Deviant Behavior

Publication details, including instructions for authors and subscription information:
http://www.tandfonline.com/loi/udbh20

Camouflage-Collar Crime: An Examination of Wildlife Crime and Characteristics of Offenders in Florida

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Published online: 14 Apr 2013.


To link to this article: http://dx.doi.org/10.1080/01639625.2012.759049

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Camouflage-Collar Crime: An Examination of Wildlife Crime and Characteristics of Offenders in Florida

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Fish and wildlife crime is an understudied area of criminology and criminal justice and when it is the focus of research, studies tend to be characterized by small samples and a lack of multivariate analyses. This study examines the nature and extent of cited fish and wildlife offenses and characteristics of offenders through quantitative analysis of 15,657 incidents of cited fish and wildlife offenses in Florida. The results indicate that a viable typology of wildlife crime is emergent and that there are important racial and ethnic differences across types of wildlife offenses.

INTRODUCTION

Crimes committed in rural environments are relatively understudied in criminology (Bachman 1992; Weisheit and Wells 1996). Various wildlife crimes, for instance, have been particularly overlooked by mainstream criminology and include a variety of infractions committed against terrestrial, aquatic, and amphibian animals. The lack of attention devoted to wildlife crime is somewhat puzzling as research suggests there is significant public concern about environmental crime (Shelley et al. 2011). Moreover, nearly three decades ago Hummel (1983:256) pointed out that “...significant amounts of deviant behavior and crime occur in the forms of poaching and illegal trade in wildlife products” (see also South and Bierne 2006; Forsyth et al. 1998; Muth 1998). Instead, the discipline of Criminology has been, and continues to be, preoccupied by violent crime even though it is an infrequent occurrence relative to other crimes (Burns et al. 2008; Gibbons 1972; Lynch 1990; Ross 1961). A central explanation for this scholarly inattention is due the belief that wildlife crime is “folk crime” (Forsyth et al. 1998). Folk crime is
viewed as harmless or an unimportant deviant activity that does not rise to the construct of street crime (Eliason 2003, 2006; Forsyth 1993; Forsyth et al. 1998; McSkimming and Berg 2008; Muth 1998; Muth and Bowe 1998; Payne et al. 2005; Ross 1961; Shelley and Crow 2009). And yet, despite a historical disinterest from most criminologists about the topic, Eliason (2008) argues there is an increased interest in wildlife crime with the emergence of Green Criminology (see also Beirne 1999; Granfield and Colomy 2005; Zilney et al. 2006).

Of those studies that do examine poaching and wildlife crime, most rely on small samples of offenders (150 or less) or small samples of conservation officers (70 or less)1 to collect information about the nature and extent of wildlife crime. Most of these studies have been conducted in Colorado (Eliason and Dodder 1999), Kentucky (Eliason 2003, 2005), Louisiana (Forsyth 1993, 1994, 2008), Maine (Sherblom et al. 2002), Missouri (Glover and Baskett 1984), Pennsylvania (Lawson 2003; Walsh and Donovan 1984), Utah (Howard and Koehl 1996), Virginia (Carter 2004, 2006; Green 2002; Palmer and Bryant 1985), and Washington (Patten 2010). These groundbreaking studies indicate that crimes against wildlife are a serious problem and that additional research is crucial to better understand the nature and extent of wildlife crime. Research using advanced methodologies is also needed in this area (Eliason 1999; Shelley and Crow 2009). More specifically, “... studies addressing the sociology of poaching need to move beyond in-depth interviews and small samples to other designs which will enhance our understanding of the phenomenon” (Eliason 1999:35).

The current study contributes to the existing literature through quantitative analysis of 15,657 incidents of wildlife crime (and other related incidents) in Florida. More specifically, the research questions guiding the current study include:

1. What is the nature and extent of wildlife2 crimes? More specifically, what is the range of wildlife crime and deviance? What are the most and least common types of wildlife crime? Is it possible to develop a categorization scheme of wildlife offenses? Does wildlife crime vary geographically in a diverse ecosystem like Florida?

2. What is the demographic profile of wildlife offenders in Florida? Is it possible to develop a profile and if so, does the profile vary by offense type (e.g., fishing offenses versus hunting offenses or permit versus illegal taking-related offenses)?

3. How do offender characteristics and geography influence the type of wildlife offending?

This research makes several important contributions to the existing literature. The present study represents the largest sample of wildlife crimes and offenders to date, and does so quantitatively. It is also one of the few studies to examine wildlife crime as the unit of analysis3 and contrary to most studies; this research includes fishing-related offenses as part of wildlife crime. This is an important development, for while others have provided descriptions and categorization of types of poachers (Forsyth et al. 1998; Muth and Bowe 1998), issues related to conservation officers (Eliason 2006, 2011; Forsyth and Forsyth 2009; Patten 2010), and even historical

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1 Conservation officers are also known as fish and wildlife officers, wildlife management officers, game wardens, rangers, nature resource police, and so on (see Falcone 2004).
2 This includes terrestrial, aquatic, and amphibian species of wildlife.
3 Most studies of wildlife crime study the poacher or the game warden/conservation officer as the unit of analysis.
assessments of conservation law (Eliason 2012a), the current study is unique in that it empirically examines and categorizes the nature and extent of cited wildlife-related crime and factors associated with this phenomenon. Thus, while the wildlife crime and conservation policing literature is developing, it still lacks empirical analysis of wildlife offenses. This study provides one of the first such analyses. Finally, the study’s setting is in Florida—a state with one of the nation’s most diverse ecosystems not yet studied in this context.4

DEFINING WILDLIFE CRIME

Wildlife crime has often been conceptualized as poaching or camouflage collar crime (see Bryant 1979; Eliason 2008; Hummel 1983), while offenders engaged in this type of activity are often viewed as camouflage criminals or folk outlaws. While some scholars define wildlife crime generally as “the illegal taking of wildlife in various forms” (Eliason and Dodder 1999:239), others provide more specific definitions. For example, Muth and Bowe (1998) describe poaching as “[a]ny act that intentionally contravenes the laws and regulations established to protect wild, renewable resources, such as plants, mammal, birds, insects, reptiles, amphibians, fish and shell fish” (p. 9). Regardless of whether one chooses to define wildlife crime generally or specifically, common conceptualizations view it as emerging from activity related to hunting, fishing, and other pursuits associated with engaging with regulated wildlife or land.

