



# Wildlife Economics

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Fact Sheet 38

Forestry and Natural Resources

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Referring to wild animals as economic commodities has created controversy among some individuals in the wildlife profession, as well as among various groups of wildlife users. This concept also seems to be in direct contradiction with the wording of the Constitution. Wildlife are clearly described in the Public Trust doctrine as being under sovereignty of the government for the people. The fact that wildlife is under public ownership in a nation where 93% of the land is privately owned may be a rather frustrating and seemingly illogical arrangement to some people. However, our forefathers made a wise decision in placing the future of this valuable resource in the hands of all Americans, rather than in the hands of a minority (landowners). Despite the ownership conflict, public ownership and regulation of use are the best safeguards against the destruction of our valuable wildlife resource.

A number of factors have led to the change in policy for private land access for wildlife recreationists from a policy of free-access to one of fee-access. Landowners first charged sportsmen in Texas for access in 1925, although fee-access was relatively uncommon in Texas until the mid-1900s. The practice of leasing to sportsmen has accelerated across the country during the past two decades, especially in the South. Certainly the rapidly increasing human population would have inevitably forced landowners to restrict access of wildlife recreationists to some extent. However, it was the declining economic conditions in agriculture during the late 1960s and early 1970s that eventually motivated many landowners to charge sportsmen for property access on a broad scale.

## The Value of Wildlife

With few exceptions, wild animals are not sold in a market like timber or farm crops, so there are no market prices to use as measures of their value. However, those wishing to conserve habitats and wildlife must often compete with agricultural or development alternatives, the benefits of which are usually presented in dollar terms. To date, wildlife resource decisions have been hampered by inadequate information on the economic value of recreational uses. Other values associated with wildlife are even more difficult to quantify. Unfortunately, when making decisions affecting publicly-owned natural resources, our current society is influenced more by dollar-denominated measures of benefits and costs than non-monetary measures. Better estimates of the dollar value of fish and wildlife will improve resource decision-making.

Most research efforts attempting to derive economic values for wildlife resources have focused on user expenditures associated with "consumptive" recreational use of wildlife such as hunting and fishing. Such values are potentially dangerous when used for comparison with competing alternatives (urban development) unless it is emphasized that these economic values represent only a small portion of the overall value of the wildlife resource. To a lesser extent, studies have been conducted to quantify the economic value of nonconsumptive wildlife recreation such as wildlife observation and wildlife photography. Combining the consumptive and nonconsumptive values still does not account for the total value of a wildlife resource.

There are "wildlife-related" activities such as camping and hiking that add to the value of wildlife. It should be apparent that placing an economic value on the recreational use of wildlife is very difficult, at best. However, when you realize that recreation is only one of at least 5 categories of various wildlife values, the task of quantifying the overall economic value of a wildlife resource is staggering, if not impossible, at this time.

Although the general public is most familiar with the recreational value of wildlife, there are several other important categories of use or value. Wild animals are integral parts of biological communities and ecosystems. This contribution to productive ecosystems is referred to as the **biological value** of wildlife. Most of our agricultural crops and domestic livestock originated from wild ancestors. Other examples of the biological importance of wildlife include seed dispersal and planting, pollination of agriculture crops and wild plants, natural population control and regulation of pest species, and nutrient transport and recycling in natural systems. A closely related value of wildlife is their **scientific value**. Each animal and plant is a genetic and chemical "factory" that has taken centuries to develop. These genetic and chemical secrets have allowed man to develop medicines and pharmaceutical products to cure common diseases. Ecological studies of wildlife populations have been extremely important in helping us to learn more about the planet on which we live. Whether we are learning about animal behavior or the function of a highly-specialized physical characteristic, this important value helps us to expand our information base. Wildlife have an **intrinsic value** or existence value. Several studies have shown that it is of value to most individuals just to know that wildlife populations are in existence, regardless of whether

the individuals will ever get to see them. Finally, wild animals have an **aesthetic value**. A portion of this value can be assessed through expenditures for activities such as wildlife observation and wildlife photography, as well as wildlife-related activities such as camping and hiking. However, recent studies have shown that the aesthetic value of wildlife is very important to the majority of individuals involved in consumptive activities such as hunting and fishing.

