

Attitudes and Opinions of Persons Experiencing Property Damage and/or Injury by Black Bears in the Great Smoky Mountains National Park¹

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INTRODUCTION

As indicated by Stebler (1970), all North American bear species are powerful and dangerous. They are behaviorally little studied, and hence are dangerously 'unpredictable'. It is generally agreed, however, that of the two species which come in contact with man in our national parks, the grizzly bear, *Ursus arctos*, is more dangerous than the black bear, *Ursus americanus*. Statistics indicate that some kind of provocation by man induces a bear to attack. For the grizzly bear the provocations take the form of various human activities (Herrero 1970), whereas for the black bear personal injury or property damage are typically induced primarily by an attraction to human food. Although not nearly as temperamental as the grizzly bear nor as apt to cause serious injury or death, the black bear, because of its greater numbers in association with people in several national parks, accounts for the highest percentage of the injuries and property damage. For example, in the Great Smoky Mountains National Park (GSMNP) a total of 251 incidents involving black bears occurred during the period 1970-1973, for an average of 63 incidents per year. The number of incidents per park visitor during this period was one incident per 119,000 visitors. In addition, one personal injury resulted per 1,030,000 visitors. The estimated cost of property damage for the 1970-1973 period was \$10,634 or an average of \$2658 per year (National Park Service Records, 1974).

As a solution to the grizzly problem one author advocates extirpation from national parks (Moment 1970). We think most rational scientists and lay people would agree that such drastic measures are not necessary for the black bear (or, in our opinion, the grizzly either). Both Jonkel (1970) and Stokes (1970) emphasized the need to carry out further research on the behavior and ecology of both bears and people where the two interact. We would also emphasize that ultimately the solution to bear-human interactions lies with man and the alteration of his behavior and attitudes through education. One step toward solving the problem is to first determine the present attitudes and opinions of park visitors about bears (Burghardt *et al.* 1972). It would seem especially appropriate to also evaluate the attitudes of visitors who were actually involved in a bear incident. Sometimes these people have irrational and emotional thoughts about what should be done about bears in

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national parks at the time of the incident, in an attempt to vindicate themselves and 'solve their problems'. In retrospect, what are their feelings?

By surveying this group we felt we could be reaching a unique segment of park visitors. Management policies and procedures should not be based on nor tempered by the 'emotions of the moment'; guidelines should be rational, well-planned and carried out in a standardized fashion. A retrospective survey might reveal whether the bad experience of a visitor with bears has been educational and whether the attitudes and opinions of these persons represent an extreme viewpoint in regard to bear management in national parks.

METHODS

A total of 231 names of Park visitors experiencing property damage and/or personal injury between 1968 and 1973 were obtained from records in the GSMNP. A 35-item questionnaire was mailed to these persons. The questions consisted of demographic information, general information on the kind of use visitors made of the Park, attitudes toward bears and their place in the Park, and personal experiences with bears. Most of the questions were identical to those used by Burghardt *et al.* (1972). A cover letter was mailed with each questionnaire explaining the purpose of the study. A stamped return envelope was also enclosed.

RESULTS AND DISCUSSION

Of the 231 questionnaires mailed, 119, or 52 percent, were returned. Sixteen were personal injury responses and 103 were property damage responses. Forty (17 percent) questionnaires were returned by the postal service because of incorrect addresses. Seventy-two (31 percent) of the questionnaires were unaccounted for. Of the questionnaires presumably received by the addressee, 62 percent were returned. Since this is primarily a preliminary survey based on a small sample size, statistical hypotheses are not tested. Sufficient detail is given to allow such calculations by interested readers.

Demographic Characteristics of Respondents

In regard to age, 43 percent of the respondents were age 30 and under. From ages 31 to 50 there is a relatively even distribution, and then a decline in the number of respondents greater than age 50 (Table 1A). There was a greater percentage of male respondents (89 percent) than female respondents (12). However, the questionnaire stated that the head of the household should answer the questions, which thus accounts for this difference. The modal and median family size was four persons (Table 1B).