Common wildlife offenses include spotlighting, hunting or fishing without a license, illegal baiting, trespassing on private property or in protected areas to hunt or fish, hunting from roadways, failure to tag properly, keeping undersized fish, hunting or fishing off season or not following other seasonal restrictions, exceeding posted limits for fish, among others (see Curcione 1992; Eliason 2003, 2004; Musgrave et al. 1993). Although the literature documents a wide variety of wildlife crimes, systematic typologies or categories of wildlife crime are lacking. Nevertheless, most wildlife offenses can be divided into the following four areas:

- **Improper permitting.** This category refers to failure to own or possess hunting or fishing licenses or not possessing the proper safety equipment to engage in hunting and fishing as required by law.
- **Illegal taking or methods.** Illegal takings/methods refer to the methods associated with hunting and fishing and not the possession of wildlife. For example, hunting off season, hunting animals with a spotlight or fishing using dynamite would constitute illegal takings.
- **Illegal possession of wildlife and by products.** This category refers to the possession of protected wildlife that is endangered or threatened, possessing wildlife out of season, possessing wildlife that is undersized, possessing an exotic species that is not legal, and possessing an amount of wildlife that is deemed excessive by law.
- **Conservation-related offenses.** This category refers to offenses in violation of laws designed to protect natural habitats, operating vehicles in protected areas, disturbing protected marine and wildlife, and trespassing on wildlife management areas.

4One notable exception is the work of Shelley and Crow (2009); however, they examined the work of the Florida Fish and Wildlife officers and their work tasks rather than the nature and extent of wildlife crime.
THE NATURE AND EXTENT OF WILDLIFE CRIME

Understanding the nature and extent of wildlife crime is difficult as there are no national statistics available to thoroughly document the problem. Despite the lack of reliable statistics, several authors have claimed increased poaching activity over the past two decades (Associated Press 2009; Musgrave et al. 1993; Muth and Bowe 1998). For example, in California, officials called 2008 the ‘‘year of the extreme poacher’’ with arrests for illegal killing of game, birds, fishing, rising considerably since 2005 (Associated Press 2009). Academics also believe the problem is serious and widespread (Eliason 2008; Gavitt 1989; Tobias 1998; Warchol et al. 2003) to the point that the number of illegal takings equals or exceeds the number of animals taken legally (Musgrave et al. 1993). There is also concern that species classified as ‘‘trophy game’’ are increasingly under attack, ‘‘I don't think there was anywhere near the waste or the abuse of the resource that there is today ... poachers are attacking our trophy gene pool’’ (Lawson 2003 citing Curtis 1998:54–56).

Without a consistent and national database to track the problem it may be premature to make claims that wildlife crime is on the rise or on the decline. What is certain is that given the small ratio of conservation officers to hunters and anglers (Falcone 2004), it is likely that most wildlife offenses go undetected (Eliason 2003, 2008; Tobias 1998). In fact, estimates of the ratio of discovered offenses to actual offenses range from 1:30 to 1:83 (see Eliason 2003; Green et al. 1998; Kaminsky 1974). Thus, it is important to point out that the current study analyzes official Fish and Wildlife Conservation Commission Law Enforcement data, which is a measure of discovered offenses for which a citation was issued.

WILDLIFE OFFENDERS

McSkimming and Berg (2008) argue that researchers know more about why people poach in terms of motivations and justifications and less about the sociodemographic characteristics of wildlife offenders. This is somewhat surprising as the need to develop ‘‘a holistic understanding of the wildlife violator’’ has long been argued, for without such an understanding, it is difficult for enforcement agents to develop effective educational and/or enforcement campaigns (Bessey 1985:10). Similarly, Forsyth (1994) argued that research on the characteristics of poachers is essential because ‘‘determining what kinds of crime are committed by local residents is crucial for theoretical understanding of the criminogenic characteristics of rural social structures and for effective prevention efforts’’ (1994:6; see also Eliason and Dodder 1999).

Unfortunately, only a small handful of studies, employing limited samples, have provided information about the characteristics of wildlife offenders. The limited studies provide two competing profiles of wildlife offenders. First, Bessey (1985) and Eliason (2005, 2008) argue that offenders can come from any social demographic group, as hunters and anglers can be young or old, male or female, rich or poor, employed or unemployed, blue collar or white collar professionals, urbanites or rural residents (Bessey 1985; Eliason 2005, 2008). For example, Eliason (2005, 2008) quoted a game warden who observed, ‘‘Ten years ago it was your typical redneck now it is everyone.’’ Similarly, Carter (2006:616) reported the assessment of another wildlife enforcement officer who claimed, ‘‘I've caught doctors, lawyers, college professors, teachers, and preachers for just about everything from killing a deer with the aid of a light to not having
a license to fish. You would be surprised who some of these people are’’ (Carter 2006:616). Given these findings and his own research, Eliason (2005, 2008) suggests that no single profile of the poacher can be developed given the wide range of wildlife offenses (and targets) and the motivations behind their commission (see also Muth and Bowe 1998; Warchol 2004). Similarly, while some research suggests that wildlife crime is disproportionately committed by poor, blue collar, or unemployed individuals and those from rural areas (Forsyth and Marckese 1993b; Forsyth et al. 1998; Glover and Baskett 1984), one study found no support for the idea that low socioeconomic status holds influence over poaching behavior (or at least as reported by wardens) (Carter 2006). Eliason (2005) argues that the role of social class should be understood in the context of offense type (e.g., upper-class professionals actively engage in certain types of offenses like waterfowl offenses).

