

# THE SOUTHEASTERN WILDLIFE LAW ENFORCEMENT RESEARCH PROJECT: PROGRESS AND PERSPECTIVES

by

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## ABSTRACT

*The Southeastern Wildlife Law Enforcement Research Project was initiated in 1976 by cooperative efforts and funding among Virginia Polytechnic Institute and State University, the Wildlife Management Institute, the American Petroleum Institute, the National Wildlife Federation, and the wildlife agencies of Virginia, South Carolina, Tennessee, and Georgia.*

*Progress has included staffing, problem analysis, two publications, massive data collection, and initiation of two projects on agent allocation and crimeload prediction. Minor problems encountered are discussed, studies on agent deployment summarized, future plans outlined, and agencies invited to participate.*

In 1963, I proposed to the late Dr. Charles Dambach of Ohio State University that research begin on wildlife law enforcement. The spirit and pattern of the book *The Forest Ranger: An Administrative Study* (1962) was then influencing my thought. The study was encouraged by Irvin Fox of the Resources for the Future and several faculty of Ohio State but various factors intervened.

In 1966, James R. Vilkitis, a graduate student of mine when I was with the College of Forestry, Wildlife and Range Sciences at the University of Idaho, was encouraged to undertake research on the concepts of estimating big game poaching. Vilkitis completed his thesis in 1968. Efforts to have it published in a national scientific journal failed and it was referred to more relevant wildlife journals. There publication also failed, allegedly, due to insufficient study.

Two further studies have been conducted since the author's move to Virginia. These were partially supported by the National Rifle Association, the Virginia Commission of Game and Inland Fisheries, the VPI & SU Center for Environmental Studies, and the American Forest Institute. These studies have resulted in a thesis by Kaminsky (1974) *Analysis of the Spatial and Temporal Occurrence of Deer Spotlighting Violations in Virginia* and a paper by Kaminsky and Giles (1974) entitled *An Analysis of Deer Spotlighting in Virginia*. Following Kaminsky's work, Ritter began studies of wildlife law enforcement agency objectives. His thesis (1975) was entitled *Objectives and Performance Criteria for State Wildlife Law Enforcement Agencies*.

In 1971 Kaminsky, McLaughlin, and I presented a research proposal before this group in a paper entitled *Wildlife Law Enforcement Research—The Context and the Needs*. In 1974 Ritter and I presented the paper: *A Proposal for a Regional Law Enforcement Research Program*.

Last year the Southeastern directors, stimulated and encouraged by Messrs. Fansler, Chastain, and McLaughlin, approved the cooperative research effort proposed in that paper.

The purpose of the program was to develop a center for cooperatively conducting research in law enforcement problems common throughout the southeastern region.

The provisions for beginning were that at least \$15,000 was needed to initiate the project (\$3,000 each from 5 agencies) and that tacit agreement for a 5 year effort was needed.

Well aware of the critical nature of any new venture, of the high chances for failure, and of the many reasons for skepticism, we have proceeded with extreme caution. Two excellent Ph.D. candidates have joined the program. Mr. Cleveland J. Cowles has a B.S. in wildlife from the University of Maine, a M.S. in wildlife management from VPI & SU, and experience as a biologist in North Carolina. He has a strong quantitative and planning orientation and is increasing his knowledge in these areas. Mr. Kirk Beattie has a B.S. in wildlife from Colorado State University, and a M.S. in wildlife from Mississippi State. At

Mississippi State Mr. Beattie conducted a research project in wildlife law enforcement (Beattie 1976) and now builds on that experience and competence. Both have recently passed the qualifying exams for the Ph.D. at Virginia Tech.

Even though a year has passed since the program was announced, the study has only been active for less than a year. In that time we have

1. Recruited researchers
2. Begun fundamental studies in criminology, sociology, and operations research
3. Circulated two reprints on wildlife law enforcement
4. Released theses of past studies by Ritter and Kaminsky
5. Circulated a copy of a draft paper "Alpha-Man: A Theory of Wildlife Law Violation"
6. Visited three state offices for interviews and obtained data
7. Corresponded with several interested states
8. Provided inputs to Clark Bavin, a paper by U.S. Fish and Wildlife Service
9. Completed a computer program to aid in allocation of agents
10. Completed and distributed two problem analyses entitled: *A Review and Appraisal of Crimeload, Workload, and Manpower Standards in Wildlife Law Enforcement* by K. H. Beattie, and *Optimum Deployment of Wildlife Law Enforcement Agents: A Problem Analysis* by C. J. Cowles.
11. Initiated a massive data collection to serve as a base for typical state-level analyses
12. Held many planning sessions
13. Developed an extensive library, and
14. Prepared this progress report. These have all been accomplished in less than one year at a cost of \$15,000, no more than \$3,000 of which came from any agency.

