Analysis of the 1985 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation

Net Economic Values of Nonconsumptive Wildlife-Related Recreation

Report 85-2

U.S. Department of the Interior
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ANALYSIS OF THE 1985 NATIONAL SURVEY OF FISHING, HUNTING, AND WILDLIFE-ASSOCIATED RECREATION

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NET ECONOMIC VALUES OF NONCONSUMPTIVE WILDLIFE-RELATED RECREATION

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Division of Federal Aid

U.S. Fish and Wildlife Service

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This paper is one of a series designed to complement the National and State reports of the 1985 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation with investigations of particular fish and wildlife related trends and other topics of interest. The results presented and conclusions reached are the author's and are not necessarily endorsed by the U.S. Fish and Wildlife Service.

NET ECONOMIC VALUES OF NONCONSUMPTIVE WILDLIFE-RELATED RECREATION

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Abstract

This paper presents state by state estimates of the net economic value of primary nonresidential activities based on contingent valuation questions in the 1985 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation. Net economic values are the appropriate measure of economic value for a wide range of analyses and project evaluations. Potential sources of bias in the estimates and the need to mitigate the effects of outliers (extreme values) are discussed.

I. Introduction

This report presents estimates of the net economic value of nonconsumptive wildlife related recreation based on results of the 1985 National Survey of Fishing, Hunting and Wildlife Associated Recreation (Survey). Economic values from the Survey for selected hunting and fishing activities are reported in Hay (1988). The next section is a brief discussion of net economic recreation values, their conceptual basis and uses. The third section provides a description of the contingent valuation questions in the Survey and steps that were taken in analyzing the data. The fourth section consists of estimates of the net economic value of trips taken for the primary purpose of observing, photographing and feeding wildlife, on a state by state basis. The last section consists of some concluding comments.

II. Measures of Economic Value.

The 1980 and 1985 Surveys provided for the first time a nationwide information base on nonconsumptive recreational uses of fish and wildlife in the United States with an emphasis on the number of participants in various activities, days of participation and associated expenditures. Those results are reported both for the nation as a whole (U.S. Department of the Interior, 1983 and 1988) and in a series of reports for the individual states for 1985. The net economic value estimates presented here were developed from data generated by the 1985 Survey but not reported elsewhere.

In 1985 more than 29 million Americans age 16 years or older took trips of at least one mile from their home for the primary purpose of observing, photographing or feeding wildlife. They spent more than $4.4 billion on trip related expenditures in the process and billions of dollars more for equipment. The Survey also reports 105 million participants in primary nonconsumptive activities around their homes, making wildlife observation, photography, feeding and related activities in residential and nonresidential settings one of this nation's most widely enjoyed outdoor recreational activities.

Expenditures are a useful indicator of the importance of these activities to the local, regional and national economies; the Survey reports total 1985 spending of $14.3 billion for nonconsumptive wildlife related recreation. Expenditures do not, however, measure their economic benefit to either the individual participant or, when aggregated, to society. The net economic values reported here measure participants' willingness to pay over and above what they actually spend for those activities. This net willingness to pay, or consumer surplus, is the accepted measure of the economic value of recreation to the individual and to society. It is appropriate for evaluations of water resource projects and a wide range of other types of analyses that seek to quantify benefits and costs (U.S. Department of the Interior, 1983). The values reported here refer only to individuals taking trips of a mile or more from their homes for the primary purpose of observing, photographing or feeding wildlife: primary nonresidential participants, in the Survey's terminology. Data are not available from the Survey for net economic values of residential activities or for trips where enjoyment of wildlife was a secondary purpose.

