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## Measuring Crime And Deviance: Law Enforcement Off The Pavement

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## Measuring Crime And Deviance: Law Enforcement Off The Pavement

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**Abstract:** This study operationalized quantitative measures of crime and deviance through the categorization of coding narrative violations as a specific section of the law. The aggregate number of violations in the game and fish, waters of the state, ports, and watercraft, and conservation and natural resources categories, which make up the majority of the total violations, suggests that these laws may be a priority for law enforcement or that there are many people violating these rules. However, without more information it is difficult to say what is significant about the data without more context. The difference in citations and warnings between the crimes and offenses category and the motor vehicles and traffic category may be due to various factors such as the complexity of offenses, enforcement priorities, and ease of enforcing specific rules. Moreover, the relatively low percentage of violations in the alcoholic beverages, criminal procedure, health, and insurance categories suggests that these codes are not as heavily enforced or may be less relevant to the studied population. Therefore, this study highlights the need for detailed incident-based data to measure the extent of game warden work overlap with routine law enforcement, and for a nuanced understanding of the factors that influence enforcement priorities and strategies.

**Keywords:** Game warden, Law enforcement off the pavement, Conservation law enforcement, Wildlife crime, Conservation crime, Recreational crime, Wildlife management area, Public fishing area

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### Introduction

Who, what, when, where and how one could hunt was likely of no concern to anyone at the dawn of humanity because the protection, propagation, and preservation of wildlife in those long-ago days surely operated in tune with nature. It is out of this primal need, in addition to population growth and simple societal survival needs that the game warden was born.<sup>1</sup> Whether there is any sort of Neanderthal collective conscious long before the academic establishment of Sociology (Durkheim, 2014) or any imagination comparable to routine activities theory (Cohen & Felson, 1979) is beyond the scope of

this interdisciplinary research. The genesis of wildlife law enforcement as we know it today can be linked to the Franks. They were solely focused on wildlife protection. An age where the laws were not common, more so tribal, and what law enforcement there was took the form of a king's prerogative. Whether their current duties and responsibilities are uniquely American or are otherwise a hybrid of cultures and traditions telling of the Old World long before the Virginia Company of London or the Plymouth Company colonized the New World remains subject to debate. A case can be made that the genesis of wildlife law enforcement is telling of

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<sup>1</sup> In our study we refer to law enforcement personnel tasked with the specific duty and responsibility of enforcing conservation and natural resource rules, regulations, and laws as game wardens.

a Merovingian culture that sprang from the collapse of Roman hegemony (Goldberg, 2013; Wolfe, 1970).

What is clear is the state game warden service was established during the political era of American policing (Marks, 2013), and in the years since they have been vested with additional police powers beyond that of their original mandate (Falcone, 2004). For instance, after the (Federal) Boating Safety Act (1971) was passed, game wardens were required to police boating safety in order to meet grant requirements (Chiang, 1999). Hence the issue arose of how to quantify this change in responsibility within the framework of police authority. Morse (1973) noted most state game wardens did not possess general police powers; thus, the criminal procedure of crime and deviance routinely policed by uniformed police did not cater to the constitutional rubric of a very specialized function – the enforcement of game and fish laws. In the years since, academia has offered a plethora of research in the area of law enforcement. Some say game wardens remain specialists, while others maintain that they are generalists. Both camps agree that they are policing crime and deviance typical of the work of uniformed police personnel. Our paper seeks to add to this body of knowledge, but we do so in the context of measurement. We begin with a succinct review of the literature, before moving on to describing the research setting and an overview of police powers.

### Literature Review

Goldberg (1970) offers credible evidence that game wardens first appeared nearly half a millennium prior to the Norman Conquest of England during the inforestation period. For context, the royal prerogative of inforestation is analogous to eminent domain except these vast tracts of primeval forest were not to be converted to public use. Today, these are equivalent to wildlife management areas, public fishing areas, and other recreational areas including parks and other historical areas. At the time, however, the establishment of royal forests by Frankish kings signaled the start of a significant shift in the way game ownership was viewed legally (Wolfe, 1970). Often misnomered as a geographic term, “royal forest” is actually an

organizational term (Jørgensen, 2010), a hierarchal institution, if you will, with a law enforcement jurisdiction distinct from that of the common law of the time (Young, 1972). In the Duke of Normandy’s case, the shire reeve may have had jurisdiction to enforce his forest law initially (Morris, 1918), but in time wardens of the forest were delegating those duties and responsibilities to royal foresters who carried out the law enforcement function on foot, pro bono (Turner, 1901). Eventually, the institution became obsolete and faded away into history until it was reconstituted by James I (Kirby & Kirby, 1931).

