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Survey Report

Nuisance Nature on New Brunswick Farms



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DISCLAIMER: This summary is part of a larger project examining both Nova Scotia and New Brunswick. This work was funded by the Nova Scotia Department of Natural Resources, and Agriculture and Agri-Food Canada, and in collaboration with the Agricultural Alliance of New Brunswick, but the opinions expressed herein are not necessarily consistent with those organizations.

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Executive Summary

This report describes the results of a bilingual randomized survey of New Brunswick farmers in April-July, 2014, with a response rate of 11%. The survey part of a larger inter-provincial survey in both Nova Scotia and New Brunswick, and was titled *Nuisance Nature*. Respondent farmers were asked to:

- identify plants and animals they would consider a nuisance
- to describe the nature and extent of the nuisance
- to describe how they deal with it
- whether they experience any benefits from the species; and
- whether – on balance – they would rather have the species or not

Respondents were broadly representative of farmers in New Brunswick. The most commonly mentioned nuisance species were coyote, deer, bear, and racoon, in that order, all of which were nominated by more than 30% of farmers. Generally, respondents were quite negative toward all the species they listed. This is of no surprise, as they were asked to identify *nuisance* species. There were some notable differences, however, between certain species, particularly deer and racoon.

Perceived financial loss as a result of nuisance wildlife seemed to be a common issue for the farmers in this sample. Crop damage was the most frequently identified type of nuisance, whereas identification of a perceived threat to personal safety was much less prevalent. Losses as a result of any species were generally unacceptable. Losses as a result of deer, however, were considered to be only somewhat unacceptable by the majority of respondents who indicated deer were a nuisance. No respondents indicated that any loss was completely acceptable. While respondents were asked only to indicate if compensation had been paid, many respondents elected to write in “no”, suggesting that not receiving compensation is an important issue among this group of farmers.

Respondents were most hostile toward racoon compared to other species such as deer, and to a lesser extent, coyote. Respondents were asked to indicate if any of the species they listed had provided any cultural benefits (aka ecosystem services). Responses were largely negative to all species. Most respondents did not consider nuisance species to have many benefits. There were, however, some interesting differences in the responses between species. Respondents indicating racoon were a nuisance were unlikely to enjoy the presence of the species, to think the species provided any educational opportunity, or to think they species is an indicator of land health. By contrast, while respondents generally do not enjoy the presence of coyotes, they are in more agreement that the species is an indicator of land health and provides an educational opportunity. Attitudes toward cultural services provided by deer are divided, but generally more positive compared to other species.

Introduction

A random sample of 625 farmers from the Agricultural Alliance of New Brunswick’s mailing list was mailed two copies of a survey on April 17th 2014 – one English and one French. Of the 625, 66 surveys were returned yielding a response rate of 11%. Once incomplete addresses and other erroneous surveys were eliminated, 62 useable surveys were used for analysis. If those receiving the survey did not consider any species to be a nuisance, they were asked simply to fill out the demographic information and return it with the animal and/or plant sections blank, as appropriate. Out of all of the New Brunswick respondents, six mentioned no animals at all, and 22 listed no plant species at all.

Respondent Demographics

Regions

Counties are grouped together for analysis into “regional agricultural territories”:

Region 1:	Madawaska, Restigouche
Region 2:	Gloucester, Northumberland
Region 3:	Kent, Westmorland, Albert
Region 4:	St John, Kings, Queens
Region 5:	York, Sunbury, Charlotte
Region 6:	Victoria, Carleton

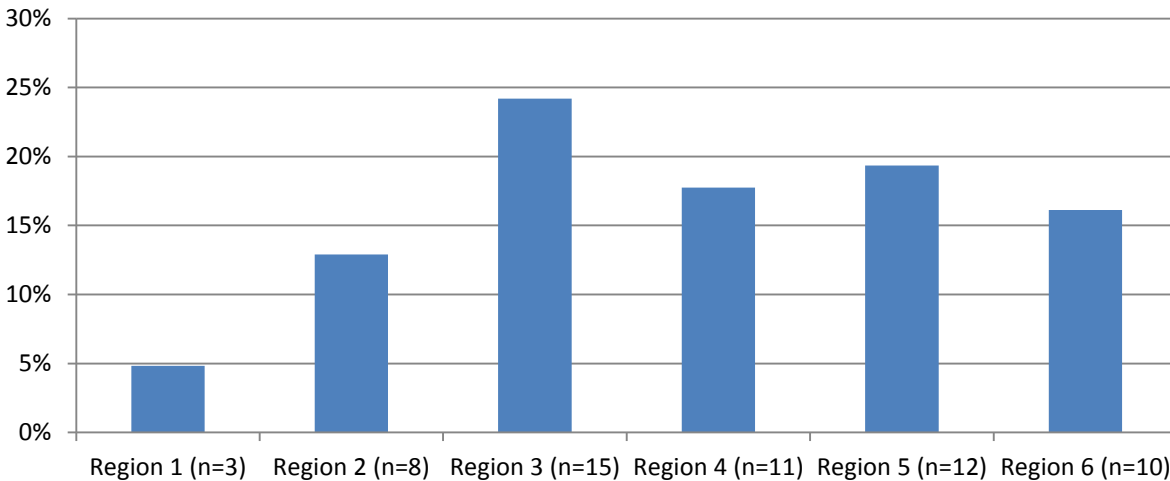


Figure 1: Distribution of Respondents by Region

Farming as primary income

Respondents were asked to indicate if farming was their primary income source. 64% of respondents (n=39) indicated “Yes”, 36% (n=22) indicated “No”.

Farmer Age

Respondents were asked to indicate the year they were born. The average respondent was 61.3 years old (std dev=10.5). The youngest respondent was 28, and the eldest 96.

Farming Type

Respondents were asked to check off what commodities they produced from a list of options. Some respondents checked more than one box. Field crops, woodlots, and beef were the most frequently selected (Table 1).

Table 1: Count of farm commodities

Commodity Type	Count
Field crops	39
Woodlot	38
Beef	25
Blueberries	13
Dairy	9
Orchard	7
Sheep	7
Poultry	4
Vineyard	2
Fur	2
Christmas trees	1

Farmer Gender

Respondents were asked to indicate if they were male or female (or preferred not to say). 89% of respondents indicated they were male (n=54), 11% indicated they were female (n=7).

Farmer Education

Respondents were asked to indicate the highest level of education completed. Technical school (e.g., agricultural college) was the most frequently selected, followed by high school graduate (Table 2).

Table 2: Distribution of education level

Education Level	Freq.	Percent
technical degree	17	28%
high school grad	13	22%
grade nine and less	7	12%
bachelor's degree	7	12%
some high school	5	8%
graduate degree	5	8%
some bachelor	4	7%
some graduate	2	3%

Language

Respondents were given the choice to answer an English or French version of the survey. 15% (n=9) respondents answered the French one, and 85% (n=53) answered the English.

Animals

Respondents were asked to identify what animals they deemed a nuisance. Coyotes, bear, deer and racoon were the most frequently identified with at least a third of respondents indicating one of those species (Table3).