And yet, evidence suggests a second profile is feasible, particularly in regards to trends involving age, gender, and race/ethnicity. Most wildlife offenders are predominately white, although racial and ethnic minorities tend to be cited overwhelming for fishing-related offenses (Carter 2006). Wildlife offenders are most often male (Bissell et al. 1998; Carter 2006; Dizard 2003; Glover and Baskett 1984; Green 2002) and when women are cited it is most often for fishing violations (Carter 2006). Most poachers are young and in their twenties (Carter 2006; Glover and Baskett 1984), which may also explain why inexperienced poachers are most likely to be detected by conservation officers (Forsyth 1994). It is also argued that most poachers are from rural areas (Forsyth and Marckese 1993b; Forsyth et al. 1998; Glover and Basket 1984) and lack formal education (Forsyth et al. 1998; Glover and Baskett 1984).

Very few researchers have examined the origin of the poacher relative to where they committed their wildlife offense. In other words, do wildlife offenders offend in their own backyard or county (i.e., Canter and Larkin’s conception of marauders\(^5\)) or do they commute to the location of the offense and travel out of their county (i.e., Canter and Larkin’s conception of commuters\(^6\))? Depending on the state under examination, the answer could vary based on the proportion of urban and rural populations. Glover and Baskett (1984) examined this issue and discovered that a slight majority (56.7\%) of deer poachers were lifetime residents of the county in which they committed the offense (i.e., they were marauders).

**THEORETICAL EXPLANATIONS OF WILDLIFE CRIME**

Scholars have offered various explanations for wildlife crime and several theoretical approaches have been employed to explain the phenomena. Economic justifications are commonly cited throughout the literature (Forsyth and Marckese 1993a; Muth and Bowe 1998), as poaching and other types of wildlife offending can be lucrative and also can serve as a means of subsistence for economically disadvantaged individuals. Rebellion, or defiance of government authority and the regulation of natural resources is also cited by others as the motivation for some wildlife offenders (Musgrave et al. 1993). Among the theories of offending that have been offered to explain wildlife crime, differential association (Curcione 1992), neutralization (Eliason 2004; Eliason and Dodder 1999; Forsyth and Marckese 1993a), rational choice (Sellar 2007), routine activities

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\(^5\)A marauder is theorized by Canter and Larkin (1993) as typically young and commits crime close to home.

\(^6\)A commuter is theorized by Canter and Larkin (1993) as an offender that travels or commutes to offend.
Routine activities theory and the conflict perspective are most pertinent to the current study’s focus on categorizing wildlife offenses and examining the factors associated with the various types of wildlife crime. While the present study is largely exploratory, and did not set out to explicitly test hypotheses derived from routine activities and conflict theories, we are in a position to consider their viability for future research and briefly address each.

Routine activities theory posits that crime is more likely to occur with the convergence of motivated offenders, suitable targets, and the lack of capable guardians (Cohen and Felson 1979). Wildlife crime can be conceptualized in this manner. Specifically, motivated offenders are likely to be engaged in legitimate hunting, fishing, and wildlife recreational activities when they encounter opportunities to violate hunting, fishing, and conservation laws. For example, hunters may encounter prohibited species while hunting for other, in-season game or kill certain animals to gain status based on their trophy status (Eliason 2012b); fishers may be motivated to go over catch limits by a particularly fruitful fishing outing; and boaters or other outdoor enthusiasts may be motivated to enter protected areas to experience pristine environments. There are countless suitable targets in the wild. In some areas, terrestrial wildlife or marine life is abundant and these areas are often vast and not amenable to guardianship in the form of police patrol, particularly when one considers the relatively small amount of resources devoted to wildlife law enforcement. Furthermore, the type of wildlife offenses that are committed and/or detected are often influenced by the factors associated with routine activities theory. For example, the types of targets (fish species, game, waterways, wildlife management areas) available are often determined by geography and habitat, which, in turn, attracts motivated offenders.

Eliason (2012a) recently proposed that anti-poaching laws reflect class inequality. His position on poaching laws draws heavily from Karl Marx and suggests that poaching laws are created and applied in ways that reflect inequality inherent in the relations of production. If Eliason is correct, then social inequality is historically imbedded in anti-poaching laws. In short, Eliason’s conflict perspective suggests that poaching laws (and how they are enforced) have helped produce and maintain class inequality. This proposition can be extended to focus on racial inequality, a topic that is largely neglected in environmental and wildlife scholarship (Stretesky 2008). For instance, Giltner (2008) carefully documents racial discrimination in the development of hunting and fishing laws post emancipation. For instance, Giltner (2008:12) reports:

[white Southerners recognized that hunting and fishing provided avenues for liberated African Americans to work toward, and sometimes achieve, a life away from the oversight and control of exclusive agricultural labor. These activities posed a serious and continuing problem for Southern landowners [and the] independence provided by fish and game became an increasing point of conflict decades after emancipation.

