

## Urban West Virginia Deer Damage Assessment

December 2002

Deer damage presents a significant cost to property owners in urban areas of West Virginia. On a statewide basis, the deer-caused damage in urban areas totaled an estimated \$3,135,945. This would amount to \$61.95 per urban household if every household shared equally in the costs. The estimates include plant damage, control costs, and vehicle damage reported in a survey conducted by WVU Extension agents.

### Methodology

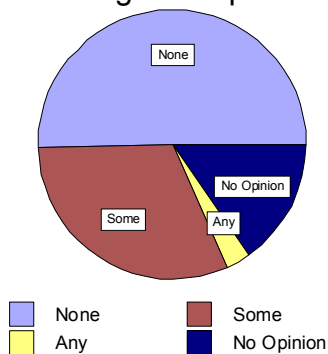
The survey was created by Leanne Moorman, Hancock County Extension agent, with the assistance of William Grafton, WVU Extension specialist-wildlife, and Ed Collins, associate director of the Center for Agricultural and Natural Resources Development at WVU. Funding was provided by the West Virginia University Integrated Pest Management Program.

Extension agents mailed the survey to a total of 2,023 (4 percent of the housing units) randomly-selected addresses in Charleston, Hurricane, Morgantown, Parkersburg, and Weirton during May 2001. Return-address, stamped envelopes were included. The 829 completed survey responses represented a 41 percent return rate.

### Major Findings

The estimated total deer damage cost to the property owners in West Virginia urban areas was \$3,135,945 in 2000. This would amount to \$61.95 for every household in the cities if the cost of deer damage was shared by all. This includes plant damage, control costs, and vehicle damage.

#### Damage Acceptable



Thirty-six percent of the property owners thought that the deer population in their urban area should be decreased. Thirty-six percent thought that it should stay the same, and 6 percent thought it should be increased.

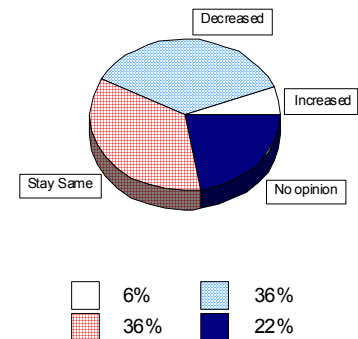
Fifty-four percent saw deer on their property in 2000.

Thirty percent of property owners reported experiencing damage that they attribute to deer. Sixty-nine percent reported no deer damage. Since the deer damage cost was only paid for by 35 percent (7,153) of the property owners, the actual average cost was \$438.41.

According to the survey, 50 percent of property owners felt that deer damage is not acceptable on their property. Thirty-one percent were willing to deal with some deer damage, and 3 percent were willing to deal with any amount of deer damage.

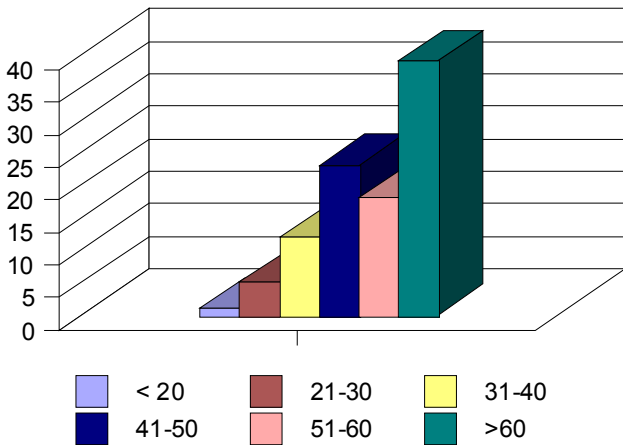
The ages of respondents are similar to the most current census figures for West Virginia.

