Effectiveness of Financial Incentive Programs in Promoting Sustainable Forestry in the West

John L. Greene, Steven E. Daniels, Michael A. Kilgore, Thomas J. Straka, and Michael G. Jacobson

ABSTRACT

Selected forestry officials in each of the 13 western states were surveyed in 2005 concerning their opinions on the public and private financial incentive programs available to nonindustrial private forest owners in their state. The officials were asked to name and describe the programs and to assess forest owners' awareness of each one, its appeal among owners aware of it, its effectiveness in encouraging sustainable forestry and enabling owners to meet their objectives, and the percent of program practices that remain in place and enrolled acres that remain in forest over time. They also were asked to suggest ways to improve the programs. The FSP, FLEP, and FLP were among the top-rated federal programs. Programs sponsored by states and private organizations tended to be more narrowly targeted than federal programs and scored well for specific attributes of sustainability. The officials' suggestions for program improvement largely centered on increasing visibility and availability, ensuring long-term consistency in funding, and simplifying the application and approval processes.

Keywords: private forest landowners, family forest owners, NIPF, cost-share, property tax

Policy tools such as education, technical assistance, regulation, and financial incentives influence the management and use of nonindustrial private forestland (NIPF). Increasing concern over loss of open space, forest fragmentation, and the globalization of forest product markets has revived interest in financial incentives as tools to conserve forests and promote sustainable forestry (Sampson and DeCoster 2000, Wear and Greis 2002, Hutton and Leader-Williams 2003, Stein et al. 2005, Harper and Crow 2006).

The scope of financial incentives is extensive and dispersed among many organizations. Most common are cost sharing or grants for developing forest management plans or implementing management practices—e.g. treeplanting or timber stand improvement—and tax incentives to encourage specific management behaviors. Most forest cost-share programs are funded by the federal government and are administered by state forestry agencies. Tax incentives are provided by both the federal and the state governments, primarily through the federal income tax and state property tax provisions. In some states, forest industry firms, forestry associations, and nongovernmental organizations (NGOs) also provide forest-related incentive programs (Greene et al. 2005).

Financial incentives were first used in the 1940s to address policy concerns about timber production and supply. In more recent years, however, the focus of most financial incentive programs has shifted toward issues more closely related to sustainability, including forest stewardship, environmental services, and the preservation of natural capital. Sustainable forestry—defined as managing forests for their ecological, economic, and social benefits such that those benefits do not diminish in quantity or quality over time (US Forest Service 2004)—has become the linchpin of the forest policy agenda (Oliver 2003, Wear et al. 2007).

Several studies have questioned the impact and effectiveness of financial incentive programs (Yoho and James 1958, Skok and Gregersen 1975, Bliss and Martin 1990, Lee et al. 1992, Cubbage 1994, Megalos and Blank 1997, Kluender et al. 1999, Greene et al. 2004, Kilgore and Blinn 2004). In general, studies of cost-share programs have found that a large fraction of nonindustrial private forest owners are unaware of the programs, do not understand program provisions, or would have done the supported practices without an incentive, and studies of tax incentives have found that taxes have little effect on forest owner behavior. There also is a growing debate about the role of financial incentives in promoting sustainable forestry (McKillop 1975, Worrel and Irland 1975, Boyd 1984, Schaff and Broussard 2006); although financial incentives can be viewed as assisting landowners to provide public goods that help society to meet sustainability goals, some feel there are better uses for taxpayer dollars.

A nationwide study conducted in 2005 examined the impact of financial incentive programs in promoting sustainable forestry (Greene et al. 2005, Kilgore et al. 2007, Straka et al. 2007, Jacobson et al. 2009a, 2009b). This article examines the results of this study for the states of the US West and discusses region-specific implications of forestry incentive programs. The research issues addressed are whether financial incentive programs are helping nonindustrial private forest owners in the region to practice sustainable forestry, whether some programs are more effective than others at accomplishing this goal, and the characteristics of effective programs.

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John L. Greene (jgreene01@fs.fed.us), US Forest Service Southern Research Station, 3041 East Cornwallis Road, Research Triangle Park, NC 27709. Steven E. Daniels (steve.daniels@usu.edu), Department of Sociology, Social Work and Anthropology, Utah State University, 0730 Old Main Hill, Logan, UT 84322-0730. Michael A. Kilgore (mkilgore@umn.edu), Department of Forest Resources, University of Minnesota, 115 Green Hall, 1530 Cleveland Avenue N, St. Paul, MN 55108-6112. Thomas J. Straka (tstraka@clemson.edu), Department of Forestry and Natural Resources, Clemson University, Box 340317, Clemson, SC 29634-0317. Michael G. Jacobson (mgj2@psu.edu), Pennsylvania State University School of Forest Resources, 309 Forest Resources Building, University Park, PA 16802-4301. *The authors thank the National Commission on Science for Sustainable Forestry for providing funding for this study. They also thank an anonymous reviewer, whose helpful comments contributed to the Discussion and Conclusions and Recommendations sections.*

Table 1. Federal financial incentive programs surveyed.