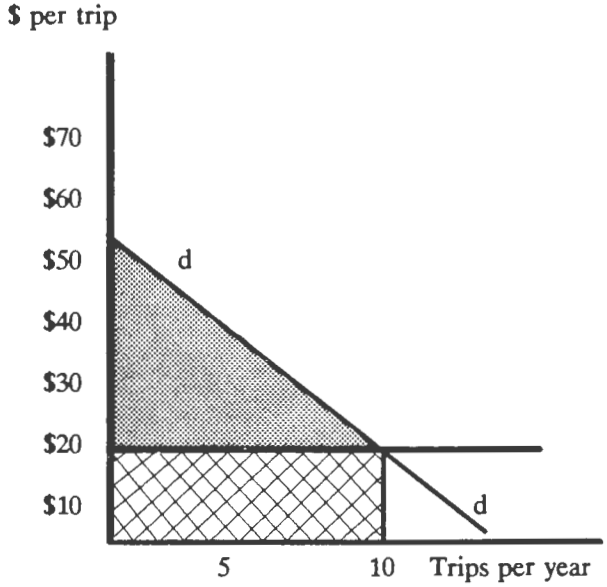

Figure 1. Individual's demand curve for nonconsumptive trips per year.

The relationship between expenditures and net economic value is shown in Figure 1. Demand curve, dd, gives the number of trips a representative individual would take per year for each different cost per trip. Each point on the demand curve is a measure of the most he would be willing to pay per trip. It is downward sloping, indicating that each additional trip is valued by the individual less than the last. This means that the lower the cost per trip, the "price" on the vertical axis, the more trips would be taken during the year, other things remaining equal.

In Figure 1 if each trip cost $20, the individual would take ten trips per year, but not more than ten trips because the $20 cost of each additional trip beyond that

point is more than he is willing to pay. Moving in the other direction, as the cost per trip increases fewer trips would be taken per year. If the cost were to rise to $55 per trip, the demand curve's intercept with the vertical axis, he would not take any trips at all because that is more than he is willing to pay for even one trip during the year.

For each trip between zero and ten, a constant price of $20 per trip means that the individual would have been willing to pay more than he had to, an amount measured as the vertical distance between the $20 cost and the demand curve at that point. This is his net willingness to pay, or consumer surplus, for that trip. Total net willingness to pay for a full year's trips is the shaded triangle in Figure 1 and forms the basis of the net economic values presented here. The cross-hatched rectangle in the figure is the amount the individual actually did pay in trip related expenditures for ten $20 trips per year, a total of $200.

The demand curve in Figure 1 for a representative nonconsumptive user and the discussion about the individual's decision as to the number of trips to take at different levels of cost per trip are both simplifications of a complex process. In any particular situation the number of trips a person chooses to take may depend on a wide range of factors that are not easily reflected in a measure of cost per trip. Availability of leisure time and the accessibility of appropriate sites to view and photograph wildlife are often cited as constraints on the number of trips that are taken for wildlife related recreation. The basic behavioral tenet is quite plausible, however; the more expensive such trips become the fewer trips an individual will take, other things being equal. By looking at a large enough number of participants, factors that differ from one individual's situation to the next tend to balance out and may exert little or no effect in terms of the sample average.

III. Contingent Valuation.

Respondents to the 1985 Survey who had taken at least one trip of a mile or more from their home for the primary purpose of observing, photographing or feeding wildlife were asked a series of contingent valuation (CV) questions during their personal interview as a basis for determining their net willingness to pay for those activities.[1] The series was designed to find out what their cost per trip had been in 1985, whether they would have continued to go had the cost been higher, and at what cost per trip they would not have gone at all in 1985 because it would have been too expensive (see, Appendix I).

Respondents were first asked to consider expenses such as transportation, food and lodging, and to estimate what their cost had been in 1985 for a typical trip. Figure 1 can be used to illustrate the question sequence that followed. Suppose for example that a respondent reports that a typical trip cost $20 in 1985 and at that cost he took ten trips. He is then asked if he would still have gone had the cost per trip been three times that amount and, if so, how many trips he would have taken at that higher price. The question stipulates that the cost of other kinds of recreational activities would not have changed. Those who would continue to take trips after a three fold increase in the cost per trip were asked if they would still have gone and how often if their cost per trip had gone up even more, to four times their 1985 cost. In the first round those who would not continue if the cost per trip had been three times greater were asked if they would have continued at a lower, two-fold increase in cost, or $40 per trip in this example.

