Extension Forestry has long acted as a medium for landowner education and engagement through a variety of programs that encourage peer learning. We describe recent trends and innovations in Extension Forestry programming by reporting the results of surveys and focus groups with the managers of 39 (of 42 identified) Extension Forestry master volunteer and other peer-learning programs. These programs combine instruction from experts with peer learning and volunteerism to provide nonformal adult education for family forest owners. Results indicate that Extension Forestry peer-learning programs are evolving to address emerging issues and to use recent developments in communication and educational technologies, such as online programming and social media. With median annual budgets of just over $10,000, several programs target small and often underserved segments of the landowner population, such as women and absentee landowners. Although program outputs and demands for service are increasing, many program managers face reduced budgets and a variety of challenges to program sustainability.

Keywords: peer-to-peer, peer exchange, landowner, education, private lands, nonindustrial private forest, communications

The Extension Forestry system has long been the primary source of ongoing, nonformal land management education for private forest landowners in the United States (Reed et al. 1997, Jones et al. 2001). This system consists of federal, state, and local partners, together “using a variety of educational methods suited to the learners” (Reed et al. 1997, p.118). Traditionally, some of these methods have focused on expert instruction; however, some have suggested the need to diverge from a one-way, expert-driven educational model (Ma et al. 2012) toward models more firmly grounded in the principles of adult learning (Knowles et al. 2005, Kueper et al. 2013). An alternative educational method that has been employed by Extension for at least 30 years is the use of peer learning to leverage personal contacts through landowner networks (Fletcher and Reed 1996). Peer learning can be understood as the “exchange of ideas and information among landowners and family, friends, neighbors, and other landowners, which is contrasted with the largely one-way delivery of content through expert-centric education models commonly employed in landowner outreach” (Kueper et al. 2013, p. 2). This approach may engage landowners not reached through other Extension program models (Finley and Jacobson 2001, Allred et al. 2011, Kueper et al. 2013).

One popular method for using peer learning and personal networks for landowner education is the master volunteer (MV) model. The MV model is grounded in Rogers’ Diffusion of Innovations theory, where knowledgeable peers influence others’ adoption of certain practices (Rogers 2003). Diffusion of Innovations theory has been applied to private forest management in a number of studies (e.g., Doolittle and Straka 1987, West et al. 1988, Korhonen et al. 2012) and underpins much Extension Forestry programming. As a prominent example, MV programs train interested individuals to disseminate information and educate their peers about land management options and sources of financial or technical assis-
Peer volunteers tend to be trusted and more accessible to landowners than natural resource professionals, whom landowners sometimes view as having conflicting agendas (Rickenbach et al. 2005, Davis and Fly 2010, Gootee et al. 2010). Furthermore, peer influence has been shown to directly and indirectly affect landowner goals and behavior, e.g., through conversation with neighbors or observation of neighbors’ lands (Schubert and Mayer 2012), and to motivate action on private forestland (Egan and Jones 1993). Facilitating peer-learning opportunities is one of the most common learner-focused practices used by North American Extension foresters (Johnson et al. 2007). Landowners in Connecticut who had been visited by a peer volunteer were more likely to join a conservation organization or seek out forestry information, implement wildlife habitat improvement practices, or obtain a written forest management plan (Snyder and Broderick 1992). Similarly, landowners contacted by a Master Woodland Manager in Oregon felt better equipped to make future land management decisions and reported having clearer goals and values after the visit (Fletcher and Reed 1996).

While there have been state-level reviews of Extension Forestry programs (e.g., Barden et al. 1996, Jones et al. 2001, Londo 2004), we are aware of no prior nationwide review of Extension Forestry MV or other peer-learning (OPL) programs in the United States. Recognizing the important role of landowner education in other interventions designed to encourage sustainable family forest management, we report on recent trends and innovations in identified Extension Forestry peer-learning programs across the United States. Our specific research objectives were to: identify Extension Forestry MV and OPL programs nationwide that target family forest owners; characterize these programs in terms of delivery method, curriculum, audience, partnerships, budgets, and evaluation metrics; and describe trends in these programs by identifying recent and expected changes to program implementation.

Methods

This article presents part of a larger study that included an online survey of all 50 state-level Extension Forestry program leaders in the United States (phase 1: see Sagar et al. 2014), online surveys of MV and OPL program managers (PMs) in the United States (phase 2), and telephone-based focus groups of selected survey respondents (phase 3). This article addresses data collected from MV and OPL PMs via the online surveys and focus groups (phase 2, portions of phase 3).

In the phase 1 online survey, 50 state-level Extension Forestry program leaders were asked to identify their MV programs as defined by certain criteria; the programs

- were offered by Extension or through a collaboration of Extension and partners,
- primarily targeted family forest owners,
- provided education on forest management, and
- either required or encouraged active volunteerism after completing the program.