Clearly, Jim Crow laws that intentionally restricted access to hunting and fishing by race are an example of direct discrimination and can be considered an environmental injustice. Today, however, these laws no longer exist, but their effects may linger. Giltner (2008:174) concludes

7For example, Giltner (2008) notes that even in 1915, hunting without a license could earn a fine of $15 to $100 in South Carolina under the Zigler Bill. When a black offender could not pay the fine, the law provided for a lengthy sentence to a chain gang. As Giltner (2008:153) notes, advocates of hunting license laws “made it clear that farmers and hard-working poor Whites had not been targeted” by the Zigler license law.
his research by noting that “fish and wildlife researchers might want to consider whether present day disparity [in fishing and hunting] represents exactly what beleaguered elite White sportsmen fought over for so many decades.” While direct discrimination may/may not exist in modern times, participation in hunting and fishing is still disproportionately unequal and reflects what Feagin (1977) calls “past in present” discrimination that is “indirect” in form and occurs even when there is not any specific and intentional plan to harm minorities. In short, past discrimination, the historical development of hunting and fishing laws, racial inequality, and behavioral differences rooted in race and class may have produced unintentional variations in hunting and fishing and enforcement practices today.

While years of ethnographic studies have provided a rich understanding of conservation officers and wildlife offenders, we still have very little knowledge concerning the extent and array of offenses that come to the attention of law enforcement officers or the factors that influence this type of crime and its enforcement. Unfortunately, most prior research speaks broadly of poaching, without providing a full understanding of the range of behavior that falls under that general term. Using data collected from the Florida Fish and Wildlife Conservation Commission, Division of Law Enforcement, this research examines 15,657 incidents of wildlife crime (and other related incidents) to learn more about the nature and extent of cited wildlife crimes, the demographic profile of cited wildlife offenders in Florida, and factors associated with various types of wildlife offenses.

**RESEARCH SETTING**

This article examines the nature and extent of wildlife crime and the offenders who are cited for these offenses in Florida—a state relatively under studied in the literature on wildlife crime and conservation policing. This is somewhat surprising given that Florida is home to a diverse ecosystem ranging from the varied aquatic species in the Florida Keys to an abundance of wildlife in the rural areas of the Florida panhandle (Shelley and Crow 2009). This diversity is exemplified by the wildlife found throughout the state: Florida possesses some 672 species of wildlife, 208 species of freshwater fish, 500 species of saltwater fish, 20 species of migratory water fowl, and 500 endangered/threatened species (myfwc.com 2006; Shelley and Crow 2009). The participation in wildlife-related activities in Florida also points to the importance of this research setting. Florida Fish and Wildlife officials estimate that Florida has approximately 2.7 million anglers, 200,000 hunters, and 4.2 million watchers of wildlife, which generated some 8.1 billion dollars in recreational expenditures related to these activities in 2006—the year in which data were collected for this study (myfwc.com; Shelley and Crow 2009). Therefore, Florida represents an ideal setting to learn more about wildlife crime as “Most trends in the fish and wildlife world seem to start in Florida and California” (Lt. Brown, FWCC quoted by the Associated Press 2009: B3).

The agency tasked with protection of natural resources and wildlife in Florida is the Florida Fish and Wildlife Conservation Commission, Division of Law Enforcement (hereinafter referred to as FWC), which in 2006 had 722 FWC officers to safeguard approximately 37 million acres of public and private land, 8,247 miles of tidal coastline, 12,000 miles of rivers and streams, 3 million acres of lakes and ponds, and 11,000 miles of canals (myfwc.com; Shelley and Crow 2009). The FWC divides the state into five regions—northwest, north central, northeast,
southwest, and south. As shown in Table 1, the panhandle portion of the state (northwest, north central, and northwest regions) has more wildlife management areas than the southwest and south regions of the state. A wildlife management area represents those areas that are managed by the FWC to sustain wildlife in their natural habitats. The southwest and northeast regions have more fish management areas—a water body established for the management of freshwater fish (FWC.com). According to the Environmental Protection Agency (EPA), in terms of ecological or eco-region diversity, the FWC regions share some strong similarities while also maintaining some unique features of their own. With respect to fauna (animals), most regions have numerous species of fish, white tailed deer, black bear, bobcat, raccoons, wild turkey, and resident and migratory birds. The southern regions of Florida are unique in that they are home to the Everglades as well as the Florida manatee, loggerhead turtles, and blue crabs.

Indeed, the large array of natural resources and wildlife in Florida exemplify the presence of suitable targets that inevitably attract anglers and hunters to the state who engage in their sport legally. However, under a routine activities theory approach, Florida’s diverse ecosystem is also likely to attract motivated offenders—particularly given the small number of FWC officers (i.e., guardians) who are responsible for a large geographical area containing a plethora of fish and wildlife to protect.

The racial and ethnic makeup of Florida is also diverse (U.S. Census Bureau 2010), with the percentage of a county’s population identified as black ranging from 2.8 to 56.0. The percentage of a county’s population identified as Hispanic ranges from 1.9 to 65.1. Regionally, the north central, south, and northwest regions have the greatest racial diversity, with 21.1, 19.5, and 19%, respectively, of the residents identified as black compared with 13.4% in the northeast and 10.7% in the southwest. The regional percentage of the population identified as Hispanic is highest in the south (38.7%) followed by the northeast (17.6%) and southwest (15.9%) regions. The north central (6.9%) and northwest (5.2%) have the lowest proportion of their residents identified as Hispanic.

