It is important to link motivations of individuals who violate laws to their attitudes toward conservation officers (Eliason, 2004). Some research has shown links between criminals' attitudes and their motivations, but no research has measured links between wildlife violators' attitudes and the motivations to violate game laws. Finally, violators had lower response rates than lawful hunters. Researchers should be aware that they may receive poor response and plan accordingly when selecting samples. Additionally, other tactics, in both mailing procedures and correspondence, should be investigated. The effect of additional mailings and/or telling violators they have been selected because they violated need to be further studied.

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Table 2.1. Number of licensed Mississippi resident hunters, citations written, individuals written a citation, and hunters written a citation who possessed a valid hunting license in Mississippi during the 2001-2002 hunting season.

License & Citation Information	
Number of licensed hunters[a]	194,580
Number of citations written	12,418
Number of individuals written a citation	9,541
Number of hunters written a citation who possessed a valid hunting license[b]	7,050

[a] served as sampling frame for general hunters.
[b] served as sampling frame for wildlife law violators.

Table 2.2. Response categories and rates for the 2001-02 Mississippi Statewide Hunter Survey; by respondent group.

Respondent Group	Year	# Sent	# Returned Useable	# Undeliverable	Response Rate (%)
Lawful Hunters	2002	4,126	1,968	424	47.7
Former Violators [a]	2002	421	149	43	39.4
Violators [b]	2002	920	344	87	41.3
Baiting	2002	230	102	16	47.7
Public Road Hunting	2002	230	78	22	37.5
Trespassing	2002	230	63	22	30.3
No Orange	2002	230	101	27	49.8

[a] Former violators are distinguished by being cited for a violation prior to the previous hunting season.
[b] Violators were cited for a violation during the previous hunting season.

Table 2.3. Mean (± standard deviation) and median for age, and frequency distributions of income and education for lawful hunters, former violators, and violators in Mississippi from the 2001-2002 Mississippi Statewide Hunter Survey.

Demographic Variable	Year	Category	Lawful Hunters mean (SD) median	Former Violators mean (SD) median	Violators mean (SD) median	Significance p-value (x^2)
Age	2002 (1,891; 142; 332) [a]	N/A	43.2 (11.95) 44 [x]	37.5 (11.16) 38 [y]	39.7 (11.82) 40 [z]	<0.01 (48.68)
Income	2002 (1,769; 130; 312)	<10,000	53 [b]	8	23	0.01 (8.63)
		10,000 – 19,999	119	12	24	
		20,000 – 29,999	207	15	42	
		30,000 – 39,999	242	15	51	
		40,000 – 49,999	217	19	39	
		50,000 – 59,999	236	15	47	
		60,000 – 69,999	168	13	30	
		70,000 – 79,999	139	8	18	
		80,000 – 89,000	96	6	16	
		90,000 – 100,000	65	3	8	
		100,000 and above	227	16	32	
Education	2002 (1,305; 139; 240)	Elementary (grades 1 – 8)	21	4	12	<0.01 (14.04)
		High School (grades 9 – 12)	531	69	133	
		College (grades 13-16)	675	58	106	
		Graduate School (17 – 22+)	98	8	16	

[a] n associated with lawful hunters, former violators, and violators in that order
[b] Frequency distribution of income and education for each respondent group
[x,y,z] indicates significant differences among groups

Table 2.4. Mean (± Standard Deviation) and median number of years hunted and age of first hunting experience for Lawful Hunters, Former Violators, and Violators in Mississippi in the 2001-02 hunting season.

Hunting Experience	Year	Lawful Hunters mean (SD) median	Former Violators mean (SD) median	Violators mean (SD) median	Significance p-value (x^2)
Years hunted	2002 (1,758; 137; 322) [a]	29.4 (13.10), 30 [x]	25.0 (12.53), 25 [y]	27.5 (12.11), 28 [z]	<0.01 (20.80)
Age of first hunting experience	2002 (1,762; 137; 322)	11.8 (6.74), 10 [x]	11.2 (5.61), 10 [y]	10.5 (4.89), 10 [z]	0.02 (8.28)

[a] n associated with lawful hunters, former violators, and violators in that order
[x,y,z] indicates where differences lie among groups

Table 2.5. Mean (+/- SD) and median scores for the Conservation Officer Professionalism attitude scale for Lawful Hunters, Former Violators, and Violators in Mississippi resulting in the 2002 Mississippi Statewide Hunter Survey.

