

“DUCK COPS,” “GAME WARDENS,” AND “WILDLIFE ENFORCEMENT:” STRESS AMONG CONSERVATION OFFICERS*

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Limited research has been conducted on conservation officers and their levels of stress. Due to the complexities of their job design and the rural nature of their work environment, it is anticipated that these officers would exhibit high levels of stress, specifically related to security, social factors, working conditions, and inactivity/inadequacy. This study is an attempt to expand upon the limited research by analyzing the response of 98 conservation officers (80% of the agency) from the West Virginia Division of Natural Resources, Law Enforcement Section. The findings of this study are limited in that only working conditions were associated with high levels of stress for these officers.

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"The biggest stressor comes from people not knowing what I do. To some I'm a game warden; to others I enforce wildlife, whatever that means; to some I'm just a duck cop. Last I checked, I was a Conservation Officer, enforcing game and fishing laws and protecting natural resources."

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Conservation officers, often referred to as "game wardens," "wildlife enforcement," and "duck cops," has not only had limited exposure in the area of policing, but also in terms of academic research (Walsh & Donovan, 1984; Palmer & Bryant, 1985; Forsyth, 1993; Carter, 2004). And although there has been a rather ample body of literature regarding police stress (Burke, 1993; Crank & Caldero, 1991; Cullen, Link, Traves, & Lemming, 1983; Hageman, 1978; Hillgren, Bond, & Jones, 1976; Kirkcaldy, Cooper, & Ruffalo, 1995; Kroes, Hurrell, & Margolis, 1974a, 1974b; Lawrence, 1984; Lotz & Regoli, 1977; McLaren, Gollan, & Horwell, 1998; Morash & Haarr, 1995; Patterson, 1992; Regoli, Crank, & Culbertson, 1989; Singleton & Teahan, 1978; Storch & Panzarella, 1996; Territo & Vetter, 1983; Terry, 1981; Toch, 2002; Violanti, 1983; Violanti & Aron, 1994, 1995; Wexler & Logan, 1983; White, Lawrence, Biggerstaff, & Grubb, 1985); there has been a limited body of literature regarding small-town and rural police (Aaron, 2000; Bartol, 1982; Oliver & Meier, 2004; Scott, 2004), and still smaller regarding stress and conservation officers (Walsh & Donovan, 1984).

The only stress study conducted on conservation officers, as far as these authors know, partially assessed the work of Sandy and Devine (1978) who identified four unique stress dimensions associated with small-town and rural officers, namely: security, social factors, working conditions, and inactivity. While they found some support for Sandy and Devine's hypotheses, the study did not fully categorize the four dimensions, it assessed three categories of conservation officers (officers, land managers, and supervisors), and it is somewhat dated, having been conducted in the early 1980s.

Therefore, the purpose of this article is to empirically test the four dimensions of small-town and rural stress on sworn conservation officers in the State of West Virginia between the years 1998 and 2002.

LITERATURE REVIEW

Research in the area of police stress has produced quite an extensive body of literature over the past four decades. Research has adequately examined police perception of stressors (Crank & Caldero, 1991; Cullen, et al., 1983; Hageman, 1978; Hillgren et. al, 1976; Kirkcaldy et. al., 1995; Kroes et. al., 1974a, 1974b; Lotz & Regoli, 1977; McLaren, et al., 1998; Morash & Haarr, 1995; Patterson, 1992; Regoli et. al., 1989; Singleton & Teahan, 1978; Terry, 1981; Violanti, 1983; Violanti & Aron, 1994, 1995; White et. al., 1985), the actual types of stressors police experience (Burke, 1993; Crank, Regoli, Hewitt, & Culbertson, 1993; Hageman, 1978; Kroes, 1985; Lawrence, 1984; Marshall & House, 1985; Morash & Haarr, 1995; Patterson, 1992; Reiser, 1974; Sewell, 1983; Singleton & Teahan, 1978; Terry, 1981; Violanti, Marshall, & Howe, 1985; White, et al., 1985; Zhao, He, & Lovrich, 2002), and it has classified these stressors into four major categories: organizational, external, task related, and personal (Kroes, et al., 1974b; Territo & Vetter, 1983; Wexler & Logan, 1983). The first of these classifications, organizational stress, consists of those factors brought on by the bureaucratic nature of the typical police agency and the conflicts that arise between management and line officers (Kroes, et. al., 1974b; Storch & Panzarella, 1996; Toch, 2002). The second, external, consists of those factors related to things that lie outside of policing that are often beyond their control, such as politics and economic constraints (Kroes, et. al., 1974b; Toch, 2002). The third is task related which tend to center on the dangers inherent within police work as related to the daily tasks which police must perform (Kroes, et. al., 1974b; Toch, 2002). And finally, the fourth area, personal stressors (Kroes, et. al., 1974b; Toch, 2002), included those stressors that affect the individual, such as their family life, conflicts between family life and the police profession, and personal feelings of self-actualization and expression (Coman & Evans, 1991; Crank &

Caldero, 1991; Violanti & Aron, 1994).