Program leaders were also asked to identify any other programs offered by Extension for family forest owners that did not have an explicit volunteer and/or educational component but that were designed to encourage landowners to teach and learn from one another—formally or informally—through the exchange of knowledge, experiences, and ideas. These programs are referred to as OPL programs.

Between February and April 2012, we administered separate surveys to MV and OPL PMs using a five-step protocol based on the Tailored Design Method (Dillman et al. 2009) that included mail, e-mail, and telephone communications. Questions for both groups addressed program format, partnerships, administration, evaluation, revenue sources, and innovations. Presented with a list of 21 topics, respondents used a five-response scale to indicate whether their MV programs were now providing more, less, or the same amount of instruction on those topics compared to 5 years prior to the survey. A similar scale was used to indicate changes in the use of 12 content delivery and instructional formats. MV PMs also indicated whether a variety of important metrics related to program demand, inputs (e.g., marketing, staff effort), and outputs (e.g., number of active volunteers, volunteer contributions) had declined or grown over the same time period. Results for all of these questions are based on respondents’ recall of their program activities 5 years prior to the current survey. The MV program survey examined curriculum content and volunteer management, while the OPL program survey included more detailed questions on opportunities for peer exchange. One-way analysis of variance (ANOVA) was used to test for differences among subgroup responses. Both surveys also included an open-ended question to identify up to three of the most important changes expected to be implemented to programs over the next 5 years.

We also administered focus groups to provide additional context on themes identified in the online surveys. Twenty-eight of the 32 responding PMs indicated their willingness to participate in a focus group. These individuals formed the participant pool for three focus groups consisting of: (1)
Table 1. Extension Forestry Master Volunteer programs in alphabetical order by state.

<table>
<thead>
<tr>
<th>Program name</th>
<th>Host institution</th>
<th>State</th>
<th>Year first offered</th>
<th># Trained per year</th>
<th># Active volunteers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master Tree Farmer</td>
<td>University of Arkansas</td>
<td>AR</td>
<td>2000</td>
<td>40–49</td>
<td>100–199</td>
</tr>
<tr>
<td>Coverts Project</td>
<td>University of Connecticut</td>
<td>CT</td>
<td>1983</td>
<td>20–29</td>
<td>100–199</td>
</tr>
<tr>
<td>Community Forest Stewards</td>
<td>University of Florida</td>
<td>FL</td>
<td>2008</td>
<td>10–19</td>
<td>25–49</td>
</tr>
<tr>
<td>Master Woodland Manager</td>
<td>Iowa State University</td>
<td>IA</td>
<td>2009</td>
<td>10–19</td>
<td>25–49</td>
</tr>
<tr>
<td>Master Forest Stewards</td>
<td>University of Idaho</td>
<td>ID</td>
<td>1988</td>
<td>20–29</td>
<td>200–299</td>
</tr>
<tr>
<td>Keystone</td>
<td>University of Massachusetts Amherst</td>
<td>MA</td>
<td>1991</td>
<td>20–29</td>
<td>100–199</td>
</tr>
<tr>
<td>MD Woodland Stewards</td>
<td>University of Maryland</td>
<td>MD</td>
<td>1991</td>
<td>20–29</td>
<td>100–199</td>
</tr>
<tr>
<td>Master Woodland Steward</td>
<td>Michigan State University</td>
<td>MI</td>
<td>1992</td>
<td>20–29</td>
<td>&lt;25</td>
</tr>
<tr>
<td>Woodland Advisor</td>
<td>University of Minnesota</td>
<td>MN</td>
<td>1988</td>
<td>&lt;9</td>
<td>100–199</td>
</tr>
<tr>
<td>MO Woodland Steward</td>
<td>University of Missouri</td>
<td>MO</td>
<td>2006</td>
<td>70+</td>
<td>50–99</td>
</tr>
<tr>
<td>Master Forest Steward/Tree Farm</td>
<td>Montana State University</td>
<td>MT</td>
<td>2004</td>
<td>60–69</td>
<td>100–199</td>
</tr>
<tr>
<td>NH Covers</td>
<td>University of New Hampshire</td>
<td>NH</td>
<td>1995</td>
<td>20–29</td>
<td>100–199</td>
</tr>
<tr>
<td>NJ Woodland Stewards</td>
<td>Rutgers University</td>
<td>NJ</td>
<td>2010</td>
<td>&lt;9</td>
<td>100–199</td>
</tr>
<tr>
<td>Master Forest Owner</td>
<td>Cornell University</td>
<td>NY</td>
<td>1991</td>
<td>10–19</td>
<td>200–299</td>
</tr>
<tr>
<td>Master Woodland Manager</td>
<td>Oregon State University</td>
<td>OR</td>
<td>1982</td>
<td>20–29</td>
<td>200–299</td>
</tr>
<tr>
<td>Land Stewards Program</td>
<td>Oregon State University</td>
<td>OR</td>
<td>2009</td>
<td>20–29</td>
<td>50–99</td>
</tr>
<tr>
<td>PA Forest Stewards</td>
<td>The Pennsylvania State University</td>
<td>PA</td>
<td>1991</td>
<td>20–29</td>
<td>400–499</td>
</tr>
<tr>
<td>COVERTS</td>
<td>University of Rhode Island</td>
<td>RI</td>
<td>2006</td>
<td>20–29</td>
<td>50–99</td>
</tr>
<tr>
<td>Master Tree Farmer</td>
<td>Clemson University</td>
<td>SC</td>
<td>1980</td>
<td>70+</td>
<td>100–199</td>
</tr>
<tr>
<td>Master Wildlifer</td>
<td>Clemson University</td>
<td>SC</td>
<td>1995</td>
<td>70+</td>
<td>50–99</td>
</tr>
<tr>
<td>Coverts Project</td>
<td>University of Wisconsin Madison</td>
<td>WI</td>
<td>1994</td>
<td>30–39</td>
<td>400–499</td>
</tr>
<tr>
<td>Master Woodland Steward</td>
<td>University of Wisconsin Stevens Point</td>
<td>WI</td>
<td>2002</td>
<td>10–19</td>
<td>200–299</td>
</tr>
</tbody>
</table>