Statement	Lawful Hunters mean (SD) median (*n* = 1,314) [d]	Former Violators [a] mean (SD) median (*n* = 122)	Violators [b] mean (SD) median (*n* = 318)	Significance p-value (x^2) [c]
The conservation officer was knowledgeable about wildlife laws	4.09 (0.74) 4 [z]	4.04 (0.75) 4 [z]	3.73 (1.01) 4 [y]	<0.01 (36.28)
I believe the conservation officer treated me fairly	4.11 (0.79) 4 [x]	3.80 (1.10) 4 [y]	3.16 (1.34) 4 [z]	<0.01 (148.44)
I believe the conservation officer was professional	4.00 (0.84) 4 [x]	3.75 (1.00) 4 [y]	3.37 (1.21) 4 [z]	<0.01 (80.94)
The conservation officer was knowledgeable about wildlife in general	3.97 (0.77) 4 [z]	3.91 (0.75) 4 [z]	3.55 (0.92) 4 [y]	<0.01 (58.91)
The conservation officer listened to me	3.93 (0.88) 4 [x]	3.62 (1.19) 4 [y]	3.15 (1.32) 4 [z]	<0.01 (98.51)
The conservation officer answered my questions satisfactorily	3.89 (0.86) 4 [z]	3.75 (1.06) 4 [z]	3.22 (1.23) 4 [y]	<0.01 (78.23)
The conservation officer was effective in explaining wildlife laws	3.86 (0.84) 4 [z]	3.75 (1.03) 4 [z]	3.37 (1.15) 4 [y]	<0.01 (43.01)
The conservation officer made me feel at ease	3.75 (0.97) 4 [x]	3.46 (1.11) 4 [y]	3.08 (1.19) 3 [z]	<0.01 (91.49)
TOTAL [e]	31.60 (5.57) 32 [x]	30.08 (6.82) 32 [y]	26.60 (7.82) 28 [z]	<0.01 (109.64)

[a] Former violators are distinguished by being cited for a violation prior to the previous hunting season.
[b] Violators were cited for a violation during the previous hunting season.
[c] Chi-square used to calculate p-value
[d] n associated with 2001-2002 survey
[e] Mean based on response format where 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree
[x,y,z] Indicates where differences lie among groups

Table 2.6. Mean (+/- SD) and median scores for the Conservation Officer Professionalism attitude scale for violation groups (baiting, hunting from a public road, trespassing, and not wearing orange when required) in the 2001-02 Mississippi Statewide Hunter Survey.

Statement	Baiters mean(SD) median (*n* = 98) [b]	Road Hunters mean (SD) median (*n* = 74)	Trespassers mean (SD) median (*n* = 50)	No Orange mean (SD) median (*n* = 96)	Significance p - value (x^2) [a]
The conservation officer was knowledgeable about wildlife laws	3.75 (1.00) 4	3.75 (0.91) 4	3.72 (1.11) 4	3.69 (1.04) 4	0.98 (0.18)
I believe the conservation officer treated me fairly	3.21 (1.33) 4	3.15 (1.35) 4	3.17 (1.36) 3.5	3.12 (1.36) 4	0.97 (0.22)
I believe the conservation officer was professional	3.40 (1.22) 4	3.27 (1.09) 4	3.54 (1.27) 4	3.32 (1.26) 4	0.41 (2.89)
The conservation officer was knowledgeable about wildlife in general	3.66 (0.91) 4	3.56 (0.86) 4	3.44 (0.90) 3.5	3.48 (0.98) 3	0.24 (4.25)
The conservation officer listened to me	3.18 (1.29) 4	3.03 (1.30) 3	3.15 (1.35) 4	3.20 (1.36) 4	0.76 (1.18)
The conservation officer answered my questions satisfactorily	3.21 (1.21) 3	3.23 (1.19) 4	3.29 (1.22) 3.5	3.20 (1.29) 4	0.99 (0.14)
The conservation officer was effective in explaining wildlife laws	3.47 (1.11) 4	3.34 (1.07) 4	3.15 (1.29) 3	3.40 (1.18) 4	0.47 (2.54)
The conservation officer made me feel at ease	3.18 (1.15) 4	2.95 (1.12) 3	3.17 (1.26) 4	3.03 (1.24) 3	0.45 (2.65)
TOTAL [C]	27.05 (7.76) 29	26.20 (7.18) 27	26.62 (8.20) 29	26.45 (8.26) 28	0.81 (0.98)

[a] Chi-square used to calculate p-value
[b] n associated 2001-2002 survey
[C] Mean based on response format where 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