The research has continually cited the first two, specifically organizational structure and management practices, as being the two leading stressors in policing (Coman & Evans, 1991; Crank & Caldero, 1991; Hillgren et. al., 1976; Kirkcaldy et. al., 1995; Kroes et. al., 1974a, 1974b; Maynard & Maynard, 1982; Patterson, 1992; Storch & Panazarella, 1996; Violanti & Aron, 1994, 1995; White & Marino, 1983). In addition, research has also looked at the issue of coping and effective social support mechanisms for police officers in dealing with these stressors (Aaron, 2000; Anshel, M. H., 2000; Fain & McCromick, 1988; Finn & Tomz, 1997; Patterson, 2003). Despite all of the research in this field there is a paucity of research dealing with small town and rural police departments. The majority of stress studies have tended to deal with large urban police departments serving populations over 250,000 with over 1,000 police officers on down to medium size police departments serving populations over 50,000 with over 100 police officers (Crank & Caldero, 1991; Regoli, et al., 1989). Very little research (Scott, 2004) has dealt with departments serving small-town and rural jurisdictions, those serving populations under 50,000 and often with fewer than 20 officers.

Some research into small-town and rural policing has looked at the psychological characteristics of small-town police officers (Aaron, 2000; Bartol, 1982). In fact, Bartol, with his longitudinal study has done some interesting work in this area, but much of his research has tended to focus on women and gender differences in small-town policing (Bartol, 1982, 1996). Another area of this research has analyzed the differences between urban and suburban and small-town and rural police agencies with some finding differences in police behavior and attitudes (Brown, 1981; Kowalewski, Hall, Dolan, & Anderson, 1984; Mastrofski, Ritti, & Hoffmaster, 1987; Meyers, Heeron, Hingson, & Kovenock, 1987; Powell, 1990; Shaw, 1983; Ness & Rogers, 1982), while others having found no discernible differences (Brooks & Piquero, 1998; Meagher, 1985). More recently, Oliver and Meier (2004), tested the earlier work of Sandy and Devine (1978), which theorized that small-town police officers experience some stressors different from their urban counterparts, namely in the dimensions of security, social factors, working conditions, and inactivity. Their findings

demonstrated that these officers exhibited high levels of stress because they feel vulnerable and isolated in their work due to limited back-up and the size of the jurisdictions they police (See also Oliver & Meier, 2001), because they have very limited peer groups, and the inactivity of their job helps generate feelings of inadequacies (Oliver & Meier, 2004). In addition, those officers with limited stress training exhibited higher levels of stress, while those that had received at least some, exhibited lower levels of stress.

Despite the growing body of literature related to small-town and rural police agencies, there has been a distinct paucity of research into rural conservation officers (Carter, 2004). There have only been four studies that have studied the dangers of conservation enforcement (Walsh & Donovan, 1984; Palmer & Bryant, 1985; Forsyth, 1993; Carter, 2004). The studies by Palmer & Bryant (1985) and Forsyth (1993) were both qualitative studies that looked at the nature of the job, the danger inherent with the job, and the stressful factors these officers face in terms of isolation and fear. The more recent study by Carter (2004), was the first assessment of use of force by and against game wardens who found that wildlife and conservation law enforcement faced very unique organizational and situational differences from their urban, or even small-town counterparts. The organizational differences were the fact that game wardens are typically located in non-enforcement agencies (as is the case in this study) and that the situational differences included near isolation in the performance of their duties with limited to no back-up. The only study to date that has analyzed job stress in conservation officers comes from Walsh and Donovan (1984).

This study of Pennsylvania's Game Commission's Division of Law Enforcement officers found that officers did perceive their job as dangerous (93.5% response), the work was demanding (84.9%), the hours too long (82.7%), and that it isolated them from their family (64%). This study was also administered to administrators and many of the findings were related to the comparison between officer and administrators' perceptions of stress, which, while reporting high in the same categories, administrators consistently reported lower levels of stress than their officers. Finally, the study found no statistical significance for any of the variables related to external stressors such as frustration with the criminal justice system or attitudes about

public service. All of the stressors were either attributed to the nature of the job function, organizational stress, or personal stress.

In light of the paucity of research regarding stress and conservation officers, it is the intent of this article to explore more fully the levels of stress these officers face. Drawing upon the earlier work of Sandy and Devine (1978) who hypothesized a number of dimensions that small-town and rural officers face in their job and testing these hypotheses on a state-wide conservation agency, namely the West Virginia Division of Natural Resources (DNR) Law Enforcement Section, it is anticipated that like the findings of small-town and rural police (Oliver & Meier, 2004), conservation officers will exhibit stress in these same four dimensions, security, social factors, working conditions, and inadequacy.

