

**Perceptions of Texas Parks & Wildlife Game Wardens
about Effectiveness of Law Enforcement Programs**

By

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CHAPTER 1. INTRODUCTION

Not only have geologic changes wiped out whole faunas, but man also has exterminated or contributed to the extinction of certain types of wildlife. There is little doubt that the passing of the great auk, the passenger pigeon, and the Eskimo curlew was due to the activities of man. The great auk disappeared as a result of raids by fisherman upon the few nesting islands that harbored the entire race. The passenger pigeon, a vulnerable colony-nesting bird, was unable to withstand the murderous hunting practices of the days when it was in abundance and was reduced to the point where recovery was impossible. The Eskimo curlew was exterminated chiefly by market gunners.

Among the mammals, the near extinction within the United States of the grizzly bear is undoubtedly due solely to shooting. There have been no changes in much of its natural habitat and no factors capable of reducing it to its present low numbers other than man and his hunting activities. The practical disappearance of the sea otter—an animal fortunately recovering somewhat under protection—was also due solely to human prosecution. There has been no deterioration and little human invasion of much of its habitat, except for the express purpose of hunting the animal to obtain its valuable fur (Gabrielson 1947, 186)

The passage above was written in 1947, and was included in a wildlife conservation book in order to express some of the concerns about vanishing wildlife more than half a century ago. Early conservation enforcement was futile because of limited funds and half-hearted efforts, as well as tremendous opposition to regulation (Tober 1981, 219). There was an assumption that wildlife resources were simply inexhaustible. Species have become extinct, or come to the verge of extinction, as a result of increased human population and the mismanagement of natural resources. Yet, since 1947, great progress has been made in protecting natural resources within the United States and throughout the world.

In response to vanishing wildlife, conservation law enforcement has become an increasingly popular concept within the United States and efforts have changed to meet the

demands of an exploding population. “Growing populations and demographics are making for more people using the same resources at the same time for different purposes” (Curtis 2000, 4). One of the largest challenges for game wardens is to ensure the viability of natural resources so that hunting and fishing is not lost for future generations (Curtis 2000).

Poaching continues to be a threat for species of value. Poaching creates a \$5 billion-plus global market. “It’s bigger than the illegal worldwide trade in guns, second only to the criminal cross-border commerce in drugs” (Glennard and Frio 2000, 1). Many people double their incomes by harvesting just a few animals. The forms of poaching differ, but the outcome is the same. Animals are either killed for their unique qualities or captured alive and taken out of their natural element. For example, in Texas, trophy deer heads bring thousands of dollars. Poachers often take only the heads and leave the meat to rot. Professional poachers are also often involved in other illegal activities. Hence, they take unusual care to avoid detection because they are at risk of arrest for multiple crimes. As long as there is a market for protected species, poaching will remain a secretive and lucrative operation. Chandler (1986, 616) asserts that estimates of illegal trade range as high as one-quarter the value of the legal commerce in wildlife.

Poachers have become extremely sophisticated, dangerous, and proficient at taking natural resources illegally. At the same time the game wardens’ job has expanded, thereby decreasing the time allotted for enforcement of fish and game laws. “The job had changed from ticketing deer jackers and illegal bass fisherman to policing the stacks of big business for spewing too much particulate into the air” (Curtis 2000, 1).

Purpose

The purpose of this paper is to describe the perceptions of Texas Parks & Wildlife (TPW) game wardens about the effectiveness of law enforcement programs within the TPW Law

Enforcement Division. The literature review chapter presents information on conservation law enforcement, explains the job of a game warden, and describes various law enforcement actions within a game warden's jurisdiction. The following chapter presents the history of the Texas game warden in order to tie the game warden's job to the law enforcement functions. The conceptual framework and methodology chapter presents the framework that is used to study TPW game wardens' perceptions about effectiveness of law enforcement programs. That chapter also explores concerns about the Law Enforcement Division's recruitment and retention programs. The results chapter presents the information gathered throughout the research project in its entirety, and the final chapter provides a summation.

CHAPTER 2. LITERATURE REVIEW

What is a game warden? Some people refer to game warden as a possum policeman, fish cop, or even a secret squirrel with a mission. However, the job of a game warden is evolutionary. Today's game warden descends from the kingship of Europe. The king had subjects who guarded the royal game that resided on the king's land. Using similar logic in the United States:

The ownership of wild game evolved into a 'commonwealth' ownership arrangement with some wild game being considered the common property of the state and some game seen as the legitimate property of the nation and its citizens" (Forsyth 1993, 211).

It is this practice in the United States of America that enables game wardens to protect the environment and the wildlife for its citizens.

This chapter provides a history of conservation law enforcement, addresses current movements in conservation law enforcement as revealed by relevant literature, and explains the job of a game warden and the law enforcement actions under a game warden's jurisdiction. The information given in this chapter establishes a basis for reviewing law enforcement programs that decrease natural resource crimes. Categories of effectiveness are then used to assess the effectiveness of natural resource law enforcement programs in the conceptual framework and methodology section.

Historical Overview of the Game Warden in the United States

The French were the first to establish a market based on the wildlife resources in the New World. Jacques Cartier opened the beaver trade and shipped the abundant furs, "which had been gotten from the Indians of the St. Lawrence region, to France" (Tober 1981, 14). Early settlers in America were amazed at the abundance of wild game. "The common view was that resources

were simply inexhaustible” (Tober 1981, 17). In the 1600s the “two most important commercial trades were in deer skins and furs” (Tober 1981, 14).

Wildlife was over hunted without considering the numbers of animals being taken. Resources dwindled and people realized that management of natural resources was necessary. “John Josselyn remembered in 1672 that ‘the English and the Indians having now destroyed the breed...’tis very rare to meet with a wild turkie in the woods” (Tober 1981, 17). By 1739, Massachusetts had become the first colony to regulate its wildlife resources and to create a position similar to today’s game warden. Massachusetts called these game wardens “deer reeves” (Curtis 2000, 1). New Hampshire followed shortly after in 1764. Even though the colonies began practicing wildlife management and enforcement actions for breaking the law, natural wildlife still dwindled.

After the colonies formed the United States, wildlife species began to disappear at an unprecedented rate due to the ever-increasing human population. Even though wildlife management had been initiated a hundred years earlier, it was only when species began vanishing that an understanding of man’s impact on natural resources took hold. “Several species and races had become extinct, others gravely threatened, and most greatly reduced in their range” (Tober 1981, 17). The excessive depletion of wildlife during this period is illustrated by data from a single trading post near Waco, TX that shipped 75,000 deer hides to the northern states between 1844 and 1853 (Wood 1999, 143).

The Conservation Movement

During the mid-nineteenth century a handful of Americans began drawing the public’s attention to the demise of the nation’s natural resources. George P. Marsh was a pioneer conservationist who gave speeches and offered new insights into managing and conserving

natural resources. On September 30, 1847, Marsh gave a powerful address before the Agriculture Society of Rutland County, Vermont. He subsequently delivered the same speech as a Vermont congressman. The speech “[drew] attention to the human impact on climate, the problems caused by ‘the injudicious destruction of the woods,’ especially the effect on water and soil, and calls for replacing ‘improvident waste’ with ‘better economy in the management of our forest lands’” (Marsh 1848, 17). Even though American citizens were concerned and outspoken about the loss of natural resources, government bodies were still not passing effective enforcement bills and laws that fully supported wildlife management.

In 1851, the Ohio Senate quickly disposed of a bill which would have offered some protection to the passenger pigeon with the observation that the birds were so ‘wonderfully prolific’ that ‘no ordinary destruction can lesson them, or be missed from the myriads that are yearly produced (Tober 1981, 17).

The passenger pigeon had become extinct by 1914. “Habitat was destroyed by lumbering and settlement and birds, dead or alive, were shipped by the millions to market” (Tober 1981, 17).

The role of state fish and game agencies was new and uncertain during the nineteenth century (Tober 1981, 225). It was not until the twentieth century that the regulatory agencies handling wildlife resources truly began to make improvements. Unfortunately, political agendas other than conservation often influenced the regulation and enforcement of natural resources concerns. “Limited funds and half hearted efforts were second to the tremendous opposition to regulation, which often made early enforcement futile” (Tober 1981, 219).