CHAPTER III

QUANTIFYING MOTIVATIONS OF HUNTERS WHO VIOLATE GAME LAWS AND POSSIBLE ATTITUDINAL EFFECTS

Introduction

Most hunters abide by written laws and regulations designed to sustain wildlife populations, and exhibit some form of a conservation ethic. However, wildlife law violations have been a persistent problem facing natural resources management (Sigler, 1995; Decker et al. 1999). The illegal taking of wildlife has been a major concern for many years (Gray & Kaminski, 1993; Eliason, 1999), and each year approximately $200 million are earned by poachers in the United States who illegally take wildlife for their own personal gain (Musgrave et al., 1993). Many law enforcement agencies and wildlife biologists believe that this is a gross underestimate of the actual monies earned by poachers (Muth, 1998). With much of the United States' wildlife habitat dwindling because of increased population and urban sprawl, increasingly restrictive regulations will be needed to protect wildlife populations in the future. More restrictions on hunters will most likely increase illegal activity, either through ignorance of regulations or willful noncompliance. Nevertheless, despite the current and future negative impacts of poaching and other illegal activity, there is paucity of research investigating the attitudes and motivations of violators, and no studies have attempted to combine the two to better understand wildlife law violators and their thought processes.

It is important to investigate attitudes because this information gives researchers and enforcement officials a better understanding of violators, which can advance enforcement strategies and training techniques. An increased knowledge of violators' attitudes also can give researchers enhanced opportunities to develop deterrence programs and prediction models. Such information could lead to educational programs and strategies that help prevent potential violators from committing future wildlife law infractions (Ajzen, 1985). Nevertheless, while attitudes of wildlife law violators are important to understand, equally important are the reasons why violators disregard game laws (Muth, 1998; Muth & Bowe, 1998; Eliason, 2004).

The study of wildlife law violators and what motivates them to break game laws has been largely overlooked in the natural resources literature (Muth & Bowe, 1998). Whereas some social science studies (Forsyth & Marckese, 1993; Eliason, 2004) have focused on wildlife crime, motivational research remains relatively untouched in social science journals as well (Eliason, 1999). Muth and Bowe (1998, p.10) comment on the lack of sociological research on wildlife crime by stating, "An important point of departure for research on poaching should be the comprehensive identification and classification of the motivations for poaching." Thus, Muth and Bowe (1998) proposed that there are 10 primary reasons why people break wildlife laws: (1) *commercial gain* – illegal taking or sale of plants and animals as a means for earning a profit; (2) *household consumption* – illegally taking wildlife, fish, or plants for food (e.g., meat) or other purposes such as home heating (e.g., firewood) or medicinal purposes (e.g., ginseng); (3) *recreational satisfaction* – violating game laws for the enjoyment of the hunting or

fishing experience; (4) *trophy poaching* – killing an animal which possesses physical characteristics that are considered superior to others of the same species; (5) *thrill killing* – violating laws on the basis of experiencing a psychological or emotional high; (6) *protection of self and property* – illegal killing of an animal which represents a threat to one's property, livelihood, or another game species that person enjoys pursuing; (7) *poaching as rebellion* – violating game laws for the purpose of rebelling against authority; (8) *poaching as a traditional right* – game law violations stemming from a belief that one has a traditional right of land tenure and resource use; (9) *disagreement with specific regulations* – game violations resulting from belief that specific regulations lack sound scientific or biological basis; and (10) *gamesmanship* – execution of game law violations for the sole purpose of determining if one can commit a violation and escape capture.

After examining Muth and Bowe's (1998) 10 motivations and interviewing conservation officers and violators in Kentucky, Eliason (2004) attempted to condense them into fewer categories. Based on his research, Eliason (2004) proposed 5 classifications of motivations for illegal behavior: ignorance/forgetfulness/carelessness; recreational satisfactions; trophy poaching; poaching as a traditional right of use; and economic profit. First, he described ignorance/forgetfulness/carelessness as motivations for individuals who are not aware of existing regulations and therefore do not abide by the laws. These individuals also forget about or are not careful to follow laws concerning specific procedures such as tagging harvested game. Eliason (2004) simply summarizes these motivations as mistakes made by violators to follow wildlife laws. Second,

recreational satisfaction describes motivations of violators who break game laws to acquire a given level of excitement or thrill from the activity. These hunters commit game law violations regardless of the consequences because they derive pleasure from such activities as shooting over legal limits or hunting outside season frameworks. Third, the motivation of trophy poaching illustrates how hunters break game laws to obtain trophy specimens. Eliason (2004) describes how these individuals poach trophy animals so they can elevate their status among other hunters in their social circle. Fourth, poaching as a traditional right of use entails how violators disobey game laws because, for example, they think they have rights to a plot of land because their ancestors had land rights to the same plot in the past. For example, if an individual has hunted on a piece of property in the past, they think they should have the right to continue hunting there even if it gets posted (Eliason, 2004). Fifth, money profit describes individuals who illegally take wildlife for profit. Eliason (2004) portrays this motivation used by people who illegally hunt or fish for commercial gain.