SMALL-TOWN AND RURAL POLICE STRESS: A THEORETICAL FRAMEWORK

In order to understand the concepts of stress amongst small-town and rural police it is important to first define what is meant by both of these concepts. Stress, for the purposes of this article, is defined as "something that is imposed on a person usually from outside, that is, external or personal factors that bring about some degree of physical or psychological discomfort (Zhao, et al., 2002, p. 48; See also Brown & Cambell, 1994; Selye, 1974; Sewell, 1981). Small-town and rural, for the purposes of this study, is defined as a city or county serving a population under 50,000 using the Census Bureau population estimates (See McDonald, Wood, & Pflug, 1996; Weisheit, Falcone, & Wells, 1999). While both of these concepts, stress (See Anderson, Swenson, & Clay, 1995) and small-town and rural (See Appendix A in Weisheit, et al., 1999), face definitional problems, they are generally well accepted in the literature and will be used for the study at hand.

This study draws upon the work of Sandy and Devine (1978) when they argued that many of the stress factors found in policing and the findings from various urban studies are, in fact, generalizable to small-town and rural police officers. This would make sense in terms of the studies conducted on the perceived stress of the job (Crank & Caldero, 1991; Morash & Haarr, 1995; Patterson, 1992;

Regoli et. al., 1989; Violanti, 1983; Violanti & Aron, 1994, 1995; White et. al., 1985), for it does not matter whether the reality matches the perception only that perceptions of their job can cause stress. A good example of this is the perception of danger inherent with the job (Cullen, et al., 1983). While urban police may face a greater danger in their job due to the increased number of violent crimes and calls for service than their rural counterpart, small-town and rural officers still perceive their job as being dangerous, thus contributing to their individual levels of stress. However, they also theorized that because of the environment in which small-town and rural police operate some of the stressors that they confront on a daily basis are very different from their urban counterpart. They then described four “rural stress factors” or dimensions that are unique stressors to small-town and rural police. These are security, social factors, working conditions, and inactivity (Sandy & Devine, 1978).

The first dimension, security, detailed the first distinction between urban and rural police as being focused on the “extreme sense of isolation in their attempts to confront both domestic and criminal situations” (Sandy & Devine, 1978, p. 42). Due to the jurisdictions size and low manning levels, small-town, rural police officers and deputy sheriffs often work large geographical areas with little to no support in the performance of their duties. Rural police departments often cover extremely large counties with less than ten deputies, which can entail only one deputy on full patrol during any given shift. In many cases another deputy is on stand-by, but because of the rural environment and large geographical area, it may take the back-up a significant amount of time to assist. For example, the Greenbrier County Sheriff’s Department patrols an area covering 1,023 square miles, which is mainly rural with only a few small towns and consists of a total population of 35,000 people. They do this with only 17 Deputies (Oliver & Meier, 2001). Due to 24-hour coverage, jail duty, and courtroom duty, the Sheriff’s Department will often have only five deputies on duty at any given time with usually only two or three available to respond to calls. When backup is needed if the only officer available is on the other side of the county it can often take an hour to respond due to the inadequate road system that consists of small two-lane highways that tend to wind along the river bottoms or travel over steep mountains, both of which

provide limited visibility. All of this can mean that officers often respond to calls alone, without readily available back-up, which can create feelings of isolation for these officers. Thus, while calls like domestic violence may be highly stressful, far more "simple" calls like auto accidents or even giving out a ticket can also become highly stressful to the small-town and rural officer.

The second dimension they described consisted of "social factors" which entailed the "absence of anonymity" in their job (Sandy & Devine, 1978). While police officers in large metropolitan police departments can go off-duty and be anonymous amongst the public, small-town and rural environments do not allow for this. As everyone typically knows everyone else in a small-town, when police officers go somewhere off-duty they are immediately recognized and associated with their full-time occupation. Never having the opportunity to be anonymous, the "fish bowl effect" as it were, can create high levels of stress among officers. This can cause further stress because when officers respond to calls they may be dealing with family, friends, or at least acquaintances, and perhaps nowhere can this be more difficult than in responding to a DOA (Dead On Arrival) call. This type of dilemma was perhaps best dramatized in an officer's recollection when he described his response to a domestic disturbance which turned out to be the principal of the local high school from which the officer had graduated. The problem arose from "the officer's inability to be perceived as an authority figure . . . [which] was greatly diminished by the ex-principal's perception of this officer as a student rather than a law enforcement officer" (Sandy & Devine, 1978, p. 43). Moreover, all of this makes it more difficult for officers to have friends outside of the policing profession because the fish bowl makes it difficult for them to distance themselves from their profession. Finally, the two researchers also explained that because the departments in which officers work are small, they have a limited number of peers with which to communicate, thus decreasing the number of outlets for discussing activities on a normal shift or the response to a highly stressful call.

