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Landowner Behaviour and Attitudes in the Upper Thames and Grand River Watersheds

A Study of Factors Which May Explain the Conservation Behaviour of Farmers

Outline

- Why Relevant
- Study Area
- Trends in Agriculture
- There was a Study!!
- Descriptive Statistics
- Study Findings
- Implications and Next Steps

Why Relevant?

- New nutrient targets for Lake Erie being developed – we need to look ahead to implementation
- Program modifications or new program development will benefit greatly from:
  - Better understanding of the general characteristics of the community
  - Information on landowner attitudes
  - Information on landowner behaviour

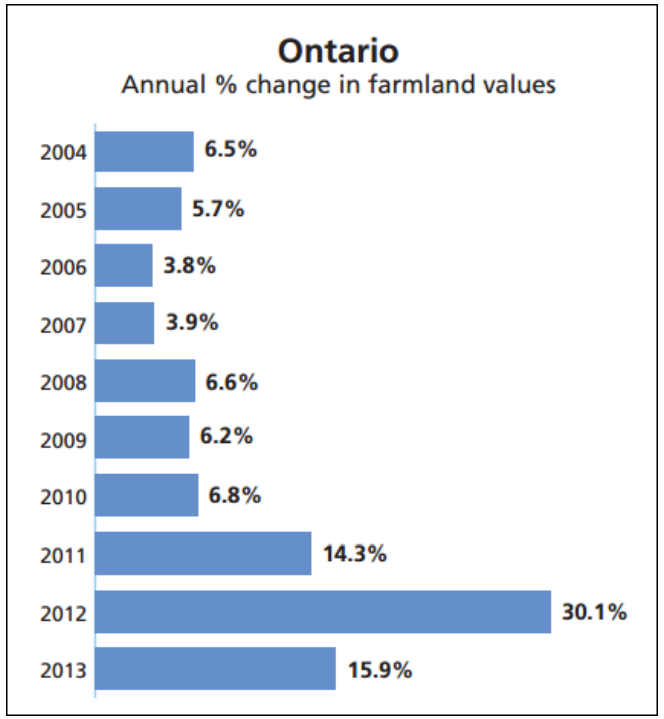
Study Area in Lake Erie Basin

Study Area

- Upper Thames Watershed
  - Area = 3,421 km^2
  - Population = 516,000
  - Agriculture = 75% of land area
- Grand River Watershed
  - Area = 6,800 km^2
  - Population = 925,000
  - Agriculture = 70% of land area

Agriculture Trends

- Commodity prices are generally up since 2008
- Land prices have increased significantly in recent years
- Farm consolidations seem to be on the rise
- Pressure on woodlands, watercourse buffers, etc.
- Great Lakes water quality (Lake Erie)



Farm Credit Canada
Advancing the business of agriculture

https://www.fcc-fac.ca/fcc/about-fcc/corporate-profile/reports/farmland-values/farmland-values-report-2013.pdf

There was a Study

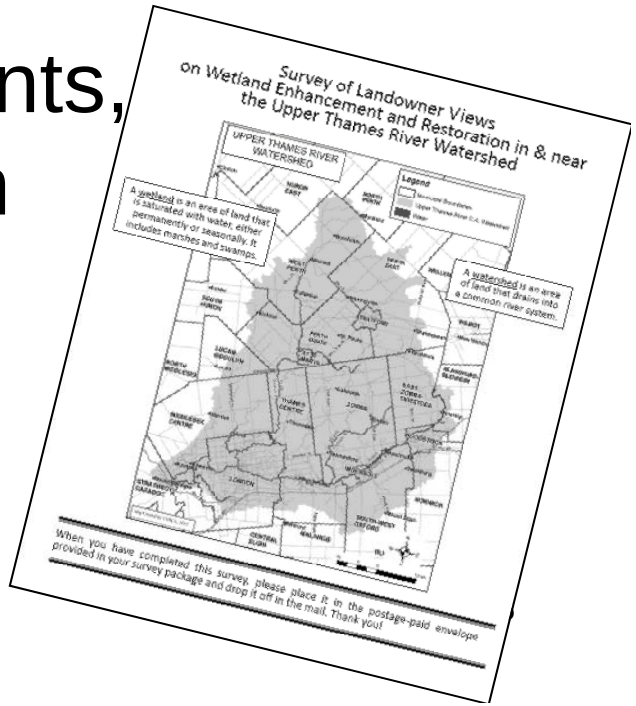
- Choice Experiment (UNB and Simon Fraser)
- Opportunity – My Research Question

  Are there factors that explain why some farmers convert conservation lands to agricultural production while some farmers establish conservation lands on their properties?

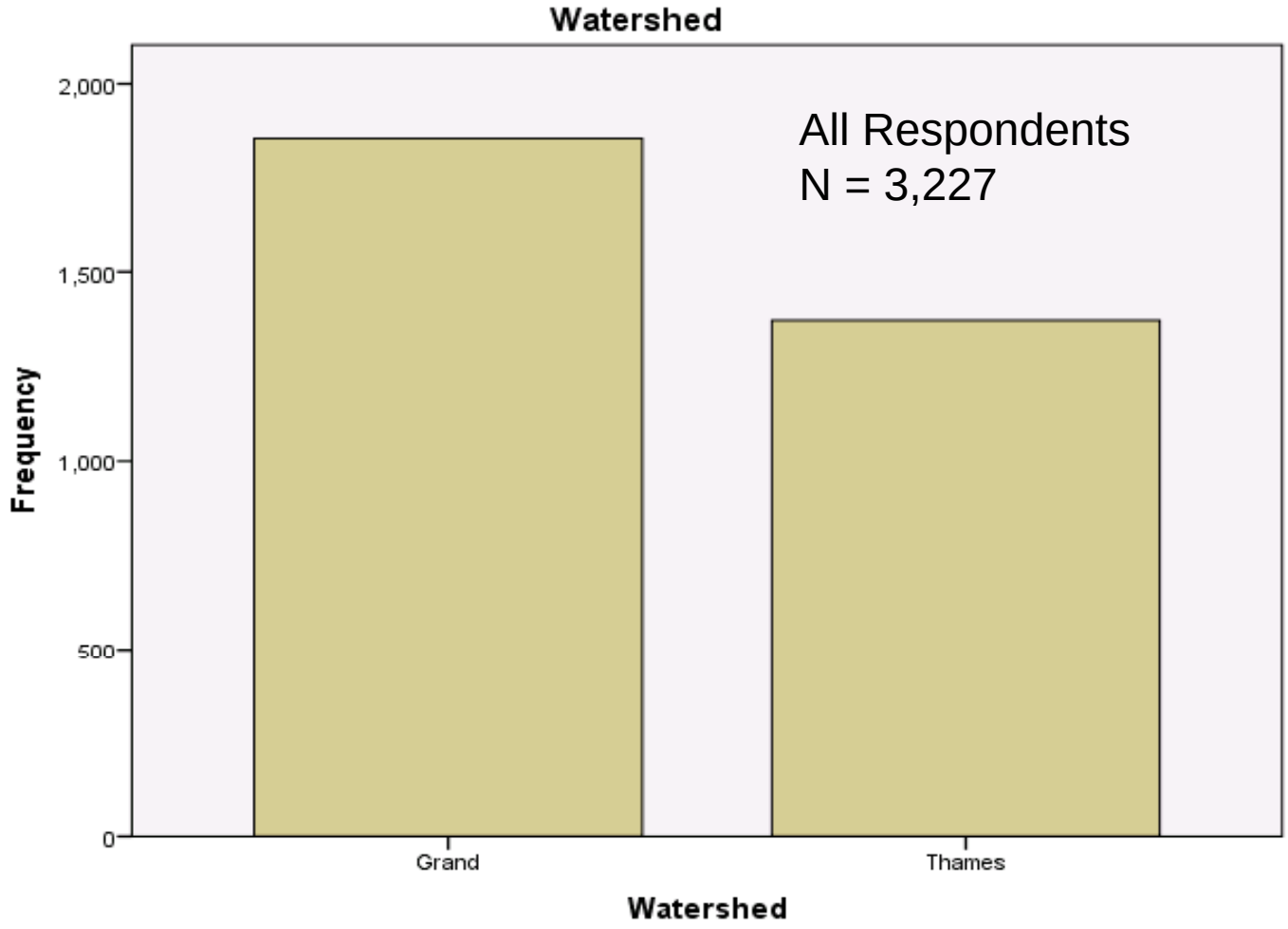
- Surveys sent to all Rural Route addresses in the Upper Thames and 80 % of Grand Watershed
- Surveys were sent in April 2013
- 18 % response rate
- 3,227 usable surveys (n = 3,227)

