

## **Emerging Challenges in Wildlife Management**

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**ABSTRACT** Several challenges confronting wildlife agencies today will become even more important in the future. These challenges include: reducing threats to human safety, preventing the spread of zoonotic diseases, increasing wildlife populations in suboptimal habitats, managing problems caused by overabundant native species and exotic species, and helping to sustain human food supplies by alleviating wildlife damage to agricultural production. Challenges such as these provide an opportunity for wildlife management to increase its importance in the future, especially for biologists and scientists within the field of wildlife damage management. We have the opportunity to enhance the value of the wildlife resource for society while, at the same time, preserving it for future generations.

**KEY WORDS** exotic species, over-abundant species, philosophy of wildlife management, sub-optimal habitat, wildlife damage management, zoonotic diseases

There are several emerging challenges that the field of wildlife management will face in managing the nation's wildlife resources. In doing so, wildlife managers should be guided by the dual missions of creating the greatest good for the greatest number of people and preserving the wildlife resource for future generations. There has been some speculation that the field of wildlife management will lose its relevance to society with the declining proportion of people who hunt or who live in rural areas. By meeting these challenges, the field of wildlife management will become more relevant, not less, and biologists trained in wildlife damage management will be in the forefront of meeting these challenges. I will discuss six challenges individually.

### **Threats to Human Safety**

Each year in North America, thousands of people are bitten by rodents or poisonous snakes, hundreds are attacked by skunks and foxes, and dozens are mauled by alligators, black bears, and sharks. In too many of these incidents, people are seriously injured or killed. Additionally, millions of people live in fear of being attacked by a large predator or bitten by a poisonous snake. Humans may

have an innate fear of predators, but these fears can become phobias (i.e., irrational fears) that can take over and control a person's life. Likewise, many people have phobias about flying or driving, and their fears are reinforced whenever they hear of a plane crash owing to a bird strike or they learn that someone has been killed in a deer-vehicle collision. Wildlife managers have the opportunity not only to protect people from serious injury and death by preventing bird-aircraft strikes or deer-vehicle collisions, but also to help people live happier and more fulfilling lives by reducing these tragic events.

### **Threats to Human Health**

Zoonotic diseases are diseases that afflict people and for which animals serve as a reservoir or vector of the disease. Although diseases have plagued humans for millennia, several zoonotic diseases, such as Lyme disease, hantavirus, and West Nile disease, have been identified in North America during the last few decades. Until recently, governments have been ill-equipped to deal with outbreaks of zoonotic diseases. Fortunately, U.S. Department of Agriculture, Animal Plant and Health

Inspection Service, Wildlife Services (WS) has recently expanded its efforts in the prevention and spread of zoonotic diseases.

### **Increasing Wildlife Populations in Suboptimal Habitat**

For almost a century, wildlife biologists and environmentalists have called on society to preserve wildlife habitat. In the early part of the twentieth century, this was relatively easy because there were vast tracks of land, especially in the West, that were deemed worthless because they could not be farmed. President Theodore Roosevelt was able to preserve these lands for the public domain by creating national parks and national forests. His example has been followed by a long line of other presidents who have placed considerable land into the public trust. While the drumbeat to preserve wildlife habitat has not slackened, the law of diminishing returns has started working against this effort. Land is becoming more expensive for the government to purchase, and the proportional benefit of preserving more land is less than when only a small amount of land was preserved for wildlife.

If our intention is to enhance wildlife populations, a more fruitful approach may be to enhance wildlife populations in suboptimal habitat rather than to preserve additional habitat for wildlife. Areas that are suboptimal for a particular wildlife species are areas where that species experiences excessive predation or intense competition for food from other species. One way to improve these suboptimal habitats is to manage local populations of predators or competing animals. WS and the field of wildlife damage management have the expertise to accomplish this task and have been doing this for many years, primarily for the benefit of livestock. In the future, we will find that the resource we are called on to protect is a wildlife population rather than livestock.

### **Managing Exotic Species**

In today's global economy, international trade has increased dramatically. With the increase in travel and shipping, the inadvertent movement of species from one area to another is expanding. The ability of invasive species to adapt and thrive in their new homelands is also increasing because humans create new ecological niches as they alter landscapes for which the area's native species are not adapted and do not fill. For this reason, most exotic species are found in suburban and urban areas and agricultural fields. Moreover, there is a cascade effect. The establishment of one exotic species makes it more likely that additional exotic species can become established later. In Miami, Florida, most residents landscape their yards by planting tropical plants from around the world rather than the native species of Florida. Miami's exotic flora has created an opportunity for tropical insects to survive in Miami because the same plants that grow in the insect's tropic homelands can be found in Florida.

Exotic species cause problems when they become so numerous that they threaten native species or when they interfere with human enterprises. By nature, humans are nostalgic and long for the way things were in the past. People long for natural areas that have remained unchanged for centuries. For this reason, people find the presence of exotic species in areas outside their native range unsettling. Thus, exotic species pose yet another problem that will continue to become more serious in the future.

### **Managing Overabundant Native Species**

The new habitat that humans create has allowed some native species to thrive and their populations to become overabundant. Today, there are more white-tailed deer (*Odocoileus virginianus*) than have ever existed in the past. More Canada geese (*Branta canadensis*) currently nest in New

England than in colonial times. Deer, geese, and many other animals have learned to thrive in human-dominated areas. Their populations can reach levels where they cause nuisance problems and are threats to public safety and health.

### **Safeguarding the World's Supplies of Food and Fiber**

During the 1700s, Thomas Malthus noted the expanding human population and predicted that human populations would soon outstrip the earth's ability to feed and clothe them. He predicted a future of war, famine, and death. Since his death, his prediction has not been fulfilled, despite vast increases in human populations. What Malthus failed to consider was the ability of humans to increase food production through the use of fertilizer, irrigation, cheap energy, farm machinery, new crops, and better cultivars. Since Malthus's time, human ingenuity and agricultural technology have allowed food production to increase faster than human populations. The same hectare of farmland that produced 20 kg of corn during the 1700s now produces 200 kg. Hence, most people today enjoy a better diet than their forefathers.

It is important to realize that Malthus's dire warnings of the consequences of human population growth have not been proven

wrong, only premature. The fate of humans depends upon our ability to increase agricultural production faster than human populations. Wildlife's fate is bound to our ability to feed ourselves. Historically, wildlife has been treated as a luxury of the well-fed. People often respond to starvation by doing whatever is necessary to acquire food for themselves and their families. Societies often respond to famine or the threat of one by putting more land into food production, even if doing so is detrimental to wildlife. If our goal is to preserve land for wildlife, then our method should be to increase the amount of food that can be grown on a hectare of land. As wildlife biologists, we have an opportunity to increase food production by reducing wildlife herbivory to crops, predation of livestock, or damage to stored commodities.

### **Summary**

The need for wildlife management will only increase in the future, especially for biologists and scientists within the field of wildlife damage management. We have the opportunity to enhance the value of wildlife in society while also preserving it for future generations. We have the opportunity to help people live better, safer, more fulfilling lives. I cannot think of a nobler calling.