

## INTEGRATION OF WILDLIFE DAMAGE MANAGEMENT INTO THE COLLEGE CURRICULUM

SHANDRA NICOLE FREY, Jack H. Berryman Institute, Department of Forest, Range and Wildlife Sciences, Utah State University, Logan, UT 84322-5230, USA

MICHAEL R. CONOVER, Jack H. Berryman Institute, Department of Forest, Range and Wildlife Sciences, Utah State University, Logan, Utah 84322-5230, USA

**Abstract:** The addition of wildlife damage management (WDM) to the university curriculum creates a well-rounded, more prepared graduate. WDM is the arena in which "pure science" is put to the test. Through the application of hypotheses derived from our traditional curricula, wildlife damage management students utilize the scientific method to try and solve problems pertinent to our modern world. The need for professionals well versed in WDM grows annually. Therefore, it is the responsibility of universities to train their students such that they will have the skills to compete in the expanding field of wildlife damage management. Once students have learned about what wildlife conflicts are and how many scientists approach the resolution to these problems, the next step would be to train them. The most important part of wildlife damage management training is experience with the tools used in conflict resolution. There are several factors that may prevent WDM courses or limit WDM courses in many universities, including limited staff time, budget restraints, and the absence of an obvious training ground. The Berryman Institute (BI) considers camaraderie and exposure to be the two greatest assets to education. Creating a diverse camaraderie expands exposure to new ideas and broadens the students' knowledge. Conversely, exposure to new people creates more opportunities for friendships and partnerships, increasing the BIs circle of camaraderie. The BI is unique in that it has a large core base of professors who are active members in its organization. Instead of one professor studying and teaching WDM, there are 7-10 active professorial participants. Most of these professors are involved in ongoing research concerning human-wildlife conflict issues. They pass on their knowledge in the classroom and via volunteer and work-study opportunities. Over the past 10 years, hundreds of students have benefited through active membership in the BI. They have earned professional careers in wildlife fields across the US. Also, many private, state, and federal organizations frequently request students from the BI for employment, noting the success that they experience when they last hired a BI member.

**Key words:** Berryman Institute, curriculum, education, wildlife damage management

Proceedings of the 10<sup>th</sup> Wildlife Damage Management Conference. (K.A Fagerstone, G.W. Witmer, Eds). 2003

---

### INTRODUCTION

In this paper, I provide a student's perspective to some of the major academic questions involving how best to incorporate wildlife damage management into the college curriculum. I feel at least somewhat qualified for this task because I have spent many years

as a wildlife student both at West Virginia University, where I obtained my B.S., and at Utah State University, where I obtained my M.S. I am currently seeking my Ph.D. at Utah State University. I also am a member of the Jack H. Berryman Institute, and have served

as the second student president of its student association.

### **WHY SHOULD WILDLIFE DAMAGE MANAGEMENT BE INCORPORATED INTO COLLEGE CURRICULA?**

The last few decades have witnessed a substantial growth in the scientific field of wildlife damage management. There are many reasons for this. One is that some people are losing their tolerance for wildlife damage (Conover 2001). Another is the spread of exotic wildlife species in the U.S., such as starlings (*Sturnus vulgaris*) and feral hogs (*Sus scrofa*), and a resultant increase in the spread of damage caused by these exotic species.

A third reason results from the success of wildlife managers. Populations of many game species, such as white-tailed deer (*Odocoileus virginianus*), mule deer (*O. hemionus*), elk (*Cervus canadensis*), and wild turkeys (*Meleagris gallopavo*) have rebounded from the days when human hunting was unregulated. But with the application of wildlife management principles, these populations have all made dramatic comebacks. These increasing populations, however, are also responsible for causing damage to agricultural crops and human property. For instance, wild turkey populations have increased to 4 million, and some farmers now consider them a pest (Miller et al. 2000). Human-wildlife conflicts have also increased in urban/suburban areas where high densities of humans and wildlife populations (e.g., white-tailed deer, Canada geese) make some conflicts inevitable (Conover 2001).

Today, wildlife biologists are finding that an increasing amount of their time is being spent dealing with human-wildlife conflicts, an aspect of their job for which their college education left them ill prepared. For this reason, many universities are beginning to realize that their students need training in

wildlife damage management and that this can only be achieved by offering a course on the subject (Timm 2000).

### **HOW DOES A COURSE ON WILDLIFE DAMAGE MANAGEMENT FIT INTO WILDLIFE CURRICULA?**

The traditional courses of most wildlife science curricula have concentrated on the "pure sciences." These classes include biology, chemistry, math, physics, mammalogy, and ornithology, just to name a few. They provide solid foundations for understanding the mechanisms that drive our natural world, and are usually taught in the first 2 years of college. As wildlife students begin to take courses related to their major, such as wildlife ecology, population dynamics, and conservation biology, they begin to build upon this foundation of science. Wildlife damage management is a little different from most wildlife classes in that it is a *Acap-stone@* class where students take material learned in basic sciences, wildlife management, and human-dimensions classes, and try to use their knowledge to solve real-world problems. Concepts such as territoriality, competition, optimal foraging strategy, and ideal-free distribution, which heretofore have just been theories, now become tools to create solutions to human-wildlife conflicts.

