

The Supporting Statement OMB No. 0596-0078

National Woodland Owner Survey

January 2010

Note: This request is for the reinstatement of the previously approved information collection OMB 0596-0078, the National Woodland Owner Survey. The USDA Forest Service allowed the collection to expire in order to do a full assessment of the collected. The Forest Service has completed this assessment and requests approval from OMB to once again collect information from private woodland owners.

B. Collections of Information Employing Statistical Methods

- 1. Describe (including a numerical estimate) the potential respondent universe and any sampling or other respondent selection method to be used. Data on the number of entities (e.g., establishments, State and local government units, households, or persons) in the universe covered by the collection and in the corresponding sample are to be provided in tabular form for the universe as a whole and for each of the strata in the proposed sample. Indicate expected response rates for the collection as a whole. If the collection had been conducted previously, include the actual response rate achieved during the last collection.**

Respondent Universe: Based on the previous iteration of the NWOS, there are an estimated 11.3 million private woodland owners in the United States. Collectively, they control 423 million acres of forest land, 56 percent of the total forest land in the U.S.

Sampling: States form the primary stratification units. The total populations and proposed sample sizes per state are listed in Table B-1.

Table B-1: Number of private woodland owners and proposed sample sizes for the National Woodland Owner Survey by state. (Numbers in parentheses are standard errors reported as percentages)

State	Owners	Sample Size	
	Private	Annual	Per 5-year Cycle
Alabama	412,000 (11.5)	200	1,000
Alaska	82,000 (89.3)	50	250
Arizona	45,000 (40.5)	50	250
Arkansas	346,000 (22.7)	150	750
California	202,000 (19.1)	50	250
Colorado	186,000 (39.1)	50	250
Connecticut	108,000 (21.7)	50	250
Delaware	55,000 (57.1)	50	250
Florida	509,000 (22.6)	150	750
Georgia	524,000 (10.9)	200	1,000
Hawaii	25,000 (53.5)	50	250
Idaho	34,000 (54.6)	50	250
Illinois	18,000 (13.3)	50	250
Indiana	225,000 (10.8)	50	250
Iowa	150,000 (17.6)	50	250
Kansas	103,000 (18.9)	50	250
Kentucky	473,000 (14.5)	150	750
Louisiana	131,000 (17.9)	100	500

State	Owners	Sample Size	
	Private	Annual	Per 5-year Cycle
Maine	252,000 (13.1)	100	500
Maryland	157,000 (24.5)	50	250
Massachusetts	293,000 (18.8)	50	250
Michigan	498,000 (9.1)	150	750
Minnesota	202,000 (8.5)	100	500
Mississippi	370,000 (48.6)	200	1,000
Missouri	359,000 (7.2)	200	1,000
Montana	40,000 (22.9)	50	250
Nebraska	57,000 (33.1)	50	250
Nevada	15,000 (64.1)	50	250
New Hampshire	128,000 (23.8)	50	250
New Jersey	122,000 (28.1)	50	250
New Mexico	81,000 (81.7)	50	250
New York	687,000 (12.9)	200	1,000
North Carolina	525,000 (12.1)	200	1,000
North Dakota	24,000 (48.6)	50	250
Ohio	345,000 (10)	100	500
Oklahoma	71,000 (13.9)	50	250
Oregon	149,000 (16.8)	50	250
Pennsylvania	497,000 (6.8)	150	750
Rhode Island	38,000 (29.8)	50	250
South Carolina	301,000 (13.9)	150	750
South Dakota	12,000 (37.4)	50	250
Tennessee	534,000 (11.6)	150	750
Texas	354,000 (12)	50	250
Utah	66,000 (59.5)	50	250
Vermont	88,000 (19.2)	50	250
Virginia	410,000 (13.3)	200	1,000
Washington	215,000 (18.9)	50	250
West Virginia	251,000 (22.4)	150	750
Wisconsin	362,000 (6.8)	150	750
Wyoming	24,000 (47.5)	50	250
American Samoa	Unknown	20	100
Federated States of Micronesia	Unknown	20	100
Guam	Unknown	20	100
Marshall Islands	Unknown	20	100
Northern Mariana Islands	Unknown	20	100
Palau	Unknown	20	100
Puerto Rico	Unknown	20	100
U.S. Minor Outlying Islands	Unknown	20	100
Virgin Islands of the U.S.	Unknown	20	100
United States total:	11,321,000 (3.1)	4,650	23,250

(Section A, part 12 cited the number of respondents as being 5,070. In Table B-1, the sample size is indicated at 4,650. Counts of respondents in Section A, part 12 or the indicated sample size in Table B-1 need to be adjusted)

Six sets of focus groups, for a total of twelve focus groups, will be conducted annually. The locations will be distributed across the United States with the intent to be in each state by the end of the 5-year

cycle.