Whereas motivations have been addressed from a conceptual standpoint, no quantitative research has tested hypotheses on a large random sample of wildlife law violators; most of the aforementioned studies were qualitative in nature and implemented for theory development purposes. Additionally, there has been strong evidence linking attitudes to deviant behavior (Simourd, 1999), and some research has shown links between criminals' attitudes and their motivations. Nevertheless, no research has tried to study the link between wildlife violators' attitudes and the motivations that drove them to violate game laws. Therefore, the purpose of my study was an initial attempt to quantify

motivations of wildlife law violators in Mississippi, classify violators into a motivation type, and to determine whether their attitudes toward Conservation Officers differ by motivation type.

Methods

Sampling Design

Data collected from the 2003 Mississippi Resident Statewide Hunter Survey were used to test hypotheses. A sample of 920 licensed wildlife law violators who were cited with a wildlife law violation during the previous hunting season were randomly selected from the MDWFP wildlife law violator files in four violator categories (no hunter orange, baiting, trespassing, and hunting from the road). These categories were chosen because of concurrent research examining the effects of violation type on attitudes and were primarily chosen for purposes of adequate sample size. Because some violators committed one or more violations, sampling occurred without replacement. Sampling procedures were as follows: First, baiters were randomly selected as a starting point and a random sample of 230 was selected. Second, trespassing was selected; any of the initial 230 baiters were removed from the violation category, and a second sample of 230 was selected. This process continued for the two remaining violation groups; road hunting was selected third, and hunters cited for not wearing orange fourth. This sequential random sampling format kept wildlife law violator groups as mutually exclusive as possible.

Survey Implementation and Response

Each wildlife law violator was sent an 11-page self-administered mail questionnaire designed to collect information about demographics, hunting experience, participation levels, attitudes toward Conservation Officers professionalism, and motivations to commit game law violations. A subset of these questions was used to test hypotheses. Twelve questions were developed based on the research of Muth and Bowe (1998) to measure motivations of wildlife law violators to break wildlife laws. Specifically, violators were asked the extent to which they agreed with various statements about why people violate game laws. A five-point Likert-type measurement scale was developed from previous literature to assess hunters' motivations. Response format for the scale ranged from 1 to 5 with 1 equal to "strongly disagree", 2 equal to "disagree", 3 equal to "neutral", 4 equal to "agree", and 5 equal to "strongly agree." The 12 items used to measure the 10 motivational categories were: (1) *household consumption* – "People illegally hunt primarily for meat;" (2) *financial gain* – "Most wildlife law violators sell animals that they kill for financial gain;" (3) *recreational satisfaction* – "Wildlife law violators hunt until they are satisfied with their kill regardless of legal limits;" (4) *trophy poaching* – "Most individuals who violate game laws do so for a better chance to kill a trophy animal;" (5) *thrill killing* – "People illegally hunt because it is exciting;" (6) *protection of one's self* – "Hunting to protect one's self from danger is a just reason for breaking wildlife laws;" (7) *protection of one's property* – "Hunting to protect one's property is a just reason for breaking wildlife laws;" (8) *rebellion* – "People illegally hunt because they want to rebel against authority;" (9) *poaching as a*

traditional right – "If an individual has hunted on a piece of property in the past, they should have the right to continue hunting there even if it gets posted;" (10) *household consumption* – "Most people illegally hunt for subsistence reasons;" (11) *disagreement with specific regulations* – "People illegally hunt because they do not agree with hunting laws;" (12) *gamesmanship* – "People illegally hunt because they like the game it creates between themselves and the conservation officers."

I conducted an exploratory factor on motivational items using data from violators. Analysis was conducted using principal components analysis with varimax rotation. An inspection of Eigenvalues and a corresponding scree test were used to determine the number of factors present in the data; any factor with an Eigenvalue greater than 1 was considered a factor if verified by the scree test. (Zwick & Velicer, 1986; Fabrigar, 1999). Items were included in a factor if factor loadings were greater than 0.4. If an item cross-loaded on more than one factor, it was placed in the factor that it loaded most highly on. I conducted a reliability analysis on items in each factor using Cronbach's alpha to assess effectiveness of each factor as a measurement scale (Cronbach, 1951; Miller, 1995). By adding scores of items composing each factor and then dividing by the total number of items within the factor, I calculated a total score for each. I then classified violators into one of the new motivational categories according to which factor they had the greatest mean score on. I randomly assigned individuals with tied high scores into one of the tied factors. I used a Kruskal-Wallis test to determine whether motivation type affected attitudes toward Conservation Officers using the COP scale developed by Arnold (Chapter I).