Unlike those of royal foresters, the duties and responsibilities of royal gamekeepers extended beyond protection to include the propagation and preservation of wildlife. Kirby’s (1933) synopsis of English game laws is particularly telling of the political facts of those days and times. However, it is uncertain whether the power of the Stuart Monarchy impacted the duties and responsibilities of game wardens in the New World. One, the police powers of royal gamekeepers did not extend beyond the shores of England. Moreover, poaching was perhaps of least concern to those invested in the fur trade during colonization because lawmakers defined actus reus as the sale rather than the harvest. Lund (1975) writes, “so the offense could be moved out of the wilderness and into the marketplace, where controls could be effectively enforced” (p. 724). It is not clear whether game wardens, known then to be deer-reeves, were responsible for policing the sale, but the fact that they were elected rather than appointed by a monarch suggests that democracy played a significant role in the establishment of the county game warden system (Marks, 2013). Smith (1901) writes that they are public servants elected by local freeholders with duties and responsibilities separate from that of a constable. What became of deer-reeves is outside the purview of this study. Essentially, very little is known about game wardens following congressional ratification of the Treaty of Paris (Kawashima & Tone, 1983). Up until the mid- to late eighteenth century, according to Stene (1945), state and territorial legislatures relied on local law enforcement officials.

Marks (2013) noted that the duty and responsibility of game warden work remains decentralized to the county level well into the political era of American policing and has undergone several changes over the years. Different agencies and commissions have been created, abolished, and reorganized with the duties and responsibilities being transferred and assigned to different levels of government and personnel. These mergers saddled game wardens with additional duties and responsibilities outside of their original mandate, which by extension triggered a steady increase in face-to-face contacts with individuals participating in recreational activities outside of the fish and game code (Falcone, 2004). Wildlife biologists are among the first to recognize that boating, camping, and other recreational activities are not immune to crime and deviance. Morse (1973) in particular noticed "a large but unmeasured increase in the number of special laws and regulations [that they] required to enforce" (p. 41). Furthermore, law enforcement research in those days was not a priority (Beattie & Giles, 1979; Beattie et al., 1977), perhaps due to agency resistance (McCormick, 1969).

Ultimately, the matter has become one of police power. Palmer and Bryant (1985) established that game wardens' work routines are not so much different from urban police officers, who do not necessarily uphold law and order in a consistent manner (Wilson, 1968), nor spend their entire shift actively detecting criminal activity (Kelling et al., 1974), and often deal with an agitated, aggressive, belligerent, and sometimes intoxicated public (Van Maanen, 1978). Forsyth (1994) confirmed that their official behavior follows a pattern previously identified in prior research, especially in rural areas that have experienced significant social change. Neither Palmer and Bryant (1985) or Forsyth (1994) question whether game wardens have become generalist law enforcement officers who engage in a variety of traditional law enforcement tasks.

Survey data suggests the typical outdoor recreationist may be unaffected by criminal activities taking place on public lands and waters (Chavez & Tyson, 2000). Carter's (2006) study suggests general

police powers are more often than not used in support of other law enforcement agencies or agents where the incident is a matter of public safety or if discovered while investigating another crime. Eliason's (2007) findings provide limited support that the enforcement of wildlife regulations remains their primary responsibility, despite enforcing other laws. Like Carter (2006), he writes that these crimes are typically discovered incidental to compliance with fish, game, and boating laws or when violations occur on state-controlled lands, on state waters, or when other law infractions are committed by hunters, anglers, and boaters. Shelley and Crow (2009) found game wardens are spending a substantial proportion of their time on traditional law enforcement tasks in addition to enforcing laws associated with fish and wildlife, which suggests nature and scope of game warden work in Florida is more generalist than specialist. Given their findings, we heed their call to further examine the impact on the nature and extent of the generalist role orientation on the fish, wildlife, and natural resources in a context that has not yet been studied. In doing so, we address the following research questions:

1. Is it possible to operationalize valid statutory measures of crime and deviance policed by game wardens? If so, do they function to describe the nature and extent of law enforcement off the pavement in said southeastern state?
2. What is the typical narrative violation per chapter? What percent of all violations does it account for each chapter? Is that the only narrative violation telling of that statute, or are there more? If there are more, how does that affect the total percent of variance?
3. Is it possible to operationalize an independent or dependent variable that satisfies the assumptions of multivariate analysis?

### Research Setting & The Georgia Department of Natural Resources, Law Enforcement Division

Marks (2013) notes that the Game and Fish Code was policed at the local level for the first time by a state agency when lawmakers created the Georgia Department of Game and Fish in the year 1911. The

county warden system remained intact, but now they and their deputies were appointed by a political appointee who served at the pleasure of a governor. Hitherto, said code was policed in militia districts by county game wardens who had been appointed by a superior court judge after being nominated by fifty freeholders. The commissioner's primary duty was to ensure compliance with state laws protecting, propagating, and preserving wildlife, and to quickly prosecute any violations of these laws.

In 1924, the creation and establishment of the Georgia State Board of Game and Fish marked a fundamental shift in the administration and organization of wildlife law enforcement. One, the law enforcement component of the Department of Game and Fish was no longer overseen by a commissioner who served at the pleasure of the governor. State lawmakers transferred this authority, power, and duty to three board members appointed by the governor with the advice and consent of the senate. Primary duties and responsibilities remain unchanged except that they would now be carried out by county game wardens and their deputies under the general supervision and control of the commissioner and the board.