State Fish and Game Agencies

In the twentieth century, the role of state fish and game agencies expanded. The US Supreme Court recognized the importance of conservation and the states’ role in conserving natural resources. “The Supreme Court has stated that the right to hunt and fish is a boon and a

privilege and your constitutional rights are not violated when the game warden denies the privilege for any reason or when the state places limitations on your right to hunt” (Debevec 1959, 12). The state did not claim the rights to wild game—citizens owed the rights—but “the state [held] title to the game in trust for the people” (Debevec 1959, 9). Game wardens were hired to protect every citizen’s game. State courts had ruled that states are considered the trustee of all wild game. An individual does not acquire ownership of game until it has been captured, or otherwise reduced to possession. Then and only then does the state relinquish control of the species; however, the possession must be through a legal act and not against the law (Debevec 1959, 1).

With the support of the Supreme Court, individual states were authorized to regulate their wildlife as deemed necessary. The federal government further supported state fish and game agencies through the Pittman-Robertson Act. The Pittman-Robertson Act funded research, biological management, habitat acquisition, and other activities (e.g., conservation law enforcement as a management function) (Chandler 1986, 593). Deal (1998, 8) asserts that the Pittman-Robertson Act has provided over one billion dollars toward wildlife management activities.

Organization and Operational Structure of Conservation Law Enforcement

Organizational structures of wildlife conservation agencies differ between states. Three different types of organizational structures exist. Wildlife law enforcement programs may be handled by: (1) an established wildlife agency, (2) a law enforcement division within a state natural resource or conservation agency, or (3) by the state police (Chandler 1986, 594).

In Texas and Virginia, the state natural resource agency has a division of law enforcement. The law enforcement director reports to the director of the natural resource

agency. Only two states, Alaska and Oregon, allow fish and wildlife law enforcement activities to be handled by the state police (Chandler 1986, 595).

Staff and Budget of Conservation Law Enforcement

The staff and budget of wildlife law enforcement departments or divisions vary drastically between states. Those variations occur because of several factors. One factor affecting a law enforcement division's budget is the need to "monitor and regulate human activities because of higher population densities. Greater number of sportsman afield, and relatively fewer acres accessible for hunting and fishing," allow opportunities for violations (Chandler 1986, 601). Another factor that influences staff and budget size is the sheer need for manpower and resources. Large territories need routine coverage to enforce fish and game laws. Finally, states that do not have a large population, and thus have a relatively small demand upon their natural resources, do not carry large budgets and staff.

Law enforcement staffs have grown minimally throughout the last twenty years as compared to other natural resource and environmental programs (Flores 2000). The need to recruit new wildlife law enforcement officers has been minimal and retention strong. Previously the supply of people pursuing a game warden's job had dramatically outnumbered the jobs available. More recently, a large number of senior wildlife law enforcement officers have reached retirement age and jobs are becoming available. This large-scale retirement of wildlife law enforcement officers is due to the low turnover of those who enlisted in the 1960s and 1970s when positions for the popular profession existed.

Goals of Enforcement Plans

The goals of conservation law enforcement plans are in place to take care of the most important issues first. An important agenda item in conservation law enforcement plans is a

reduction in natural resource crimes. Taking wildlife without a license is considered taking wildlife illegally. Reducing the number of hunters and fisherman without a license is important. Hunting and fishing licenses generate revenue to finance the management of wildlife resources. Chandler (1986) asserts that failure to purchase a license, and the purchase of a resident license by a nonresident, are practices that deprive the states of millions of dollars in revenue each year. “The Colorado Division of Wildlife estimates that it loses approximately \$2.5 million yearly because of license violations” (Chandler 1986, 609).

Decreasing the number of wildlife violations that uninformed persons commit while hunting or fishing is also important. These violations are preventable, but only through education. It is better to prevent such a violation, because often the damage has already been done by the time someone recognizes a violation. Poaching can take a major toll on any natural resource. Since extremely rare resources are the targets for poaching, they are in the greatest need of protection.

Poaching

Poaching is the illegal taking of a natural resource. People take animals illegally for subsistence, recreation, and commercial and/or financial gain. The taking of animals purely for monetary gain affects many species. Poaching is not only detrimental to endangered and protected species throughout the world, it is also detrimental to sport species. As a species becomes rare, its value increases (Moulton and Sanderson 1997, 1). “The American Alligator was declining in the southeast, primarily because of poaching. Efforts by state and federal law enforcement offices to bring violators to court were instrumental in the recovery of this species” (Anderson 1991, 213). In the United States, animals such as the white-tailed deer, mule deer,

elk, mountain sheep, mountain goats, and javelina—and many types of exotic game as well—are very valuable. Hunters pursue these animals illegally for monetary gain.

The forms of poaching differ, but the outcome is the same. Animals are either killed for their unique qualities or captured alive and taken out of their natural element. In Texas, for example, trophy deer heads bring thousands of dollars—but the meat is often left to rot. As long as there is a market for protected species, poaching will remain a secretive and lucrative operation. Chandler (1986, 616) asserts that estimates of illegal trade in wildlife range as high as one-quarter the value of the legal commerce in wildlife.

Federal Laws Addressing Wildlife Law Enforcement

The primary purpose of law enforcement in wildlife management is to ensure that wildlife resources are not significantly affected by unlawful activities (Chandler 1986, 594). Laws against poaching are difficult and dangerous to enforce. In addition, laws pertaining to the protection of natural resources differ between states. The US government plays a valuable role in the protection and conservation of natural resources in this country, even though states are sovereign in their rights to legislate natural resource conservation within their jurisdictions. In addition, federal statutes on natural resources apply to state wildlife law enforcement and to the people residing in the United States and its territories. These laws are critically important in protecting and conserving many endangered species.

The first federal law protecting game was the Lacey Act of 1900. The Lacey Act prohibited interstate shipment of illegally taken wildlife, and the importation of injurious species. Its amendment in 1935 expanded its authority to prohibit foreign commerce of illegally taken wildlife. The US Department of Agriculture, Division of Biological Survey, was the first federal department to enforce the Lacey Act (US Fish & Wildlife Service 2000).

In 1913 the Federal Migratory Bird Law, also known as the Weeks-McLean Law, became effective. The first migratory bird hunting regulations were also adopted as a result of this law. The Weeks-McLean Law was crucial in assisting management and preservation of migratory birds. Up to this time, depending on each state's regulations, hunters had year-round access and unlimited bag limits on migratory birds. Shortly after, in 1916, the signing of the Migratory Bird Treaty with Great Britain became a milestone in international wildlife management. This historic treaty recognized migratory birds as an international resource (US Fish & Wildlife Service 2000).

In 1918, the Migratory Bird Treaty Act was enacted. It became unlawful to take, possess, buy, sell, purchase, or barter migratory birds; this legislation was the most detailed law concerning a natural resource of its time. This Act prohibited the taking or possession of feathers, parts, nest, and eggs of any migratory bird (US Fish & Wildlife Service 2000).

In 1920, for the first time in history, a state tested its rights to regulate natural resources in contradiction to US statutes. In the landmark case *Missouri v. Holland* (252 U.S. 416), Missouri filed suit against the US government in hope of preventing federal game wardens from enforcing the Migratory Bird Treaty Act within the state. The US Supreme Court upheld the constitutionality of the Migratory Bird Treaty Act, “establishing beyond question the supremacy of the federal treaty—making power as a source of authority for Federal regulation” (US Fish & Wildlife Service 2000).

The 1926 Black Bass Act made it illegal to transport, take, purchase, or sell black bass across state lines. In 1934, the Migratory Bird Stamp Act was implemented and required waterfowl hunters age 16 and over to possess a “duck stamp.” This measure helped authorities in obtaining estimated counts of the number of people hunting various species of duck. In turn,

the purchase of a duck stamp increased revenue from waterfowl hunters, allowing increased expenditures on conservation measures for various species of duck (US Fish & Wildlife Service 2000).