Forest Stewardship Program (FSP)—Established in 1990 to assist private forest owners to keep forestland and resources in healthy condition and increase the economic and environmental benefits it provides. FSP is not a cost-share program; state forestry agencies use the program to promote forest owner adoption of stewardship practices, e.g., by offering a state forest stewards program or providing technical assistance to develop Forest Stewardship plans. Administered by the US Forest Service.
Conservation Reserve Program (CRP)—Established in 1985 to promote conversion of highly erodible farmland and other environmentally sensitive land to a long-term resource conserving cover. Participating landowners receive annual payments for 10–15 yr based on the converted land's agricultural rental value. They also can receive a cost share of up to 50% of the cost of establishing the resource conserving cover. Administered by the USDA FSA.
Environmental Quality Incentives Program (EQIP)—Established in 1996, EQIP combines features of four earlier programs. Its objective is to help farm, ranch, and forestland owners address practices that pose a significant threat to soil or water resources. Participating owners receive technical assistance, cost share, and incentive payments to implement conservation practices. Administered cooperatively by the USDA NRCS and FSA.
Forest Land Enhancement Program (FLEP)—Established in 2002, FLEP combines two earlier programs. It promotes sustainable management of NIPF by providing technical, educational, and cost-share assistance to owners. A coordinating committee in each state determines how program funds will be used. Owners must have a written forest management plan to participate. Administered by the US Forest Service in partnership with state forestry agencies.
Forest Legacy Program (FLP)—Created in 1990 to protect environmentally important private forestland threatened with conversion to nonforest uses. FLP is not a cost-share program. It operates primarily through the purchase of permanent conservation easements. Up to 75% of the total cost of protecting forestland can be federally funded. Administered by the US Forest Service in partnership with individual states.
Landowner Incentive Program (LIP)—Established in 2003 to help private landowners protect and restore habitat for at-risk plant and animal species. LIP provides funding for states to offer technical assistance and grants to participating owners to develop and implement habitat management plans. Administered by the USDI Fish and Wildlife Service in cooperation with state wildlife agencies. To participate, the states must provide a minimum 25% nonfederal match for federal funding.
Wetlands Reserve Program (WRP)—Established in 1985 to encourage conservation of wetlands on privately owned land. Participating owners receive financial assistance to implement practices. All costs are reimbursed if the owner accepts a permanent easement; 75% of costs are reimbursed if the owner opts for a 30-yr easement or cost-share agreement. Administered cooperatively by the USDA NRCS and FSA.
The Wildlife Habitat Incentives Program (WHIP)—Established in 1996 to encourage the development and improvement of wildlife habitat on private land. Participating owners receive technical assistance to develop a wildlife habitat management plan, plus cost-share payments under an agreement lasting 5–10 yr. Cost shares can not exceed 75% of the cost of the practices performed. Administered by the USDA NRCS.

Encompassing an area bounded by Montana, New Mexico, California, and Washington, as well as including Alaska and Hawaii, the 13 states of the US West provide a unique laboratory for studying the effectiveness of public and private financial incentive programs in encouraging sustainable forestry. The region comprises 48% of US forestland and 28% of timberland (Smith et al. 2009). It is home to 23% of the nation's population and 12% of its more than 10 million nonindustrial private forest owners (Butler and Leatherberry 2004, US Census Bureau 2004). Moreover, noncorporate private holdings in the West account for 15% of forestland in the region and 18% of all noncorporate private acres in the United States (Smith et al. 2009).

Study Procedure

The findings presented in this article represent one phase of a larger study to identify and assess the effectiveness of the currently available public and private financial incentive programs in encouraging sustainable forestry on nonindustrial private land. The intent of this phase was to survey the opinions and suggestions of the state forestry agency officials who administer the programs. The opinions and suggestions of forest owners were surveyed in another phase of the study and are reported elsewhere (Greene et al. 2005, Kilgore et al. 2007, Straka et al. 2007).

Data for the study were collected using a mail survey of one individual in the forestry agency in each of the 13 western states selected for their overall knowledge of financial incentive programs. The appropriate person in each state to receive the survey questionnaire was identified using a networking approach; in most cases it was the official who managed the Forest Stewardship Program (FSP).