In each case the starting point of the question sequence was the respondent's own estimate of 1985 trip costs. That cost was then increased by two, three or four times depending on their responses to the series of questions. The final question asked at what cost per trip the respondent would not have taken any trips at all in 1985 because the cost per trip was too expensive.

In terms of Figure 1 the purpose of the question sequence is to have the respondent react as if he were moving up the demand curve, taking fewer trips as the cost per trip increased until he was priced out of the market at the cost per trip where the demand curve intersects the vertical axis. Assuming a linear demand curve, annual net economic value is then calculated using the difference between current cost and the maximum cost at the intercept, and the number of trips taken in 1985. Using the example in Figure 1,

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1 Contingent valuation techniques are discussed and evaluated in Cummings, et al. (1985)

$$\text{Annual net economic value} = \frac{(\$55 - \$20) \times 10}{2}$$

$$= \$175$$

The average value per trip is that amount divided by the number of trips, or

$$\$175/10 = \$17.50 \text{ per trip}$$

The valuation sequence was posed in terms of number of trips and cost per trip because respondents were thought more likely to think of their nonconsumptive activities in terms of trips rather than days, the unit most commonly used in project evaluation. The economic values reported here are in terms of days to facilitate their use in such analysis.

The values are "average" values in two senses of the word. First, they are the arithmetic mean or average of the responses of all respondents in the sample, usually all those residing in a particular state who took nonconsumptive trips; all survey respondents who were Minnesota residents, regardless of where they took their trips, for example. Second, they are average values in terms of the above discussion in that they are calculated for each respondent by dividing his total annual consumer surplus by the number of days he participated during 1985. Marginal values, the net economic value of one more trip during the year, will generally be smaller than average values and are the appropriate measure in some kinds of evaluations. The relative magnitude of average and marginal values will depend on the nature of the demand and cost curves in a particular situation.

Economists distinguish between net economic values reflecting respondents' willingness to pay (WTP) for an opportunity to enjoy wildlife and their willingness to sell or accept compensation (WTAC) for such opportunities they are asked to give up. The CV questions in the 1985 Survey were designed to produce WTP values. WTAC values will typically be larger and are the conceptually correct measure of net economic value in some situations. Reliable empirical estimates of WTAC have proven difficult to achieve, however.[2]

Because of the hypothetical nature of CV, in which respondents are asked how much more they would be willing to pay but are not actually required to do so, CV responses may be affected by several different kinds of respondent behavior which can bias the resulting estimates. Examination of CV responses in the 1985 Survey suggested that respondents' willingness to pay higher costs for nonconsumptive trips was subject to several such influences.

A significant percentage of respondents indicated that they would pay no more than they currently pay per trip, or answered in such a way that their calculated net willingness to pay was negative. Zero or negative responses constituted nine percent of the sample. A zero response is consistent with an individual who takes only one trip per year and is unwilling to pay anything more for that one trip, a possible but unlikely occurrence. Much more likely reasons for zero and negative net willingness to pay responses are that the question was misunderstood by the respondent, incorrectly recorded by the interviewer or keypunch operator, or that the response was a protest against higher costs rather than a legitimate bid, perhaps motivated by fear of an increase in user or entrance fees at parks and wildlife refuges. Unfortunately, no questions were included in the Survey to probe the reason for zero willingness to pay responses. As a result, all responses that resulted in a zero or negative willingness to pay were dropped from the sample.

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2 See Randall, et al. (1983) for a discussion of CV and the relationship between willingness to pay and willingness to accept compensation.

To the extent that legitimate zero responses were among those deleted, the resulting values will be overestimates.