Table 2. Other Extension Forestry peer-learning programs in alphabetical order by state.

<table>
<thead>
<tr>
<th>Program name</th>
<th>Host institution</th>
<th>State</th>
<th>Year first offered</th>
<th># Trained per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women Woodlands Network</td>
<td>University of Arkansas</td>
<td>AR</td>
<td>2008</td>
<td>&lt;25</td>
</tr>
<tr>
<td>Ties to the Land</td>
<td>University of California</td>
<td>CA</td>
<td>2011</td>
<td>200–299</td>
</tr>
<tr>
<td>Mentorship Program</td>
<td>Colorado State University &amp; Cons. Districts</td>
<td>CO</td>
<td>2012</td>
<td>&lt;25</td>
</tr>
<tr>
<td>Forest Stewardship Short Course</td>
<td>University of Connecticut</td>
<td>CT</td>
<td>1998</td>
<td>25–49</td>
</tr>
<tr>
<td>Forest Stewardship Program</td>
<td>Florida Forest Service &amp; University of Florida</td>
<td>FL</td>
<td>1992</td>
<td>500+</td>
</tr>
<tr>
<td>Parish Forest Landowner Assocs.</td>
<td>Independent, with Louisiana State University</td>
<td>LA</td>
<td>1985</td>
<td>300–399</td>
</tr>
<tr>
<td>Minnesota Women’s Woodland Network</td>
<td>University of Minnesota</td>
<td>MN</td>
<td>2009</td>
<td>300–399</td>
</tr>
<tr>
<td>Montana Tree Farm</td>
<td>American Forest Foundation</td>
<td>MT</td>
<td>1941</td>
<td>400–499</td>
</tr>
<tr>
<td>Wildfire Awareness Program</td>
<td>University of Nevada</td>
<td>NV</td>
<td>1997</td>
<td>200–299</td>
</tr>
<tr>
<td>Women Owning Woodlands Network</td>
<td>Oregon State University</td>
<td>OR</td>
<td>2005</td>
<td>300–399</td>
</tr>
<tr>
<td>PA Woodland Owner Assocs.</td>
<td>The Pennsylvania State University</td>
<td>PA</td>
<td>1986</td>
<td>500+</td>
</tr>
<tr>
<td>SC County Landowner Assocs.</td>
<td>Independent, with Clemson University</td>
<td>SC</td>
<td>500+</td>
<td></td>
</tr>
<tr>
<td>VA Forest Landowner Educ. Program</td>
<td>Virginia Polytechnic University</td>
<td>VA</td>
<td>1996</td>
<td>500+</td>
</tr>
<tr>
<td>Ties to the Land</td>
<td>Wisconsin Woodland Owners Association</td>
<td>WI</td>
<td>2010</td>
<td>50–99</td>
</tr>
<tr>
<td>WI Woodland Advocates Program</td>
<td>Wisconsin Family Forests, Inc.</td>
<td>WI</td>
<td>2008</td>
<td>25–49</td>
</tr>
<tr>
<td>WI Woodland Leadership Institute</td>
<td>University of Wisconsin - Stevens Point</td>
<td>WI</td>
<td>2001</td>
<td>100–199</td>
</tr>
<tr>
<td>WV Woodland Stewards</td>
<td>West Virginia University</td>
<td>WV</td>
<td>2002</td>
<td>50–99</td>
</tr>
</tbody>
</table>

MV PMs (five participants), (2) OPL PMs (five participants), and (3) a mixture of MV and OPL PMs whose programs targeted specific family forest owner audience segments (four participants). Each focus group consisted of a 90-minute telephone conference call with one moderator and one or two note takers. We administered and recorded the telephone focus groups using the methods outlined by Brown et al. (2012) and Krueger and Casey (2008). Data collection protocols were approved by the Institutional Review Board at the University of Minnesota. Questions addressed topics such as strengths and barriers to program success, unique aspects of programs, the influence of digital media and funding sources on program operation, and challenges and successes with motivating peer leader involvement and program evaluation.

