

8-1-2015

## Linking Agricultural Landowners with Payments for Ecosystem Services in the Interior Northwest: Resources for Extension

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### Recommended Citation

Gwin, L., & Pomeroy, A. (2015). Linking Agricultural Landowners with Payments for Ecosystem Services in the Interior Northwest: Resources for Extension. *The Journal of Extension*, 53(4), Article 25.  
<https://tigerprints.clemson.edu/joe/vol53/iss4/25>

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## Linking Agricultural Landowners with Payments for Ecosystem Services in the Interior Northwest: Resources for Extension

### Abstract

Ranchers and family forest landowners face complex challenges, including competing land uses, pressure from environmental regulations, and low profitability. Landowners may benefit from growing demand for ecosystem services associated with working landscapes. Payment for ecosystem services (PES) programs can be very complex, and landowners need information and support from known, trusted sources like Extension. Extension personnel in our study area had limited involvement with PES. We developed educational resources for Extension to help landowners navigate PES opportunities. The resources are based on research into the potential of PES to enhance prosperity for ranchers and forest landowners in the Interior Northwest.

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### Introduction

Ranchers and family forest landowners in the U.S. face complex challenges that threaten their ability to stay on the land and maintain their operations. Challenges include high demand for competing land uses, an aging landowner population, pressure from environmental regulations, and thin profit margins (e.g., Goldstein et al., 2011). These landowners may benefit from increased demand for the valuable ecosystem services their lands can provide (Daily, 1997; Costanza, 1997; Millennium Ecosystem Assessment, 2005). Extensive management practices can co-exist with and generate ecosystem services such as wildlife habitat and clean water (Sayre, 2001; White, 2008; Goldstein et al., 2011).

Payments for ecosystem or ecological services (PES) are voluntary approaches to protecting clean air, water, wildlife, sustainable products, carbon sequestration, and other environmental outputs by valuing and paying for them. PES mechanisms include government-funded conservation programs (e.g., federal cost-share programs) but also voluntary and regulatory ecosystem markets, certification schemes for marketplace differentiation (e.g., Forest Stewardship Council, Salmon Safe), and land

conservation programs (conservation easements). Innovative ranchers and family forest landowners are experimenting with these programs (Butler, 2008; Robertson & Swinton, 2005; Goldstein et al., 2011; Mercker & Hodges, 2007; McClain & Jones, 2013).

We undertook an integrated research and Extension project from 2010 to 2013 aimed at enhancing the potential of PES to improve the prosperity of small- and mid-sized ranchers and family forest landowners. Our team included Oregon State University, University of Oregon's Ecosystem Workforce Program, and Sustainable Northwest, a nonprofit organization based in Oregon that helps rural communities solve natural resource challenges.

The Extension element of our project had two specific goals: (1) develop educational resources to share our research findings with both landowners and those who work with landowners, and (2) assess Extension's current knowledge and practice regarding PES in our study area so that our outreach materials would enhance Extension's ability to help landowners benefit from PES. This second goal was motivated by the idea that managing for ecosystem services may be valuable to private landowners. Therefore, it would serve Extension personnel to be aware of PES, in both conceptual and practical terms, to be able to assist landowners with potential opportunities.

In this article we summarize what we learned about Extension's current knowledge and practice regarding PES in our study area. We then describe educational resources we developed that we believe will enhance Extension's ability to help landowners benefit from PES.

## **Project Overview and Findings**

Our project focused on a specific geographic region, the Interior Northwest, and combined quantitative and qualitative methods to explore and understand:

1. Current PES program participation and landowner attitudes and motivations regarding PES;
2. Regional contextual factors that might influence program participation; and
3. The role of different types of "intermediaries" in increasing both participation and effectiveness (landowner prosperity, conservation value) of programs.

"Intermediary" refers to individuals and organizations—public agencies, non-profit organizations, for-profit businesses, and others—that "act between" (Moss, 2009) landowners and PES programs. A specific objective of the project was to broaden and accelerate the transfer of PES information to both landowners and current and potential intermediaries, including Extension.

## **Methods**

The project as a whole combined qualitative and quantitative methods within a comparative case study approach; the four case studies were three- or four-county regions within each of four states. We conducted semi-structured interviews with more than 140 key informants, primarily current or potential PES intermediaries, in our study area. Data were coded to identify general and specific trends and themes that pertained to our research.

Our first 20 interviews were with Extension personnel, including area specialists and county-based agents, whom we identified as working directly with private rangeland and/or forest owners in the 15 counties in our study area. We asked about experience with PES programs, landowner participation and attitudes, perceived challenges, and information interviewees need to incorporate PES into extension programs.

