

## FINES IN WILDLIFE LAW ENFORCEMENT

KIRK H. BEATTIE, Department of Fisheries and Wildlife Sciences, Virginia Polytechnic Institute and State University, Blacksburg, Virginia 24061

ROBERT H. GILES, JR., Department of Fisheries and Wildlife Sciences, Virginia Polytechnic Institute and State University, Blacksburg, Virginia 24061

CLEVELAND J. COWLES, Department of Fisheries and Wildlife Sciences, Virginia Polytechnic Institute and State University, Blacksburg, Virginia 24061

*Abstract:* Monetary fines have been routinely assessed wildlife law violators for almost 2 centuries in the United States. Due to the humanizing of statutory law, sanctions for wildlife law violations have progressed from mutilation and deportation to monetary fines and short-term confinement. Misdemeanor case material compiled in recent years suggests that sanctions may have some deterrent effect when the certainty of imposition is reasonably high. It is suggested that most wildlife law transgressions be referred to as "violations" and not "crimes." The ability to make conceptually feasible and statistically valid statements about hypothesized relationships between violation rates, certainty of apprehension, and severity of sanctions will ultimately depend on each agency's willingness to develop a program of planned research.

---

Proc. Annual Conf. S.E. Assoc. Fish & Wildlife Agencies 31: 690-697

---

Monetary fines have been routinely levied against wildlife law violators for almost 200 yrs. in the United States. Yet, there are no published reports about the effectiveness of fines in accomplishing specific objectives of wildlife law enforcement.

The purposes of this paper are to provide a description of the history of fines and other sanctions in wildlife law enforcement and sanctions in criminal law, present results of several studies that have attempted to determine the relative effectiveness of fines and/or short-term confinement in criminal law, and discuss contemporary issues surrounding the concept of different forms of negative sanctions in achieving wildlife law enforcement objectives.

This paper is a contribution of the Southeastern Wildlife Law Enforcement Research Project. The financial assistance of the Wildlife Management Institute, American Petroleum Institute, National Wildlife Federation, Virginia Commission of Game and Inland Fisheries, South Carolina Wildlife and Marine Resources Department, George Department of Natural Resources, and the Tennessee Wildlife Resources Agency is gratefully acknowledged.

### Negative Sanctions in Wildlife Law Enforcement

William the Conqueror assigned the right of ownership of wild animals to the King, in contrast to earlier decrees vesting ownership of wildlife with the citizenry. William the Conqueror is credited with the introduction of mutilation as a punishment for poaching (Palmer 1975:5). According to Salo (1976:168),

Poaching was a problem in Sweden; in 1615 King Gustav II Adolf stated that the fine for poaching in the royal park was three pair of oxen for a deer and one ox for a hare. Fines apparently were not effective and in 1620 capital punishment was introduced as the ultimate penalty for poaching. While never applied, a few offenders were sent to exile in the Swedish colony in North America.

Trench (1965) reported that in England in 1722 the Parliament passed an Act which declared deer-poaching with weapons or blackened faces to be a felony. Under this act, ". . . four poachers were hanged and 36 transported, a revision to Norman severity which was to be characteristic of game preservation in the eighteenth and early nineteenth centuries." This act was followed by an Act of 1771 "which prescribed a year's imprisonment and a whipping for a second offense." Later, the Ellenborough Act of 1803 proclaimed that anyone offering resistance to arrest would be hanged as a felon and in 1817 any poaching ". . . was made punishable by seven years' transportation, from which no one ever returned" (Trench 1965).

In 1646, the town of Portsmouth, Rhode Island issued a proclamation that

prohibited the shooting of deer from May 1 to November 1. A convicted deer poacher was required to forfeit 5 pounds in currency (Gould 1968:551), "This law declared that it was illegal to hunt deer at night with 'firelight' and provided a penalty of 5 English pounds and 30 lashes, 'well laid.'"

The severity of sanctions for wildlife law violations has decreased substantially since the days of Norman barbarism and English "transportation." Holloway (1976:13, 16) reported 2 recent cases in Oregon in which a violator convicted of "illegal animal possession" and a violator convicted of "hunting in the closed season" were assessed fines of \$5 and \$17, respectively.

## FINES IN CRIMINAL LAW

Miller (1956:377-378) provided a concise and well-documented historical overview of the origin of the fine in criminal law:

In the early history of law, punishment was left to individuals: if a man offended you, you had a right to extract personal retribution. The state had not developed to the point where it was interested one way or another in a feud between two individuals. Later, when the tribe developed, punishment for vengeance and expiation was still a personal affair if the offense was within the tribe; if the offender was outside the tribe, the whole tribe was interested in the offense.