The survey questionnaire asked the forestry officials to name and describe the public and private financial incentive programs available to nonindustrial private forest owners in their state, as well as any private programs in neighboring states they were aware of. In follow-up questions they were asked to use a four-point Likert scale to assess forest owners' awareness of each program, its overall appeal among the owners aware of it, and each of several attributes of effectiveness in encouraging sustainable forestry and enabling owners to meet their objectives of forest ownership. The officials also were asked to estimate the percent of program practices that remain in place and enrolled acres that remain in forest over time and to suggest ways to improve owner participation in the program and its administrative effectiveness.

Eight federal financial incentive programs were examined in the survey: the FSP, Conservation Reserve Program (CRP), Environmental Quality Incentives Program (EQIP), Forest Land Enhancement Program (FLEP), Forest Legacy Program (FLP), Landowner Incentive Program (LIP), Wetlands Reserve Program (WRP), and Wildlife Habitat Incentives Program (WHIP). The term financial incentive was interpreted to include FSP and FLP, which are not cost-share programs but provide services of financial value to forest owners. Table 1 presents information about each program, including the year it was established, a summary of its provisions, and its administrative agency or agencies.

Three types of nonfederal financial incentive programs also were examined: state preferential property tax programs for forestland, other state-sponsored incentive programs, and programs sponsored by private entities. All 13 western states assess or tax forestland at preferential rates, although in some cases it is as agricultural or unproductive land. Each state takes its own unique approach, however, and even similar provisions are applied in widely divergent ways. Several states also sponsor other types of incentive programs, which frequently are funded by forest tax revenue; some are cost-share programs to help pay for forest management practices and others focus on wildlife, riparian areas, or conservation easements. Forest industry firms account for the majority of incentive programs offered by private entities, although programs sponsored by forestry associations or NGOs are available in a few states.

The survey questionnaire was developed, pretested with state forestry officials in each of the coauthors' home states, and refined using their feedback. The final version of the questionnaire was

Table 2. Federal forestry incentive program attributes as reported by state forestry officials.

Program attribute	FSP ($n = 13$)	CRP ($n = 5$)	EQIP ($n = 11$)	FLEP ($n = 13$)	FLP ($n = 10$)	WHIP ($n = 4$)
a. Owner awareness and appeal						
Awareness[a,c]	2.85^{A}	2.00^{A}	2.36^{A}	3.00^{A}	2.20^{A}	2.25^{A}
Appeal[a,c]	3.23^{A}	1.80^{B}	2.73^{BA}	3.46^{A}	3.00^{BA}	2.50^{BA}
b. Effectiveness in encouraging sustainable forestry						
Prevents conversion[b,c]	2.58^{BA}	2.33^{B}	2.40^{BA}	2.67^{BA}	3.90^{A}	2.00^{B}
Prevents parcelization[b,c]	2.50^{BA}	2.33^{BA}	2.33^{BA}	2.91^{BA}	3.90^{A}	2.00^{B}
Maintains forest typE[b,c]	2.82^{BA}	2.33^{B}	2.00^{B}	3.36^{BA}	4.00^{A}	2.00^{B}
Protects wildlife/fish[b,c]	3.54^{A}	2.80^{A}	3.00^{A}	3.62^{A}	3.70^{A}	3.50^{A}
Protects water quality[b,c]	3.77^{A}	2.80^{A}	3.20^{A}	3.62^{A}	3.80^{A}	3.50^{A}
Protects soil productivity[b,c]	3.62^{A}	2.40^{B}	3.10^{BA}	3.62^{A}	3.60^{A}	3.25^{BA}
Encourages forest management[b,c]	3.77^{A}	2.50^{BA}	2.25^{BA}	3.69^{A}	3.20^{BA}	2.00^{B}
Overall average[b,c]	3.40^{A}	2.60^{B}	2.44^{B}	3.40^{A}	3.35^{A}	2.70^{B}
c. Effectiveness in helping owners meet their objectives						
Timber production[b,c]	3.38^{A}	2.00^{A}	2.00^{A}	3.31^{A}	2.90^{A}	2.33^{A}
Recreation[b,c]	3.08^{BA}	2.25^{BA}	2.00^{B}	3.31^{BA}	3.50^{A}	2.25^{BA}
Wildlife[b,c]	3.46^{A}	3.00^{BA}	2.30^{B}	3.62^{A}	3.60^{A}	3.00^{BA}
Aesthetic enjoyment[b,c]	3.62^{A}	2.00^{C}	2.30^{BC}	3.38^{BA}	3.70^{A}	2.75^{BAC}
Soil/water conservation[b,c]	3.85^{A}	3.20^{A}	3.30^{A}	3.69^{A}	3.60^{A}	3.25^{A}
Invasive species control[b,c]	3.00^{A}	2.60^{A}	2.70^{A}	3.08^{A}	2.80^{A}	2.50^{A}
Overall average[b,c]	3.25^{BA}	2.54^{C}	2.64^{C}	3.37^{A}	3.72^{A}	2.74^{BC}
d. Long-term results						
Practices remain in place[b,c]	3.64^{A}	3.80^{A}	3.43^{A}	3.73^{A}	3.90^{A}	3.33^{A}
Acres remain in forest[b,c]	3.64^{A}	4.00^{A}	3.50^{A}	3.55^{A}	3.90^{A}	3.50^{A}