The Migratory Bird Treaty with Mexico was signed in 1936, and in 1940 the Bald Eagle Protection Act became law. The Bald Eagle Protection Act prohibited the taking, importing, exporting, sale, purchase, or bartering of the bald eagle. The Bald Eagle Protection Act later extended protection to the golden eagle, and became the Bald Eagle and Golden Eagle Protection Act. Twenty years later, in 1960, the Migratory Bird Act was amended to include felony provisions for commercial activities with migratory birds. A violation of this act was punishable by a \$2,000 fine, imprisonment, or both (US Fish & Wildlife Service 2000)

The Endangered Species Conservation Act of 1970 prohibited the importation of species “threatened with extinction” worldwide. Exceptions were made for zoological and scientific purposes, and propagation in captivity. The Endangered Species Conservation Act amended the Black Bass Act to prohibit interstate and foreign commerce of fish taken in violation of foreign law. The Endangered Species Conservation Act also amended the Lacey Act. It extended the prohibition on interstate and foreign commerce to apply to reptiles, mollusks, amphibians, and crustaceans, with a primary aim to protect the American alligator (US Fish & Wildlife Service 2000).

The Airborne Hunting Act of 1971 prohibited hunting or harassing wildlife by aircraft. In 1972 several changes to wildlife protection came about. First, Japan signed the Migratory Bird Treaty. Second, the Migratory Bird Treaty with Mexico was amended to cover additional species, such as birds of prey. Finally, the Eagle Protection Act was amended to increase the penalty from \$500 fine/six months’ incarceration to \$5,000 fine/one year incarceration. A

second conviction was punishable by \$10,000 fine, two years' incarceration, or both. The amendment also allowed informants an opportunity to receive up to \$2,500 in reward (US Fish & Wildlife Service 2000).

In 1973, the Endangered Species Act became law. The act recognized that "endangered species of wildlife and plants are of aesthetic, ecological, educational, historical, recreational, and scientific value to the Nation and its people" (US Fish & Wildlife Service 2000). This act extended protection to threatened species, or those species in danger of extinction. The Endangered Species Act prohibited the importation, exportation, taking, possession, and other methods of illegally taking species, and was extended to species affected by interstate and foreign commercial activities.

The Union of Soviet Socialist Republics signed the Migratory Bird Treaty in 1976 and in 1981, the Lacey Act Amendments replaced the Black Bass and Lacey Acts. These statutes restored protection to migratory birds that were removed from the list in 1969 and extended coverage to plants. Penalties were increased for commercial violators and international traffickers: \$20,000 fine, five years' imprisonment, or both (US Fish & Wildlife Service 2000).

The Wild Bird Conservation Act was enacted in 1992 to address problems associated with the international trade in wild-caught birds. The wild-caught birds trade contributed to a decline in the numbers of species and an associated unacceptably high mortality rate. The Migratory Bird Treaty Reform Act, passed in 1998, increased the penalty for hunting over bait and the placing of bait for hunting into separate federal crimes (US Fish & Wildlife Service 2000).

Wildlife protection laws transcend state borders, and thus there is a need for interstate intervention. Although federal game wardens enforce US laws, many of these laws would be

ineffective without the assistance of state game wardens. State game wardens play a crucial role in protecting wildlife and enforcing federal laws concerning natural resources.

Fish and Game Patrol

Wood (1999) asserts that a large portion of a game warden's daily activity consists of high-visibility patrols. Fish and game patrols can take place by car, truck, all-terrain vehicle, horse, foot, snowmobile, boat, personal watercraft, or airplane. The area patrolled by an individual game warden depends on the agency that employs the warden.

While game wardens often have large areas to patrol, they often lack sufficient manpower. Vast patrol areas present a problem when trying to enforce laws, especially those regarding species that are rare, valuable, or numerous. Sigler (1972, 108) asserts that "when wild animals are so available that the opportunities of committing violations against them are numerous, and at times it is difficult, if not impossible, for enforcement to eliminate or neutralize these opportunities."

By the nature of the job, conservation law enforcement is a dangerous profession. Game wardens typically work alone around people who carry and use weapons. These violators can be an immediate threat to a game warden, especially when he/she writes a citation or makes an arrest in an isolated area. "A conservation officer in the U.S. and Canada faces a weapon about twice as often when an assault occurs" than a police officer (Chandler 1986, 4).

Interestingly, a game warden's environment is comparable to that of an inner-city police officer. Both inner-city police officers and game wardens express feelings of isolation. It is the game warden, however, who usually works alone—and it is an accepted part of the job to work without backup. Even with this knowledge, most game wardens would not intentionally trade their career for another (Curtis 2000, 4).

While a game warden's primary concern is to enforce conservation laws, these wardens have been tasked with many other enforcement responsibilities. Those responsibilities include enforcing a wildlife code and agency regulations, penal code and selected statutes, clean air and water regulations, hazardous materials regulations, and human health regulations. These additional responsibilities expand a game warden's workload.

The danger in expanding duties of the conservation officer, beyond their traditional wildlife duties, is that wildlife-resource protection could suffer unless the wildlife agency receives sufficient funding to execute all of its responsibilities.

Supervisors of state conservation law enforcement divisions have identified expanding workloads with in-sufficient budgets as their primary problem (Chandler 1986, 625)

Public Education Efforts

Public education efforts offer a game warden the chance to take proactive steps. These efforts are very similar to community policing efforts. Lab (1997, 94) believes that without participation it is difficult to produce any change. Community policing educates the public, specifically children and juveniles, and gains trust, respect, and support. Game wardens make contact with a wide variety of individuals during patrols. This contact has the potential to bolster public support for conservation.

“Law Enforcement Professionals have a great deal of discretion regarding when to enforce a law, how to enforce it, how to handle disputes, when to use force, and so on” (Pollock 1998, 1). Depending on the severity of a violation, discretionary power can educate and show a friendly, helping side to the officer. “One study found that police do not make arrest on 43% of all felony cases and 52% of all misdemeanor cases” (Pollock 1998, 152).

Retired game warden John Wood offers a good example of how and why educating youth plays an important role in conservation.

A juvenile shot a doe and his own parents became accomplices when they helped him hide the carcass. At first, Wood was puzzled about how to win over the bitter lad after the harsh court treatment. Then he heard the boy had been hurt in a bike accident, and was hospitalized. Wood took him flowers and magazines and promised him a conducted fishing trip when he recovered. His conquest was complete. The youth is now an ardent conservationist (Wood 1999, xv).

Wood (1999, xiv) says that game wardens have been cited as Boy Scout leaders and are known in every classroom. When giving school presentations, game wardens often bring educational materials (e.g., literature on wildlife conservation), animals, and fascinating stories to these events. For some students, the educational program is the closest experience they will have of the outdoors. For other students, the game warden's visit may be motivation to participate in outdoor programs in their communities. Teaching youth at an early age about wildlife conservation laws and good environmental habits may deter them from committing wildlife crimes in the future, and perhaps even help natural resources overall.

Deterrence

Game wardens patrol their area of responsibility on a regular basis to deter people from committing wildlife crimes. Deterrence is "a function of the declaration of some harm, loss, deprivation, or pain that will follow noncompliance with commands" (Zimring and Hawkins 1973, 91). The most popular of all utilitarian goals of the criminal justice system is deterrence (Hahn 1998, 11). This assumes that the punishment for committing an offense is high enough to motivate an individual not to commit the crime. The literature identifies two types of deterrence: general and specific.

General Deterrence

According to Hahn (1998, 11), general deterrence is based on the belief that people will refrain from committing an offense because they are aware of the penalty. Jaime (2000, 19)

asserts that “for general deterrence to be effective, the examples must be numerous enough to remind the public of the consequences of committing prohibited acts.” It is called general deterrence when a person does not commit a crime because he/she knows the consequences of the crime.

Specific Deterrence

Specific deterrence occurs when an offender’s punishment keeps the individual from repeating a crime. Durkheim “assumed with Bentham that the pains of punishment deter people from repeating the crimes for which they are punished, especially when punishment is certain, swift, and severe” (Bridges, Weis, and Crutchfield 1996, 66). Wildlife crimes are punishable by a fine, incarceration, or both. One goal of the penal system is to deter people from committing crimes; however, in the United States “we currently incarcerate a higher percentage of citizens than any free society,” and the execution rate is at an all-time high (Hahn 1998, 3). People still commit crimes, especially wildlife crimes. The penalties associated with poaching have increased dramatically, yet natural resources are still abused and taken illegally. “Some Administrators firmly believe that potential violators are, or can be, deterred by fear—fear of fines, of jail sentences, of adverse publicity, or social stigma” (Sigler 1972, 107).