### METHODS AND ANALYSIS

Data for the current study consist of official wildlife offense citation and arrest data from the Florida FWC. The data are based on FWC incident records on all law enforcement actions engaged in by the FWC in 2006. The original database included 40,370 actions recorded by the FWC. Cases involving non-wildlife offenses, warnings, duplicate cases, and multiple citations

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8Eco-regions are areas with general similarities in the quality and quantity of environmental resources (EPA 2012).
9FWC officers have general law enforcement authority; therefore, much of their enforcement activities involve traffic, boating safety, and traditional crime incidents.
involving the same offender and incident\textsuperscript{10} were eliminated for this analysis. Thus, the data contained 17,388 wildlife offenses; 15,770 of these offenses were unique incidents. After eliminating cases containing missing data on key variables, 15,657 cases comprise the data for this analysis.

In an effort to determine the nature and extent of wildlife crime in Florida, a categorization scheme was developed using the categories derived from the literature previously discussed, the Florida Statutes, the Florida Administrative Code, and the Code of Federal Regulations to classify the cases into essentially five distinct types of wildlife offenses—permitting violations, illegal taking or methods, illegal possession, land and marine conservation offenses, and a miscellaneous category. With the exception of permitting issues,\textsuperscript{11} these offense types were analyzed separately by fishing-related offenses and hunting-related violations for a total of eight variations of offending across the original four categories discussed earlier:

- Improper Permitting,
- Fishing-Related Illegal Taking or Methods,
- Hunting-Related Illegal Taking or Methods,
- Fishing-Related Illegal Possession,
- Hunting-Related Illegal Possession,
- Marine Conservation Offenses,
- Land Conservation Offenses,
- Miscellaneous Offenses.

As previously discussed, the FWC divides the state into five regions—northwest, north central, northeast, southwest, and south. We utilized the same regional categorization scheme for this study. The south region served as the reference category in the multivariate analysis. Demographic information for each offender (i.e., age, race/ethnicity and gender) was derived from the arrest and citation data. We also compared the offenders’ place of residence (county) to the place of their offense (county) and coded them into categories—commuters or marauders. Cases in which the offender was cited for an offense in a county other than the county within which he or she resided were coded as commuters (coded $= 1$). Offenders who resided outside of the county in which the offense occurred (including those residing out of state) were coded as marauders (coded $= 0$).

The next section will discuss each of these wildlife crime categories followed by the analysis of the distribution of offenses across region and the characteristics of wildlife offenders in Florida. Finally, logistic regression models for each of the offense types are discussed.

**FINDINGS**

Table 2 displays the eight wildlife offense categories. The improper permitting category includes violations involving offenders without hunting or fishing permits and those with the wrong kind

\textsuperscript{10}In an effort to address the research questions regarding wildlife offenders, the authors eliminated cases in which an individual was cited for multiple offenses during the same incident. For example, if an offender was cited for multiple counts of illegal possession of fish, only one case was included in the analysis. In addition, if an offender was cited for one count of illegal taking and one or more counts of illegal possession, only the illegal taking offense was included.

\textsuperscript{11}Unfortunately, the authors were unable to reliably distinguish between hunting- and fishing-related improper permitting because Florida Statute 372.57 includes both hunting and fishing permit violations and no other indication of offense type was available in the data provided by the FWC.
of permit for their wildlife activity. Nearly half (49.5%) of all wildlife offenders statewide were cited for improper permitting offenses. The vast majority of these cases involved the general Florida statute requiring a permit for hunting, fishing, or trapping. Other cases in this category were for more specific permit violations involving particular species (i.e., blue crab, crawfish, deer, turkey, etc.) or areas (i.e., no Wildlife Management Area hunting permit). Improper permitting violations appear to be most common in the northwest region and least common in the south.

The second category of wildlife offenses includes cases related to using illegal methods or taking techniques in the hunting of game. Approximately 7% of offenders statewide were cited for some type of illegal hunting method. Offenses in this category include hunting over a baited field, hunting from roadways, hunting with a light, hunting dog violations, hunting out of season, taking protected species, or taking game in protected areas. These violations comprise the greatest percentage of offenses in the northcentral region (14.4%), while being relatively uncommon in the south (4.3%).

The third category of wildlife offenses is similar to the previous category, but involves illegal fishing methods or takings related to prohibited marine wildlife. Just over 5% of offenders statewide were cited for offenses in this category. These offenses include illegal means of harvesting oysters, spearfishing, using illegal crab, crawfish, or lobster traps, and illegal trolling. Nearly 10% of all violations in the south region fall into this category of offenses, whereas in the northcentral region, only 1.4% of offenses involve illegal fishing methods or illegal takings of fish.

The next two categories of wildlife offenses are illegal possession of marine life or wildlife. Thirteen percent of offenders statewide were cited for illegal possession of marine life while only 1.3% of offenders were cited for illegal possession of wildlife. The most common illegal possession of marine life violations involved possession of undersized crawfish, oysters, and various fish species, possession of fish species over the bag limit, or possession of fish species out of season. Illegal possession of wildlife cases include possessing prohibited species (alligators, tortoises) and possession of game (turkey, duck, etc.) over the bag limit. Illegal possession of fish violations comprise the largest percentage of offenses in the south region (18.5%), while constituting 8% of offenses in the northeast. Illegal possession of non-fish wildlife is a rare offense and is relatively consistent across regions (between 1.0% and 1.6%).