The greatest percentage category of respondents (24 percent) had completed secondary school of 12 years of education. Over 60 percent of the respondents had completed some education beyond secondary school, and 39 percent of the total number of respondents had completed four years of college or more (Table 1C). Thus, the education level is higher than that found for park visitors as a whole (Burghardt *et al.* 1972).

As mentioned by Burghardt *et al.* (1970), classification of respondents into occupational groups proved to be difficult. Instead of attempting to group

TABLE 1. DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS (percent)

A. Age								
<26	26-30	31-35	36-40	41-45	46-50	51-55	56-60	Unknown
21.0	21.8	10.1	10.1	10.9	9.2	7.6	4.2	2.4
B. Number in Family								
1	2	3	4	5	6	7	8	Unknown
12.6	16.0	16.8	24.4	15.1	6.7	2.5	3.5	2.4
C. Highest Year of Education Completed								
<5	6-8	9-11	12	13-15	16	17-18	>18	Unknown
0.8	2.5	7.6	24.4	21.8	18.5	14.3	5.9	4.2
D. Occupation								
Military	Unskilled	Low level white collar	Skilled	Housewife	Student			
3.4	4.2	9.2	28.6	3.4	9.2			
Teacher (Sub-college)	High level white collar, executive	Professional	Retired	Unknown				
5.9	12.6	9.2	2.5	11.8				
E. Population of Area of Residence								
<1,000	1,001- 5,000	5,001- 20,000	20,001- 50,000	50,001- 100,000	100,001- 500,000			
4.2	10.1	16.8	19.3	10.9	20.2			
500,000- 1,000,000	>1,000,000	Unknown						
5.0	8.4	5.0						

certain responses with only limited information, these were classified as unknown (Table 1D).

Rural areas or communities of less than 1000 persons accounted for only 4 percent of the respondents' home communities. Home communities of over 500,000 persons were given by 13 percent of the respondents (Table 1E).

Fifty-seven percent of respondents came from communities of less than 100,000 population. These persons may have a greater opportunity for association with wildlife but likewise may know only enough to make them reckless.

Results of the demographic information do not exhibit many differences from the results of the visitor survey conducted by Burghardt *et al.* (1972). Where differences do exist, they can likely be explained by the approaches used in surveying (e.g. face to face interview versus a mail survey). For instance the 'typical' respondent in this survey was male, less than 30 years old, and a college graduate. The high proportion of male responses (89%) was explained earlier, however; the relatively younger age (43% vs. 26% less than 30 years old) and higher education level (39% vs. 22% completed four years of college) of our respondents, as compared to Burghardt's, may be reflecting a greater interest in and understanding of our survey on the part of the college-educated group. Of the 31 percent of the questionnaires that were unaccounted for, the proportions of respondents who never received the questionnaire or who simply do not respond to mail surveys or who had such an unfortunate experience with bears they refused to answer, will remain unknown. Of major concern to us is the third of the groups just mentioned. However, they may actually be over-represented in that the questionnaire gives them the opportunity to vent their opinions and frustrations.

Of the 16 injury respondents, 12 were injured along the main trans-mountain road through the Park. The other four were in sleeping bags camped outside trail shelters on the Appalachian Trail. Attitudes of the injury group did not differ from the property damage group.

General Information on Park Use by the Respondent

Ten categories were listed in the questionnaire regarding the main reasons visitors came to the Park. The majority came to camp and sightsee, but 42 and 24 percent, respectively, states that one of their main purposes was to observe animals and bears (Table 2).

Sixty percent of the respondents stated that they spent more than ten days/year camping. At the time of their bear incident 84 percent of the respondents were staying overnight in the Park. Tents were utilized by 50 percent of all respondents, while 13 percent used some type of tent camper. Most persons (93 percent) had food with them while in the Park, and 54 percent of these people stored food inside a vehicle other than a tent camper. Over 14 percent of the respondents stated that they stored food in a tent or some kind of camping vehicle (Table 3). Most of the respondents (53%) camped in tents or under less cover and in large campgrounds amidst mobile campers and tent campers.

Over two-thirds of the respondents (68%) stated that they received information concerning possible problems with bears (Table 4A) and almost 38 percent attended Park naturalists' talks, which is one way such information is disseminated (Table 4B). In addition, almost three-quarters of the subjects said that they had visited the Sugarlands Visitor Center, where information concerning bears is readily available (Table 4C). From specific write-ups of incidents, however, it was obvious that most bear victims did not listen, read or heed recommendations, or else misunderstood the material that was provided. Perhaps information to visitors about bears should be more specific and better illustrated.