## Recreational Value of Wildlife

### U.S. Fish & Wildlife Service Surveys

The USFWS has conducted national surveys every 5 years since 1955 on fishing, hunting, and wildlife-associated recreation. Most of the participation and expenditure figures are reported only on regional and national levels; however, even on this scale the trend information can be very useful to South Carolina landowners. Participation in hunting has declined from 17.4 million hunters in 1980 to 12.5 million in 2006. Although much of the increase in hunter expenditures can be attributed to inflation, the annual expenditure is significant – \$8.5 billion in 1980, \$10.1 billion in 1985, \$22.1 billion in 1996, and \$22.9 billion in 2006. Interestingly, hunter expenditures have continued to rise as the number of hunters has slowly declined.

Participation in freshwater and saltwater fishing has decreased from 42.1 million anglers in 1980 to 30 million in 2006. The annual expenditure by fishermen has increased dramatically from \$17.3 billion in 1980 to \$28.2 billion in 1985, \$37.8 billion in 1996 and \$42.2 billion in 2006.

Participation in wildlife-watching (formerly known as non-consumptive wildlife recreation) has increased dramatically during the past 2 decades. As the 20th century human population has become increasingly urban, most individuals have lost contact with wildlife – a contact which was a frequent occurrence during the daily activities of rural families. A large portion of this urban population that has opted for the comfort and convenience of the city pursues weekend encounters with wildlife through recreation (i.e. observation, photography, etc.) Wildlife-watching activities in the U.S. generated \$45.7 billion in 2006. The fastest growing segment is backyard wildlife.

Obviously, wildlife has a tremendous value on a national scale. But once again, it must be emphasized that the USFWS figures only represent the recreational value of wildlife. Participation and expenditure figures reported above represent participants 16 years of age and older. A large number of American youth participate in wildlife recreation as well, and if these data were included, they would contribute substantially to the expenditure figures for wildlife recreation.

### South Carolina Surveys

The Department of Forestry and Natural Resources at Clemson University conducted a survey of industrial forest landowners across the Southeast to evaluate hunt-lease programs in 1989. The respondents owned 21.5 million acres of which 75 percent were leased for hunting during 1989.

The weighted average lease fee received was \$2.15/acre, a 60 percent increase from a similar survey conducted in 1984. Respondents reported that improved public relations gained because they provided hunting access had a relative value equal to the lease fee. Additionally, control of access had a relative value of 1.45 times the lease fee. The total value of leasing was estimated to be \$7.77/acre.

The South Carolina Department of Natural Resources interviewed hunters at Clarks Hill Wildlife Management Area during 1989-90 to measure the economic value of their activities attributable to the site. The two methods used for measuring the value of a hunter's experience were 1) willingness to pay for the activity and 2) willingness to accept compensation if they were not allowed to hunt the tract. The respondents were willing to pay an average of \$160 for the right to hunt the area; however, it would take an average of \$445 to compensate a hunter for giving up the right to hunt the area for one year.

Data collected by the 2006 USFWS survey found that 1.7 million South Carolina residents and non-residents fished, hunted, or participated in wildlife-related recreation in South Carolina. Total expenditures for these activities in 2006 was \$2.5 billion.

