

## Forest Landowner Education Interests and Delivery Preferences: A Retrospective Look at Survey Results and Actual Participation

### Abstract

This article presents survey data on education interests and delivery preferences of small forest landowners in Washington and compares it to actual program participation over 6 years. The survey was conducted in late 2007 to guide development and implementation of a Extension forestry program. The survey found broad interest across many topics and that there was a range of delivery preferences from active to passive, but that passive delivery was preferred. The survey results have been poor indicators of actual attendance at workshops. We discuss these results, associated inconsistencies, implications for Extension educators, and need for ongoing studies.

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### Introduction

Assessing the educational needs and interests of the target audience is a key step in developing a successful Extension education program. At the onset of developing an Extension forestry program in northwest Washington, we conducted a survey of small forest landowners in a two-county area. The survey asked participants to rank the importance of 11 forest ownership values and their interest in 30 forestry education topics. Participants were also asked about educational delivery preferences, willingness to travel to Extension workshops, and a few demographic questions.

While perhaps not so much a needs assessment as a market assessment, the survey nonetheless has provided important information about the target audience that has guided the first few years of an Extension forestry program. An analysis of the results for the forest ownership values and forest owner demographics portion of the survey has been reported elsewhere (Zobrist & Rozance, in Press). In the study reported here we analyze the survey data pertaining to education interests and delivery preferences.

The survey was conducted in late 2007. The results were not published at that time; rather they were used internally to guide the development and implementation of a new Extension forestry program.

Having used these data to guide programming for 6 years, we now take a retrospective look at the survey data and how it compares with actual participation and engagement in the programs that were developed using the survey data as guidance.

## Methods

We conducted a mail survey in fall 2007 of small forest landowners in Snohomish and Skagit Counties, in northwest Washington. The southern edge of Snohomish County is approximately 12 miles north of downtown Seattle, and Skagit County is adjacent to Snohomish County to the north. Both counties are bounded by Puget Sound to the west and the Cascade Mountains to the east. Snohomish County is more urbanized compared to Skagit, but both counties are largely rural, with a strong forest and agricultural base. There are approximately 29,000 small forest landowners in the two-county area who collectively own approximately 233,000 acres of forest (Rogers & Cooke, 2009).

Contact information was obtained from county tax records. Surveys were sent to all landowners whose properties were enrolled in a forestry current use taxation program. Surveys were also sent to a random sample (approximately 15%) of those not enrolled in current use taxation but who were identified as forest owners because they paid the Forest Patrol Tax, which funds wildland firefighting resources. Surveys were also sent to members of the Washington Farm Forestry Association (a landowner group) who lived in the area. The surveys were only sent to those with five or more acres who appeared to be individually or family owned (e.g., not logging or mining companies, government agencies, organizations, etc.) and who lived within Snohomish, Skagit, or one of the immediate adjacent counties (i.e., those who were likely to attend a locally based Extension class). In total, surveys were sent to 2,915 valid addresses, and 1,024 usable responses were received (35%).

The survey packets included a cover letter, a two-page survey, and a postage-paid return envelope. Follow-up reminders were sent 2 weeks and 4 weeks following the initial mailing. In the survey, participants were asked to rank their interest in 30 education topics on a five-point scale, with one being very disinterested and five being very interested. Each topic title included a brief description. Participants were also asked what, if any, Extension resources they were likely to use, selecting from printed materials, online materials, workshops, and one-on-one assistance. Additional questions on the survey involved ranking forest ownership values and reporting demographic information.

The survey was developed by reviewing similar surveys that had been done in Washington (e.g., Baumgartner, Creighton, & Blatner, 2003) and written feedback from local Extension forestry workshops offered in the preceding years. This workshop feedback included participant rankings of ownership values and open-ended questions about education topics of interest. These data were used to develop the lists of education topics and ownership values. The survey was reviewed and refined by other Extension forestry educators, departmental faculty, a local county Extension director, and a local service forester from the Department of Natural Resources. The survey methodology was generally based on the recommendations of Dillman (2007), with additional input from two statistical consultants.

