

What's A Walk On The Wildside Worth?¹

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Abstract: Quantitative measures of the economic nonconsumptive values of observing wildlife in forest environments are not widely available. Six case studies of fish and wildlife amenity values are briefly described. The annual total consumers' surplus value of all six activities was twice the total out-of-pocket expenditures spent to visit the six sites involved. The rationale for additional extensive research and development on nonconsumptive economic values of fish and wildlife are outlined.

Wildlife-associated recreation is one of the country's most popular forms of outdoor recreation. Observing, photographing, and feeding wildlife provide enjoyment to millions of persons in the United States, many of whom also fish and hunt. In 1980, 28.8 million nonconsumptive users aged 16 and older traveled at least one mile from their home primarily for the purpose of observing, photographing, or feeding wildlife, spending \$4 billion in the process. Some 69.4 million persons enjoyed wildlife in some way while on a trip for another purpose (President's Commission on Americans Outdoors 1987).

The Fish and Wildlife Conservation Act of 1980 authorized programs to enhance nongame species, but funds have never been appropriated for this purpose. In FY1986, the USDI Fish and Wildlife Service budgeted 1.4 million dollars for nongame research. State fish and wildlife agencies devote approximately 7 percent of their budgets to nongame programs, but additional funding is critical to develop programs to address nongame issues.

Probably one of the reasons additional funding is not available to address nongame issues is because of public land allocation decisions--in the past these were based largely on the expected value of the resources that could be obtained from those lands. Benefits and costs were typically estimated only for those resource outputs that could be taken from the land, such as timber or fish. Economic evaluation of natural resources that provide pleasure without taking resource outputs, such as viewing wildlife, has been overlooked in customary analyses of benefits and costs. This is because quantitative measures of the amenity values of nonconsumptive activities of observing wildlife in forest and rural environments are not widely available (Sorg and Loomis 1984).

This paper examines the economic estimates of amenity values urgently needed by regional planners and natural

resource professionals for comparing economic values of alternative land uses, such as producing commodities marketed (like timber or forage) versus producing resources not usually marketed (such as viewing different kinds of wildlife).

Six Case Studies In Pennsylvania

Results of six case studies of the nonconsumptive values of fish and wildlife in Pennsylvania provide indications of the combined net economic value of these kinds of resources (Shafer and others 1993). During a 12-month period, teams of interviewers questioned visitors at six Pennsylvania sites.

- Fisherman's Paradise: a 1-mile stretch of Spring Creek, which is a nationally known trout stream in Centre County, where no trout may be kept and tackle is restricted to fly-fishing equipment and barbless hooks.
- Spring Creek: a 3-mile section of this 21 mile stream that is open to fly fishing year-round, but no trout may be kept.
- Hawk Mountain Sanctuary: a 2,000-acre, private mountaintop on the border of Berks and Schuylkill counties; it is the world's first refuge created to protect and observe birds of prey.
- Middle Creek Wildlife Management Area: a portion of state game land in Lebanon and Lancaster counties where visitors can observe 238 species of water fowl.
- Elk viewing areas: a 144 square mile area of State forest and game land in Cameron and Elk counties, where Pennsylvania's only elk herd roams unrestricted.
- Shaver's Creek Environmental Center: a raptor rehabilitation center in Centre County where the surrounding grounds feature a wide variety of ecological habitats and indigenous wildlife.

The interview teams asked visitors questions related to destination, round trip miles and expenditures, duration of the trip, and length of stay.

Two Econometric Procedures

Two prominent econometric procedures were used to estimate consumers' surplus at each location: the travel cost method (TCM) (Rosenthal and others 1984) and the contingent valuation method (CVM) (Moser and Dunning 1986). TCM involved statistical modeling to relate quantities of use to total trip costs. The CVM compared average travel costs per person at the interview locations with average estimated travel costs required to visit a substitute, equally-desirable site. The aggregate value of each of the six amenity resources was derived by multiplying a location's total number of visitor days by the location's average willingness-to-pay (or

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consumer surplus) value—as calculated by either the TCM or the CVM. A visitor day was defined as one recreation visitor at one of the study locations for part or all of one day (*table 1*).

Consumer Surplus Varied Widely

The resulting average willingness-to-pay values (1993 dollars) at the five locations compared favorably in some instances with values estimated (using the same econometric procedures) for consumptive, hunting and fishing activities and other nonconsumptive forest recreation activities such as hiking and backpacking in dispersed recreation environments and wilderness areas in western states (Shafer and others 1993).