The COP scale consisted of eight items. Raw Cronbach coefficient alpha levels for the COP measurement scale equaled 0.95 (Nunnally, 1978), well above an acceptable alpha of 0.6 used in most Human Dimensions research. The measurement scale ranged from 8 to 40, with 8 being the most negative attitude and 40 representing hunters who had the most positive attitudes. Response format items ranged from 1 to 5 with 1 equal to "strongly disagree," 2 equal to "disagree," 3 equal to "neutral," 4 equal to "agree," and 5 equal to "strongly agree."

Survey implementation followed Dillman (2001). A series of three mail-outs was administered. The first mailing, sent to all individuals in the sample, contained a letter stating the purpose of the survey, a questionnaire, and a business reply envelope (i.e., a complete packet). The second mailing, sent out three weeks after the first mailing, consisted of a complete packet sent to individuals who had not yet responded. The third and final mailing consisted of a complete packet and was sent three weeks after the second mailing to individuals who had not yet responded to the first two mailings. No postcard mailing was used because there was no evidence to suggest any benefit to overall response in Mississippi hunter surveys. Violators were sampled clandestinely as telling them that their information was received from somewhere other than the license files may have been counterproductive. Violators have been found to be generally truthful when studied in this manner (Gray, 1992). The Institutional Review Board (IRB) for the Protection of Human Subjects (Docket # 02-158) at Mississippi State University (MSU) approved research because of steps taken to maintain confidentiality and de-link identities from data.

All mailings were personalized to enhance response rate and a phone number was listed on all mailings so respondents could call to find answers to any questions or to request a questionnaire be sent to them if they misplaced it. All surveys were numbered using a bar coding system printed on clear adhesive labels which facilitated the processing of returns and prevented individuals with returns from the possibility of further mailings. After surveys were received, non-numeric responses were numerically coded. After all responses were converted into a numeric framework, responses from the surveys were entered using Microsoft Access. Final data were checked and converted to a SAS and SPSS format for analysis purposes. To ensure that data had been entered correctly, I initiated a verification process. First, I generated a list of 200 random identification numbers from the computer file containing all returned surveys. Second, I used the list of identification numbers to locate that respondent's corresponding survey. Third, after the surveys were located, I took them from the hard copy set and compared to the computerized data version. If any errors were found, I recorded the number of incidents and corrected errors in the final dataset. After all data were verified, I found minimal errors in the initial data entry process; only 164 errors were found among 36,200 questions resulting in an error rate of 0.45%. Errors were random and I found no pattern for any particular variable

I calculated response rate by dividing number of returned useable questionnaires and number of returned non-useable by total number of surveys sent minus non-deliverables (Hunt & Ditton, 2002). Overall response rate for violators was 36% (Table 3.1). Several questionnaires were returned unusable because the respondent was

deceased (n = 1), refused to complete the questionnaire (n = 6), or did not hunt (n = 65). No non-response check was completed because similar efforts to contact violators in 2002 Mississippi Hunter Survey met with little success.

Limitations

Certain limitations existed in my study. First, I made certain assumptions in this study. I assumed that the last contact that hunters had with a Conservation Officer was the encounter from which they based their responses believing it would be the most memorable. It was also assumed that by clandestinely sampling violators they would be more truthful in their responses, and be more willing to respond if they did not know they were sent a questionnaire because of their past hunting behavior. Nevertheless, some violators may not have been truthful in their responses. Finally, whereas response rates to mail surveys nationwide have been continually declining over the past two decades (Hunt and Ditton, 1996), response from violators was even lower than expected. This may affect the generalizability of my research findings, especially with the identified problems in conducting non-respondent checks.