## Results

Table 1 summarizes the mean rankings of landowner interest in 30 forestry education topics, including

the mean ranking and also the percentage of respondents giving the topic a 4 or 5 ranking (somewhat or very interested). There was interest in a variety of topics, with 18 out of 30 topics having a mean interest ranking above 3 (neutral). For 10 of the topics, at least half the respondents were somewhat or very interested. For all 30 topics, at least 23% of respondents were somewhat or very interested. Forest health, wildlife habitat, fire, forest taxes, forest safety and security, invasive species, estate planning, climate change, and wind were the topics of highest interest. Non-timber forest products, sustainable timber harvesting, forest finance, forest roads, tool use and safety, introduction to forestland ownership, and small-scale sawmilling were the topics of lowest interest.

**Table 1.**

Landowner Interest in Forestry Education Topics on a Scale of 1 (Very Disinterested) to 5 (Very Interested)

<b>Topic</b>	<b>Mean Ranking</b>	<b>SD</b>	<b>n</b>	<b>Percent Ranking 4 or 5</b>
Forest health	3.88	1.11	986	71.1
Wildlife habitat	3.79	1.23	976	65.9
Fire	3.77	1.25	976	64.1
Forest taxes	3.69	1.22	984	61.4
Forest safety/security	3.61	1.37	984	60.1
Invasive species	3.56	1.27	961	58.7
Estate planning	3.55	1.35	988	58.8
Climate change	3.52	1.32	977	55.7
Wind	3.47	1.28	966	54.9
Forest management	3.37	1.22	980	49.8
Forestry assistance	3.34	1.21	971	47.2
Riparian management	3.33	1.38	968	51.1
Plant/tree identification	3.29	1.32	971	48.2
Gardening in the forest	3.28	1.34	972	49.2
Understanding regulations	3.25	1.26	969	44.9
Forest inventory	3.23	1.21	983	45.6
Reforestation	3.21	1.37	970	47.1
Soils	3.15	1.30	968	43.1
Living in the forest	3.00	1.47	966	43.9
Forest certification	2.98	1.21	968	33.6

Hardwood management	2.91	1.37	976	37.3
Forest mapping	2.88	1.32	978	34.2
Non-timber forest products	2.77	1.41	970	33.9
Sustainable timber harvesting	2.77	1.43	960	34.6
Forest finance	2.76	1.31	978	30.0
Forest roads	2.62	1.39	967	29.4
Tool use and safety	2.55	1.33	964	26.3
Forestry software	2.52	1.28	966	23.9
Intro to forestland ownership	2.50	1.28	950	23.7
Small-scale sawmilling	2.38	1.43	961	25.9

We used t-tests to compare the mean interest rankings between those with small ownerships (<20 ac) and those with large ownerships (≥ 20 ac) and between absentee and resident owners. We chose these two comparisons because these were where Zobrist and Rozance (in Press), using the same survey data, found the greatest number of differences between groups when analyzing ownership values. The property size comparisons are presented in Table 2. We found significant differences for 20 of the 30 topics, with all but two of the topics with differences being ranked higher by the large property owner group. The absentee vs. resident comparisons are presented in Table 3. We found significant differences for 17 of the topics, eight of which were ranked higher by absentee owners and nine of which were ranked higher by resident owners. For both comparisons, the relative ranking order for each group was very similar.

**Table 2.**

Comparison of Education Topic Interest Between Those with Small Versus Large Properties

Topic	<20 ac			20 ac			t	P
	Mean	SD	n	Mean	SD	n		
Forest health***	3.79	1.15	486	<b>3.98</b>	1.06	436	-2.66	0.008
Wildlife habitat	3.87	1.21	484	3.74	1.22	434	1.62	0.106
Fire	3.79	1.24	486	3.76	1.23	426	0.41	0.680
Forest taxes***	3.58	1.25	485	<b>3.83</b>	1.17	434	-3.09	0.002
Forest safety/security***	3.50	1.41	488	<b>3.75</b>	1.30	433	-2.86	0.001
Invasive species	3.58	1.26	474	3.53	1.27	428	0.67	0.502
Estate planning***	3.41	1.37	489	<b>3.69</b>	1.32	432	-3.17	0.002