Detection

Detection is the “discovery of a crime by either accident or through search and observation” (Nice 1964, 64). Ideally, violators never know where a game warden will be. Game wardens can detect violators during high-visibility patrols covering a large area; wardens come in contact with many people during such patrols. Often these people give information about crimes to the warden, hoping that the warden can catch the criminals.

Operation Game Thief is an example of a program that relies on citizen involvement. States receive information concerning unreported violations from citizens. The successful Crime Stoppers program is the model for Operation Game Thief (TPW 1997,1). “Many fish and wildlife agencies have established ‘hotlines’ for the purpose of receiving anonymous information on poachers” (Chandler 1986, 617). “One way to detect poaching violations is by providing incentives for observers or associates of the wildlife criminal to report the crime anonymously” (Chandler 1986, 618). These monetary incentives range from \$100 to a few thousand dollars, although a majority of those who call and leave information do not ever claim a reward.

Cost Effectiveness

“Cost-effectiveness is considered a measure of effectiveness in any area of social policy and should be considered” for both fish and game patrols and youth educational programs (Jaime 2000, 20). Of course, law enforcement operations must take place within a budget. Since only a certain amount of funding is available to support these programs, cost-effectiveness analysis is often used. Cost-effectiveness analysis refers to:

[T]he evaluation of alternatives according to both their cost and their effects with regard to producing some outcomes or set of outcomes. Typically, educational evaluation and decision making must focus on the choice of an educational intervention or alternative for meeting a particular objective... (Levin 1983, 17–18).

The public feels that those who commit the crime should pay. While the public still supports harsh penalties such as long prison terms, it is very expensive for the few prisoners who do not recidivate. “Punishment may not be very effective or legitimate means of controlling behavior of those who can see no alternative to law-violating” (Hahn 1998, 2). The public supports expensive programs that are effective immediately, not in the long term. This

immediate effect is accomplished by making it difficult for a person to commit another crime because of their swift incarceration. The public's perception of what is wanted or needed is the basis for cost-effectiveness measurements of programs.

Public Support

The public's support is a must when trying to protect natural resources, and "today's game warden is schooled in public relations and in methods to cooperate with the public" (Wood 1999, xiv). Without the public support of programs established to conserve and protect natural resources, more species could become extinct. Indeed, the programs to support natural resource conservation have changed throughout history depending on the needs for species protection and the desires of the public. High-visibility patrols, educational programs, and Operation Game Thief exist because of public support. The public rationalizes and considers these programs cost effective because the ends justify the means.

Members of the public can make demands on legislators or join interest groups to be proactive against crime (Marion 1995, 2). Legislators and interest groups can effectively increase a program's strength, add new programs, or abolish existing programs. Public desires run the programs in this nation, and the people make the final choice—even if the programs are not necessarily cost-effective.

President Clinton signed a \$30 billion "more cops for America" crime bill. The bill authorized thousands of new prison cells, established new crime prevention programs, banned assault-style weapons, extended the death penalty to 50 additional crimes, and authorized the hiring of 100,000 new police officers to fight crime (Marion 1995, 1).

Critics did not think this bill would have an effect on violence, and the action was deemed a "symbolic gesture to increase politicians' popularity" (Marion 1995, 1–2). Even though politicians felt that the bill was insignificant and possibly ineffective at reducing violent crime,

the public supported it—just as they support conservation law enforcement programs such as fish and game patrols, educational efforts, and Operation Game Thief.

Frequency of Use

The people sometimes voice their opinions on how much emphasis should be placed on conservation law enforcement programs, and the public is more aware than ever of the need for wildlife conservation (Anderson 1991). According to Jaime (2000), frequency of use is the perception of the need to use a program more. Given the nature of the job, game wardens allocate the time needed to the various law enforcement programs they feel are necessary for their department and the public. However, during certain times of the year, both the public and the wildlife agency dictate how much time game wardens should place on various law enforcement programs such as fish patrol, game patrol, educational programs, and Operation Game Thief.

CHAPTER 3. SETTING

Texas is a large state with some of the best hunting and fishing opportunities in the nation. It is known for its great outdoors. Texas has long taken pride in its natural resources; since the time of Stephen F. Austin, fishing, hunting, trapping, and trading of wildlife have been important activities for Texans. Between 1844 and 1853, a single trading post near Waco shipped 75,000 deer hides—along with buffalo, bear, and pelts of smaller animals—to the northern states (Wood 1999, 143). The first game law was passed in 1861 as a result of the heavy dependency upon Texas' natural resources.

The first law protecting fish was enacted in 1874, and in 1879 the Fish Commission was established. This commission originally consisted of only one person, J.H. Dinkins, who required fish ladders to be constructed over dams (Wood 1999, 143). J.H. Dinkins was appointed and served without pay from 1879-1880 (Wood 1999, 143). This commission was the first in Texas to regulate and enforce laws pertaining to the natural resources. By 1885, public opposition to the Fish Commission's placement of carp in the state's waters was so strong that the commission was abolished. Ten years later the Office of Fish and Oyster Commission was created. The focus of the commission was marine fisheries, and in 1897 this commission made it illegal to catch fish or turtles in public waters by using poison, lime, or explosives. As the Fish and Oyster Commission became more powerful, the Game Department joined it in 1907 and by 1909, the first law requiring hunting licenses for those who hunted except at home and in adjoining counties was enacted (Wood 1999, 145). The department was funded by revenue generated by the purchase of hunting and fishing licenses.

In 1909 the Texas Game, Fish, and Oyster Commission employed its first officer. This officer, the first so-called game warden, enforced laws that required fish ladders to be constructed into the dams built on the streams of Texas (Wood 1999, 109). In 1913 three game wardens were employed throughout the state and six game wardens patrolled the state by 1919 (Wood 1999, 109). The numbers substantially increased as budgets grew. Although certain aspects of a game warden's job have changed since then, many have remained the same.

In 1919, the only prerequisite that the state's six game wardens had to meet was to be a peace officer (Wood 1999). They received a badge, a law book, and encouragement from the department. Before game wardens, local peace officers had enforced game laws. In fact, until 1937, the Texas Game, Fish, and Oyster Commission hired only peace officers to fill the game warden positions. A majority of those wardens received their jobs due to political backing.

Standardization within the game wardens' ranks became an issue in 1935. As a result of standardization, game wardens wore uniforms and were appointed ranks, much like that of a police force. By 1946 the first game warden school was created. The game warden training program lasted four months. The idea behind the school was to train the officers and thereby raise game wardens' standards. Instruction took place at Texas A&M, and the first graduating class added fourteen game wardens to the ranks for a total of one hundred and eight game wardens in the field (Wood 1999, 10). Courses in wildlife science were taught to the game warden cadets at A&M, but many of those classes did not pertain specifically to Texas wildlife but rather to wildlife in other states or countries.

The Texas Game, Fish, and Oyster Commission has changed its name twice since 1907. It first changed its name to the Texas Game & Fish Commission in 1951; in 1963, it was renamed Texas Parks & Wildlife (Wood 1999). Game wardens were given peace officer status in

1971, and in 1975 the Game Warden Academy moved from Texas A&M to Austin. The first Game Warden Academy class in Austin was held in 1978. This class was unique because a TPW biologist taught courses on the natural resources of Texas, unlike the schooling at A&M.

Educational Requirements

For years a game warden applicant only needed a high school diploma or a GED to meet the educational requirements of the job. The Game Warden Academy taught the recruits the information and skills that they would need when they entered the field. The 41st Game Warden Academy, held in 1988, was the last class that required only a high school diploma or a GED. In 1990, the 42nd Game Warden Academy required that an applicant have completed a bachelor's degree (BA or BS) from an accredited university or college, although up to sixty hours of full-time related work experience could be substituted for college educational requirements. The 43rd Game Warden Academy in 1992 had the same minimal entry requirements as the 42nd academy.

In 1995, the 44th Game Warden Academy was the first academy to require a bachelor's degree; work experience could not be substituted for college course work (unlike the previous two academies). It was also the first time the department specified the areas of study. The major course work described in a game warden job posting required "Criminal Justice, Natural Resource, Environmental Science, Fish and/or Wildlife Management, Parks and Recreation or other closely related field of natural resource conservation and management" (Texas Parks & Wildlife, 2000). These degree requirements were the same for the 45th Game Warden Academy in 1997 and the 46th academy in 1999.

