Landowner Perspectives on Converting Land to Mature Forest for Carbon Sequestration

PREPARED BY:

Richard C. Stedman, Nancy A. Connelly, Andrea Armstrong, Kathryn Bills Walsh

Department of Natural Resources and the Environment

The Nature Conservancy

Center for Conservation Social Sciences
Department of Natural Resources and the Environment
Cornell University

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EXECUTIVE SUMMARY

New York State's 2019 Climate Leadership and Community Protection Act established ambitious climate mitigation goals. To achieve these goals, it will be essential to increase carbon sequestration in the form of mature forest growth. A vast majority of the land that may be converted into mature forest is privately owned. The purpose of this survey was to identify landowners' willingness to convert their land, or a portion thereof, into mature forest, and to better understand the barriers to and incentives that could increase landowners' willingness.

Methods

We implemented a mail survey of landowners within fifteen New York counties spanning two study regions: the Southern Tier and the St. Lawrence Valley. The survey sample consisted of 3,500 landowners with mailing addresses in New York State. The final sample included 2,052 landowners in the Southern Tier region and 1,448 in the St. Lawrence Valley region who owned at least 20 acres.

The mail questionnaire focused on identifying landowner reasons for owning land, and barriers and incentives to converting their land to mature forest. Questions also included knowledge and beliefs about climate change, sources of information about climate change, and background characteristics of landowners and their land. The full text of the questionnaire is available in Appendix A.

The survey data collection began in October 2021 and included four mailings over one month. Pearson's chi-square test and t-tests were used to test for statistically significant differences between respondents and non-respondents. These tests were also used for assessing differences between respondents across study regions.

Results Highlights

We received responses from nearly one thousand landowners (n = 979). Adjusting for undeliverable surveys, the overall response rate was 29.3%. We received a greater number of surveys at a higher response rate within the Southern Tier region (n = 598, 61.1% of all responses), recognizing that the initial sample size from Southern Tier landowners was greater than that of the St. Lawrence Valley.

<u>Reasons for land ownership</u>: Respondents generally identified three reasons for owning their land, listed in descending popularity: nature; personal use or recreation; and economic productivity.

<u>Information sources about climate change</u>: One-third of respondents indicated that they used "Online/Internet" sources in the past, which was the most common information source. The second-most frequent source of information was the New York State Department of Environmental Conservation (NYSDEC), followed by Cornell Cooperative Extension.

<u>Knowledge and beliefs about climate change</u>: On average, respondents were more familiar with climate change than they were with concepts of forest carbon storage, carbon neutrality, or carbon offsets or trading. Over half of respondents were 'not at all' or 'slightly' familiar with forest carbon storage or sequestration. Nearly half (44.1%) of respondents strongly agreed that climate change is a serious problem that requires immediate action, but less than a quarter (23.4%) strongly agreed that climate change presents a threat to their land or their local community.

<u>Converting land cover</u>: Respondents—regardless of their willingness to convert their property into mature forest—were most interested in converting their current land cover for improved wildlife habitat (58.2% of respondents were 'very interested'). The second-most popular motivator of land conversation was mature forest for carbon storage, with one-third (33.0%) of respondents 'very interested' and one-fifth (18.7%) 'not at all interested'. Landowners were the least interested in converting their land to wind energy or solar energy production. In terms of potential barriers to converting land cover for mature forest, nearly half of respondents perceived a lack of labor (46.6%), the upfront and ongoing costs (45.7%), and possible restrictions placed on forest management or timber harvest (44.0%) as the largest barriers to land cover conversion.

<u>Willingness to convert land cover into mature forest:</u> Nearly two-thirds (64%) of respondents indicated that they were moderately or very interested in converting some of their land to grow mature forest for carbon sequestration. This level of willingness is, overall, reasonably high given that this estimate does not account for potential incentives that could lessen the barriers to converting land for mature forest cover. It is also important to note that this is a general measure of landowner willingness that does not include the amount of land or type of land that could potentially be converted.

<u>Response to incentives:</u> The most popular incentive among respondents was additional resources- money, labor, and technical advice. Within this category, respondents reported that a tax deduction (56.7% 'greatly increase willingness') and financial assistance (47.4% 'greatly increase willingness') were the most influential incentives. Respondents' willingness also

increased with planting and maintenance assistance (43.8% 'greatly increase willingness') and receiving expert advice (39.3% 'greatly increase willingness').

<u>Management actions for growing mature forest</u>: On average, landowners were most willing to plant tree seedlings (46.7% of respondents were 'very willing'), followed closely by cutting brush (46.9% of respondents were 'very willing'). Respondents were, to a lesser extent, willing to install tree tubes or cages and perform annual maintenance of planted seedlings, tubes, cages, or fencing.

<u>Willingness to convert different land types to mature forest</u>: Overall, respondents were most willing to convert their land that was already in young forest (47.2% 'very willing') and shrubland (46.7% 'very willing') into mature forest. Landowners were less willing to convert fallow fields (34.1% 'very willing'), grassland (23.4% 'very willing'), and agricultural land (17.8% 'very willing') to mature forest. Respondents with agricultural land on the Southern Tier were significantly more willing (mean = 2.16) to convert agricultural land to mature forest than those in the St. Lawrence Valley (mean = 1.91).

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INTRODUCTION

New York State has approximately 1.6 million acres of former agricultural lands that are potentially available for developing renewable energy, livestock, or forest products. Currently, many of these lands have invasive weedy vegetation such as buckthorn, multiflora rose, and honeysuckle. Without intervention, these areas will remain underutilized and underproductive in terms of carbon sequestration for decades. Reforestation with native species could provide many benefits including timber production, bioenergy, and carbon sequestration that could help meet New York's climate goals. However, there is a need to better understand landowner interest in reforestation, the methods and cost of such reforestation, the barriers to reforestation, and local and regional impacts of reforestation.

The purpose of this project is to understand private landowners' interests in reforestation, their land management objectives, and what barriers may exist and how they can be mitigated to increase landowner willingness. This report summarizes the findings of this study.

METHODS

Sample Selection

We sampled landowners from two regions in New York State (NYS). The Southern Tier region included nine counties (Allegany, Broome, Cattaraugus, Chautauqua, Chemung, Chenango, Schuyler, Steuben, and Tioga). The St. Lawrence Valley region included six counties (Clinton, Franklin, Jefferson, Lewis, Oswego, and St. Lawrence). Using property tax rolls we identified parcels of 20+ acres with any of the following property classifications:

- agricultural vacant   105
- rural residence   240
- primary residential/ag   241
- seasonal residences   260
- rural   320
- abandoned ag   321
- residential vacant 10+ acres 322
- other rural vacant   323

We drew a random sample of 3,500 landowners who owned land of at least 20 acres under one of these classifications, who had mailing addresses in NYS. In the final sample there were 2,052 landowners meeting these criteria in the Southern Tier region and 1,448 in the St. Lawrence region, based on relative proportion of landowners across the two regions.

Questionnaire Design and Implementation

Our mail questionnaire instrument focused on identifying landowner reasons for owning land, their interest in alternative uses for their land, and barriers and incentives to converting their land to mature forest. Questions also included knowledge and beliefs about climate change, sources of information about climate change, and background characteristics of landowners and their land. The full text of the questionnaire is available in Appendix A. We implemented the mail survey starting on October 20, 2021. We sent up to three follow-up mailings, including another copy of the questionnaire, to non-respondents over the course of the next four weeks to encourage their response.

Non-respondent Comparisons

We implemented a telephone follow-up survey of 50 non-respondents (25 from the Southern Tier region and 25 from the St. Lawrence Valley region) approximately two months after the first mailing of the questionnaire to understand how non-respondents differed from respondents. Key questions from the mail survey—interest in alternative uses for their land, climate change beliefs, and acreage owned—were asked over the telephone. A copy of the telephone interview instrument can be found in Appendix B.

Analysis

We analyzed the data using SPSS Statistics 27.0 (IBM Corp. 2016). Pearson's chi-square test and t-tests were used to test for statistically significant differences between respondents and non-respondents, and landowners in the two regions at the $P < 0.05$ level. Scheffe's test was used to test for differences in means between more than three groups, such as for differences in education level.

We used principal component factor analysis with varimax rotation to group items into scales addressing 1) reasons for land ownership, 2) barriers to converting land to mature forest, 3) incentives for converting land, and 4) climate change beliefs. The reliability of each of these scales was tested using Cronbach's alpha. The items in scales of sufficient reliability were combined, by taking their average, into a single variable that was used for further analyses.

RESULTS AND DISCUSSION

Response Rate and Non-respondent Comparisons

We received responses from nearly one thousand landowners (n = 979). Adjusting for undeliverable surveys, the overall response rate was 29.3%. We received a higher response rate within the Southern Tier region (n = 598, 30.4% response rate) than in the St. Lawrence Valley (n=380, 27.7% response rate, Table 1).

Table 1. Response rate, by stratum.

Strata	Initial sample size	Undeliverables	Responses n, pct. total	Response rate adjusted for undeliverables
Southern Tier	2,052	86	598, 61.1%	30.4
St. Lawrence Valley	1,448	75	380, 38.9%	27.7
Total	3,500	161	979*	29.3

* The total includes one respondent who removed their identification number and therefore could not be categorized as Southern Tier or St. Lawrence Valley.

We assessed non-response bias to determine whether respondents were systematically different from non-respondents in important ways that would affect our interpretation of the results. Using a telephone survey, participants were selected randomly from the non-respondent population (Table 2). Respondents were older than non-respondents by 6.2 years, on average. Since so few differences were found between the sociodemographic characteristics or landcover of respondents' properties, no adjustments to the data presented in this report have been made for non-response bias based on demographic attributes. However, it is worth noting that landowners who responded to the survey tended to be more interested in land management or conversion opportunities than non-respondents. As such, our estimates herein should be interpreted as an 'upper bound' of participation likelihood.

Table 2. Tests for non-response bias in key questions and respondent attributes.

Questions	Percent	
	Respondents	Non-respondents
Gender *(NS)*		
Male	76.0	64.0
Female	24.0	36.0
	Means Comparisons	
Age *(t=2.60, df=48, p=0.013)*	64.8	58.6
# acres owned in NYS *(NS)*	108.5	130.7
# residential acres *(NS)*	3.2	5.7
# agricultural acres *(NS)*	26.1	53.6
# grassland or field acres *(NS)*	5.5	10.3
# fallow field acres *(NS)*	5.0	6.3
# shrubland acres *(NS)*	8.5	5.6
# young forest acres[a] *(NS)*	9.4	5.8
# mature forest acres[b] *(NS)*	47.5	42.5
# other land type acres (NS)	3.8	1.0
Interest in mature forest as a way to store carbon[a] *(t=6.87, df=52, p<0.001)*	2.78	1.68
Interest in solar energy production[a] *(t=5.18, df=68, p<0.001)*	2.17	1.50
Interest in wind energy production[a] *(t=2.43, df=56, p=0.019)*	2.06	1.70
Interest in improved wildlife habitat[a] *(5.63, df=48, p<0.001)*	3.36	2.31
Interest in timber or forest products for sale[a] *(4.32, df=56, p<0.001)*	2.34	1.67
Interest in timber or forest products for my family's use[a] *(NS)*	2.43	2.30
<u>**Agreement/disagreement with statement**</u>		
Climate change is a serious problem that requires immediate action[b] *(t=2.14, df=49, p=0.037)*	3.80	3.31
Concern about climate change is overblown[b] *(NS)*	2.57	2.86
My personal actions can have an influence on climate change impacts in NY[b] *(NS)*	3.62	3.34
I don't think carbon storage will help with climate change[b] *(NS)*	2.46	2.44

NS=not significant

[a]Interest was measured on a scale from 1=not at all interested to 4=very interested.

[b]Agreement was measured on a scale from 1=strongly disagree to 5=strongly agree.

Characteristics of respondents and their land

Across both geographies, survey respondents tended to be male (73%), reside in rural areas (81.3% rural), and somewhat politically conservative (mean= 3.49 on a five-point scale). Compared to other adult residents of New York State, respondents had similar levels of education (38.4% respondents with Bachelor's degree or more, 37.5% residents of NYS). Respondents from the St. Lawrence Valley more frequently lived in a rural area than Southern Tier respondents, who by comparison were more politically conservative. There were no significant differences between the regions in terms of respondents' gender, age, or educational attainment (Table 3).

Table 3. Respondent characteristics[1] by region.

Respondent characteristics	Percent		
	Southern Tier	St. Lawrence Valley	Overall
Gender			
Male	75.6	68.9	73.0
Female	21.2	26.1	23.1
Other	0.2	0.5	0.3
Prefer not to say	0.8	2.4	1.4
Location of primary residence[a]			
Urban	4.1	3.3	3.7
Suburban	17.1	6.2	12.6
Rural	78.8	90.5	81.3
Political leaning[b]			
Very liberal	4.4	6.8	5.0
Somewhat liberal	9.8	13.8	10.7
Moderate / Middle of the road	29.0	35.5	29.7
Somewhat conservative	36.2	28.5	31.5
Very conservative	20.6	15.5	17.6
Education			
Less than high school	2.9	2.7	2.8
High school degree or G.E.D.	19.1	22.0	19.8
Some college or technical school	21.7	21.5	21.0
Associate's degree	16.6	14.9	15.5
College degree	18.6	16.6	17.4
Graduate degree	21.2	22.3	21.0
	Means		
Age	64.9	64.6	64.8

[1] Columns may not total to 100% due to missing responses for some items and/or rounding

[a]Statistically significant difference between regions at $P<0.05$ using chi-square test.

[b]Statistically significant difference between regions at $P<0.05$ using t-test.

The number of acres owned varied greatly among respondents. On average, landowners owned 121.29 total acres (Std. dev. = 433.47, median = 68.0 acres). The most common type of land cover overall across both study regions, was mature forest (mean = 49.55, std. dev = 92.90), followed by agricultural (mean = 35.6 acres, std. dev. = 299.8). The relative land cover composition was fairly consistent across the two study regions (Table 4); however, respondents from the St. Lawrence Valley tended to own more acres and more acres in shrubland, young forest, or wetlands than respondents in the Southern Tier.

Table 4. Acreage of land types owned by region.

Land types	Southern Tier		St. Lawrence Valley	
	Mean acres	Std. dev.	Mean acres	Std. dev.
Total[a]	100.3	115.2	121.4	138.9
Residential (lawn, gardens, buildings, paved)	2.9	3.6	3.7	8.7
Agricultural (crop fields, pasture, Christmas trees, hay fields mowed at least once a year)	25.2	56.1	27.4	62.3
Grassland or field mowed every 1-3 years	5.0	14.3	6.3	29.0
Fallow fields that have not been grazed, mowed, or planted in more than 3 years (<25% brush)	4.8	12.6	5.4	16.2
Shrubland (>25% brush)[a]	7.3	15.9	10.3	23.7
Young forest (most trees with trunks less than 4" in diameter)[a]	6.9	14.4	13.3	29.9
Mature forest	45.0	60.6	51.4	77.5
Other (primarily water, wetland, swamp)[a]	2.3	13.8	6.1	25.1

[a]Statistically significant difference in means between regions at P<0.05 using t-test.

Reasons for owning land

Respondents identified three reasons for owning their land: nature, personal use or recreation, and economic productivity (Table 5). Of the three, nature was the most important reason, on average, followed by personal use and recreation. Under the category of personal use and recreation, over one-fifth of respondents indicated that hunting and fishing (21.0%) and privacy (22.3%) were the most important reasons for which they owned their land. Nearly half of respondents indicated that farming (47.0%) and timber products for sale (43.9%) were not at all important reasons for owning their property. Economic productivity was more important for landowners on the Southern Tier than those in the St. Lawrence Valley (Table 6).

Table 5. Reasons for owning land in New York State[1].

Reasons for owning land	Percent					Mean*
	Not at all important	Slightly important	Moderately important	Very important	Most important reason	
Nature						
(alpha=0.685)					**39.1**	**3.41**
Enjoy scenery	3.0	10.2	28.9	57.9	8.8	3.42
Protect nature	2.9	12.9	28.4	55.9	8.0	3.37
Privacy	4.7	9.0	24.3	62.0	22.3	3.34
Personal use, recreation						
(alpha=0.559)					**42.6**	**2.81**
Hunting and fishing	18.4	14.2	18.0	49.3	21.0	2.98
Other recreation	15.0	18.0	29.4	37.6	6.8	2.90
Pass on to my heirs	17.5	17.7	22.9	41.9	12.8	2.89
Firewood for personal use	31.7	24.6	21.1	22.6	2.0	2.35
Economic Return						
(alpha=0.522)					**18.3**	**2.22**
Investment	21.2	25.1	28.1	25.6	5.5	2.58
Farming / raising livestock	47.0	21.0	14.5	17.5	11.2	2.02
Timber products for sale	43.9	23.6	21.6	11.0	1.6	2.00

[1] Columns may not total to 100% due to missing responses for some items and/or rounding

*Measured on a 4-point scale where 1=not at all important to 4=very important.

Table 6. Reasons for owning land in NYS, by region.

Reasons for owning land	Mean*	
	Southern Tier	St. Lawrence Valley
Nature	3.40	3.41
Personal use, recreation	2.82	2.79
Economic return [a]	2.30	2.10

*Measured on a 4-point scale where 1=not at all important to 4=very important.

[a]Statistically significant difference between regions at $P<0.05$ using t-test.

Familiarity with climate change concepts

On average, respondents were more familiar with climate change than they were with concepts of forest carbon storage, carbon neutrality, or carbon offsets or trading (Table 7). Nearly two-thirds of all respondents noted that they were 'not at all familiar' or 'slightly familiar' with carbon offsets or trading (64.3%) and with carbon neutrality (63.5%). Over half (52.1%) of respondents were 'not at all familiar' or 'slightly familiar' with forest carbon storage or sequestration concepts. Landowners in the St. Lawrence Valley were more familiar with forest carbon storage and carbon neutrality than landowners in the Southern Tier.

Table 7. Familiarity with climate change concepts, overall and by region.

Climate change concepts	Percent				Mean*
	Not at all familiar	Slightly familiar	Moderately familiar	Very familiar	
Climate change or global warming	**5.3**	**14.5**	**40.7**	**39.4**	**3.14**
Southern Tier	5.4	15.7	41.4	37.4	3.11
St. Lawrence Valley	5.1	12.4	39.8	42.7	3.20
Forest carbon storage or sequestration[a]	**25.6**	**26.5**	**27.7**	**20.2**	**2.43**
Southern Tier	27.4	28.4	25.9	18.3	2.35
St. Lawrence Valley	22.8	23.4	30.5	23.4	2.54
Carbon neutrality[a]	**31.6**	**31.9**	**22.5**	**14.0**	**2.19**
Southern Tier	33.1	33.3	21.2	12.4	2.13
St. Lawrence Valley	29.3	29.6	24.7	16.4	2.28
Carbon offsets or carbon trading	**33.0**	**31.3**	**23.3**	**12.4**	**2.15**
Southern Tier	33.9	32.8	21.9	11.5	2.11
St. Lawrence Valley	31.6	28.8	25.6	14.0	2.22

* Measured on a 4-point scale where 1=not at all familiar to 4=very familiar.

[a]Statistically significant difference between regions at $P<0.05$ using t-test.

The four items that measured climate change familiarity were averaged onto a climate change familiarity scale (alpha = 0.903, mean = 2.49) (Table 8). Overall, respondents from the Southern Tier were less aware of climate change and related concepts than respondents from the St. Lawrence Valley. With every categorical increase in educational attainment, respondents were significantly more aware of climate change. Politically conservative and moderate respondents were significantly less aware of climate change than politically liberal respondents. There was no difference in overall climate change awareness between rural respondents and those residing in urban/suburban areas.

Table 8. Climate familiarity scale by socio-demographic characteristics.

Characteristics	Mean*
All respondents	2.49
Region	
Southern Tier[a]	2.43
St. Lawrence Valley[b]	2.57
Gender	
Male	2.48
Female	2.51
Education	
High school diploma / G.E.D. or less[a]	2.08
Some college or technical school or 2-year degree[b]	2.38
College undergraduate degree[c]	2.73
Graduate or professional degree[d]	2.96
Location of primary residence	
Urban/suburban	2.56
Rural	2.49
Political orientation	
Liberal[a]	3.03
Moderate / middle of the road[b]	2.49
Conservative[b]	2.33

* Measured on a 4-point scale where 1=not at all familiar to 4=very familiar.

[a, b, c, d]Groups without a letter in common are significantly different from each other for that variable at $p < 0.05$ using t-test or Scheffe's test.

Information sources about carbon sequestration

When asked about information sources on using forests for carbon sequestration, one-third of respondents indicated that they used 'Online/Internet' sources in the past (Table 9). The second-most popular source of information was NYSDEC (used by 25% of respondents), followed by Cornell Cooperative Extension (used by 23.2% of respondents). The information source of respondents that were most aware of climate concepts was Conservation/Environmental organizations (mean = 2.96), while some respondents indicated that formal education courses were also informative.

In terms of the information sources where respondents would turn for information in the future, two-thirds (66.4%) of respondents indicated they would use Cornell Cooperative Extension information, followed by information from NYSDEC (64.9%). These sources were also drawn upon by the most informed respondents, who on average had a climate awareness of 2.51 on a scale of 1 to 4. The number of information sources used in the past was totaled for each respondent. On average, respondents used slightly less than two information sources (mean = 1.8). Forty percent of respondents did not use any information sources in the past, and 16% used one information source. There were no differences between Southern Tier and St. Lawrence Valley regions in terms of the number or type of information sources used.

Table 9. Sources of information used to learn about using forests as a way to store carbon and sources that would be used in the future, and associated mean climate awareness score.

Sources	% Using in the past	Mean climate awareness score	% Using in the future	Mean climate awareness score
Online/Internet	33.2	2.89	46.6	2.45
NYSDEC	25.0	2.77	64.9	2.51
Cornell Cooperative Extension	23.2	2.79	66.4	2.51
Conservation/Environmental Organizations	22.8	2.96	42.3	2.48
TV	21.5	2.75	23.4	2.42
Friends/Family Members	20.4	2.66	30.7	2.38
Newspaper	20.2	2.71	22.2	2.43
Other landowners	16.2	2.64	40.7	2.38
Other sources (e.g., written material, education courses)	5.3	3.15	6.9	2.79

Beliefs about climate change and land management

Respondents' attitudes about climate change and land management generally fell into two categories: beliefs about climate change and beliefs about peoples' relationship with land management (Table 10), although the reliability of the latter belief set was quite low. In terms of climate change beliefs, nearly half (44.1%) of respondents strongly agreed that climate change is a serious problem that requires immediate action, but less than a quarter (23.4%) believed that climate change presents a threat to their land or their local community.

Table 10. Beliefs about climate change and land management[1]

Beliefs	Percent					Mean*
	Strongly disagree	Slightly disagree	Neutral	Slightly agree	Strongly agree	
Climate change (alpha=0.897)						**3.51**
Climate change is a serious problem that requires immediate action	10.2	8.2	16.8	20.7	44.1	3.80
My personal actions can have an influence on climate change impacts in NY	8.7	7.4	23.7	33.8	26.4	3.62
I don't think carbon storage will help with climate change (reverse coded)	5.9	10.1	35.6	21.5	27.0	3.54
Efforts in NYS to store carbon will help with climate change	7.5	7.0	36.2	26.1	23.1	3.50
Concern about climate change is overblown (reverse coded)	13.1	20.6	15.6	11.0	39.6	3.43
Generally, the science of climate change is inconclusive (reverse coded)	10.8	14.8	28.1	14.7	31.6	3.42
Climate change is a threat to my land and local community	15.2	13.4	26.8	21.2	23.4	3.24
People and land management (alpha=0.415)						**3.30**
Land should be managed so that people benefit	7.4	7.7	29.2	25.4	30.3	3.64
People's needs should take priority over conservation of the land	27.9	24.2	29.0	12.2	6.6	2.45
If NYS wants landowners to grow mature forests for carbon storage, they should pay them	5.9	6.5	24.5	25.5	37.6	3.82
Other (non-categorized)						
The best government is the one that governs the least	7.5	8.9	25.8	14.3	43.4	3.77

[1] Columns may not total to 100% due to missing responses for some items and/or rounding

*Measured on a 5-point scale where 1=strongly disagree to 5=strongly agree.

Beliefs about climate change, land management, and the role of government differed by region (Table 11). Respondents from the St. Lawrence Valley were more likely than those from the Southern Tier to agree with climate change severity and potential solutions. Respondents from the Southern Tier more strongly believed that people should benefit from land management activities, and that limited government involvement is best.

Table 11. Beliefs about climate change and land management, by region.

Beliefs	Mean*	
	Southern Tier	St. Lawrence Valley
Climate change[a]	3.41	3.66
People and land management[a]	3.35	3.22
Best government is the one that governs least[a]	3.87	3.61

*Measured on a 5-point scale where 1=strongly disagree to 5=strongly agree.
[a]Statistically significant difference between regions at $P<0.05$ using t-test.

Interest in converting land

Respondents provided their level of willingness to convert their land cover from the current use to seven different types of uses. They were most interested in converting their land for improved wildlife habitat (mean = 3.36, 58.2% of respondents were 'very interested') (Table 12). The second-most popular scenario of land conversation was mature forest for carbon storage (mean = 2.78), with one-third (33.0%) of respondents 'very interested' and one-fifth (18.7%) 'not at all interested'. Landowners were the least interested in converting their land to wind energy (mean = 2.06) or solar energy production (mean = 2.17).

St. Lawrence Valley respondents were more interested in solar energy production than those in the Southern Tier. Landowners on the Southern Tier were more interested in converting their land to forest products for sale than landowners in the St. Lawrence Valley. Of all the potential land cover conversion types, respondents were the most uncertain about converting their land to mature forest, with 7.8% indicating that they were unsure about this change. The level of uncertainty was the same for respondents in the St. Lawrence Valley and Southern Tier regions.

Table 12. Level of interest in converting land to alternative uses[1].

Alternative uses	Percent				Mean*
	Not at all interested	Slightly interested	Moderately interested	Very interested	
Mature forest for carbon sequestration	**18.7**	**17.4**	**31.0**	**33.0**	**2.78**
Southern Tier	18.3	19.8	31.1	30.9	2.74
St. Lawrence Valley	19.2	13.8	30.8	36.2	2.84
Solar energy production[a]	**42.5**	**17.9**	**19.7**	**19.9**	**2.17**
Southern Tier	45.7	17.6	19.0	17.6	2.09
St. Lawrence Valley	37.5	18.3	20.7	23.5	2.30
Wind energy production	**46.7**	**17.9**	**18.3**	**17.2**	**2.06**
Southern Tier	49.4	17.0	17.2	16.4	2.01
St. Lawrence Valley	42.4	19.3	19.9	18.4	2.14
Improved wildlife habitat	**5.6**	**10.6**	**25.6**	**58.2**	**3.36**
Southern Tier	4.9	10.6	24.9	59.6	3.39
St. Lawrence Valley	6.7	10.7	26.7	55.8	3.32
Timber or forest products for my family's use	**28.5**	**24.1**	**23.2**	**24.1**	**2.43**
Southern Tier	26.9	25.6	22.6	25.0	2.46
St. Lawrence Valley	31.2	21.8	24.2	22.7	2.38
Timber or forest products for sale[a]	**33.8**	**20.2**	**24.0**	**22.0**	**2.34**
Southern Tier	26.7	19.4	27.2	26.7	2.54
St. Lawrence Valley	45.3	21.5	18.7	14.5	2.02
Agricultural production and pasture	**37.5**	**18.1**	**22.6**	**21.8**	**2.29**
Southern Tier	38.6	16.9	22.1	22.4	2.28
St. Lawrence Valley	35.8	19.9	23.5	20.8	2.29

[1] Columns may not total to 100% due to missing responses for some items and/or rounding

* Measured on a 4-point scale where 1=not at all interested to 4=very interested.

[a] Statistically significant difference between regions at $P<0.05$ using t-test.

Potential barriers to converting land to mature forest for carbon sequestration

Respondents identified the most important barriers to converting their land into mature forest for carbon storage (Table 13). Nearly half of respondents perceived a lack of labor (46.6%), the upfront and ongoing costs (45.7%), and possible restrictions placed on forest management or timber harvest (44.0%) as large barriers to growing mature forest. Respondents did not perceive conflicts with current uses (44.6% 'not at all a barrier'), a lack of interest (54.7% 'not at all a barrier'), or a conflict with the expectations of friends and family (76.6% 'not at all a barrier') as impediments to growing mature forest. Lastly, respondents seemed to believe in the efficacy of growing mature forest, with nearly two-thirds (63.1%) of landowners thinking that the inability for a forest to grow would not be a barrier.

Of the thirteen items tested as potential barriers to converting land into mature forest, 11 were aggregated into two scales: a lack of resources (mean=2.84 where 1='not at all a barrier' to 4='a large barrier'), and a lack of fit with land use goals (mean = 2.18) (Table 14). Respondents from the Southern Tier were significantly more likely to perceive a lack of resources and lack of fit with land use goals as barriers than respondents from the St. Lawrence Valley. There were no differences between the study regions in terms of beliefs about forest growth or the influence of friends and family.

Table 13. Potential barriers to willingness to convert land to mature forest for carbon sequestration[1].

Potential barriers	Percent				Mean*
	Not at all a barrier	A slight barrier	A moderate barrier	A large barrier	
Lack of resources (alpha=0.868)					**2.84**
Lack of labor to do the work	12.4	16.4	24.6	46.6	3.05
The potential upfront or ongoing costs	15.0	13.6	25.7	45.7	3.02
Amount of time and effort required	15.2	19.1	31.9	33.9	2.84
The length of time commitment required	17.8	20.6	29.7	31.9	2.76
Lack of adequate equipment or tools	21.8	19.4	25.2	33.6	2.71
Lack of personal knowledge about management for carbon storage	19.8	22.3	30.4	27.5	2.66
Doesn't fit with land use goals (alpha=0.787)					**2.18**
Possible restrictions placed on my forest management or timber harvest options	19.0	14.0	23.1	44.0	2.92
Conflicts with how I use my land now	42.7	20.5	15.0	21.7	2.16
Conflicts with my long-term goals for use of my land	44.6	21.1	15.3	19.0	2.09
Lack of interest in growing additional forest on my land	54.7	18.3	12.0	14.9	1.87
Negative impact on the views from my land	60.5	18.2	9.3	12.0	1.73
Other barriers					
I don't think the forest will grow successfully	63.1	18.4	11.7	6.7	1.62
What my family and friends think I should do	76.7	12.4	6.1	4.8	1.39

[1] Columns may not total to 100% due to missing responses for some items and/or rounding

*Measured on a 4-point scale where 1=not at all a barrier to 4=a large barrier.

Table 14. Potential barriers to willingness to convert land to mature forest for carbon sequestration, by region.

Potential barriers	Mean*	
	Southern Tier	St. Lawrence Valley
Lack of resources[a]	2.92	2.70
Doesn't fit with land use goals[a]	2.25	2.06
Don't think forest will grow successfully	1.59	1.66
What my family and friends think I should do	1.41	1.36

*Measured on a 4-point scale where 1=not at all a barrier to 4=a large barrier.

[a]Statistically significant difference between regions at $P<0.05$ using t-test.

Willingness to do activities that foster converting land to mature forest for carbon sequestration

Nearly two-thirds (64%, see table 12) of respondents indicated that they were moderately or very interested in growing mature forest for carbon sequestration on some part of their property. These respondents were then asked a series of questions on management activities, incentives, and property-specific land cover conversion amounts.

Landowners varied in terms of the active management that they were willing to engage in or were already doing (Table 15). Among respondents who were interested in growing mature forest on their property, the management activity with the greatest willingness, on average, was planting tree seedlings (mean = 3.12, 46.7% of respondents were 'very willing'), followed closely by cutting brush (mean = 3.11, 46.9% of respondents were 'very willing'). Respondents were, to a lesser extent, willing to install tree tubes or cages (mean = 2.81) and perform annual maintenance of planted seedlings, tubes, cages or fencing (mean = 2.53). On average, landowners were the least willing to create brush barriers, install deer fencing, or apply herbicides.

Table 15. Willingness to engage in potential activities that might be necessary to convert land to mature forest for carbon sequestration[1].

Potential activities	Percent				Mean*
	Not at all willing	Slightly willing	Moderately willing	Very willing	
Cut brush	11.7	12.8	28.5	46.9	3.11
Plant tree seedlings	9.3	15.9	28.0	46.7	3.12
Install tree tubes or cages	15.9	21.0	29.6	33.5	2.81
Apply herbicides to control weeds	45.8	23.1	16.6	14.5	2.00
Install wire or plastic fencing to keep out deer	46.8	22.4	16.1	14.7	1.99
Create barriers from brush to keep out deer	44.6	25.9	16.2	13.2	1.98
Annual maintenance of planted seedlings, tubes, cages or fencing	19.4	29.9	28.8	21.9	2.53
Number of active management activities[a,b]					
Southern Tier					3.64
St. Lawrence Valley					3.28

[1] Columns may not total to 100% due to missing responses for some items and/or rounding

*Measured on a 4-point scale where 1=not at all willing to 4=very willing.

[a]Statistically significant difference between regions at $P<0.05$ using t-test.

[b] Average number of activities that landowners are willing to do or already do without incentives.

Potential incentives for converting land for carbon sequestration

Of the potential incentives to increase landowners' willingness to convert land into mature forest for carbon sequestration, five were aggregated into one scale representing additional resources, including money, labor, and technical advice (mean = 3.01) (Table 16). Within this set of incentives, respondents reported that a tax deduction (mean = 3.31, 56.7% 'greatly increase willingness') and financial assistance (mean = 3.09, 47.4% 'greatly increase willingness') were the most influential. Respondents' willingness also increased with planting and maintenance assistance (mean = 2.95, 43.8% 'greatly increase willingness') and receiving expert advice (mean = 2.96, 39.3% 'greatly increase willingness').

Other incentives were aggregated into a second scale that represented landowners' interest in receiving more knowledge and recognition (mean = 2.04). This scale was made up of three items that, individually and as a scale, demonstrated the lowest increases to landowner willingness, on average. Only 14.5% of respondents indicated that more information about the benefits of carbon storage would 'greatly increase willingness' (mean = 2.34), and 10.4% indicated they would 'greatly increase willingness' if they learned more people in their area were growing trees (mean = 2.01). Two other survey items that measured potential incentives were distinct from these scales. Respondents were more willing to grow mature forest if they owned more land (mean = 2.31, 25.5% 'greatly increase willingness') and if growing forest increased the value of their land (mean = 2.65, 28.4% 'greatly increase willingness').

Respondents did not differ between the study regions in their response to any of the potential incentives considered herein (Table 17).

Table 16. Potential incentives that might increase willingness to engage in activities needed to convert land to mature forest for carbon sequestration. [1]

Potential incentives	Percent				Mean*
	Not increase willingness at all	Slightly increase willingness	Moderately increase willingness	Greatly increase willingness	
Resources (money, labor, advice) (alpha=0.844)					**3.01**
Received a tax deduction	7.7	10.5	25.1	56.7	3.31
Received financial assistance	10.2	18.5	23.9	47.4	3.09
Received advice from an expert on how to do the activities	11.7	19.5	29.5	39.3	2.96
Had someone else plant the trees and do the maintenance for free	16.6	16.1	23.5	43.8	2.95
Could borrow free equipment	18.6	18.6	25.3	37.6	2.82
Receiving knowledge and recognition (alpha=0.771)					**2.04**
Learned more about the benefits of carbon storage	24.6	31.4	29.4	14.5	2.34
Learned more people were growing trees for carbon storage in my area	40.8	27.6	21.3	10.4	2.01
Earned recognition from a state agency or non-profit	54.3	24.4	11.4	9.9	1.77
Other incentives					
Thought I could increase the value of my land for sale, or for my heirs	19.5	24.4	27.7	28.4	2.65
Owned more land	39.1	16.7	18.7	25.5	2.31

[1] Columns may not total to 100% due to missing responses for some items and/or rounding

*Measured on a 4-point scale where 1=not increase at all to 4=greatly increase.

Table 17. Potential incentives that might increase willingness to engage in activities needed to convert land to mature forest for carbon sequestration, by region.

Potential incentives	Mean*	
	Southern Tier	St. Lawrence Valley
Resources (money, labor, advice)	3.04	2.96
Participating in something that works	2.06	2.00
Thought I could increase the value of my land for sale, or for my heirs	2.70	2.56
Owned more land	2.38	2.18

*Measured on a 4-point scale where 1=not increase at all to 4=greatly increase.

Willingness to convert land for carbon sequestration by land type

Respondents who expressed any interest in growing mature forest were then asked to indicate their willingness to convert their land to mature forest for carbon storage. This willingness was assessed for five types of landcover, and respondents were given the option to note that they did not own this type of land (Table 18). Overall, respondents were most willing to convert their land that was already in young forest (mean = 3.05, 47.2% 'very willing') and shrubland (mean = 3.04, 46.7% 'very willing') into mature forest. Landowners were less willing to convert fallow fields (mean = 2.70, 34.1% 'very willing'), grassland (mean = 2.31, 23.4% 'very willing'), and agricultural land (mean = 2.08, 17.8% 'very willing') into mature forest than lands that already had some tree or shrub cover. Respondents with agricultural land on the Southern Tier were significantly more willing (mean = 2.16) to convert agricultural land to mature forest than those in the St. Lawrence Valley (mean = 1.91).

Table 18. Willingness to convert different land types to mature forest for carbon sequestration, overall and by region. [1]

Land types	Percent				Mean*
	Not at all willing	Slightly willing	Moderately willing	Very willing	
Agricultural[a]	**44.3**	**21.7**	**16.3**	**17.8**	**2.08**
Southern Tier	41.0	21.4	18.5	19.2	2.16
St. Lawrence Valley	50.7	22.1	12.1	15.0	1.91
Grassland or field	**36.1**	**20.3**	**20.3**	**23.4**	**2.31**
Southern Tier	35.2	16.8	22.0	26.0	2.39
St. Lawrence Valley	37.8	26.7	17.0	18.5	2.16
Fallow fields	**24.4**	**15.3**	**26.1**	**34.1**	**2.70**
Southern Tier	24.2	11.5	26.9	37.4	2.78
St. Lawrence Valley	24.8	22.4	24.8	28.0	2.56
Shrubland	**14.3**	**14.1**	**25.0**	**46.7**	**3.04**
Southern Tier	12.9	13.6	27.3	46.2	3.07
St. Lawrence Valley	16.7	14.8	21.0	47.5	2.99
Young forest	**15.1**	**12.0**	**25.7**	**47.2**	**3.05**
Southern Tier	14.8	10.5	28.5	46.2	3.06
St. Lawrence Valley	15.5	14.4	21.3	48.9	3.03

[1] Columns may not total to 100% due to missing responses for some items and/or rounding

* Measured on a 4-point scale where 1=not at all willing to 4=very willing.

[a] Statistically significant difference between regions at P<0.05 using t-test.

Amount of land willing to convert into mature forest

We asked the landowners who had at least some interest in converting their land to mature forest how many acres of their land they were willing to convert to mature forest under three scenarios: (1) if someone did the work for land conversion free of charge, (2) if someone did the work free of charge AND they received a tax deduction, and (3) if all barriers were identified and the incentives needed were received. In the first scenario with all the labor and costs associated with land conversion covered, the average number of acres that landowners were willing to convert was 13.1 acres. On average under this scenario, landowners were willing to convert 24.9% of their land that was

not under residential uses or already in mature forest. In the second scenario in which all labor costs were covered and landowner received a tax reduction, the average number of acres that landowners were willing to convert into mature forest was 16.1 acres. On average, landowners were willing to convert 29.2% of their land that was not residential or already in mature forest. In the third scenario, in which all barriers that the landowner identified were addressed and all incentives were received, the average number of acres that landowners were willing to convert was 18.0 acres, which represented about 33.1% of their land that was not already in residential uses or in mature forest.

CONCLUSIONS

Overall, nearly two-thirds of respondents were at least slightly willing to convert their land into mature forest for carbon sequestration if all barriers were removed and incentives were obtained. The most prominent barriers to converting land to mature forest pertain to labor, upfront or ongoing costs, and the time involved. There are also many constraints that may shape landowner willingness, including the existing land cover on the property, the use of lands for agricultural production, and landowner characteristics. These barriers, and the extent of how much they limit landowner willingness, will be examined further in subsequent studies.

Our findings also suggest that private landowners are not very familiar with carbon sequestration actions, opportunities, and the roles that they as landowners could play in this effort; however, additional information does not appear to increase landowner willingness to convert their land into mature forest. While many respondents reported that they used information from the NYSDEC and Cornell Cooperative Extension, over half of the respondents indicated that they were 'not at all' familiar or 'slightly' familiar with concepts of forest carbon storage or carbon neutrality. We recommend that landowner outreach and education efforts are paired with resources like labor and funds as to address the most prominent barriers to land conversion.

The most popular incentives for converting land to mature forest focused on monetary benefits such as tax deductions and financial assistance. The number of acres that landowners were, on average, willing to convert to mature forest increased with incentives such as free labor and a tax deduction. While more study is warranted to precisely estimate the costs and benefits of these policy-based incentives, this study provides preliminary evidence that landowners are willing to make more acres available for conversion to mature forest with additional support.

This study has limitations that could influence the findings. Based on the non-response analysis, the information herein may overestimate willingness, as respondents tended to be more interested in land management or conversion opportunities than non-respondents. We believe that this potential bias does not invalidate the estimates provided in this report but caution future users of this information regarding this possibility. Additionally, this report does not include estimates of landowner willingness in relation to the amount of acres owned, or the potential for mature forest conversion

based upon respondent and land cover attributes. These questions will be further analyzed for future publication.

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Use of Your Rural Land:
A Survey of New York Landowners

CCSS
Center for Conservation
Social Sciences

Center for Conservation Social Sciences
Department of Natural Resources and the Environment
Cornell University

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Research conducted by the
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Rural land, and how it is used, is crucially important: land can produce income, wildlife habitat, crops, forest products, and other benefits. How land is used affects the kind of benefits it will provide. Cornell University is surveying landowners about the use of their rural land. We are interested in your current use of land, potential alternative uses you might consider, barriers you might face, and types of help you might need if you make changes in how you use your land.

Your name was selected from property tax rolls in New York State. Only a small sample of landowners are being contacted, so it is important that we hear back from you so our results represent the views of all landowners.

Please complete this questionnaire as soon as you can, seal it with the white re-sealable label provided, and drop it in any mailbox; *return postage has been pre-paid*. Your participation is voluntary, but we sincerely hope you will take just a few minutes to answer our questions. Your identity will be kept confidential and the information you give us will never be associated with your name.
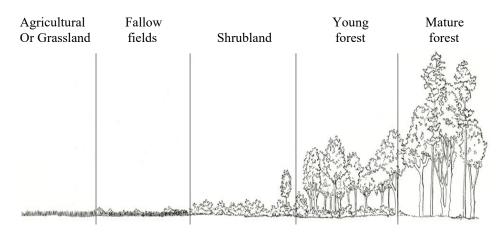

THANK YOU FOR YOUR HELP!

1. **How many acres of land do you own in New York State (NYS)?**

    _____ # of acres

2. **Looking at the descriptions and picture below, please estimate how many acres of each type of land you own.**

Land types	# of acres
Residential (lawn, gardens, buildings, paved)	
Agricultural (crop fields, pasture, Christmas trees, hay fields mowed at least once a year)	
Grassland or field mowed every 1-3 years	
Fallow fields that have not been grazed, mowed, or planted in more than 3 years (less than 25% brush)	
Shrubland (more than 25% brush)	
Young forest (most trees with trunks less than 4" in diameter)	
Mature forest	
Other (please specify):	

Agricultural Or Grassland   Fallow fields   Shrubland   Young forest   Mature forest

3. People own land for many reasons. How important are the following reasons for why you own your land in NYS? *(Check one box for each reason.)*

Reasons you own your land	Not at all important	Slightly important	Moderately important	Very important
Enjoy scenery	☐	☐	☐	☐
Protect nature	☐	☐	☐	☐
Investment (current or future returns)	☐	☐	☐	☐
Privacy	☐	☐	☐	☐
Pass on to my heirs	☐	☐	☐	☐
Farming/raising livestock	☐	☐	☐	☐
Firewood for personal use	☐	☐	☐	☐
Sawlogs, pulpwood, firewood or other timber products for sale	☐	☐	☐	☐
Hunting and fishing	☐	☐	☐	☐
Recreation, other than hunting and fishing	☐	☐	☐	☐
Other (please specify):	☐	☐	☐	☐

4. Please circle the <u>most important</u> reason why you own your land in NYS. *(Circle only one reason above.)*

5. How familiar are you with the following concepts related to climate change? *(Check one box for each concept.)*

	Not at all familiar	Slightly familiar	Moderately familiar	Very familiar
Climate change or global warming	☐	☐	☐	☐
Forest carbon storage or sequestration	☐	☐	☐	☐
Carbon offsets or carbon trading	☐	☐	☐	☐
Carbon neutrality	☐	☐	☐	☐

One way your land might be used is to convert it to mature forest as a way of storing carbon (sometimes called "carbon sequestration") to help address climate change.

6. How interested would you be in converting some of your land to the following uses: *(Check one box for each potential use.)*

	Not at all interested	Slightly interested	Moderately interested	Very interested	Unsure
Mature forest as a way to store carbon	☐	☐	☐	☐	☐
Solar energy production	☐	☐	☐	☐	☐
Wind energy production	☐	☐	☐	☐	☐
Improved wildlife habitat	☐	☐	☐	☐	☐
Timber or forest products for sale	☐	☐	☐	☐	☐
Timber or forest products for my family's use	☐	☐	☐	☐	☐
Agricultural production and pasture	☐	☐	☐	☐	☐

7. How would the following barriers affect your willingness to convert your land to mature forest as a way to store carbon? *(Check one box for each potential barrier.)*

Potential barriers	Not at all a barrier	A slight barrier	A moderate barrier	A large barrier
The potential upfront or ongoing costs	☐	☐	☐	☐
Amount of time and effort required	☐	☐	☐	☐
Lack of labor to do the work	☐	☐	☐	☐
Possible restrictions placed on my forest management or timber harvest options	☐	☐	☐	☐
Lack of personal knowledge about management for carbon storage	☐	☐	☐	☐
The length of time commitment required	☐	☐	☐	☐
I don't think the forest will grow successfully	☐	☐	☐	☐
Lack of adequate equipment or tools	☐	☐	☐	☐
What my family and friends think I should do	☐	☐	☐	☐
Lack of interest in growing additional forest on my land	☐	☐	☐	☐
Negative impact on the views from my land	☐	☐	☐	☐
Conflicts with how I use my land now	☐	☐	☐	☐
Conflicts with my long-term goals for use of my land	☐	☐	☐	☐
Other (please specify):	☐	☐	☐	☐

If you have NO INTEREST AT ALL in growing mature forest for carbon storage no matter what incentives or assistance you might get, SKIP to Question 14.

8. How willing would you be to engage in the following activities that might be necessary to convert your land to mature forest as a way to store carbon? (Note: The next question asks about incentives to help you engage in these activities. This question just asks about your willingness to do them or have them done on your land.) *(Check one box for each activity.)*

Potential activities	Not at all willing	Slightly willing	Moderately willing	Very willing
Cut brush (brush hog)	☐	☐	☐	☐
Plant tree seedlings	☐	☐	☐	☐
Install tree tubes or cages	☐	☐	☐	☐
Apply herbicides to control weeds	☐	☐	☐	☐
Install wire or plastic fencing to keep out deer	☐	☐	☐	☐
Create barriers from brush to keep out deer	☐	☐	☐	☐
Annual maintenance of planted seedlings, tubes, cages or fencing	☐	☐	☐	☐

9. To what extent would any of the following incentives increase your willingness to engage in the activities described in Question 8? *(Check one box for each incentive.)*

Would your willingness increase if you…	Not increase at all	Slightly increase	Moderately increase	Greatly increase
received financial assistance?	☐	☐	☐	☐
received advice from an expert on how to do the activities?	☐	☐	☐	☐
could borrow free equipment?	☐	☐	☐	☐
had someone else plant the trees and do the maintenance for free?	☐	☐	☐	☐
learned more about the benefits of carbon storage?	☐	☐	☐	☐
learned more people were growing trees for carbon storage in your area?	☐	☐	☐	☐
received a tax reduction?	☐	☐	☐	☐
earned recognition from a state agency or non-profit?	☐	☐	☐	☐
owned more land?	☐	☐	☐	☐
thought you could increase the value of your land for sale, or for your heirs?	☐	☐	☐	☐
Other (please specify):	☐	☐	☐	☐

10. **Which of the land types that you own would you be willing to convert some of to mature forest as a way to store carbon?** *(Check one box for each land type.)*

	Not at all willing	Slightly willing	Moderately willing	Very willing	Do not own this type
Agricultural (crop fields, pasture, Christmas trees, hay fields mowed at least once annually)	☐	☐	☐	☐	☐
Grassland or field mowed every 1-3 years	☐	☐	☐	☐	☐
Fallow fields that have not been grazed, mowed, or planted in more than 3 years (less than 25% brush)	☐	☐	☐	☐	☐
Shrubland (more than 25% brush)	☐	☐	☐	☐	☐
Young forest (most trees with trunks less than 4" in diameter)	☐	☐	☐	☐	☐

11. **If someone else did the work on your land free of charge, about how many acres of your land would you convert to mature forest as a way to store carbon?**

    _____ # of acres

12. **If someone else did the work on your land free of charge AND you received a tax reduction, about how many acres of your land would you convert to mature forest as a way to store carbon?**

    _____ # of acres

13. **If ALL of the barriers you identified were addressed and you received the incentives you needed, about how many acres of your land would you convert to mature forest as a way to store carbon?**

    _____ # of acres

14. Have you learned about using forests as a way to store carbon (i.e., carbon sequestration) from any of the following sources, and where would you go to learn more? *(Check all that apply.)*

Sources	Have used in the past	Would use in the future
NYS Department of Environmental Conservation (DEC)	☐	☐
Cornell Cooperative Extension	☐	☐
Online/Internet	☐	☐
Newspaper	☐	☐
TV	☐	☐
Conservation/Environmental Organizations	☐	☐
Friends/Family Members	☐	☐
Other Landowners	☐	☐
Other (please specify):	☐	☐

BACKGROUND INFORMATION

15. How strongly do you agree or disagree with the following statements? *(Check one box for each statement.)*

	Strongly disagree	Slightly disagree	Neutral	Slightly agree	Strongly agree
Land should be managed so that people benefit	☐	☐	☐	☐	☐
People's needs should take priority over conservation of the land	☐	☐	☐	☐	☐
If NYS wants landowners to grow mature forests for carbon storage, they should pay them	☐	☐	☐	☐	☐
The best government is the one that governs the least	☐	☐	☐	☐	☐
Climate change is a serious problem that requires immediate action	☐	☐	☐	☐	☐
Concern about climate change is overblown	☐	☐	☐	☐	☐
Climate change is a threat to my land and local community	☐	☐	☐	☐	☐
Generally, the science of climate change is inconclusive	☐	☐	☐	☐	☐
My personal actions can have an influence on climate change impacts in NY	☐	☐	☐	☐	☐
I don't think carbon storage will help with climate change	☐	☐	☐	☐	☐
Efforts in NYS to store carbon will help with climate change	☐	☐	☐	☐	☐

16. In what year were you born: _____

17. What is your gender: *(Check one.)*

☐ Male   ☐ Female   ☐ Other   ☐ Prefer not to say

35

18. Is your primary residence: *(Check one.)*

☐ Urban   ☐ Suburban   ☐ Rural

19. In general, do you think of yourself as…

☐ Very liberal
☐ Somewhat liberal
☐ Moderate/Middle of the road
☐ Somewhat conservative
☐ Very conservative

20. What is the highest level of education you have completed?

☐ Less than high school
☐ High school diploma / G.E.D.
☐ Some college or technical school
☐ Associate's (2 year) degree
☐ College undergraduate degree (e.g., B.A., B.S.)
☐ Graduate or professional degree (e.g., M.S., Ph.D., M.D., J.D.)

Please use the space below for any comments you wish to make.

Thank you for your time and effort!

To return this questionnaire, simply seal it with the white removable seal, and drop it in the mail (return postage has been paid).

1. **How many acres of land do you own in New York State (NYS)?**
   _____ # of acres

2. **How many acres of each of the following types of land do you own?**

Land types	# of acres
Residential (lawn, gardens, buildings, paved)	
Agricultural (crop fields, pasture, Christmas trees, hay fields mowed at least once a year)	
Grassland or field mowed every 1-3 years	
Fallow fields that have not been grazed, mowed, or planted in more than 3 years (less than 25% brush)	
Shrubland (more than 25% brush)	
Young forest (most trees with trunks less than 4" in diameter)	
Mature forest	
If sum doesn't add to Q1, ask Other (please specify):	

One way your land might be used is to convert it to mature forest as a way of storing carbon, sometimes called "carbon sequestration", to help address climate change.

3. **How interested would you be in converting some of your land to the following uses:** *(Check one box for each potential use.)*

	Not at all interested	Slightly interested	Moderately interested	Very interested	Unsure
Mature forest as a way to store carbon	☐	☐	☐	☐	☐
Solar energy production	☐	☐	☐	☐	☐
Wind energy production	☐	☐	☐	☐	☐
Improved wildlife habitat	☐	☐	☐	☐	☐
Timber or forest products for sale	☐	☐	☐	☐	☐
Timber or forest products for my family's use	☐	☐	☐	☐	☐

4. How strongly do you agree or disagree with the following statements? *(Check one box for each statement.)*

	Strongly disagree	Slightly disagree	Neutral	Slightly agree	Strongly agree
Climate change is a serious problem that requires immediate action	☐	☐	☐	☐	☐
Concern about climate change is overblown	☐	☐	☐	☐	☐
My personal actions can have an influence on climate change impacts in NY	☐	☐	☐	☐	☐
I don't think carbon storage will help with climate change	☐	☐	☐	☐	☐

5. One final question, in what year were you born? _____

Thank you very much for taking the time to talk with me.

END INTERVIEW

Record Gender: _____ Male _____ Female _____ Unsure