Climate change	3.51	1.33	483	3.54	1.31	427	-0.34	0.733
Wind	3.49	1.29	479	3.44	1.27	429	0.64	0.524
Forest management***	3.11	1.21	482	<b>3.69</b>	1.14	435	-7.44	0.001
Forestry assistance***	3.17	1.20	483	<b>3.52</b>	1.17	424	-4.42	0.001
Riparian management	3.31	1.38	483	3.40	1.36	429	-0.95	0.343
Plant-tree identification	3.34	1.31	482	3.25	1.33	431	1.02	0.306
Gardening in the forest***	<b>3.41</b>	1.30	478	3.18	1.36	435	2.61	0.009
Understanding regulations***	3.10	1.25	481	<b>3.44</b>	1.24	429	-4.12	0.001
Forest inventory***	3.07	1.21	485	<b>3.43</b>	1.18	434	-4.60	0.001
Reforestation***	3.07	1.39	483	<b>3.36</b>	1.33	430	-3.20	0.001
Soils**	3.09	1.32	480	<b>3.26</b>	1.26	430	-2.00	0.046
Living in the forest***	<b>3.15</b>	1.41	477	2.89	1.50	432	2.72	0.007
Forest certification***	2.86	1.22	479	<b>3.10</b>	1.19	423	-2.95	0.003
Hardwood management***	2.63	1.34	483	<b>3.21</b>	1.35	433	-6.63	0.001
Forest mapping***	2.66	1.30	484	<b>3.15</b>	1.27	431	-5.72	0.001
Non-timber forest products	2.71	1.39	481	2.83	1.42	429	-1.22	0.223
Sustainable timber harvesting***	2.41	1.34	477	<b>3.16</b>	1.41	427	-8.20	0.001
Forest finance***	2.49	1.23	481	<b>3.06</b>	1.33	432	-6.70	0.000
Forest roads***	2.36	1.38	475	<b>2.94</b>	1.34	431	-6.37	0.001
Tool use and safety	2.45	1.33	480	2.66	1.31	427	-2.37	0.180
Forestry software***	2.37	1.24	482	<b>2.71</b>	1.30	426	-4.11	0.001
Intro to forestland ownership	2.46	1.28	471	2.55	1.28	423	-1.00	0.317
Small-scale sawmilling***	2.14	1.33	478	<b>2.63</b>	1.47	427	-5.22	0.001
<p><b>Bold</b> = significantly higher value</p> <p>** Significant at 0.05 level</p> <p>*** Significant at 0.01 level</p>								

Table 3.

Comparison of Education Topic Interest Between Absentee and Resident  
Landowners