[a] Likert scale ratings: 1 = very low; 2 = moderately low; 3 = moderately high; 4 = very high.
[b] Likert scale ratings: 1 = very ineffective; 2 = moderately ineffective; 3 = moderately effective; 4 = very effective.
[c] Tukey's grouping across incentive programs for each respective program attribute, Alpha = 0.05. Means with the same cap letter are not significantly different.

mailed out in March 2005, using the Dillman (1999) tailored design method. Although the questionnaire was extensive—89 questions on 30 pages—follow-up telephone calls and e-mails provided a 100% useable response. Numerical data, including the Likert scale ratings, were compiled and summarized. Tukey tests were conducted to identify statistically significant differences between program ratings for each surveyed attribute, and the forestry officials' comments and suggestions were compiled and categorized.

Since the survey was completed, funding and legislative changes in the financial incentive programs available to private forest owners have overtaken some of the study findings. The Since the Study section in the Discussion section and a bulleted list in the Conclusions and Recommendations section describe the changes and their effect. The results of the study remain highly relevant, because policymakers can use them to evaluate new or proposed financial incentive programs.

Results

Federal Financial Incentive Programs

None of the state forestry officials surveyed responded about LIP and very few responded about WRP. In the case of LIP, this may be because the program was new at the time of the survey and is administered by an agency outside the USDA; in the case of the WRP, it may be because the program historically has been directed toward farm and ranchland rather than forestland. Consequently, LIP and WRP were excluded from the analysis.

Table 2 summarizes the forestry officials' ratings for federal financial incentive programs. Section a of Table 2 shows the mean ratings for forest owner awareness of each program and its overall appeal among owners aware of it. All the programs scored in the midranges for both owner awareness and appeal, with appeal usually rated somewhat higher than awareness. FLEP and FSP scored highest for owner awareness, although there were no statistically significant differences between the ratings for any of the programs. FLEP and FSP also scored highest for owner appeal, followed by FLP, EQIP, and WHIP. CRP scored in the moderately low range for owner appeal, significantly lower than the other programs (Table 2, section a).

Section b of Table 2 shows the officials' mean ratings for the programs in terms of their effectiveness in encouraging sustainable forestry among owners who participate in them, as measured by attributes ranging from preventing forest conversion to encouraging forest management. FSP and FLEP were rated highest overall, followed closely by FLP. FSP and FLEP scored particularly well for encouraging forest management and for protecting water quality, soil productivity, and wildlife and fish. FLP received a perfect score for maintaining forest type and also received high marks for preventing forestland conversion and parcelization and for protecting water quality, wildlife and fish, and soil productivity (Table 2, section b).

WHIP, CRP, and EQIP were rated significantly lower for encouraging sustainable forestry. WHIP received solid scores for protecting wildlife and fish and water quality; CRP and EQIP, however, did not score above the moderately effective range for any attribute (Table 2, section b).

Section c of Table 2 shows the officials' mean ratings for the programs in terms of their effectiveness in helping nonindustrial private forest owners meet their objectives of forest ownership, as measured by attributes ranging from timber production to invasive species control. FLP and FLEP were rated highest overall, followed by FSP. FLP received its highest scores for helping owners meet objectives related to aesthetic enjoyment, wildlife, soil and water conservation, and recreation; FLEP received its highest scores for objectives related to soil and water conservation and wildlife; and FSP received its highest scores for objectives related to soil and water conservation and aesthetic enjoyment (Table 2, section c).

WHIP was rated next highest, scoring in the moderately effective range for helping owners meet objectives related to soil and water conservation and wildlife. EQIP and CRP were rated significantly

Table 3. State- and privately sponsored forestry incentive program attributes as reported by state program administrators.