Results

Exploratory factor analysis

Four factors emerged from the factor analysis of wildlife law violators' responses to the COP scale, which were labeled *High Rolling*, *Protection*, *Free Will*, and *Optimal Harvest* (Table 3.2). *High rolling* contained four items, which included motivations for "financial gain", "thrill killing", "rebellion", and "gamesmanship". *Protection* involved

two motivational items which entailed "protecting one's self" and "protecting one's property". Three items loaded into the *Free Will* factor and included items related to "hunting for meat", and "poaching as a traditional right." *Optimal Harvest* contained two motivational items: "recreational satisfaction" and "trophy poaching". The variable labeled as "disagreement with regulations" did not load on any factor. I subjected each factor to a reliability analysis using Cronbach's alpha. This test resulted in alpha levels of 0.65 for *High Rolling*, 0.58 for *Protection*, 0.37 for *Free Will*, and 0.34 for *Optimal Harvest*. Reliability scores for the *Free Will* and *Optimal Harvest* factors were less than optimal for treating the factor as a measurement scale, however, because this was exploratory research, I continued with the planned analysis.

COP Measurement Scale Among Motivation Types

I did not detect significant differences in attitudinal scores of wildlife law violators among motivation type (Table 3.3). Those classified into the *Optimal Harvest* category scored least ($\bar{x}$ = 26.8; m = 28; n = 162) with *Free Will* scoring greatest ($\bar{x}$ = 29.3; m = 31; n = 19). *Protection* ($\bar{x}$ = 27.7; m = 28.5; n = 36) and *High Rollers* ($\bar{x}$ = 27.0; m = 28; n = 35) were intermediate. Whereas I felt that violators would be evenly distributed among the motivation types, from the observed sample sizes in each of the groups, this did not occur. Hence, statistical power was low and I failed to detect any statistically significant differences.

Discussion

Muth and Bowe's (1998) research was the primary basis for my study. Muth and Bowe (1998) admit that the motivations they discuss are not an exhaustive list and may not be mutually exclusive. Variations between and among categories allow for interpretation. Because the interpretation of motivations is multi-faceted, so too are the hunters who are motivated by them. The 4 factors developed in my study attempted to account for the variability of Muth and Bowe's (1998) 10 motivational categories into more generalized, interpretable, and succinct groups. Because so much variation and overlap exists between motivations (Muth & Bowe, 1998; Eliason, 2004), it is easier to interpret what motivates wildlife law violators to engage in illegal behavior with a condensed classification of motivations. Recently, and after my study was completed, Eliason (2004) categorized motivations into 5 overall categories: ignorance/forgetfulness/carelessness, recreational satisfactions, trophy poaching, poaching as a traditional right of use, and money profit. These motivations differ somewhat from the findings of my study; however, there are overlapping themes between his results and the analysis of my study.

My study's *Protection* and *Free Will* factors include some of the same reasoning as Eliason's (2004) money/profit motive. The *Protection* factor can be described for individuals who are protecting their livelihood, hence monetary profits. Also, *Free Will* can be seen as a way to alleviate the woes of being underprivileged and not being able to afford high prices of meat. Even though these individuals do not seek monetary profits directly from their illegal behavior, they may be either preventing income loss or

supplementing low income translating into a motive of money/profit which Eliason (2004) describes. However, the factors do not directly involve monetary motivations and include other motives that when grouped together are interpreted differently from Eliason's (2004) work.

Certain aspects of Eliason's (2004) recreational satisfaction and trophy poaching motive were combined into an *Optimal Harvest* motive which describes how hunters break game laws for trophies, pleasure, and sport of the challenge. These individuals will not stop at limits or property boundaries to acquire what they seek, a thrill and a status symbol among other violators (Causey, 1989). Eliason's research (2004) along with my study could provide a stepping stone for other researchers to build upon in examining what motivates hunters to violate game laws. Even though the results of my study and Eliason's work (2004) provide mixed results, it is important to try to classify and understand what motivates violators.

High Rolling

I describe individuals in the *High Rolling* factor as rebellious individuals who are excited by the game they create between themselves and Conservation Officers. After a violation has been committed these individuals may see an opportunity to experience a thrill by evading authorities pursuing them. I classified the individuals as high rollers because of the high risk involved in their actions and the pure excitement they experience from committing wildlife crimes. These individuals may begin their criminal career by seeking financial gain and find they really enjoy the gaming aspect of the chase. However, it is also feasible that because of their rebellious nature, the money/financial

gain motive is used as a way to instigate a confrontation with authority thereby finding the excitement they crave while earning a monetary bonus. This relationship is not yet clear. What is clear is that these individuals play serious games that have serious costs and penalties if apprehended. This in itself gives them a sense of stimulation and excitement (Irby et al., 1989).