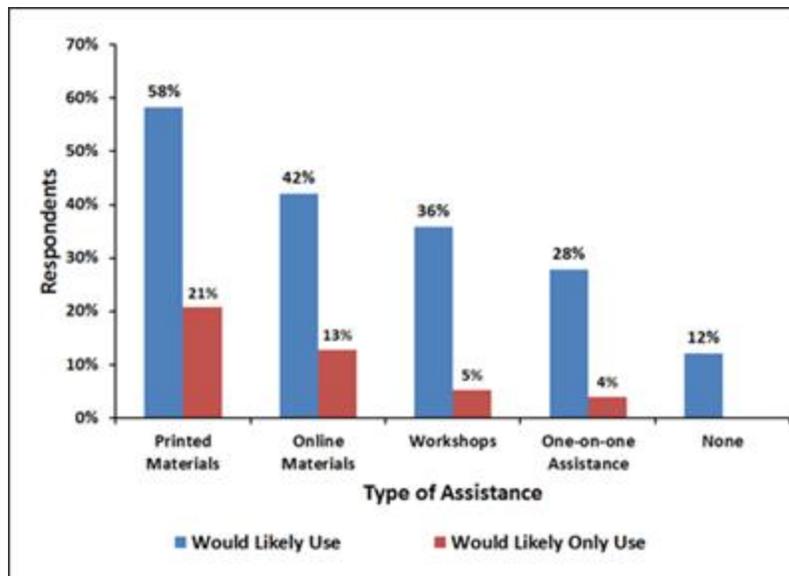
Topic	Absentee			Resident			t	P
	Mean	SD	n	Mean	SD	n		
Forest health**	3.74	1.19	203	<b>3.92</b>	1.09	758	-1.97	0.050
Wildlife habitat***	3.52	1.26	202	<b>3.86</b>	1.22	750	-3.42	0.001
Fire***	3.36	1.30	200	<b>3.88</b>	1.21	753	-5.15	0.001
Forest taxes	3.58	1.20	202	3.71	1.22	758	-1.36	0.175
Forest safety/security	3.61	1.32	201	3.61	1.38	760	0.06	0.950
Invasive species***	3.23	1.31	198	<b>3.65</b>	1.23	741	-4.08	0.001
Estate planning	3.50	1.40	204	3.56	1.34	759	-0.49	0.623
Climate change*	3.30	1.34	200	<b>3.54</b>	1.32	754	-2.59	0.010
Wind***	3.24	1.29	197	<b>3.53</b>	1.27	746	-2.80	0.005
Forest management**	<b>3.54</b>	1.13	201	3.32	1.24	757	2.48	0.014
Forestry assistance	3.39	1.24	200	3.32	1.20	749	0.71	0.476
Riparian management	3.31	1.29	200	3.36	1.40	744	-0.49	0.625
Plant-tree identification*	3.14	1.26	196	<b>3.33</b>	1.33	752	-1.87	0.063
Gardening in the forest***	2.93	1.39	200	<b>3.38</b>	1.31	749	-4.11	0.001
Understanding regulations	3.30	1.24	202	3.23	1.27	743	0.74	0.461
Forest inventory***	<b>3.42</b>	1.11	201	3.18	1.24	758	2.66	0.008
Reforestation	3.34	1.29	196	3.17	1.39	750	1.61	0.107
Soils	3.05	1.24	199	3.19	1.31	745	-1.35	0.179
Living in the forest***	2.52	1.39	200	<b>3.14</b>	1.46	744	-5.57	0.001
Forest certification	3.10	1.19	199	2.93	1.21	747	1.77	0.078
Hardwood management**	<b>3.09</b>	1.40	202	2.85	1.36	752	2.25	0.025
Forest mapping***	<b>3.15</b>	1.24	201	2.80	1.33	753	3.55	0.001
Non-timber forest products	2.63	1.29	200	2.81	1.43	746	-1.62	0.106
Sustainable timber harvesting***	<b>3.12</b>	1.42	199	2.66	1.41	737	4.03	0.001
Forest finance***	<b>3.09</b>	1.31	202	2.66	1.29	752	4.14	0.001
Forest roads***	<b>2.86</b>	1.37	198	2.56	1.39	746	2.79	0.006

Tool use and safety	2.68	1.33	201	2.51	1.32	739	1.60	0.110
Forestry software*	<b>2.66</b>	1.30	199	2.48	1.27	743	1.79	0.075
Intro to forestland ownership	2.43	1.29	195	2.52	1.28	734	-0.94	0.347
Small-scale sawmilling	2.47	1.43	195	2.35	1.42	742	1.05	0.295
<p><b>Bold</b> = significantly higher value</p> <p>** Significant at 0.05 level</p> <p>*** Significant at 0.01 level</p>								

Figure 1 shows the total percent of respondents indicating they were likely to use a type of Extension forestry resource and the percent who indicated they would likely only use that type resource. Only 12% indicated that they were not likely to use any type of resource, with 43% indicating they would likely only use one type of resource and 46% indicating they were likely to use multiple resources. Respondents indicated they would most likely use printed materials, followed by online materials and then one-on-one assistance.

**Figure 1.**

Percent of Respondents Likely to Use an Extension Forestry Resource



## Discussion

The survey results suggest high landowner interest in forestry education. The topics of highest interest tended to be those related to threats to forestland, such as forest health (i.e., insects and diseases), fire, safety and security (e.g., trespassing, illegal dumping, etc.), invasive species, climate change, and wind. Other topics of high interest included wildlife, forest taxes, estate planning, forest management, and riparian management. These results are similar to those found in West Virginia (Magill & Fraser, 2004) and in an earlier study in Washington (Baumgartner, Creighton, & Blatner,

2003). While these topics were of highest interest, we found interest to be very broad across all topics, with even the lowest-ranked topics being of interest to at least 23% of respondents. This suggests that there is a willing audience for Extension outreach on any of these topics, which presents many education opportunities for Extension forestry educators.