When rampant and unrestricted retaliation threatened the power of the state rulers who were emerging from clan society, responsibility for punishing wrongdoers was transferred to the state. This in no way changed the basic concept of punishment for injuries to an individual or his clan; it changed only the means of selecting the guilty- through trial by battle, ordeal, etc. -and collecting the amercement.

... the law now began to make it worthwhile for the injured to accept property payment rather than to insist on eye-for-an-eye, tooth-for-a-tooth satisfaction. A given value was fixed on every conceivable type and degree of injury. The amount of compensation was determined by the seriousness of the injury and by the sex, age, and rank and influence of the injured person, not by the ability of the offender to pay.

In the Middle Ages, retribution was administered largely by mutilation and death rather than by the fine, but gradually confinement and deportation became widely used as means of punishment, so that once again it was possible for release to be 'brought' by the payment of a fixed sum according to the severity of the punishment that the crime carried as a sanction. This concept of the fine has been carried over to modern times.

Miller's account of the origin of the fine in criminal law suggests that the primary purpose of the fine in modern times is to collect the money value of the crime, paid by the defendant at the time of judgment, although there may be positive "deterrence" or "habituate" side-effects.

## FINES AND/OR SHORT-TERM CONFINEMENT IN CRIMINAL LAW

Considerable legislative effort has been directed at reducing drunken driving by increasing the certainty of apprehension and severity of penalties. Andenaes (1971:90-91) reported that increases in the certainty and severity of sanctions have been relatively successful in reducing the incidence of drunken driving in Scandanavian countries.

Several years ago in Britain a highway safety law was passed which authorized an on-the-scene breath test, provided for a mandatory 1-year license suspension, and a fine of 100 pounds and/or imprisonment for 4 months. Prior to its initiation there was considerable publicity of the new law. Ross et al. (1970) reported that enforcement of the new law, along with publicity, reduced highway deaths and fatalities. However, an attempt in Chicago to reduce vehicle accidents through a similar increase in penalties (7-day jail sentence and 1-year suspension of license) failed to reduce the accident rate in that city (Bankston and Cramer 1974:259). A similar conclusion was reached by Campbell and Ross (1968) in their study of the effects of the Connecticut speed crackdown.

Ross (1973) found that there was no significant effect on subsequent driver history of appearing in one of the best-reputed traffic courts (Denver) in America, as compared with paying a small fine or receiving a warning from a policeman.

Chambliss (1969) studied faculty violation of parking regulations on a college campus during a period of time in which the sanctions included an increase in fines and further increases for successive violations. Failure to pay fines resulted in loss of campus parking privileges and removal of the car at the owner's expense. Chambliss (1969) reported that a significant reduction in faculty violations followed the increase in the severity of sanctions.

Tornuud (1968) reported the results of a study in Sweden in which the prosecution policy regarding public drunkenness was changed in 3 "middle-sized" towns. Citizens were arrested on public drunkenness charges as before, but the average prosecution percentage was reduced from 40-50 percent to 9-24 percent. Tornuud compared drunkenness arrest trends in 3 experimental towns and 3 control towns of the same size over a 3-year period and found no systematic differences. Tornuud conducted anonymous interviews with police officers in the three experimental towns. The majority of the officers indicated that the policy change had produced no change in the behavior of drunken people and had produced about as many positive as negative effects.

## CONTEMPORARY ISSUES ABOUT FINES

The fine as a sanction for wildlife law violations may be divided into 3 major classes: (1) money value of the violation to be paid by the accused, (2) fine or jailing, and (3) fine and jailing. Most processed wildlife law violations are handled in the manner described by the first category, although jail sentences are sometimes imposed. Holloway (1976), in a report to the 1977 Oregon legislature on court disposition of fish and wildlife law violations, reported that of the 7,291 cases in which either conviction or forfeiture of bail occurred, 120 jail sentences were imposed.