Expected Response Rates: The target response rate is 80+ percent. During the last iteration of the NWOS, the national response rate was just over 51 percent. Methods for increasing response rates and testing for non-response bias are described below.

(If target is 80% and sample size is 4,650, then counts of respondents in Section A, part 12 cannot be 5,070)

2. Describe the procedures for the collection of information including:

- **Statistical methodology for stratification and sample selection,**
- **Estimation procedure,**
- **Degree of accuracy needed for the purpose described in the justification,**
- **Unusual problems requiring specialized sampling procedures, and**
- **Any use of periodic (less frequent than annual) data collection cycles to reduce burden.**

All of the statistical procedures have been peer-reviewed and have been published in: *Design, implementation, and analysis methods for the National Woodland Owner Survey* (NE-GTR-336; www.treearch.fs.fed.us/pubs/20830). (This document was very informative and helpful) The statistical procedures have not changed from the previous iteration of the NWOS.

STATISTICAL METHODOLOGY

Respondents will be selected using a stratified random technique. First, each state is divided into non-overlapping hexagons. The hexagons are approximately 6,000 acres in the east and 12,000 acres in the west. An interwoven panel design is used to distribute the sample evenly over a 5 year sample period. Within each hexagon, a sample point is randomly placed. The land use at this point is determined using remotely sensed data. If the point is determined to be forested, the owner of the underlying land is identified using tax records or other public sources. If the land is privately owned, this owner becomes part of the sample.

ESTIMATION PROCEDURES

When estimating number of acres, simple random sample (SRS) estimation techniques are used, but when estimating numbers of owners, probability proportional to size (PPS) estimation techniques are used. PPS is required because the sample design implies that owners with larger parcels are more likely to be included in the sample than owners of smaller parcels. As described in NE-GTR-336, the SRS population and variance estimators are:

$$\hat{A}_d = \hat{A}_f \hat{p}_d \text{ and } \hat{\text{var}}(\hat{A}_d) = A_f^2 \left(\frac{s^2(\hat{p}_d)}{n_a} \right) + \hat{\text{var}}(\hat{A}_f)(\hat{p}_d)^2$$

where: \hat{A}_d = estimated area of woodland in domain d ;

\hat{A}_f = estimated area of woodland in the estimation unit (taken from FIA);

$$\hat{p}_d = \frac{1}{n_a} \sum_{i=1}^{n_a} y_i ;$$

n_a = the sample size or number of sample points in the estimation unit;

y_i = a binary variable with a value of one indicating inclusion of observation i in domain d ;

and

$$s^2(\hat{p}_d) = \frac{n_a}{n_a - 1} \hat{p}_d (1 - \hat{p}_d) .$$

The PPS population and variance estimators (i.e., the Horvitz-Thompson Estimator) are:

$$\hat{N}_d = \frac{1}{n_o} \sum_{i=1}^{n_o} \frac{y_i}{\pi_i} = \frac{\hat{A}_f}{n_o} \sum_{i=1}^{n_o} \frac{y_i}{a_i} = \hat{A}_f \sum_{i=1}^{n_o} \frac{y_i}{n_o a_i} \text{ and}$$

$$\hat{\text{var}}(\hat{N}_d) = \hat{A}_f^2 \frac{1}{n_o(n_o - 1)} \sum_{i=1}^{n_o} \left(\frac{y_i}{a_i} - \left(\sum_{i=1}^{n_o} \frac{y_i}{n_o a_i} \right) \right)^2 + \hat{\text{var}}(\hat{A}_f) \left(\sum_{i=1}^{n_o} \frac{y_i}{n_o a_i} \right)^2$$

where: \hat{N}_d = estimated number of owners in domain d ;

n_o = number of owners in the sample;

y_i = a binary variable with a value of one indicating inclusion of observation i in domain d ; and

π_i = the inclusion probability or $\frac{a_i}{\hat{A}_f}$;

and $A_f = \sum_{i=1}^{N_o} a_i$.