## **Differences Between Groups**

We found that landowners with larger properties had significantly higher interest in many of the topics compared to those with smaller properties. This was not surprising, because those with larger properties will tend to have more or larger issues and more opportunities for active management. The two topics of significantly higher interest to those with smaller ownerships were gardening in the forest and living in the forest, both of which are topics generally associated with small parcels. These differences notwithstanding, the relative ranking of topics was very similar for both groups. This suggests that, when marketing programs, it may be unnecessary to differentiate between these two groups since the topics of highest interest to one will also be of highest interest to the other.

We found a number of significant differences between absentee and resident landowners. Absentee landowners tended to rank forest management-related topics (e.g., management, inventory, timber harvest, roads, etc.) higher than resident owners. Resident owners tended to rank threat, amenity, and lifestyle-related topics (e.g., forest health, wildlife, fire, living in the forest) higher than absentee owners. These results were not surprising either, because absentee landowners tend to be more timber oriented (Zobrist & Rozance, in Press) and resident owners will naturally have greater interest in amenities or threats around their home. As with the two size groups, though, the relative ranking of topics was similar for both absentee and resident owners such that topics of high interest to one group are likely to be of high interest to the other.

## **Comparison with Actual Program Participation**

What we found most interesting is how these topic rankings compare with our actual experience in the first 6 years of our Extension forestry program. Workshops on highly ranked topics such as forest health, wildlife, fire, and estate planning, have been very poorly attended. At the same time, based on landowner requests and advice from other Extension educators, we offered some workshops on low-ranked topics such as non-timber forest products and tool use and safety, and these workshops consistently sold out, even with multiple offerings. We do not know the reason for this inconsistency. Not understanding or correctly interpreting survey questions was identified by another study as a possible reason for inconsistent forest landowner survey responses (Egan & Jones, 1995). While we did include brief explanations of each topic, respondents may not have associated the topic as described on the survey with corresponding topics described in actual workshops. For example, landowners may not have associated "tool use and safety" on the survey with an actual workshop topic such as "chainsaw safety and maintenance." We did not pre-test the survey, which could have helped avoid potential misinterpretation of the survey questions.

Another potential reason for the inconsistencies between the survey results and actual experience is that the survey did not ask specifically if about what topics a landowner was likely to attend a workshop on a specific topic. The survey did ask about the likelihood of attending an Extension

forestry workshop, but this was asked as a general question that was independent of a specific topic. Thus, while a landowner may have an interest in a particular topic and also an interest in workshops, that landowner may not be interested in attending a workshop on that particular topic, but would rather learn about that particular topic through a publication or website.

Even if the survey had been pre-tested and had been designed to gauge interest specifically in workshop topics, we suspect there would still be a disconnect between survey responses and actual workshop participation. For example, with topics such as fire and estate planning, people may broadly recognize the importance of the topic, but they may not actually take action because they always see it as a "future" problem with no specific timeline for action. In contrast, a topic like tool use and safety may not be perceived as being of great importance, but for landowners who regularly use and maintain a chainsaw, it is an issue that is very current for them. Or it could be that landowners feel they already have the education they need on the topics of highest interest to them.

Further study, especially the use of focus groups, would be useful in further understanding the relationship between survey responses and actual behavior, allowing for a more detailed understanding of how topics are perceived by landowners. In any case, Extension educators should treat survey results with caution and not rely on them alone. Survey results that are coupled with experience (both personal and of other Extension educators), literature review, and input from stakeholders through community advisory boards or focus groups can help establish a more complete picture of landowner needs and interests. Furthermore, there may be topics that do not generate high interest among landowners but that Extension educators recognize as important for landowners to be educated about nonetheless. In these cases, strong marketing efforts are needed.

## **Delivery Preferences**

In our survey, 88% of respondents indicated that they were likely to use at least one type of educational resource. This suggests a high level of demand for Extension services. Printed materials were the most likely to be used, with over half of the respondents indicating that they were likely to use this medium and 21% of respondents indicating that they were likely to only use this medium. This is an important finding, especially as Extension programs move away from print materials toward more online resources in an effort to cut costs. Our results do show a strong interest in online materials though, as this was the second most likely to be used type of resource. The survey was done in 2007, and Internet use, broadband availability, and the availability of online resources have continued to increase since then. Rural areas have seen a particular increase in broadband availability during this time, with 96% of households in Washington having access to broadband Internet as of 2011 (Washington State Broadband Office, 2011). With these changes, the likelihood of using online materials may overtake (or possibly already have overtaken) printed materials. With these data as a baseline, it would be interesting to do a follow-up study.