Focus on Farmers

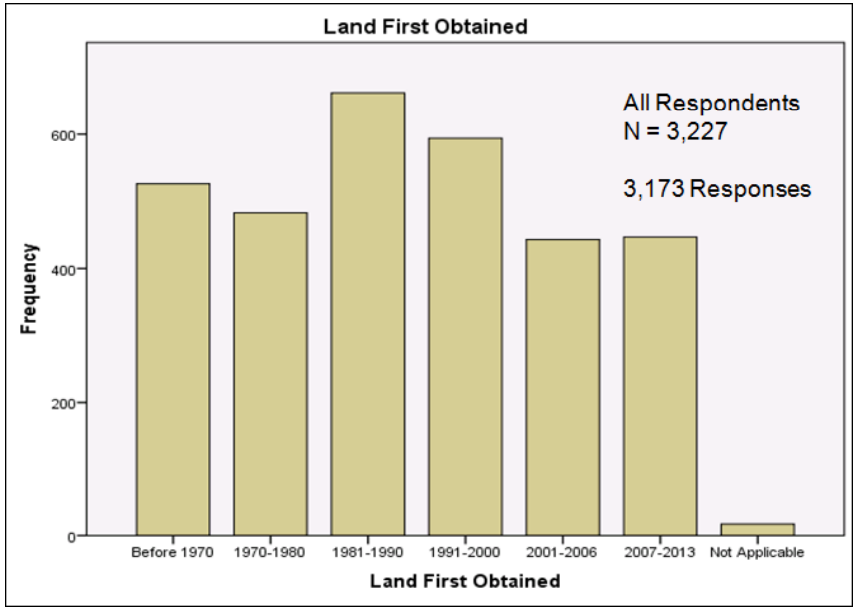
- "Farmers" are respondents that:
  - Own 100 acres or more of land **AND**
  - Report that 50 % or more of their income comes from farm receipts
- Of the 3,227 survey respondents, 626 met the "farmer" definition

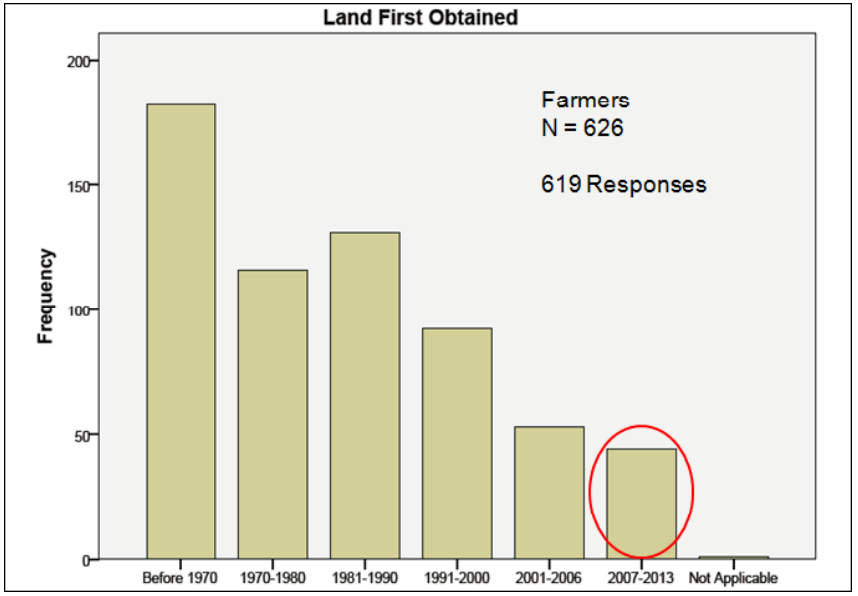


Some Descriptive Statistics

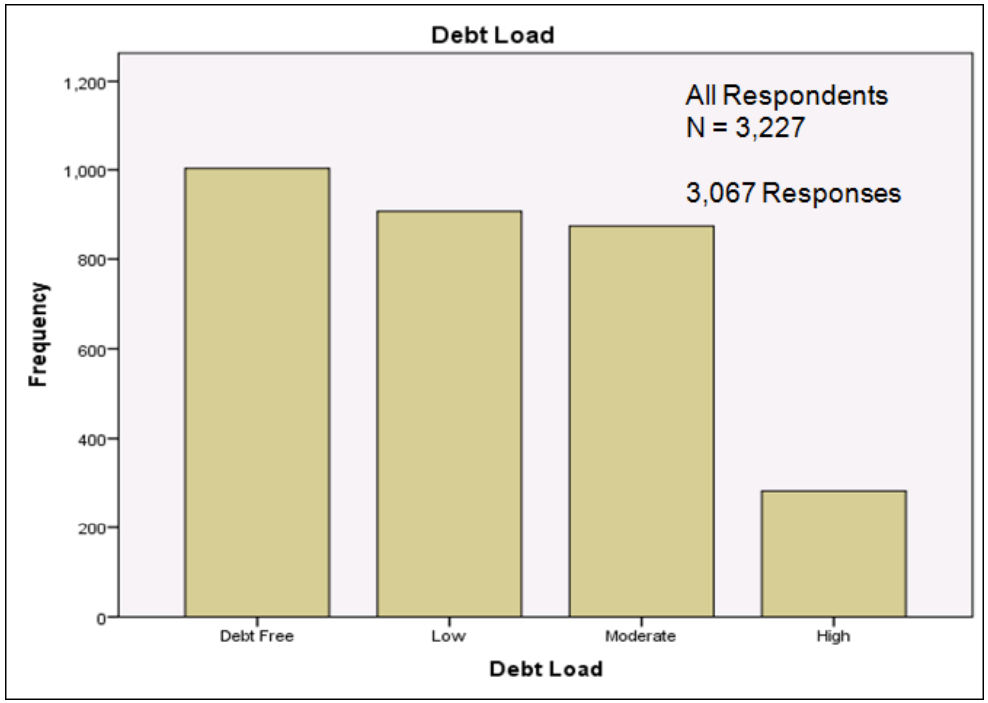


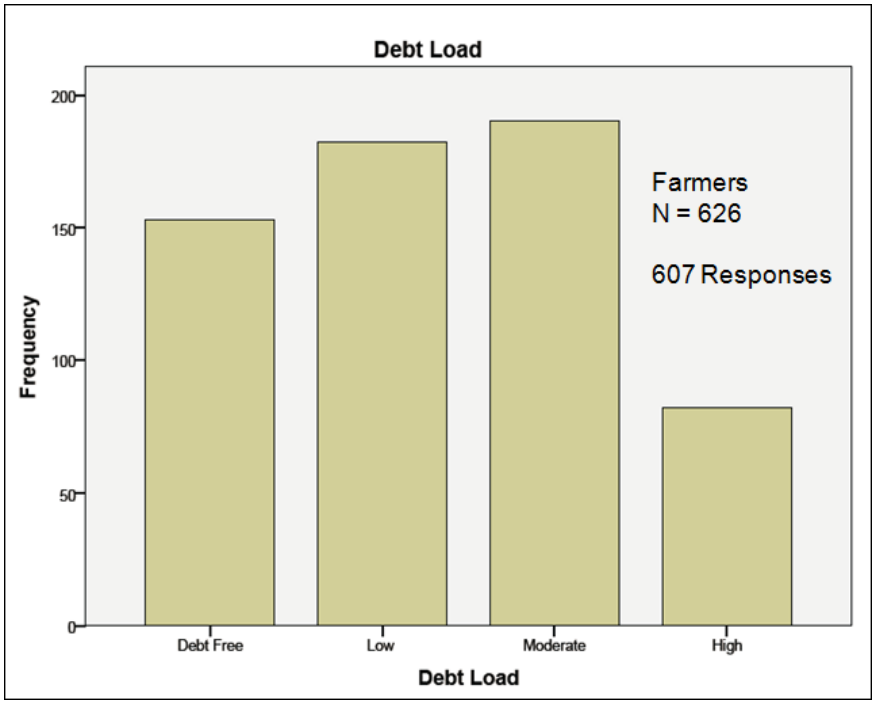
Land First Obtained





Debt Load


Debt Load
All Respondents
N = 3,227
3,067 Responses
Frequency
1,200
1,000
800
600
400
200
0
Debt Free
Low
Moderate
High
Debt Load


Debt Load
Farmers
N = 626
607 Responses
Frequency
200
150
100
50
0
Debt Free
Low
Moderate
High
Debt Load