Qualitative data from the open-ended survey questions were thematically coded by hand using open coding to identify patterns (Schubert and Mayer 2012). Focus group transcriptions were similarly analyzed; the list of codes was developed from focus group questions, preliminary analysis of survey data including emergent themes from the open-ended data (e.g., funding issues, opportunities and risks associated with digital media), and themes arising from preliminary examinations of transcripts. Coded material was then summarized into descriptive themes for each focus group, which were compared and contrasted across all three PM focus groups.

Results

State-level Extension Forestry program leaders identified 23 qualifying MV programs and 19 qualifying OPL programs; the PMs of all 42 qualifying programs were surveyed. We received usable surveys from the managers of 22 MV programs in 19 states and 17 OPL programs in 15 states for a total of 39 programs from 25 states and a 93% overall response rate.

Tables 1 and 2, respectively, list the 22 MV and 17 OPL programs for which we received completed surveys. Among states
with one or more such program, on average about 10% of total Extension Forestry staffing capacity was dedicated to the program(s) based on reported full-time equivalent figures. MV programs had been offered for an average of almost 16 years, with the oldest first offered in 1983.

**Target Audiences and Program Content**

While most programs reported targeting all family forest owners, many reported that they also target specific subgroups within this large and diverse population (Table 3). Small- and large-acreage owners were the two most common family forest owner subgroups targeted by MV programs. Women, small-acreage landowners, landowners by residence location, and landowners from specific ethnic groups were the most common target audiences for OPL programs. At least one OPL program specifically targeted leaders in the landowner community.

Initial training required for the MV programs ranged from less than 20 up to 85 hours. Seventeen of 22 MV programs required 20–50 hours of training to become recognized as a volunteer. Only five programs required annual continuing education for trained volunteers. In terms of content, the majority of MV programs addressed forest stewardship and management. Five programs focused primarily on wildlife; four of these used the “Coverts” title, a project first started in 1983 for landowners and community members interested in wildlife habitat conservation (Broderick et al. 1999). Maryland’s Woodland Stewards Program and Florida’s Community Forest Stewards program focused on small residential woodlots and urban forests, respectively.

Over the last 5 years, MV programs seem to have broadened the content delivered to participants beyond traditional forest management topics. Topics for which instruction had increased in the most programs included forest health, climate change, invasive species, and wildlife management. By contrast, instruction on management-oriented topics (e.g., selling timber, general silviculture, tree identification, treeplanting) was more likely to have declined (Figure 1). While the OPL program survey did not include specific educational content questions, OPL programs tended to be fairly broad in content, particularly where their primary focus was on engaging specific audiences; however, some addressed focused topics like intergenerational land transfer (e.g., Ties to the Land programs) or wildfire awareness (e.g., University of Nevada’s Wildfire Awareness Program).

**Instruction and Delivery Formats**

Master volunteer programs are shifting away from in-person gatherings and toward digital communications. The four delivery formats that have increased the most among MV programs in the last 5 years were all digital, while four of the six delivery formats that have declined all involve in-person instruction (Figure 2). This was confirmed by open-ended survey responses about planned future changes for both MV and OPL programs, in which the transition toward digital content was an important theme (identified by 10 of 34 programs that responded to this question). In most of these cases they planned to use digital media to enhance communications with trained volunteers rather than as an alternative platform for the initial training, although both were mentioned; for example, one Rocky Mountain PM indicated planning “a slight increase in online programming as younger and more computer savvy generations acquire land.” Examples of digital media mentioned during the focus groups include: social networking sites such as Facebook, Twitter, Ning, and YouTube; digital forums; landowner listservs; webinars; and e-newsletters. Several focus group PMs also discussed the potential to leverage digital media to reach new or currently underserved audiences, including the younger generation, people who live far from class locations, and the general public; as one West Coast PM noted, “it’s convenient, you do it on your own time… when you can fit it in versus spending all of Saturday at a workshop.”