To date, we have focused on a vital question, the deployment of agents. We are seeking for the decision maker, i.e. the head of a law enforcement agency or the commissioners themselves, a rationale for how many agents of what types to deploy in the highly variable portions of their states. Mr. Beattie and Cowles are attacking the problem simultaneously. Mr. Beattie is studying crimeload. The premise is, generally, that the more the crimeload, the more the agents needed (or at least crimeload explains the resource losses and problems resulting from failing to provide the needed manpower.) The results are a sword that may cut both ways—to predict and justify, or to explain. The crimeload problem is one worth noting, for it seems now that this is neither constant nor can it be assumed that it will increase in all areas at a fixed rate. The number of violators is very likely to fluctuate. Therefore, as agency decision makers are going to want to make their funds go as far as possible, it would seem rational to allocate agents where the needs are increasing, to remove them from areas where the needs are declining. Of course, there are likely to be counter-plays in such a game but, that is the question itself. How can the agency play the game against a variable poacher force with a set of agents over which he has limited control but control nevertheless?

Beattie has suggested that *crimeload* can be quantified but it is rarely done, and when done, done poorly. Crimeload for the law enforcement agent may not relate strongly to his *workload*, the sum of all activities he performs or is expected to perform. The more diverse that this *workload* becomes, and the less clear what it should be, the more difficult become the decisions about how to allocate agents to deal with wildlife crimes. The confusions that exist in the agent's role make crimeload and workload almost impossible to separate and thus allocation of agents to meet a crimeload very difficult. The analysis he has performed revealed little applicable information on optimum, widely accepted measures of crimeload or workload. The primary missing element is pre-project planning and development of objectives.

Beattie now pursues the hypothesis that crimeload can be quantified and that it fluctuates with human population changes. By knowing the violation rate of the sectors of society and how these sectors change, then change in crimeload is likely to be predictable. If the "crooks" are on the decline when the agent force is being increased, the decline may not be the result of the agents (or the budget investment they represent) but merely the workings of the population juggernaut. On the other hand, the agency

may double its agent force and "things get worse" just because the total population changes were resulting in more crime than could be handled by doubling the force.

While Beattie works with the larger picture, Cowles pursues methods for county-or region-specific allocation of agents, where Beattie's results will be one major factor in his equations. He has found only a few techniques in the literature of urban law enforcement that provide help in distributing manpower. Response time methods are not directly applicable because information on when the problem occurs is generally lacking. Queuing models, or how agents serve a sequence of calls for help, are not useful because of the relatively few calls received. Several concepts of random searching and distribution based on past measures of agent effectiveness are being studied. The approaches now suggest that once an agent's complex set of objectives is specified, and once the environmental and sociological effects of where he works are properly accounted for in a computer model, then the number of agents of certain performance capability to be allocated to an area can be specified. The results can be expressed as agent's performance, or county index that would be likely if agent a, b, or c were stationed in a county, or what extra forces are needed on a temporary basis to meet the annually recurring needs.

### PERSPECTIVES

You have observed that an object in the forest is not always what it appears to be when seen from another point of view. On night patrol, you can often see an object better when you look to the side of it. In studying wildlife law enforcement, we also have found that gaining many perspectives is not only useful but essential.

Some of what I have observed within the wildlife law enforcement system is not very encouraging. The problems are fully as prevalent in law enforcement in general. There is little theory, little research, few questions about what is optimum, abundant data but very little analysis, and more emphasis on past problems than future ones. A continuing problem with this study will be to know how much to tell. It will test our worth as scientists and the agencies' strength and honesty. To tell everything completely and openly may result in embarrassment and the loss of support. To fail to tell can result in continued misallocation of public funds, perhaps resource abuse, and, of course, loss of scientific credibility. The tensions are great and closely akin to classified research done for defense agencies. There is good reason in the above observation to encourage significant support from disinterested sources such as federal support and that of the Wildlife Management Institute, the American Petroleum Institute, and the National Wildlife Federation.

I have found widespread openness, willingness to cooperate, and support from the cooperating agencies. The expressed needs are real as well as the willingness to seek answers. Our situation will require time and work together to allow us to test out each other. We are openly seeking agent and agency participation. We harbor no preconceived notions of goodness or effectiveness. We struggle to retain an exploring, investigating mentality but one that is oriented toward application.