Examination of the nonconsumptive CV responses revealed that substantial numbers of respondents gave willingness to pay responses that were excessively large by almost any reasonable standard.[3] Perhaps they did not take the CV questions seriously or sought to influence fish and wildlife management decisions by exaggerating the values that they place on nonconsumptive recreation. Once again there is no basis for distinguishing such responses from those that are legitimate.[4]

The presence of these very large values results in highly skewed frequency distributions for the CV responses with a large majority of responses clustered near the bottom of the willingness to pay range and a relatively few, extremely high responses. The latter substantially increase the sample average, making the mean a questionable indicator of central tendency for the sample as a whole. In the samples for nearly all of the states, the mean response is two or more times larger than the median, the value that represents the midpoint, with half the responses smaller and half greater. Since the purpose of the analysis is to use the CV responses as representative of the typical participant in the group rather than calculating the sample's aggregate net economic value, mitigating the effect of those extreme values on the sample mean is essential.

Unfortunately, there is no objective criterion for separating legitimate responses from those that had some other motivation. After considering several alternatives, a fixed percentage of household income as a maximum willingness to pay per year was used as a means of eliminating outliers from the samples. This approach also has its drawbacks. The Survey did not report the number of persons in the household so it was not possible to use income per household member, thought by some to be a better indicator of ability to pay than total household income. In addition, setting a fixed percentage of income as the most a reasonable person would be willing to pay for a year's worth of nonconsumptive trips does not allow for the strength of preferences many avid participants exhibit, as indicated by their "no limit" responses when asked what is the most they would pay before giving up their what may be their favorite outdoor activity.

After examining frequency distributions of the responses and assessing the effects of alternative cutoff points, observations were dropped from the sample if the CV responses resulted in an annual net economic value that exceeded five percent of the individual's before tax household income. The same method of deleting outliers was used in analyzing the 1985 Survey's fishing and hunting CV responses (Hay 1988). This resulted in deletion of 10 percent of the nonconsumptive sample's initially positive responses. Even with those limits, a small number of large responses continued to exert an inordinate effect on the mean values of some states.

The two most extreme cases - Rhode Island and Delaware - can be used to examine the effects of outliers on the mean economic values even after deleting responses that exceeded five percent of household income. While these examples are atypical, they illustrate the problems that arise in deciding whether certain observations should be deleted from the sample or not.

The Delaware sample of 84 observations included a 37 year old respondent with a household income of more than $75,000 per year who reported one two-day trip to Florida at a cost of $1,500. The CV sequence of questions indicated a maximum willingness to pay for that trip of $5,000. When that information was run through the formulation described above it resulted in a value of $875 per day. That one relatively large but not implausible value increased the mean value for Delaware from $32 to $41 per day.

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3 A considerable number were recorded as having "no limit" to what they would spend per trip. That response was an option for interviewers if the respondent said as much or was reluctant to give a maximum price per trip. Fully 11 percent of the sample were recorded as having no limit to what they would pay and were dropped from the analysis.

4 Deliberately understated, positive values are also a form of protest. They would exert a downward bias on the sample mean, but can not be distinguished from legitimate low responses.

The Rhode Island sample of 60 observations provides a more questionable case. Closer investigation revealed that one data record in the Rhode Island sample was that of a 40 year old respondent with a household income of $40,000 who took a single one-day trip in his home state at a cost of $10 but was willing to pay up to $2,000 for that trip before it became to expensive. The result was a $995 value per day and an increase in the mean value for the state from $16 to $46 per day because of that single record![5]

Should this observation be deleted because of the large difference between actual cost per trip and the maximum of $2,000? Is it an honest response or is it clearly a protest bid or miskeyed entry that should be dropped from the sample? Should the Delaware observation be retained because it could plausibly be a wealthy bird enthusiast willing to spend $5,000 for a short trip to Florida in order to add a rare species to his life-list? In both cases the responses fell within the 5 percent of income cutoff point. There are no easy answers to those questions and there were other, less extreme observations in virtually all of the state samples. To lessen their effect on the sample means, values per day that exceeded $200, but were within the 5 percent of income limit, were converted to $200 in the state by state net economic values reported below. Median values before deletion of outliers are provided in Appendix II as an alternative measure of central tendency.