The current Game Warden Academy classes study what is equivalent to 36 semester hours over seven months (Texas Parks & Wildlife 2000, 1).

Subjects covered include game and fish laws, criminal law, citation, court procedures, defensive tactics, arrest procedures, firearms training, hunter safety programs, environmental pollution, saltwater and freshwater fishing operation, boating safety and rescue training” (Texas Parks & Wildlife, 2000).

The game warden enforces a wide variety of laws. Within the spectrum of law enforcement, a Texas Game Warden has one of the most unique jurisdictions in the state as well as the country.

Internal Divisions

The Texas Parks & Wildlife Department is separated into ten internal divisions: Wildlife, Coastal Fisheries, Inland Fisheries, Law Enforcement, State Parks, Infrastructure, Resource Protection, Communications, Administrative Resources, and Human Resources (Texas Parks & Wildlife 2000, 1). According to TPW philosophy, “a culturally diverse well-trained staff will best achieve the balance of outdoor recreation with conservation” (Texas Parks & Wildlife 2000, 1). A well-trained staff means a staff that is diversely trained to handle a wide range of situations. Game wardens work with all the other divisions within the department to achieve agency goals. The structure of separate divisions allows each entity to have its own specialty, and each division works with the others to fulfill the goals of the department.

Law Enforcement Division

“The Law Enforcement Division provides a comprehensive statewide law enforcement program to protect Texas’ wildlife, other natural resources, and the environment” (Texas Parks & Wildlife, 2000). The Law Enforcement Division also “provides safe boating and recreational boating safety on public waters by ensuring compliance with all applicable state laws and regulations” (Texas Parks & Wildlife, 2000). The game warden’s job is, and has always been, a law enforcement job.

Even with the changes in educational requirements and training, the job criteria of the game warden has not changed. The TPW Law Enforcement Division describes the game warden's position by stating:

After graduation from the Game Warden Training Academy and receiving a commission as a peace officer, the game warden will perform responsible field enforcement duties involving the enforcement of all provisions of the Texas Parks and Wildlife Code, Texas Penal Code, and relevant provisions of other Texas laws; execute and serve all criminal processes resulting from enforcement activities; provide public safety and emergency functions; safeguard departmental equipment; prepare reports of activities and present programs concerning departmental activities to the public; may conduct investigations of holders of permits and licenses issued by the department; maintains contact with holders of permits and licenses issued by the department; maintains contact with landowners, resource users and the general public.

The Law Enforcement Division uses fish and game patrols, educational programs, and Operation Game Thief to accomplish its mission to protect Texas wildlife, other natural resources, and the environment.

Fish and Game Patrols

High-visibility patrols by TPW game wardens are referred to as fish and game patrols. These patrols occur when a game warden travels through his or her geographic area of responsibility in a marked vehicle. Typically, a game warden patrols on land by using a marked pick-up truck; water patrols are done using a marked boat. The patrol function is the backbone of the law enforcement process, and is the "major law enforcement responsibility within a police organization" (Peak 1998, 436).

During overt patrols, game wardens are in marked units and thus easily identifiable. By design, overt patrols give the impression that a game warden may be anywhere at any time. Word of mouth spreads quickly in hunting and fishing communities when game wardens are on

patrol. The apprehension of violators is a mammoth task because wildlife crimes are usually committed in secret and rarely involve human victims (Chandler 1986, 594). The areas patrolled are carefully selected because of limited personnel, but it is impossible to catch all law-breakers.

Educational Programs

Game wardens have been educating youth for decades in hopes of increasing their knowledge of wildlife resources. Game wardens use school-based programs to reach youth. Such educational programs are generally effective at exposing inexperienced youth to the different facets of the outdoors. In addition, local communities and organizations often call upon game wardens to assist with “kid fish” and youth hunting programs. Children involved in such programs often develop a good rapport with state game wardens. It is hoped that these youth will continue to practice and promote good outdoor ethics in the future.

Operation Game Thief

“Many fish and wildlife agencies have established ‘hotlines’ for the purpose of receiving anonymous information on poachers,” and Texas is no different (Chandler 1986, 617). Texas’ Operation Game Thief was established in 1981 as a function of the TPW Law Enforcement Division as a result of the 67th state legislature’s attempt to pass laws to decrease poaching. Operation Game Thief relies on citizen involvement and was modeled after the successful Crime Stoppers program (Texas Parks & Wildlife 1997, 1).

Game wardens receive information concerning previously unreported violations from citizens who call the Operation Game Thief hotline (1-800-792-GAME). The hotline is answered twenty-four hours a day, seven days a week. Monetary incentives are available to citizens who provide information regarding natural resource crimes. Chandler (1986, 618) asserts that one way to detect poaching violations is by providing incentives for observers or

associates of the wildlife criminal to report the crime anonymously. These monetary incentives range from \$100 to a few thousand dollars; however, a majority of those calling and leaving information do not ever claim a reward.

Recruitment

In 1973, 2,000 people submitted applications to the Game Warden Academy. There were fewer than thirty-five openings at the time, and a high school diploma or GED was required. In 1990, between twenty-five and thirty-five openings were available in the 42nd Game Warden Academy, and 1,400 people applied. A bachelor's degree, or 60 hours of college and up to 60 hours of work experience, was required. In 1998, four hundred seventy-three people applied for twenty-five openings in the 46th Game Academy. A bachelor's degree in criminal justice or a conservation-related field was required.

On November 2, 1999, the 47th Game Warden Academy took applications for twenty-five openings. Only three hundred fifty-two people applied for the academy. The application pool has substantially decreased each time applications have been accepted. This decreasing pool of applicants poses a great concern for the department.

The population in Texas is expected to double by 2025, and more and more people are moving into rural areas of the state. Game wardens in these rural areas will be enforcing more laws, including more Parks & Wildlife Code laws and more penal code violations, to handle the growing population in rural Texas.

Game wardens did their job adequately for eighty years before a college education became a job requirement. The role of the game warden has not changed as a result of the degree requirements; however, the number of applicants has decreased sharply. The game

warden's job is dangerous, and requires great dedication in order to be effective at enforcing the laws relevant to the job.

CHAPTER 4. CONCEPTUAL FRAMEWORK AND METHODOLOGY

This chapter's purpose is twofold. The first purpose is to restate the categories of effectiveness that are used to determine the effectiveness of law enforcement programs within Texas Parks & Wildlife: the fish and game patrol, educational efforts, and Operation Game Thief. The second purpose is to address possible challenges to the recruitment and retention program currently in place within the TPW Law Enforcement Division.

Two different conceptual frameworks compose this research. The first conceptual framework is descriptive categories developed from the literature, as shown in table 4.1. These categories establish the effectiveness of enforcement programs used by TPW game wardens. The literature regarding natural resource violations (e.g., poaching) emphasizes prevention or *deterrence* as a main category for decreasing the number of people violating natural resource laws. *Detection*, *public support*, *cost-effectiveness*, and *frequency of use* are categories that also assess the effectiveness of enforcement programs. This study examines the perceptions of TPW game wardens with regard to the effectiveness of four enforcement programs: fish patrol, game patrol, educational programs, and Operation Game Thief. This study also explores the concerns of game wardens about the TPW Law Enforcement Division's recruitment and retention program.

One purpose of the TPW's law enforcement programs is to detect natural resource violations. *Detection* is the "discovery of a crime by either accident or through search and observation" (Nice 1964, 64). Law enforcement programs can also be used to *deter* people from committing wildlife violations. Two types of deterrence exist: *general deterrence* and *specific deterrence*. General deterrence is based on the belief that an individual will refrain from

committing an offense because he or she is aware of the penalty. Specific deterrence occurs when an offender's punishment is great enough to keep that individual from repeating the same crime.

High-visibility patrols, educational programs, and Operation Game Thief exist because of public support for protection of Texas' natural resources. The public can rationalize these programs and consider them to be cost effective because the ends justify the means. The public's perception of what is wanted or needed from a program is the basis for cost-effectiveness measurements. Managing natural resources can be expensive, but with *public support*, protection of resources can occur so that future generations can enjoy the outdoors as they are meant to be, wild and free.