The next reorganization occurred in 1931 when state lawmakers abolished the county warden system and replaced it with a centralized law enforcement model under the control and supervision of a commissioner vested with the authority to appoint a supervisor of wardens and as many state game wardens as deemed necessary to enforce the game and fish code. In 1937, state lawmakers created and established the Georgia Department of Natural Resources (GA DNR). The powers, duties, and authority formerly exercised by the State Game & Fish Commission were transferred to a Division of Wildlife under the control and supervision of a director and the commissioner of natural resources. However, this union was short-lived as state lawmakers abolished the division five years later and recreated the State Game and Fish Commission under the control and supervision of a commissioner in 1943. This legislation is particularly telling as it mandates the creation of a uniformed law enforcement division of

game wardens that served at the discretion of a director. In 1972, Governor Jimmy Carter reorganized the agency once again making it a division of the GA DNR and placed it under the supervision of a director, who was vested with the operational, field, and administrative functions of the state game and fish commissioner.

Today the Law Enforcement Division is one of six divisions organized under the GA DNR, which is an administrative agency responsible for sustaining, enhancing, protecting, conserving, and preserving the state's natural, cultural, and historic resources ([gadnr.org](http://gadnr.org)). The division is organized into six law enforcement regions staffed with law enforcement specialists who provide public safety through effective and responsive statewide law enforcement mandated by statute and public demand, while concurrently serving as GA DNR's public relations representative. It is dedicated to preserving Georgia's wildlife through the enforcement of laws, rules, and regulations that cover game and non-game animals, threatened and endangered species, exotic animals, boating rules, waste management, and other natural resources. It also manages the state's hunter education and boating safety programs, investigates violations of wildlife laws, and examines hunting and boating incidents, and holds classes and programs aimed at educating citizens about wildlife laws and safety practices. Their job is certainly not easy in consideration of a 1 to 54,171 game warden to citizen ratio. Indeed, they are law enforcement professionals with top tier training and a varied skillset needed to be effective in a work environment that is far different from that which was policed by their predecessors in the early Progressive Era. They patrol approximately 16,000 miles of rivers, a half a million miles of impounded waters, some 100 linear miles of coastal shoreline, and as far off as 200 miles offshore. On land, they patrol over 37 million acres of public and private land, including 132 Wildlife Management Areas, 11 Public Fishing Areas, and 63 State Parks and Historic Sites ([gadnrle.org](http://gadnrle.org)).

## Police Powers

Regarding the specialist/generalist discussion, the distinction to be made is that game wardens must know how to work their varied activities as well as how to perform all of the skillsets needed by a street cop. The independence given to game wardens in their work area enables them to make decisions without seeking guidance from a supervisor, unlike many beat officers. Beat patrol officers typically react to calls from the public and handle them similarly, based on the actions of the suspect. Indeed, in the case of Georgia, they are peace officers (section 27-1-16) "who by virtue of [his or her] office or public employment [are] vested by law with a duty to maintain public order or to make arrests for offenses, whether that duty extends to all crimes or is limited to specific offenses (section 16-1-3).

Section 27-1-20 (2010) mandates "unless inconsistent with [Title 27 – Game & Fish], whenever any statute pertaining to an agency whose functions are assigned to the department [that being GA DNR] refers to law enforcement personnel of that agency, that reference applies to [game wardens]." In other words, they have same the police power as those of law enforcement personnel assigned to the Coastal Resources Division, the Environmental Protection Division, the Division of Parks, the State Parks & Historic Sites Division, or the Wildlife Resources Division.

First, section 27-1-18 mandates that game wardens have the power and authority to enforce all state laws on all property owned or controlled by the department, as well as enforce all state laws pertaining to functions assigned to the department. Additionally, they have the power to enforce any state law when the violation of that law is committed in conjunction with a violation of a state law pertaining to functions assigned to the department, any state law when ordered to do so by the Governor, or to protect any life or property when the circumstances demand action. They are also required to assist the Department of Public Safety and the Georgia Bureau of Investigation in carrying out their duties and responsibilities, when requested to do so by the Department of Public Safety or the Georgia Bureau of Investigation, at the expense of the department. The

commissioner is also authorized to authorize and direct game wardens to cooperate with and render assistance to any law enforcement agency of this state or any municipality, county, or other political subdivision thereof in any criminal case, in the prevention or detection of violations of any law, or in the apprehension or arrest of persons who violate the criminal laws of this state, any other state, or the United States, upon a request by the governing authority or chief law enforcement officer of any municipality, the sheriff of any county, a judge of the superior court of any county, or the Governor.