At the high end, for example, anglers would be willing to pay \$53 each to catch and release trout at Fisherman's Paradise. But they're willing to pay less than half that—\$19—to fish per day on Spring Creek. Visitors at Hawk Mountain are willing to pay \$15 to see hawks, falcons, and eagles in flight during their fall migration. While visitors to Elk County will spend \$24 a day to watch elk or to even hear them bugle. At other locations visitors will spend \$7 a day to watch waterfowl at Middle Creek and about \$4 to spend a day at Shaver's Creek Environmental Center (*table 1*).

The total consumers' surplus value (1993 dollars) of all six activities to participants amounted to a total of more than \$1.5 million annually—twice the total out-of-pocket expenditures of approximately \$769,700 spent to visit the sites (*table 1*).

What's On The Horizon?

As natural resource conservation issues collide against development pressures, it is particularly important to know how much a population would pay to enjoy a natural location. Extensive research, development, and application efforts need to be expended on this issue in order to:

- Increase resource manager's understanding of the current net economic value of a wide range of natural environment in which wildlife can be enjoyed for its sheer natural beauty.
- Demonstrate the net economic value of creating new amenity resources.
- Make more allocation decisions during current and future wildlife resource management planning.
- Predict—in some cases—nature-oriented tourism travel behavior.
- Forecast economic consequences of physical changes in the quality of the amenity resources involved.

Table 1—Annual total resource values for each of the six study locations (1993 dollars).

Activity (location)	Total number of visitors	Expenditures ¹ per visitor day	Annual total expenditures ²	Net economic value per visitor day ³	Annual total resource value ⁴
Catch-and-release trout fly fishing (Fisherman's Paradise—1.04 miles)	1,648	16.56	35,597	53.40 (TCM)	86,019 or 84,634 per stream mile
Catch and release trout fishing (Spring Creek—3.31 miles)	2,894	5.19	15,002	19.32 (TCM)	55,912 or 16,691 per stream mile
Watching birds of prey (Hawk Mountain—2000 acres)	46,100	7.00	322,515	15.04 (CVM)	693,344
Observing waterfowl (Middle Creek—5200 acres)	75,900	2.73	207,662	4.28 (CVM)	324,852
Viewing elk (State Forest and Game Lands—144 square miles)	7,200	14.22	102,384	24.51 (CVM)	176,472
Environmental education (Shavers Creek)	45,000	1.92	86,575	4.44 (CVM)	190,800

¹Average amount spent per day by a typical visitor; expenditures were total out-of-pocket costs for transportation, lodging, food, and beverages, entertainment, equipment rental, recreation site fees, supplies, and miscellaneous items associated with the visit.

²Total amount spent by visitor to the activity.

³The additional amount a typical visitor would have been willing to pay per day over and above his actual expenditure as computed by TCM or CVM. (TCM-travel cost method, CVM-contingent valuation method.)

⁴Total number of visitor days multiplied by net economic value per day for that activity.

Current Net Economic Values Are Not Enough

In addition to net economic value, other economic values are also needed. For instance, current users derive economic benefits from knowing that amenity resources exist (existence values), or knowing they exist for future generations (bequest values). Furthermore, many people who are not currently using these areas would be willing to pay to maintain the opportunity to use these kinds of environments in the future (option values). Public opinion surveys need to be conducted within each State to evaluate existence, bequest and option values (along with net economic values) for wildlife and other nonconsumptive forest-recreation activities (Walsh and others 1984).

Conclusions

How much is a pristine trout stream worth where you're not allowed to keep your catch? Or a promontory where it's possible to witness an aerobatic display of hawks and other birds of prey? With increasing frequency such questions can be answered in economic as well as emotional terms. The consumer surplus (or willingness-to-pay) values reported in this paper for five different kinds of nonconsumptive uses of fish and wildlife are over and above the average cost of travel, purchasing admission or equipment, or the price of food and lodging during the visit. In other words, these values represent what someone would pay merely for the experience.

Resource economics might not entirely balance the scales—or accurately estimate the exact value of amenity resources. However, it is a step in the right direction. An old expression says that we know the price of everything but the value of nothing. It's time to take action to more fully evaluate the nonconsumptive values of fish and wildlife. These natural resources enrich our lives in many ways with aesthetic, scientific, cultural, educational, recreational, and economic values. As sensitive indicators of the health of our environment, they are indeed components of the web of life that sustains all of us (President's Commission on Americans Outdoors 1986).

References

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