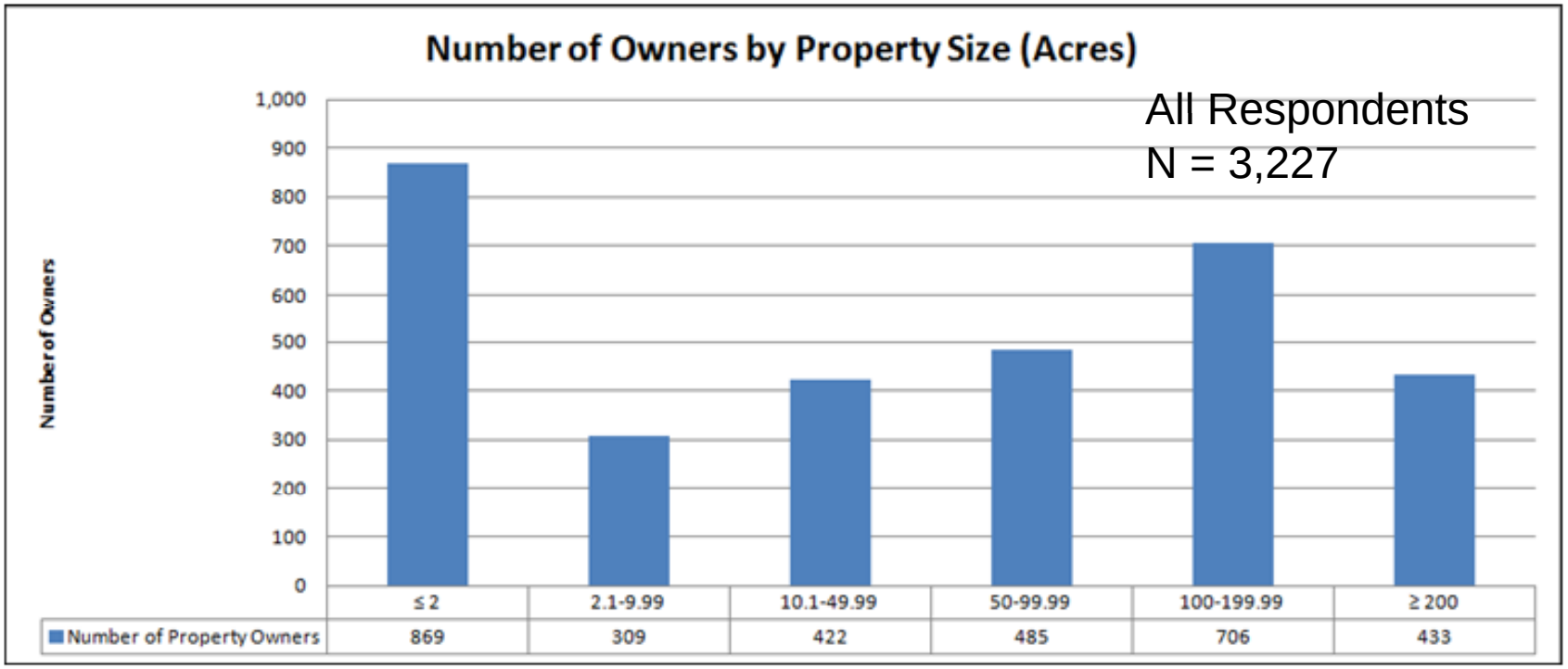


Figure 8: Total Number of Owners by Property Size for All Respondents

- Land represented by all survey respondents from the Grand survey represents 9.6 % of the Grand Watershed
- The total area of land represented by all survey respondents from the Upper Thames survey represents 17.5 % of the land area of the Upper Thames watershed.

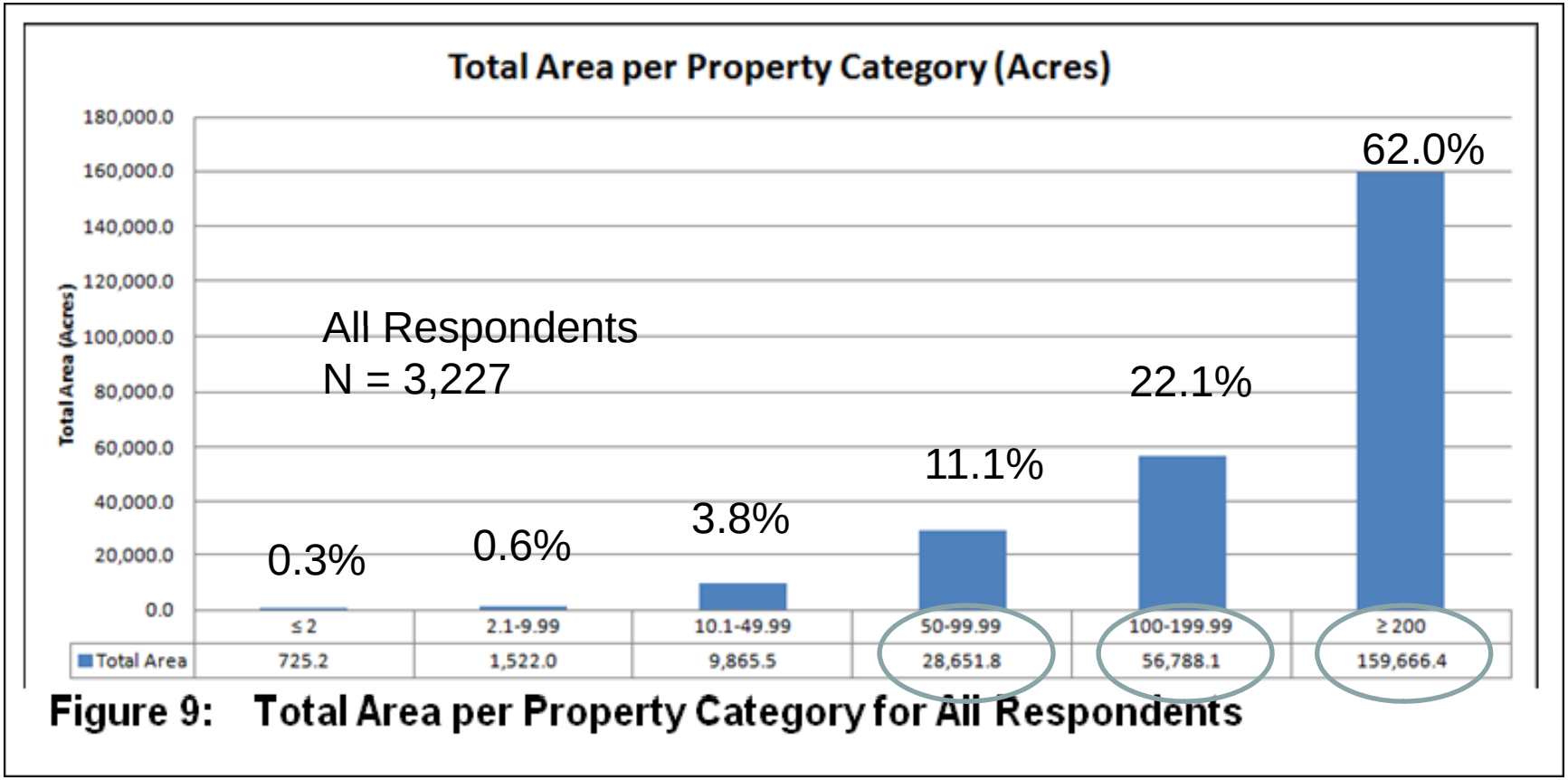
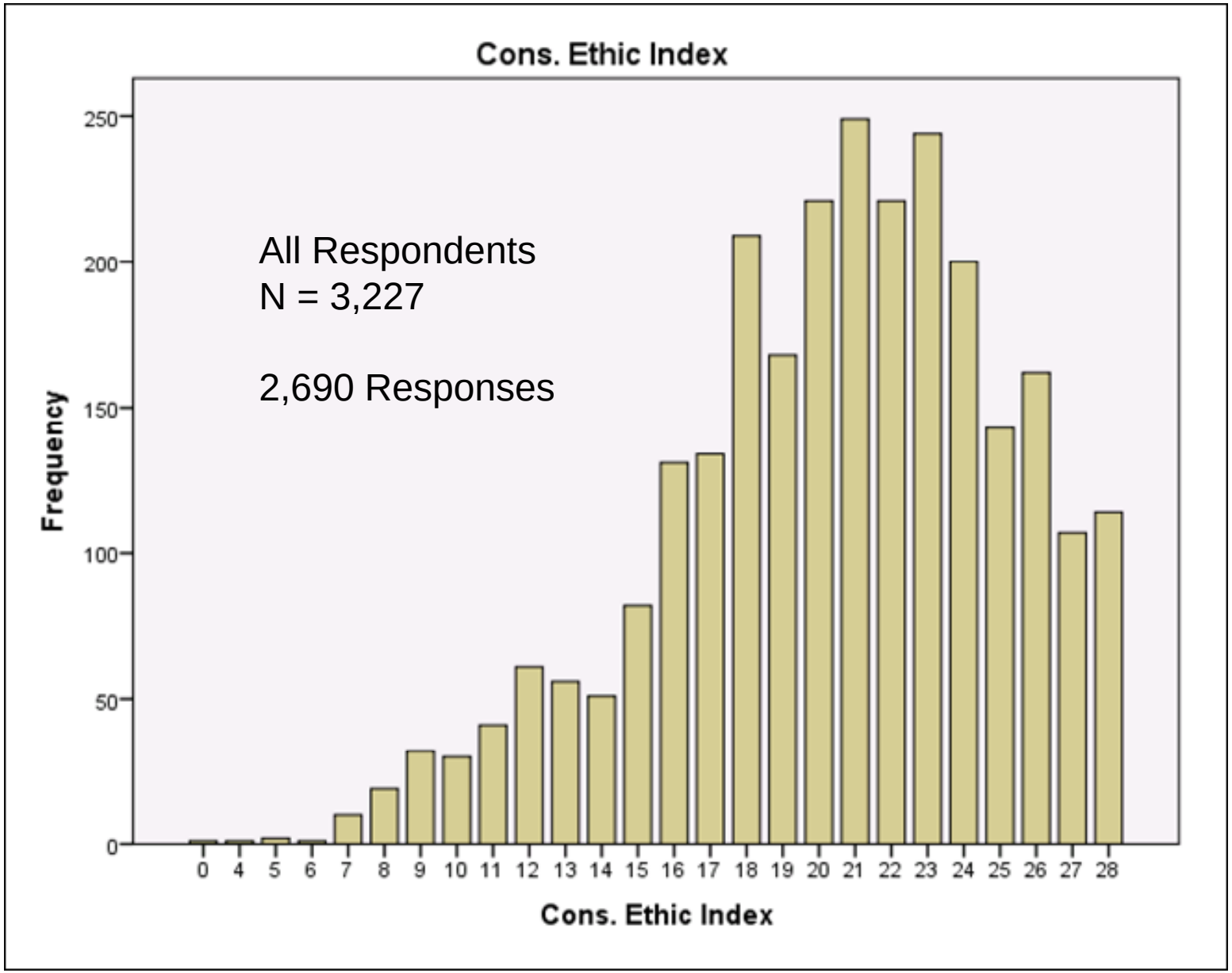