The third dimension entailed the working conditions of small-town and rural police officers (Sandy & Devine, 1978). Here they listed the problems of economic constraint and a lack of resources as increasing the level of stress among officers. They note that the

“salary level is often significantly less for rural officers than for those in urban areas” and “the possibility of training is severely limited due to the lack of available funds and the inability of the department to provide replacements for officers participating in training programs” (Sandy & Devine, 1978, p. 43). One area in which the lack of resources may contribute to the higher levels of stress is the lack of adequate training regarding stress and stress reduction methods.

The final dimension described by the authors was the problem of “inactivity.” Here they note that many small-town and rural police officers come to realize that “boredom resulting from long periods of inactivity often is a factor contributing to job dissatisfaction” (Sandy & Devine, 1978, p. 44). Because the rate of crime is low and because rural populations tend not to call the police, officers find themselves undergoing long periods of time without a call. This inactivity was hypothesized to have two affects on officers performance, “first, the lack of activity fails to provide the rural officer with adequate sensory stimulation, and, second, inactivity often has a detrimental effect on officer esteem” (p. 44). As a result, officers begin to feel that they are useless and that they are doing something wrong or evil. As their expectations and desire to perform in their job do not match the reality, they begin to battle with themselves over their utility, thus increasing their lack of self-confidence. The underlying results of inactivity, then, are feelings of inadequacy.

These four dimensions provide a number of hypotheses for the theory that while small-town and rural police may experience stressors similar to their urban counterpart they also have a very different set of stressors due to their environment. These four dimensions are also closely related to the four factors of stressing previously cited, in particular the external stressors (the nature of small towns, “fishbowl” effect, etc.) and task-related stressors (inadequacy, limited resources, etc.), but in a very different manner from previous research, primarily due to size. This, then, becomes an important theory for understanding whether or not size matters as it relates to the problem of stress in policing (Brooks & Piquero, 1998; Brown, 1981; Kowalewski, et al., 1984; Mastrofski et. al., 1987; Meagher, 1985; Meyers, et al., 1987; Powell, 1990; Shaw, 1983; Ness & Rogers, 1982).

The aim of the present study, then, was to test the theory and

hypotheses as delineated by these two authors. In order to do this, the hypotheses were divided into the four dimensions previously described to answer the questions: 1) How do levels of security influence stress among small town and rural officers?; 2) What influence do social factors have on officer's stress?; 3) Do working conditions in small town and rural areas promote or reduce stress?; and 4) How do personal factors contribute to stress?

METHODS

The testing of Sandy and Devine's theory is derived from a larger study, supported by the Bureau of Justice Assistance, investigating stress in small-town and rural police departments. Assistance was received through an Open Solicitation grant in 1997 (Bureau of Justice Assistance, 1997). In the Spring of 1998, a train-the-trainer session was held to instruct personnel from the policing profession, mental health profession, and criminal justice academics, in an eight-hour block of instruction dealing with stress, stress in policing, stress in small-town and rural policing, stress management, and Critical Incident Stress Debriefing (CISD). One of the key instructors for this session was a Lieutenant with the West Virginia Division of Natural Resources (DNR) Law Enforcement Section who had an extensive background in stress training. Upon completion of this training he requested that the conservation officers in the DNR also be allowed to attend the training. While this was not the intended audience, it was agreed that as long as the DNR officers participated fully, including the completion of the surveys.

The instruction began in the Fall of 1998, and was offered to every police and sheriff's department in the State of West Virginia. The training was also offered on-site at the police and sheriff's departments at no cost to the agency, which provided a strong incentive for police and sheriff's departments to request the training. The training also met the mandatory eight hours of in-service training required of all law enforcement by the State for re-certification purposes each year. Participants were notified at the beginning of the training that the survey was not a requirement for receiving the eight hours of training that their participation was entirely voluntary, and they were provided a consent form describing the nature of the study.

Individuals who agreed to participate in the study were asked to first complete the consent form, complete all of the survey questions, and then return it in a sealed envelope to the instructor. The instructors, at the completion of the training, were required to mail all of the sealed envelopes to a blind (an individual who did not participate in any of the training), who was then responsible for coding each survey, removing the consent form and any identifying information, and mailing them to the researchers. Demographic information on respective departments was withheld until the training and study was completed in the Spring of 2002. The survey instrument used in this study was approved by the West Virginia University Human Subjects board in the Spring of 1998, and was pre-tested on three departments during that same time period.