The words "violation" and "crime" are often used interchangeably when speaking of infractions of state and federal wildlife laws and regulations. There would appear to be a conceptual distinction between the 2 words. Technically, transgression of state and federal wildlife laws fall under the heading of criminal law. In the event of a transgression of a wildlife law, the state or federal government brings the action against the person who is accused of committing the infraction; the state is the prosecutor and the accused is the defendant. The state brings the action because the transgression is considered to be so serious as to threaten the welfare of the entire state. Does it logically follow that a transgression of a wildlife law is a "crime"? Webster's seventh collegiate dictionary defines a crime as "a gross violation of law; a grave offense, especially against morality" and a violation as "an infringement of the rules in sports that usually involves technicalities of play." We submit that the majority of wildlife law "transgressions" should be referred to as violations. Hunting is a sport and most violations are "technicalities of play." This is not meant to imply that all wildlife law violations are not "serious," but that they must be considered within the context of all illegal actions, many of which are morally wrong. Many illegal actions processed under criminal law are *mala in se*, whereas most violations of wildlife laws are *mala prohibita*. *Mala in se* refers to crimes that are evil in themselves — rape, murder, robbery, arson, and so on. There is general agreement that such acts are criminal. In contrast, transgressions that are *mala prohibita* are those that are "evil" because they are forbidden, such as traffic offenses and most wildlife law violations. We suggest that wildlife law transgressions be generally referred to as violations because they are of a misdemeanor calibre. The word "generally" is used because some illegal actions may be perceived as and probably are *mala in se* (e.g. Roberts and Hawkins (1976) reported that 2 men pleaded guilty to shooting a bald eagle in 1975 in Michigan; a rare and endangered California Condor was recently found with shotgun pellets imbedded in its wings).

The assessment of a monetary fine for wildlife law violations may have 3 potential deterrent effects: general, partial, and specific. Deterrence is the effect which actual or threatened punishment has upon convicted violators or potential violators. The imposition or the threat of imposition of a sanction may have a deterrent effect, strengthen moral inhibitions, and/or stimulate law-abiding conduct. A general deter-

rent effect is one which strengthens inhibitions and promotes law-obedience in the public as a result of the imposition of a monetary fine for a wildlife law violation. The effectiveness of a general deterrent effect, in part, will be dependent on a number of persons who are aware that a person was convicted of a wildlife law violation. Another requisite for general deterrence is that the law be adequately enforced. Otherwise, perception of violations as being widespread and unenforced will lessen the potential impact of general deterrence.

An example of a partial deterrent effect would be one in which a deer spotlihter switched to violating a less severely sanctioned offense as a result of an increased sanction for spotlighting. A specific deterrent effect is said to occur when the imposition of a monetary fine for a violation deters an offender from committing future illegal acts. It would seem natural to expect that the experience of receiving a fine would tend to strengthen fear in a violator. The *threat* of the law has been transformed into *imposition* of a sanction and the violator visualizes the consequences more clearly than he did before. However, counter-intuitive results may occur. It is conceivable that a person has had exaggerated ideas of the consequences of being apprehended and now draws the conclusion that it was not as bad as he imagined.

A possible unfortunate aspect of imposing fines may be that the violator visualizes the fines as being a "price tag" for committing the act and has no moral misgivings or after-thoughts about the offense (see Andenaes 1974, Ross 1973). Zimring (1973:75) suggested that

When the main force of a deterrent threat is the unpleasantness of a fine or cost, the operation of the legal threat appears to be close to that of a price system. The measure of threatened punishment can be rather precisely calibrated by dollar amounts, and both the offender and the legal system may tend toward viewing the fine as the 'price' of the threatened behavior, a point of view that might cause those who have paid the price to feel no moral compunction about their offense.

Tittle and Logan (1973:384), supported by Antunes and Hunt (1973), stated "... the case material compiled in recent years is generally consistent with other research in suggesting that sanctions may have some deterrent effect when the certainty of imposition is reasonably high, but that severity of sanctions in the absence of certainty has little (effect)." Thus, the majority of evidence compiled and evaluated suggests that severity of punishment only has a deterrent impact when the fine is salient. Any deterrent impact from severity will probably depend on the level of certainty. The results of research in Idaho, Maine, and New Mexico (Vilkitis 1968, 1971; Pursley 1977) suggest that wildlife law enforcement divisions will need to increase the certainty of apprehension to increase effectiveness. Imposing relatively severe penalties for wildlife law violations will probably not have discernible deterrent effects in the absence of increased certainty of fines being levied.

Society's degree of disapproval of an illegal act is expressed by the magnitude and nature of the sanction imposed for committing the act. Serious crimes are normally imprisonable offenses while misdemeanors are usually answered with a fine. Due to the relatively recent "humanizing" of statutory law, what was punishment for a wildlife law violation centuries ago is today punishment for a major crime.