Numerous respondents stored their food inside their vehicle (54%). However some left windows partly down, exposed food, did not utilize trunk space, or drove a station wagon without trunk space. Also, the mixture of mobile campers and tent campers in similar areas may increase the chances of damage to tent campers because of less precautions taken by mobile campers in regard

TABLE 2. PURPOSES IN VISITING THE PARK (percent)

Camp	Hike	Sightsee	Observe Animals	Fish	Rest, relax	Observe bears	Picnic	Passing through	Other
89.1	65.6	74.8	42.0	18.5	67.3	24.4	22.7	8.4	9.2

TABLE 3. CAMPING EXPERIENCE (percent)

A Days/year Spent Camping									
0	2	3	4	5	6	7	10	>10	Unknown
3.4	1.7	1.7	2.5	4.2	2.5	3.4	10.1	59.7	10.1
B. Stay Overnight in the Park?									
Yes	No								
84.0	15.1								
C. Type of Shelter Used									
Tent	Tent camper	Trailer	Trail shelter	Sleeping bag	Makeshift	Mobile camper	Unknown		
50.4	12.6	7.6	7.6	0.8	1.7	5.9	9.3		
D. Where Food was Stored									
Inside vehicle	Inside tent or camper	In special storage area	In a trail shelter	Other	Unknown				
53.8	14.3	3.4	6.7	20.2	1.7				

TABLE 4. USE OF PARK INFORMATION BY VISITORS (percent)

A. Receive Information Concerning Possible Problems with Bears ?			
Yes	No	Unknown	
68.1	30.3	3.4	
B. Attendance at Park Naturalist Talks ?			
Yes	No	Unknown	
37.8	60.5	1.7	
C. Visit the Sugarlands Visitor Center ?			
Yes	No	Unknown	
72.3	26.1	1.7	

to cooking and the presence of better storage facilities for their food. Although car trunks offer good storage for car campers and stringing food on a rope between trees high off the ground is usually good practice for back-country campers, examples of bears getting at both were presented by respondents. A bold, persistent bear can be a formidable opponent to an inexperienced or unwary visitor. Also, many visitors underestimate the abilities of a bear. Concentrations of large numbers of people in relatively confined areas will continue to attract bears and create problems unless food and food refuse is handled properly. Recent attempts at dispersing backpackers from the Appalachian Trail has resulted in establishment of some 100 primitive campsites in the Park. With backpacker use of the Park increasing to over 80,000 in 1973, increased use of some primitive sites may result in increased numbers of incidents at these locations in the future.

Although a higher percentage of visitors indicated they came to camp and sightsee than to observe animals or bears, we wonder how significant a role the presence of a free-roaming bear population plays as a subconscious attractant to visitors. Certainly commercial interests outside the Park have taken advantage of the traditional 'Smoky Mountain Bear' cliché and symbolisms are in evidence everywhere: billboards, motel and restaurant names, wood carvings, statues, ceramics, paintings, etc. The black bear is present and used in sundry forms and formats by private enterprise outside the Park.

The fact that 93 percent of the respondents had food with them helps substantiate the fact that incidents with black bears are usually food-related. The 8 percent who indicated they had no food may have been victims of the bears' keen ability to associate certain food-type containers with food, whether they were empty or not. In the case of injury, they may have been innocent bystanders among a group of visitors feeding a bear. Also, some of the respondents may have been trying to give us answers they thought we wanted to have; this is particularly true for questions related to food, where food was stored, etc.

It is apparent from the answers to questions on Park information that most respondents came in contact with the precautionary information being disseminated by the Park about bears. But observations of roadside bears indicate that the urge of visitors to feed bears is very strong, almost appearing

instinctive. However, the anthropomorphic appearance of bears along with exposure from childhood to teddy bears, Gentle Ben, Goldilocks, Smoky Bear, Yogi Bear and pandas likely counters the information and warnings regarding the strength and wildness of bears, especially in relation to bear feeding and food exposure. This means that the educational process must go much deeper than the NPS is responsible for or presently capable of handling; the NPS alone cannot be expected to completely reorient a visitor's thinking during his brief stay in the Park.