### TABLE 2

<table>
<thead>
<tr>
<th>Offense Category by Florida Region</th>
<th>Florida</th>
<th>Northwest</th>
<th>North central</th>
<th>Northeast</th>
<th>Southwest</th>
<th>South</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improper Permitting</td>
<td>49.5%</td>
<td>62.5%</td>
<td>44.7%</td>
<td>54.2%</td>
<td>56.0%</td>
<td>36.8%</td>
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<tr>
<td>Illegal Taking/Methods—Hunting</td>
<td>6.9%</td>
<td>9.9%</td>
<td>14.4%</td>
<td>5.8%</td>
<td>4.6%</td>
<td>4.3%</td>
</tr>
<tr>
<td>Illegal Taking/Methods—Fishing</td>
<td>5.4%</td>
<td>3.6%</td>
<td>1.4%</td>
<td>3.4%</td>
<td>5.0%</td>
<td>9.9%</td>
</tr>
<tr>
<td>Illegal Possession—Fish</td>
<td>13.1%</td>
<td>15.8%</td>
<td>12.6%</td>
<td>8.0%</td>
<td>9.5%</td>
<td>18.5%</td>
</tr>
<tr>
<td>Illegal Possession—Wildlife</td>
<td>1.3%</td>
<td>1.0%</td>
<td>1.3%</td>
<td>1.6%</td>
<td>1.0%</td>
<td>1.4%</td>
</tr>
<tr>
<td>Marine Life Conservation Offense</td>
<td>16.5%</td>
<td>2.4%</td>
<td>16.9%</td>
<td>18.4%</td>
<td>17.3%</td>
<td>21.7%</td>
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<tr>
<td>Land Conservation Offense</td>
<td>6.8%</td>
<td>4.7%</td>
<td>8.1%</td>
<td>8.0%</td>
<td>6.3%</td>
<td>6.7%</td>
</tr>
<tr>
<td>Miscellaneous Offense</td>
<td>0.5%</td>
<td>0.1%</td>
<td>0.5%</td>
<td>0.6%</td>
<td>0.3%</td>
<td>0.8%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>14.8%</td>
<td>13.8%</td>
<td>21.1%</td>
<td>21.8%</td>
<td>28.5%</td>
</tr>
</tbody>
</table>

N = 15,657 | N = 2,323 | N = 2,168 | N = 3,296 | N = 3,409 | N = 4,461
Two categories of wildlife offenses were also included to account for types of violations that threaten marine and wildlife resources. During their activities, hunters and fishers are often in locations or engaged in behavior that could threaten conservation areas. Therefore, the marine life conservation offense and land conservation offense categories were created to capture those cases in which a specific hunting- or fishing-related offense was not indicated, but in which the offender’s behavior violated a law attempting to protect wildlife areas and resources. Over 16% of offenders in this data set were cited for a marine life conservation offense (primarily manatee zone violations and protection of marine animals) and almost 7% of offenders were cited for land conservation offenses (illegal entry into a Wildlife Management Area, littering, damaging WMA property). Marine life conservation offenses were relatively rare in the northwest region (2.4%), but were over one-fifth (21.7%) of the offenses in the south region. Land conservation offenses were also rare in the northwest region (4.7% of violations).

In an effort to gain a better understanding of wildlife offenders and the context in which offending occurs, we examined demographic characteristics of offenders by region. Table 3 displays the results of this analysis. Across Florida, the typical wildlife offender is white (81.2%), male (95.2%), with a mean age of 36 years. While the racial/ethnic composition of offenders was relatively consistent across regions, the northcentral region had the greatest percentage of black offenders (10.4%) and lowest percentage of Hispanic offenders (2.2%) compared to other regions. Conversely, the southwest region had the lowest percentage of black offenders (6.2%) and highest percentage of Hispanic offenders (13.5%).

Table 4 examines offense type by race/ethnicity and sex of the offender. The findings indicate several differences in offense type across race and sex. For example, a greater percentage of blacks and Hispanics were cited for improper permitting compared to whites. Likewise, a greater percentage of females were cited for improper permitting compared to males. Blacks were also more likely to be cited for illegal possession of fish, whereas whites were more likely to be cited for illegal hunting methods and marine life conservation offenses.

In an effort to better understand the impact of demographic characteristics and region on wildlife offending, we examined logistic regression models for each offense type (excluding the miscellaneous category). The results are presented in Table 5. The logistic regression models...

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12The FWC data included the following categories for race/ethnicity: Asian (0.5%), black (8.3%), Hispanic (9.1%), Indian (0.3%), Other (0.5%), and white (81.2%). Due to the low number of cited offenders identified as Asian or Indian, these categories were combined with “other” for the analysis of demographic characteristics.
provide evidence that race/ethnicity, sex, and region significantly influence the type of wildlife offense committed and/or detected. In regard to race and ethnicity, blacks and Hispanics are significantly more likely to be cited for improper permitting and illegal possession of fish compared to whites, and Hispanics are more likely to be cited for illegal fishing methods. Specifically, the odds for blacks of being cited for improper permitting are nearly twice the odds of whites being cited for those offenses and blacks are two and a half times more likely to be cited for illegal possession of fish compared to whites. The odds of Hispanics being involved in improper permitting, illegal fishing methods, and illegal possession of fish are 49%, 81%, and 27% greater, respectively, than the odds for whites. Males are more likely to be cited for illegal hunting methods, illegal fishing methods, and illegal possession of fish, compared to females, whereas females are significantly more likely to be cited for improper permitting and land conservation offenses.