Program Attribute	State property tax programs (n = 10)	Other state incentive programs (n = 10)	Industry and state associated programs (n = 3)	NGO programs (n = 2)
a. Owner awareness and appeal				
Awareness[a]	2.80	2.80	–	–
Appeal[a]	3.11	2.90	–	–
b. Effectiveness in encouraging sustainable forestry				
Prevents conversion[b]	2.38	2.89	2.67	3.50
Prevents parcelization[b]	2.25	2.67	2.33	3.50
Maintains forest type[b]	2.17	3.00	3.00	4.00
Protects wildlife/fish[b]	2.29	3.30	2.67	3.00
Protects water quality[b]	2.29	3.20	3.00	3.00
Protects soil productivity[b]	2.43	3.10	2.67	3.00
Encourages forest management[b]	2.63	3.33	3.67	2.50
Overall average[b]	2.35	3.08	2.86	3.15
c. Effectiveness in helping owners meet their objectives				
Timber production[b]	2.78	3.22	4.00	2.50
Recreation[b]	2.63	2.90	3.00	3.50
Wildlife[b]	2.63	3.10	2.67	3.50
Aesthetic enjoyment[b]	2.63	3.00	3.00	3.50
Soil/water conservation[b]	2.50	3.40	3.00	3.00
Invasive species control[b]	1.75	2.50	2.33	2.00
Overall average[b]	2.49	3.02	3.00	3.00
d. Long-term results				
Practices remain in place[b]	3.43	3.80	–	–
Acres remain in forest[b]	3.29	3.70	–	–

[a] Likert scale ratings: 1 = very low; 2 = moderately low; 3 = moderately high; 4 = very high.
[b] Likert scale ratings: 1 = very ineffective; 2 = moderately ineffective; 3 = moderately effective; 4 = very effective.

lower than the other programs. Nevertheless, both programs scored in the moderately effective range for helping owners meet objectives related to soil and water conservation, and CRP for objectives related to wildlife (Table 2, section c).

Section d of Table 2 shows the officials' mean ratings for program practices remaining in place and enrolled acres remaining in forest over time. All six programs scored in the moderately to very effective range for both measures, with no statistically significant differences between them (Table 2, section d).

Improving Federal Programs

The forestry officials' suggestions for improving federal financial incentive programs differed according to the agency or agencies that administer the program. Well over one-half of the officials' suggestions for FSP, FLEP, and FLP, the programs administered by the US Forest Service, centered around program funding. By far the most frequent suggestion was to increase the overall level of program funding; the next most frequent suggestion was to stabilize funding from year to year. The remaining funding-related suggestions were to increase support for specific aspects of the program—e.g., the state administrative staff, cost shares, or program promotion—to speed up distribution of funds for projects, and to increase the state share of program funding.

Most of the other suggestions for US Forest Service–administered programs centered around program administration. The most common suggestion was to simplify federal oversight requirements for the programs. The next most common suggestions were appeals to restore FLEP and for more consistency in the programs' reporting requirements from year to year. These were followed by suggestions to place greater emphasis on landowner education, delegate funding decisions to the states, or fine-tune program requirement—e.g., by increasing cost-share rates or decreasing minimum acreage requirements.

In contrast, most of the officials' suggestions for CRP, EQIP, and WHIP, the programs administered by the USDA Natural Resources Conservation Service (NRCS) and Farm Service Agency (FSA), centered on improving program access for forest owners. They included suggestions to make program priorities more inclusive of forestland, provide better outreach to forest owners, improve communication with state forestry agencies, and increase the funding available for forestry practices. The next most frequent were suggestions about program administration: to streamline the administration process and simplify paperwork requirements for landowners. Suggestions to increase overall program funding and stabilize it from year to year were the next most frequent suggestions.

State and Private Financial Incentive Programs

Table 3 summarizes the forestry officials' ratings for state- and privately sponsored financial incentive programs. The questionnaire sections relating to programs sponsored by private entities were streamlined to request only descriptions of the programs and ratings for their effectiveness in encouraging sustainable forestry and helping owners meet their objectives of forest ownership. No data were collected for owner awareness and appeal or for practices remaining in place and acres remaining in forests over time.

It should be noted that, unlike the previous section where the results applied to specific incentive programs, here, they apply to broad types of programs: state property tax programs, other state-sponsored incentive programs, and programs sponsored by forest industry firms or associations or NGOs. In all, the forestry officials rated 10 state property tax programs, 10 other state-sponsored programs, 3 programs sponsored by forest industry firms or associations, and 2 programs sponsored by NGOs. Given the low number of programs rated, a statistical comparison of the rankings would not be meaningful.

Section a of Table 3 shows the forestry officials' mean ratings for state-sponsored incentive programs. Both property tax programs and other state incentives scored in the middle ranges for forest owner awareness and appeal among owners aware of them, with appeal rated slightly higher than awareness (Table 3, section a).

Section b of Table 3 shows the officials' mean ratings for the effectiveness of each type of incentive program in encouraging sustainable forestry among owners who participate in them. Programs sponsored by NGOs and states were rated in the moderately effective range overall. Incentives sponsored by NGOs received a perfect score for maintaining forest type and also got high marks for preventing forest conversion and parcelization; state-sponsored incentives received their highest scores for encouraging forest management and protecting wildlife and fish. Forest industry–sponsored incentives were rated near the moderately effective range, receiving their highest scores for encouraging forest management. In contrast, state property tax programs scored in the moderately ineffective range for all attributes of encouraging sustainable forestry (Table 3, section b).