Table 3: Distribution of animals identified by respondents

animal	Freq.	Percent of all mentions	Percent of Respondents
coyotes	26	14%	42%
bear	24	13%	39%
deer	24	13%	39%
racoon	20	11%	32%
crows	13	7%	21%
geese	13	7%	21%
porcupine	11	6%	18%
ground hog	7	4%	11%
beaver	5	3%	8%
moose	5	3%	8%
pigeon	5	3%	8%
fox	4	2%	6%
humans	4	2%	6%
raptors	4	2%	6%
seagull	4	2%	6%
songbirds	4	2%	6%
skunk	3	2%	5%
cabbage maggot	1	1%	2%
cormorants	1	1%	2%
dogs	1	1%	2%
duck	1	1%	2%
rabbit	1	1%	2%
rodents	1	1%	2%
turkey	1	1%	2%
wild turkey	1	1%	2%
TOTAL	184	100%	

Top Four Nuisance Species by Region

There is a fairly even distribution of the number of times a top four species was mentioned by region (Table 4). Despite this even distribution of reporting, looking at the percentage of respondents from each of those regions, coyotes are more frequently reported in regions three, four, and five (Table 5). Similarly, 50% of respondents from region six mentioned bear and raccoon, even though region six contained 22% of bear listings and 25% of raccoon listings.

Table 4: Distribution of location of top four nuisance species

Region		Coyotes (n=25)	Bear (n=23)	Deer (n=22)	Raccoon (n=20)
One	N	0	2	0	1
	%	0%	9%	0%	5%
Two	N	3	2	4	1
	%	12%	9%	18%	5%
Three	N	8	7	6	5
	%	32%	30%	27%	25%
Four	N	4	2	5	3
	%	16%	9%	23%	15%
Five	N	7	5	5	5
	%	28%	22%	23%	25%
Six	N	3	5	2	5
	%	12%	22%	9%	25%

Table 5: Percentage of respondents indicating a top species by region

Region	Coyotes	Bear	Deer	Raccoon
One n=3	0	2	0	1
	0%	67%	0%	33%
Two n=8	3	2	4	1
	38%	25%	50%	13%
Three n=15	8	7	6	5
	53%	47%	40%	33%
Four n=11	4	2	5	3
	45%	18%	45%	27%
Five n=12	7	5	5	5
	58%	42%	42%	42%
Six n=10	3	5	2	5
	30%	50%	20%	50%

Top Four Nuisance Species by Commodity Type

The percentage of farmers reporting one of the top four species is consistent with the overall distribution of reporting of the top four species. A few commodities do stand out: over half of all respondents with field crops, beef, blueberries, and sheep listed coyotes as a nuisance (Table 6). While it would be anticipated that livestock operators would consider coyotes as a nuisance, it is unexpected that the majority of blueberry and field crop farmers would consider the species a nuisance. This may be because of other commodities they farm

It should be noted that as the list goes down, there are fewer farmers that selected those commodity types, skewing the percent distribution. A complete list of the species mentioned by each commodity type can be found in the appendix.

Table 6: Distribution of mentions of top four nuisance species by the total number of respondents in each commodity.

	Coyotes	Bear	Deer	Raccoon
Field Crops (N=39)	51%	41%	44%	44%
Woodlot (N=38)	42%	39%	47%	34%
Beef (N=25)	64%	44%	36%	36%
Blueberries (N=13)	54%	46%	62%	15%
Dairy (N=9)	22%	22%	33%	11%
Sheep (N= 7)	71%	43%	14%	43%
Orchard (N=7)	57%	29%	57%	43
Poultry (N=4)	75%	75%	75%	75%
Fur (N=2)	100%	100%	50%	50%
Vineyard (N=2)	50%	0%	100%	50%

Nature of the Nuisance

Respondents were asked to check a box, or write in the nature of the nuisance for each species they identified (Table 7).

Table 7: Nature of the nuisance for each species, count of the number of times nuisance types were selected

animal	crop damage	harm to livestock	threat to personal safety	Property Damage	total
bear	21	5	7	2	35
coyotes	6	16	13	0	35
deer	22	3	0	2	27
raccoon	15	5	4	0	24
humans	4	4	4	2	14
geese	13	0	0	0	13
crows	11	1	0	0	12
porcupine	9	1	2	0	12
ground hog	2	1	1	4	8
moose	2	1	0	4	7
pigeon	0	3	1	3	7
songbirds	3	1	1	1	6
beaver	3	0	0	2	5
fox	2	0	2	0	4
seagull	4	0	0	0	4
skunk	2	1	1	0	4
raptors	0	2	1	0	3
dogs	0	1	1	0	2
cabbage maggot	1	0	0	0	1
cormorants	0	1	0	0	1
duck	1	0	0	0	1
rabbit	1	0	0	0	1
rodents	0	0	1	0	1
turkey	1	0	0	0	1
wild turkey	1	0	0	0	1
TOTAL	124	46	39	20	229

How acceptable is the loss from this species?

Respondents were asked to indicate how acceptable the loss was (on a scale of one to five) as a result of the species (Table 8). Losses are generally unacceptable to all respondents. At least half of respondents indicated that losses as a result of bear, racoon, crows, porcupine, human, seagulls, and songbirds, were completely unacceptable. Out of the respondents that indicated “humans” (generally citing ATV damage), all respondents indicated that those losses were “completely unacceptable”. Responses are more variable for deer and coyote compared to other species. No respondents ever indicated that losses were “completely acceptable”.

A mean score was calculated indicating the overall acceptability of the loss accrued as a result of the species. The more negative the score, the more unacceptable is the loss. The acceptability of the loss by full-time and part-time farmers can be found in the appendix.

Table 8: Distributions of responses indicating acceptability of loss for species with a minimum of four responses

animal		Completely Unacceptable (-2)	Somewhat Unacceptable (-1)	Indifferent (0)	Somewhat Acceptable (+1)	Completely Acceptable (+2)	Mean	Total
bear	N	10	4	3	0	0	-1.41	17
	%	59%	24%	18%	0%	0%		
coyotes	N	7	5	5	0	0	-1.12	17
	%	41%	29%	29%	0%	0%		
deer	N	4	11	1	1	0	-1.06	17
	%	24%	65%	6%	6%	0%		
racoon	N	9	5	0	1	0	-1.47	15
	%	60%	33%	0%	7%	0%		
crows	N	8	3	1	0	0	-1.58	12
	%	67%	25%	8%	0%	0%		
geese	N	5	6	0	0	0	-1.45	11
	%	45%	55%	0%	0%	0%		
porcupine	N	5	3	0	1	0	-1.33	9
	%	56%	33%	0%	11%	0%		
ground hog	N	3	3	1	0	0	-1.29	7
	%	43%	43%	14%	0%	0%		
humans	N	4	0	0	0	0	-2.00	4
	%	100%	0%	0%	0%	0%		
seagull	N	3	1	0	0	0	-1.75	4
	%	75%	25%	0%	0%	0%		
songbirds	N	1	2	0	1	0	-0.75	4
	%	25%	50%	0%	25%	0%		

Was compensation paid?

Respondents were only asked to tick a box *if* compensation was paid, but many chose to write in “no”. This suggests that not having any compensation paid is an important issue for many farmers (Table 9).