The Extension Wildlife Program at Clemson University conducted a study in 1990-91 to evaluate the impact of private-land hunting expenditures in two rural counties and to determine the relative distribution of expenditures in the community. A survey of landowners in Jasper and McCormick counties was conducted concerning hunting access, fees charged, and needs for providing hunting opportunities. A second survey of their hunters was conducted to determine demographic information, hunting expenditures, and hunter needs to improve satisfaction. Jasper County landowners who provided fee-access hunting received a weighted average of \$3.11/acre, and all landowners who allowed hunting on their property spent an average of \$2.65/acre to manage their land for wildlife. McCormick County landowners who provided fee-access hunting received a weighted average of \$3.30/acre, and all landowners who allowed hunting on their property spent an average of \$0.94/acre on wildlife management. Based upon expenditures reported for 19 categories, the 2,395 private land hunters in Jasper County spent an estimated \$6,008,815 (\$2,509/hunter) on equipment, supplies, access fees, and travel-related activities. The majority of these expenditures (72.3 percent) were paid directly to community businesses. Landowners received 25.5 percent of the hunter expenditures through access fees, while 2.2 percent went to state and federal wildlife agencies. Based upon reported expenditures, the 3,030 private land hunters in McCormick County spent an estimated \$4,317,084 (\$1,425/hunter) on equipment, supplies, access fees, and travel-related activities. The majority of these expenditures (77.4 percent) were paid directly to community businesses. Landowners received 20.5 percent of the hunter expenditures through access fees, while 2.1 percent went to state and federal wildlife agencies. The total economic effect of private land hunter expenditures was estimated to be \$8,984,818 in Jasper County and \$6,568,489 in McCormick County. For both counties combined, hunter expenditures supported 273 jobs,

produced \$4.25 million in salaries and wages, \$820,000 in state tax revenue (sales tax, state income tax), and \$540,000 in federal income tax.

## The Wildlife Market

As previously mentioned, one unique aspect of establishing a “market” for wildlife recreation is the issue of resource ownership. When dealing with wild animals that are classified as game, ownership is endowed to the government and becomes private property only when legally taken. Game animals must be “reduced to capture” in order for private ownership to be established. Therefore, a market for game animals is established by selling the right to trespass or the right to hunt on a specified parcel of land in order to reduce to capture. With few exceptions, the animals are not marketed directly; only the right to access is sold.

The fee-access recreation market differs from traditional agricultural markets in at least two other ways. First, the fee-access market is not “standardized.” Agricultural products such as corn, soybeans, cattle and hogs have quality standards that, to a large degree, determine the prices that farmers receive in an open market. In the case of fee access, each land parcel and access arrangement is unique, and there are no quality standards to help price the unique combinations of wildlife, services provided, length of visit or hunt, and physical attributes of the property. Secondly, the fee-access operator is dealing directly with the consumer during marketing and management. Unlike the farmer or forest landowner, the lease operator must deal with customers personally, often on a continuing basis. Therefore, successful fee-access operations not only demand knowledge of the resource, but also skills in marketing and customer relations.

## Fee Hunting

Currently, the majority of the fee-access market for wildlife-related recreation is centered around hunting. Analysis of hunting license sales over a period of years can provide trend information about the demand for hunting. The most recent U.S. Fish and Wildlife Service data indicates that the number of hunters across the country is gradually declining, or at best, has leveled off. The number of hunters in the U.S. has stabilized temporarily at approximately 12.5 million, and will probably decrease over time as the number of youth involved in hunting declines and more lands become unavailable for hunting. The number of hunters in the South has gradually increased over the past 15 years but appears to have stabilized at 208,000 during the past four years. However, if we look at the per capita (percent of total population) license sales, it is clear that the number of hunters is declining annually when calculated as a percent of the overall population. This decline is occurring at a rate of about 3 percent in the South and about 5 percent nationally. The trend in per capita sales figures seems to indicate that the demand for hunting is declining; but the situation might not be so clearly defined. Because we are dealing with a relatively fixed “supply” of hunting land (probably decreasing), without a marked decrease in the total license sales, the demand for remaining hunting lands will likely continue to

be strong. In other words, there is a favorable forecast for landowners who want to get involved in fee-access hunting. Especially when trends illustrate that hunters are spending more in pursuit of their sport.

## Non-hunting Recreation

Fee-access recreation, of course, is not limited to hunting activities. In fact, the greatest market potential in the future appears to come from non-hunting uses of wildlife on private lands. The implication for South Carolina is that as the population becomes more urbanized, the demand for non-hunting recreation will continue to grow. Interested landowners and rural communities should consider the market potential for such activities. Nonconsumptive wildlife activities have been most successful when offered in conjunction with other outdoor recreation such as canoeing, camping, and horseback riding. Other activities that can attract high participation include hiking, photography, wildlife observation, scenic drives, boating, wildflower study, and nature trails.