It seems commonplace for writers of popular "anti-poaching" articles to stress that fines for wildlife law violations are "too light" or "too lenient." Perhaps the dilemma is not leniency, but revolves around the occurrence of a wide variation in conviction rates and sentencing among courts for the same type of violation (e.g. Holloway (1976) reported average fine assessed violators for "hunting during the closed season" ranged from \$171 to \$305, depending on the Justice Court).

It would appear to be unethical to impose a relatively large fine for violations in which the possibility was substantial that the violation may have been committed as a result of an incomplete understanding of present laws. Game laws are frequently amended, new laws are introduced, old laws are dropped, and it may be difficult for sportsmen to keep up with the bulk of current laws. Stoll (1975) mailed a self-administered questionnaire to a 10 percent systematic sample of all persons arrested in Michigan for breaking a natural resource law in 1973. Over half (56%) of the respondents to the questionnaire reported that they were unaware they had violated a natural

resource law at the time they were arrested. An additional 20 percent of the respondents cited "ignorance" as the reason for the violation. Taking the responses at face value suggests that the magnitude of the fine would not have had a deterrent effect for at least half of the persons arrested because they were unaware that their actions were contrary to a statutory law. Unless members of a target population know that a behavior is prohibited, they will not refrain from the behavior because it is forbidden.

Giles (1974) presented 9 criteria which can and should be used as a basis for forming new laws and evaluating existing laws. Internalizing these criteria and providing for their consistent application to present and proposed laws will allow for improved decision-making, less uncertainty about the intent and counter-intuitive aspects of the law, and provide a solid structure to the law-forming and law-amending process.

One strong measurement criterion for evaluation of wildlife agency success is the number of quality-ranked man-days of recreation provided. Periodic polling of hunters to determine the inputs and processes that result in a reduction in the quality of the hunt may provide feedback to wildlife law enforcement divisions. The hunt should be made as pleasant and threat-free as possible to provide quality. Individual laws or combinations of laws and regulations that instill excessive uncertainty of the legality of a behavior(s) in sportsmen should be re-evaluated. A wildlife law enforcement division should be able to state the behavior(s) it is intending to modify, supplant, or diminish when passing a law or regulation; should be able to measure the change in the target behavior; and, should be able to state that the positive change in the target behavior outweighs the introduction of another uncertainty (i.e. a new law).

Miller (1956:379) suggested that if the fine is not to be construed as a license for crime, it should be assessed on a graduated scale according to the number of prior offenses and ability to pay. In line with Miller's reasoning, each violator would receive a fine proportional to his income. A person earning \$10,000 a year would receive a fine only 20 percent as large in absolute value as a person earning \$50,000 a year, if both were charged with the same violation. Difficulties in administration would probably be too burdensome for a wildlife law enforcement division. In addition, the principle of equality before the law is highly valued in our society. Also, one could argue that since present federal income tax laws are discriminatory in favor of lower income wage earners (higher income earners pay a larger proportion of their income in taxes), it might be more "equitable" to assess higher income-earning violators a proportionately lower fine than low income earners to create a "balance". The effectiveness of fines in deterring individuals from further committing wildlife violations is probably diluted because fines are not levied in relation to the disposable income of the violator.

Wildlife law enforcement divisions should explore the possibility of using methods other than fines or in addition to fines as a violator's retribution to the state. Other methods might include required attendance at special schools (similar to schools required in some states for traffic law offenders), publicizing arrests and convictions, revoking licenses for repeat offenses, requiring mandatory participation in conservation-oriented public works programs, and animal replacement and court costs.

It would be naive to expect that the imposition of a relatively small fine would have a rehabilitative consequence for a wildlife violator. When a wildlife law violator is fined \$20 for catching one fish over the legal daily limit, he is neither improved nor rendered harmless, but he will presumably be more careful the next time he goes fishing. The probable deterrent effect which the law by itself has on every citizen will be strengthened in his case by the fact that he knows from personal experience that the law means what it says.

The present system of setting minimum and maximum limits for fines seems appropriate for most wildlife law violations, providing that due consideration has been given to the possibility of using substitute or supplementary methods. Courts that display a tendency to consistently impose "token" fines should be encouraged to approach the norm (Holloway 1976:10, Evans et al. 1975:44-45).