Table 9: Distribution (count) of responses to whether compensation was paid

animal	No	Yes	Total
raccoon	6	1	7
deer	5	1	6
geese	6	0	6
porcupine	4	0	4
bear	3	0	3
crows	3	0	3
moose	2	0	2
songbirds	1	1	2
beaver	1	0	1
coyotes	1	0	1
fox	0	1	1
pigeon	1	0	1
turkey	1	0	1
TOTAL	34	4	38

Methods of coping with species

Respondents were asked to indicate how they have coped with the species they listed. It is possible for more than one answer to be selected, thus Figure 2 represents the percentage of mentions of a method out of the number of respondents that indicated a species. Out of the respondents that indicated racoon and coyotes as a nuisance, the majority of those respondents coped with the species by shooting or trapping (to eliminate the nuisance). Of the respondents that listed deer, many of those respondents hunted the species for sport or food. The majority of listed methods of coping with bear were divided between hunting for sport and shooting/trapping to eliminate the nuisance.

A full summary table of methods of coping with all listed species can be found in the appendix.

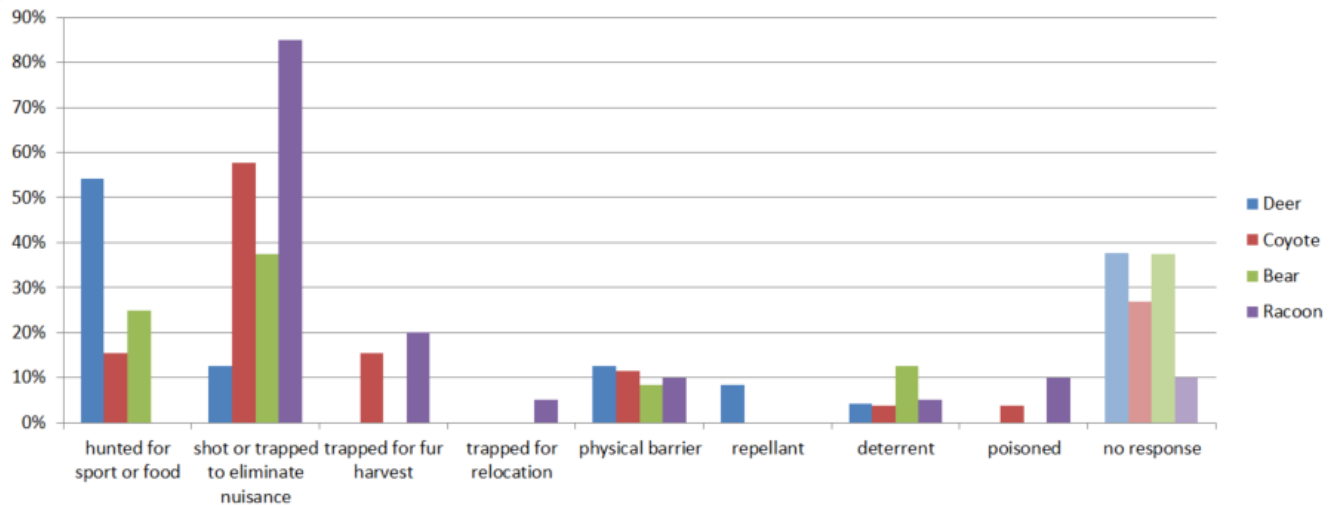


Figure 2: Methods of coping with the top four species, by the percentage of respondents using a method who have mentioned one of the top four species. The columns above “no response” are the percentage of respondents who did not indicate any coping method at all.

Cultural Services Provided

All Species

Respondents were asked to indicate how much they agreed or disagreed with a series of statements regarding the potential cultural services provided by the species identified. A mean score was calculated by using the numeric equivalent of the responses: 1-completely disagree to 5-completely agree. The higher the score out of five, the more the respondents agreed with the statement.

In regards to cultural ecosystem services, respondents indicating racoon were unlikely to enjoy the presence of the species, to think the species provided any educational opportunity, or to think they species is an indicator of land health (Tables 10, 11, 12). Interestingly, while respondents generally do not enjoy the presence of coyotes, they are in more agreement that the species is an indicator of land health and provides an educational opportunity. Attitudes toward ecosystem services provided by deer are divided, but generally more positive compared to other species.

Table 10: Count of responses to "I enjoy the presence of this species". Most frequent answer bolded for each species where that value >1.

animal	Completely Disagree (1)	Somewhat Disagree (2)	Indifferent (3)	Somewhat Agree (4)	Completely Agree (5)	Mean Score	Total
coyotes	15	2	3	1	1	1.7	22
bear	9	4	2	4	1	2.2	20
deer	2	5	3	7	2	3.1	19
racoon	11	2	1	0	0	1.3	14
crows	8	2	0	1	0	1.5	11
geese	7	0	1	3	0	2	11
porcupine	6	2	1	0	0	1.4	9
ground hog	5	0	2	0	0	1.6	7
fox	2	1	0	1	0	2	4
moose	2	2	0	0	0	1.5	4
songbirds	2	0	1	1	0	2.3	4
beaver	3	0	0	0	0	1	3
pigeon	3	0	0	0	0	1	3
raptors	1	0	0	0	2	3.7	3
seagull	3	0	0	0	0	1	3
skunk	3	0	0	0	0	1	3
humans	2	0	0	0	0	1	2
dogs	1	0	0	0	0	1	1
duck	0	0	1	0	0	3	1
rodents	1	0	0	0	0	1	1
turkey	0	0	1	0	0	3	1
wild turkey	0	0	0	0	1	5	1
TOTAL	86	20	16	18	7		147

Table 11: Count of responses to "This species provides an educational opportunity". Most frequent answer bolded for each species where that value >1.

animal	Completely Disagree	Somewhat Disagree	Indifferent	Somewhat Agree	Completely Agree	Mean Score	Total
coyotes	7	4	1	6	4	2.8	22
bear	7	1	3	5	4	2.9	20
deer	3	2	6	6	2	3.1	19
raccoon	10	1	1	1	2	1.9	15
crows	7	1	1	2	0	1.8	11
geese	7	0	1	2	0	1.8	10
porcupine	4	1	2	1	1	2.3	9
ground hog	4	2	0	1	0	1.7	7
beaver	1	1	1	0	1	2.8	4
fox	1	1	0	2	0	2.8	4
songbirds	2	0	1	1	0	2.3	4
moose	1	0	2	0	0	2.3	3
pigeon	3	0	0	0	0	1.0	3
raptors	1	0	0	0	2	3.7	3
seagull	3	0	0	0	0	1.0	3
skunk	2	0	1	0	0	1.7	3
humans	0	0	0	2	0	4.0	2
dogs	1	0	0	0	0	1.0	1
duck	0	0	1	0	0	3.0	1
rodents	0	0	1	0	0	3.0	1
turkey	0	0	1	0	0	3.0	1
wild turkey	0	0	0	0	1	5.0	1
TOTAL	64	14	23	29	17		147

Table 12: Count of responses to "The presence of this species indicates that my land is healthy". Most frequent answer bolded for each species where that value >1.