Region also significantly impacts offense type in Florida. For example, offenses involving improper permitting are significantly more likely to occur in all regions compared to the south,

| TABLE 4 |
|__________________________|________|________|________|________|________|________|
|                   | White | Black | Hispanic | Other | Male | Female |
| Improper Permit    | 47.4% | 60.4% | 58.7%    | 48.3% | 49.2%| 56.2% |
| Illegal Taking/Methods—Hunting | 7.9% | 1.2% | 3.7% | 1.9% | 7.1% | 2.7% |
| Illegal Taking/Methods—Fishing | 5.0% | 1.7% | 9.8% | 20.3% | 5.5% | 2.2% |
| Illegal Possess—Fish | 11.7% | 26.7% | 12.5% | 22.7% | 13.3% | 10.3% |
| Illegal Possess—Wildlife | 1.3% | 0.7% | 1.0% | 3.4% | 1.2% | 1.9% |
| Marine Life Cons. Off. | 19.0% | 7.1% | 7.1% | 1.9% | 16.6% | 13.8% |
| Land Cons. Off.     | 7.1% | 6.8% | 6.8% | 0.5% | 6.6% | 10.9% |

TABLE 5
Logistic Regression Models for Offense Type (Odds Ratios Displayed)

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>1.96</td>
<td>***</td>
<td>0.15</td>
<td>***</td>
<td>0.32</td>
<td>***</td>
</tr>
<tr>
<td>Hispanic</td>
<td>1.49</td>
<td>***</td>
<td>0.56</td>
<td>***</td>
<td>1.81</td>
<td>***</td>
</tr>
<tr>
<td>Other</td>
<td>1.34</td>
<td>***</td>
<td>0.18</td>
<td>***</td>
<td>8.52</td>
<td>***</td>
</tr>
<tr>
<td>Male</td>
<td>0.78</td>
<td>***</td>
<td>2.85</td>
<td>***</td>
<td>2.28</td>
<td>***</td>
</tr>
<tr>
<td>Northwest</td>
<td>2.92</td>
<td>***</td>
<td>2.43</td>
<td>***</td>
<td>0.34</td>
<td>***</td>
</tr>
<tr>
<td>Northcentral</td>
<td>1.41</td>
<td>***</td>
<td>3.76</td>
<td>***</td>
<td>0.14</td>
<td>***</td>
</tr>
<tr>
<td>Northeast</td>
<td>2.02</td>
<td>***</td>
<td>1.35</td>
<td>***</td>
<td>0.30</td>
<td>***</td>
</tr>
<tr>
<td>Southwest</td>
<td>2.21</td>
<td>***</td>
<td>1.10</td>
<td>***</td>
<td>0.47</td>
<td>***</td>
</tr>
<tr>
<td>Age</td>
<td>0.98</td>
<td>***</td>
<td>0.99</td>
<td>***</td>
<td>1.00</td>
<td>***</td>
</tr>
<tr>
<td>Commuter</td>
<td>1.09</td>
<td>***</td>
<td>1.17</td>
<td>*</td>
<td>1.18</td>
<td>*</td>
</tr>
<tr>
<td>Psuedo R²</td>
<td>0.09</td>
<td>0.07</td>
<td>0.08</td>
<td>0.10</td>
<td>0.01</td>
<td>0.12</td>
</tr>
</tbody>
</table>

*p <.05; **p <.01; ***p <.001.

"White" and "South Region" serve as reference categories.
with the northwest region having the greatest odds of these offenses. Similarly, illegal methods of hunting are significantly more likely to occur in the northwest, northcentral, and northeast regions compared to the south. Fishing and marine conservation offenses are most likely to occur in the south.

There are also significant differences in the likelihood of offenders identified as commuters (i.e., those who travel to offend) across offense type. Specifically, commuters are more likely to be involved in offenses related to improper permitting, illegal hunting methods, and illegal fishing methods, but less likely to be cited for illegal possession of wildlife and marine conservation offenses. Thus, wildlife offenders are more likely to travel outside of their home areas for some offenses while committing other offenses closer to home.

**DISCUSSION**

In the late 1990s, Muth and Bowe (1998) called for additional research on wildlife crime while Eliason (1999) argued that research on this topic needed to be more methodologically and analytically advanced. Indeed, “… a significant body of literature that constitutes a cumulative and critical mass of scientific findings is yet to be forthcoming. The profession has yet to develop much of a learning curve, in which scientific investigations build on previous foundations to extend what is known about poaching…” (Muth and Bowe 1998:10). It was the intention of this article to answer this calling to help provide more information so that both academia and practitioners alike can apply the results of this study in meaningful ways.

First, we examined the nature and extent of wildlife crimes. The results indicated that there is a wide array of wildlife crime, ranging from fishing without a permit to the unlawful sale of alligator parts. By far the most common type of wildlife crime involved permit violations and the least common type was illegal possession of wildlife (setting aside miscellaneous offenses). Even with the large number of offenses examined in this study, over 15,000, most wildlife offenses fit into the four central categories: improper permitting, illegal taking or methods, illegal possession, and land or marine conservation offenses.

Given that wildlife crime and wildlife offenders may vary geographically, we also examined the nature and extent of wildlife crime across Florida—one of the most diverse ecosystems in the nation. A geographical analysis is also important to further explore the robustness of the proposed typology of wildlife offenses across diverse areas of the state. It is also important to conduct such an analysis for routine activities theory as targets and guardianship may vary geographically which could impact the type of motivated offender drawn to any given area (i.e., commuter or marauder). The analyses presented here lead to two conclusions regarding region. First, it is clear that with relatively few exceptions, the nature and extent of cited wildlife offenses is relatively consistent across the five regions. For example, improper permitting is by far the most common type of cited offense across all geographic regions, while illegal possession of wildlife is the least common. This consistency lends support to the typology of wildlife offending developed through the analysis presented here. While there are some relatively modest observed differences across regions, the proposed wildlife crime typology appears to be salient with cases falling into all four broad categories, regardless of the region of the state. Even so, without additional replication, it is not yet possible to suggest that this typology should serve as “the model” for future studies on wildlife offenses, but it does represent an important first
step in establishing such a model given the large number of offenses examined in this study from a diverse ecosystem. In addition, while important differences in offender profiles and regional characteristics are apparent in this data, it will be important to examine these issues in other jurisdictions.