Focus group participants viewed digital communications as a good way to keep landowners engaged after a program was over and to efficiently deliver timely information to learners. However, they also noted that digital media required a lot of time to manage and felt that their audiences varied in their interest in digital communications. While some—especially younger landowners—were receptive, others were less so or faced barriers to access. Finally, some expressed concern about using digital media as a replacement for face-to-face interaction with agents and peers or for time spent in the woods, noting the importance of these sorts of activities and the desire not to lose the “personal touch”:

> They can sit in a chair and look at stuff on [a] computer... but I think the thing that really gives them energy to do things... is time spent out in the woods. And if that’s with their peer forest owners, and they’re learning... from each other, you know I think that’s where the strengths really are of... Master Volunteer programs. [a MV PM]

**Partnerships and Funding**

Finding and maintaining consistent funding was a common challenge. As one focus group PM put it, “I’m 100% on soft money, so it’s very difficult finding... funding to make it happen. And so, continuation of the program is highly problematic at this point.” Some programs had access to funding due to the perceived local importance of their particular topical focus, such as one group that focused on wildfire prevention; however, others struggled to gain similar recognition, and, thus, funding. Fourteen of 37 programs reported declining budgets over the past 5 years, while only eight programs reported increasing budgets. Exclud-
ing staff salaries, reported annual budgets of MV programs ranged from $0 to $50,000 with an average of $12,875 (sd = $12,260) and a median of $10,000, while OPL programs ranged from $0 (two programs) to $55,000, with an average of $10,420 (sd = $13,890) and a median budget of $6,000.

With the exception of staff salaries, MV programs were virtually 100% funded by grants and other external funds. Nineteen of 22 MV programs relied on a single external funding source for 50% or more of their annual budget, leaving those organizations vulnerable to loss of that fund-
Table 4. The number of Master Volunteer (n = 22) and other peer-learning programs (n = 17) receiving revenue from five common funding sources.

<table>
<thead>
<tr>
<th>Percent of annual budget</th>
<th>Forest Stewardship Program</th>
<th>Renewable Resources &amp; Extension Act</th>
<th>Registration fees</th>
<th>Conservation orgs</th>
<th>Other grants</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>27</td>
<td>27</td>
<td>12</td>
<td>28</td>
<td>14</td>
</tr>
<tr>
<td>1–19%</td>
<td>0</td>
<td>3</td>
<td>15</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>20–49%</td>
<td>4</td>
<td>7</td>
<td>3</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>50% or more</td>
<td>8</td>
<td>2</td>
<td>9</td>
<td>1</td>
<td>14</td>
</tr>
<tr>
<td>Mean % budget* (sd)</td>
<td>16.7% (29.3)</td>
<td>11.2% (22.6)</td>
<td>23.3% (32.2)</td>
<td>4.4% (9.9)</td>
<td>34.3% (39.2)</td>
</tr>
</tbody>
</table>

* Figures do not total 100% because programs are not fully funded by these five sources.

Table 5. Number of partner organizations by partner type and contribution type for Master Volunteer (n = 22) and other peer-learning programs (n = 17).

<table>
<thead>
<tr>
<th>Partner type</th>
<th>Any contribution</th>
<th>Curriculum development and delivery</th>
<th>Financial support</th>
<th>Program planning</th>
<th>Volunteer mgt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>University</td>
<td>52</td>
<td>48</td>
<td>26</td>
<td>43</td>
<td>26</td>
</tr>
<tr>
<td>Landowner association</td>
<td>27</td>
<td>7</td>
<td>11</td>
<td>19</td>
<td>10</td>
</tr>
<tr>
<td>Conservation or other natural resource district</td>
<td>8</td>
<td>8</td>
<td>4</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Federal agency</td>
<td>20</td>
<td>8</td>
<td>7</td>
<td>11</td>
<td>1</td>
</tr>
<tr>
<td>State agency</td>
<td>42</td>
<td>28</td>
<td>17</td>
<td>31</td>
<td>6</td>
</tr>
<tr>
<td>Trade or industry group</td>
<td>16</td>
<td>8</td>
<td>8</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>Conservation or environmental group</td>
<td>15</td>
<td>5</td>
<td>8</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>186</td>
<td>114</td>
<td>85</td>
<td>134</td>
<td>55</td>
</tr>
</tbody>
</table>

Note: Host organization was automatically populated by the survey software to the respondent’s list of partners. These consisted largely of university Extension services.

ing for future program offerings (Table 4). Two particularly important sources of funding for MV programs were the Forest Stewardship Program (FSP) and Renewable Resources and Extension Act (Renewable Resources Extension Act [RREA]). Fourteen programs depended on one of these sources for 10% or more of their annual operating budgets, including six dependent on these sources for 50% or more. Budgets for OPL programs relied more heavily on registration fees and less on all other sources of funding (e.g., FSP, RREA, other grants) (Table 4).