animal	Completely Disagree	Somewhat Disagree	Indifferent	Somewhat Agree	Completely Agree	Mean Score	Total
coyotes	5	3	6	4	5	3.0	23
bear	8	2	3	5	2	2.6	20
deer	5	1	3	6	4	3.2	19
racoon	10	2	2	1	1	1.8	16
crows	5	3	1	1	1	2.1	11
geese	3	2	2	2	2	2.8	11
porcupine	3	1	3	0	2	2.7	9
ground hog	3	0	1	3	0	2.6	7
moose	0	1	2	1	1	3.4	5
beaver	2	0	0	2	0	2.5	4
fox	2	1	0	0	1	2.3	4
songbirds	3	0	0	0	1	2.0	4
pigeon	3	0	0	0	0	1.0	3
raptors	1	0	0	2	0	3.0	3
seagull	1	1	0	1	0	2.3	3
skunk	1	1	1	0	0	2.0	3
humans	0	0	0	0	2	5.0	2
dogs	1	0	0	0	0	1.0	1
duck	1	0	0	0	0	1.0	1
rodents	0	0	1	0	0	3.0	1
turkey	0	1	0	0	0	2.0	1
wild turkey	0	0	1	0	0	3.0	1
Total	57	19	26	28	22		152

Top Four Species

Respondents were asked to indicate their agreement with a series of statements indicating some of the potential benefits that arise from the nuisance species they identify. Looking at the top four species (Figure 3), the majority of respondents identifying racoons as a nuisance, completely disagree with all three statements relating to cultural ecosystem services. Of respondents identifying deer and bear, opinions are divided regarding all three facets of cultural ecosystem services. Of respondents identifying coyotes, the majority do not enjoy the presence of the species, but are much more divided as to whether the species provides and educational opportunity or is an indicator of land health.

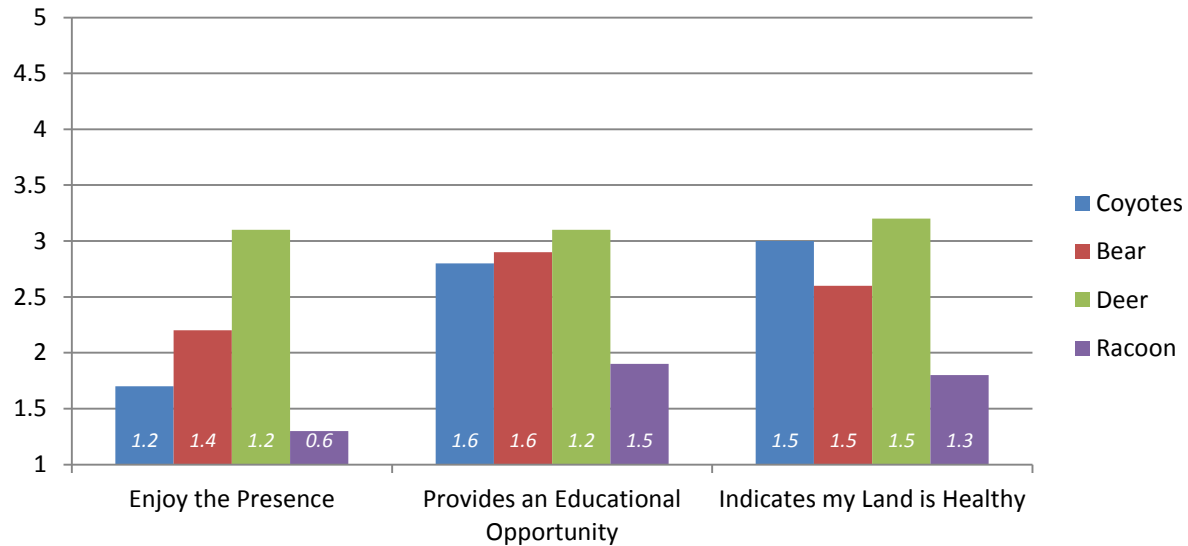


Figure 3: Mean of responses to cultural services provided by the top four species, standard deviation indicated by italicized numbers

Cultural Services and Full-time versus Part-time Farmers

It was anticipated respondents who are full- or a part-time farmers will have different perceptions of the potential cultural services provided by species. Looking at the top four species, both full-time and part-time farmers share a similar distribution in regards to their enjoyment of the presence of deer, coyote, and racoon (Figure 4). Part-time farmers who identify bear as a nuisance are more likely compared to full-time farmers to enjoy their presence, see educational value and/or consider the species to be an indicator of land health (Figure 4-6). Most full-time farmers do not consider racoon to be an indicator of land health at all (Figure 6).

A summary of the mean scores for each species by full- and part-time farmers can be found in the appendix.

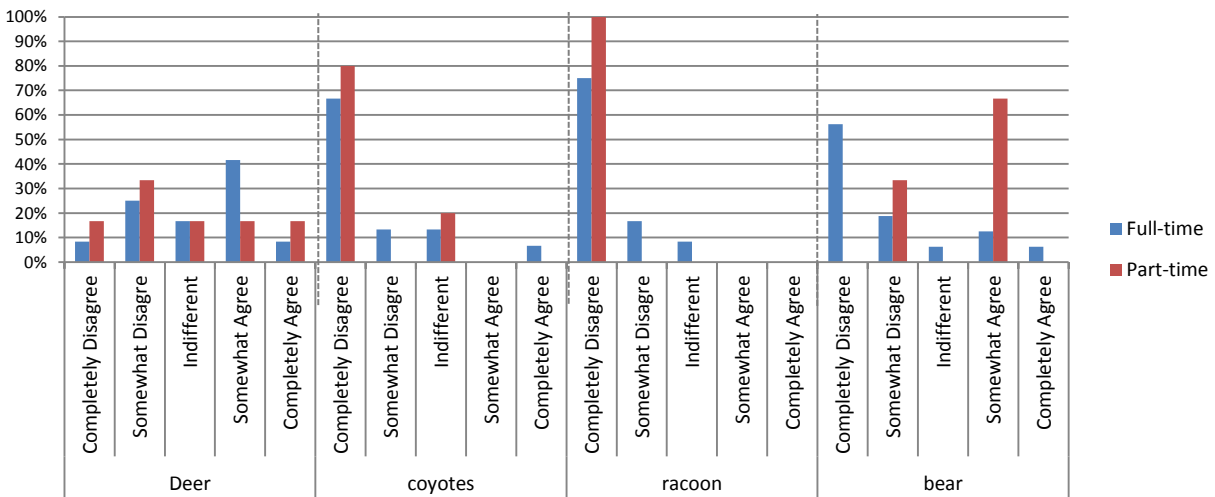


Figure 4: Distribution of "I enjoy the presence of this species" between full and part-time farmers