We mailed a landowner survey to 2,226 randomly selected, nonindustrial landowners with forest or rangeland parcels of at least 20 acres in the 11 Oregon, Montana, and Washington counties in our study area. (Idaho mailing lists were unavailable.) We had a 38% response rate and analyzed the data using standard statistical techniques.

All of the qualitative and quantitative data gathered in the research phase helped us identify and analyze factors affecting ranchers' and family forest owners' involvement in PES programs. We then distilled this information for the outreach and Extension phase. All human subjects research was conducted using protocols approved by the Oregon State University Institutional Review Board.

## Landowners and PES Programs

Survey findings are discussed in detail in Bennett et al., 2014, but are important here for two reasons. First, the survey revealed a clear conservation ethic: 86% of landowners agreed strongly (53%) or somewhat agreed (33%) with the statement, "For me, practicing conservation is just the right thing to do." Similarly, 78% agreed that practicing conservation is very beneficial to their land, and a majority viewed conservation programs as compatible with their goals for their land.

Yet participation in PES programs is still quite low. Only one third had been involved with government conservation programs, mostly federal Farm Bill programs. About 10% had experience with easements and land acquisitions. About 10% had experience with certification for marketplace differentiation (similar to findings of McLain and Jones [2013] for forest owners). And about 10% had experience with ecosystem credit markets. Why such low participation rates? Landowners cited lack of information about PES programs and perceptions about complexity or unintended consequences, especially regarding government intervention and regulations.

This disconnect suggests an opportunity: conservation-minded landowners may be interested in market-based approaches to PES. Such approaches are still both uncommon and undersubscribed, but our qualitative research uncovered examples in practice. Conservation easements and water markets are the most common in our study area, while wetland mitigation banking and carbon trading are still largely in a pilot phase and highly localized. More details are provided in the fact sheet series described below (and see Davis, Gwin, Moseley, Gosnell, & Burrigh, 2014).

How can landowners learn about these opportunities? All market-based PES mechanisms we examined revealed innovative intermediary arrangements to design and deliver programs. Intermediaries served multiple functions in making PES "happen." These included developing large, landscape-scale strategies, creating networks of intermediaries that specialize in various functions to execute these strategies, building trust with landowners, translating program goals and specifications into a language that landowners understand, and helping landowners navigate complex program rules prior

to and through implementation.

Although most PES programs are maintained by local, state, and federal government agencies such as the Natural Resources Conservation Service (NRCS), we found that other strategic intermediaries, including conservation non-profits, community based organizations, and even for-profit firms, were integral to informing landowners of opportunities and connecting them with the appropriate resources.

## Extension as PES Intermediary

Our survey research indicated that landowners prefer working with known, local entities. Extension can be an effective intermediary because of its ongoing relationships with landowners, particularly in terms of the trust, translation, and navigational functions described above. Yet our research suggested Extension was rarely doing this in our study area. Interviews with Extension personnel in the study region revealed limited involvement with PES, conceptually and as specific programs.

All but one interviewee had at least some familiarity with PES as a concept, but most identified it primarily with NRCS cost-share programs, e.g., the Environmental Quality Incentives Program or Conservation Reserve Program. Two-thirds of interviewees had had landowners ask for information about at least one PES program, including both cost-share and newer market-based programs. Only a third had any direct experience helping landowners with PES programs.

Most interviewees expressed concerns about PES and said they lacked credible, practical information, including a clear understanding of how programs work and concrete, successful examples. Rules and procedures, especially for newer, market-based mechanisms, were unclear for both Extension staff and their clientele. As one interviewee said about carbon markets, "I don't think there's enough guarantee or understanding of what they're selling, how it's going to be marketed, and what the outcome is going to be."

Several others explained that although PES was potentially a way to diversify and enhance income, it was less important for landowners than increasing the profitability of commodity production. Ranchers, said one county agent, would benefit more from reducing winter feed costs than focusing on PES: "Unless it's worth a fair bit of money, they may not think [PES] is worth the trouble." Some questioned the long-term sustainability of PES, especially publicly funded programs, as income streams. One noted, "I wouldn't want to build my operation betting on the government paying me to do or not to do something."

Interviewees suggested that more landowners would participate in PES if they could see programs in action. As one said, "People don't really buy off on something until they can actually see it." Education about opportunities, whether through presentations or field days, may not suffice. "When we implement a few projects and somebody does it, and someone sees it's really working," explained one interviewee, "that's when it'll take off."

Interviewees also echoed the importance of trusted intermediaries: relationships matter. A county agent pointed to the local watershed council and the relationships it has developed with landowners as a key reason conservation projects work: "It's creating the relationship and building the trust before you come in and say I'm here to help." This echoes a finding of our landowner survey: respondents,

especially those who had never participated in a PES program, strongly preferred working with local entities.