Section c of Table 3 shows the officials' mean ratings for state and private incentive programs in terms of their effectiveness in helping nonindustrial private forest owners meet their objectives of ownership. Programs sponsored by states, forest industry, and NGOs all ranked in the moderately effective range, with state property tax programs again scoring substantially lower. State-sponsored incentives received their highest marks for objectives related to soil and water conservation and timber production. Industry-sponsored incentives received a perfect score for objectives related to timber production, and incentives sponsored by NGOs received high scores for objectives related to recreation, wildlife, and aesthetic enjoyment. No program, however, scored above the moderately ineffective range for objectives related to invasive species control (Table 3, section c).

Section d of Table 3 shows the forestry officials' mean ratings for state program practices remaining in place and enrolled acres remaining in forest over time. State-sponsored incentive programs scored near the very effective range for both attributes, and state property tax programs scored moderately effective (Table 3, section d).

Improving State Programs

The forestry officials' suggestions for improving state financial incentive programs were more diverse than those for federal programs and varied with program type. Perhaps because program specifics differ so widely among the states, only a handful of improvements were suggested more than once. Most suggestions for property tax programs centered around program requirements or administration. Most frequent were suggestions to tweak program provisions—e.g., decrease the minimum acreage to participate, make the tax benefit larger, provide a tax benefit for forest management practices, or increase the penalty for land conversion—define "agricultural use" to better include forestland and increase program consistency across appraisal districts.

In contrast, most suggestions for other state incentive programs centered on program support or paperwork requirements. Most frequent were suggestions to increase overall program funding, increase support for specific aspects of the program—such as promotion, field staff, or forest owner education—and to simplify the paperwork requirement for landowners.

Discussion

The state forestry officials surveyed were the individuals who administer federal and state financial incentive programs for nonindustrial private forest owners, whose day-to-day experience is seeing the benefits the programs can provide. It might be argued, and some survey results suggest, that such individuals might tend to believe financial incentives play an important role in promoting sustainable practices on private forestland. Overall, however, the officials rated the programs—federal, state, and privately sponsored—no more than moderately effective in encouraging sustainable forestry or helping owners meet their objectives (Tables 2 and 3).

Federal incentive programs received some of their lowest ratings for forest owner awareness and appeal among owners aware of them (Table 2). The low score for awareness suggests that greater effort is needed to inform owners of the programs. The low score for appeal may be because of owner wariness about participating in government programs. Zhang and Flick (2001) found that many landowners are suspicious about participating in government programs, for reasons including loss of independence of action and fear of government control over management and ownership decisions.

The various programs have differing and specific goals and objectives, so it is not surprising that the officials rated them differently in terms of effectiveness in encouraging specific attributes of sustainability. Nevertheless, the three forest-oriented programs—FSP, FLEP, and FLP—were among the top-ranked programs in terms of landowner awareness and appeal, encouraging sustainable forestry, helping owners meet their objectives, and long-term results (Table 2). FSP, FLEP, and FLP stress multiple forest management objectives. Their relatively high ratings over all attributes imply that timber production is compatible with sustainable management and with such other forest uses as recreation and wildlife.

The three nonforest-oriented programs also support forest management practices: CRP has a treeplanting component [1], and EQIP and WHIP provide for forest management practices. One reason for the lower overall ranking of these programs may be that, because they are administered by agencies whose traditional clientele is farmers and ranchers, CRP, EQIP, and WHIP are less familiar to state forestry officials and nonindustrial forest owners.

Regardless of their orientation or administrative agency, all the federal programs scored in or near the very effective range for practices remaining in place and acres remaining in forest over time (Table 2). This finding speaks to the participating owners' long-term commitment to the supported practices as well as the long-term effectiveness of the programs themselves.

Table 4 summarizes recent participation in publicly sponsored cost-share programs in the western states, cumulative acres under an FSP management plan, and cumulative acres of CRP treeplantings (respectively, FSP and CRP are perhaps the best-known forest-oriented and nonforest-oriented federal incentive program). In most states, 5% or less of nonindustrial forest owners had participated in a cost-share program in the past 5 years. The exception was Montana, where nearly 20% of owners had participated in a program (Table 4). In most states, however, the percent of nonindustrial forest acres treated was higher than the percent of owners participating, indicating that the tracts treated under cost-share programs tended to be larger than average. Again, the exception was Montana, where the tracts treated tended to be smaller than average (Table 4).