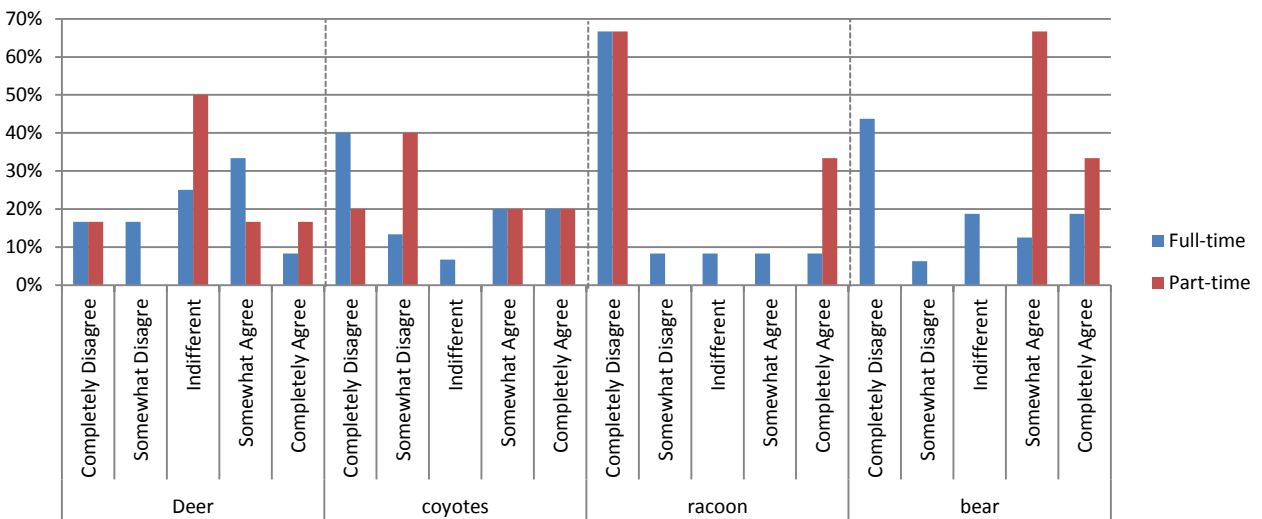


Figure 5: Distribution of responses to "Provides an educational opportunity", by full and part-time farmers

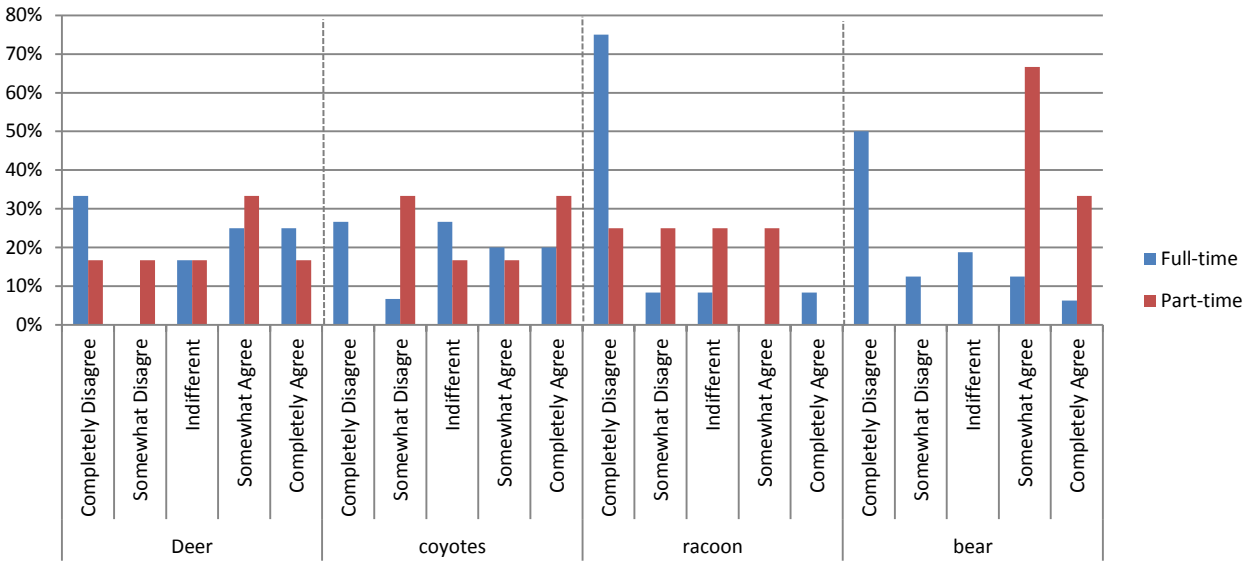


Figure 6: Distribution of responses to "Indicates my land is healthy" by full and part-time farmers

Overall

Respondents were asked: overall would you rather (1) have the species, despite the costs (2) not have the species because of the costs (3) unsure. Respondents are overwhelmingly in favour of not having racoon or coyotes. Opinions are much more divided regarding deer, and to a lesser extent, bear (Table 13).

A summary table of the overall desire to have species divided by full- and part-time farmers, and by commodity type, can be found in the appendix.

Table 13: Summary of overall desire to have species. Mean scores for each species were calculated by taking the average of the numeric responses: -1-not have the species, 0-unsure, 1-have the species. A positive score indicates more overall desire to have the species, while a negative score indicates overall desire to not have the species.

animal	Not have the species (-1)	Unsure (0)	Have the species (+1)	Mean Score	Total
coyotes	19	1	3	-0.70	23
bear	11	6	5	-0.27	22
deer	7	5	7	0.00	19
racoon	15	0	3	-0.67	18
geese	9	3	1	-0.62	13
crows	9	1	1	-0.73	11
porcupine	7	2	0	-0.78	9
ground hog	4	2	1	-0.43	7
moose	3	0	2	-0.20	5
beaver	4	0	0	-1.00	4
songbirds	3	0	1	-0.50	4
fox	2	1	0	-0.67	3
humans	3	0	0	-1.00	3
pigeon	3	0	0	-1.00	3
raptors	1	0	2	0.33	3
seagull	3	0	0	-1.00	3
skunk	1	1	1	0.00	3
dogs	1	0	0	-1.00	1
duck	1	0	0	-1.00	1
rodents	1	0	0	-1.00	1
wild turkey	1	0	0	-1.00	1
Total	108	22	27		157

Plants

Respondents were asked to identify what plants species they considered a nuisance. It is challenging to assemble a list of the species, as common names were generally used by the respondents, and there is no way to know what specific species was intended. A complete list of all of the plants referenced by genus and species (where possible), can be found in the appendix. This list is still under review by a botanist.

Out of all New Brunswick respondents, 22 did not identify any plant species at all. Respondents were asked to indicate “How acceptable was this loss? [as a result of the plants identified]”. Losses are generally unacceptable, however many respondents indicate that losses from plants are somewhat acceptable (Table14).

Table 14: Acceptability of loss from plants

	Freq.	Percent
Completely Unacceptable	25	42.37
Somewhat Unacceptable	19	32.20
Indifferent	5	8.47
Somewhat Acceptable	8	13.56
Completely Acceptable	2	3.39
Total	59	100

Conclusions

In the sample there is representation from each the six agricultural regions of the province, and a diverse group of different commodities represented. The majority are full-time farmers, male, chose to answer the survey in English, and were educated at college/technical school. The top four species listed as a nuisance were coyotes, bear, deer and racoon. Losses were generally unacceptable to all respondents and “Crop damage” was the most frequently selected type of nuisance. Some conclusions can be drawn from observations in the data:

- There are some differences in the species identified by farmers producing different commodity types
 - Over half of all respondents with field crops, beef, blueberries and sheep listed coyotes as a nuisance
 - It was anticipated that livestock operators would consider coyotes a nuisance, but surprising that field crop and blueberry (to a lesser extent) farmers would identify the species as a problem
 - Perhaps the combination of commodity types on individual farms accounts for this trend; some farmers may have both field crops and livestock.
- Respondents were quite hostile toward racoon, and to a lesser extent coyote.
 - Of those respondents that indicated racoon, the majority considered losses from those species completely unacceptable
 - Respondents emphatically did not enjoy the presence of coyotes or racoons.
 - Opinions were mixed regarding species as an indicator of land health, but racoon was, by far, the least acceptable species.
 - Racoon were the least likely to be considered an educational opportunity, while many respondents considered deer, coyotes and bear to be an opportunity.
 - Over half of the respondents indicating racoon or coyote shot the species to eliminate the nuisance.
 - Overall, the vast majority (more than 80%) of respondents would rather not have racoons or coyotes on their land
- While still generally negative, opinions regarding bear and deer were comparatively more positive.
 - The majority of respondents indicating bear said the nuisance was ‘completely unacceptable’, while the majority of those indicating deer said the loss was ‘somewhat unacceptable’.
 - Nearly 40% of respondents indicating deer or bear did not indicate any coping methods at all. This could suggest a lack of knowledge of coping methods, or simply a tolerance of the species.
 - Attitudes toward the cultural services provided by deer were more positive compared to other species. Out of the respondents indicating bear, many did not enjoy the presence of the species, but where in somewhat more agreement that the species provides an educational opportunity, and, to a lesser extent, indicates the land is healthy.
 - Opinions were completely divided regarding the overall desire to have a deer (a mean score of zero). For those indicating bear, opinions were also divided but more generally negative toward having the species (a mean score of -0.27).
 - Part-time farmers had very different opinions of cultural services than full time farmers. This was especially the case for bears: part-time farmers were far more likely to consider bears an educational opportunity, to enjoy the presence of the species and consider the species to be an indicator of land health.

Appendix

Table 1: Species mentioned by each commodity (table split over two pages)

Field crops n=39			Woodlot n=38			Beef n=25			Blueberries n=13			Dairy n=9		
Species	N	% of mentions	Species	N	% of mentions	Species	N	% of mentions	Species	N	% of mentions	Species	N	% of mentions
coyotes	20	51%	deer	19	50%	coyotes	16	64%	deer	8	62%	geese	6	67%
deer	17	44%	coyotes	17	45%	bear	11	44%	bear	7	54%	deer	3	33%
raccoon	17	44%	bear	16	42%	deer	9	36%	coyotes	7	54%	bear	2	22%
bear	16	41%	raccoon	13	34%	raccoon	9	36%	crows	4	31%	coyotes	2	22%
crows	11	28%	crows	11	29%	geese	7	28%	porcupine	4	31%	crows	1	11%
geese	10	26%	porcupine	9	24%	ground hog	5	20%	seagull	3	23%	duck	1	11%
porcupine	9	23%	geese	8	21%	porcupine	5	20%	fox	2	15%	ground hog	1	11%
ground hog	6	15%	ground hog	6	16%	moose	4	16%	raccoon	2	15%	humans	1	11%
moose	4	10%	beaver	4	11%	beaver	3	12%	raptors	2	15%	pigeon	1	11%
pigeon	4	10%	humans	4	11%	crows	3	12%	geese	1	8%	porcupine	1	11%
beaver	3	8%	fox	3	8%	humans	2	8%	ground hog	1	8%	raccoon	1	11%
humans	3	8%	raptors	3	8%	dogs	1	4%	moose	1	8%	songbirds	1	11%
seagull	3	8%	seagull	3	8%	duck	1	4%	skunk	1	8%			
songbirds	3	8%	moose	2	5%	pigeon	1	4%	wild turkey	1	8%			
fox	2	5%	pigeon	2	5%	rabbit	1	4%						
skunk	2	5%	skunk	2	5%	seagull	1	4%						
cabbage maggot	1	3%	duck	1	3%	skunk	1	4%						
cormorants	1	3%	rodents	1	3%	turkey	1	4%						
dogs	1	3%	songbirds	1	3%									
duck	1	3%	turkey	1	3%									
rabbit	1	3%	wild turkey	1	3%									
rodents	1	3%												
turkey	1	3%												

Orchard n=7			Sheep n=7			Poultry n=4			Vineyard n=2			Fur n=2			Christmas trees n=1	
Species	N	% of mentions	Species	N	% of mentions	Species	N	% of mentions	Species	N	% of mentions	Species	N	% of mentions	Species	N
coyotes	4	57%	coyotes	5	71%	bear	3	75%	crows	2	100%	bear	2	100%	nil	0
deer	4	57%	bear	3	43%	coyotes	3	75%	deer	2	100%	coyotes	2	100%		
raccoon	3	43%	crows	3	43%	crows	3	75%	fox	2	100%	moose	2	100%		
bear	2	29%	geese	3	43%	deer	3	75%	coyotes	1	50%	deer	1	50%		
fox	2	29%	raccoon	3	43%	porcupine	3	75%	moose	1	50%	raccoon	1	50%		
porcupine	2	29%	deer	1	14%	raccoon	3	75%	porcupine	1	50%	turkey	1	50%		
crows	1	14%	seagull	1	14%	raptors	2	50%	raccoon	1	50%					
geese	1	14%	skunk	1	14%	fox	1	25%	seagull	1	50%					
rabbit	1	14%				pigeon	1	25%	songbirds	1	50%					
raptors	1	14%				rabbit	1	25%								
skunk	1	14%				skunk	1	25%								
						songbirds	1	25%								

Table 2a: Acceptability of loss as a result of all animals by full- and part-time farmers

Part-Time Farmers							
animal	Completely Unacceptable (-2)	Somewhat Unacceptable (-1)	Indifferent (0)	Somewhat Acceptable (+1)	Completely Acceptable (+2)	Mean	Total
deer	1	4	0	0	0	-1.2	5
coyotes	2	1	1	0	0	-1.3	4
bear	2	1	0	0	0	-1.7	3
crows	1	1	1	0	0	-1.0	3
humans	3	0	0	0	0	-2.0	3
porcupine	2	0	0	1	0	-1.0	3
raccoon	1	2	0	0	0	-1.3	3
raptors	0	2	0	0	0	-1.0	2
beaver	0	1	0	0	0	-1.0	1
cabbage maggot	0	1	0	0	0	-1.0	1
fox	0	1	0	0	0	-1.0	1
geese	1	0	0	0	0	-2.0	1
seagull	1	0	0	0	0	-2.0	1
skunk	0	1	0	0	0	-1.0	1
Total	14	15	2	1	0		32

Table 2b: Acceptability of loss as a result of all animals by full- and part-time farmers

Full-time Farmers							
animal	Completely Unacceptable (-2)	Somewhat Unacceptable (-1)	Indifferent (0)	Somewhat Acceptable (+1)	Completely Acceptable (+2)	Mean	Total
bear	8	3	3	0	0	-1.4	14
coyotes	5	4	4	0	0	-1.1	13
deer	3	7	1	1	0	-1.0	12
raccoon	8	3	0	1	0	-1.5	12
geese	4	6	0	0	0	-1.4	10
crows	7	2	0	0	0	-1.8	9
ground hog	3	3	1	0	0	-1.3	7
porcupine	3	3	0	0	0	-1.5	6
songbirds	1	2	0	1	0	-0.8	4
seagull	2	1	0	0	0	-1.7	3
beaver	1	0	1	0	0	-1.0	2
fox	1	1	0	0	0	-1.5	2
moose	1	1	0	0	0	-1.5	2
pigeon	1	1	0	0	0	-1.5	2
dogs	1	0	0	0	0	-2.0	1
duck	0	1	0	0	0	-1.0	1
humans	1	0	0	0	0	-2.0	1
skunk	0	1	0	0	0	-1.0	1
turkey	0	1	0	0	0	-1.0	1
Total	50	40	10	3			103