### Deer Population Size



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## Age of Respondents



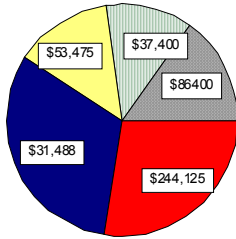
## Specific Results

| City                     | Households according to 1990 Census | 4% random selected addresses | Returned surveys | % Return   |
|--------------------------|-------------------------------------|------------------------------|------------------|------------|
| Charleston               | 15,080                              | 603                          | 147              | 24%        |
| Hurricane                | 1,771                               | 70                           | 43               | 61%        |
| Morgantown               | 9,551                               | 382                          | 162              | 42%        |
| Parkersburg              | 14,579                              | 583                          | 177              | 30%        |
| Weirton                  | 9,642                               | 385                          | 300              | 78%        |
| <b>W.Va. Urban Areas</b> | <b>50,623</b>                       | <b>2,023</b>                 | <b>829</b>       | <b>41%</b> |

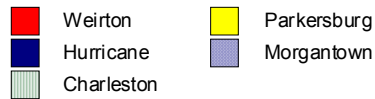
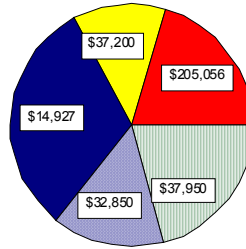
- 97% of the respondents lived on the property that they provided information about.
- 54% have seen deer on their property during 2000; 45% have not.
- 4% have hit a deer with their automobile; the average cost of that damage was \$1,723. At that rate, the estimated total for damage to vehicles in West Virginia urban areas is \$1,507,625.
- More than 34% of the respondents thought that the deer population in their city should be decreased. Only 6% thought that it should be increased, and 36% thought it should stay the same.
- 35% of the respondents are or were hunters, but 65% never have hunted.
- 90% do not object to hunting.
- 18% either are farmers or were farmers; 81% are not nor were never farmers.
- 53% of the respondents are male; 45% are female.
- 30% of these property owners have experienced damage that they attribute to deer; 69% reported no deer damage.
- 50% of the property owners feel that deer damage is not acceptable on their property, but 31% are willing to deal with some deer damage.

## Damage as Reported in the Survey

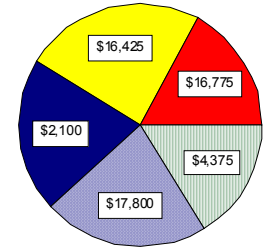
### Shrub Damage



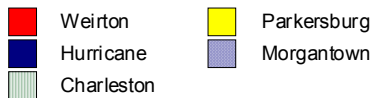
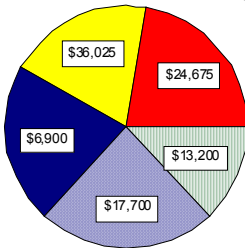
### Vegetable Garden Damage



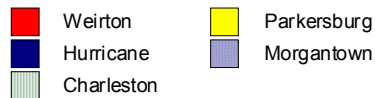
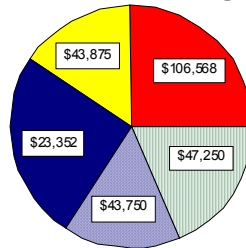
### Small Fruit Damage



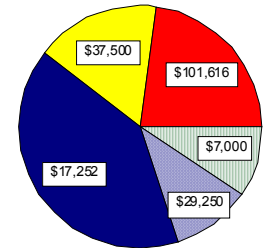
### Fruit Tree Damage



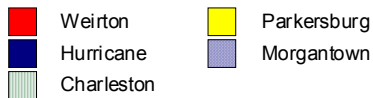
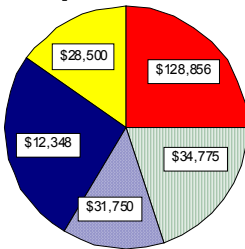
### Flower Damage