Wildlife programs such as conserving natural resources may not bring high revenues into a state's coffers, but they are still *cost effective* if the public supports the efforts. Game wardens are generally given the latitude to determine the quantity of time that is necessary for fish patrol, game patrol, and working tips from Operation Game Thief. Determining whether TPW should place more emphasis on certain law enforcement programs is the reason why *frequency of use* is a category that is measured as part of this research.

Table 4.1 Conceptual framework for effectiveness of enforcement programs by TPW game wardens

Types of effectiveness	Related literature
Deterrence (specific & general)	Hahn (1998), Zimring & Hawkins (1973), Jaime (2000), Bridges et al.(1996), Sigler (1972)
Detection	Texas Parks & Wildlife (1997), Chandler (1986)
Cost effectiveness	Jaime (2000), Levin (1983), Hahn (1998)
Public support	Marion (1995)
Frequency of use	Jaime (2000)

The first conceptual framework used is descriptive categories, which establish the effectiveness of enforcement programs used by TPW game wardens. The second conceptual framework concerns two working hypotheses that address possible challenges to the current recruitment and retention program used by the TPW Law Enforcement Division. Table 4.2 links two working hypotheses to recruitment and retention issues that emerged from interviews with TPW game wardens.

WH 1: Texas Parks & Wildlife game wardens will have concerns about game warden recruitment.

WH 2: Texas Parks & Wildlife game wardens will have concerns about game warden retention.

Interviews regarding recruitment and retention suggest that strong recruitment and retention programs increase the effectiveness and efficiency of an organization. Identifying possible concerns about the recruitment and retention process of the TPW Law Enforcement

Division helps ensure that the Law Enforcement Division remains at full strength with fully qualified, motivated, and effective game wardens in the future.

Table 4.2 Working hypotheses on TPW law enforcement recruitment and retention

Working hypotheses	Related literature & interviews
WH 1: TPW game wardens will have concerns about recruitment	Region V interview, 2000
WH 2: TPW game wardens will have concerns about retention	Region V interview, 2000

Methodology

Survey research is used to gather both the perceptions of effectiveness of law enforcement programs and concerns about recruitment and retention of TPW game wardens. Survey questionnaires were mailed to all twenty-seven TPW regional offices and the Game Warden Academy, surveying a total of four hundred sixty-five game wardens. A cover letter was attached to the survey that explained its purpose, and a self-addressed stamped envelope was provided for return of the completed survey. This survey allowed responses from game wardens stationed all over Texas. Tables 4.3 and 4.4 illustrate the operationalization of the conceptual frameworks.

Table 4.3 Operationalization of conceptual frameworks

Types of effectiveness	Scale
<i>Specific deterrence</i>	<i>Question 1</i>
Fish patrol Game patrol Educational programs Operation Game Thief	2 = strongly agree 1 = agree 0 = neutral -1 = disagree -2 = strongly disagree
<i>General deterrence</i>	<i>Question 2</i>
Fish patrol Game patrol Educational programs Operation Game Thief	2 = strongly agree 1 = agree 0 = neutral -1 = disagree -2 = strongly disagree
<i>Detection</i>	<i>Question 3</i>
Fish patrol Game patrol Educational programs Operation Game Thief	2 = strongly agree 1 = agree 0 = neutral -1 = disagree -2 = strongly disagree
<i>Cost effectiveness</i>	<i>Question 4</i>
Fish patrol Game patrol Educational programs Operation Game Thief	2 = strongly agree 1 = agree 0 = neutral -1 = disagree -2 = strongly disagree
<i>Public support</i>	<i>Question 5</i>
Fish patrol Game patrol Educational programs Operation Game Thief	2 = strongly agree 1 = agree 0 = neutral -1 = disagree -2 = strongly disagree
<i>Frequency of use</i>	<i>Question 6</i>
Fish patrol Game patrol Educational programs Operation Game Thief	2 = strongly agree 1 = agree 0 = neutral -1 = disagree -2 = strongly disagree

Table 4.4 Operationalization of Conceptual Frameworks

Working hypothesis	Questions	Scale
WH 1: TPW game wardens will have concerns about recruitment	1. Game wardens are concerned about recruitment. 2. The Law Enforcement Division has a game warden recruitment program. 3. The Law Enforcement Division has an adequate game garden recruitment program. 4. Candidates are being recruited for the Game Warden Academy. 5. Game wardens are concerned about the future of the job because of recruitment. 6. Game wardens feel that recruitment affects the effectiveness of law enforcement programs.	2 = strongly agree 1 = agree 0 = neutral -1 = disagree -2 = strongly disagree
WH 2: TPW game wardens will have concerns about retention	7. Game wardens are concerned about retention 8. The Law Enforcement Division has an adequate retention program. 9. Game wardens are concerned about the future of the job because of retention. 10. Game wardens feel that retention affects the effectiveness of law enforcement programs.	2 = strongly agree 1 = agree 0 = neutral -1 = disagree -2 = strongly disagree

A questionnaire, with responses ranging from “strongly agree” to “strongly disagree,” was used in this study to gather perceptions of the effectiveness of TPW law enforcement programs by game wardens and to establish the working hypothesis. Descriptive summary

statistics are used in order to interpret survey responses. Means and percentages measure the results from this questionnaire; these are discussed in chapter 5.

CHAPTER 5. SURVEY RESULTS

This chapter identifies and explains the information received from a survey questionnaire, which was created using the conceptual framework and methodology described in chapter 4. Game warden respondents scored the effectiveness of four TPW law enforcement programs: fish patrol, game patrol, educational programs, and Operation Game Thief. These measurements were established with a scoring system ranging from “strongly agree” to “strongly disagree.” Responses of “strongly agree” received the maximum score (2) and “strongly disagree” scored the lowest (-2); a “neutral” response received a score of zero. Surveys were sent to four hundred sixty-five game wardens throughout Texas; one hundred fifty-six surveys were returned, for a response rate of 33.5 percent.

Specific Deterrence

Specific deterrence occurs when an offender’s punishment is punitive enough to deter the individual from repeating a crime. Durkheim “assumed with Bentham that the pains of punishment deter people from repeating the crimes for which they are punished, especially when punishment is certain, swift, and severe” (Bridges et al. 1996, 66). As shown in table 5.1, the game patrol function received the highest support: 93 percent of game wardens at least agreed that game patrol acted as a specific deterrent. Fish patrol followed game patrol, with 92 percent of game wardens surveyed believing it acted as specific deterrent. Operation Game Thief was supported as a specific deterrent by 58 percent of the game wardens surveyed. Educational programs had the lowest support from game wardens, at 54 percent.

Table 5.1 Game wardens' perception of TPW Law Enforcement Division programs on the goal of specific deterrence

Questions	<i>N</i>	% strongly agree & agree	Mode
Fish patrol acts as specific deterrent.	155	92%	Strongly agree
Game patrol acts as a specific deterrent.	150	93%	Strongly agree
Educational programs act as a specific deterrent.	151	54%	Agree
Operation Game Thief acts as a specific deterrent.	154	58%	Agree

General Deterrence

As previously mentioned, general deterrence is based on the belief that people will refrain from committing an offense because they are aware of the penalty (Hahn 1998, 11). "For general deterrence to be effective, the examples must be numerous enough to remind the public of the consequences of committing prohibited acts" (Jaime 2000, 19). As shown in table 5.2, fish and game patrol had the highest support as a general deterrence: 96 percent of game wardens surveyed supported fish patrol, while game patrol was supported by 94 of respondents. Educational programs were third highest, with 55 percent of game wardens in support. Operation Game Thief closely followed, with 50 percent in support.

Table 5.2 Game warden perception of TPW Law Enforcement Division programs on the goal of general deterrence

Questions	N	% strongly agree & agree	Mode
Fish patrol acts as a general deterrent.	156	96%	Agree
Game patrol acts as a general deterrent.	155	94%	Strongly agree
Educational programs act as a general deterrent.	156	55%	Agree
Operation Game Thief acts as a general deterrent.	139	50%	Agree

Detection

Detection is the “discovery of a crime by either accident or through search and observation” (Nice 1964, 64). High-visibility patrols, covering large areas, are a common method game wardens use to detect violations. As table 5.3 illustrates, 100 percent of the respondents believed that game patrols detect natural resource violations, while 98 percent of respondents agreed that fish patrols detect natural resource violations. Operation Game Thief was supported by 61 percent of respondents for its ability to detect natural resource violations. Educational programs received the least support, with 34 percent of respondents in agreement that such programs detect natural resource violations.

