CATEGORIZATION AND SEASONAL PERIODICITY OF TERRESTRIAL VERTEBRATE PEST CONTROL INQUIRIES IN VIRGINIA

by
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ABSTRACT

Information requests for species-specific preventive and control measures directed to the state's extension wildlife specialist were recorded by species or species group, month, day, and year, and by type of human group inquiring. Skunks (15.5%), snakes (14.7%), and bats (10.9%) were inquired about most often. Homeowners (67.4%) were the most frequent inquirers. Summer (43.5%) and spring (29.0%) were the seasons when most information requests occurred. Woodpeckers (16.0%) were the most frequently reported species in the spring. In the summer, the most frequently requested information was about bats (20.2%). Snakes (29.7%) were the most frequently reported species in the fall. Over winter, rats (25.0%) were the species most frequently inquired about.

Preliminary trends were observed, but because of the descriptive nature of this study, statistical significance was not considered. However, documentation of animal damage inquiries could provide important insights into the status of the state- or region-wide animal damage control problem.

INTRODUCTION

Information on the types and seasonal occurrence of animal damage control problems has not been previously collected and summarized for Virginia. This information may allow for a more efficient public education effort in animal damage control extension work by identifying the most problematic species. Also, this information could allow state agencies and private pest control operators to better plan and purchase materials necessary to combat the prevalent nuisance species on a seasonal level. In addition, criteria to evaluate the effectiveness of animal damage control extension publications could be developed by using the frequency of information requests about a particular nuisance species before and after dissemination of the species-specific publication.

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The objectives of this investigation were (1) to describe the frequency of information requests concerning animal damage control by species or species group, season, and human groups (homeowners vs. municipalities, etc.) and (2) to investigate the efficacy of using inquiries as an index to animal damage control problems in the Commonwealth of Virginia.

METHODS

Over the period of June, 1982, to September, 1987, 524 telephone inquiries concerning animal damage control problems were recorded by Dr. Peter T. Bromley, Extension Wildlife Specialist, in Blacksburg, Virginia. Data obtained from each inquiry included the wildlife species or species group, the month, day, and year, and the type of human group calling. Seventeen wildlife species or species groups (having at least 5 observations) were encoded for analysis and included the following categories: bats (Vespertilionidae), blackbird group (crows [Corvus spp.], blackbirds [Agelaius spp. and Euphagus spp.], starlings [Sturnus vulgaris], grackles [Quiscalus spp.]), beavers (Castor canadensis), coyotes (Canis latrans), mice (Cricetidae and Muridae), moles (Talpidae), pigeons (Columba livia), rabbits (Sylvilagus spp.), raccoons (Procyon lotor), rats (Cricetidae and Muridae), skunks (Mephitis mephitis), snakes (poisonous [Viperidae] and nonpoisonous [Colubridae]), squirrels (Sciuridae), voles (Microtus spp.), woodchucks (Marmota monax), woodpeckers (Picidae), and white-tailed deer (Odocoileus virginianus). Six human groups were encoded for analysis and included the following types: homeowners, commercial industries (private businesses), municipalities (town, city, or university organizations/offices), agriculture-animal (livestock and poultry producers), agriculture-plant (nurseries, tree farms, orchard growers, crop farmers), and apartment complexes. Seasons were defined as follows: spring (March 1- May 31), summer (June 1-August 31), fall (September1-November 30), and winter (December1-February 29). All results were reported on a percent frequency basis.

RESULTS

The 10 most frequently reported species (in descending order) were skunks, snakes, bats, squirrels, woodpeckers, rats, woodchucks, white-tailed deer, moles, and the blackbird group (Table 1). These species and species groups collectively constituted 83.0% of all inquiries. Other species or species groups contributing to the remaining 17.0% included voles, pigeons, mice, beavers, coyotes, rabbits, and raccoons.

By far the most frequent human group inquiring about animal nuisance and damage control were homeowners (Table 2). The second most frequent inquirers were municipalities (11.8%). Agricultural producers, commercial industries, and apartment complexes made up the balance with 20.8%. However, county extension agents actually were the most frequent inquirers. Most of their calls to the Commonwealth's Extension Wildlife Specialist involved an inquiry by another human group. And thus, we were able to translate most of the county extension agent inquiries into an inquiry by another human group.

At the seasonal level, the greatest percentage (43.5%) of animal damage control inquiries occurred in the summer. A substantial decline in the percentage of animal

Table 1. The % frequency of telephone inquiries about wildlife species or species groups cited in nuisance or damage situations.

Species/Species Group	% Frequency
1. Skunks	15.5
2. Snakes	14.7
3. Bats	10.9
4. Squirrels	7.4
5. Woodpeckers	6.8
6. Rats	6.4
7. Moles	5.5
8. White-tailed Deer	5.5
9. Woodchucks	5.5
10. Blackbird Group	4.8
11. Voles	4.4
12. Pigeons	3.9
13. Mice	3.3
14. Beavers	1.5
15. Coyotes	1.3
16. Rabbits	1.3
17. Raccoons	1.3

Table 2. The % frequency of telephone inquiries by human group for all wildlife species in nuisance or damage situations.

Human Group	% Frequency
1. Homeowners	67.4
2. Municipalities	11.8
3. Agricultural-animal	7.3
4. Agricultural-plant	7.3
5. Commercial Industries	4.0
6. Apartments	2.2

damage control inquiries occurred during fall (15.1%) and winter (12.4%). A large increase in the percentage of inquires was documented during spring (29.0%).