For violation types where the consequences are perceived or classified as "serious," and where the probability is high that the violation was committed with premeditation, intent, and adequate knowledge of laws, concomitant manipulation of the certainty of apprehension and severity of sanction variables should be implemented in a quasi-

experimental design (e.g. interrupted time-series design). Pre-experimental formulation of substantive and statistical hypotheses; manipulation of arrest, sanction, and publicity variables in a large number of research areas; and continuous measurement of independent and dependent variables would allow for the development of explanatory models of possible relationships between and among enforcement variables. A measure of severity of sanction ("punishment") might be the average fine assessed for specific types of violations occurring during a specified time period. If this were known, the certainty variable could be calculated by dividing the number of violations detected by the number of violations occurring. Due to difficulties in obtaining the latter measure, a surrogate estimate would probably be required. The publicity variable ("anti-poaching campaign", publication of arrest records) could be dichotomized by "publicity" and "no publicity." The publicity variable would need to be clarified and measured in specified "units."

Tables 1-3 present potential factorial quasi-experiments for studying possible effects of severity, certainty, and publicity on violation rates. A surrogate measure of

Table 1. Potential 2 x 2 factorial design for determining effect(s) (main and/or first-order interaction) of certainty of apprehension and severity of sanction variables under quasi-experimental conditions.

<i>Severity</i>	<i>Certainty</i>	
	<i>C</i> <sub>1</sub>	<i>C</i> <sub>2</sub>
<i>S</i> <sub>1</sub>	<i>C S</i> <sub>1 1</sub>	<i>C S</i> <sub>2 1</sub>
<i>S</i> <sub>2</sub>	<i>C S</i> <sub>1 2</sub>	<i>C S</i> <sub>2 2</sub>

Table 2. Potential 3 x 2 factorial design for determining effect(s) (main and/or first-order interaction) of certainty of apprehension and severity of sanction variables under quasi-experimental conditions.

<i>Certainty</i>	<i>S</i> <sub>1</sub>	<i>S</i> <sub>2</sub>	<i>S</i> <sub>3</sub>
<i>C</i> <sub>1</sub>	<i>S C</i> <sub>1 1</sub>	<i>S C</i> <sub>2 1</sub>	<i>S C</i> <sub>3 1</sub>
<i>C</i> <sub>2</sub>	<i>S C</i> <sub>1 2</sub>	<i>S C</i> <sub>2 2</sub>	<i>S C</i> <sub>3 2</sub>

violation rate could possibly be "reported violations" or a composite index derived from a combination of dependent variable indices. Because of budget and manpower limitations, studies would probably have to begin with 2 x 2 factorial experiments, with sections of a county or an entire county comprising each experimental area. Experimental areas and their residents should have similar relevant attributes but be geographically dispersed to reduce the potential of violator inter-area movement. Individual studies should be conducted for 1 year or longer to allow time for potential effects to surface. Because of nonexperimental attribute variables (e.g. individual and group characteristics, environmental characteristics) that are necessarily involved in an experimental enforcement study, the proper analytical tool would be multiple

Table 3. Potential 2 x 2 x 2 factorial design for determining effect(s) (main and/or first- or second-order interaction) of certainty of apprehension, severity of sanction, and publicity variables under quasi-experimental conditions.

Publicity	Certainty					
	C <sub>1</sub>			C <sub>2</sub>		
	Severity			Severity		
	S <sub>1</sub>	S <sub>2</sub>	S <sub>1</sub>	S <sub>2</sub>	S <sub>1</sub>	S <sub>2</sub>
P <sub>1</sub>	C S P	C S P	C S P	C S P	C S P	C S P
P <sub>2</sub>	1 1 1	1 2 1	2 1 1	2 2 1	2 1 2	2 2 2

regression analysis. Multiple regression analysis will calculate exactly the same statistics as a standard factorial analysis and will allow for inclusion and analysis of uncontrolled attribute variables.

The ability to make conceptually reasonable and statistically valid statements about hypothesized relationships between violation rates and certainty of apprehension and severity of sanction variables will ultimately depend on each agency's willingness to develop a program of planned research.

The fine, as it is presently used in wildlife law enforcement, probably approximates an elastic or probabilistic pricing system, although it may have general, partial, and specific deterrent effects and may strengthen moral inhibitions. The imposition of a fine probably has little rehabilitative or reformatory consequences. The majority of sportsmen make a conscious effort to stay within the law and do not require the threat of punishment to refrain from committing illegal acts. Sanctions exist for those persons who are not inhibited by intrinsic or moral codes.