A total of 776 law enforcement officers in West Virginia ultimately received the training with 100 conservation officers from the DNR attending. Of these 100 officers attending, 98 completed surveys. As there were 121 sworn conservation officers employed at the time of instruction, the 98 officers provided us with an attendance rate of 80% for all officers from the West Virginia DNR. Due to the high return rate from this one state-wide agency, it was determined that a separate database would be constructed to analyze their responses as their job design is highly unique when compared to the other small-town and rural officers in the entire study (See Table 1).

The sample, again, consisted of a strong representation of the DNR conservation officer population (80%). The percentages of the DNR sample compared well with the DNR population in terms of gender, race, mean age, average number of years in law enforcement, and income. As was evident from both the sample and population figures, the DNR is heavily male and composed mostly of whites. The average age of the officers was 42 with 16 years of law enforcement experience. Sixty-four percent of the sample indicated they were married, 14 percent divorced, and another 14 percent were separated at the time of the survey. In terms of education 52 percent reported to have a college degree with another 34 percent reporting "some college." This high level of education is primarily due to the fact that since the early 1990s, new recruits at the West Virginia Police Academy (there is only one for the state) earn 60 college credits in the academy through Marshall University in Huntington,

West Virginia. They typically only need an additional 15 hours of general education requirements to obtain their Associate's degree. The study did not delineate between Associates, Bachelors, or Master's degrees in terms of the variable "college education." Finally, it should be noted that nearly half of the officers in the sample have previous military experience (49%).

Table 1
Characteristics of the DNR Sample and the DNR Population

Variables	DNR	DNR Sample
Sex		
Male (%)	97	99
Female (%)	3	1
Race		
White (%)	95	97
Black (%)	2	1
Other (%)	2	2
Marital Status		
Married (%)	-	64
Divorce (%)	-	14
Separated (%)	-	14
Education		
GED (%)	-	1
High School (%)	-	12
Some College(%)	-	34
College Degree (%)	-	52
Military (%)	-	49
Officers		
Number of Officers DNR	121	98
Average Age (Years)	42	42
Avg Years Law Enforcement	15	16
# sick days past year	-	2.6
# hrs. past stress training (mean)	-	1.08
Income (mode)	\$20,000-24,999	\$20,000-\$24,999

Dependent Variable

The original study consisted of three sections. The first included general questions based upon the stress in policing literature, the Police Stress Survey, and the specific research on stress in small-town and rural policing. The second section was based upon the Adult Manifest Anxiety Scale (AMAS) (Reynolds, Richmond, &

Lowe, 2003). The third section consisted of demographic variables. One question that was included within the larger study was a five-point Likert scale asking respondents' to rate the stress inherent within their job. A "5" was reported as "high stress" and a "1" as being low stress with the median being considered "average stress." For the purposes of this study, this question was selected to represent the perceived level of stress among small-town and rural police officers in order to test the theory and hypotheses of Sandy and Devine (1978).

Explanatory Variables

The explanatory variables for this study were derived from both the first and second sections of the survey. The first section included basic questions related to the percentage of respondent calls dealing with family, friends, and acquaintances, and how far away their average back-up is in minutes. In addition, a number of Likert scale questions were asked, such as whether or not they found writing tickets to be stressful. The second section consisted of questions from the AMAS that specifically looked at behaviors related to anxiety posed in a simple "yes or no" format. The AMAS includes such questions as "I certainly feel useless at times," "I am certainly lacking in self-confidence," and "I often battle with myself" (Reynolds, Richmond, & Lowe, 2003). A number of these questions provided good explanatory variables for the hypotheses that Sandy and Devine (1978) delineated in their article. For instance, when they explained that inactivity would lower an officers' self-esteem and that they would have feelings of uselessness, the AMAS question stating, "I certainly feel useless as times," addresses this variable.

Control Variables

The control variables for this study were those demographic variables that previous research has associated with higher levels of stress in both work and personal environments. These variables included marital status (Horwitz, McLaughlin, & White, 1997; Patterson, 2003), gender (Patterson, 2003; Roxburgh, 1996; Thoits, 1986; Turner & Marino, 1983), age (Patterson, 2003; Turner & Marino, 1983), race (Zhao, He, & Lovrich, 2002), education (Ayres & Flanagan, 1992; Patterson, 2003), the number of years of police

experience (Buzwa, Austin, & Bannon, 1994; Evans, Coman, & Stanley, 1992; Patterson, 1992, 2003; Zhao, Thurman, & He, 1999) and income (Patterson, 2003; Zhao, Thurman, & He, 1999). The variable of past military experience was also included as a control variable.