Figure 9: Total Area per Property Category for All Respondents

- A relatively low number of people own a large area of the land represented in the survey

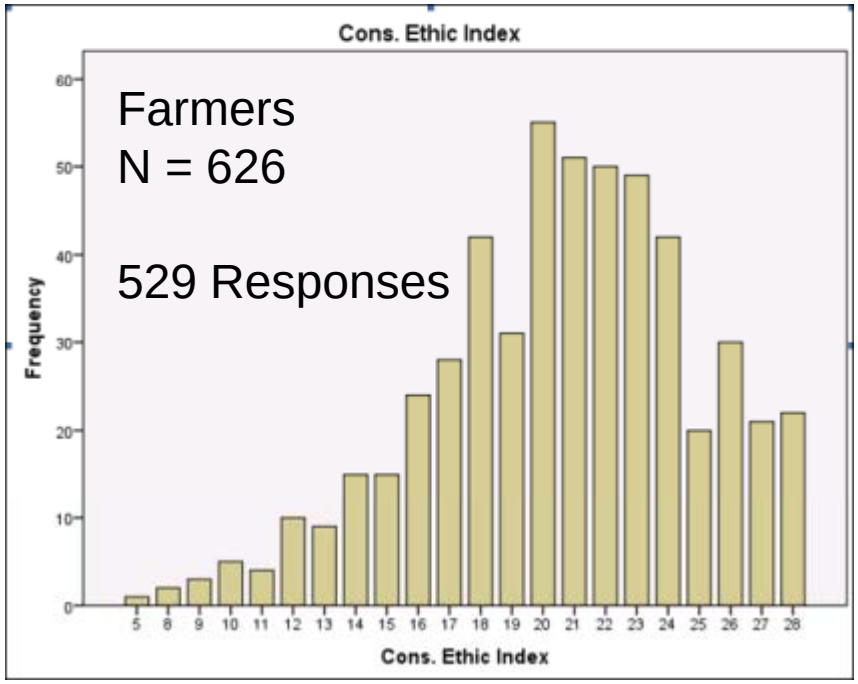
Attitudes vs. Behaviour

- Conservation attitude determined based on a Conservation Ethic Index constructed from answers to various questions in the survey
- Conservation behaviour measured by the addition or removal of “conservation lands” from 2006 to survey implementation (April 2013)

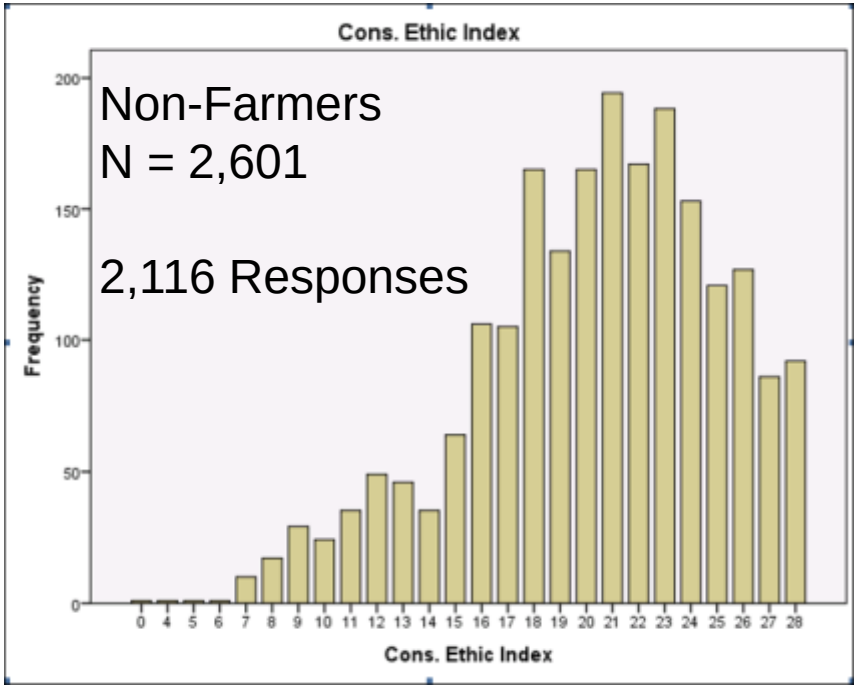

Cons. Ethic Index
All Respondents
N = 3,227
2,690 Responses
Frequency
250
200
150
100
50
0
0 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28
Cons. Ethic Index

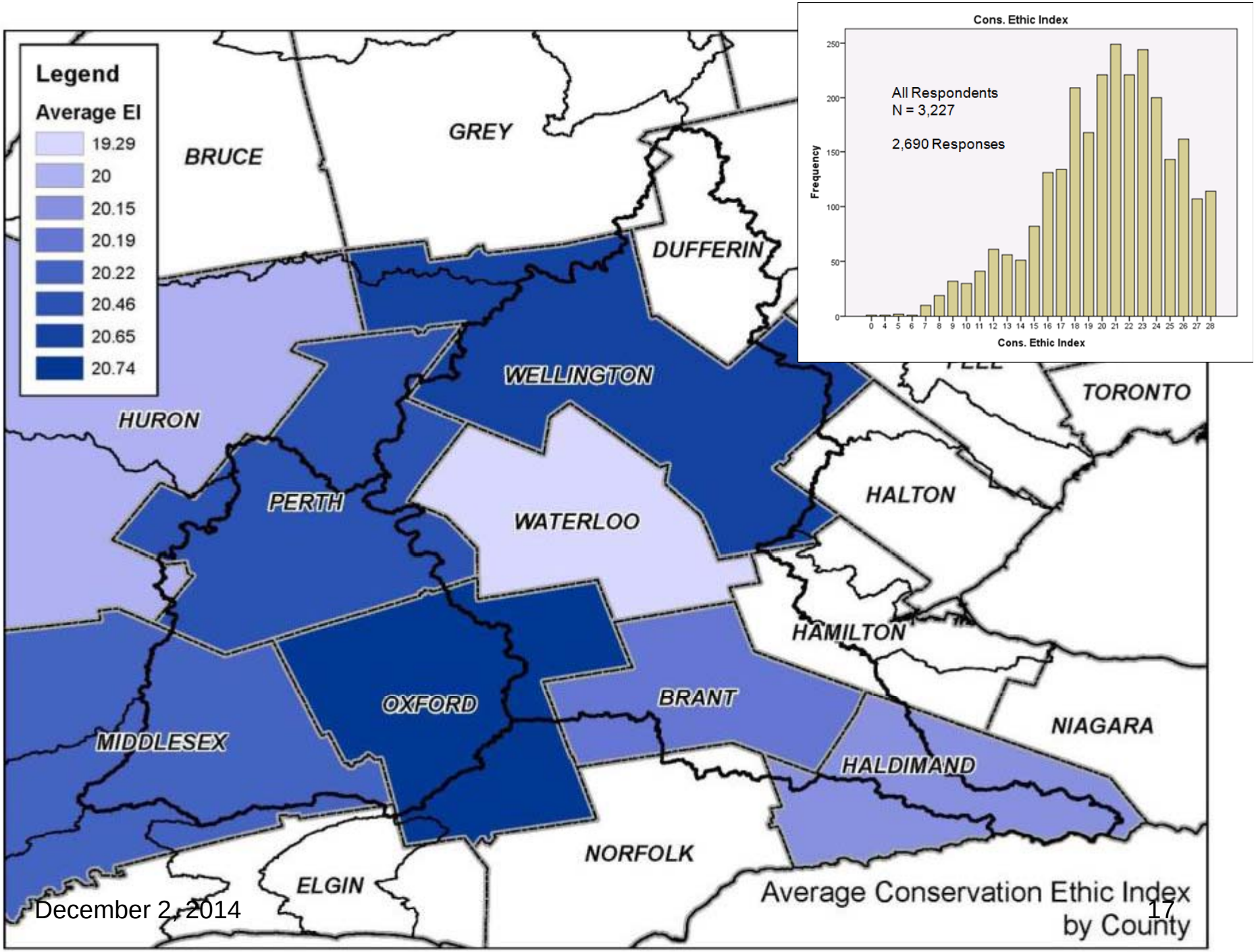
Conservation Ethic Scores

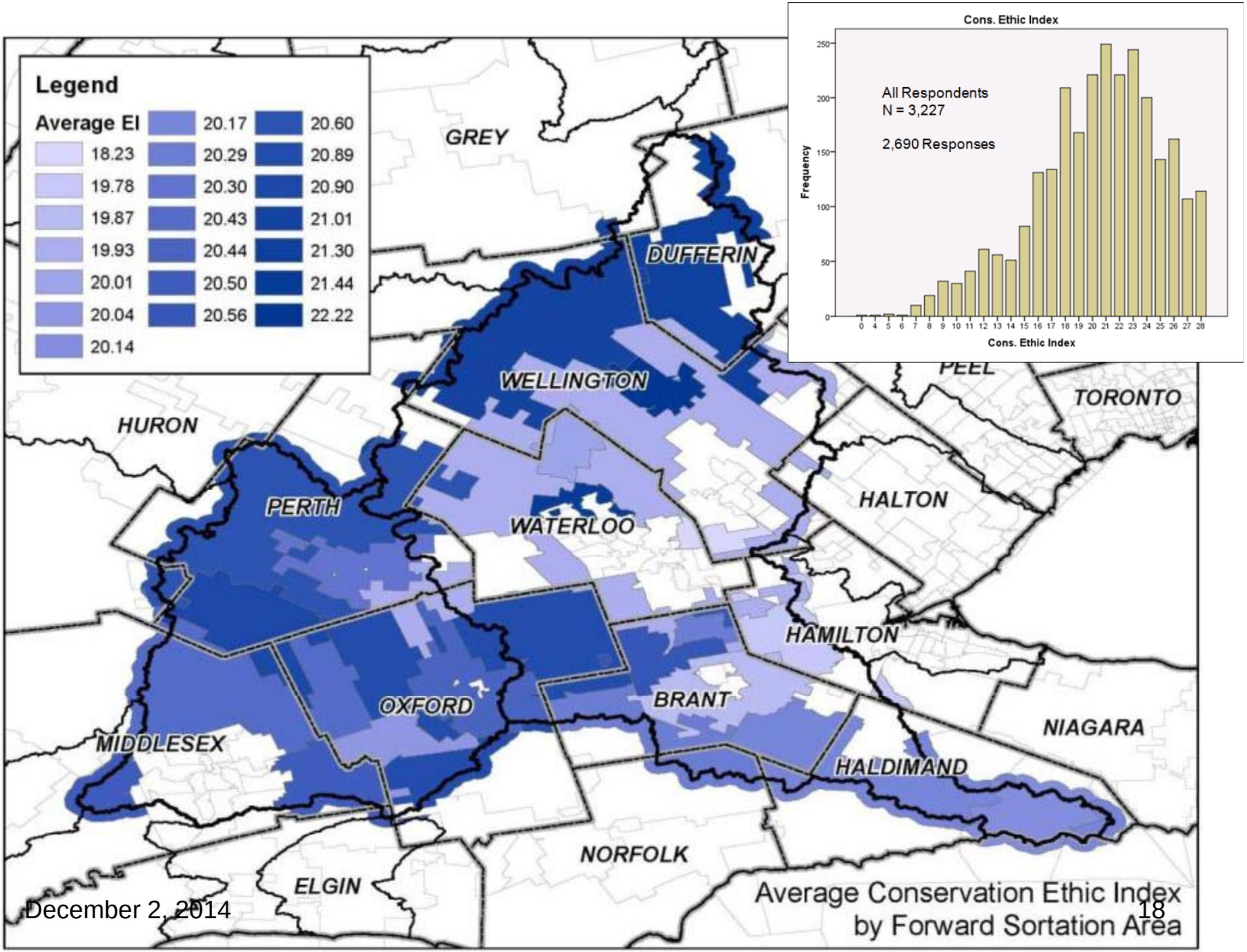
Farmers



Non-Farmers




Legend
Average EI
19.29
20
20.15
20.19
20.22
20.46
20.65
20.74
BRUCE
GREY
DUFFERIN
WELLINGTON
HURON
PERTH
WATERLOO
TORONTO
HALTON
HAMILTON
OXFORD
BRANT
NIAGARA
MIDDLESEX
HALDIMAND
NORFOLK
ELGIN
Cons. Ethic Index
All Respondents
N = 3,227
2,690 Responses
Frequency
Cons. Ethic Index
Average Conservation Ethic Index
by County


Legend
Average EI
18.23
19.78
19.87
19.93
20.01
20.04
20.14
20.17
20.29
20.30
20.43
20.44
20.50
20.56
20.60
20.89
20.90
21.01
21.30
21.44
22.22
Cons. Ethic Index
All Respondents
N = 3,227
2,690 Responses
Frequency
Cons. Ethic Index
GREY
DUFFERIN
WELLINGTON
HURON
PERTH
WATERLOO
PEEL
TORONTO
HALTON
HAMILTON
OXFORD
BRANT
NIAGARA
MIDDLESEX
HALDIMAND
NORFOLK
ELGIN
Average Conservation Ethic Index
by Forward Sortation Area

Findings for Farmers (Statistical)

- Farmers with larger properties tend to exhibit more conservation oriented behaviour. No relationship for conservation ethic score.
- Farmers that have owned their land for a longer period of time exhibit more conservation oriented behaviour and have higher conservation ethic index scores.

Findings for Farmers (Continued)

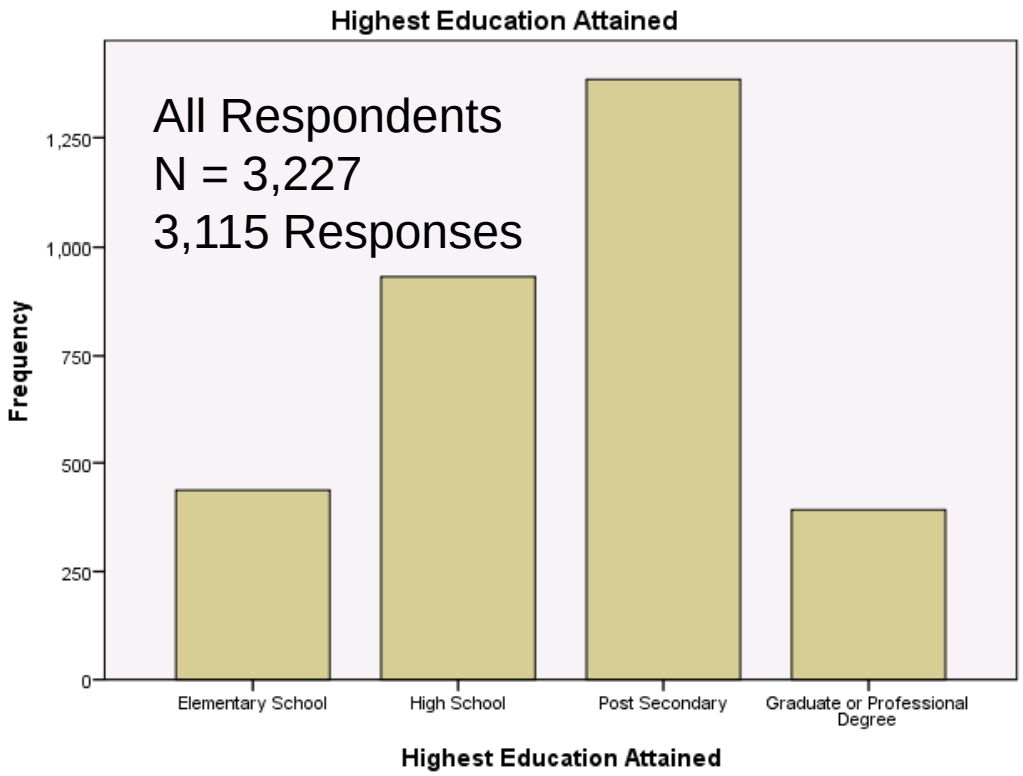
- Farmers with higher debt loads tend to have lower conservation ethic scores (slightly lower standard)
- Older farmers exhibit more conservation oriented behaviour than younger farmers (slightly lower standard)

Findings for Farmers (Continued)

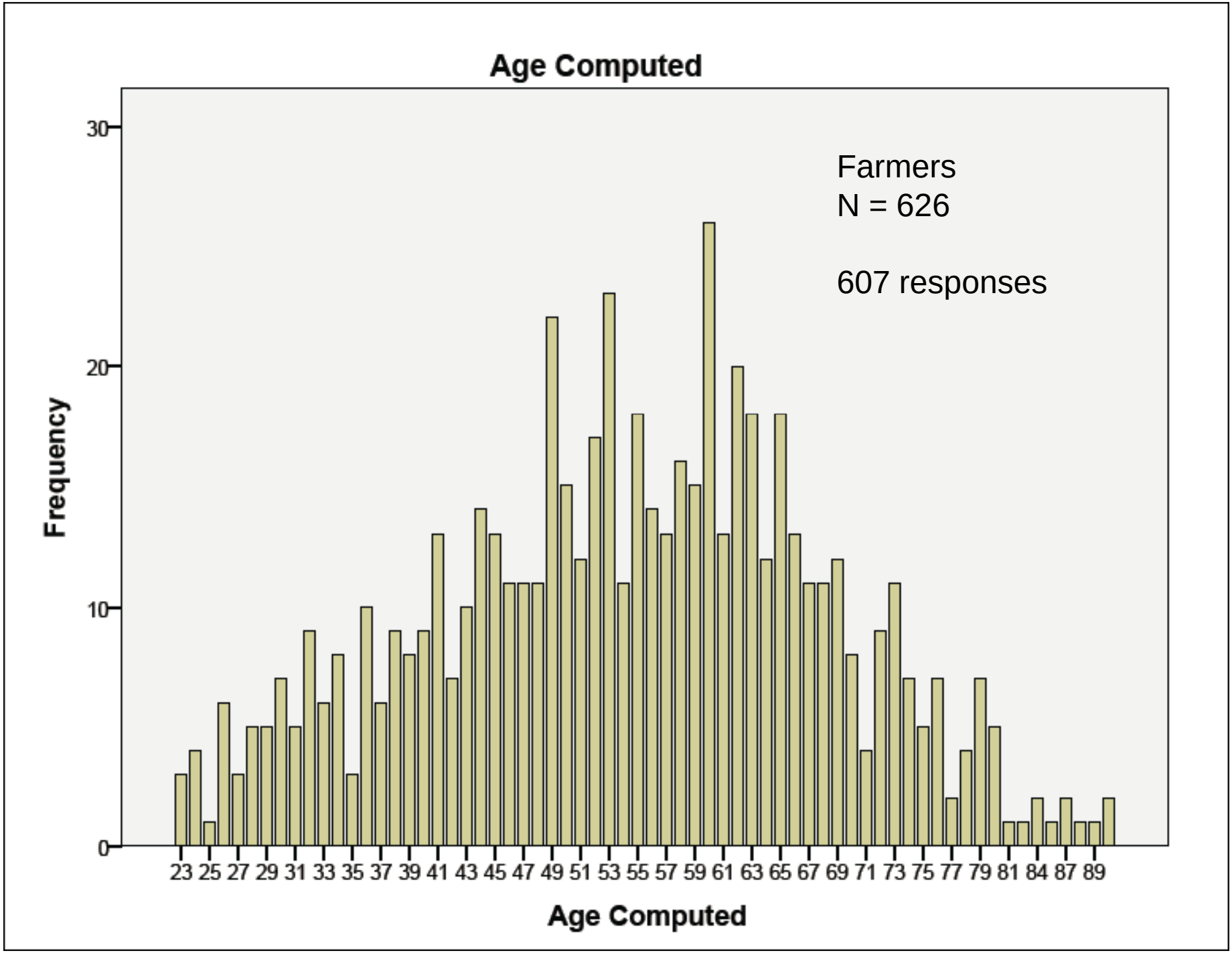
- Weak relationship (lower standard) between highest education attained and conservation attitude
- No relationship between household income and conservation behaviour or conservation attitude
- No relationship between reliance on farm income and conservation behaviour or conservation attitude

Age and Education (Descriptive)

- Farmers under 40 years old report a lower level of education attained than farmers 40 – 59 years old and farmers 60 years and older.



Education level for all respondents


Age Computed
Frequency
30
20
10
0
Farmers
N = 626
607 responses
23 25 27 29 31 33 35 37 39 41 43 45 47 49 51 53 55 57 59 61 63 65 67 69 71 73 75 77 79 81 84 87 89
Age Computed

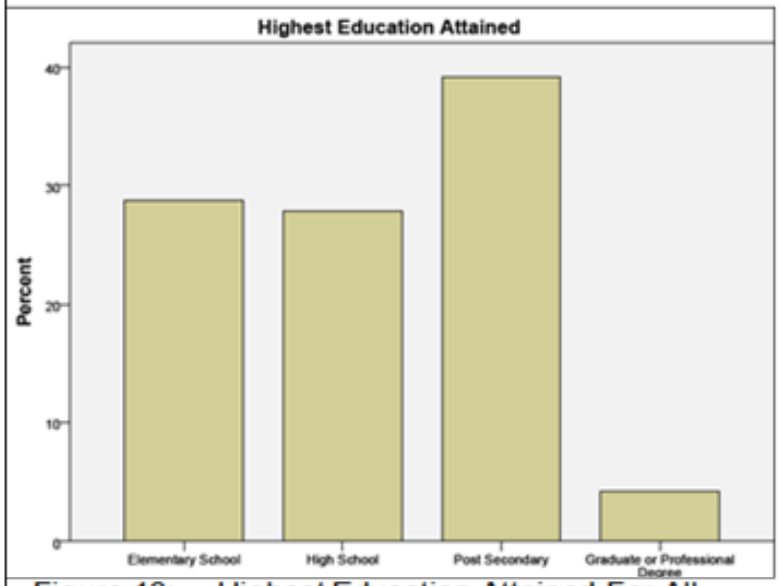


Figure 13: Highest Education Attained For All Farm Respondents

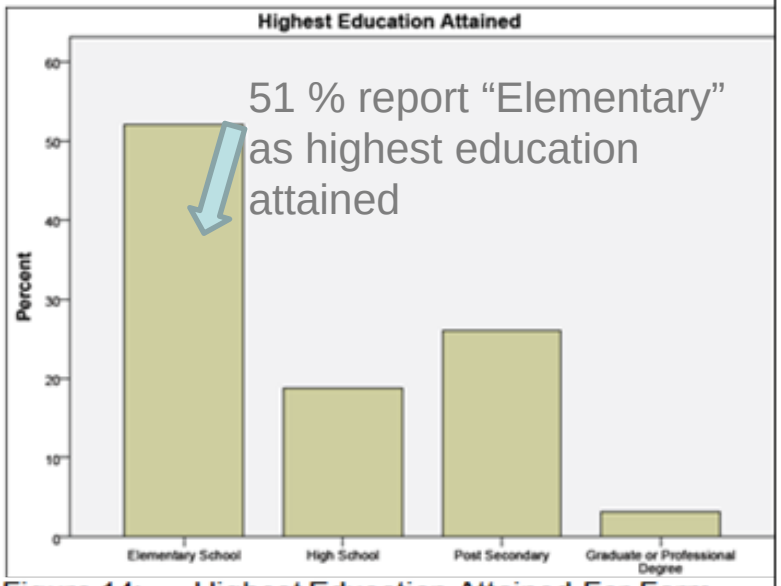


Figure 14: Highest Education Attained For Farm Respondents Less Than 40 Yrs (N = 96)

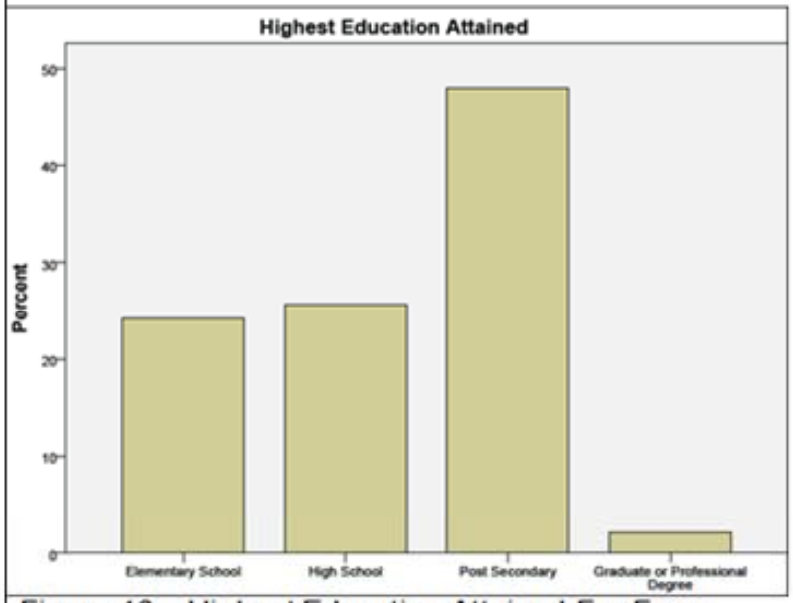


Figure 16: Highest Education Attained For Farm Respondents 40 – 59 Yrs (N= 273)

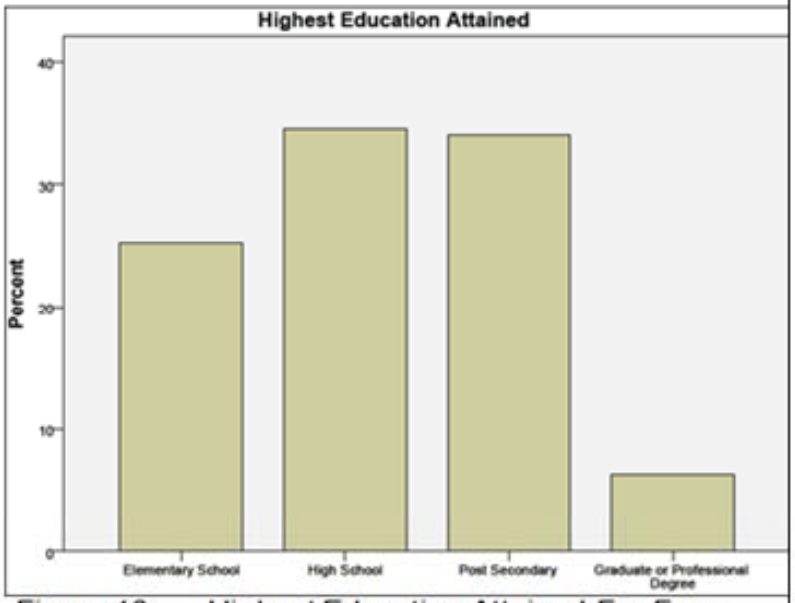
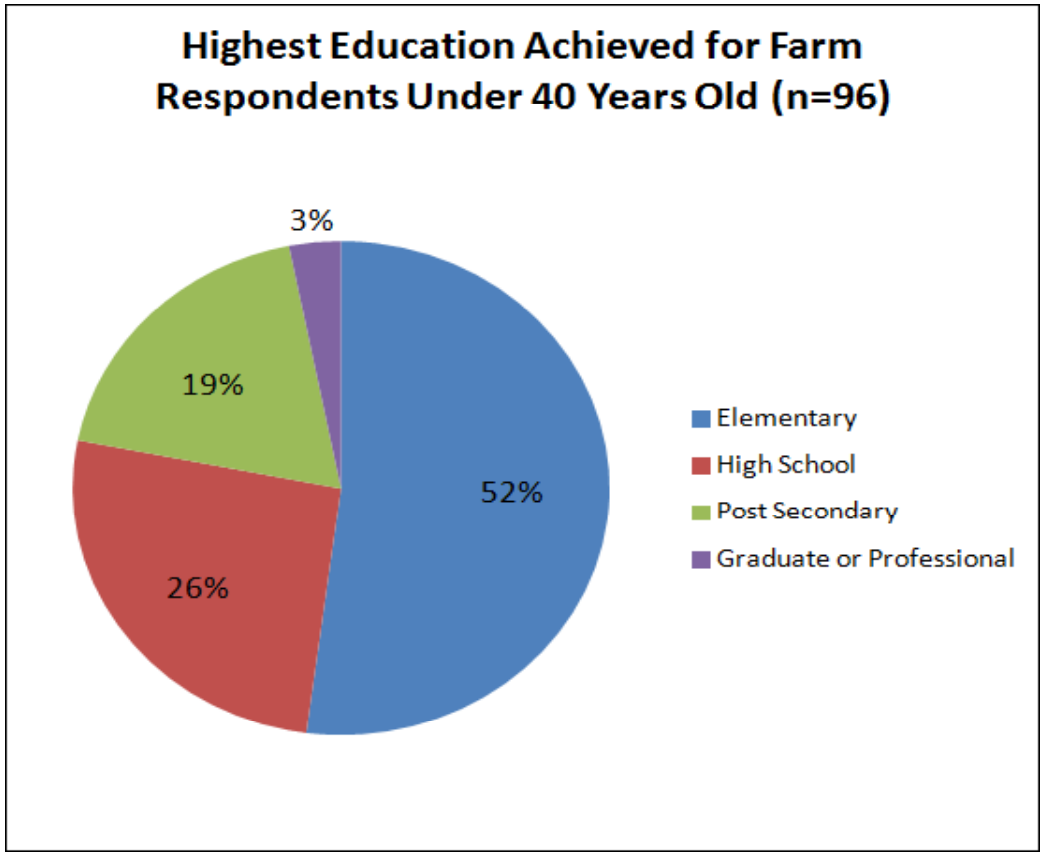
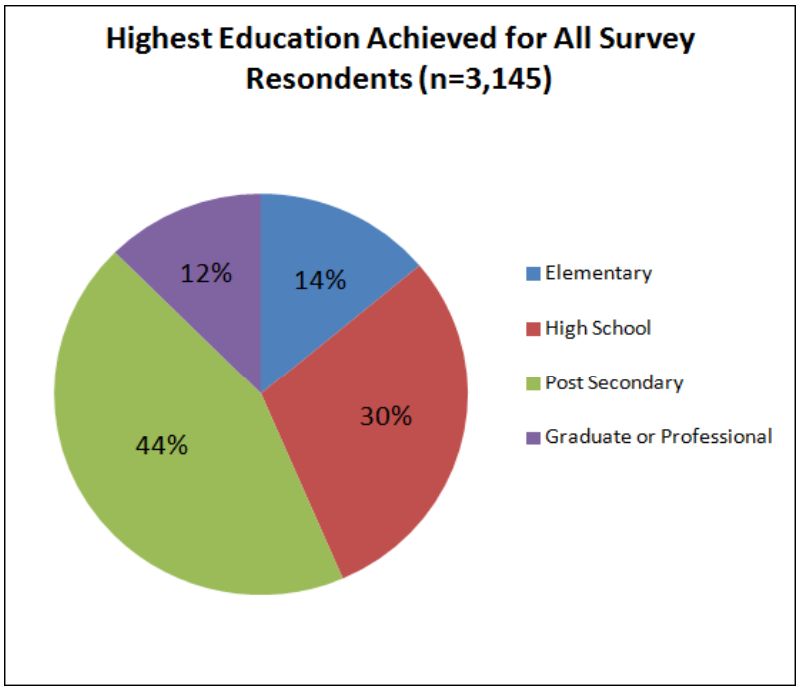
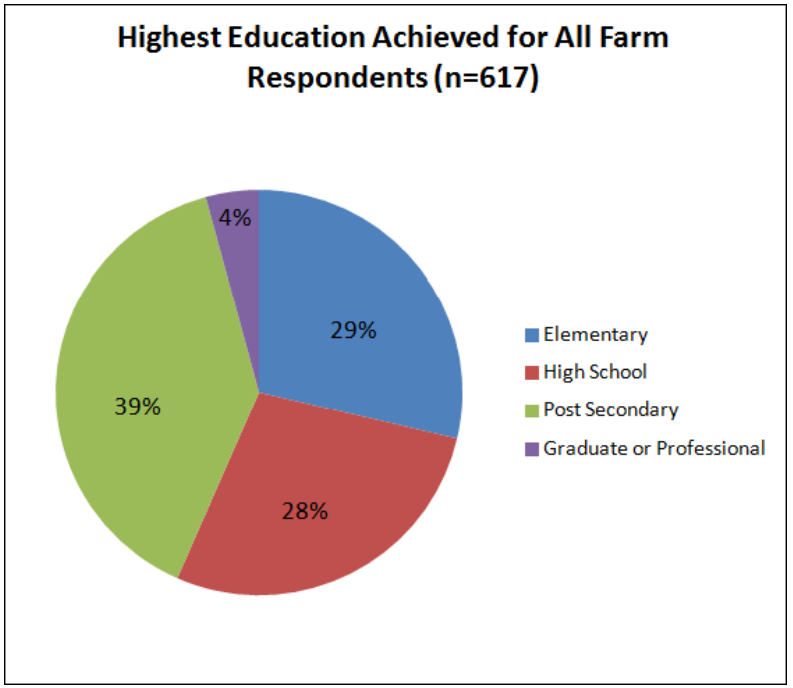


Figure 16: Highest Education Attained For Farm Respondents 60 + Yrs Old (N = 206)

Formal Education







December 2, 2014

Secondary Analysis

(Kirsten Grant, OMAF / U of G)

December 2, 2014

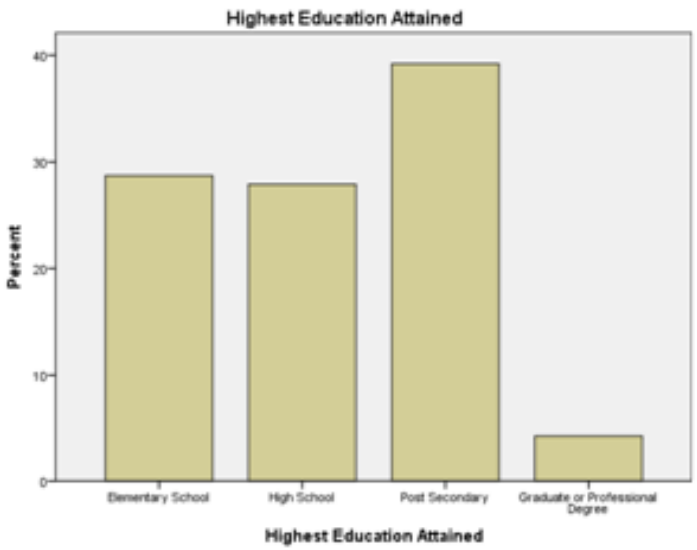


Figure 9: Highest education attained for all large scale farmers (N=620).

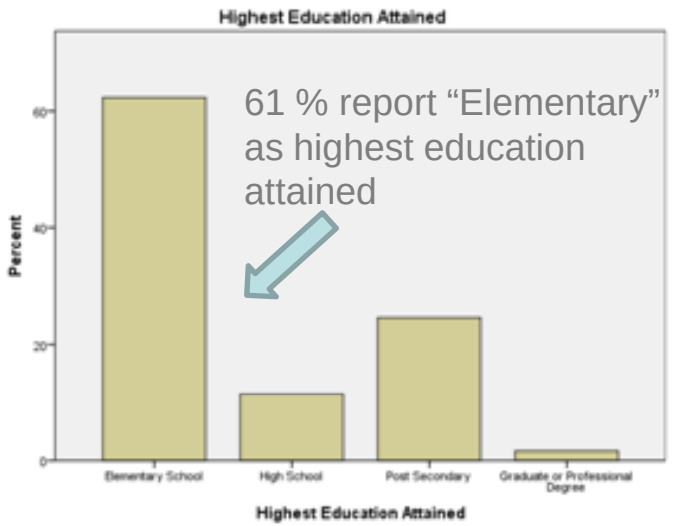


Figure 10: Highest education attained for large scale farmers less than 35 years of age (N=61).

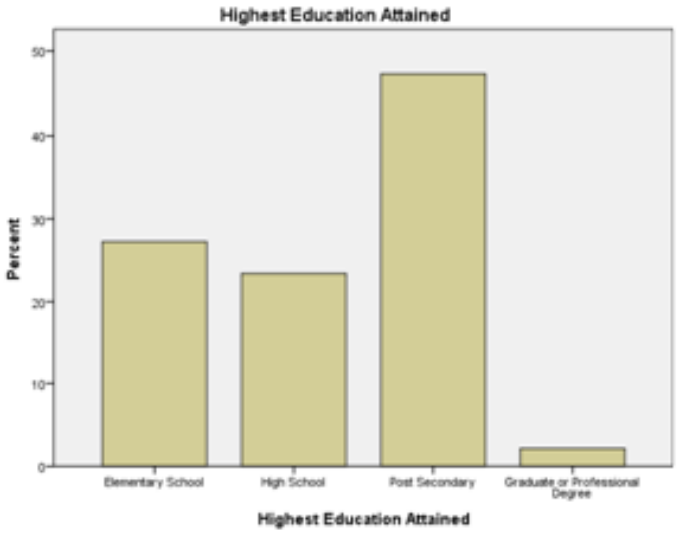


Figure 11: Highest education attained for large scale farmers between 35 and 55 years of age (N=235).

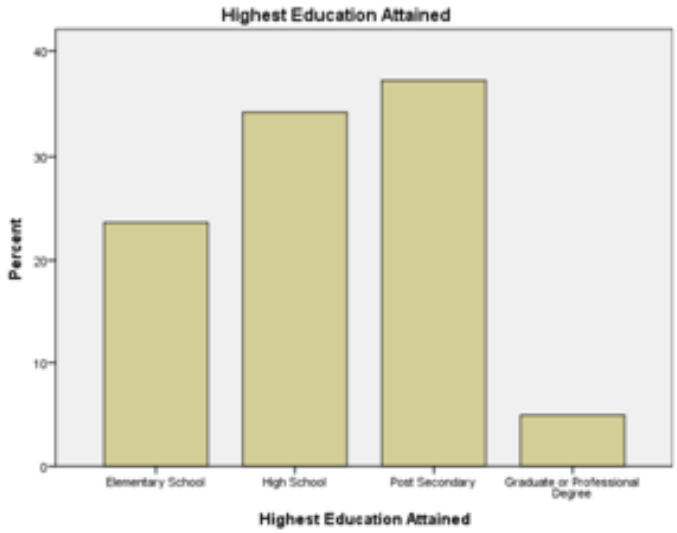


Figure 12: Highest education attained for large scale farmers over 55 years of age (N= 385).

What does it all mean??

- Perhaps should put more effort into targeting large property owners for our conservation services.
- Modify services to appeal to younger operators
- Distribution of ethic index scores provides some indication on where we might want to focus marketing/promotion efforts

New Questions!

- Why are younger farmers less conservation oriented?
- Why are younger farmers not pursing formal education?
- Is the shifting economics of agriculture having a greater impact on the conservation behaviour and attitudes of younger farmers?
- What does this mean for program uptake?

Limitations and Cautions

- Non-response bias
  - 82 % non-response rate
  - More likely to hear from “conservation oriented” people
  - Removal of conservation lands likely under reported
- Net change in conservation lands is only one measure of conservation behaviour - did not explore conservation tillage.

Limitations and Cautions

- Snapshot in time
  - Commodity prices have retreated
  - Land prices remain high
- Net change in conservation lands is only one measure of conservation behaviour. For example, did not explore conservation tillage.

Next Steps – COA Project

- Anticipated tasks:
  - Separate data (Upper Thames from Grand)
  - Prepare additional descriptive statistics and compare to other data sources (non-response)
  - Additional statistical analysis (non-farm, examine different landowner categories)
  - Secondary research (ie. focus groups)
  - Integrate with Choice Experiment results
  - Make the “implementation connection”
  - Reports, Publication and Promotion

Acknowledgements

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Social Sciences and Humanities Research Council of Canada
Conseil de recherches en sciences humaines du Canada
Canada

UPPER THAMES RIVER
CONSERVATION AUTHORITY

UNB
UNIVERSITY OF NEW BRUNSWICK

Grand River Conservation Authority

Ontario

UNIVERSITY of GUELPH

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