While most programs generated revenue through registration fees, these often contributed only minimally toward covering costs. Enrollment fees for MV programs ranged from $0 (four programs) to $450, with half charging less than $100. OPL program fee structures were more difficult to compare. Some programs charged $10–125 per workshop or similar event, while others charged a single fee for a series of events, more like the MV model. In general, fees appeared to be lower for OPL than MV programs.

Regardless of program type, some focus group participants felt that charging fees encouraged commitment to the program; however, others saw these revenue opportunities as limited. One expressed concern that charging a higher fee would reduce her ability to capitalize on the “quid pro quo” factor created by free or inexpensive education that encouraged volunteer participation for years into the future. Related to budget restrictions, a shortage of staff was a common problem; one program had not been offered for 2 years after the university lost volunteer management capacity. In fact, PMs were frequently the only staff dedicated to the program and often only part time despite increasing management requirements with annual growth in graduates and volunteers. One northern MV PM mentioned in the survey that the “group of volunteers gets bigger each year but staff time remains the same.”

Partnerships were important to the viability and management of the programs. The mean number of contributing partner organizations had increased over the previous 5 years, with 18 of 38 programs reporting an increase and only five reporting a decrease. An average of 4.8 organizations contributed per program, including the host organization. Sixteen respondents each listed six partner organizations, the maximum number that could be identified, suggesting the possibility that more are involved. State and federal agencies, landowner associations, and other nongovernmental groups were among the most common partners (Table 5). Programs whose budgets had increased over the previous 5 years reported an average of 5.75 contributing partners, significantly more than the 4.5 partners reported by programs whose budgets had declined (P < 0.05).

Partners support programs in a variety of different ways. Table 5 presents data on specific types of contributions by partner organizations. Among those specific contributions, programs were most reliant on partners for financial support: 15 of 36 programs reported depending exclusively on partners for financial support, excluding program staff salaries. When analyzing the number of partners by contribution type, only one difference was statistically significant: programs with increasing budgets reported an average of 3.25 partners contributing financially, significantly more than the 2.0 for programs with declining budgets (P < 0.05).

Focus group participants indicated both advantages and disadvantages to their partnerships. While some PMs mentioned other landowner groups as a resource for recruiting members, one also mentioned competing with them for landowners’ time. State agencies were a necessary partner for some programs, but a couple of PMs mentioned challenges with managing these relationships. However, these partnerships were critical to program viability. Concerned about losing a key program partner, one PM discussed that partner’s importance:

The program... relies on an external partner to do that volunteer management.... I know without that there’s no way I could do this work. I mean, I don’t have time in the day, I don’t have a staff person to do that for me.

Volunteers, Peer Learning, and Peer Leadership

While volunteer service was encouraged in all 22 MV programs, it was required by only seven. Most programs focused the initial volunteer training on a small group; only seven trained more than 30 new volunteers annually, with three (Clemson University’s Master Tree Farmer and Master Wildlifer, and the University of Missouri’s Woodland Steward) training 70 or more annually. However, 13 of 21 MV programs that re-
sponded to a question about active program graduates report 100 or more active volunteers (i.e., those who have volunteered any amount of time in the last year), suggesting that volunteers remain active for several years after the initial training. Six programs reported over 200 active volunteers and two (Penn State University’s Forest Stewards and the University of Wisconsin’s Coverts Project) reported over 400 active volunteers. While volunteering was generally not required in OPL programs, many had unstructured opportunities for participants to volunteer. Additionally, some OPL PMs noted how they had observed peer exchange developing organically among learners during events; as stated by an East Coast PM:

Well… some people are going to be more experienced than others, and some people are going to be quicker to pick up certain things than others. And so there’s a kind of a mutual helpfulness going on once the class becomes established and we’re moving through the topic areas.

Both MV and OPL program participants were active in a broad diversity of volunteer activities; while as mentioned most OPL programs did not have a structured volunteer component, many fostered peer-to-peer interaction through similar activities. One of the most common activities was hosting or leading property tours, which was reported by 34 programs (Table 6). Focus group participants were nearly universal in their support of volunteer-led property tours, with one even teaching a class on how to do it. Other common activities included serving as guest speakers, teachers, or discussion leaders and property visits or other interactions with landowners outside of program events. One focus group PM noted that the main goal of the program was to get volunteers to connect landowners with professionals; these volunteers were advertised to the local community as a resource. Peer leaders were identified by tapping into existing landowner organizations and by receiving recommendations from previous participants.

Focus group participants saw great value in peer learning, reporting benefits such as freeing up time for agency staff; energizing participants; breaking down the hierarchy of the group and increasing learner confidence; and gaining access to new learners through peers’ personal networks. As one Midwestern PM put it:

I would say over half of the evaluations… will have… comments… about the value of learning from other landowners, that they learned just kind of what works what doesn’t work from just talking during the down time or the… evening sessions. So, that’s… why we’re doing the format we are.