Workshops and one-on-one assistance were the types of resources that our survey respondents indicated they were least likely to use. These results surprised us and are in contrast with findings from other studies. For instance, Downing and Finley (2005) found that Pennsylvania landowners general preferred active (workshops, demos) over passive (videos, newsletters, online) delivery. Direct assistance, particularly an individual, on-site visit from a service forester, was cited as a top

desired forest landowner resource by Kilgore, Greene, Jacobson, Straka, and Daniels (2007). Magill and Fraser (2004) found that the top preferred assistance methods were technical aid and workshops.

Our results are consistent with a number of other studies, though. For example, Petersen (2006) and Bardon, Hazel, and Miller (2007) found that written communication was the most preferred method for receiving forestry information, though a combination of written and Web-based communication also works well, especially for younger landowners. Kuipers, Shivan, and Potter-Witter (2013) found that publications were the most common sources of information for forest owners in Michigan (the internet was ranked relatively low in this study). Downing and Finley (2005), although they found that active delivery methods were generally more preferred, did find that publications like bulletins and newsletters were ranked high. Kuhns, Brunson, and Roberts (1998) found that printed materials, along with personal contact, were most preferred by landowners and that classes and workshops were not ranked as high. (That study was done before the Internet was widely used.)

The reasons for the variability in results among all these studies are not clear. Delivery preferences are somewhat of a moving target that changes over time, especially relative to online resources. However, the conflicting results cited here do span overlapping timeframes such that there is not a clear trend over time. Our conclusion is that all of these delivery methods are important and should be included in the resource portfolio offered by an Extension forestry program. Online resources are becoming more important and should be expanded to keep Extension as a relevant and competitive source of forestry information. At the same time, though, Extension programs should not write off hard-copy materials. Also, while workshops are still important, Extension educators should not focus all their time on workshop delivery and neglect the development of printed publications and online materials, or they may miss the largest segments of their target audience.

## **Ongoing Studies Needed**

The survey data presented here are 6 years old. While this provides us with an opportunity to look retrospectively at survey results vs. actual participation, it leaves important questions as to how interests and preferences may have changed over the last 6 years, and what they might look like moving forward. Our results were similar to those of two earlier surveys from 1999 (Baumgartner, Creighton, & Blatner, 2003; Magill & Fraser 2004), suggesting consistency over time. However, the past 6 years have seen profound expansion in Internet use, including significantly higher availability of broadband service in rural, forested areas (Washington State Broadband Office 2011). With this significant and recent change in how people get information, ongoing studies are needed to see how this may be changing education interests and delivery preferences. The results presented here provide a good baseline for future studies.

## **Conclusions**

Our survey results show broad interest in forestry education across topics and delivery methods, suggesting strong demand for Extension forestry services. The topics ranked as highest interest were those associated with forest threats (e.g., insects, diseases, fire, trespassing, wind, invasive species, etc.), wildlife, taxes, estate planning, and basic forest management. There were differences in interest level for many of the topics between small and large landowners and between absentee and resident

landowners. However, because the relative ranking of topics was similar across groups, segmenting the audience for different program topics is not necessarily needed. Our results indicate that the most passive methods (printed materials and online materials) are most preferred and the most active methods (workshops and one-on-one assistance) are least preferred, which is both similar and contrary to other studies. This suggests that the full spectrum of passive to active delivery methods is necessary and that Extension programs should neither focus on nor write off any particular delivery method.

We found that the topics ranked high versus low on the survey did not necessarily correspond to actual participation in Extension programs. Surveys should be carefully tested to minimize the potential for confusion and misinterpretation. Linking specific education topics with specific delivery methods (unlike the study reported here, which asked the questions independently) may provide better guidance as to what is likely to be a successful topic for a workshop versus other delivery methods. Ultimately, Extension educators should not rely on survey data alone, but should incorporate experience and stakeholder input. Finally, recent years have seen a lot of change in how people get information such that ongoing studies are needed. The data presented here can provide a baseline to track changing interests and preferences over time.

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