Table 3: Methods of coping with all species

	Hunted for Sport or Food	Shot or Trapped to Eliminate Nuisance	Trapped for Fur Harvest	Trapped for Relocation	Physical Barrier (eg., fence)	Repellant (e.g., pheromones)	Deterrent (e.g., scarecrow)	Poisoned
bear	6	9	0	0	2	0	3	0
beaver	0	3	3	0	0	0	0	0
cabbage maggot	0	0	0	0	0	0	0	1
cormorants	0	0	0	0	0	0	0	0
coyotes	4	15	4	0	3	0	1	1
crows	2	8	0	0	0	0	4	1
deer	13	3	0	0	3	2	1	0
dogs	0	1	0	0	0	0	0	0
duck	1	0	0	0	0	0	0	0
fox	0	1	1	0	0	0	0	0
geese	8	6	0	0	1	0	4	0
ground hog	1	7	0	0	0	0	0	0
humans	1	0	0	0	3	0	0	0
moose	0	0	0	0	1	0	0	0
pigeon	0	3	0	0	1	0	1	0
porcupine	0	8	0	0	0	0	0	0
rabbit	0	0	0	0	0	0	0	0
raccoon	0	17	4	1	2	0	1	2
raptors	0	0	0	0	0	0	0	0
rodents	0	1	0	0	0	0	0	1
seagull	0	1	0	0	0	0	2	0
skunk	1	2	0	1	0	1	0	0
songbirds	0	1	0	0	2	0	2	0
turkey	0	0	0	0	0	0	0	0
wild turkey	0	0	0	0	0	0	1	0
TOTAL	37	86	12	2	18	3	20	6

Table 4: Mean score of cultural ecosystem services for all animals listed

animal	Enjoy the presence				Educational Opportunity				Presence indicates land health			
	Part time		Full Time		Part Time		Full Time		Part Time		Full Time	
	Mean Score	N	Mean Score	N	Mean Score	N	Mean Score	N	Mean Score	N	Mean Score	N
bear	3.3	4	1.9	16	4.3	4	2.6	16	4.3	4	2.1	16
beaver			1.0	3	5.0	1	2.0	3	4.0	1	2.0	3
coyotes	1.3	6	1.7	15	3.0	6	2.7	15	3.4	7	3.0	15
crows	1.3	3	1.5	8	2.0	3	1.8	8	2.3	3	2.0	8
deer	3.0	7	3.2	12	3.3	7	3.0	12	3.3	7	3.1	12
dogs			1.0	1			1.0	1			1.0	1
duck			3.0	1			3.0	1			1.0	1
fox	1.0	1	2.3	3	2.0	1	3.0	3	2.0	1	2.3	3
geese	2.0	2	2.0	9	1.0	1	1.9	9	4.5	2	2.4	9
humans	1.0	2			4.0	2			5.0	2		
ground hog			1.6	7			1.7	7			2.6	7
moose	2.0	1	1.0	2	3.0	1	3.0	1	2.0	1	3.7	3
pigeon			1.0	3			1.0	3			1.0	3
porcupine	1.0	3	1.7	6	2.0	3	2.5	6	3.3	3	2.3	6
raccoon	1.0	2	1.3	12	2.3	3	1.8	12	2.5	4	1.6	12
raptors	5.0	2	1.0	1	5.0	2	1.0	1	4.0	2	1.0	1
rodents	1.0	1			3.0	1			3.0	1		
seagull	1.0	1	1.0	2	1.0	1	1.0	2	2.0	1	2.5	2
skunk	1.0	2	1.0	1	2.0	2	1.0	1	2.5	2	1.0	1
songbirds			2.3	4			2.3	4			2.0	4
turkey			3.0	1	3.0		3.0	1			2.0	1
wild turkey			5.0	1			5.0	1			3.0	1
Total		37		108		38		107		41		109

Table 5: Overall Desire to have species by commodity type. Note: NH=Not Have Species U=Unsure H=Have Species M=Mean T=Total, Fur and Christmas Trees are omitted as a result of a lack of responses in those categories.

Field Crops n=39						Woodlot n=38						Beef n=25					
Animals	NH	U	H	M	T	Animals	NH	U	H	M	T	Animal	NH	U	H	M	T
coyotes	14	1	2	-0.7	17	deer	5	5	6	0.1	16	coyotes	13	0	1	-0.9	14
bear	7	5	3	-0.3	15	bear	7	5	3	-0.3	15	bear	4	3	3	-0.1	10
raccoon	14	0	1	-0.9	15	coyotes	11	1	3	-0.5	15	raccoon	7	0	1	-0.8	8
deer	4	4	6	0.1	14	raccoon	10	0	2	-0.7	12	deer	1	1	5	0.6	7
crows	9	0	1	-0.8	10	crows	9	1	0	-0.9	10	geese	5	2	0	-0.7	7
geese	8	1	1	-0.7	10	geese	6	2	0	-0.8	8	ground hog	3	2	0	-0.6	5
porcupine	6	1	0	-0.9	7	porcupine	6	2	0	-0.8	8	moose	2	0	2	0.0	4
ground hog	4	1	1	-0.5	6	ground hog	4	1	1	-0.5	6	porcupine	3	1	0	-0.8	4
moose	3	0	1	-0.5	4	beaver	4	0	0	-1.0	4	beaver	3	0	0	-1.0	3
beaver	3	0	0	-1.0	3	humans	3	0	0	-1.0	3	crows	2	0	1	-0.3	3
pigeon	3	0	0	-1.0	3	raptors	1	0	2	0.3	3	humans	2	0	0	-1.0	2
seagull	3	0	0	-1.0	3	seagull	3	0	0	-1.0	3	dogs	1	0	0	-1.0	1
songbirds	2	0	1	-0.3	3	fox	2	0	0	-1.0	2	duck	1	0	0	-1.0	1
humans	2	0	0	-1.0	2	moose	1	0	1	0.0	2	pigeon	1	0	0	-1.0	1
skunk	1	0	1	0.0	2	pigeon	2	0	0	-1.0	2	seagull	1	0	0	-1.0	1
dogs	1	0	0	-1.0	1	skunk	0	1	1	0.5	2	skunk	1	0	0	-1.0	1
duck	1	0	0	-1.0	1	duck	1	0	0	-1.0	1						
fox	1	0	0	-1.0	1	rodents	1	0	0	-1.0	1						
rodents	1	0	0	-1.0	1	songbirds	1	0	0	-1.0	1						
						wild turkey	1	0	0	-1.0	1						
Total	87	13	18		118	Total	78	18	19		115	Total	50	9	13		72