A total of 7.6 million forest acres in the region were under an FSP management plan at the end of the 2007 fiscal year—one-fourth of all FSP acres in the United States. The distribution of treated acres was sharply skewed, however, with the number and percent of acres in Alaska disproportionately large (because of a high rate of participation by Alaska Native Corporations) and the number and percent of acres in most other states disproportionately small. Just over

Table 4. Participation in publicly sponsored cost-share programs in recent years, cumulative acres under an FSP management plan, and cumulative acres of CRP treeplantings in the western region, by state.

State	Percent of nonindustrial private forest owners participating in a cost-share program in the past 5 yr, and percent of nonindustrial private acres treated[a]		Cumulative acres under an FSP management plan, and percent of all acres under an FSP management plan in the region and in the United States, by state[b]			Cumulative acres of CRP treeplantings, FY 2003 through FY 2007, and percent of all acres of CRP treeplantings, in the region and in the United States, by state[c]		
	% Owners	% Acres	Acres	% West FSP Acres	% US FSP Acres	Acres	% West CRP Plantings	% US CRP Plantings
Alaska	0.0	0.0	3,396,694	44.6	11.0	0	0.0	0.0
Arizona	N/A	3.8	255,267	3.4	0.8	N/A	N/A	N/A
California	0.6	5.4	276,201	3.6	0.9	474	2.7	0.0
Colorado	5.0	5.5	565,716	7.4	1.8	528	3.0	0.0
Hawaii	N/A	N/A	30,321	0.4	0.1	N/A	N/A	N/A
Idaho	2.9	26.4	121,597	1.6	0.4	8,123	46.8	0.4
Montana	18.4	6.8	693,243	9.1	2.2	1,353	7.8	0.1
Nevada	N/A	N/A	101,226	1.3	0.3	N/A	N/A	N/A
New Mexico	N/A	17.7	607,598	8.0	2.0	160	0.9	0.0
Oregon	2.9	13.3	492,354	6.5	1.6	3,694	21.3	0.2
Utah	N/A	7.4	285,930	3.8	0.9	0	0.0	0.0
Washington	1.5	7.4	387,057	5.1	1.2	2,872	16.5	0.1
Wyoming	4.2	11.5	394,591	5.2	1.3	151	0.9	0.0

[a] Source: US Forest Service National Woodland Owners Survey website (2009).
[b] Source: US Forest Service Cooperative Forestry website (2009).
[c] Source: USDA Farm Service Agency website (2009).

17,000 ac in the region had been treated with a CRP treeplanting practice in the most recent 5 fiscal years available. Again, the number and percent of acres treated was disproportionately small, even in Idaho, Oregon, and Washington, the states with the highest levels of participation (Table 4). Altogether, the region accounted for less than 1% of CRP treeplantings in the United States and less than 0.2% of total CRP cost-share outlays (Barbarika 2008; Table 4).

The forestry officials assigned state property tax programs and other state incentive programs ratings comparable with FSP, FLEP, and FLP, the forest-oriented federal programs, for owner awareness and appeal. Both types of state programs scored slightly higher than the federal programs for owner awareness but slightly lower for owner appeal (Tables 2 and 3). The low appeal may again be because of owner wariness about participating in government programs. As well, a number of studies (e.g., Hibbard et al. 2003) have highlighted concerns with property tax programs in states nationwide.

Other state incentive programs also scored on a par with the forest-oriented federal programs for practices remaining in place and acres remaining in forest over time, although state property tax programs scored somewhat lower. State-sponsored programs, however, scored below FSP, FLEP, and FLP for effectiveness in encouraging sustainable forestry and helping owners meet their objectives, both overall and for most individual attributes (Tables 2 and 3).

Among privately sponsored incentive programs, those sponsored by NGOs scored higher, overall, than state-sponsored programs, and those sponsored by forest industry firms and associations scored lower. The strengths of the privately sponsored programs were as might be expected, with industry-sponsored programs rated highest for encouraging forest management and timber production, and programs sponsored by NGOs rated highest for maintaining forest type and helping owners meet nontimber objectives of ownership (Table 3).

Since the Study

The financial incentive programs available to private forest owners have undergone substantial changes since the survey was conducted. FLEP—among the top-rated programs—received no funding beyond its initial allocation. US Forest Service distributions to states ended in 2006, and the program was not reauthorized in the 2008 Farm Bill (PL 110-246).

As well, the 2008 Farm Bill made changes and additions to programs administered by the NRCS and FSA. It modified provisions of existing programs, including EQIP, the Conservation Stewardship Program, and the Farmland Protection and Grassland Reserve to include management and conservation practices on NIPF as eligible for assistance. It also added protection of forests from threats including invasive species, insects, and disease as a national priority for federal assistance and established an Emergency Forest Restoration Program within the existing Emergency Conservation Program to address the priority (Gorte 2008).