While relative consistency in the frequencies with which different categories of wildlife offenses are cited is evident, multivariate analyses reveal that region does play an important role in influencing the likelihood of each offense category being cited by law enforcement. For example, the analyses demonstrate that, when controlling for demographic characteristics of cited offenders, individuals are much more likely to be cited for improper permitting and illegal hunting methods in the northwest region, whereas they face greater odds of being cited for illegal fishing methods and marine conservation offenses in the south region. This regional influence is likely the result of several factors. First, there are geographic and habitat differences across the regions that likely affect the likelihood of certain offenses being committed and, therefore, cited. The northwest region is more rural compared to the south, comprising relatively larger hunting areas and greater populations of commonly sought-after game. Likewise, the south region is home to more marine-based recreational opportunities, resulting in an increased likelihood of fishing and marine conservation offenses being committed, and thus cited. Thus, the influence of region on cited offense type may be, at least partially, related to differences in lifestyles and recreational opportunities across regions. In other words, the routine activities of individuals and the targets available to them differ based on habitat (i.e., region). Another possible explanation, while not empirically verifiable using the current data, is that the enforcement priorities of FWC law enforcement officers differ across regions. These enforcement priorities, in turn, could be impacted by a number of different factors including funding, number of personnel, social (e.g., class and race), and political influences (Eliason 2011; Stretesky et al. 2010).

This research also sought to address the need posed by Forsyth (1994) and Eliason and Dodder (1999) for a better understanding of who commits what kinds of wildlife crime. Generally speaking, our descriptive results confirm the profile articulated by Carter (2006) that most wildlife offenders are white and male (regardless of region), although the multivariate findings indicate notable differences across specific wildlife offense types that support the argument articulated by Bessey (1985) and Eliason (2005, 2008) that no single profile of wildlife offenders is possible. Thus, it appears that a profile of the wildlife offender is indeed one that varies by offense type; however, these differences merit additional discussion.

The multivariate results indicate that blacks and Hispanics are significantly more likely to be cited for improper permitting and illegal possession of fish compared to whites and Hispanics are more likely to be cited for illegal fishing methods. As shown in Table 5, these differences were substantial. Some of this variation is likely explained by both routine activities theory and the conflict perspective. Under these perspectives, one would argue that minorities and whites are not equally likely to violate all natural resource and wildlife laws. Thus, any observed differences across wildlife offending are likely related to larger social forces that have race and class implications that lead offenders to commit different types of wildlife crimes. It is possible that these findings reflect the fact that blacks and Hispanics are more likely to be ticketed for fishing violations because they are more likely to fish without a license. However, at the same time, blacks and Hispanics are less likely to be ticketed for hunting violations because whites are more likely hunt without a license. In short, we argue that the nature of the offense is important in the enforcement outcome, but is complicated by issues of race and class inequality.
This argument is informed by the environmental justice literature and the literature on race. 

First, Bullard and Johnson (2000:561) observe: “not everyone buys the fish they consume at the supermarket. There are many people who are subsistence fishers, who fish for protein, who basically subsidize their budgets, and their diets, by fishing from rivers, streams, and lakes.” Therefore, it is feasible that the racial variation observed in wildlife offending could be the result of economic circumstances. For example, in the case of fishing violations, qualitative research suggests that blacks are more likely than whites to fish to subsidize their budgets and diets (Brown and Toth 2001). Whites, on the other hand, may be more likely to engage in wildlife crimes that require a higher level of financial resources, such as fishing from boats and hunting, which require more money for equipment to support such endeavors. When racial differences in wildlife offending are examined in this light it makes sense that whites are more likely to be cited for violating laws that are associated with greater economic resources, while blacks are more likely to be cited for violating laws that are associated with subsistence behavior. This is what the results indicate and may seemingly align with the work of Carter (2006) who argued that patterns of enforcement are largely due to behavioral differences in offenders. Even so, we argue that behaviors do not operate independently from the social structure. Thus, these racial patterns in wildlife violations are likely to represent an indirect form of discrimination based on larger social and economic forces and inequality that shape the types of wildlife crime in which blacks and whites are likely to engage (see Stretesky and Hogan 1998). More specifically, it appears that one reason minorities are more likely to be targeted is not because they are more likely to engage in the behavior, but because they are more likely to be targeted for doing so. It may also be the case that, as suggested by Eliason (2012a), the historical development of wildlife laws may result in the criminalization of behavior that is more common among minorities and/or more commonly detected by law enforcement among minorities. Future research should examine the role of race and ethnicity in enforcement patterns of fish and wildlife laws.

This study is not without limitations. This research is cross sectional and is not generalizable to other states. As discussed earlier, Florida is a diverse ecosystem that provides opportunities for a wide range of fish and wildlife offending. Less diverse jurisdictions are likely to experience less varied offending patterns. Even with these stated weaknesses, this is the largest study on wildlife offending conducted to date and it is the first to use multivariate statistical analysis. Without previous research that is quantitative in nature it is difficult to produce a model that fully explains the variable of interest in an exploratory study like this. The analysis presented here provides a step forward in understanding the types of wildlife offenses commonly committed in Florida and the type of offender typically associated with these different types of offenses. By establishing a viable typology for wildlife offenses, the results reveal that not all wildlife offenses are created or enforced equally. As wildlife laws become more specific and focused, identifying differences across offense types takes on added importance for understanding the phenomenon of wildlife offending. As such, it is imperative that future research work to identify the specific nature of these differences and a better understanding of the motivations behind wildlife offending.

13For example, owning a boat to support fishing requires significant financial resources, which are intensified due to maintenance and storage costs. Hunting is also an expensive sport due to the cost of hunting equipment and the cost of taxidermy for trophy hunters.
REFERENCES


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