DEGREE OF ACCURACY

The target sample size per state is a minimum of 250. Examining the coefficients of variation for the estimated numbers of owners from the previous iteration of the NWOS, the values approach an asymptote of approximately 0.15 at a sample size of about 250 and hence our target sample size. Samples sizes beyond this number allow us to ask additional questions and to provide meaningful sub-state level estimates.

UNUSUAL PROBLEMS

No unusual problems requiring specialized sampling procedures will be used.

PERIODIC DATA COLLECTION

The NWOS is implemented on a 5-year survey cycle, so periodic (less frequent than annual) data collection methods are not needed.

- 3. Describe methods to maximize response rates and to deal with issues of non-response. The accuracy and reliability of information collected must be shown to be adequate for intended uses. For collections based on sampling, a special justification must be provided for any collection that will not yield "reliable" data that can be generalized to the universe studied.**

To maximize the response rates, we follow the standard methods described in *Mail and Internet Surveys: The Tailored Design Method* in order to establish trust, increase rewards, and reduce social costs. Part of the trust comes from the fact that the NWOS is conducted by a federal agency. We try to enhance this trust by stressing the importance and confidentiality of their answers in our interactions with them. To increase rewards, we highlight the specific uses of the data collected and the fact that they are a part of a statistical sample and their answer represents many other woodland owners. To reduce social costs, we have developed a questionnaire that is as short as possible, easy to understand, and contains no sensitive questions.

The mail portion of the survey will consist of a pre-notice, a first copy of the questionnaire with a cover letter, a reminder notice, and a second questionnaire with a cover letter. First, a pre-notice letter will be mailed to all potential respondents describing this information collection – why we are doing it and why we need their help. Second, the potential respondents will be mailed a questionnaire with a cover letter. The cover letter will reiterate the purpose and importance of this information collection and provide the respondents with all legally required information. Third, a reminder will be mailed to thank the respondents and encourage the non-respondents to respond. The last stage of the mail portion of the information collection will be the mailing of a second questionnaire and cover letter. For those individuals that do not respond to the mail solicitations for information, a telephone interviewer will contact them to solicit the requested information. To reduce burden on respondents, an electronic version of the questionnaire will also be available. To help obtain a response rate of at least 80 percent, the non-respondents will be contacted using telephone interviews.

Tests will be conducted to assess if non-response biases are present. These tests will include those outlined by the Federal Committee on Statistical Methodology Workshop's *How to do Nonresponse Bias Analyses in Household and Establishment Surveys* and the tests prescribed in publications, such as Groves et al.'s *Survey Nonresponse*. For example, early vs. late (i.e., mail vs. telephone) responses will be compared. In addition, we will use data collected as part of the sample frame (e.g., acres of land owned) and other external data sources to test for non-response biases. These tests have been conducted on previous iterations of the NWOS and no significant biases have been found, but we will continue to look and continue to refine our detection techniques. If a significant non-response bias is detected, statistical estimates will be adjusted appropriately. The specific adjustment procedure used will depend on the type and severity of bias, but may include post stratification, weighting based on auxiliary data, and/or imputation.

- 4. Describe any tests of procedures or methods to be undertaken. Testing is encouraged as an effective means of refining collections of information to minimize burden and improve utility. Tests must be approved if they call for answers to identical questions from 10 or more respondents. A proposed test or set of tests may be submitted for approval separately or in combination with the main collection of information.**

Many of the questions and procedures used have been tested as part of previous iterations of the NWOS. In addition, we are proposing to conduct focus groups as part of this iteration of the NWOS to further test the survey instruments and refine our understanding of the responses.

- 5. Provide the name and telephone number of individuals consulted on statistical aspects of the design and the name of the agency unit, contractor(s), grantee(s), or other person(s) who will actually collect and/or analyze the information for the agency.**

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[My final review is favorable. Aside from the inserted notes detailing the need for further information or clarification, the authors have established both the need and the means to address](#)

the need. Their methods are statistically sound and, if followed, should produce an improvement in the reliability of this collection. An important aspect of this collection is the objective of improving temporal comparisons. This should be possible under the conditions set forth in this docket.