At least one successful MV program, the Idaho Master Forest Owner Program, was developed with substantial leadership and involvement of the landowner graduates of an Extension short course.

However, barriers to peer learning were reported as well, including the time commitment to facilitate peer learning, the risk of misinformation, supplanting lecture time, and hesitation by some learners to lead. A southeastern MV PM also noted how some landowners may be unable to relate to “model” landowners:

You know they have an equipment garage full of every piece of equipment you can possibly imagine, and [they seem to know everybody]. It’s just really hard for most landowners, I think, who don’t have those kinds of resources to relate to that kind of situation…

Program Logistics: Evaluation and Effort

The most common metrics used to evaluate Extension Forestry peer-learning programs were participant evaluations of presentation quality (36 programs), changes in land management practices reported by participants (30), number of new participants or graduates annually (31), number and type of volunteer contributions including volunteer hours (23), organizational leadership positions filled by participants (15), and articles written by participants (10). Other metrics included self-reported dollars saved or earned, contacts with natural resource professionals, and land management plans completed and implemented. Evaluation data were collected via on-site workshop or other event evaluations by 34 programs. Other evaluation data collection strategies less commonly used included an annual or multiyear survey, input from an advisory or steering committee, online and mail-in reporting of volunteer contributions, and focus group discussions with participants.

Slightly more than half of the effort of managing peer-learning programs (reported as percentages allocated by participants) was dedicated to the initial training, followed by managing and corresponding with volunteers (18% of total effort), offering refresher or continuing education trainings (13%), and program evaluation and reporting (12%). Several program evaluation challenges were discussed in focus groups. Some estimated that volunteers reported only half of what they actually did. Several others did not track volunteer hours or attempt to evaluate peer learning specifically, with one PM stating that he wasn’t sure how to evaluate peer-to-peer activity. A few had used online evaluation techniques with varying success.

While several PMs identified the challenge of managing and reporting the work of an ever-growing group of volunteers, in response to an open-ended survey question about future changes one northern PM lamented that the program’s biggest failing was:

Our lack of follow-through with cooperators [volunteers]. We constantly strive to be in closer contact with our network. This is the most important change that we will make.

This same manager plans more events designed “to introduce co-operators to local conservation professionals… in the hopes that they can… work together in their region.” Seeking ways to more efficiently connect volunteers with those seeking assistance, other PMs plan to “strengthen connections between volunteers and poten-

Table 6. Examples of most common MV (n = 22) volunteer activities and related OPL (n = 17) participant peer-to-peer activities.

<table>
<thead>
<tr>
<th>Activity</th>
<th>MV volunteers</th>
<th>OPL participants</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leading tours or hosting events</td>
<td>21</td>
<td>13</td>
<td>34</td>
</tr>
<tr>
<td>Property visits to landowners (for OPL programs, this also includes other interactions with landowners outside of program events)</td>
<td>16</td>
<td>9</td>
<td>25</td>
</tr>
<tr>
<td>Serving as guest speakers, teachers, or discussion leaders</td>
<td>13</td>
<td>13</td>
<td>26</td>
</tr>
<tr>
<td>Relevant youth education/outreach</td>
<td>19</td>
<td>n/a</td>
<td>19</td>
</tr>
<tr>
<td>Board members of landowner associations</td>
<td>17</td>
<td>n/a</td>
<td>17</td>
</tr>
<tr>
<td>Working booths or tables at fairs or other events</td>
<td>14</td>
<td>n/a</td>
<td>14</td>
</tr>
<tr>
<td>Answering landowner phone calls or emails</td>
<td>9</td>
<td>n/a</td>
<td>9</td>
</tr>
</tbody>
</table>

Note: n/a indicates that OPL participants were not asked about this item; corresponding OPL activities are drawn from a close-ended question about how peer learning was fostered in OPL programs.
tial volunteer opportunities” and “to imple-
ment a mentoring program that would allow
the general public direct contact to volun-
tees.”

Increased attention to program evalua-
tion was a common theme among the pro-
gram changes planned for the next 5 years.
In open-ended survey responses, seven dif-
f erent PMs mentioned evaluation among their most important changes, including “developing stronger descriptions of out-
comes for the program,” “putting more em-
phasis on volunteer output and less on train-
ing,” and “set[ting] broad, concrete goals for
volunteer output and work[ing] to inspire action.” At least four others planned to im-
prove and standardize program evaluation
procedures, including “improv[ing] assess-
ment and documentation of longer term (6 months) impacts.” For one program, this
means a combination of “more rigorous vol-
unteer hour reporting requirements” and es-
tablishing two new methods to streamline and simplify volunteer activity reporting.