Protection

Some hunters believe that they have a right to protect themselves or their property at any cost even if that means breaking game laws and regulations. These individuals break game laws to protect their livelihood, themselves from harm, or a species of animal for which they have a vested interest. This description could be shortened to include those individuals who protect what they hold dear. Individuals protecting their livelihood may shoot animals that could potentially impact agricultural crops. Hunters protecting themselves from harm may shoot large carnivores which pose a threat to their safety. Hunters have also been known to try to increase or sustain game numbers that they will hunt or harvest in the future by shooting predators that prey upon those game animals (Muth & Bowe, 1998). In some instances these activities can be performed within the legal constraints of the law (e.g., depredation permits); however, when done illegally, these activities could potentially do serious harm to wildlife populations.

Free Will

I describe individuals in the *Free Will* factor as those who hunt for meat anywhere they please regardless of hunting laws and regulations which may prohibit or restrict their

activities. Eliason (2004) suggests that individuals motivated to illegally hunt for meat are not as prevalent as they once were. However, he also states that Conservation Officers may look the other way when underprivileged individuals illegally shoot animals for meat. This motivation may still be important to individuals because it could provide them with a way to supplement their income. Muth and Bowe (1998) describe individuals who have had land rights taken away where their ancestors have hunted for generations. This may cause resentment toward authority and push these hunters to hunt on land where their family used to acquire meat to feed their families but no longer have legal access.

Optimal Harvest

I describe individuals in the *Optimal Harvest* factor as those who maximize opportunities to shoot trophy animals, or harvest as much game as possible by ignoring game laws. Individuals exceeding limits have been classified as killers, only there for the thrill of the kill (Sawhill & Winkel, 1974). Trophy hunters seek the rare and elusive trophy animal. These hunters sometimes use their success to catapult themselves to a higher status symbol among other groups of violators (Causey, 1989). Even though these two groups of hunters have been classified separately in other studies, both enjoy the pursuit of game and challenge of the sport so much that they are willing to go beyond the bounds of the law to satisfy their cravings.

Classifying Hunters into Motivation Type

A large majority of violators were motivated by *Optimal Harvest*; suggesting that most violators may commit wildlife crimes seeking trophy animals and limitless bags. Other motivation types contained relatively small proportions of violators. When lawful hunters were exposed to the same analysis, a similar pattern was found. However, even though a large proportion of lawful hunters believed violators were motivated by *Optimal Harvest*, another substantial portion of individuals believed violators to be motivated by *High Rolling*. This kind of behavior is usually associated with a glorified version of poachers. Muth (1998) recognizes how the general public in the United States is more familiar with traditional folklore about poachers' narrow escapes and exciting adventures. This suggests that a large portion of the general hunting public has a glorified perception of wildlife crime and criminals. They buy into the traditional folk-lore, mythology, and sensationalism that popular literature and the media project. Popular literature and media have produced a smoke screen making it difficult to recognize what really motivates individuals to break game laws (Muth 1998).

Attitudes Among Motivation Type

The ultimate goal of my study was to compare attitude scores from the COP scale among motivational types of violators. The sample size within motivation types was expected to be somewhat uniform; however, most violators fell into the *Optimal Harvest* category limiting statistical power associated with the analysis. Nevertheless, I can still make some inferences from the data about attitudes toward Conservation Officers. For example, attitudes toward Conservation Officers do not differ among motivation types

within violator groups or between lawful hunters. Because there is no difference among motivation types, managers and researchers may be able to treat violators as a homogenous group when examining attitudes; however, this needs further investigation as my study only investigated azzattitudes toward Conservation Officers.

Future Research Needs

Researchers attempting to synthesize motivations into distinct categories should classify those categories using names consistent with those used in previous studies, if applicable, in an attempt to set a precedent for future research. Human Dimensions research will benefit and be in a better position to advance its understanding when certain motivations are classified and established.

Future research should also study how violators are introduced to criminal behavior by examining the relationships of violators with others at the beginning of their criminal career. The Theory of Differential Association suggests violators learn their behavior from interactions with others through a learning process (Sutherland & Cressey, 1960; Eliason, 1999). Individuals commonly learn deviant behavior at a young age. They are normally surrounded by deviant behavior and are socialized into these criminal values and definitions by close friends and relatives. This learning process includes learning the techniques of committing the crime and involves the delinquent becoming saturated with an excess of definitions favorable to violation of law over definitions unfavorable to violation of law (Sutherland & Cressey, 1960). This suggests there is a decision making process as well. When presented with a situation, the deviant must use the definitions learned from interactions with others to determine whether the outcome

will be favorable or unfavorable according to the law. So, through the process of social interaction, individuals learn how to become deviant (Eliason, 1999). If researchers understand how individuals begin their criminal career they could make significant progress in understanding what motivates hunters to engage in illegal behavior.