The two examples discussed above underline the importance of considering the mean values in conjunction with their standard errors and confidence intervals. Broad confidence intervals should be taken as a sign that there may still be observations in the sample that are far from the "typical" or "representative" nonconsumptive user. In such cases, the median values may be preferable.

IV. Estimated Net Economic Values.

Table 1 gives state by state net economic values per day of primary nonresidential nonconsumptive activities. It also shows their ninety-five percent confidence intervals.

There are several important things to know about these estimates of net economic value. They are mean responses for value per day based on the respondents' state of residence. To the extent that respondents visited states other than their state of residence on their nonconsumptive trips, the CV estimates will reflect activity in a state other than the one listed. Likewise, a state's value estimates will not include any activity in that state by nonresidents, an important consideration for some states.

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5 The reported values are weighted means that take into account the probabilities of selection in the Bureau of the Census' stratified sample for the 1985 Survey. The large effect on the mean of this single observation is due in part to its relatively large sample weight.

Table 1: Net Economic Value Per Day: Nonconsumptive Use

(1985 Dollars)

State	Net Economic Value	Standard Error of the Mean	Ninety-five Percent Confidence Interval
Alabama	13	2.0	9 - 17
Alaska	24	2.4	19 - 29
Arizona	30	4.1	22 - 38
Arkansas	12	2.0	8 - 16
California	32	7.2	18 - 47
Colorado	26	4.3	17 - 35
Connecticut	19	3.0	13 - 25
Delaware	25	4.5	16 - 34
Florida	16	2.7	11 - 22
Georgia	26	3.9	18 - 34
Hawaii	27	4.7	18 - 36
Idaho	41	6.2	29 - 53
Illinois	19	2.1	15 - 23
Indiana	28	4.2	20 - 36
Iowa	13	1.5	10 - 16
Kansas	14	2.3	9 - 18
Kentucky	15	1.9	11 - 19
Lousiana	10	1.2	8 - 13
Maine	10	1.0	8 - 12
Maryland	24	3.2	18 - 31
Massachusetts	21	2.7	15 - 26
Michigan	20	3.1	14 - 26
Minnesota	20	2.7	15 - 25
Mississippi	12	2.7	7 - 17
Missouri	14	2.4	9 - 19
Montana	19	1.4	16 - 22
Nebraska	11	1.1	9 - 13
Nevada	25	3.8	17 - 33
New Hampshire	18	3.8	10 - 26
New Jersey	28	4.2	20 - 37
New Mexico	29	4.1	20 - 37
New York	16	4.3	8 - 25
N. Carolina	14	2.5	9 - 19
N. Dakota	22	3.5	15 - 29
Ohio	13	2.6	8 - 19
Oklahoma	11	1.5	8 - 14
Oregon	15	2.1	11 - 19
Pennsylvania	24	3.1	18 - 30
Rhode Island	21	4.9	11 - 31
S.Carolina	34	6.4	21 - 47
S. Dakota	13	1.9	9 - 17
Tennessee	34	6.0	22 - 46
Texas	24	3.6	17 - 31
Utah	21	2.9	15 - 27
Vermont	18	1.9	15 - 22
Virginia	21	2.9	15 - 27
Washington	20	3.5	13 - 27
W. Virginia	17	2.6	12 - 22
Wisconsin	15	1.5	12 - 18
Wyoming	23	1.9	19 - 27

Because they are based on samples of participants, the values in the tables are estimates of the true population means and should be considered in relation to their standard errors and corresponding confidence intervals. The 95 percent confidence intervals shown are the estimated mean plus or minus roughly two times the standard error of the mean.[6] Confidence intervals serve as indicators of the degree of reliability of estimates based on samples of a population. A 95 percent confidence interval means that the true value of the statistic being estimated will fall within that range in 95 out of 100 samples of the same size. Sixty-eight percent confidence intervals - the mean, plus or minus one standard error of the mean - are also widely used.