Second, section 27-1-19 provides additional information on their ability to arrest persons and the criminal procedure upon the failure of a person arrested to appear to answer charges. Game wardens when authorized to do so by the board, are empowered to arrest persons accused of violating any law or regulation which such officers are empowered to enforce by the issuance of a citation, provided that the offense is committed in the presence of the officer or information concerning the offense constituting a basis for arrest was received by the arresting officer from a law enforcement officer observing the offense being committed. In such cases, the arresting officer may issue to the person a citation which shall enumerate the specific charges against the person and the date upon which the person is to appear and answer the charges. If the person charged fails to appear as specified in the citation, the judge having jurisdiction of the offense may issue a warrant ordering the apprehension of the person and commanding that he be brought before the court to answer the charge contained within the citation and the charge of his failure to appear as required. The person will then be allowed to make a reasonable bond to appear on a given date before the court. Additionally, whenever an arrest is made by the arresting officer on the basis of information received from another law enforcement officer observing the offense being committed, the citation shall list the name of each officer, and each must be present when the charges against the offender are heard.

Finally, section 27-1-20 lays out the powers vested in game wardens within the department. These powers include but are not limited to enforcing all laws, rules, and regulations pertaining to wildlife and boating safety, executing warrants and search warrants for the violation of these laws, serving subpoenas issued for the examination, investigation, and trial of offenses against these laws, and the ability to arrest without a warrant any person found violating any of these laws. Game wardens are also authorized to seize and take possession of all wildlife or parts thereof taken, caught, killed, captured, possessed, or controlled or which have been shipped or are about to be shipped at any time and in any manner or for any purpose contrary to the laws, rules, and regulations pertaining to wildlife. They also have the authority to go upon property outside of buildings, posted or otherwise, in the performance of their duties, to carry firearms while performing duties pertaining to wildlife, and to seize as evidence, without warrant, any device other than a boat, vehicle, or aircraft when they have cause to believe that its possession or use is in violation of any of the provisions of the laws or regulations dealing with wildlife. This includes lights, hunting apparatus, fishing or netting gear or tackle. They are also authorized to enter and inspect any commercial cold storage warehouse, icehouse, locker plant, butcher shop, or other plant or building for the purpose of determining whether wildlife is being kept or stored therein in violation of the wildlife laws or regulations. In addition, they are authorized to exercise the full authority of peace officers while in the performance of their duties. Unless inconsistent with the title, whenever any statute pertaining to an agency whose functions are assigned to the department refers to law enforcement personnel of that agency, that reference applies to game wardens.

## Method

The current study analyzed 438 narrative violations that are descriptive of summed citations and summed warnings issued for 15,450 violations of state statutes codified by the Georgia General Assembly as of 2010. While the data describes verbal warnings as well as controls for multiple citations and warnings issued to

the same person in a single encounter, it does allow for a descriptive analysis of game warden activities reported by the GA DNR Law Enforcement Division from 01/01/2010 to 12/31/2010. The unit of analysis is the statute. To minimize measurement error, intercoder reliability was utilized to ensure our methodology was objective and valid (O'Connor & Joffe, 2020). Our process of coding the narrative violations as statutes transforms the qualitative description of the violation into a specific legal classification, which can then be used as a basis for measuring and comparing the frequency and distribution of different violations. Narrative violations describe the specific behavior that is in violation of the law, rather than measuring a numerical or quantifiable characteristic. Thus, conducting a manifest and latent content analysis by coding each narrative violation as a specific code section of law can be considered a way to operationalize quantitative measures that are mutually exclusive to the legal framework governing law enforcement off the pavement (<https://law.justia.com/codes/georgia/2010/>). These measures can then be used to explore, describe, explain, and evaluate different types of violations occurring in different situations, which will allow game wardens to identify trends and patterns in the violations and make informed decisions about enforcement and policy.

## Findings

Table 1 demonstrates that the nature and extent of law enforcement off the pavement in the State of Georgia can be operationalized into nine categories of general laws codified by the 2010 Official Code of Georgia. Of those categories, 68.7% of citations and warnings issued are mutually exclusive to Title 27 – Game & Fish. Thus, our findings support Morse's (1973) prediction that the primary work of game wardens will remain policing hunters and anglers. For context, the violations of Title 27 – Game & Fish were more than three times the number of statutes codified in Title 52 – Waters of the State, Ports, & Watercraft and in Title 12 – Conservation & Natural Resources combined. But this is not to suggest that their duties and responsibilities have not expanded to include general law enforcement or

order-maintenance type police services outside of their original progressive mandate. Indeed, they also police other collective interests of the polity (Falcone, 2004). For instance, Title 52 – Waters of the State, Ports, & Watercraft accounts for more categorical variance than that of all the remaining titles combined, including that which is mutually exclusive to Title 12 – Conservation &

Natural Resources. Fewer citations and warnings were given for violations of the Conservation and Natural Resources Code than were reported for violations of Title 16 – Crimes & Offenses and Title 40 – Motor Vehicles & Traffic.