The agencies themselves also have adapted existing initiatives to expand the financial incentives available to landowners. FSA developed the State Acres for Wildlife Enhancement program as a conservation practice under the CRP and the US Forest Service established the Western Bark Beetle Initiative, as well as related regional cost-share programs in the South and Northeast, under the Forest Health Protection Program.

The effect of these changes has largely been to shift forestry incentive programs away from the US Forest Service, to the NRCS and FSA. A reviewer of an earlier draft of this article described the changes to incentive program delivery in the region that resulted from the shift: although a handful of state forestry agencies have been working successfully with NRCS and FSA for several years, most are in the early stages of developing a working relationship. Several western states, however, are serving as EQIP pilot states, developing templates for cost-shared EQIP Forest Management Plans and offering landowners their first experience with the program and with NRCS. Because of this, it is likely that the EQIP would receive substantially higher ratings if the study survey were administered today.

Conclusions and Recommendations

The findings presented here should be interpreted with respect to forest acres enrolled in financial incentive programs, not all nonindustrial private forest acres. In a phase of the study reported elsewhere (Greene et al. 2005, Kilgore et al. 2007, Straka et al. 2007), focus groups of forest owners noted that public and private incentive programs play a limited role in promoting sustainable practices on nonindustrial forestland. One reason is that funding of the programs restricts the number of acres that can be enrolled; another is that many forest owners remain unaware the programs exist. In this phase of the study, owner awareness of both federal and state financial incentive programs averaged in the moderately low range (Tables 2 and 3).

The study results indicate there are clear differences between the incentive programs available to nonindustrial forest owners. FSP, FLEP, and FLP—administered by the US Forest Service—were among the top-rated federal programs by all measures, both overall and for individual attributes. All three programs stress multiple objectives, but their clientele is limited to forest owners. CRP, EQIP, and WHIP—administered by the NRCS and FSA—support forest management practices, but their clientele includes farmers and ranchers as well as forest owners.

Changes since the survey was conducted, however, address many of the issues regarding the financial incentive programs available to private forest owners that were raised by the study:

- The 2008 Farm Bill directly addressed the issue of making incentive program priorities more inclusive of forestland by adding protection of forests as a national priority, modifying the provisions of the EQIP and other existing programs to include practices on private forestland, and establishing new programs.
- The effect of most of the changes in incentive programs discussed in the preceding section has been to concentrate administration of incentive programs under the NRCS and FSA. This should address several issues, by promoting improved communication with state forestry agencies, providing forest owners a one-stop service center for nearly all the available federal programs at their USDA county office, and making paperwork and reporting requirements more uniform for both forest owners and state agency foresters.
- The concentration of programs also may help maintain and stabilize program funding, because the congressional committees that oversee the NRCS and FSA budgets are accustomed to sustaining programs and funding them over time.
- The regional cost-share programs developed by the US Forest Service to control major insect pests—represented in this region by the Western Bark Beetle Initiative—provides a working example of both a federal incentive program with flexibility to address regional differences and an incentive program directed against invasive species.

The issue of a divided clientele remains. Forest owners still must compete with farm and ranch owners for assistance under most financial incentive programs, overall funding has been flat in recent years, and in many western states the programs are chronically oversubscribed.

Programs sponsored by states, forest industry firms and associations, and NGOs generally are more narrowly targeted than federal programs and received their highest scores for specific attributes of sustainability. Such targeted programs have the potential to outperform general conservation programs for regional concerns, emerging issues—e.g., control of invasive species—and where program funding is limited.

Large areas of the West are developing rapidly and already have a high ratio of population-to-forest area. Preventing sprawl and managing development are key objectives of most state property tax programs; however, in this study property taxes rated lower than many other incentives for preventing forest conversion or parcelization. This finding suggests that although property taxes can play a role in controlling development, that role is limited by the high land prices paid for development. Furthermore, property taxes rated lower than the other incentives for encouraging sustainable forestry or helping forest owners meet their objectives of ownership; this suggests that property tax provisions are a relatively dull tool for promoting environmental policy.

Can financial incentive programs actually promote sustainable forestry? Having a single agency in each state designated as the point of contact for all forest-related incentive programs would reduce the high level of confusion that currently exists among forest owners with regard to program availability, qualifications, procedures, and delivery. A one-size-fits-all approach, however, might constrain the potential uses of these programs. What needs to change is to focus more on the resource—the land—instead of the landowner per se. Achieving such a change in focus will require increased consistency between incentive programs—such as requiring a management plan to participate in any program and linking financial incentives directly to stewardship practices— improved coordination of program administration, and a degree of flexibility between regions in program objectives and requirements.

Endnote

[1] CRP treeplanting practices combines activity under six conservation practices: CP3 new softwood trees, CP3A new longleaf pine trees, CP3A new hardwood trees, CP11 existing trees, CP32 expired hardwood trees, and CP36 longleaf pine initiative.

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