There is considerable variation in mean values from one state to the next even after deletion of extreme responses. In some cases there are substantial differences between adjoining states' mean values with no apparent relationship to widely held perceptions about the quality of the wildlife enjoyment opportunities they provide or other factors that can influence relative values. Standard errors of the means and confidence intervals can help in interpreting some of these apparent differences. For example, the 95 percent confidence intervals of the 22 dollar per day North Dakota mean and that of the 13 dollar mean in neighboring South Dakota overlap. Thus, the two are not statistically different at that level of significance. However, the difference in the means for Kentucky and Tennessee is statistically significant at the 95 percent level, so sampling error is not always an explanation for state to state variation in the estimates of value per day. Different sample sizes are one reason that some state confidence intervals are narrower than others. Sample sizes after deletion of outliers are given in Appendix II.

V. Concluding Comments.

Contingent valuation questions in the 1985 National Survey of Fishing, Hunting and Wildlife Associated Recreation have provided for the first time a nationwide data base for estimating net economic recreation values for nonconsumptive wildlife related activities, on a state by state basis.

The data and the values they produce are important because they measure net willingness to pay for such activities, the conceptually correct measure of net economic value for a wide range of analyses and project evaluations. Because they are available for individual states, the values allow for differences in recreation values in various parts of the country, although why these sometimes large differences occur from one state to the next is not always apparent. For many kinds of analysis, using values that reflect activities that took place in the state in question rather than some other state or a national or regional average gives the analysis a better and more convincing empirical base. However, differences between states are not always what they seem to be when comparisons are made in the proper statistical context as a result of the relatively large standard errors and confidence intervals. Many of the apparent differences are not statistically significant.

The most troubling aspect of this analysis was the need to delete a disturbingly high proportion of improper responses to the contingent valuation questions (no limit and zero or negative willingness to pay) and those that were deemed excessively large. The former are due largely to the fact that Bureau of the Census interviewers were instructed not to probe to determine if responses of less than zero or "no limit" could be avoided. They were to accept a respondent's answer even if, on closer analysis, it made no sense or was obviously not well thought-out. As a small part of a long questionnaire, the CV sections did not get the time and attention during the interview that were required nor were the interviewers as thoroughly trained on the purpose of the CV sections as they should be to spot inconsistencies before the interview was complete. Those problems may not be resolvable in the context of a large survey where the CV questions are a small part of the whole effort, and can command only a limited amount of interview time. Deleting outliers was a necessary step if the inordinate weight of very large willingness to pay responses was to be mitigated. Unfortunately, there is no way of doing so without imposing some degree of subjectivity in the determination of reasonable and acceptable response.

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6 More precisely, $X + t(SE)$ where t is from Student's t distribution and is determined by the size of the sample the estimate is based on. SE is the estimated standard error of the mean.

The estimates of economic value derived from the 1985 Survey CV data for nonconsumptive uses can be furthur evaluated in several ways. The national sample can be divided on a different geographical basis to produce net economic values by region of the country rather than state by state; New England or the North Central States, for example. That would have the advantage of narrower confidence intervals as a result of larger sample sizes. Possible relationships between individual respondents' willingness to pay and their sociodemographic characteristics can be investigated; is their a correlation between the value placed on nonconsumptive recreation and the education, income or age of the respondent, for example. Finally, the data can be used to determine if there are relationships between the mean net economic value for a state and the quality and quantity of its wildlife habitats, species diversity and other measures of the opportunities for nonconsumptive enjoyment of wildlife it provides. That may help to explain diffences in net economic value between states. These and other analyses of data in the 1985 Survey's nonconsumptive data file can furthur understanding of this important segment of wildlife associated recreation.

Appendix I

The following sequence of contingent valuation questions was asked after a series of questions about trips to observe, photograph or feed wildlife, and related expenditures.