**Table 1: Violations of the Official Code of Georgia by Title<sup>2</sup>**

	<i>NV</i>	<i>SV</i>	<i>C</i>	<i>W</i>	<i>T</i>	<i>%</i>
Title 27 – Game & Fish	245	82	5555	5051	10606	68.7
Title 52 – Waters of the State, Ports, & Watercraft	72	20	1251	1549	2800	18.1
Title 16 – Crimes & Offenses	46	26	707	265	972	5.6
Title 40 – Motor Vehicles & Traffic	54	49	336	246	582	3.8
Title 12 – Conservation & Natural Resources	14	6	222	159	381	3.2
Title 03 – Alcoholic Beverages	2	1	85	17	102	0.7
Title 31 – Criminal Procedure	1	1	4	1	5	0.0
Title 27 – Health	1	1	1	0	1	0.0
Title 33 – Insurance	1	1	1	0	1	0.0
<i>N =</i>	436	187	8162	7288	15450	100

*Chapter Violations of Title 27 – Game & Fish*

Game wardens issued a total of 10,606 citations and warnings for violating 82 statutes of the Official Code of Georgia (2010) that are mutually exclusive to one of five chapters codified in Title 27 – Game & Fish (see Table 1).

Chapter 3 – Wildlife Generally: 48.8% of those narrative violations are mutually exclusive to thirty-three statutory violations (3,327 citations and 1,854 warnings). The typical narrative violation is hunting big game over bait with 838 citations and 208 warnings. It alone explains 20.2% of all chapter three violations, but that percentage increases to 34.1% when including the remaining section 27-3-9 variance telling of unlawful enticement, hunting over bait, and hunting ducks over bait are added to the mode.

Chapter 2 – Licenses, Permits, & Stamps: 33.7% of the narrative violations are mutually exclusive to twenty statutory violations (1,459 citations and 2,116 warnings). The typical narrative violation is fishing without a license with 596 citations and 833 warnings. It alone explains 40.0% of all chapter two violations, but that percentage increases to 71.1% when including the remaining section 27-2-1 variance telling of residents and non-residents who hunted, fished, or trapped without or with a license or permit.

Chapter 1 – General Provisions: 10.6% of the narrative violations are mutually exclusive to ten statutory violations (418 citations and 701 warnings). The typical narrative violation is possession of illegally taken wildlife with 135 citations and 258 warnings. It alone explains 34.4% of all chapter one violations, but that percentage increases to 42.6% when including the remaining section 27-1-31 variance telling of possession of trout on delayed harvest stream, possession of

<sup>2</sup> The codes for Table 1 are as follows: narrative violations (*NV*), statutory violations (*SV*), citations (*C*), warnings (*W*), total

citations and warnings (*T*), and the percent of all warnings and citations for each title (%).



illegally taken fish, possession of illegally taken birds, unlawful hunting/possession birds or parts, taking and possession of illegal antlered deer from quality deer managed antler-restricted county, taking and possession of antlerless deer, and concealment of wildlife taken illegally.

Chapter 4 – Fish: 6.9% of the narrative violations are mutually exclusive to eighteen statutory violations (351 citations and 376 warnings). The typical violation is fishing without permission with 143 citations and 146 warnings. Out of all chapter four violations, section 27-4-2 has the highest incidence, encompassing 39.8% of them.

Chapter 5 – Wild Animals: 0.0% of the narrative violations are descriptive of one statutory violation (0 citations and 4 warnings). The typical infraction is possession of wild animals without permit or license with 0 citations and 3 warnings. It alone embraces 75.0% of all chapter five violations, but that percentage increases to 100% when including the remaining section 27-5-4 variance telling of failure to obtain a wild animal exhibition license.

#### *Chapter Violations of Title 52 - Waters of the State, Ports, & Watercraft*

Game wardens issued a total of 2,800 citations and warnings for violating 20 statutes of the Official Code of Georgia (2010) that are mutually exclusive to one chapter codified in Title 52 - Waters of the State, Ports, & Watercraft (see Table 1).

Chapter 7 – Registration, Operation, & Sale of Watercraft: 100% of the narrative violations are mutually exclusive to a single chapter (1,251 citations and 1,549 warnings). The typical violation is operating a vessel without approved personal floatation devices with 156 citations and 102 warnings. It alone embraces 9.2% of all chapter seven violations, although that percentage increases to 17.0% when including the remaining section 52-7-8 variance telling of operating a vessel with insufficient, improper, unserviceable, or a readily accessible personal floatation device, without a throwable device, and without or with an unserviceable

fire extinguisher, and allowing operation of a vessel or personal watercraft without the proper safety equipment or allowing an underage child to ride in moving vessel without wearing a personal flotation device.

#### *Chapter Violations of Title 16 – Crimes & Offenses*

Game wardens issued a total of 972 citations and warnings for violating 26 statutes of the Official Code of Georgia (2010) that are mutually exclusive to one of ten chapters codified in Title 16 - Crimes & Offenses (see Table 1).

Chapter 7 – Criminal Trespass & Damage to Property: 52.2% of the narrative violations are mutually exclusive to three statutory violations (329 citations and 178 warnings). The typical violation is littering with 206 citations and 89 warnings. section 16-7-43 alone embraces 48% of all chapter seven violations.