The most frequently reported species or species groups reported during spring (in descending order) were woodpeckers (16.0%), voles (8.8%), skunks (8.0%), and snakes (8.0%) (Table 3). In summer, the most frequently reported species were bats (20.2%), skunks (19.7%), snakes (16.2%), and woodchucks (10.1%). During fall, snakes (29.6%), skunks (14.8%), the blackbird group (9.4%), squirrels (8.1%), and pigeons (8.1%) were the most frequently reported species or species groups. Over winter, information requests most frequently involved rats (25.0%), skunks (18.3%), and squirrels (18.3%).

The species most frequently inquired about by livestock and poultry producers were rats (35.3%), bats (17.6%), and coyotes (17.6%) (Table 4). Among crop farmers, tree farmers, and nursery stock growers, the most frequently reported species were voles (30.0%), white-tailed deer (26.7%), the blackbird group (16.7%), and mice (13.3%). Apartment complexes most frequently inquired about skunks (37.5%) and snakes (25.0%). Information about snakes (42.9%), skunks (28.6%), and pigeons (21.4%) were most frequently requested by commercial industries. Among homeowners, the species most frequently inquired about were skunks (19.4%), snakes (18.6%), bats (11.7%), and squirrels (10.9%). Municipalities most frequently requested information about pigeons (21.9%), skunks (19.5%), and the blackbird group (12.2%).

Table 3. The % frequency of telephone inquiries of each wildlife species or species groups cited in nuisance or damage situations within each season.

Species/Species Group	% Frequency			
	Spring	Summer	Fall	Winter
1. Skunks	8.0	19.7	14.8	18.3
2. Snakes	8.0	16.2	29.6	5.0
3. Bats	7.2	20.2	1.4	NI[4]
4. Squirrels	6.4	4.6	8.1	18.3
5. Woodpeckers	16.0	2.5	4.1	5.0
6. Rats	7.2	1.5	2.7	25.0
7. Moles	6.4	5.6	4.1	5.0
8. White-tailed Deer	7.2	5.1	6.8	1.7
9. Woodchucks	3.2	10.1	1.4	NI
10. Blackbird Group	4.0	4.0	9.4	3.3
11. Voles	8.8	2.5	2.7	3.3
12. Pigeons	7.2	0.5	8.1	3.3
13. Mice	4.0	2.5	2.7	5.0
14. Beavers	1.6	0.5	1.4	5.0
15. Coyotes	1.6	1.0	1.4	1.7
16. Rabbits	2.4	1.5	NI	NI
17. Raccoons	0.8	2.0	1.4	NI

4/ No Inquiries

Table 4. The % frequency of telephone inquiries about each wildlife species or species group cited in nuisance or damage situations by human group.

Species/Species Group	% Frequency					
	AGAN[5]	AGPL[6]	APT[7]	CB[8]	HOME[9]	MUN[10]
1. Skunks	NI[11]	NI	37.5	28.6	19.4	19.5
2. Snakes	5.9	NI	25.0	42.9	18.6	9.8
3. Bats	17.6	NI	12.5	7.1	11.7	9.8
4. Squirrels	NI	3.3	NI	NI	10.9	NI
5. Woodpeckers	NI	NI	NI	NI	9.3	2.4
6. Rats	35.3	NI	12.5	NI	4.8	4.9
7. Moles	NI	3.3	NI	NI	6.5	4.9
8. White-tailed Deer	NI	26.7	NI	NI	2.8	7.3
9. Woodchucks	5.9	6.7	NI	NI	5.2	4.9
10. Blackbird Group	5.9	16.7	12.5	NI	2.0	12.2
11. Voles	NI	30.0	NI	NI	2.0	NI
12. Pigeons	NI	NI	NI	21.4	NI	21.9
13. Mice	5.9	13.3	NI	NI	2.4	2.4
14. Beavers	NI	NI	NI	NI	1.2	NI
15. Coyotes	17.6	NI	NI	NI	NI	NI
16. Rabbits	NI	NI	NI	NI	1.6	NI
17. Raccoons	5.9	NI	NI	NI	1.6	NI

5/ Agriculture-Animal
6/ Agriculture-Plant
7/ Apartment Complexes
8/ Commercial Industries
9/ Homeowners
10/ Municipalities
11/ No Inquiries

DISCUSSION AND CONCLUSIONS

Although this report is not statistically based, several relationships appear to be important. Seasonal periodicity does appear to be significant for several of the most common nuisance species, most notably snakes, bats, and rats. This trend should help state fish and wildlife agencies, extension agents, and private pest control operators to better allocate personnel and equipment plus provide guidance in the timing of extension publications and marketing efforts. Similarly, human group and species seem to be related. Realizing this relationship, extension information can be targeted for specific segments of the public to address problems that are most often encountered with wildlife species. Judging from the inquiries received, homeowners are by far the biggest segment of the public experiencing animal damage control problems. This is probably due to the much larger total size of that type of human group in the state. Again, animal damage control professionals can use this information to target their public information efforts to homeowners. For instance, based on this data, a publication on rat control would be most helpful to livestock and poultry producers and apartment complex managers rather than homeowners or other groups.

Several changes in the survey design could help to make this method more useful. Maintaining a phone log of animal damage control inquiries can provide extremely useful information if the inquiries are recorded in a standardized format. Recording the date, species of animal concerned, name and town of the person making the inquiry, and the type of problem involved would make the task of analyzing trends in animal damage control problems much easier and more statistically sound. Also, a wider range of data collectors (i.e. extension agents) would give a more representative picture of the animal damage control situation in the Commonwealth and regions within the Commonwealth.

This method could be a very important planning and evaluation tool for animal damage control professionals. Collecting the recommended data would minimally allow for analysis of trends by species, season or month, year, and human group. Public information efforts could be better planned and evaluated by testing before and after frequency of inquiries for the subject matter involved. A commitment to periodic, quantitative descriptions of the animal damage control problems in a state should make efforts to address these problems more efficient at a time when budgetary constraints demand the most efficient programs possible.