The variables age and years of experience were measured in raw years, gender was coded as "1" for male and "0" for female, and race was coded as "1" for white and "0" for other. The marital status variable was broken down by asking the respondent if they were married and if they were divorced. These variables were kept separate due to the high rate of officers reporting multiple divorces so that someone answering that they were married, who had also been divorced a number of times, would be captured. For both variables a "1" reported in the affirmative and a "0" reported in the negative. Income was reported in brackets of \$5,000 with the last category being \$40,000 or more. Education was coded as "1" for college degree and "0" for no college degree. This was done for the purposes of avoiding the high number reporting "some college" due to Marshall University, in cooperation with the West Virginia State Police Academy, providing 60 college credit hours for all academy graduates. Finally, military was coded as "1" for prior military service and "0" for none.

RESULTS

Table 2 presents the Pearson correlations which examined the direction and strength of the relationship between the independent variables and the perceived level of stress (Patterson, 2003). As the table shows, although the associations were weak, female officers ($r = -.03, p < .05$), those officers not married ($r = -.02, p < .05$), divorced ($r = .01, p < .05$), and without either a college degree ($r = -.01, p < .05$) or military experience ($r = -.02, p < .05$) were more likely to report higher levels of stress. These relationships are largely in keeping with the findings of previous studies (Buzwa, Austin, & Bannon, 1994; Evans, Coman, & Stanley, 1992; Patterson, 1992, 2003; Roxburgh, 1996; Thoits, 1986; Turner & Marino, 1983; Zhao, He, & Lovrich, 2002; Zhao, Thurman, & He, 1999).

Table 2
Correlations Among Demographic Variables and Reported Levels of Stress

	X1	X2	X3	X4	X5	X6	X7	X8	X9
X1 Age									
X2 Sex	.09*								
X3 Race	-.02*	-.01*							
X4 Marriage	.39*	.43	-.04						
X5 Divorce	.10*	.04*	-.09	.09					
X6 Education	-.44	-.09	.06	-.22	-.01*				
X7 Police Exp.	.81	.10*	.02*	.31*	.12*	-.41			
X8 Income		.46	.04*	-.00*	.14	.04*	-.27	.45	
X9 Military	.39	.09	-.06	.22	.19	-.34	.21*	.10	
Y1 Stress	.16	-.03*	.13	-.02*	.01*	-.01*	.29	.24	-.02*

* Denotes statistical significance at the .05 level

Table 3 presents the results of the multivariate analysis exploring the degree to which police officer stress can be predicted by each explanatory variable and the control variables (Zhao, He, & Lovrich, 2002). The R-squared statistics for all of the models were statistically significant, ranging from .10 to .32 in the “work under tension” model. It is recognized that the impact is modest for the explained variance does not exceed 18 percent of the total variance explained for most models. In addition, none of the variables in the security or social factor dimensions were statistically significant, and only one model under the inadequacy dimension was significant.

In terms of the working conditions dimension, four of the six models reported statistical significance ($p < .05$). As hypothesized the more training the officers and deputies had regarding stress and stress management, the lower the perceived levels of stress officers and deputies reported. However, while stress training over a lifetime was highly associated, it should be noted that stress training over the previous 12 months was not significantly associated. In addition, those officers agreeing with the statement that they “work under tension” ($p < .001$) were more likely to report higher levels of stress. And, those officers who reported taking a high number of sick days ($p < .01$) and those who had sustained injuries ($p < .01$) were more likely to experience higher levels of stress.

The last dimension, inactivity, confirmed only one of four hypotheses signifying feelings of inadequacy, in that those who had

personal feelings that they had "done wrong or evil" reported higher levels of stress ($p < .001$). The other three variables, lack of self-confidence, battle with self, and feelings of uselessness were not statistically significant.

Table 3
Regression Analyses With Reported Stress Level as the Dependent Variable

Dimensions (Variables)	R-Squared	Beta	Beta (Standardized)
Security			
Back up	.18*	.00	.07
Feelings of Isolation	.18*	.37	.17
Tickets	.16*	.00	.10
Social Factors			
More Stress Than Friends	.16*	.03	.05
Talking after Shift	.18*	-.14	-.17
Talking after Bad Call	.18*	-.09	-.13
Known DOA	.16*	-.00	-.09
Calls with Family	.16*	.00	.07
Calls with Friends	.18*	.01	.18
Calls with Acquaintances	.17	.00	.14
Talking with Family	.11	.00	.10
Working Conditions			
Income	.10	.14	.44
Stress Trng (12 months)	.12*	-.02	-.16
Stress Trng (lifetime)	.10*	-.00	-.01*
Work under tension	.32*	.90	.45*
Sick days	.17*	.03	.31*
Injury	.15*	.04	.29*
Inadequacy			
Lack Self-Confidence	.11*	.38	.10
Battle with Self	.10*	.14	.08
Done wrong/evil	.17*	1.23	.29*
Feel Useless	.10*	.16	.06