Chapter 13 – Controlled Substances: 20.6% of the narrative violations are mutually exclusive to three statutory violations (197 citations and 3 warnings). The typical violation is misdemeanor violation of The Georgia's Controlled Substances Act with 102 citations and 2 warnings. It alone accounts for 52% of all chapter thirteen violations, but that percentage increases to 96.0% when including the remaining section 16-13-30 variance telling of felony violations of Georgia's Controlled Substances Act, possession of marijuana less than one ounce, possession of marijuana with intent to distribute, and manufacturing marijuana.

Chapter 11 – Offenses Against Public Order & Safety: 5.9% of the narrative violations are mutually exclusive to nine statutory violations (57 citations and 0 warnings). The typical violation is possession of a firearm by a convicted felon with 42 citations and 0 warnings. section 16-11-131 alone accounts for 72.4% of all chapter eleven violations.

Chapter 10 – Offenses Against Public Administration: 4.2% of the narrative violations are mutually exclusive to four statutory violations (37 citations and 4 warnings). The typical violation is misdemeanor obstruction and or hinderance of a law

enforcement officer with 18 citations and 0 warnings. It is alone accounts for 43.9% of all chapter violations, but that percentage increases to 51.2% when including the remaining section 16-10-24 variance telling of resisting arrest.

Chapter 12 – Offenses Against Public Health & Morals: 3.0% of the narrative violations are mutually exclusive to two statutory violations (30 citations and 1 warning). The typical violation is child endangerment (boating under the influence) with 23 citations and 1 warning. It alone accounts for 77.4% of all chapter twelve violations, but that percentage increases to 87.1% when including the remaining section 16-12-1 variance telling of child endangerment (driving under the influence).

Chapter 8 – Offenses Involving Theft: 1.1% of the narrative violations are mutually exclusive to three statutory violations (11 citations and 0 warnings). The typical violation is theft by taking with 9 citations and 0 warnings. Section 16-8-2 alone accounts for 81.8% of all chapter eight violations.

Chapter 5 – Crimes Against the Person: 0.6% of the narrative violations are mutually exclusive to two statutory violations (6 citations and 0 warnings). The typical violation is reckless conduct with 4 citations and 0 warnings. Section 16-5-60 alone accounts for 67.7% of all chapter five violations.

Chapter 6 – Sexual Offenses: 0.5% of the narrative violations are mutually exclusive to one statutory violation for public indecency with 3 citations and 3 warnings (section 16-11-41).

Chapter 9 – Forgery & Fraudulent Practices: 0.4% of the narrative violations are mutually exclusive to one statutory violation for being in possession, displaying, using, manufacturing, altering, or selling a false identification document with 4 citations and 0 warnings (section 16-9-4).

Chapter 4 – Criminal Attempt, Conspiracy, & Solicitation: 0.1% of the narrative violations are mutually

exclusive to one statutory violation for conspiracy to commit a crime with 1 citation and 0 warnings (section 16-4-8).

*Chapter Violations of Title 40 – Motor Vehicles & Traffic* Game wardens issued a total of 582 citations and warnings for violating 49 statutes of the Official Code of Georgia (2010) that are mutually exclusive to one of five chapters codified in Title 40 – Motor Vehicles & Traffic (see Table 1).

Chapter 6 – Uniform Rules of the Road: 74.9% of the narrative violations are mutually exclusive to twenty-eight statutory violations (241 citations and 195 warnings). The typical violation is driving too fast for conditions with 29 citations and 69 warnings. Section 40-6-180 alone embraces 22.5% of all chapter six violations.

Chapter 5 – Drivers Licenses: 9.1% of the narrative violations are mutually exclusive to eight statutory violations (43 citations and 10 warnings). The typical violation is driving without a license with 19 citations and 1 warning. Section 40-5-20 alone embraces 37.7% of all chapter five violations.

Chapter 8 – Equipment & Inspection of Motor Vehicles: 8.1% of the narrative violations are mutually exclusive to statutory violations (19 citations and 28 warnings). The typical violation is safety restraint violation (5 years of age or older) with 6 citations and 17 warnings. It alone accounts for 48.9% of all chapter violations, but that percentage increases to 63.8% when including the remaining section 40-8-76 variance telling of safety restraint violation (under 5 years of age).

Chapter 7 – Off-Road Vehicles: 5.7% of the narrative violations are mutually exclusive to six statutory violations (26 citations and 7 warnings). The typical violation for chapter seven is bimodal: (1) operating an all-terrain vehicle within any perennial stream with 11 citations and warnings and (2) operating an all-terrain vehicle on private property without written permission with 11 citations and 0 warnings. These narratives accounted for 66.7% of all chapter seven

violations, but that percentage increases to 69.7% when including the remaining section 40-7-4 variance telling of operating an all-terrain vehicle without operative brakes.

Chapter 2 – Registration & Licensing of Motor Vehicles: 2.2% of the narrative violations are mutually exclusive to six statutory violations (7 citations and 6 warnings). The most common violation is operating a vehicle without a valid tag with 5 citations and 5 warnings. Section 40-2-8 alone embraces 76.9% of all chapter two violations.