In the suggestions for application will likely come some criticism by our patrons. Advice is both given and received. The decision maker takes all of the risk, and we recognize this. We do not expect all of the project recommendations to be accepted. We do expect that our conclusions will be uncontestable, but conclusions are quite different than recommendations. We hope the conclusions will be tested and found sound. Recommendations follow conclusions. Therefore, we seek understanding of the recommendations as general, based on our view of the situation, and as a stimulus to modifying and adjusting the local situation. Nevertheless, there are likely to be some conclusions that will have self-evident recommendations. The evidence will be unmistakable that a change or two are needed. It is in such cases that the tensions between researcher and agent will be like those between surgeon and patient. These cases must be expected and a climate built of trust, openness, and willingness to continue working relations, even if strained. There is no individual, agency, or organization that cannot utilize feedback—the healthful, corrective, question-asking that keeps it healthy and on track. The farther off-track, the greater will be the energy and costs to change. On the other hand, the sooner the change is made, the less will be the costs over the long run.

One exciting part of our studies to date is that the questions and frustrations of the wildlife law enforcement officer are identical to those of law enforcement in general. This old and honored profession has relatively few underpinnings, theories, body of knowledge for prediction, and few ways to evaluate alternatives or evaluate performance. We are in good company. The corollary to this realization is that what we do in our studies of the misdemeanor may contribute significantly to police science and criminology in general. It now seems possible that our different perspective, our naive enthusiasm, and our unique computer orientation may allow some break-throughs not only for the wildlife agent but also for police in general.

One parallel to this realization is that answers will not come quickly. It is an extremely difficult area to study because of high variability, the secretiveness of fish and game law violators, the few samples that can be compared, the variety of objectives that exist within and among agencies, and the political climate of an agency in which "hard" objectives may not be strategically wise.

Even though answers will not come quickly, some are already available or in the foreseeable future. We worry about what processes exist at the end of our process to get the results out and into practice. This technology transfer problem is universal but one we must recognize early and take steps to integrate into the total system. It is not wise to have \$50,000 worth of answers on the shelf. In the future, I do not expect to look back and find much reward in saying that as a result of our studies 20 years ago we discovered x or y and yet no changes occurred. I invite your attention to this problem, perhaps the appointment of a staff member to assist, and considerations of a publication or other types of outreach (e.g. car tape cassette lectures).

Finally, we face a most perplexing problem. I do not know how to respond to requests for reports from sister states that are not cooperating in the project. Science is science and should be open, but there comes a point where there is no incentive to join in a research effort because the results are as close as a phone call or a letter. The outputs and results of these research efforts are publications and reports. That is the nature of the scientific process and the way we intend to proceed. The question remains: who should pay and who may benefit? I seek guidance and discussion. Perhaps we should charge different fees for reports to members and non-members. Perhaps the initial patrons are benevolent and are investing for the good of the entire region and there should be no cost differences and even free outputs.

## PROSPECTS

I am pleased with the responses received to the project so far and the progress already made in such a short time.

We have made substantial progress toward a highly objective system for optimally allocating agents. This is a most perplexing problem, and strikes at the core of the fiscal problems that beset every administrator and affect every agent or prospective agent. We now know of several useful means to allocate agents, but to now use them would be premature. The allocation question is locked with the question of crimeload. Crime rates are not stable. They are dynamically increasing and decreasing. How to allocate agents must reflect these changes in time and space. We are hopeful that we can solve this major, multi-state problem.

The future is limited by the present funding for these two projects. Increased funding will enable us to build on our experience and to tackle problems of:

1. Comparisons of objectives among agencies
2. Costs of enforcement
3. Fines and their significance
4. Deterrence: Its meaning and tests of influence
5. Spatial and environmental factors influencing crime rates and enforcement success
6. Effects of enforcement on animal population mortality
7. Effects of enforcement on quality-weighted person days of recreation
8. Optimal searching strategies

9. Prevalence of using game meats in public facilities
10. Citizen and hunter knowledge of game and fish laws
11. Out-of-season poaching: Replications of the Idaho study
12. Characteristics of successful agents
13. A compendium of techniques, methods, and procedures
14. An analysis of court attitudes and decisions about game and fish law cases
15. The role of preventative and educational strategies in wildlife law compliance
16. Uniform wildlife law enforcement data systems

There has been progress. There are many perspectives on a very large and complex problem, but the prospects for success and significant changes in effectiveness are very great. I seek your support, encouragement, participation. I hope other states will become cooperators. I also request that you solicit funds from foundations and others to allow us to achieve our objectives. There is much more progress that we can make, together.

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