Table 5.3 Game warden perception of how well each program works in detecting natural resource violations.

Questions	N	% strongly agree & agree	Mode
Fish patrol detects natural resource violations.	153	98%	Strongly agree
Game patrol detects natural resource violations.	151	100%	Strongly agree
Educational programs detect natural resource violations.	151	34%	Neutral
Operation Game Thief detects natural resource violations.	150	61%	Agree

Cost Effectiveness

Cost effectiveness is considered an effective measure in any area of social policy, and should be considered for both fish and game patrols as well as youth educational programs (Jaime 2000, 20). Law enforcement operations adhere to a budget; only a certain amount of funding is available to support these programs. Therefore, cost-effectiveness analysis is often used to measure such programs' impact. Table 5.4 illustrates that fish patrols and game patrols had received equal ratings in being cost effective from 87 percent of the game warden respondents. Operation Game Thief was third, with 68 of respondents in support. Lastly, 58 percent of game wardens at least agreed that educational programs were cost effective.

Table 5.4 Game warden perception of how cost-effective each program is

Questions	<i>N</i>	% strongly agree & agree	Mode
Fish patrol is cost effective.	151	87%	Strongly agree
Game patrol is cost effective.	151	87%	Strongly agree
Educational programs are cost effective.	152	58%	Agree
Operation Game Thief is cost effective.	152	68%	Agree

Public Support

High-visibility patrols, educational programs, and Operation Game Thief exist because of public support. As shown in table 5.5, game patrol was perceived to have the strongest support from the public, with 96 percent of respondents in agreement. Ninety-five percent agreed that fish patrol was believed to be supported by the public. Operation Game Thief had 80 percent in agreement, and 79 percent agreed that educational programs are supported by the public.

Table 5.5 Game warden perception of public support each program has generated for itself

Statement	N	% strongly agree & agree	Mode
The public supports fish patrol.	156	95%	Strongly agree
The public supports game patrol.	156	96%	Strongly agree
The public supports educational programs.	155	79%	Agree
The public supports Operation Game Thief.	154	80%	Agree

Frequency of Use

Texas game wardens were surveyed on how much more emphasis needs to be placed on a particular program. Game wardens indicated that most of the emphasis should be placed on increasing game patrols, followed by an increased emphasis on fish patrols, as illustrated in table 5.6: 74 percent were in support of placing more emphasis on game patrol. Greater emphasis on fish patrol was supported by 69 percent of those surveyed, while 44 percent were in support of placing more emphasis on Operation Game Thief. Finally, 38 percent of those surveyed were in favor of placing more emphasis on educational programs.

Table 5.6 Game warden perception of the effectiveness and relative importance of programs

Questions	N	% strongly agree & agree	Mode
The department should place more emphasis on fish patrol.	155	69	Strongly agree
The department should place more emphasis on game patrol.	152	74	Strongly agree
The department should place more emphasis on educational programs.	156	38	Neutral
The department should place more emphasis on Operation Game Thief.	152	44	Neutral

Recruitment and Retention Survey

The recruitment and retention survey (see table 5.7) is purely exploratory research. As a result of an interview that took place in the Region V offices of Texas Parks & Wildlife, concern about recruitment and retention within the Law Enforcement Division became an issue. The recruitment and retention measures were added to this research to explore concerns that Texas game wardens might have about TPW Law Enforcement Division recruitment and retention.

Of the four hundred sixty-five game wardens who were asked to participate in the survey, one hundred fifty-five responded for a 33 percent response rate. Ninety-two percent of the respondents were concerned about recruitment, and 62 percent believed that the Law Enforcement Division has a game warden recruitment program. However, only 24 percent of those responding agreed that the Law Enforcement Division has an adequate game warden recruitment program. A little more than half of those surveyed (51 percent) agreed that candidates are being recruited for the Game Warden Academy, and 72 percent of respondents are concerned about the future of the job because of recruitment. Finally, 73 percent of game wardens felt that recruitment affects the effectiveness of law enforcement programs.

When respondents were asked about retention, 74 percent agreed that they have concerns in this area. Thirty-six percent agreed that the Law Enforcement Division has an adequate retention program, and 61 percent were concerned about the future of the job because of retention. Last, but not least, 70 percent of the game wardens felt that retention affects the effectiveness of law enforcement programs.

Table 5.7 Recruitment and retention survey

Questions	<i>N</i>	% strongly agree & agree	Mode
1.Game wardens are concerned about recruitment.	154	92	Strongly agree
2 The Law Enforcement Division has a game warden recruitment program.	154	62	Agree
3. The Law Enforcement Division has an adequate game warden recruitment program.	152	24	Neutral
4. Candidates are being recruited for the Game Warden Academy.	152	51	Agree
5. Game wardens are concerned about the future of the job because of recruitment.	151	72	Strongly agree
6. Game wardens feel that recruitment affects the effectiveness of law enforcement programs.	155	73	Agree
7. Game wardens are concerned about retention.	148	74	Strongly agree
8. The Law Enforcement Division has an adequate retention program	152	36	Neutral
9. Game wardens are concerned about the future of the job because of retention.	150	61	Agree
10. Game wardens feel that retention affects the effectiveness of law enforcement programs.	151	70	Agree

CHAPTER 6. DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this study was to find out the perceptions of TPW game wardens about effectiveness of law enforcement programs within the department. This final chapter summarizes the results of this study by finding the mean of each law enforcement program (fish patrol, game patrol, Operation Game Thief, and educational programs) based on game wardens' perceptions of six categories of effectiveness, and then ranking the aforementioned law enforcement categories by their mean score. The six categories of effectiveness, as previously mentioned, are specific deterrence, general deterrence, detection, cost effectiveness, public support, and frequency of use.

Conclusions

As table 6.1 illustrates below, game patrol was perceived as the most effective law enforcement program among all six categories of effectiveness. Fish patrol ranked second among the six categories of effectiveness, while educational programs were perceived as the third most effective law enforcement program. Finally, Operation Game Thief was ranked last in being perceived as an effective law enforcement program used by Texas game wardens.

In conclusion, all of the programs studied received above-average support from game wardens throughout the state. Fish and game patrols were considered the most effective in the perception of effectiveness categories. Even though Operation Game Thief and educational programs were considered less effective, the programs were still supported by a majority of game wardens. Fish and game patrols are immediately gratifying to a game warden, while Operational Game Thief and educational programs may not show such immediate results.

Patrolling and catching violators can be very gratifying and rewarding; the warden is able to see the fruits of his or her labor. On the other hand, Operation Game Thief relies upon anonymous tips that are not always effective, but the program is strongly supported by the public. Educational programs are important; these efforts reach youth and teach the public the correct and legal ways to enjoy natural resources. However, the effects of such programs may not be evident for many years to come. With a decreasing number of game wardens in the field as compared to ten years ago, this study shows that game wardens feel their time and effort can be put to better use in fish and game patrol.

Table 6.1 Ranking of programs based on overall perception of effectiveness mean scores

Perceptions of effectiveness	Game patrol	Fish patrol	Operation Game Thief	Educational programs
Specific deterrence	1	2	3	4
General deterrence	1	2	4	3
Detection	1	2	3	4
Cost effectiveness	1	2	3	4
Public support	1	2	4	3
Frequency of use	1	2	3	4

Recommendations

The following recommendations are based on information gathered from surveys sent to game wardens throughout the state of Texas. As previously stated, the surveys measured the perceptions of game wardens about the effectiveness of four law enforcement programs: fish patrol, game patrol, educational programs, and Operation Game Thief.

Based upon the survey results, it is recommended that fish and game patrol be continued and its' use increased. According to the data gathered, an above-average number of game wardens felt that more time and effort should be devoted to fish and game patrols. More emphasis has been placed on educational programs and Operation Game Thief; however, the

mean scores in support of increasing the utilization of fish and game patrols were, at minimum, more than double the mean score of educational programs and Operation Game Thief combined.