Knowledge and Attitudes Concerning Bears

It is interesting to note that a higher percentage of the respondents in this survey (93%) than in the survey by Burghardt *et al.* (1972) (77%) felt that black bears would not make good pets. Perhaps this is an indication that the respondent's incident was truly a learning experience and that the possibly preconceived concept that bears are friendly, gentle or harmless was altered.

Table 5 summarizes three questions asked during both surveys. In regard to what bear behavior is considered to be troublesome, the responses are dif-

TABLE 5. RESPONSES TO QUESTIONS REGARDING BLACK BEARS BY PARK VISITORS INTERVIEWED ORALLY (BURGHARDT *et al.* 1972) AND VISITORS RECEIVING PROPERTY DAMAGE OF INJURY INTERVIEWED BY MAIL, 1973.

Question	Percent responding	
	Systematic visitor Interview (500 responses)	Injury-Property Damage Interview (119 responses)
What bear behavior is troublesome:		
Just being around	3.8	8.2
Coming too close	23.6	29.4
Taking food from where stored	17.6	56.5
Blocking traffic	2.2	9.4
Raiding garbage cans	3.8	22.4
Other _____	58.6	29.5
What to do with troublesome bears:		
Remove to other areas of Park	51.2	60.5
Zoo or cage	19.0	2.5
Do nothing	7.6	5.9
Destroy	15.8	4.2
Remove to outside Park	6.0	17.6
Special feeding areas	0.8	19.4
Other _____	7.0	16.8
Rules concerning visitors and bears:		
Left as are	66.4	30.6
Left to visitor	3.6	3.5
More strictly enforced	26.0	63.9
Other _____	3.0	4.7

ferent in only two major categories. A much higher percentage of our respondents felt that bears taking food from where it was stored and raiding garbage cans (57 and 22% respectively) was troublesome in contrast to the responses to the survey by Burghardt *et al.* (1972) (18 and 4% respectively). This contrasting response probably reflects the altered attitudes of those actually involved in an incident over food.

In regard to what to do with troublesome bears, a majority of both groups agreed that they should be removed to other areas in the Park. However, it is interesting to note that a higher percentage of the respondents to the survey by Burghardt *et al.* (1972) favored destruction or removal to a zoo or cage versus a higher percentage of our respondents favoring removal to areas outside the Park or creation of special feeding areas. In choosing to leave the bears in a wild, free-roaming situation rather than destroying or putting in a cage, one could possibly infer that our respondents' incidents with bears may be reflecting their realization that what they are dealing with is truly a wild animal not necessarily responsible for its actions toward man. Recent exposure to a number of wildlife trapping and removal operations on television may have also influenced the respondents' replies to this question.

In regard to attitudes about rules concerning visitors and bears, there is an interesting inverse relationship. On the one hand 66 percent of the respondents to the survey by Burghardt *et al.* (1972) felt that Park rules about bears should be left as they are versus 31 percent in our survey; only 26 percent of the respondents to the survey by Burghardt felt rules should be more strictly enforced whereas 64 percent of our respondents felt this way. Again, this likely reflects the relatively recent experience of the respondent with bears and the realization that rules regarding them serve a purpose. Moment (1970) felt that the NPS was not strict enough in enforcing regulations about grizzly bears and LaFollette (1974) points out the same problem with black bears in the GSMNP. It appears that those involved in an incident also agree. However, in an area like the GSMNP, how can a very limited professional staff of rangers efficiently handle over 7 million visitors a year when bear problems are only a very small part of the overall responsibilities? Again, the ultimate answer is public education.