Blueberries n=13						Dairy n=9						Orchard n=7					
Animals	NH	U	H	M	T	Animals	NH	U	H	M	T	Animals	NH	U	H	M	T
bear	5	1	0	-0.8	6	geese	5	1	0	-0.8	6	coyotes	1	1	0	-0.5	2
coyotes	5	0	1	-0.7	6	deer	1	2	0	-0.3	3	deer	2	0	0	-1.0	2
deer	4	0	2	-0.3	6	bear	2	0	0	-1.0	2	bear	0	1	0	0.0	1
crows	2	1	0	-0.7	3	coyotes	1	1	0	-0.5	2	fox	1	0	0	-1.0	1
porcupine	1	2	0	-0.3	3	crows	1	0	0	-1.0	1	geese	1	0	0	-1.0	1
raptors	0	0	2	1.0	2	duck	1	0	0	-1.0	1	raccoon	1	0	0	-1.0	1
seagull	2	0	0	-1.0	2	ground hog	1	0	0	-1.0	1	raptors	1	0	0	-1.0	1
fox	1	0	0	-1.0	1	pigeon	1	0	0	-1.0	1	skunk	1	0	0	-1.0	1
geese	1	0	0	-1.0	1	porcupine	1	0	0	-1.0	1						
ground hog	1	0	0	-1.0	1	raccoon	1	0	0	-1.0	1						
moose	1	0	0	-1.0	1	songbirds	1	0	0	-1.0	1						
raccoon	0	0	1	1.0	1												
skunk	0	1	0	0.0	1												
wild turkey	1	0	0	-1.0	1												
Total	24	5	6		35	Total	16	4	0		20	Total	8	2	0		10
Sheep n=7						Poultry n=4						Vineyard n=2					
Animals	NH	U	H	M	T	Animals	NH	U	H	M	T	Animals	NH	U	H	M	T
coyotes	5	0	0	-1.0	5	bear	1	1	0	-0.5	2	crows	2	0	0	-1	2
bear	2	0	1	-0.3	3	crows	1	1	0	-0.5	2	deer	2	0	0	-1	2
crows	2	0	1	-0.3	3	raptors	0	0	2	1	2	fox	1	1	0	-0.5	2
geese	2	1	0	-0.7	3	coyotes	1	0	0	-1	1	coyotes	1	0	0	-1	1
raccoon	2	0	1	-0.3	3	deer	0	0	1	1	1	moose	1	0	0	-1	1
deer	0	1	0	0.0	1	pigeon	1	0	0	-1	1	porcupine	1	0	0	-1	1
seagull	1	0	0	-1.0	1	porcupine	0	1	0	0	1	raccoon	1	0	0	-1	1
skunk	1	0	0	-1.0	1	raccoon	1	0	0	-1	1	seagull	1	0	0	-1	1
						skunk	0	1	0	0	1	songbirds	1	0	0	-1	1
						songbirds	1	0	0	-1	1						
Total	15	2	3		20	Total	6	4	3		13	Total	11	1	0		12

Table 6a: Distribution of overall desire to have species by full- and part-time farmers

Part-time Farmers					
Animal	Not have the species (-1)	Unsure (0)	Have the species (+1)	Mean	Total
coyotes	6	0	1	-0.7	7
deer	3	1	3	0.0	7
raccoon	3	0	2	-0.2	5
bear	0	2	2	0.5	4
porcupine	3	1	0	-0.8	4
crows	2	1	0	-0.7	3
humans	3	0	0	-1.0	3
geese	1	1	0	-0.5	2
raptors	0	0	2	1.0	2
skunk	1	1	0	-0.5	2
beaver	1	0	0	-1.0	1
fox	1	0	0	-1.0	1
moose	1	0	0	-1.0	1
rodents	1	0	0	-1.0	1
seagull	1	0	0	-1.0	1
Total	27	7	10		44

Table 6b: Distribution of overall desire to have species by full- and part-time farmers

Full-time Farmers					
Animals	Not have the species (-1)	Unsure (0)	Have the species (+1)	Mean	Total
bear	11	4	3	-0.4	18
coyotes	12	1	2	-0.7	15
raccoon	12	0	1	-0.8	13
deer	4	4	4	0.0	12
geese	8	2	1	-0.6	11
crows	7	0	1	-0.8	8
ground hog	4	2	1	-0.4	7
porcupine	4	1	0	-0.8	5
songbirds	3	0	1	-0.5	4
beaver	3	0	0	-1.0	3
moose	1	0	2	0.3	3
pigeon	3	0	0	-1.0	3
fox	1	1	0	-0.5	2
seagull	2	0	0	-1.0	2
dogs	1	0	0	-1.0	1
duck	1	0	0	-1.0	1
raptors	1	0	0	-1.0	1
skunk	0	0	1	1.0	1
wild turkey	1	0	0	-1.0	1
Total	79	15	17		111

Table 7: Latin Names of Plants

Latin		Freq.	Percent of plants mentioned	Percent of responses
Galium	Bedstraw	12	13	19%
Either unrecognizable, or respondent simply wrote "weeds"	–	9	10	15%
Solidago	Golden Rod	6	7	10%
Alnus	Alder	5	6	8%
Gnaphalium uliginosum	Dandelion	5	6	8%
Cirsium	Thistle	4	4	6%
Chenopodium album L.	Lamb's quarters	3	3	5%
Crataegus	Hawthorn	3	3	5%
Agropyron repens	Couch grass	2	2	3%
Beauv.	Fox tail	2	2	3%
Capsella bursa-pastoris (L.) Medic.	Shepherd's Purse	2	2	3%
Galeopsis tetrahit L.	Hemp Nettle	2	2	3%
Panicum capillare L.	Witch grass	2	2	3%
Pteridium	Bracken Fern	2	2	3%
Arctium	Burdock	2	2	3%
Sonchus arvensis L.	Sow Thistle	2	2	3%
Angelica sylvestris	Wild Angelica	1	1	2%
Asclepias syriaca L.	Milkweed	1	1	2%
Cirsium arvense	Canada Thistle	1	1	2%
Cornus canadensis	Bunchberry	1	1	2%
Echinochloa crusgalli (L.) Beauv.	Barnyard grass	1	1	2%
Erysimum cheiranthoides L.	Mustard	1	1	2%
Festuca	Fescue	1	1	2%
Galium rubioides	European Bedstraw	1	1	2%
Heracleum	Pow Parsnip	1	1	2%
Kalmia	Kalmia	1	1	2%
Lupinus polyphyllus	Lupins	1	1	2%
Lythrum salicaria	Purple Loosestrife	1	1	2%
Phalaris arundinacea	Reed Canady Grass	1	1	2%
Polygonum persicaria	Lady's Thumb	1	1	2%

Prunus virginiana	Chokecherry	1	1	2%
Ranunculus acris L. / R. repens L.	Buttercup	1	1	2%
Rhus trilobata	Squaw Bush	1	1	2%
Rumex crispus	Curly dock	1	1	2%
Scirpus atrovirens	Black Bullrush	1	1	2%
Senecio jacobaea L.	Tansy Ragwort	1	1	2%
Symplocarpus foetidus	Skunk Cabbage	1	1	2%
Tragopogon	Goatsbeard	1	1	2%
Veratrum viride	False Hellebore	1	1	2%
Vicia	Vetch	1	1	2%
Vicia cracca L	Tuft vetch	1	1	2%
Vicia villosa	Hairy Vetch	1	1	2%
Total		89		