The theory of planned behavior (Ajzen, 1985) uses a multiple component model to predict behavior. Law enforcement agencies could be extremely effective in reducing occurrence of violations if individuals' behaviors could be predicted using this model. I do not suggest that researchers would be able to see in the future per se; however, it does suggest that people with certain characteristics, attitudes, and motivations that are surrounded by certain norms and behavioral constraints are more apt to commit game violations. In conjunction with these findings, future studies should acquire the remaining variables necessary to complete the model and predict behavior.

More research should be expended on motivational issues of wildlife crime. Even though my findings uncovered some variations and combinations of motives from previous research (Muth & Bowe, 1998; Eliason, 2004), a definitive categorization of motives ultimately should be reached by examining different aspects of violators. Furthermore, research should improve measurements with more items thereby increasing reliability of each scale. With future research, scientists may be able to make better predictions and evolve current wildlife law enforcement agencies into more effective and efficient programs.

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Table 3.1. Response categories and rates for the 2002-03 Mississippi Statewide Hunter Survey; by respondent group.

Respondent	# Sent	# Returned Useable	# Undeliverable	Response Rate (%)
Legal Hunters	887	336	105	42.9
Wildlife Law Violators	1,033	317	148	36.0

Table 3.2. Factor loadings of motivational items of wildlife law violators using Varimax rotation resulting from the 2002-2003 Mississippi Statewide Hunter Survey.

Item	Factors			
	High Rolling	Protection	Free Will	Optimal Harvest
People illegally hunt primarily for meat			0.703	
Most wildlife law violators sell animals that they kill for financial gain	0.590			
Wildlife law violators hunt until they are satisfied with their kill regardless of legal limits				0.607
Most individuals who violate game laws do so for a better chance to kill a trophy animal				0.833
People illegally hunt because it is exciting	0.483			
Hunting to protect one's self from danger is a just reason for breaking wildlife laws		0.796		
People illegally hunt because they want to rebel against authority	0.790			
If an individual has hunted on a piece of property in the past, they should have the right to continue hunting there even if it gets posted			0.668	
Most people illegally hunt for subsistence reasons			0.542	
People illegally hunt because they do not agree with hunting laws				
People illegally hunt because they like the game it creates between themselves and the conservation officers	0.761			
Hunting to protect one's property from danger is a just reason for breaking wildlife laws		0.793		

Table 3.3. Means (+/- SD) and medians for the Conservation Officer Professionalism attitudinal scale for Violators among motivational groups (high rollers, protection, free will, and optimal harvest) in Mississippi resulting from the 2002-2003 Mississippi Statewide Hunter Survey.

Statement	High Rollers mean(SD) median (*n* = 35) [a]	Protection mean (SD) median (*n* = 36)	Free Will mean (SD) median (*n* = 19)	Optimal Harvest mean (SD) median (*n* = 162)	Significance p - value (x^2) [b]
The conservation officer was knowledgeable about wildlife laws	3.69 (1.08) 4	3.81 (0.82) 4	3.89 (1.05) 4	3.67 (1.05) 4	0.13 (5.73)
I believe the conservation officer treated me fairly	3.36 (1.30) 4	3.42 (1.16) 4	3.63 (1.12) 4	3.21 (1.26) 4	0.27 (3.91)
I believe the conservation officer was professional	3.53 (1.22) 4	3.50 (1.06) 4	3.47 (1.07) 4	3.35 (1.18) 4	0.57 (2.03)
The conservation officer was knowledgeable about wildlife in general	3.60 (1.01) 4	3.68 (0.71) 4	3.84 (0.96) 4	3.59 (0.99) 4	0.25 (4.09)
The conservation officer listened to me	3.16 (1.43) 3	3.25 (1.25) 4	3.68 (1.20) 4	3.13 (1.31) 4	0.04 (8.14)
The conservation officer answered my questions satisfactorily	3.20 (1.35) 4	3.35 (1.12) 4	3.58 (1.12) 4	3.25 (1.19) 3	0.10 (6.28)
The conservation officer was effective in explaining wildlife laws	3.46 (1.17) 4	3.47 (1.06) 4	3.84 (1.17) 4	3.47 (1.09) 4	0.01 (10.60)
The conservation officer made me feel at ease	3.04 (1.22) 3	3.18 (1.03) 3	3.32 (1.07) 3	3.15 (1.15) 3	0.60 (1.87)
TOTAL [c]	27.03 (8.42) 28	27.65 (7.06) 29.5	29.26 (7.43) 31	26.82 (7.73) 28	0.61 (1.81)

[a] n associated with violators
[b] Chi-square used to calculate p-value
[c] Mean based on response format where 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree