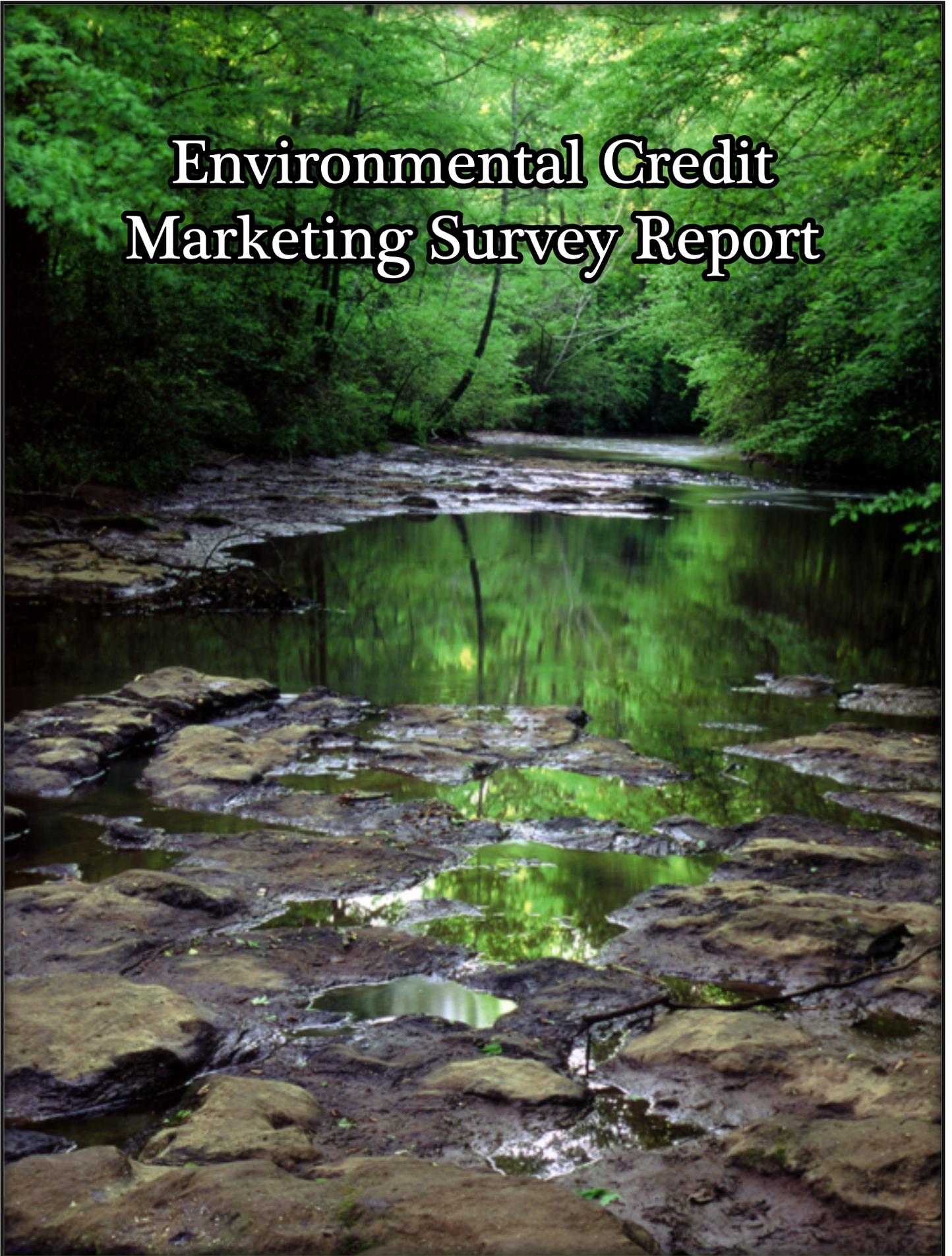


# Environmental Credit Marketing Survey Report



# **Environmental Credit Marketing Survey Report**

**August 2010**

**Developed by**

**Texas Forest Service Sustainable Forestry Department**

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**EXECUTIVE SUMMARY**

In April 2009, Texas Forest Service distributed a three-page survey to 5,193 landowners hoping to gain a better understanding of their perspectives on ecosystem services markets.

The survey was designed to determine interest in these emerging environmental credit markets, as well as identify potential participation barriers. Results will be used to develop programs that provide technical assistance to interested landowners.

Surveys were collected through August 2009. About 20 percent of the surveys (1,032) were returned. A summary of the results is provided below.

General characteristics of respondents:

- Average size of forest landholdings was 614 acres (median = 300 acres)
- Predominant timber type was pine plantation (43%)
- Most own land to enjoy scenery and protect nature, as well as for investment purposes

Observations regarding respondents’ knowledge and views on ecosystem services:

- Knowledgeable about carbon markets (75%) but not other ecosystem markets
- Obtain topical information from the media (35%) and newsletters (31%)
- Interested in obtaining more information (85%) through newsletters (70%)
- Would consider selling environmental credits (82%)
- Prefer annual payments over lump sum payments (74%)

Important factors affecting market participation:

- Compensation was the largest motivator for participation
- Land and management restrictions (primarily timber harvesting) were the greatest barriers to participation
- Conservation easement requirements greatly affect participation

Landowners most likely to participate in ecosystem services marketing:

- Have a general awareness of carbon markets
- Own land to generate income
- Control larger forest landholdings
- Participate in state/federal cost share programs

Average price levels that encourage participation (\$/acre/year)

- \$15.15 for an annual contract
- \$19.92 for a five-year contract
- \$27.36 for a contract requiring a perpetual conservation easement

**TABLE OF CONTENTS**

Introduction.....4

Survey Design.....4

Methodology .....5

Results.....5

Descriptive Statistics.....5

Knowledge/Interests Regarding Environmental Credits .....6

Opinions about Selling Environmental Credits .....7

Econometric Analysis .....10

Factors Affecting Landowners’ Interest in Selling Environmental Credits .....10

Compensation for Sales of Environmental Credits.....12

Parametric Analysis .....13

Non-parametric Analysis .....14

Mean Willingness to Accept .....14

Discussion and Conclusion .....14

References.....16

Appendix.....17

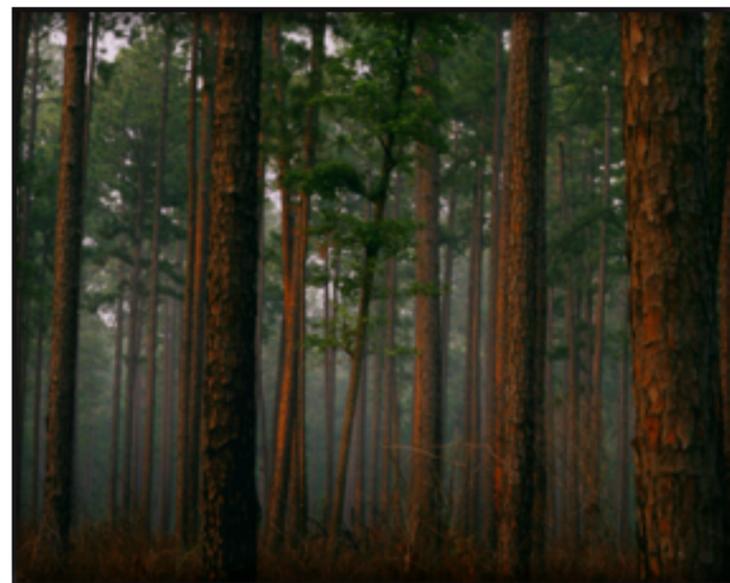
Appendix A: Landowner Letter and Survey Form .....18

Appendix B: Landowner Survey Response Distribution.....22

Appendix C: Survey Distribution of Willingness to Accept Question .....23

**INTRODUCTION**

Forests provide numerous benefits to society — clean air, clean water, flood control, aesthetics, recreation and a habitat for wildlife. Historically, these societal benefits have been taken for granted with no dollar value placed on their environmental contributions.



However, monetizing these benefits through private forest landowner participation in environmental credit markets presents an opportunity to compensate landowners who provide a public benefit. Entities interested in maintaining the environmental benefits provided by working forests may be willing to pay landowners to keep their forestlands intact and keep ‘forests’ in forests.

Texas Forest Service (TFS) developed a survey (see Appendix A) to gauge Texas landowners’ interest in participating in ecosystem services markets, as well as identify potential participation barriers. The results of this survey will help the agency develop additional educational materials, provide technical assistance to interested landowners, shape state and national policy regarding these markets and facilitate potential transactions.

A total of 5,193 surveys were sent in April 2009 to non-industrial private landowners in Texas. Names and addresses were obtained from Texas Forest Service records. A total of 1,032 questionnaires — or about 20 percent — were returned through August 2009. See Appendix B for a map of respondents.

**SURVEY DESIGN**

The survey asked questions about landowners’ opinions and interest in potential ecosystem services markets. Information regarding their forest management objectives and activities, their socioeconomic characteristics and their ownership attributes were collected. Landowners also were asked about their preferred outreach methods and how they wanted to learn about ecosystem services.

A screen question was used first to indicate respondents’ interest in potential environmental credit markets. Those interested in selling environmental credits were presented with a hypothetical environmental credit market. They were offered a certain amount of money (\$/acre/year) in exchange for signing a contract committing to sustainable forest management for a specified length of time. Respondents could choose to accept or decline the payment offer, which varied across the sample (see Appendix C for the survey distribution). To eliminate geographical bias, payment offers were assigned based on the alphabetical listing of landowners’ surnames.

Respondents also were asked to rate on a scale of one to five (with one being the least important and five being the most important) several factors that would affect their decision to participate in these markets. This was done

to identify elements that could encourage or discourage market participation. Factors included transaction details (Figure 3-4), contract duration (Figure 5) and land use requirements (Figure 6).

**METHODOLOGY**

A logit model was used to analyze the factors affecting landowners’ interest in environmental credit markets. Interest was hypothesized as a function of a series of variables including management objectives, socioeconomic characteristics and land characteristics. Respondents’ answers to the screen question were used for this model.

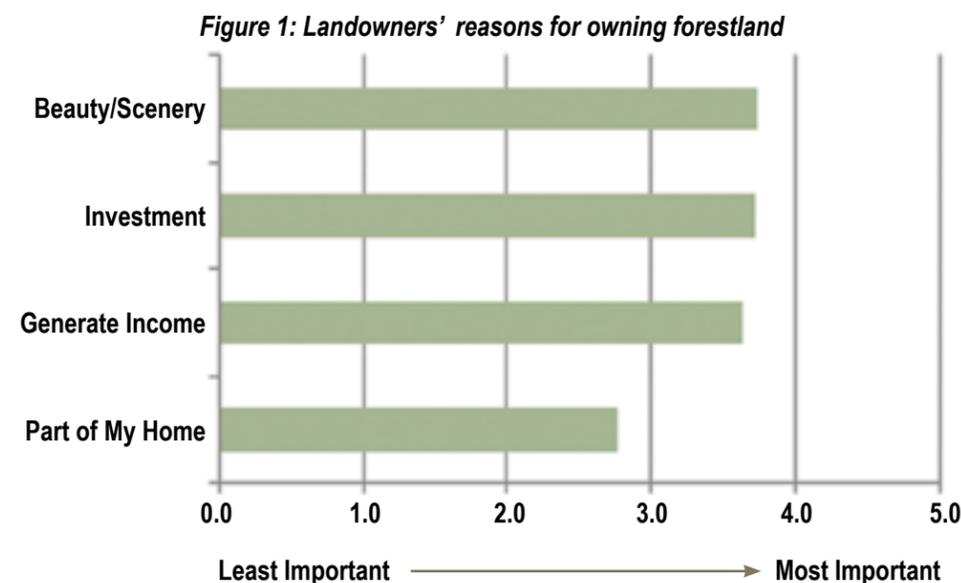
The Contingent Valuation (CV) method was used to estimate landowners’ average willingness to accept (WTA) compensation for selling environmental credits from their forestland. The CV method has been applied widely in the area of non-market resources valuation. Respondents’ answers to the hypothetical bid question were used to estimate the landowners’ average WTA (\$/acre/year).

**RESULTS**

**Descriptive Statistics**

The average size of forestland holdings was 614 acres while the median was 300 acres, suggesting a skewed distribution toward the smaller size. On average, approximately 43.1 percent of the forestland was pine plantation, 31.8 percent was mixed pine/hardwood, 11.4 percent was natural pine, 8.9 percent was bottomland hardwood and 4.8 percent was wetland-like or other. The average age of the forest was 18.6 years with a standard deviation of 9.7 years. About 12.9 percent of the respondents indicated their land was enrolled in some type of cost-share program. The Environmental Quality Incentive Program (EQIP) was the most popular with the Conservation Reserve Program (CRP) a distant second.

Respondents were asked to rate the importance of several well-known reasons for owning forestland using a scale of 1 to 5 (with 1 being the least important and 5 being the most important). Figure 1 shows the results.



Enjoying scenery/protecting nature and land investment were the two highest-rated reasons for owning forestland. Both scored about 3.7 on the 5-point scale. Generating income from timber production or hunting leases, rated at 3.6, also was an important reason. With a score of just 2.8, being part of a primary or vacation home was shown to be a less important reason.

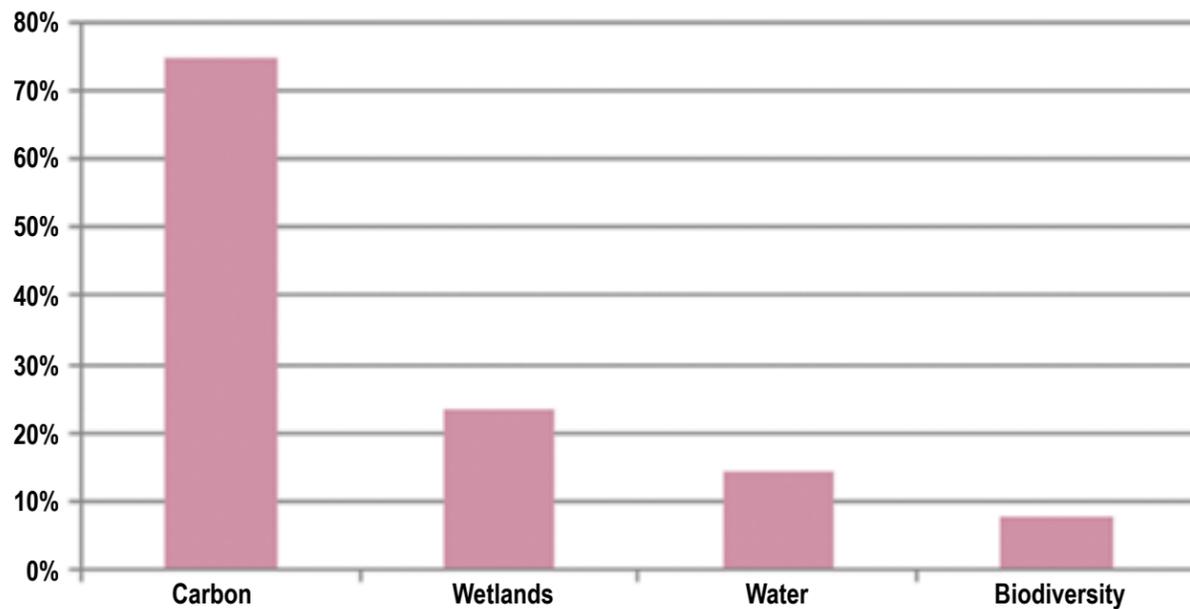
The reasons for owning forestland are important since they affect a landowner’s forest management activity and his or her potential participation in ecosystem service programs.

**Knowledge/Interests Regarding Environmental Credits**

Respondents were asked to identify the marketable ecosystem services generated from forestland. Figure 2 shows their familiarity with individual types of environmental credits.

Carbon credits were the most well-known with 74.9 percent of respondents indicating they were aware of these markets. Twenty-three percent of the respondents said they had heard of wetland credits, 14.3 percent had heard of water credits and only 7.6 percent had heard of biodiversity credits.

*Figure 2. Landowners’ familiarity with environmental credits from forestland*



The most frequently cited sources of information on these topics were media and newsletters/brochures. About 35.4 percent of respondents indicated they heard about selling environmental credits from the media, while 31.5 percent heard about it from newsletters or brochures. Other sources included seminars and workshops (21.2 percent), friends and colleagues (20.3 percent), consultants (16.9 percent), government agencies (10.5 percent) and the Internet (7.6 percent).

Respondents also were asked if they were interested in learning more about environmental credits. About 85.4 percent indicated they wanted to learn more. It is interesting to note that about 44 percent of the respondents who indicated they would not consider selling environmental credits still showed interest in learning more about the

topic. An overwhelming percentage (94.3 percent) of people considering selling environmental credits indicated that they wanted to know more about the topic.

The majority of respondents (70 percent) said they preferred learning about ecosystem services via a newsletter or brochure. A workshop or seminar was a distant second choice at 48.2 percent. Information found on a website came in third at 42.1 percent. Only about 14.3 percent of respondents indicated they would like to be contacted by phone to receive information about environmental credits.

**Opinions about Selling Environmental Credits from Forestland**

Eighty-two percent of the respondents indicated they would consider selling environmental credits from their forestland under certain circumstances. It is interesting to note that several factors were highly associated with the decisions they make concerning environmental credits.

Owners with larger tracts of forestland were significantly more likely to sell environmental credits than their counterparts with smaller acreages (p < 0.001). This is reasonable in that certain fixed costs are associated with signing a contract and managing forestland. Thus selling environmental credits from larger tracts is more cost efficient. Table 1 shows the results.

*Table 1. Percentage of respondents interested in selling credit by ownership size*

Size of Forestland (acres)	Percent interested in selling credits
< 100	73%
101 - 500	86%
501 - 1,000	86%
1,001 - 2,500	94%
2,501 - 5,000	95%
> 5,000	100%

Respondents who showed interest in selling environmental credits were asked to rate the importance of factors encouraging them to sell. Compensation was rated the highest among all factors with an average rating of 4.6. Simplicity of transactions was rated at 4.0 on average. Contributing to environmental protection was rated at 3.6. Not as highly rated was the factor of knowing someone who had sold credits, which received a score of 2.6. Figure 3 shows the results.

To gain another perspective, respondents (including those who indicated they would not consider selling environmental credits) were asked to rate the importance of factors discouraging them from selling environmental credits from their forestland. Figure 4 shows the results.

Potential restrictions on land/management was rated the most important discouraging factor with an average score of 4.2. Concern about compensation was the second most cited reason with a score of 4.0. That indicates landowners generally would like to generate extra income from selling environmental credits. However, if the compensation is not high enough it may discourage them from doing so. Concerns about the complexity of transactions as well as the need for a signed contract were rated at 3.8 and 3.5, respectively.

Figure 3: Importance of factors encouraging landowners to sell environmental credits

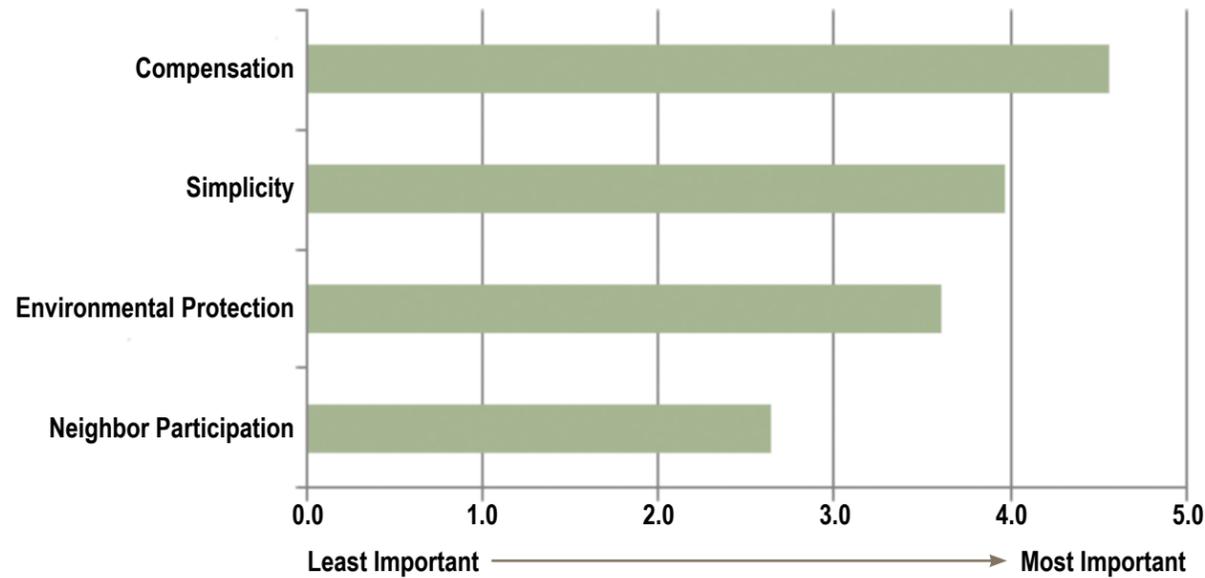
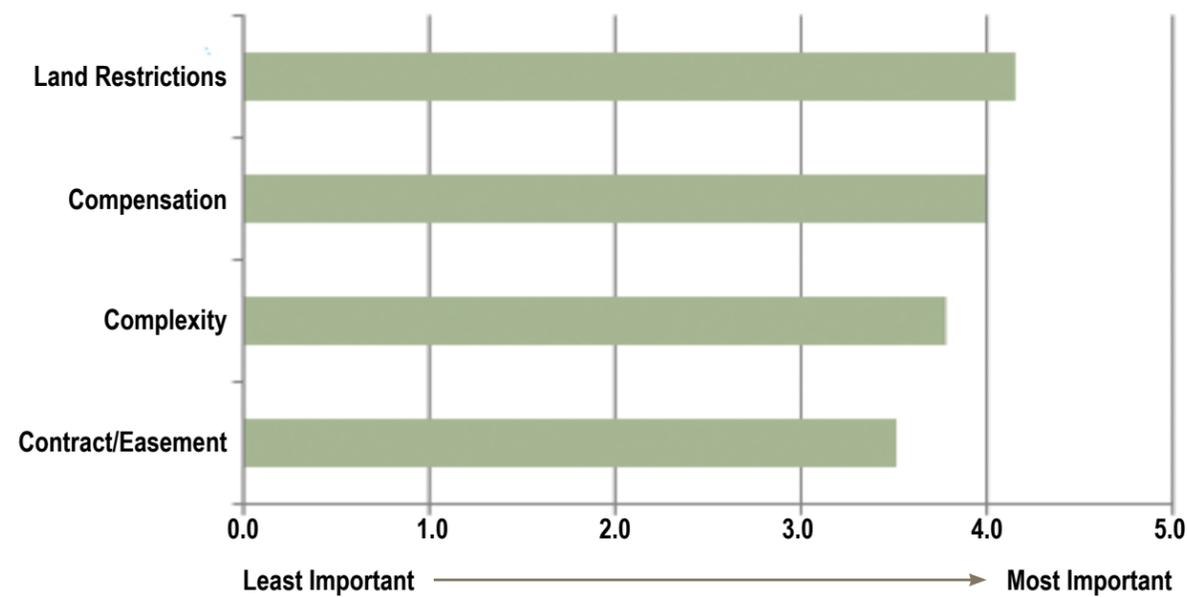


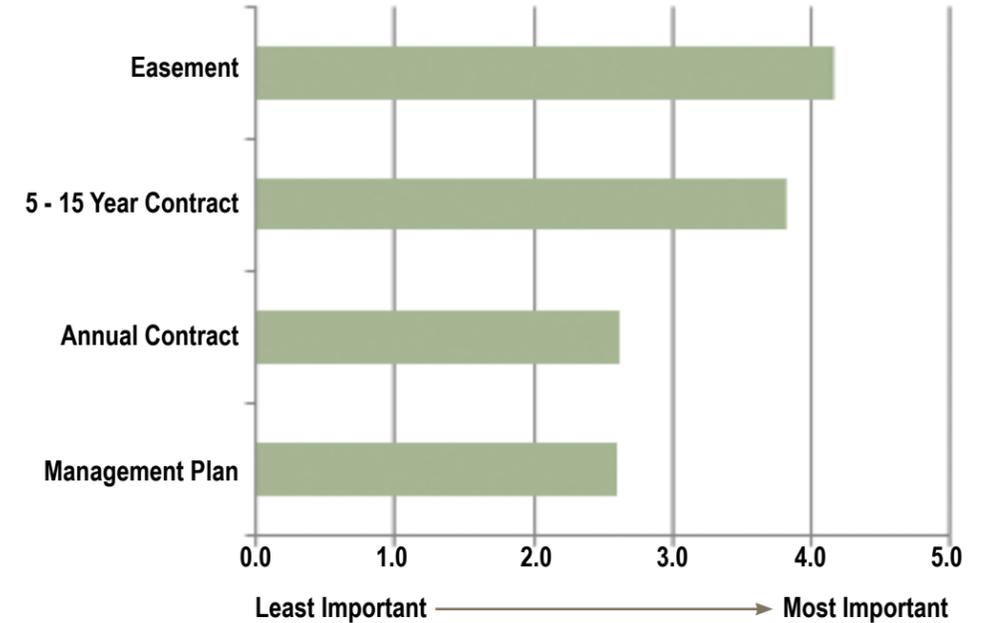
Figure 4: Importance of factors discouraging landowners from selling environmental credits



To further understand landowners' opinions on various contract options, respondents were asked to rate the importance of contract factors that would discourage them from considering selling environmental credits. Figure 5 shows the results.

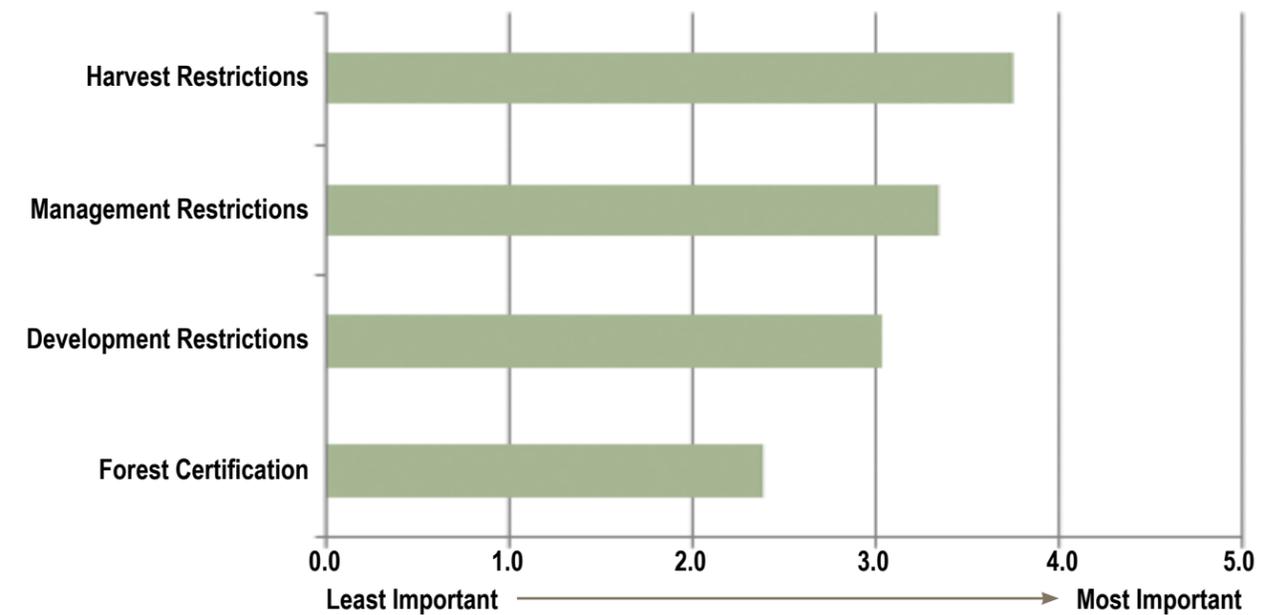
Having an easement placed on the property was the most discouraging factor, rated at 4.2. Having to enter into a five- to 15-year contract was rated at 3.8 on average. Compared to the two factors above, signing an annual contract and developing a management plan were neutral (2.5).

Figure 5: Importance of contract requirements that discourage landowner participation



To explore more about landowners' concerns regarding these potential restrictions, the respondents were asked to rate the importance of them. Concern about restricting/prohibiting timber harvesting was rated as the most important discouraging reason with an average score of 3.8. Concerns about restricting forest management practices and development were rated 3.3 and 3.0, respectively. The need to obtain forest certification was the

Figure 6: Importance of restricting factors discouraging landowner participation



least important discouraging factor, receiving a rating of 2.4. Figure 6 shows the results.

Respondents also were asked to indicate their preference for payment: annual payment or a lump sum. Seventy-four percent of respondents who answered this question preferred annual payments.

**ECONOMETRIC ANALYSIS**

**Factors Affecting Landowners’ Potential Interest in Selling Environmental Credit**

A logit model was used to analyze the factors affecting landowners’ interest in selling environmental credits. It was based on responses from all respondents. The dependent variable equaled 1 if the respondent was interested in selling environmental credits and 0 otherwise. Explanatory variables include forestland characteristics,

*Table 2: Logit model estimation results of Texas landowners’ interest in selling environmental credits*

Explanatory Variable	Estimated Coefficient	SE	Marginal Effect ††	Mean
Intercept	0.525*	0.281	-	
Carbon Credit Awareness	1.342***	0.180	0.202	0.749
Acres of Forestland (in 1,000)	0.531***	0.197	0.068	0.614
Cost-share Program Participation	0.543†	0.342	0.049	0.129
Managing Forestland for Income	0.250***	0.055	0.319	3.623
Concerns about Harvest Restriction	-0.240***	0.064	-0.031	3.759
Northeast Texas	-0.176	0.175	-0.021	0.482
Number of Observations	1,032			
Log Likelihood	845.001			
Likelihood Ratio $\chi^2(6)$	119.535			
Wald $\chi^2(6)$	99.048			
Pr > $\chi^2$	< 0.0001			

\* Indicates statistical significance at the 10% level or better.

\*\*\* Indicates statistical significance at the 1% level or better.

† Indicates statistical significance at the 11% level.

†† Marginal effect for a continuous variable is given by its slope evaluated at sample means. For a dummy variable,  $\partial E(y | dum) / \partial dum = Pr(Y = 1 | \bar{X}, dum = 1) - Pr(Y = 1 | \bar{X}, dum = 0)$ , where  $y$  is the response variable and matrix  $\bar{X}$  represents all the variables other than the dummy variable evaluated at their sample means.

management objectives and owners’ concerns and opinions about selling environmental credits.

Table 2 shows the results from the logit model. Several factors were found to have a positive, statistically-significant influence on respondents’ interest in selling environmental credits:

- *Awareness of carbon credits*
- *Size of forest landownership*
- *Current participation in one or more cost-share programs*
- *Importance of managing forestland for producing income*



One factor was shown to have a significant negative impact on landowners’ interest in selling environmental credits from their land:

- *Concerns about harvest restrictions outlined in the contracts*

It is clear that the variable with the greatest positive impact on the probability of landowners being interested in selling environmental credits is the degree of importance in holding the land for income. In other words, landowners are more likely to be interested in selling environmental credits if generating income from their land is important to them.

For an average landowner, the probability of being interested in selling environmental credits increases by 31.9 percent for every category (point) increase in the importance of managing forestland to generate income.

Awareness of carbon credits also has a great impact on the probability of interest in selling environmental credits. The probability for landowners who have knowledge about carbon credits to be interested in selling environmental credits is 20.2 percent higher than those who are not familiar with them.

This suggests that educating forest landowners about carbon credits may increase the probability of their market participation. However, knowledge about other environmental credits (e.g. biodiversity, water, wetlands) was not shown to have significant impact on landowners’ interest in selling them.

Landowners with larger forestland holdings were more likely to be interested in the potential for selling environmental credits than landowners with smaller acreages. As discussed earlier, certain fixed costs are normally associated with signing the environmental credit contract and managing forestland. Thus selling environmental credits from larger tracts is more cost effective. Owning an additional 1,000 acres of forestland increases the probability of a landowner being interested in selling environmental credits by 6.8 percent.

Current participation in one or more cost-share programs was shown to be positively associated with a landowner’s interest in selling environmental credits at the 11 percent significance level. A landowner who currently is participating in one or more of the cost-share programs is 4.9 percent more likely to be interested in selling environmental credits than a landowner who is not participating in any cost-share programs.

One reason may be that some cost-share programs and environmental credit markets have similar provisions or restrictions on forest management. Thus, it is assumed participation in environmental credit programs would not

conflict with these provisions, nor does it generate extra costs for landowners.

Concern about potential harvest restrictions was shown to have a significantly negative influence on landowners' interest in selling environmental credits. For an average landowner, the probability of being interested in selling environmental credits decreases by 3.1 percent for every category (point) increase in landowners' concerns about potential harvest restrictions due to the environmental credit programs.



It is interesting to note that the regional dummy variable was not statistically significant. This means that the factor of region (i.e. Northeast or Southeast Texas) did not affect landowners' interest in selling environmental credits when other factors were controlled.

The average stand age of the forestland was studied for relevance. However, it was not significant in the model. The hypothesis that owners of younger forests would be more likely to sell environmental credits than owners of older forests was not supported by the results.

**Compensation for Sales of Environmental Credits**

Mean WTA was estimated for landowners interested in selling environmental credits from their land using a parametric and non-parametric approach. The models are based on respondents' answers to a hypothetical CV question.

The question read as follows:

*“Suppose you were to enter a contract to sell environmental credits generated from your land. Under this contract, you must commit to sustainable forest management for a specified length of time. Timber harvesting may be restricted, unless it can generate additional credits. When the contract ends, you can manage the forest as you wish. Would you be willing to accept annual compensation of \$ \_\_\_ per acre for a(an) \_\_\_ contract?”*

The payment level varied randomly across participants from \$2 to \$35 per acre, per year for an annual contract; \$3 to \$39 per acre, per year for a five-year contract; and \$4 to \$42 per acre, per year for a conservation easement on the land. The distribution of the payments was skewed towards the lower bounds of the range to get an efficient estimate of the average willingness to accept (WTA).

The bid compensation amounts for this study were selected based on the estimation of carbon credit benefits and other conservation easement payments in the region. Each individual was presented a set of contracts (annual contract, five-year contract and conservation easement) with randomly selected compensation bids and then asked if they would be likely to accept them.

**Parametric Estimation**

Following Hanemann (1984), a discrete-choice random utility maximization framework was used to model a landowner's decision of whether or not to accept a bid for selling environmental credits from his forestland. The landowner would accept a bid as long as the utility from selling environmental credits at the bid price exceeds the utility of the status quo.

Estimation results of the logit models using Limdep are reported in Table 3. The coefficients of compensation were shown to be statistically significant for the annual contract program and five-year contract program at the level of 1 percent and 14 percent, respectively.

*Table 3: Estimated mean willingness to accept (WTA) for an environmental credit program (\$/acre/year)*

	Annual Contract	5-year Contract	Conservation Easement
Intercept	-0.272**	-0.516***	-0.848
Compensation	0.030***	0.011†	0.007††
Marginal Effect of Compensation	0.007	0.003	0.001
Log Likelihood	-580.570	-573.919	-533.495
Likelihood Ratio $\chi^2(1)$	13.221	2.127	0.903
Mean WTA	\$9.145	\$48.075	\$124.994
Std. Deviation of Mean	\$2.531	\$23.794	\$114.838
95% Confidence Interval			
Lower Limit	\$4.184	\$1.437	-\$100.088
Upper Limit	\$14.107	\$94.712	\$350.076

\*\* Indicates statistical significance at the 5% level or better.  
 \*\*\* Indicates statistical significance at the 1% level or better.  
 † Indicates statistical significance at the 14% level.  
 †† Indicates statistical significance at the 34% level.

For every \$1 increase in compensation, the probability of a landowner accepting the bid and selling environmental credits under the annual contract program increased by 0.7 percent. For a five-year contract, the increase in probability for each additional \$1 in bid was 0.3 percent. The coefficient of compensation was not significant for the conservation easement program, suggesting that other important factors affect landowners' decisions when the land has to be put into a conservation easement.

The estimated average compensation required for a landowner to accept an annual contract was \$9.15 per acre, per year. The average WTA increased dramatically as the length of the contract increased. For a

five-year environmental credit contract, the estimated average WTA was \$48.08 per acre, per year. For an environmental credit contract requiring a conservation easement, the estimated average WTA was \$124.99 per acre, per year. It should be noted that the estimated WTAs had wide ranges (wide confidence intervals) for the five-year contract and conservation easement contract.

**Non-parametric Estimation**

In this section, a non-parametric approach was applied to obtain the mean WTA according to Haab and McConnell (2002). Different from the parametric approach above, the non-parametric approach imposes no prior assumption of distribution of estimators.

The estimated mean WTA for an average Texas forest landowner selling environmental credits was \$15.15 per acre, per year for an annual contract; \$19.92 per acre, per year for a five-year contract; and \$27.36 per acre, per year for a conservation easement on their land.

**Mean WTA**

It is notable that the mean WTAs estimated from the parametric approach and the non-parametric approach differ greatly. This is consistent with previous studies (Carson et al., 1994; Haab and McConnell, 1997). Haab and McConnell commented that each approach has its own merit. If the chief interest is to test price effects, the parametric approach is superior to the non-parametric approach. However, if the goal is principally to estimate mean WTA, then the non-parametric approach would be superior.

Texas Forest Service would recommend using the results estimated from the non-parametric approach for estimation of the mean WTAs for selling environmental credits. However, the parametric model provides the marginal effect of bids on the probability of a landowner’s decision to accept the environmental credit program. This also is useful for interested parties.

**DISCUSSION AND CONCLUSION**

This survey shed light on Texas forest landowners’ knowledge and attitudes about the sale of environmental credits from their land. It was found that forest landowners generally are very interested in these emerging markets. Eighty-two percent of the respondents indicated they would consider selling environmental credits generated from their forestland under certain circumstances.



Several factors found to have a positive, statistically-significant influence on respondents’ interest in selling environmental credit were awareness of carbon credits, size of forestland ownership, current participation in one or more cost-share programs and the importance owners placed on managing the forestland to generate income. Landowners were more likely to be interested in selling environmental credits if generating income from timberland was important to them. Landowners who had

knowledge about carbon credits were more likely to be interested in selling environmental credits than those who were not knowledgeable. Landowners with larger acreages of forestland were more likely to be interested in the potential for selling environmental credits than owners of smaller acreages. A landowner who was participating in a cost-share program was more likely to be interested in selling environmental credits than a landowner who was not participating in any such program.

Concern about potential harvest restrictions due to environmental credit programs was shown to have a significantly negative influence on landowners’ interest in selling environmental credits.

From the perspective of education and outreach, Texas forest landowners showed great interest in ecosystem service credits generated from forestland. Approximately 85.4 percent of respondents indicated they were interested in the topic and wanted to learn more about it. It is interesting to note that about 44 percent of the respondents who indicated they would not consider selling environmental credits also showed interest in learning more about the topic.



The estimated mean WTA, or price level to encourage participation, for average Texas forest landowners interested in selling environmental credits from their land varied greatly by contract length and estimation method. The average WTA increased dramatically as the length of a contract increased. This was evident when WTA was calculated. The estimated mean WTA for an average Texas landowner to sell environmental credit was \$15.15 per acre, per year for an annual contract; \$19.92 per acre, per year for a five-year contract; and \$27.36 per acre, per year for a conservation easement on their land.

These results could be useful for government agencies and commercial companies trying to effectively provide assistance to landowners on this subject.

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**APPENDIX**

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Appendix A: Landowner Letter and Survey Form

Appendix B: Landowner Survey Response Distribution

Appendix C: Survey Distribution of Willingness to Accept Question

Appendix A: Landowner Letter and Survey Form



April 6, 2009

Dear Landowner,

A new, exciting market opportunity is currently emerging in which forest landowners can participate. This market, still in its infancy, allows landowners to generate additional revenue from the many environmental benefits that their forestlands provide. Environmental credits may be awarded to landowners based on management practices they implement that protect or improve water quality/quantity, biodiversity, and the amount of carbon dioxide removed from the atmosphere. These credits can be traded on the open market, similar to the way securities are traded on Wall Street, or sold directly to buyers in an over-the-counter transaction.

Attached is a questionnaire designed to help Texas Forest Service determine the interest level of Texas landowners in selling environmental credits generated from their forestlands. The results of this survey will enable Texas Forest Service to develop additional educational materials on this subject, provide technical assistance to interested landowners, shape state and national policy on these markets, and help facilitate potential transactions.

We appreciate your willingness to take part in this survey. Please complete and return in the enclosed envelope. If you have any questions, please contact Hughes Simpson at (936) 639-8180, or by email at [hsimpson@tfs.tamu.edu](mailto:hsimpson@tfs.tamu.edu).

Thank you for your assistance.

Sincerely,

Tom Boggus  
Interim Director  
Texas Forest Service

Environmental Credit Marketing Survey

**Instructions:** Please take 10 minutes of your time to answer the following questions. Mark the appropriate response(s) to each question.

1. Have you ever heard of selling any of the following environmental credits generated from forestlands? (**Check all that apply**)?  
 Carbon       Water       Biodiversity       Wetlands
2. If yes, where did you hear about selling environmental credits? (**Check all that apply.**)  
 Website       Newsletter/Brochure       Workshop/Seminar       Media  
 Consultant       Government agency       Friend/Colleague
3. Would you ever consider selling environmental credits generated from your forestlands? (**If no, please skip to Question 7.**)  
 Yes       No
4. How would you prefer compensation for selling environmental credits?  
 Lump Sum Payment       Annual Payment
5. Suppose you were to enter a contract to sell environmental credits generated from your land. Under this contract, you must commit to sustainable forest management for a specified length of time. Timber harvesting may be restricted, unless it can generate additional credits. When the contract ends, you can manage the forest as you wish.
  - a) Would you accept *annual* compensation of \$8 per acre for the sale of environmental credits for an annual contract?  
 Yes       No
  - b) Would you accept *annual* compensation of \$9 per acre for the sale of environmental credits for a 5-year contract?  
 Yes       No
  - c) Would you accept *annual* compensation of \$10 per acre for the sale of environmental credits if you had to place a conservation easement on your property, protecting your land from development?  
 Yes       No
6. Please indicate, on a scale from 1 (Least Important) to 5 (Most Important), how important the following factors are that would **encourage** you to sell your environmental credits. (**Check one on each row that applies.**)

FACTOR	Least Important -----> Most Important				
	1	2	3	4	5
Simplicity of transactions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Compensation for sale of credits	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Contributing to environmental protection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Knowing someone that has sold credits	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## ENVIRONMENTAL CREDIT MARKETING SURVEY REPORT

7. Please indicate, on a scale from 1 (Least Important) to 5 (Most Important), how important the following factors are that would **prevent** you from selling environmental credits. (**Check one on each row that applies.**)

FACTOR	Least Important -----→ Most Important				
	1	2	3	4	5
Complexity of transactions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Compensation for sale of credits	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Land and/or management restrictions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Requirement to sign a contract / easement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. Please indicate, on a scale from 1 (Least Important) to 5 (Most Important) how important the following potential requirements in maintaining your forestland are that would **prevent** you from selling your environmental credits. (**Check one on each row that applies.**)

REQUIREMENT	Least Important -----→ Most Important				
	1	2	3	4	5
Having to develop a management plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Having to enter into an annual contract	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Having to enter into a 5-15 year contract	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Having to place an easement on your property	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9. Please indicate, on a scale from 1 (Least Important) to 5 (Most Important) how important the following potential requirements in managing your forestland are that would **prevent** you from selling your environmental credits? (**Check one on each row that applies.**)

REQUIREMENT	Least Important -----→ Most Important				
	1	2	3	4	5
Obtaining forest certification (i.e. Tree Farm)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Restricting forest management practices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Restricting / prohibiting timber harvesting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Restricting / prohibiting development	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. Would you be interested in learning more about this topic?  
 Yes       No

11. If yes, what method would you prefer to receive information? (**Check all that apply.**)  
 Newsletter/Brochure     Workshop/Seminar       Website  
 Phone                       Other \_\_\_\_\_

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12. Would you like to be invited to a meeting with potential environmental credit buyers?  
 Yes       No

13. If yes, what is the best way to contact you?  
 \_\_\_\_\_  
 \_\_\_\_\_

14. How many acres do you currently own/manage?  
 < 100 acres       100 -500       501- 1000       1001 -2500  
 2501 - 5000       5001 – 10,000       10,001 -25,000       > 25,000

15. Please list the percentage of your forestland in each forest type?  
 \_\_\_\_\_ Pine plantation      \_\_\_\_\_ Natural pine      \_\_\_\_\_ Pine/Hardwood  
 \_\_\_\_\_ Bottomland hardwood      \_\_\_\_\_ Wetland-like      \_\_\_\_\_ Other \_\_\_\_\_

16. What is the average age (in years) of your forest?  
 < 5 years       5-10       11-15       16-25       26-35       >35

17. How important are the following as reasons for why you own the forest land?

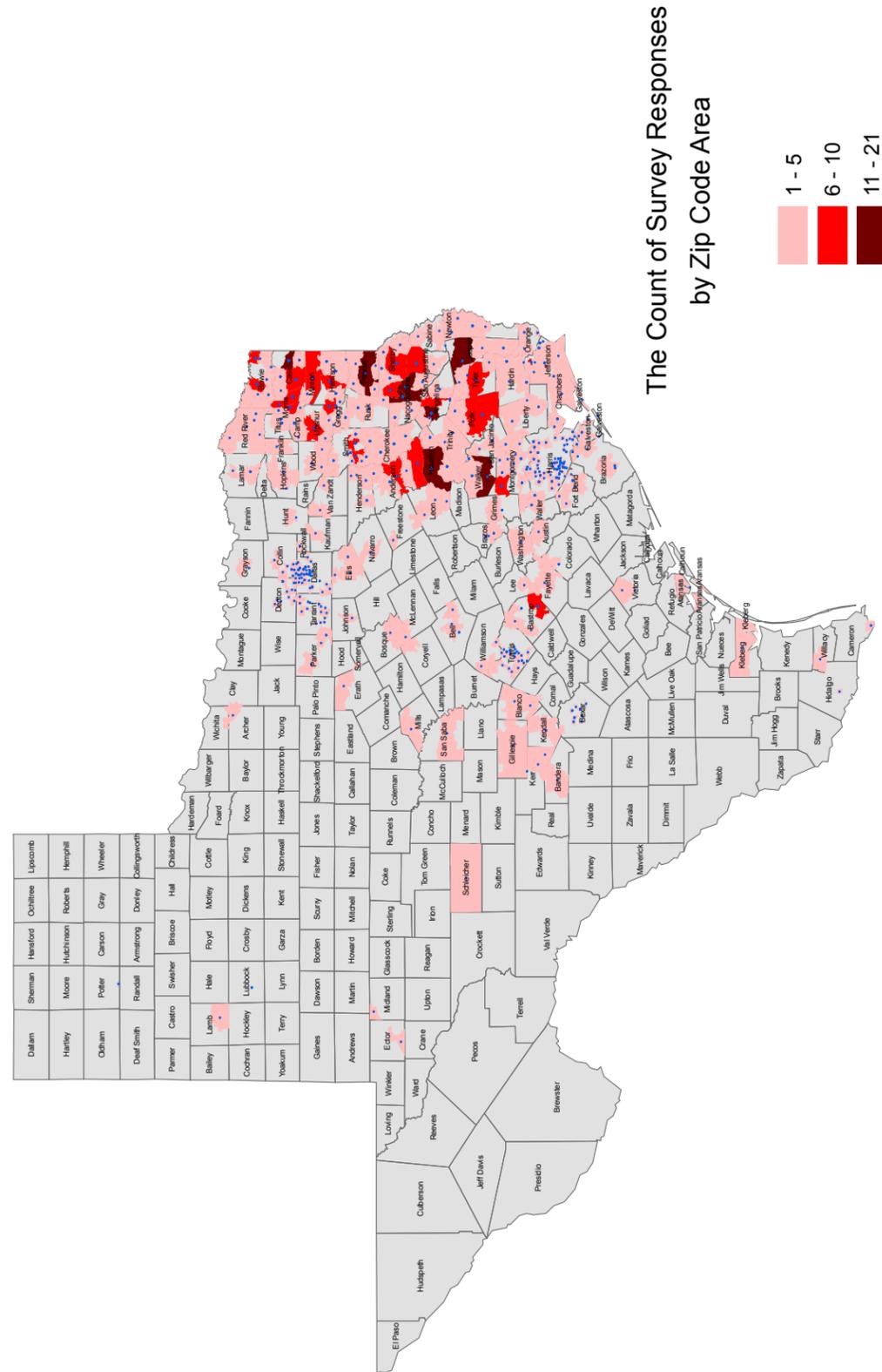
REASONS	Least Important -----→ Most Important				
	1	2	3	4	5
Enjoy beauty or scenery / protect nature	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Land investment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Part of my home or vacation home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Generate income from timber production or hunting lease	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

18. Is your forestland currently enrolled in any cost share program? (**Check all that apply.**)  
 CRP       FLEP       EQIP       WRP       WHIP       Other \_\_\_\_\_

19. Please provide any additional comments you may have on selling environmental credits.  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

20. Please provide your contact information if you would like to receive a summary of the results.  
 \_\_\_\_\_  
 \_\_\_\_\_

Appendix B: Landowner Survey Response Distribution



Note: One bluepoint represents one response.



Appendix C: Survey Distribution of Willingness to Accept Question

Annual Contract	5-Year Contract	Conservation Easement	Percentage of Sample	Percentage of Sample Return
\$2	\$3	\$4	5%	18%
\$5	\$6	\$6	15%	20%
\$8	\$9	\$10	20%	19%
\$10	\$11	\$12	20%	21%
\$12	\$13	\$14	10%	22%
\$15	\$17	\$18	10%	20%
\$20	\$22	\$24	5%	18%
\$25	\$28	\$30	5%	22%
\$30	\$33	\$36	5%	21%
\$35	\$39	\$42	5%	21%

**T E X A S**  
**FOREST**  **SERVICE**  
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