Presumably, society's expression of the disapproval of an act can be measured by the nature and degree of punishment imposed upon nonconformists. A difficulty surrounding the issue of what is an "appropriate" mandatory minimum fine is in determining how far it is possible to proceed in the direction of leniency without weakening the laws' deterrent effect. Conversely, if excessively severe penalties that are not attuned to the gravity of the violation are imposed, sportsmen and citizens will be less inclined to report a violation and courts will be less inclined to sentence violators. Development of an optimum violation-control and sanctioning system will only come about through studies which manipulate arrests, sanctions, and publicity variables.

#### LITERATURE CITED

- Andenaes, J. 1971. The general preventative effects of punishment, Pages 74-104 in Radzinowicz and Wolfgang (Eds.), *Crime and justice*. Basic Books, New York.
- \_\_\_\_\_. 1974. *Punishment and deterrence*. Univ. Michigan Press, Ann Arbor 189pp.
- Antunes, G., and A. L. Hunt. 1973. The impact of certainty and severity of punishment on levels of crime in American states: an extended analysis. *J. Crim. Law. Criminology and Police Sci.* 64(4):486-493.
- Bankston, W. B., and J. A. Cramer. 1974. Toward a macro-sociological interpretation of general deterrence. *Criminology* 12(3):251-280.
- Campbell, D. T., and H. L. Ross. 1968. The Connecticut crackdown on speeding: time series data in quasi-experimental analysis. *Law and Society Review* 3 (1):33-35.

- Chambliss, W. 1969. The impact of punishment on compliance with parking regulations. Pages 388-394 in Chambliss (Ed.), *Crime and legal process*. McGraw-Hill, New York.
- Evans, R., H. vonBarby, D. Benson, J. Gererans, A. Gresh, J. Hogue, D. Norman, M. Stone, D. Weyerman and D. Lashnits. 1975. Report of the task force on law enforcement. Colorado Div. Wildlife 81pp.
- Giles, R.H., Jr. 1974. Criteria for wildlife laws. *Wildl. Soc. Bull.* 2(2):68-69.
- Gould, D. H. G. 1968. The future of law enforcement in wildlife conservation programs. *Proc. Annual Conf. S. E. Assoc. Game Fish Comm.* 22:550-552.
- Holloway, R. C. 1976. A report to the 1977 legislature on court disposition of fish and wildlife violations. Oregon Dept. Fish and Wildlife 25pp.
- Miller, C. H. 1956. The fine: price tag or rehabilitative force? *National Prob. Parole Assoc. Jour.* 2(4):377-384.
- Palmer, C. E. 1975. Wildlife law enforcement: a sociological exploration of the occupational roles of the Virginia game warden. Ph.D. Thesis. Virginia Polytechnic Institute and State University, Blacksburg 242pp.
- Pursley, D. 1977. Illegal harvest of big game during closed season. New Mexico Game and Fish Dept. 6pp. (mimeo)
- Roberts, C., and J. C. Hawkins. 1976. Michigan farmer earns \$1,000 in rewards for role in convicting eagle killers. *Nat. Wild. Fed. News Release* 7656. 2pp.
- Ross, H. L. 1973. Folk crime revisited. *Criminology* 11(1):71-85.
- \_\_\_\_\_, D. T. Campbell, and G. V. Glass. 1970. Determining the social effects of a legal reform: the British breathalyzer crackdown of 1967. *Amer. Behav. Sci.* 13(3):493-509.
- Salo, L. J. 1976. History of wildlife management in Finland. *Wildl. Soc. Bull.* 4(4):167-174.
- Stoll, G. D. 1975. The attitude of recreational resource users arrested by Michigan conservation officers. M.S. Thesis. Michigan State Univ., East Lansing 112pp.
- Tittle, C. R., and C. H. Logan. 1973. Sanctions and deviance: evidence and remaining questions. *Law and Society Review* 7(3):371-392.
- Tornuud, P. 1968. The preventive effect of fines for drunkenness. Pages 109-124 in Christie (Ed.), *Scandinavian studies in criminology*. Tavistock Publications, London.
- Trench, C. C. 1965. Game preservers and poachers. *History Today* 15(4):259-268.
- Vilkitis, J. R. 1968. Characteristics of big game violators and extent of their activity in Idaho. M.S. Thesis. Univ. Idaho, Moscow 202pp.
- \_\_\_\_\_. 1971. The violation simulation formula proves as reliable as field research in estimating closed-season illegal big game kill in Maine. *Trans. N. E. Sect. Wildl. Soc.* 28:141-144.
- Zimring, F. E. 1973. Perspectives on deterrence. National Inst. Mental Health, Dept. Health, Educ. Welfare Pub. No. ADM 74-10. 109pp.