Suggestions offered by respondents to solve bear problems were varied. Some included:

1. 'Enforce No Feeding Rules'
2. 'Fence in campgrounds'
3. 'Nothing'
4. 'Provide special feeding areas'
5. 'Provide some kind of insurance to cover damage'
6. 'Stiffer penalties for visitors caught feeding bears'
7. 'Require campers to use air-tight food containers'
8. 'Hang bags of moth balls around as a deterrent'
9. 'Better coverage of campgrounds by rangers'
10. 'Mandatory lecture prior to issuing a camping permit'
11. 'Don't eat after dark'
12. 'Get rid of the bears'

13. 'Keep people from treating bears as a plaything'
14. 'Remove constant offenders (bears) from park'
15. 'Close down the campgrounds for one year and hope the bears forget garbage cans and people as a source of food'
16. 'Provide food storage areas'
17. 'Make it harder for bears and humans to make contact; if someone really wants to see a bear let them go look for one'

Many of these suggestions are either presently unworkable, (e.g. 7, 9, 10, 16), ineffective (e.g. 8, 11), or contrary to the purpose of National Parks (e.g. 2, 4, 12, 15). Some, of course, may be good ideas but are not original (e.g. 1, 6, 10, 13, 14, 17).

Many of the answers were unclear as to who was at fault in the incident with bears. Therefore, we categorized the respondents as being at fault *only* when they themselves stated clearly they were guilty. Even with this very conservative approach, 42 percent of the respondents fully and openly admitted they were at fault in regard to their incident with a bear. Considering the respondents' rather recent bad experience with bears, it was desirable to know if these people felt that bears posed a serious problem to Park visitors. A majority (64%) felt that black bears did not pose a serious problem, whereas 31 percent felt they did pose a problem. However, when asked whether bears should be allowed in the Park, only one person felt that they should not. In fact, many of the respondents 'reacted' to this question and regarded it as ridiculous, explaining why they felt the bear had as much right to be there as visitors. Bears were mentioned by only 7 percent of the respondents when asked what they like least about the GSMNP; most (27%) listed crowded conditions as being what they liked least. In addition, 91 percent of the respondents stated that they had already returned or planned to return to the Park in the near future.

It seems appropriate to close with a summary of some of the comments of the respondents:

'It is the most beautiful place I know and I always feel physically and spiritually renewed. It belongs to the bears and we are the intruders.'

Injured respondent—'This is their home. If people would read signs and believe them, they would not get hurt.'

'It would be a terrible thing to diminish the population of the black bears in parks due to the ignorance of man.'

'The troublesome bears are no one's fault but the campers.'

'The danger of bears becomes a threat only through ignorance or foolishness of Park visitors.'

'Tourist attitude toward bears often reflects over-exposure to Walt Disney.'

'They were there first; we are the intruders.'

'Some people have never seen a live bear in their natural surroundings.'

'It is a people problem rather than a bear problem.'

'Black bears are not a problem by themselves; people make them a problem.'

'I think it (the Park) is the most beautiful and most unique area in the East. I presume it is the only part where we can see bears. I know bears are unpredictable. They can appear tame and playful yet are capable of anything; they are deceptively quick and awesomely strong.'

'Of course they should be allowed in the Park—they live there!'

'People cause most of the problems with bears by not respecting their rights.'

'Man is the intruder, as usual.'

Injured respondent—'I don't think it would be right to punish a bear for being curious.'

'It is his (bear's) home too!'

Injured respondent—'The bear could hardly be blamed for using his instincts.'

'Their privacy should be respected as well as left alone.'

'We feel that the bears are an essential part of the pleasure of the mountains. Where else can we observe nature without bars and cages?'

'It just wouldn't have been the same without them. Leave them alone.'

'Inconsiderate, troublesome and disrespectful tourists are the main problem.'

'We must be cognizant of the fact that we are invading their territory and are subject to their rules.'

'The Smokies have much to offer to individuals like myself and that includes BEARS!'

'Leave them alone. That's the beauty of the wilderness.'

'I would rather forfeit a meal or two than have the bears removed from the Park.'

'The damage we sustained was slight and well deserved.'

'I came to the Smokies to see them and I enjoy every one I see.'

'We do not want to see the bears taken out of the Parks. We enjoy them.'
'They are part of what the Park was established to preserve!'

'Because little children are raised with the thought that bears are cuddly, when they encounter the real thing, they and unthinking parents don't give them the respect due a wild animal. People often don't realize that this huge, strong animal doesn't have the ability to reason.'

Injured respondent—'People have to remember they are wild animals and not house pets.'

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