Section I **TRIP INFORMATION — Continued**

Part B — ECONOMIC EVALUATION

INTERVIEWER: Refer to item 4a on page 4 and item 2d on page 3, sum the number of trips taken in 1985, and enter the total. → 237 _____ Trips

12a. **In total, you took** *(Number of trips taken)* **trips in the U.S. in1985 for the PRIMARY PURPOSE of observing, photographing, or feeding wildlife. Think about what it cost you for a *typical* or *representative* trip. Include your expenses for such things as gasoline and other transportation costs, food, lodging, equipment rentals, and film and developing if you typically photographed wildlife on such trips. If you went with family or friends, include ONLY YOUR SHARE of the costs.**

Keeping all those expenses in mind, how much did a typical one of those trips cost you, on average, in 1985?

238 $ _____ . 00 per trip

0 ☐ Nothing — *Skip to 12h*

b. **Now suppose the cost of those trips last year had been significantly higher, but the cost per trip for other kinds of recreational activities had not changed.**

If your costs had been $ *(3x the amount in a)* **per trip, would you still have taken trips for the primary purpose of observing, photographing, or feeding wildlife in 1985?**

239 1 ☐ Yes

2 ☐ No — *Skip to 12f*

c. **At $** *(3x the amount in a)* **per trip, how many trips would you have taken in 1985?**

240 _____ Trips

d. **If your trips had cost you an average of $** *(4x the amount in a)* **per trip, would you still have taken trips to observe, photograph, or feed wildlife in 1985? Remember, the cost per trip for other kinds of recreational activities would not have changed.**

241 1 ☐ Yes

2 ☐ No — *Skip to 12h*

e. **At $** *(4x the amount in a)* **per trip, how many trips would you have taken in 1985?**

242 _____ Trips — *Skip to 12h*

f. **If your trips had cost an average of $** *(2x the amount in a)* **per trip, would you still have taken trips to observe, photograph, or feed wildlife in 1985? Remember, the cost per trip for other kinds of recreational activities would not have changed.**

243 1 ☐ Yes

2 ☐ No — *Skip to 12h*

g. **At $** *(2x the amount in a)* **per trip, how many trips would you have taken in 1985?**

244 _____ Trips

h. **What is the most that your trips for the primary purpose of observing, photographing, or feeding wildlife could have cost per trip before you would not have gone at *all* in 1985, not even one trip, because it would have been too expensive? Remember, the cost per trip for other recreational activities would not have changed.**

245 $ _____ . 00 per trip

246 1 ☐ No limit — *Skip to 13*

Appendix II

Table A.1: Sample Size and Median Value Per Day.

State	Sample Size *	Median Value per Day (1985 dollars)
Alabama	86	8
Alaska	172	15
Arizona	83	20
Arkansas	84	8
California	74	15
Colorado	112	14
Connecticut	79	9
Delaware	83	8
Florida	107	10
Georgia	75	16
Hawaii	71	15
Idaho	98	11
Illinois	103	12
Indiana	97	12
Iowa	116	9
Kansas	72	9
Kentucky	89	9
Louisiana	95	8
Maine	138	7
Maryland	96	10
Massachusetts	105	10
Michigan	85	10
Minnesota	124	9
Mississippi	48	7
Missouri	91	8
Montana	218	10
Nebraska	112	7
Nevada	80	16
New Hampshire	77	11
New Jersey	89	11
New Mexico	91	8
New York	97	8
N. Carolina	62	10
N. Dakota	103	9
Ohio	81	10
Oklahoma	90	8
Oregon	161	10
Pennsylvania	112	9
Rhode Island	59	10
S. Carolina	68	15
S. Dakota	115	5
Tennessee	71	15
Texas	68	10
Utah	114	12
Vermont	104	9
Virginia	94	12
Washington	94	13
W. Virginia	81	10
Wisconsin	16	19
Wyoming	221	15

*Sample size after deletion of outliers. Median values of entire sample.

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