Interviews with Extension personnel revealed a significant information gap around PES, specifically a lack of credible, practical, and compelling materials about PES opportunities and on-the-ground examples. In addition, much of what is currently available about PES is complex and lengthy. Much needed were resources that were lucid, brief, and focused on real stories and key points—important qualities for Extension materials.

## Extension Resources to Assist Landowners with PES

We responded to this need by developing Extension resources that speak to both landowners and intermediaries—including Extension—who can help landowners benefit from PES. Extension personnel can provide education on PES and specific programs without "pushing" them. One of the few Extension specialists who provides education about PES in our study region explained, "I disseminate the information and help people connect the dots."

Our Extension materials include fact sheets describing PES in action, a catalog of Web-based resources, briefing papers, and a website. In a series of eight fact sheets, we provide real examples of PES projects from our study area: the partners involved, the funding mechanism, project outcomes, challenges, and future prospects. One fact sheet describes how a certified timber company and sawmill in Northwest Montana uses log-buying policies to incentivize certified sustainable forestry practices on private lands and prepare landowners and the mill for evolving markets. Another describes how a southern Oregon ranch family has successfully combined multiple PES approaches, working with a variety of partners, to improve ecological and financial conditions on their land. A third explains a new type of water deal by which the state's biggest brewery, a big water user, puts millions of gallons of water back into a long-dry creek to restore native fish while compensating landowners for the water. These fact sheets highlight key intermediaries: two non-profits and an "eco-asset broker" that sealed the "beer and fish" deal.

Two additional fact sheets provide an overview and catalog of Web-based resources related to ecosystem services and PES, categorized as matchmakers, evaluators, libraries, and networks. All fact sheets (Table 1) are available online (Sustainable Northwest, nd).

**Table 1.**  
PES Fact Sheets

#	Title	Geographic Region
1	Prospering from Nature: Helping Landowners Protect and Enhance Ecosystem Services	n/a
2	Coordinated Salmon Habitat Restoration on Private Lands	WA
3	Paying the Water Bill: Community Support for Agriculture and River Restoration in Central Oregon	OR
4	Certification Rewards Stewardship and Assures Future	MT

	Markets for Montana Timber	
5	Ranch Combines Programs for Long-term Sustainability	OR
6	Enhancing the Effectiveness of Conservation Easements	MT, ID
7	Beer, Fish, and Watershed Restoration Certificates	MT
8	Bad Goat, Good Business: Byproducts Bring Big Gains for Watershed Restoration	MT
9	Ecosystem Services Online: An Overview of Web-based Resources	n/a
10	Matchmakers, Evaluators, Libraries, and Networks: Online Resources for Landowners and Practitioners	n/a
11	Payments for Ecosystem Services: Catalog of Online Tools and Resources	n/a

We also developed an Ecosystem Services Learning & Action Network (ESLAN) to engage diverse stakeholders, including landowners, intermediaries, agency staff, university researchers, and Extension over the 3-year project. Participants improved their knowledge of PES and program design by learning about pilot projects around the U.S., participating in a Web-based training offered by the Willamette Partnership and World Resources Institute, and hearing from federal agency staff about efforts to incorporate ecosystem services principles into policy and practice.

## Implications and Recommendations

In the Interior Northwest, innovative landowners, organizations, and agencies are engaged in PES programs in response to growing demand for provision and protection of ecosystem services. We offer the following implications and recommendations for Extension.

1. Payments for ecosystem services (PES) are voluntary approaches to protecting clean air, water, wildlife, sustainable products, carbon sequestration, and other environmental outputs by valuing and paying for them.
2. Extension personnel whose clientele include private rangeland and forest owners should know about PES—the concept and specific programs beyond traditional federal cost-share approaches—because of the potential to pair natural resource conservation with increased landowner income.
3. Intermediaries (non-profits, public agencies, others) connect landowners with PES opportunities and assist with project implementation.
4. Landowners prefer working with known, local entities. Extension can be an effective intermediary because of its ongoing relationships with landowners. Yet our research suggests that Extension involvement in PES is limited.

5. The research-based Extension materials described above can provide Extension with reliable, credible, and grounded information to assist landowners with PES. Experienced PES intermediaries (agencies, nonprofits) are also useful resources.
6. Extension can incorporate PES into ongoing educational formats, especially forest and range stewardship workshops. Concise, real world fact sheets are useful handouts for landowners to take home.
7. Extension can also provide critical feedback to PES program designers and managers about landowner attitudes and experiences with specific programs.

### Acknowledgements

This research was supported by the United States Department of Agriculture's National Institute of Food and Agriculture. The authors also wish to thank the three anonymous reviewers who provided helpful critique that significantly improved this article.

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