* Denotes statistical significance at the .05 level

DISCUSSION

The correlation analysis results demonstrated that the variables of sex, marital status, education, and military experience were related to higher levels of stress. Those that were female, single or divorced, and with no college degree or military experience were more likely to report higher levels of stress. As this is largely in

keeping with previous studies analyzing stress among law enforcement officers (Buzwa, Austin, & Bannon, 1994; Evans, Coman, & Stanley, 1992; Patterson, 1992, 2003; Roxburgh, 1996; Thoits, 1986; Turner & Marino, 1983; Zhao, He, & Lovrich, 2002; Zhao, Thurman, & He, 1999), this suggests that in some ways police officers from all jurisdictional sizes tend to experience similar types of stress for those variables associated with officer stress. While most of these stress studies have tended to emphasize large metropolitan police agencies, recent research into small-town policing also yielded similar results (Oliver & Meier, 2004).

Looking at the results more fully would appear to show that both female and minority officers have a number of significant correlations, however, any findings associated with these two variables must be treated with caution as the number of female and minority DNR officers was small in population as well as in this sample (See Scott, 2004 for similar results). However, this would be in conformity with previous research which has found higher levels of stress, specifically among female officers, in small-town and rural agencies (Bartol, 1982, 1996; Bartol, Bergen, Volckens, & Knoras, 1992; Oliver & Meier, 2004; Wexler & Logan, 1983). Also of some interest is marital status, in that those officers with college degrees were less likely to divorce, but more importantly those officers that were not married experienced higher levels of stress, as did those that were divorced. This may suggest that the institution of marriage may assist officers who face high levels of stress in their jobs in alleviating their stress. However, this study did not assess the quality of marital relationships. It should also be noted that the variable education, those officers having college degrees, was associated with lower levels of stress ($p < .05$), suggesting that officers who take advantage of higher education opportunities are better able to deal with high levels of stress (Patterson, 2003).

Turning to the four dimensions and the regression models it would appear that there is limited evidence to support the theory and hypotheses of Sandy and Devine (1978) in regard to conservation officers. Unlike previous research on small-town and rural police officers which found some support in all four dimensions (Oliver & Meier, 2004), this study only found support in two dimensions. In addition, in the previous research, security was the dimension that

demonstrated the strongest correlations followed by social factors. In this study, none of the models in either dimension were correlated with stress. It would seem that based upon the nature of the Conservation Officers' job they would not have back up readily available, work in a very isolated environment, and when issuing citations (tickets) often find themselves alone with the violator (West Virginia Conservation Officers Association, 2006). Yet, these variables were not associated with stress. This may simply suggest that the DNR is far better at transmitting the nature of the conservation officer's position and the lack of security inherent within their work environment. For example, drawing upon the very straightforward information on what it takes to be a conservation officer from the West Virginia Conservation Officers Association (2006) website; one can see the bluntness with which the DNR role is stated:

The dangers a Conservation Officer encounter are many, including working alone, working in remote secluded areas of the county, confronting armed, and in many cases subjects who are under the influence of alcohol or drugs. All Law Enforcement Officers face a very real and serious element of personal danger due to the very nature of the law enforcement profession. Conservation Officers are faced with these and many other dangers, the most prominent danger is working alone without backup. Many times the only backup available to a Conservation Officer . . . may be an hour or more away, and only if the other officers responding are familiar with the area.

This type of bluntness, transmitted to these officers in the hiring, training, and fielding phases, may make them more aware of their security risks, hence diminishing this as a source of stress.

The other dimension that did not demonstrate any statistical significance among the various models was that of social factors. Sandy and Devine (1978) had theorized that due to the nature of small-town and rural jurisdictions, the so-called "fish-bowl" effect, officers would experience higher levels of stress. Many of these variables were associated with knowing the individuals when

showing up on a call or not having many outlets to discuss their work. Yet, none of these variables were associated with higher levels of stress among conservation officers, unlike previous research on small-town and rural officers (Oliver & Meier, 2004). This may suggest, like the security dimension, officers are better prepared for encountering these types of situations or that the extreme rural nature within which they work means that they often do not come into contact with the people they are investigating on a routine basis. In addition, DNR officers may have outlets for discussing the nature of their work with peers, unlike small-town and rural police, although this does not seem very likely. Further research into the social nature of conservation officers is wanting.