### **HOW SHOULD A COURSE IN WILDLIFE DAMAGE MANAGEMENT BE TAUGHT?**

The most important part of wildlife damage management training is experience with the tools used in conflict resolution. Therefore, the class should have a large emphasis in practical experience. However, background knowledge should first be taught. This background should be provided through a textbook that focuses on the basic principles of wildlife damage management. The textbook should explain the history and

philosophy of managing human-wildlife conflicts, methods for assessing damage, potential approaches to alleviating conflicts, and the importance of working with different stakeholders. Additionally, students should have an opportunity to discuss how these problems relate to ecologically important concepts such as home range fidelity, territorial behavior, optimum foraging theory, and competition.

Once students have been exposed to the variety of wildlife conflicts that exist and how people have historically sought to resolve these problems, the next step would be to provide the students with practical experience. One of the goals of the practical portion of the class should be to provide students with the opportunity to meet professionals in the field of wildlife damage management. These persons could identify local human-wildlife conflicts, demonstrate potential techniques to resolve the conflict, and point out any problems which might arise if a particular technique were to be employed.

Additionally, the goal of the wildlife damage management class should be to train students to be able to employ techniques common to most wildlife damage management professionals, such as setting snares, baiting box traps, animal tracking, identifying damage culprits, and estimating damage costs. At least half of the total class time should be devoted to allowing the students to gain this hands-on experience. One way to achieve this goal would be to have a lab section in addition to lecture time. Each lab would focus on a wildlife damage management methodology. These labs should cover implementation as well as analysis. For example, one lab may cover strategies to alleviate beaver damage. Another may examine how to identify which animals are causing the problem. Taking students into the field to solve these problems first-hand is the key to their training. Students should have the opportunity to actually set traps around

damaged areas, or view nest depredation to determine the possible predators. In this way, students will gain practical experience in several aspects of wildlife damage management upon graduation.

## **WHAT IS THE BERRYMAN INSTITUTE'S APPROACH TO EDUCATION?**

The Berryman Institute (BI) believes that it is important to bring together undergraduate students, graduate students, faculty, alumni, and professional wildlife damage managers into one setting where they may learn from each other. From its inception, the BI has tried to create a critical mass of faculty and students who have mutual interests in wildlife damage management. Having established such a group at Utah State University is probably the BI's greatest accomplishment. At present, members of the BI include 27 undergraduate students, 35 graduate student members, and 15 faculty members (three of whom work full time for the Predator Ecology Lab of the USDA--Wildlife Services).

Berryman Institute students learn as much from their peers and professional wildlife damage managers as they do from the faculty. The BI takes pride in providing its students opportunities for camaraderie and the exposure to new people and ideas. The BI provides travel grants so both its graduate and undergraduate students can attend national wildlife conferences, and provides opportunities for its members to share their research findings with the public, thereby promoting widespread knowledge of current issues and concerns. It brings USDA--Wildlife Services employees and other wildlife damage management professionals to campus to share their ideas with students. In fact, during this last semester, our most popular course was taught by Mike Bodenchuck, who is the state director for USDA--Wildlife Services in Utah.

Our alumni also take an active part in helping to train our students. Our alumni mentor our students, sometimes help them find jobs, and act as a crutch when our students need help making the transition from the academic world to the professional world. Likewise, the BI is there to help its alumni. The BI recognizes that the alumni are its future, and is willing to help them as they advance through their careers.

### **DOES THE BERRYMAN INSTITUTE'S APPROACH TO EDUCATION WORK?**

The BI was established less than a decade ago, yet it has already produced 92 alumni. The Berryman Institute has maintained contact with its alumni, and surveyed them in the spring of 2003 to find out what they were doing. The largest group (31) were working for USDA--Wildlife Services. Other alumni were working for other federal agencies (15), state wildlife agencies (12), or non-governmental wildlife organizations (8). Several alumni (16) were

still in academia, either in permanent jobs or pursuing graduate degrees (10). I believe that it speaks well of the BI's approach to education that so many of its students have decided to pursue careers in wildlife damage management. It is comforting to know that so many students who preceded me at the BI were successful in seeking employment with USDA--Wildlife Services and with other wildlife-related occupations despite what has been a tight job market.

### **LITERATURE CITED**

- CONOVER, M.R. 2001. Resolving human-wildlife conflicts: the science of wildlife damage management. CRC Press, Boca Raton, FL, USA.
- MILLER, J.E., B.C. TEFFT, R.E. ERIKSEN, AND M. GREGONIS. 2000. Turkey damage survey: a wildlife success story becoming another wildlife damage problem. Wildlife Damage Management Conference 9:24-32.
- TIMM, R.M. 2000. A history of wildlife damage management: twelve lessons for today. Wildlife Damage Management Conference 9:8-17.