#### *Chapter Violations of Title 12 – Conservation & Natural Resources*

Game wardens issued a total of 381 citations and warnings for violating 6 statutes of the Official Code of Georgia (2010) that are mutually exclusive to one of four chapters codified in Title 12 – Conservation & Natural Resources (see Table 1).

Chapter 3 – Parks, Historic Areas, Memorials, & Recreation: 97.9% of those narrative violations are mutually exclusive to two statutory violations (218 citations and 155 warnings). The typical violation is unlawful acts on a state park, historic site, or recreational area with 162 citations and 37 warnings. It alone accounted for 53.5% of all chapter three violations, but that percentage increases to 99.7% when including the remaining section 12-3-10 variance telling of boating during prohibited hours, possession of a firearm, or consuming alcohol in a state park, historic site, or recreational area, being in possession of an open container at a department ramp or pier, failing to exhibit a valid park pass, and unauthorized excavation, alteration, or entry of an archaeological site.

Chapter 6 – Forest Resources & Other Plant Life: 1.6% of the narrative violations are mutually exclusive to two statutory violations (3 citations and 3 warnings). The typical violation is harvesting ginseng without written permission with 1 citation and 2 warnings. It alone accounts for 50% of all chapter six violations, but that percentage increases to 83.3% when including the remaining section 12-6-152 variance telling of

harvesting ginseng out of season or with fewer than three prongs.

Chapter 5 – Water Resources: 0.3% of the narrative violations are mutually exclusive to one statutory violation for failure to monitor public drinking water system, with 1 citation and 0 warnings (section 12-5-184).

Chapter 14 – Oil or Hazardous Material Spills or Releases: 0.3% of the narrative violations are mutually exclusive to one statutory violation for illegal disposal of petroleum products, with 0 citations and 1 warning (section 12-14-3).

#### *Chapter Violations of Title 3 – Alcoholic Beverages*

Game wardens issued a total of 102 citations and warnings for violating a single statute of the Official Code of Georgia (2010) that is mutually exclusive to one chapter codified in Title 3 – Alcoholic Beverages (see Table 1).

Chapter 3 – Regulations of Alcoholic Beverages Generally: 100% of the narrative violations are mutually exclusive to a single statutory violation (85 citations and 17 warnings). There are two narrative violations. The typical violation is possession of alcohol by underage person with 80 citations and 14 warnings. It alone accounts for 92.2% of all chapter three violations, but that percentage increases to 100% when including the remaining section 3-3-23 variance telling of providing alcohol to a minor.

#### *Chapter Violations of Title 17 – Criminal Procedure*

Game wardens issued a total of five citations and warnings for violating a single statute of the Official Code of Georgia (2010) that is mutually exclusive to one chapter codified in Title 17 – Criminal Procedure (see Table 1).

Chapter 6 – Bonds & Recognizances: 100% of the narrative violations are mutually exclusive to a single statutory violation for failure to appear to answer summons with 4 citations and 1 warning (section 17-6-8).

### *Chapter Violations of Title 31 – Health*

Game wardens issued one citation for violating a single statute of the Official Code of Georgia (2010) that is mutually exclusive to one chapter codified in Title 31 – Health (see Table 1).

Chapter 21 – Dead Bodies: 100% of the narrative violations are mutually exclusive to a single statutory violation for removal of body from grave for sale/dissection with 1 citation and 0 warnings (section 31-21-43).

### *Chapter Violations of Title 33 – Insurance*

Game wardens issued one citation for violating a single statute of the Official Code of Georgia (2010) that is mutually exclusive to one chapter codified in Title 33 – Insurance (see Table 1).

Chapter 1 – General Provisions: 100% of the narrative violations are mutually exclusive to a single statutory violation for insurance fraud with 1 citation and 0 warnings (section 33-1-9).

## **Discussion**

Our cross-sectional univariate analysis of narrative violations of the general laws of Georgia suggest that while it is possible to operationalize valid statutory measures of crime and deviance, individual code sections of state law may not function accurately to describe the nature and extent of law enforcement off the pavement. Our data does not differentiate citations and warnings issued for statutory violations that occurred on state property owned or controlled by the GA DNR from those elsewhere on lands and waters privately owned or leased by freeholders. Location information is crucial in understanding the extent and nature of law enforcement off the pavement. Its absence can significantly limit the usefulness and accuracy of the data if it is not possible to determine if the violations occurred on state property or elsewhere on private property and what impact they may be having on wildlife, the environment, or public safety.

Our data also does not differentiate when the violations took place, making it difficult to determine if

there are any temporal patterns in the data. Indeed, the timing of the violations can provide important context for understanding the circumstances surrounding the frequency and nature of violations in different regions or habitats. Moreover, we cannot differentiate whether a citation or warning was issued for a violation of state law that may or may not have been committed in conjunction with a violation of a state law pertaining to the function of a different division. For example, the data does describe eight citations and four warnings issued for excavating, altering, and entering an archeological, aboriginal, prehistoric, or historic site without written permission, but we are unable to associate that any of those infractions with a single citation issued for removing a body from a grave for the purposes of sale or dissection. The former is codified in Title 12 – Conservation and Natural Resources and the other in Title 31 – Health.