The working conditions dimension was the only one with several models demonstrating statistical significance. As hypothesized, the officers with more stress training over their careers reported lower levels of stress. While stress training over the previous twelve months was not significant, mainly due to the lack of training resources, stress training does appear to reduce the levels of stress. This is largely supported within the stress literature which states that education is key to reducing stress (Crank & Caldero, 1991; Cullen, et al., 1983; Hageman, 1978; Hillgren, et al, 1976; Kirkcaldy et. al., 1995; Kroes, et al., 1974a, 1974b; Lotz & Regoli, 1977; McLaren, et al., 1998; Morash & Haarr, 1995; Patterson, 1992; Regoli, et al., 1989; Singelton & Teahan, 1978; Terry, 1981; Violanti, 1983; Violanti & Aron, 1994, 1995; White, et al., 1985). In addition, those officers reporting that they felt they worked under a great deal of tension were significantly ($p < .001$) more likely to report high levels of stress. In addition, those officers that took more sick days over the previous years or had sustained some type of injury, were also more likely to report higher levels of stress ($p < .01$). These three factors suggest that the nature of the work as a conservation officer itself contributes to high levels of stress, yet one means of effectively dealing with such stress is education.

The last dimension, inactivity, demonstrated some support for Sandy and Devine's (1978) hypothesis that inactivity and boredom can lead to feelings of uselessness and self-conflict due to the disconnect between what they perceive to be their job and the realities they discover in serving in a small-town and rural agency.

There was only one model that was statistically significant and that was among officers who reported they often felt they had done wrong or evil demonstrated higher levels of stress ($p < .001$). Stress was not associated with feelings of uselessness or lack of self-confidence, suggesting the DNR officers did not have a conflict between perceptions and realities of their job, but rather conflicts with themselves.

CONCLUSION

The findings reported here have some important theoretical and practical implications. First, they provide an additional test of the theory and hypotheses announced by Sandy and Devine (1978) which have had limited testing regarding small-town and rural law enforcement (Anderson, et al., 1995; Bartol, 1996; Bartol, et al., 1992; Oliver & Meier, 2004), especially when it comes to conservation officers (Walsh & Donovan, 1984). This test of the theory and hypotheses provides some insight into the validity of their assertions as grouped into the four dimensions. The research thus concludes no support for their security dimension in that the nature of the job of conservation officers does not appear to be associated with stress, despite the high levels of risk inherent within their job. While this is a satisfactory finding for conservation officers, it may highlight implications for small-town and rural police. As both police and sheriffs in these environments reported high levels of stress associated with security (Oliver & Meier, 2004), and conservation officers did not, it may demonstrate the DNR is more forthright about the nature of the work and officers going into this field are well aware of the working conditions and dangers. Small-town and rural police, on the other hand, may not be told or as aware of the security dimension factors, such as limited back-up, hence when they experience it, it generates stress. Therefore, it would be recommended that small-town and rural police departments be more forthcoming on the working conditions these officers will face. In addition, the social factor dimension of this study also found no support for Sandy and Devine's (1978) hypotheses in that conservation officers do not appear to be affected by any of the factors associated with small-town and rural communities. This may also be reflective of a greater awareness of the nature of the job of a

conservation officer.

The conclusion for the working conditions dimension supports the assertion that a lack of resources, preventing adequate stress training, can contribute to higher levels of stress and that the working conditions of conservation officers does in fact contribute to high levels of stress which is in keeping with previous research (Walsh & Donovan, 1984). Finally, the inadequacy dimension is only given partial support in that while conservation officers may feel they have often done wrong or evil, this does not necessarily contribute to a lack of self-confidence or feelings of uselessness.

The second implication that this study would suggest is that stress intervention programs need to be implemented for conservation officers. While their larger urban counterparts often have these types of programs, small and more rural agencies often lack the resources and knowledge about these types of programs. Bringing them to these conservation agencies is just as important as keeping them active in the large metropolitan police departments. These should include peer support and counseling programs such as Critical Incident Stress Management (CISM), which also incorporates Critical Incident Stress Debriefing (CISD), but should also include the opportunity for mental health counseling (Finn & Tomz, 1997; Scott, 2004; Sewell, 2002). This need was highlighted during the conduct of this study, for shortly after beginning the training it had to be stopped as many of the officers were approaching their instructors and identifying themselves as needing help. Since there was no mechanism in place to assist these officers, a peer support network had to be established and mental health workers brought in to conduct confidential counseling.

Finally, this study would suggest that future research continue to explore the topic of conservation officers, especially by researching the extreme rural environment in which they work and the nature of their role in society. Further research in conservation officer policing may look to such methods as personal interviews, focus group studies, or further surveying, in order to develop more robust knowledge of those unique factors related to these specific police environments. It seems a shame that the majority of work regarding police stress comes from large metropolitan agencies with limited research into the truly small-town and rural agencies such as

conservation officers. Yet, this should provide a future direction for research and since stress education appears to be associated with lower levels of stress, perhaps the next step is to determine if education on the working conditions of the so-called "duck cops" would in fact reduce their levels of stress.

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