



Forest Service

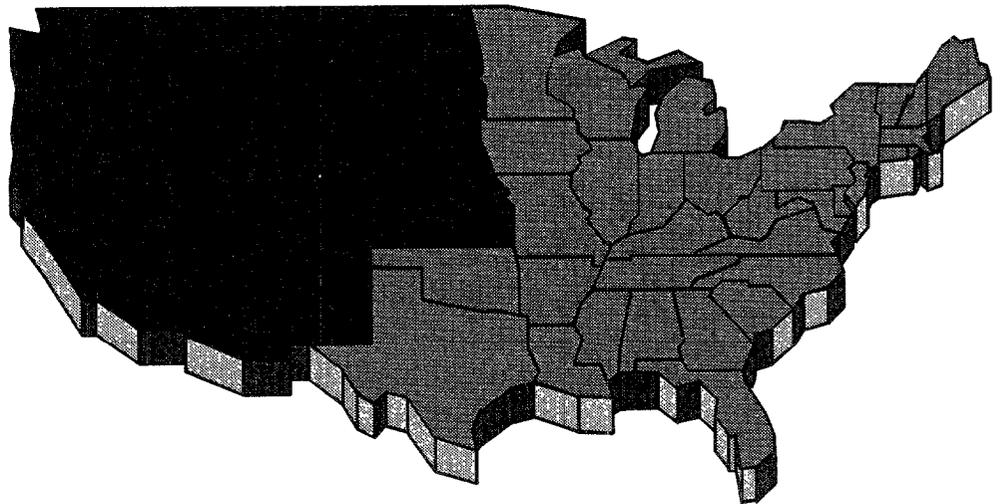
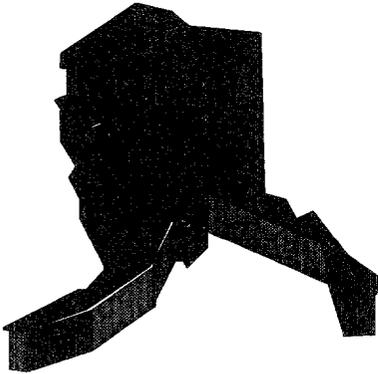
Northeastern Forest
Experiment Station

Resource Bulletin NE-137



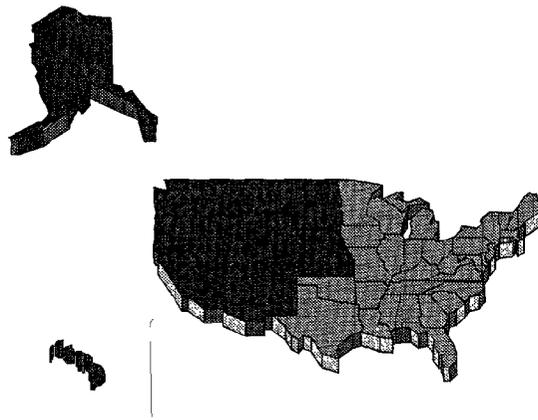
Private Forest-land Owners of the Western United States, 1994

Thomas W. Birch



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Highlights

- ❖ An estimated 1.03 million private ownerships control more than 76 million acres of forest land in the Western United States.
- ❖ Nearly 71 percent of the private forest is in ownerships of more than 500 acres.
- ❖ Corporations, partnerships, clubs, and other ownerships with multiple owners hold 67 percent of the acreage, while “retired” owners control one-third of the remaining 33 percent.
- ❖ Forty-nine percent of the ownerships first acquired forest land since 1978; these owners control 22 percent of the private forest.
- ❖ Seven percent of the private forest-land owners have a written management plan; they control 53 percent of the private forest.

Introduction

Our forest resources are vital to the social and economic well-being of our society. Good management of the forest requires a thorough knowledge of the resource base and the factors affecting it. Forest owners are the essential connecting link between the general public and the land. This publication reports on the Western United States from a 1994 study of forest-land owners nationwide (Birch 1996), and includes estimates of the number of private forest-land ownerships. Also described are ownership objectives, expected benefits, harvest experience, intention to harvest, and management planning. The first nationwide ownership study for the United States was conducted in 1978 (Birch and others 1982). This report also reviews trends that have occurred between the 1978 and 1994 national surveys.

In this report, an ownership unit refers to persons, combinations of persons or legal entities such as corporations, partnerships, clubs, trusts, Indian Tribes, and Native corporations. One person may own several parcels or partial interest in several parcels. An ownership unit controls a parcel or group of parcels of land. Our sample is drawn from the land itself (parcel by parcel), and the owner of record (the apparent owner) is determined. Finally, an individual who has some control of an amount of land (not exclusively the parcel sampled) responds to the survey. Therefore, ownership units and not owners are being sampled.

Landowners have rights and responsibilities regarding their land. These include the right to purchase additional land or sell existing holdings, determine land use, and choose the type and level of investment. Each of these rights all function within the limits allowed and imposed by society. Ownership of land fixes responsibility for decision making, establishes a claim on income accruing to land, and determines how wealth in land is distributed (Lewis 1980; Boxley 1977; Wunderlich 1978).

Data Collection

The USDA Forest Service's estimate of 736.7 million acres of forest nationwide, essentially unchanged from 1977, represents 33 percent of the total land area (Powell and others 1993). Of this, private "forest-land" owners (this and other terms are defined in the Appendix) hold 423.8 million acres (58 percent). Two-thirds of the Nation's forests are classified as timberland (490 million acres). Of this, 358 million acres are in private ownership. This study is based on an estimate of 393 million acres of private forest land, which includes essentially all of the private timberland plus samples of "other forest" in Texas, Oklahoma, Oregon, and California. In addition, data obtained for Indian lands in Arizona, Colorado, Nevada, New Mexico, and Utah included "other forest-land" area. Alaska has 6.2 million acres of private timberland that was covered by Forest Inventory and Analysis (FIA) sample locations. The remaining 23.6 million acres of Alaska's private forest did not have ground samples directly associated by ownership; it is owned primarily by the same Native corporations that hold most of the state's private timberland. For estimation purposes, this

report uses 9.9 million acres of private forest in Alaska on the basis of responses from Alaska owners.

In 1977, for comparison, 736.6 million acres of the United States were in forest; of this, 347 million acres were classified as privately owned timberland (USDA For. Serv. 1982). The 1978 study of private forest-land owners of the United States used an estimate of 333 million acres developed by USDA Economic Research Service, Natural Resource Economics Division from the National Resources Inventory (NRI) of the USDA Soil Conservation Service. The difference of 14 million acres (4 percent) was attributed to differences in definitions (Birch and others 1982). It was felt that the proportions from the 1978 study could be applied to the timberland base for resource planning purposes. The principal limitation of the 1978 survey was that it did not include a sufficient number of observations, especially for the Great Plains and Rocky Mountain States, to provide reliable state-level results. Also, there were no observations for Alaska. The 1978 study also did not consider the motivations or management intentions of forest-land owners, for example, their attitudes toward harvesting timber.

The other national estimate of forest-land owners is from the Timber Resource Review of 1953 (USDA For. Serv. 1958). The 1953 data did not include estimates of owners with fewer than 3 acres in the East or fewer than 10 acres in the West. Therefore, direct comparison of numbers of owners should not be made. The comparison by broad size classes could be of some use if coupled with trend data by ownership group (Wail 1981).

The 1978 data were gathered from 11,076 sample locations by the USDA Economic Research Service. The 1994 study was conducted by the Forest Inventory and Analysis projects of the USDA Forest Service in cooperation with the National Association of State Foresters and the USDA Natural Resources Conservation Service, in support of the Forest Stewardship Program of the USDA Forest Service, State and Private Forestry. Questionnaires for the 1994 study were mailed to 23,334 owners of 28,194 privately owned forested sample plots. Sample plot locations were from NRI or FIA plots. Specifics as to which plots were used where are included in the Appendix. Responses from 11,745 ownerships that control 15,700 of these sample plots are included in this report, as are responses from 1,417 ownerships that control 2,584 sample locations in the West. The procedure for estimating the number of private forest-land owners by state and the questionnaire used for this report are included in the Appendix.

Private Forest Owners

An estimated 9.9 million private forest-land ownership units hold 393 million acres of forest land in the United States. In the 17 Western states there are an estimated 1,030,000 private forest owners with 76.2 million acres of forest land. These owners are diverse in legal organization, economic circumstances, personal characteristics, ownership objectives, and management experience.

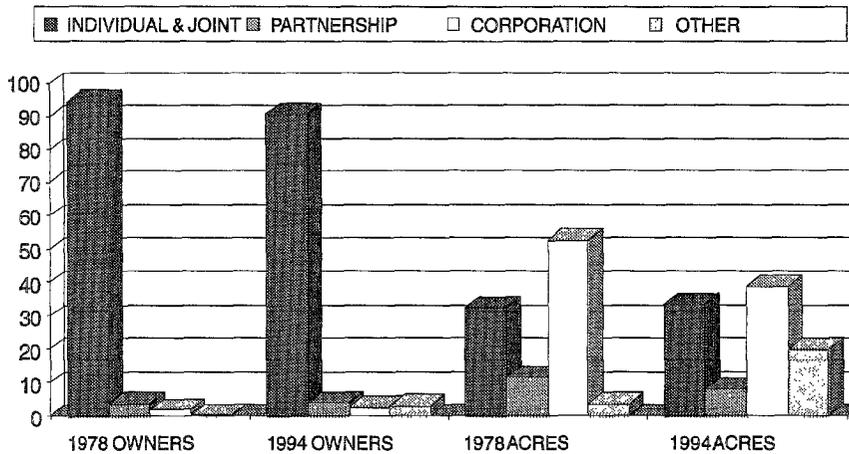


Figure 1.—Distribution of private ownerships, by form of ownership, Western United States, 1978 and 1994.

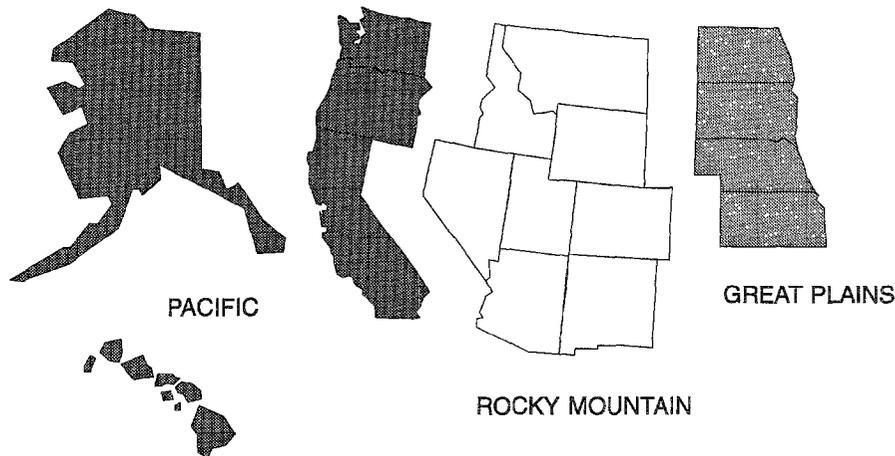


Figure 2.—Sub-regions of the West for private forest-land owners of the United States, 1994.

About 91 percent of the private ownerships in the West are individuals, collectively holding 33 percent of the privately owned forest land (Fig. 1, Table 1). Corporations hold 39 percent and the remaining 27 percent is held by partnerships, undivided estates, clubs, associations, and Indian Tribes.

Since 1978, individual ownerships, including joint husband and wife and family ownerships other than family corporations, increased in number but decreased in the proportion of private forest-land owners. The area owned by individuals increased and the proportion of forest land owned increased slightly. The current study includes a sample of Pinion-Juniper land in Oregon and California which was not included in the 1978 study and is owned primarily by individuals. Partnerships increased in number of ownership units but decreased in the proportion of private forest land owned. Both the number of corporations that own forest land and the forested acreage they hold increased, though the latter decreased in proportion to

other ownership groups. Since 1978, "Other" ownerships such as sport and recreation clubs, undivided estates, trusts, and Indian Tribes increased both in number and in acreage held. Most of this increase resulted from the reclassification of Indian tribal lands as private that formerly were classified as Federal lands administered by the USDA Bureau of Indian Affairs. The other major change resulted from the distribution of lands to Native Corporations in Alaska. Indian Tribes, including Native Corporations, are a particularly important ownership group in Alaska, Arizona, New Mexico, Colorado, and several other states in the West. If the additional acreage of private "other forest" in Alaska not included in this report were added, private acreage in the West would total nearly 95 million acres.

The data in this report were presented at the regional and subregion level in Birch (1996). The West is divided into three subregions: Pacific, Rocky Mountain, and Plains States (Fig. 2, Table 2). Data tabulations by region, subregion, and state are presented at the end of this report.

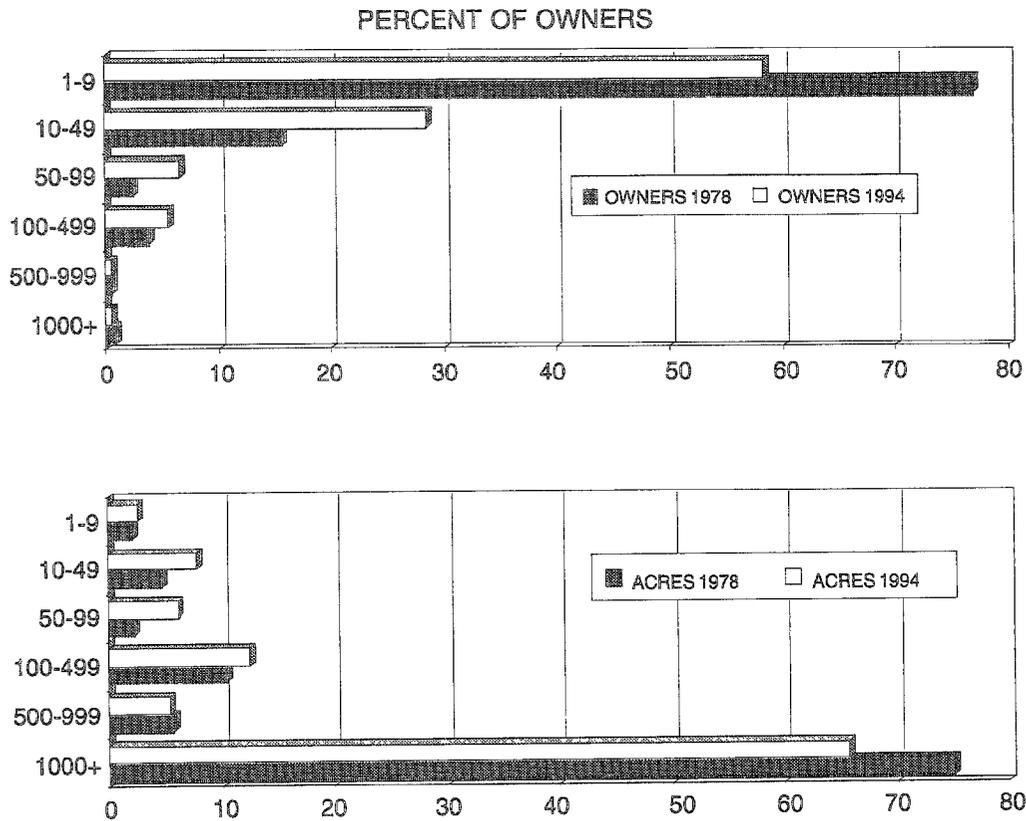


Figure 3.—Distribution of private ownerships, by size class of ownership, Western United States, 1978 and 1994.

The distribution of ownership by size class has changed since 1978 (Fig. 3, Table 3). The number of private ownerships with fewer than 10 acres of forest land increased from 474,000 (77 percent) to 601,000 (58 percent). The acreage in this class increased from 0.9 to 1.9 million acres. The number of ownerships with 10 to 49 acres of forest increased from 96,000 in 1978 to 293,000 in 1994. The acreage in this class increased from 2.2 to 5.9 million acres. The number of owners with 50 to 99 acres of forest increased from 15,000 to 68,000 and the acreage owned increased from 1.0 to 4.6 million acres from 1978 to 1994.

The area in ownerships of more than 100 acres is particularly important in the West. The proportion of ownerships with a written management plan increases with size of ownership. If the approximately 68,000 owners with more than 100 acres of forest worked with professional foresters, nearly 84 percent of the West's forest could be placed under management. However, working only with this group would preclude the development of a broad-based supportive constituency (Birch and Pywell 1986).

More than 93 percent of the private ownerships have fewer than 100 acres of forest land each; they control 16 percent of the private forest land. It is this portion of the resource

where concern about fragmentation and rapid turnover is concentrated. While many of these owners did not cite timber harvesting as their primary reason for owning forest land, many have harvested and will harvest trees for sale to forest-products companies.

The implications of changing ownership patterns are significant. The yearly transition to many new forest-land owners makes it difficult to impart information about management and activities such as stewardship programs. As a result, the use of mass communication, particularly the electronic media, is essential (Birch and Pywell 1986). Nearly one-half of the current owners acquired forest land for the first time since 1978. These owners control 22 percent of the private forest land (Fig. 4, Table 4). The group with the largest decrease both in numbers of owners and acreage owned included people who had first acquired forest land between 1960 and 1969. The increase in ownerships and acres in the pre-1950 class resulted from the reclassification of Indian lands and fewer "no answer" responses.

The social and economic characteristics of private forest-land owners and their objectives must be considered when developing management programs. As owners age, for example, some may harvest because they need money for

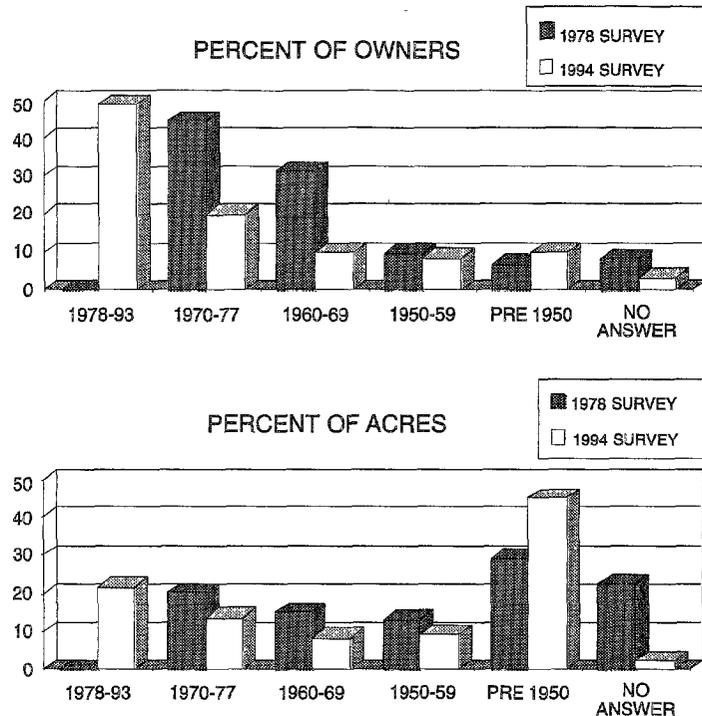


Figure 4.—Distribution of private ownerships, by year owner first acquired forest land, Western United States, 1978 and 1994.

retirement. By contrast, it is believed that “baby boomers” who are well known for their environmental concerns and high educational levels might not harvest because they do not need current income (Marcin and Skog 1984). But our studies revealed that the perception that owners are adverse to cutting trees is false.

In general, the “new” individual private forest-land owner is younger, better educated, and earns more than the owner of a decade ago. Also, the proportion of retired, farmer, and “other” owners increased (Fig. 5, Table 5). “Other” includes service workers, which coincides with the increase in service-related industries in the economy from 1978 to 1994. There has been a decrease in proportion of owners in “blue collar” occupations and a substantial decrease in the proportion of acreage held by these owners. The retired group increased both in the proportion of owners and proportion of acreage owned, possibly because owners who retired in the last decade were from occupation groups that had decreases as opposed to individuals who purchased forest land upon retirement. Also, people are retiring earlier and living longer.

Owner Objectives

Forests produce many benefits for their owners, so it is not surprising that land owners express diverse reasons for owning forest land. Many potential benefits from owning forest land are not competitive with each other: some are

derived with little or no effect on others, while some even increase when another benefit is produced.

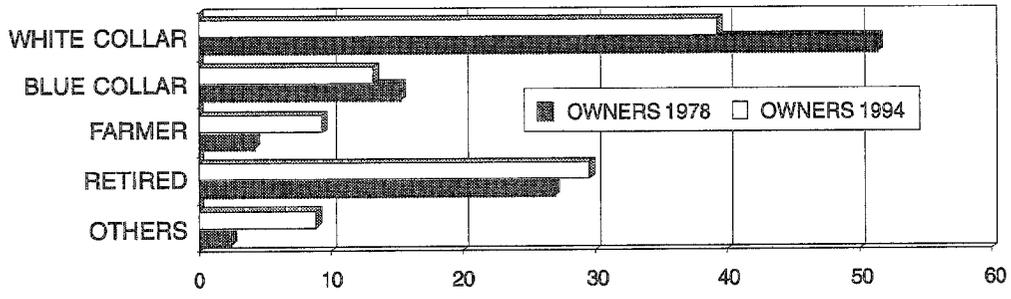
Nearly one-third of the private forest-land owners hold forest land primarily because it is “part of the farm” or “residence” (Fig. 6, Table 6). In general, these ownerships hold smaller than average-size tracts (fewer than 50 acres). Another 6 percent of the owners stated that farm or domestic use is the most important reason for owning forest land. Many of these owners consider their woodland as a source of fenceposts, fuelwood, and similar products.

Recreation and the enjoyment derived from owning forest land are the primary reasons why 29 percent of the owners hold forest land. The area owned by people with these objectives represents 12 percent of the private forest land.

Land investment often is thought of as a hedge against inflation. Private landowners who list land investment as the primary reason for owning account for 9 percent of the owners and 5 percent of private forest land.

Only 1 percent of the private forest-land owners hold their land primarily for timber production, but these owners control 30 percent of the private forest land. Some owners hold forest land for the minerals under the surface. Many of these are included in the “other” category. Also included in this category are lands owned by Indian Tribes and Native Corporations as part of their cultural heritage.

PERCENT OF OWNERS



PERCENT OF ACRES

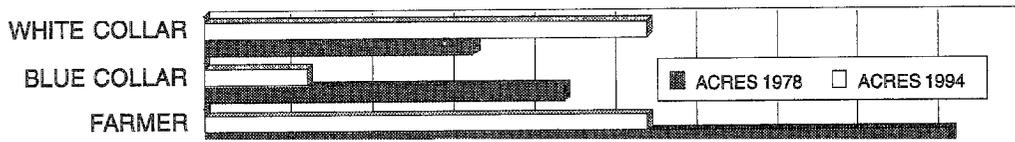




Figure 7.—Harvest experience of private ownerships and acres of forest land, Western United States, 1994.

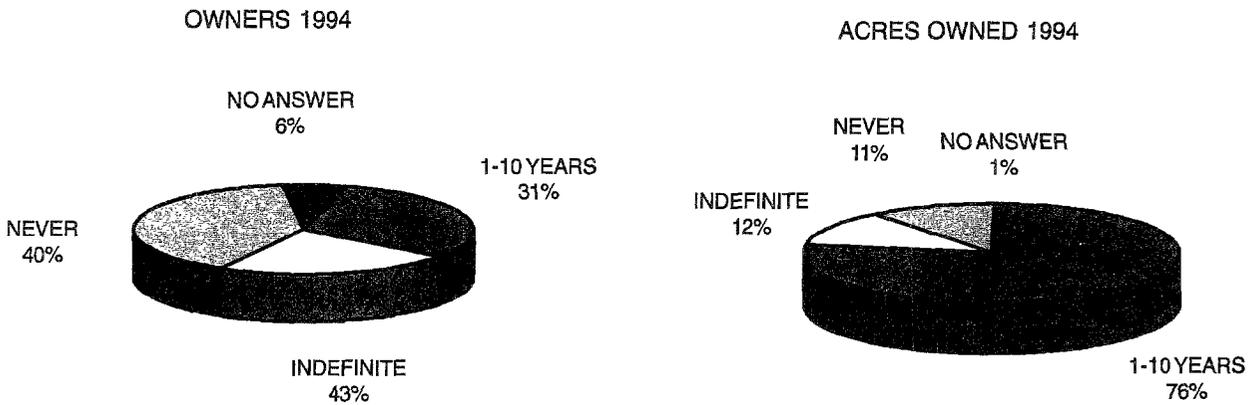


Figure 8.—Harvest intentions of private ownerships and acres of forest land owned, Western United States, 1994.

Timber Harvesting Behavior

There is a positive attitude toward and experience with timber harvesting. An estimated 46 percent of the private owners have harvesting experience; they control 78 percent of the private forest land (Fig. 7, Table 8).

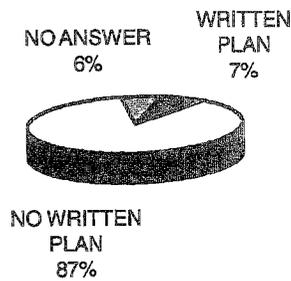
Respondents stating that they intend to harvest in the next 10 years account for an estimated 32 percent of private forest-land owners and 76 percent of the private acreage. Conversely, 40 percent of the owners stated they never intend to harvest; they control only 11 percent of the private acreage (Fig. 8, Table 9). Owners with indefinite harvest plans (23 percent) control 12 percent of the private forest land.

Management Planning

With the advent of the Forest Stewardship Program, there is increased interest in written management plans. An estimated that 7 percent of the private forest-land owners have a written management plan for their acreage (Fig. 9, Table 10). These owners control 53 percent of the private forest land.

Forest industry owns 40 percent of the forest land held by those with a written plan. The other 60 percent of the forest area is controlled by 75,800 nonindustrial private forest (NIPF) owners with some form of written plan.

OWNERS 1994



ACRES OWNERS 1994

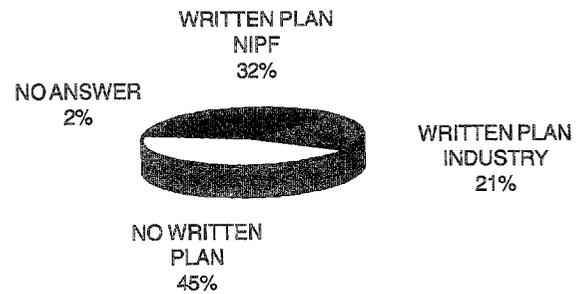


Figure 9.—Distribution of private ownerships and acres of forest land owned, by whether a written management plan had been prepared, Western United States, 1994.

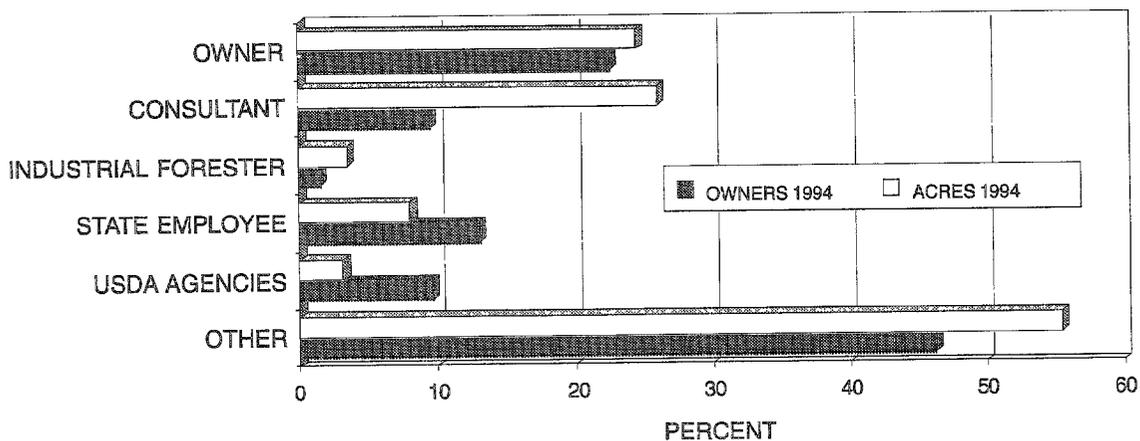


Figure 10.—Distribution of nonindustrial private ownerships and acres of forest land owned, by who prepared the written plan, Western United States, 1994.

Nearly 23 percent of the NIPF owners with a management plan prepared it themselves (Fig. 10, Table 11). These owners control 24 percent of the area covered by NIPF written plans. This includes some ownerships that employ foresters to prepare their plan. Nearly 10 percent of the NIPF plans were prepared by consultants, accounting for 26 percent of the forest land covered by written plans. Industrial foresters prepared about 2 percent of the NIPF plans covering an estimated 4 percent of the area covered by a written plans.

State service foresters and wildlife biologists have been preparing management plans for a long time. They wrote 13 percent of the plans for NIPF owners that cover 8 percent of the area under a written plan. Agencies such as the USDI Bureau of Indian Affairs, USDA Extension Service, and USDA Natural Resources Conservation Service prepared the remaining 55 percent of the plans that cover the remaining 59 percent of the forest under a management plan. Totals exceed 100 percent because

some owners listed more than one agency or person preparing the plans.

Conclusion

The extent to which the private forest resources of the United States are needed, managed, and utilized in the future will depend on the complex set of interrelated factors that operated in the past. These include trends in the tastes and preferences of the owners of forest land; technological changes in the production, marketing, and utilization of wood products and their substitutes; strength of the American dollar, trade deficits, inflation, and other economic forces; attitudes of forest-land owners and other citizenry toward timber management and cutting; and attractiveness of local business climates and living environments to developing industries. Only time will tell how all of these factors interact. For now, watchful monitoring and good stewardship will be needed to maintain the productivity of forested ecosystems for future generations.

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Table 1. Estimated number and percentage of private ownership units and acres of forest land owned, by type of ownership, Western United States, 1978 and 1994

Ownership	1978		1994	
	Thousands	Percent	Thousands	Percent
OWNERS				
Individual	583	94.5	936	90.9
Partnership	22	3.6	39	3.7
Corporation	10	1.6	25	2.5
Other	2	0.3	30	2.9
Total	617	100.0	1,030	100.0

Ownership	1978		1994	
	Millions	Percent	Millions	Percent
ACRES				
Individual	14.9	32.5	25.6	33.5
Partnership	5.2	11.4	6.0	7.9
Corporation	24.2	52.6	29.5	38.8

Table 3. Estimated number and percentage of private ownership units and acres of forest land owned, by size class of ownership, Western United States, 1978 and 1994

Size class (acres)	1978		1994	
	Thousands	Percent	Thousands	Percent
OWNERS				
1-9	474	76.9	601	58.3
10-49	96	15.6	293	28.4
50-99	15	2.4	68	6.6
100-499	24	3.8	56	5.5
500-999	3	0.5	6	0.6
1000+	5	0.8	6	0.6
Total	617	100.0	1,030	100.0

Size class (acres)	1978		1994	
	Millions	Percent	Millions	Percent
ACRES				
1-9	0.9	2.1	1.9	2.6
10-49	2.2	4.7	5.9	7.8
50-99	1.0	2.2	4.6	6.1
100-499	4.8	10.4	9.5	12.4
500-999	2.6	5.6	4.1	5.4
1000+	34.4	75.0	50.1	65.7
Total	45.9	100.0	76.1	100.0

Table 4. Estimated number and percentage of private ownership units and acres of forest land owned, by date of acquisition, Western United States, 1978 and 1994

Date of acquisition	1978		1994	
	Thousands	Percent	Thousands	Percent
OWNERS				
1978-93	0	0	504	48.9
1970-77	275	44.5	204	19.8
1960-69	192	31.1	101	9.8
1950-59	59	9.6	87	8.5
Prior to 1950	41	6.7	101	9.8
No answer	50	8.1	33	3.2
Total	617	100.0	1,030	100.0

Date of acquisition	1978		1994	
	Millions	Percent	Millions	Percent
ACRES				
1978-93	0	0	16.4	21.6
1970-77	9.2	20.1	10.4	13.6
1960-69	6.9	15.0	6.3	8.3
1950-59	6.0	13.1	7.1	9.2
Prior to 1950	13.4	29.2	34.2	44.9
No answer	10.4	22.6	1.8	2.4
Total	45.9	100.0	76.2	100.0

Table 5. Estimated number and percentage of private ownership units and acres of forest land owned, by owner's occupation, Western United States, 1978 and 1994

Occupation	1978		1994	
	Thousands	Percent	Thousands	Percent
OWNERS				
White collar	299	51.3	367	39.2
Blue collar	89	15.2	124	13.2
Farmer	24	4.2	87	9.3
Retired	157	26.9	276	29.5
Other	14	2.4	82	8.8
Total, individuals	583	100.0	936	100.0

Occupation	1978		1994	
	Millions	Percent	Millions	Percent
ACRES				
White collar	2.5	16.6	7.0	27.3
Blue collar	3.3	22.2	1.6	6.3
Farmer	6.9	46.0	7.0	27.3
Retired	1.9	13.0	8.0	31.3
Other	0.3	2.2	2.0	7.8
Total, individuals	14.9	100.0	25.6	100.0

Table 6. Estimated number and percentage of private ownership units and acres of forest land owned, by primary reason for owning forest land, Western United States, 1994

Reason for owning	Owners		Acres	
	Thousands	Percent	Millions	Percent
Land investment	90.9	8.8	4.0	5.2
Recreation	104.3	10.2	5.5	7.3
Timber production	14.8	1.4	23.1	30.2
Farm and domestic use	57.6	5.6	9.8	12.9
Enjoyment of owning	199.1	19.3	3.7	4.8
Part of farm	134.2	13.0	6.6	8.6
Part of residence	197.3	19.1	4.0	5.3
Other	226.3	22.0	17.5	23.1
No answer	5.7	0.6	2.0	2.6
Total	1,030.3	100.0	76.2	100.0

Table 7. Estimated number and percentage of private ownership units and acres of forest land owned, by primary benefit expected in the next 10 years from owning forest land, Western United States, 1994

Expected benefit	Owners		Acres	
	Thousands	Percent	Millions	Percent
Land value increase	181.4	17.6	5.7	7.5
Recreation	121.4	11.8	7.5	9.8
Timber production	21.4	2.1	25.2	33.1
Farm and domestic use	121.5	11.8	11.4	15.0
Enjoyment of owning	365.3	35.5	8.7	11.4
Firewood	26.9	2.6	0.5	0.7
Other	119.1	11.6	13.5	17.7
No answer	73.3	7.1	3.7	4.9
Total	1,030.3	100.0	76.2	100.0

Table 8. Estimated number and percentage of private ownership units and acres of forest land owned, by harvest experience, Western United States, 1994

Harvest experience	Owners		Acres	
	Thousands	Percent	Millions	Percent
Harvesters	439.4	42.6	62.9	82.5
Nonharvesters	590.9	57.4	13.3	17.5
Total	1,030.3	100.0	76.2	100.0

Table 9. Estimated number and percentage of private ownership units and acres of forest land owned, by expected time of future harvest, Western United States, 1994

Intention to harvest	Owners		Acres	
	Thousands	Percent	Millions	Percent
1-10 years	324.1	31.5	58.0	76.1
Indefinite	236.4	22.9	9.1	12.0
Never	407.9	39.6	8.2	10.7
No answer	61.9	6.0	0.9	1.2
Total	1,030.3	100.0	76.2	100.0

Table 10. Estimated number of private ownership units and acres of forest land owned, by whether a written management plan had been prepared, United States, 1994

Preparation of management plan	Owners		Acres	
	Thousands	Percent	Millions	Percent
Owners with written plans:	76.2	7.4	40.0	52.6
Forest industry	0.4	0.5	16.2	40.5
NIPF owners	75.8	99.5	23.8	59.5
Owners with no written plan	898.6	87.2	34.7	45.5
No answer	55.5	5.4	1.5	1.9
Total	1,030.3	100.0	76.2	100.0

Table 11. Estimated number and percentage of private ownership units and acres of forest land owned, by who prepared the written management plan for NIPF owners, Western United States, 1994

Preparation of management plan	Owners		Acres	
	Thousands	Percent	Millions	Percent
NIPF owners with written plans	75.8	100.0	23.8	100.0
Who prepared the plan				
Owner	17.1	22.6	5.8	24.5
Consultant	7.2	9.5	6.2	26.0
Industrial forester	1.2	1.5	0.8	3.5
State employee	9.9	13.0	1.9	8.0
Extension	0.5	0.7	0.1	0.2
NRCS ^a	6.8	8.9	0.7	2.9
Other	35.0	46.2	13.2	55.4
Total^b	77.7	102.8	28.7	120.6

^a National Resources Conservation Service.

^b Totals exceed 100 percent because some plans prepared by more than one person.

Appendix

Study Method

The sampling scheme used in this study was derived from the sampling design used by the USDA Forest Service's, FIA projects and that used by the NRCS's NRI. Mailing addresses were obtained for the owners of forested land on which a sample location from one of the two inventory systems was located. These addresses were obtained by crews from the forest inventory projects or from cooperating state forestry agencies. The names were obtained from a variety of sources--tax offices, other government agencies, neighbors, or the owner. Usable addresses were obtained for more than 95 percent of the sample locations. Of the 30,870 locations chosen, 2,602 were in some form of public ownership. Many large ownerships were identified that had multiple sample locations. Efforts were made to send only one questionnaire per state to these large owners. In all, 23,330 questionnaires were sent to owners of forest land; 11,745 (50 percent) were returned with usable information.

The questionnaire, was derived from several earlier ownership studies, has been revised as work has progressed over 20 years in the Northeastern States. A copy of the 4-page, 18-question questionnaire is included in this report. The mailing consisted of a questionnaire and cover letter explaining the purpose of the study. Approximately 3 weeks after the first mailing, a second questionnaire was mailed to those who had not responded with a second letter urging their cooperation. Approximately 1 month after the final followup mailing, a field followup of nonrespondents was conducted to obtain additional questionnaires and provide a basis for determining whether there was a significant difference between those who returned a questionnaire and those who did not. Questionnaires obtained by mail and followup were used in the same way for estimation. Many state forestry organizations had local service foresters contact nonrespondents. Where state organizations were unable to assist with followups, Forest Service personnel and volunteers made the contacts.

Estimation Procedure

The probability that a forest-land owner will be sampled depends on the rate of sampling and the acreage of forest land owned. Each state and often areas within states have different rates of sampling. Also, response rates differ, affecting the probability that an owner will be included in the final tabulations. The total acreage of forest land in private ownership for a state or sampled area is obtained from the forest inventory. The area in large ownerships, ownerships with a probability of selection approaching 1, is subtracted and the large ownerships form a separate strata. The remaining forest land is divided by the number of "small acreage" sample locations represented by the remaining valid questionnaires to determine the area represented by each sample plot. Since the sampling scheme is essentially the one used for the forest inventory, there is a low probability of inclusion for owners of small parcels of forest land. To estimate the total number of persons or ownership units, it is necessary to weight the number of owners in the sample. This procedure can be stated as:

$$N = \frac{T_p}{n_r} \sum \frac{1}{A_i}$$

N = estimated number of private owners in the sampling strata.

T_p = acres of forest land in the sampling strata

n_r = number of respondents in the sampling strata

A_i = acres owned by individual respondents

The summation estimate equals the estimated number of ownership units in the state, region, or nation. This is an unbiased estimate of the total number of ownership units that own forest land. The data were edited, processed, and compiled using FINSYS-2, a generalized computer system (Barnard 1978). The survey units within states were combined to state level statistics. States were summed to regions and finally to national summaries to increase the accuracy and precision of the estimates. The following tabulation shows the pertinent data for each state, region, and the nation.

States, subregions, and region private	Number of plots	Number of questionnaires sent	Number of respondents	No. plots owned by respondents	Ave. no. acres per plot
Kansas	164	146	38	38	33,974
Nebraska	141	137	27	27	23,185
North Dakota	119	117	30	30	13,700
South Dakota	88	80	17	18	33,833
Great Plains	512	480	112	113	25,991
Alaska	380	78	35	226	43,721
California	737	629	355	438	33,050
Hawaii	49	28	16	27	42,778
Oregon	844	519	335	612	17,402
Washington	654	296	188	536	18,041
Pacific	2664	1550	928	1839	24,923
Arizona	93	21	11	72	93,847
Colorado	175	147	83	97	33,876
Idaho	67	41	31	58	55,948
Montana	226	148	81	156	38,186
Nevada	69	45	17	19	27,895
New Mexico	210	136	66	128	32,258
Utah	83	66	29	35	43,914
Wyoming	93	83	59	67	29,806
Rocky Mountain	1016	687	377	632	43,383
West	4,192	2,717	1,417	2,584	29,484
Nation	28,207	23,330	11,745	15,700	25,057

Data Accuracy and Reliability

It is important to know the variation associated with the estimates. Not every acre and owner are sampled. When judging the effectiveness of the estimating procedure, we are concerned with two important criteria: how accurate is the estimate, and how precise is the estimate? Accuracy is the correspondence between the sample result and the result from a complete count or census using the same definitions and procedures. Reliability is the precision of the statistical estimates. We are interested primarily in the accuracy of the sample but in most instances we can only measure reliability.

To check the accuracy of the data, we had outside experts review this report. The response level obtained in the study also is an attempt to assure accuracy by minimizing nonresponse bias. Beyond the search for accuracy, the reliability of the estimate is given by the calculated sampling errors. Sampling errors are calculated for the estimated number of forest-land ownership units and the acreage of forest land in each cell of the tables. Sampling errors are included in the tables for the most important categories. The sampling error for the number of acres of forest land in private ownership is calculated as part of the forest inventory and is designed to achieve a national standard of

plus or minus 3 percent at a million acres of forest land. Because this study has a much smaller sample size than the normal forest inventory, sampling errors rise rapidly for smaller areas of forest land. There is no similar standard for the estimates of forest-land ownership units.

Because the ownership survey was conducted using a land-area sample, the estimates of area have smaller sampling errors than those of numbers of owners. Estimates for the Nation as a whole are the most reliable (having the smallest sampling errors in percent), followed by regions, subregions, and states. The inclusion of small forest parcels (fewer than 10 acres) in the study population substantially increases the sampling error for the estimated number of owners. In discussions with representatives of the National Association of State Foresters and other users, most believed that the level of precision achieved by the Northeastern Forest Experiment Station was sufficient. Because the accuracy of estimates at the state level from the previous national forest-land owner study were insufficient, we allocated increased sample sizes to areas of the country with high sampling errors in an attempt to overcome this problem. The following are sampling errors (in percent).

State, subregion, and region	Private forest land	Owners of private forest land	Owners holding 10 or more acres
Kansas	0.4	35.0	17.3
Nebraska	0.6	67.1	26.2
North Dakota	1.0	40.6	22.6
South Dakota	0.4	46.3	42.2
Great Plains	0.3	26.6	13.2
California	0.3	16.9	10.0
Hawaii	0.2	53.5	51.1
Oregon	1.5	18.7	9.7
Washington	1.2	27.0	10.4
Pacific Coast	0.4	11.2	6.8
Arizona	1.4	47.3	56.0
Colorado	0.4	30.1	24.5
Idaho	0.8	55.4	32.2
Montana	0.8	28.0	24.9
Nevada	0.5	64.1	42.9
New Mexico	0.3	31.7	31.6
Utah	0.3	52.4	41.8
Wyoming	0.4	28.1	28.1
Rocky Mountain	0.2	15.8	12.9
West	0.3	8.7	5.8
Nation	0.1	3.4	1.6

Definition of Terms

Farmer-owned lands. Lands owned by farm operators, whether part of the farmstead or not.

Forest industries. Companies or individuals operating primary wood-using plants.

Forest industry lands. Lands owned by companies of individuals operating wood-using plants.

Forest land. Land that is at least 16.7 percent stocked (contains at least 7.5 square feet of basal area) by forest trees of any size, or that formerly had such tree cover and is not currently developed for nonforest use. (Forest trees are woody plants that have a well-developed stem and usually are more than 12 feet in height at maturity.) The minimum area for classification of forest land is one acre.

Ownership unit. All types of legal entities having ownership interest in land, regardless of the number of people involved. It is the locus of decision making for each parcel, whether an individual (sole proprietor), group of individuals (partnerships, or undivided estates), or legal entity (corporation, trust, or tribe).

Private timberland. All timberland other than that owned by Federal, state, or local governments or their agencies.

Timberland. Forest land that is producing or capable of producing crops of industrial wood (more than 20 cubic feet/acre/year) and that is not withdrawn from timber utilization.

Other forest. Forest land other than timberland, including: oak woodlands in western Texas and Oklahoma; Juniper woodlands in California and Oregon, Pinon Juniper land in the Rocky Mountains, and much of interior Alaska.

NE FOREST EXPERIMENT STATION
FOREST SERVICE
U. S. DEPT. OF AGRICULTURE

Form Approved
OMB No. 0596-0078
Expires: 6-30-94

State _____
County _____
Plot _____

5. If your ownership has a business or association with it, what is the nature of the organization:

Check one

- Forest industry (sawmill, pulpmill, etc.)
- Farm
- Industrial business (manufacturing, mineral extraction, etc.)
- Real estate
- Non-industrial business (retail, sales, service industry, etc.)
- Sport/recreation club or association
- Public utility
- Other (please specify _____)

6. What is the approximate road mileage from your primary residence to your nearest and farthest tract of woodland? (For businesses or organizations consider primary residence to mean nearest place of business.)

Miles to the nearest tract _____
(enter zero if you live on the tract)
Miles to farthest tract _____

7. Have trees been harvested from your land, either by you personally or by someone else, during the time you have owned your woodland?

Yes 1. _____ Year of the most recent harvest _____
No. 2. _____

8. During the cutting, what products were harvested? (Check as many as apply.)

- Check
- 1. Fuelwood for your own use or for the use of friends
 - 2. Other products for personal use (fence posts, lumber, etc.)
 - 3. Fuelwood for sale
 - 4. Sawlogs for sale
 - 5. Pulpwood for sale
 - 6. Posts, poles, and pilings for sale
 - 7. Christmas trees for sale
 - 8. Other products (please specify _____)
 - 9. Don't know what products were harvested

9. Do you plan to cut or harvest trees from your land for your personal use or for sale?

	<u>Wood for own use</u>	<u>Wood for sale</u>
	(Check one)	(Check one)
In the next 10 years?	1. _____	4. _____
Possibly at some future date?	2. _____	5. _____
Never plan to harvest?	3. _____	6. _____

10. Is there a written forestry or wildlife management plan for your property?

1. Yes _____ 2. No _____

If yes, who prepared the plan?

- 1. _____ I prepared the plan.
- 2. _____ Other, please specify _____

11. Have you ever sought advice or assistance in managing your woodland?

1. Yes _____ 2. No _____

12. What office, agency, or individual would you contact for forestry help or advice? (If you don't know, please check "Don't Know".)

Check one

1. _____ Private consulting forester or wildlife biologist
2. _____ Industrial forester
3. _____ State employee (project forester or wildlife biologist)
4. _____ Extension Service
5. _____ Soil Conservation Service
6. _____ Other, please specify _____
7. _____ Don't know

13. What types of assistance or improvements would you be willing to pay for?

Please specify _____

14. Why do you own woodland? (Please rank with number 1 the most important.)

Rank

1. _____ Land investment (hope to sell all or most of my woodland at a profit)
2. _____ Recreation (hunting, camping, fishing, bird watching, etc.)
3. _____ Timber production (growing timber or other forest products for sale)
4. _____ Farm or domestic use (having the woods as a source of timber for my own use, e.g., firewood, fence posts, etc.)
5. _____ Enjoyment of owning "green space"
6. _____ Part of the farm (woodland is the untillable part of the farm and serves no useful function in the farm operation)
7. _____ Woodland is part of my residence
8. _____ For an estate to pass on to my children
9. _____ Other (please specify _____)

15. Which of the following do you feel will be the most important benefits you expect to derive from your woodland during the next 10 years? (Please rank these benefits in order of importance, with number 1 the most important.)

Rank

1. _____ Increase in land value (investment)
2. _____ Recreation (hunting, camping, bird watching, etc.)
3. _____ Timber production
4. _____ Farm or domestic use
5. _____ Enjoyment of woods, wildlife, and "green space"
6. _____ Firewood
7. _____ Other (please specify _____)

The following questions are asked to insure proper classification to questions 1 through 15 by categories such as age, occupation, and income. Please be as accurate as possible. If you need space to expand on any of your answers, use the space at the end of the questionnaire. Again, answers are strictly confidential and only statistical tabulations are published. No information that could identify you as an individual is ever published.

THESE QUESTIONS DO NOT PERTAIN TO AND SHOULD NOT BE ANSWERED BY CORPORATIONS AND ORGANIZATIONS.

If the woodland is owned by more than one person, the following questions should be answered for the person to whom the questionnaire is addressed. If the questionnaire is addressed to joint owners, as husband and wife, these questions should be answered by the person who makes most of the decisions.

16. What is the age of the owner? Check one
- | | |
|----------|-------------|
| 1. _____ | Under 25 |
| 2. _____ | 25-34 |
| 3. _____ | 35-44 |
| 4. _____ | 45-54 |
| 5. _____ | 55-64 |
| 6. _____ | 65 and over |

17. What is the primary occupation of the owner?
-

18. What is your best estimate of the total combined income of all members of the owner's household over 14 years of age during the past 12 months? (Please include NET income from businesses, farming, and rentals, money from jobs, pensions, dividends, interest, social security, unemployment, welfare, and workman's compensation.)

- Check one
- | | | | |
|----------|----------------------|----------|----------------------|
| 1. _____ | Less than \$10,000 | 2. _____ | \$10,000 to \$19,999 |
| 3. _____ | \$20,000 to \$29,999 | 4. _____ | \$30,000 to \$39,999 |
| 5. _____ | \$40,000 to \$49,999 | 6. _____ | \$50,000 to \$59,999 |
| 7. _____ | \$60,000 to \$74,999 | 8. _____ | \$75,000 to \$99,999 |
| 9. _____ | Over \$100,000 | | |

Thank you for taking the time to fill out our questionnaire. Your cooperation is greatly appreciated. Would you like to be sent a copy of the results of this survey? 1. _____ yes 2. _____ no Please feel free to write in any comments you have in the space below.

Public reporting burden for this collection of information is estimated to average 15 minutes, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information including suggestions for reducing this burden, to Department of Agriculture, Clearance Officer, OIRM, Room 404-w, Washington, DC 20250; and to the Office of Management and Budget, Paperwork Reduction Project (OMB# 0596-0078), Washington, DC 20503.

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