Additionally, our data hints that it may be difficult to prove the concurrence of actus reus and mens rea beyond a reasonable doubt. For example, we combined all 25 citations and warnings issued for illegal activities committed on state wildlife management areas into a single statute. Its modal narrative ‘fishing without a wildlife management area stamp on a public fishing area’ accounts for only 39.44% of all section 27-1-33 violations issued for not complying with applicable state laws and all rules and regulations while on a property owned or controlled by the GA DNR. In this instance, the person fishing on a public fishing area without a wildlife management area stamp also commits the crime of criminal attempt and may also be charged with the crime of theft by taking if they are found in possession of fish that were taken in violation of the Game and Fish Code (section 27-1-3). However, there were no citations issued for criminal attempt (section 16-4-1), not to mention only nine citations and zero warnings were issued for theft by taking (section 16-8-2). Operationalizing valid and reliable measures of crime and deviant behaviors may prove to be challenging even with a complete data set (Crow et al., 2013), thus academia may consider turning to practitioners for additional guidance before parsing out statutory variance.

For context, placing bait or wildlife food on property owned or controlled by the department (section 27-1-33) is a violation that is no more illegal on its face than would be unlawfully enticing game birds and animals elsewhere on privately owned or leased lands and waters (section 27-3-9). However, another statute in chapter three stipulates that baiting bears is a misdemeanor of a high and aggravating nature (section 27-3-27). That it is technically conceivable to operationalize a valid ordinal measure telling of the penalty for violating any given code section is germane to our discussion, but the point here is using bait to lure or concentrate the bear population in a specific area remains a nominal measure because the actus reus is no different from using bait to lure or concentrate game birds and animals in a specific area. In other words, the question is not one of deterrence (Beattie, 1981) or style of policing (Forsyth, 1994; Wilson, 1968), but rather one of assumptions (Berry, 1993; Menard, 2002). Indeed, Kerlinger and Pedhazur (1973) suggest at least 30 cases per predictor does not pose a threat to model fit. One alternative is to create a new variable by combining all cases for baiting black bears ( $c = 4 / w = 0$ ) with those for placing bait or wildlife food on a wildlife management area ( $c = 2 / w = 2$ ) and for unlawful enticement of game ( $c = 89 / w = 22$ ). A process in our case that involved subtracting 0.75% and 6.3% of all narrative violations codified in section 27-1-33 and section 27-3-9 respectively. Ideally, the method will have operationalized a nominal measure that is categorical of 95 citations and 24 warning for baiting only.

The remaining variance is mutually exclusive to a separate criminal act. Indeed, hunting over bait is dependent on the actus reus of placing bait to lure or concentrate game birds and animals in a specific area. The difference is the one cited for hunting over bait may not have been the poacher who placed it in the first place. One option would be to create a nominal variable by combining all cases for hunting feral hogs over bait ( $c = 10 / w = 0$ ), a mutually exclusive violation of state law (section 27-3-27) with the remaining variance telling of hunting over bait ( $c = 337 / w = 209$ ), hunting big game over bait ( $c = 838 / w = 208$ ), and

hunting ducks over bait ( $c = 50 / w = 8$ ) codified in section 27-3-9. Likewise, the method will have operationalized a nominal measure that is categorical of 1,235 citations and 425 warnings for hunting over bait. As demonstrated, statutory variance was gleaned from four code sections to operationalize two categorical variables labeled "baiting only" and "hunting over bait." But we cannot infer which measure has the most explanatory power since the act of placing bait precedes the act of hunting over bait in time order. Indeed, time will tell the story of association, not to mention criminal intent for "attempting to steal wildlife" by placing bait or theft by taking for "stealing wildlife" when taking wildlife over bait in violation of Title 27 – Game & Fish.

## Conclusion

When Alison (1973) wrote that the "examination of such recurrent behavior is of predictive value in ascertaining future tendencies among men" (p. 196), he was specifically talking about hunting. His premise nonetheless is certainly relevant to our study, which has demonstrated that it is possible to operationalize valid measures of crime and deviance telling of law enforcement off the pavement. The aggregate number of violations in the game and fish, waters of the state, ports, and watercraft, and conservation and natural resources categories, which make up the majority of the total violations, suggests that these laws may be a priority for game wardens. However, without more context it is difficult to deduce what is significant about law enforcement off the pavement. The public predicated the change in the way game wardens work. Societal changes are being absorbed and have changed the daily routines of law enforcement in many ways. It may be true that the summer months will bring the game warden in contact with more citizens than any other time of the year, but we simply cannot deduce whether this increased contact will predict general crime alongside their normal activities. We can't say whether looking for bait led to the discovery of manufacturing marijuana in a wildlife management area. Examples like these highlight the crossover of game warden to general law enforcement officer. Absent detailed, incident-based data, we may never

measure the who, what, when, where, why and how their work can sometimes overlap into what is considered routine law enforcement.

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