The data gathered from the survey on recruitment and retention within the TPW Law Enforcement Division do raise concerns about recruitment and retention among Texas Game Wardens. It is recommended that the TPW Law Enforcement Division use the results of this exploratory research to further investigate game wardens' concerns about recruitment and retention. Interviews and data gathered from the survey questionnaire on recruitment and retention illustrate a need to address and correct several potential problems in this area.

APPENDIX

Texas Parks & Wildlife Game Warden Survey Questionnaire

Beside each of the questions below, check one of the following responses: strongly agree (SA); agree (A); neither agree nor disagree (N); disagree (D); strongly disagree (SD).

Question 1: Specific deterrence

(Specific deterrence occurs when an offender's punishment is great enough to keep the individual from repeating a crime.)

Please rate the following programs' probability of achieving a specific deterrent effect in reducing natural resource crime.

Questions	SA	A	N	D	SD
Fish patrol acts as specific deterrent.					
Game patrol acts as a specific deterrent.					
Educational programs act as a specific deterrent.					
Operation Game Thief acts as a specific deterrent.					

Question 2: General deterrence

(General deterrence is the belief that the public will refrain from committing an offense because they are aware of the penalty.)

Please rate each of the programs' probability of reaching the goal of general deterrence in reducing natural resource crime.

Questions	SA	A	N	D	SD
Fish patrol acts as a general deterrent.					
Game patrol acts as a general deterrent.					
Educational programs act as a general deterrent.					
Operation Game Thief acts as a general deterrent.					

Question 3: Detection

Please rate each of the following programs based on your perception of how well they work in detecting natural resource violations.

Questions	SA	A	N	D	SD
Fish patrol detects natural resource violations.					
Game patrol detects natural resource violations.					
Educational programs detect natural resource violations.					
Operation Game Thief detects natural resource violations.					

Question 4: Cost effectiveness

Please rate the following programs on your perception of how cost effective the program is.

Questions	SA	A	N	D	SD
Fish patrol is cost effective.					
Game patrol is cost effective.					
Educational programs are cost effective.					
Operation Game Thief is cost effective.					

Question 5: Public support

Please rate each of the following programs based on your perception of the public support that each program has generated for itself.

Questions	SA	A	N	D	SD
The public supports fish patrol.					
The public supports game patrol.					
The public supports educational programs.					
The public supports Operation Game Thief.					

Question 6: Frequency of use

Please rate each of the following programs based on your perception of the effectiveness and relative importance of the program.

Questions	SA	A	N	D	SD
The department should place more emphasis on fish patrol.					
The department should place more emphasis on game patrol.					
The department should place more emphasis on educational programs.					
The department should place more emphasis on Operation Game Thief.					

Texas Parks & Wildlife Game Warden Survey questionnaire

Part 2

Beside each of the questions below, answer with one of the following responses: strongly agree (SA); agree (A); neither agree nor disagree (N); disagree (D); strongly disagree (SD)

Questions	SA	A	N	D	SD
1.Game wardens are concerned about recruitment.					
2 The Law Enforcement Division has a game warden recruitment program.					
3. The Law Enforcement Division has an adequate game warden recruitment program.					
4. Candidates are being recruited for the Game Warden Academy.					
5. Game wardens are concerned about the future of the job because of recruitment.					
6. Game wardens feel that recruitment affects the effectiveness of law enforcement programs.					
7. Game wardens are concerned about retention.					
8. The Law Enforcement Division has an adequate retention program.					
9. Game wardens are concerned about the future of the job because of retention.					
10. Game wardens feel that retention affects the effectiveness of law enforcement programs.					

Table 6.1 Ranking of programs based on overall perception of effectiveness means

Perceptions of effectiveness	Game patrol	Fish patrol	Operation Game Thief	Educational programs
Specific deterrence	1.5	1.45	.5	.46
General deterrence	1.43	1.35	.38	.54
Detection	1.61	1.58	.47	.02
Cost effectiveness	1.41	1.38	.82	.59
Public support	1.60	1.53	1.01	1.05
Frequency of use	1.16	1.03	.38	.24

Texas Parks & Wildlife Game Warden Survey questionnaire

*Beside each of the questions below, check one of the following responses:
Strongly Agree (SA); agree (A); Neither Agree nor Disagree (n); Disagree (D);
Strongly Disagree (SD)*

QUESTION 1: SPECIFIC DETERRENCE

(Specific Deterrence occurs when an offender's punishment is great enough to keep the individual from repeating a crime.)

Please rate the following programs' probability of achieving a specific deterrent effect in reducing natural resource crime.

Questions	SA	A	N	D	SD	total
Fish Patrol acts as specific deterrent.	82	61	11	1		155
Game Patrol acts as a specific deterrent.	87	53	8	2		150
Educational Programs act as a specific deterrent.	20	61	44	23	3	151
Operation Game Thief acts as a specific deterrent.	21	68	36	25	4	154

QUESTION 2: GENERAL DETERRENCE

(General deterrence is the belief that the public will refrain from committing an offense because they are aware of the penalty.)

Please rate each of the programs' probability of reaching the goal of general deterrence in reducing natural resource crime.

Questions	SA	A	N	D	SD	total
Fish Patrol acts as a general deterrent.	68	79	5	4		156
Game Patrol acts as a general deterrent.	79	67	5	4		155
Educational Programs act as a general deterrent.	22	64	47	22	1	156
Operation Game Thief acts as a general deterrent.	11	59	43	24	2	139

QUESTION 3: DETECTION

Please rate each of the following programs based on your perception of how well they work in detecting natural resource violations.

Questions	SA	A	N	D	SD	total
Fish Patrol detects natural resource violations.	93	57	3			153
Game Patrol detects natural resource violations.	96	55				151
Educational Programs detect natural resource violations.	7	44	54	37	9	151
Operation Game Thief detects natural resource violations.	17	75	43	11	4	150

QUESTION 4: COST EFFECTIVENESS

Please rate the following programs on your perception of how cost-effective the program is.

Questions	SA	A	N	D	SD	total
Fish Patrol is cost effective.	78	54	17	2		151
Game Patrol is cost effective.	83	49	17	2		151
Educational Programs are cost effective.	29	59	42	16	6	152
Operation Game Thief is cost effective.	32	72	30	11	7	152

QUESTION 5: PUBLIC SUPPORT

Please rate each of the following programs based on your perception of the public support that each program has generated for itself.

Questions	SA	A	N	D	SD	total
The public supports Fish Patrol.	91	57	7	1		156
The public supports Game Patrol.	100	49	7			156
The public supports Educational Programs.	49	74	27		5	155
The public supports Operation Game Thief.	40	83	24	6	1	154

QUESTION 6: FREQUENCY OF USE

Please rate each of the following programs based on your perception of the effectiveness and relative importance of the program.

Questions	SA	A	N	D	SD	total
The department should place more emphasis on Fish Patrol.	59	48	41	7		155
The department should place more emphasis on Game Patrol.	69	44	35	3	1	152
The department should place more emphasis on Educational Programs.	18	42	59	33	4	156
The department should place more emphasis on Operation Game Thief.	13	54	66	15	4	152

Texas Parks & Wildlife Game Warden Survey questionnaire

Part 2

*Beside each of the questions below, answer with one of the following responses:
Strongly Agree (SA); agree (A); Neither Agree nor Disagree (n); Disagree (D);
Strongly Disagree (SD)*

Questions	SA	A	N	D	SD	total
1.Game Wardens are concerned about recruitment.	83	58	9	3	1	154
2 The Law Enforcement Division has a Game Warden recruitment program.	23	73	36	16	6	154
3. The Law Enforcement Division has an adequate Game Warden recruitment program.	7	30	53	48	14	152
4. Candidates are being recruited for the Game Warden Academy.	10	67	48	22	5	152
5. Game Wardens are concerned about the future of the job because of recruitment.	55	54	25	16	1	151
6. Game Wardens feel that recruitment affects the effectiveness of law enforcement programs.	53	60	28	10	4	155
7. Game Wardens are concerned about retention.	57	52	24	12	3	148
8. The Law Enforcement Division has an adequate retention program.	6	48	61	28	9	152
9. Game Wardens are concerned about the future of the job because of retention.	27	64	41	15	3	150
10. Game Wardens feel that retention affects the effectiveness of law enforcement programs.	43	63	34	9	2	151

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