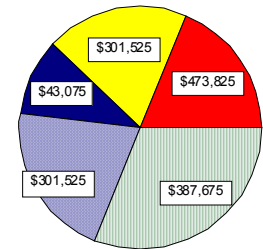
### Lawn Damage



### Landscape Tree Damage



### Automobile Damage



## Controls Used

| Control           | % Used | % Successful | % Not Successful |
|-------------------|--------|--------------|------------------|
| Repellent         | 5%     | 19%          | 81%              |
| Fencing           | 7%     | 48%          | 52%              |
| Shooting          | 1%     | 67%          | 33%              |
| Scaring materials | 4%     | 22%          | 78%              |
| Dog               | 4%     | 41%          | 59%              |

Thirteen percent of the households have tried some type of control, with fencing being the one most used. Most controls used (repellent, fencing, shooting, scaring materials, dogs, and other) were not successful.

## Total Cost Results

| <b>Plant material damage, including controls</b> | <b>Cost of damage reported in survey</b> | <b>Average cost to property owner</b> | <b>Estimated cost to property owners in W.Va. urban areas</b> |
|--|--|---------------------------------------|---|
| Shrubs   | \$18,135.00                              | \$117.40                              | \$453,492.00  |
| Vegetable gardens                                | \$12,995.00                              | \$115.80                              | \$324,990.00  |
| Small fruits                                     | \$2,310.00                               | \$66.10                               | \$57,750.00   |
| Tree fruits                                      | \$3,922.00                               | \$74.90                               | \$98,050.00   |
| Flower beds                                      | \$10,458.00                              | \$63.90                               | \$261,513.00  |
| Lawns  | \$7,725.00                               | \$103.10                              | \$193,125.00  |
| Landscaping trees                                | \$9,576.00                               | \$133.70                              | \$239,400.00  |
| <b>Total Home Property Damage</b>                | \$65,121.00                              |                                       | \$1,628,320.00  |
| Damage to vehicles                               | \$60,305.00                              | \$1,723.00                            | \$1,507,625.00  |
| <b>Total Damage</b>                              | \$125,426.00                             |                                       | \$3,135,945.00  |

## Conclusions

Deer caused more than \$3 million worth of damage in the urban areas of West Virginia in 2000, according to property owners. Shrubs and vegetable gardens had \$31,130 worth of damage, nearly half (48 percent) of the total home property damage. Flower beds were next in damage cost to the urban household. Very little success has occurred in trying to control the damage caused by deer. Fencing has been the control measure used by the largest percent of households.

Some general implications of the survey are:

1. Deer damage is not acceptable by 50 percent of the property owners.
2. Shrubs and vegetable gardens have been the two leading areas of damage.
3. Population numbers cannot be agreed to by the property owners because 36 percent say decrease the population and 36 percent say the current population level is okay.

**From these general implications, one could conclude that the deer are doing damage to urban properties. The property owners are not sure what population of deer should exist, but they do not want deer damage. Property owners have tried to keep the deer from damaging their property, but their methods are not working.**

## Future Research

1. What are the best ways to prevent deer from damaging homeowners' plants?
2. How do urban residents feel about using deer management techniques like urban hunting and population thinning; should the Division of Natural Resources pay for deer damage, what is an acceptable population level, etc.
3. What is the cost of deer damage to the agriculture, fruit production, and forestry industries?

## WVU Extension Faculty Involved

Leanne Moorman, Hancock County and WVU Assistant Professor  
Wayne Bennett, Putnam County and WVU Associate Professor  
H.R. Scott, Wood County and WVU Assistant Professor  
Beth Massey, Monongalia County and WVU Extension Instructor  
Charles "Bud" Cottrill, Kanawha County  
William Grafton, Extension Specialist and WVU Associate Professor  
Mary Beth Bennett, Berkeley County and WVU Associate Professor  
Ed Collins, Retired Associate Director, ANRD Center  
Rakesh Chandran, Extension Specialist and WVU Clinical Assistant Professor