Discussion

Extension Forestry peer-learning pro-
grams are designed to directly influence par-
ticipants’ own land management actions and indirectly influence others through the
volunteers’ outreach to their peers. PMs tap
into the landowner volunteer capacity to
multiply their work. Volunteer work can in-
crease landowner outreach and educational
capacity dramatically (Snyder and Broderick 1992, Fletcher and Reed 1996). However,
this second level of outcomes and impacts
can be difficult to measure. The most com-
mon method to estimate impacts is through
volunteer activity reports, but these reports
primarily document volunteer outputs as
volunteers do not always know what actions
were ultimately taken by those whom they
served.

Peer-learning programs may provide a
medium for Extension to reach new or cur-
rently underserved audiences. The literature
suggests that while most landowners are
likely to harvest timber, timber production is not among their primary reasons for own-
ing woodland (Jones et al. 1995, Butler
2008). MV programs are increasing the
overall diversity of topics addressed in the
programs; specifically, they are decreasing
offerings of traditional management-related
topics and increasing offerings of topics con-
cerning forest health, wildlife, and other ar-
eas, such as global positioning systems
(GPS) use, intergenerational land transfer,
and financial aspects of management. Land-
owners uninterested in harvesting or selling
timber may be less likely to seek assistance
from natural resource professionals; land-
owner education programs that leverage
personal networks may be more likely to
reach these landowners (Gootee et al. 2010).
Furthermore, some Extension Forestry peer-
learning programs, particularly OPL pro-
grams, specifically target historically under-
served landowner populations, such as
women, minority ethnic communities, and
absentee owners, leveraging the personal
networks of landowner leaders and volun-
teers. Programs that capitalize on landowner
leadership by actively engaging landowners
in the program development process, as seen
with the Idaho Master Forest Owner pro-
gram, align well with current understanding
of effective approaches to adult learning (Knowles et al. 2005).

Many programs struggled with loss of
funding and overall capacity. While some
programs generated revenue through fees,
these opportunities were viewed as limited.
More often, programs relied on partners to
provide funding support, as well as other
forms of assistance. Increasing partnerships
with existing and new organizations may
provide an opportunity for increased future
support.

In addition to assistance with reaching
new or underserved audiences, increased use
of digital communication tools may stream-
line and improve communications with
participants. These tools were viewed as par-
ticularly valuable for volunteer activity re-
porting and maintaining communications
with active program participants rather than
during initial trainings. However, it seemed
desirable that the use of digital technology in
outreach dovetail with and supplement
other educational formats, not substitute for
them. Focus group participants felt that
face-to-face interaction and field-based
learning were highly effective learning for-
mats that cannot easily be replicated online.

As researchers advance in their ability to
more finely segment landowners through
the development of landowner typologies
(Emtage et al. 2007), peer-learning pro-
grams may be well positioned to target spe-
cific audiences in collaboration with trained
peer volunteers from those communities.
They may also contribute to creation of
knowledge networks due to their diversity of
partners and their ability to foster peer rela-
tionships. These relationships seem to lead
to valuable outcomes. Surveying landowners
who had been visited by a trained New York
Master Forest Owner Volunteer, Allred et
al. (2011) found landowners planned to de-
velop goals and objectives for their prop-
eties, obtain assistance from a natural re-
source professional, and consider thinnings
or other land management treatments. All of
these activities are generally viewed as con-
sistent with sustainable private forest man-
agement. Thus, peer-learning programs may
provide the opportunity to efficiently dis-
tribute Extension information and foster ac-
tive, landowner-driven learning to a large
community.

Given the central role that trained vol-
unteers play in MV programs and the num-
ber of MV PMs who report volunteer re-
porting as a challenge, this is an area in
which further applied research may be justi-
fied. Some PMs report success using digital
communications to maintain relationships
and communication channels with volun-
teers. While Extension Forestry programs
have made some progress adopting digital
communications, focus on these tools spe-
cifically in the volunteer maintenance and
evaluation stages may be warranted. If de-
ployed in a manner that is accessible and
appealing to volunteers, digital communica-
tions may streamline the volunteer commu-
nications, evaluation, and reporting compo-
nents of MV program management, which
collectively account for almost one-third of
PMs’ effort. Such efficiencies may be es-
specially important to evaluation efforts as
the data indicated an overall decline in face-to-
face offerings, the medium through which
most PMs collected evaluation information.
Regardless of the techniques used, PMs
consistently stated a need to streamline and
improve volunteer communications and
reporting.

The goal of this study was to inventory
and synthesize Extension Forestry peer
learning-based landowner programming ef-
forts as part of a larger study that aimed to
assess the current state of Extension Forestry’s
landowner education efforts nation-
wide. As such, the study looked only at Ex-
tension Forestry programs; similar programs
may exist within other sectors. While these
programs were outside the scope of this
study, exploration of landowner peer learn-
ing in other sectors may be a worthwhile
topic of future research. Similarly, evaluat-
ing the outcomes of individual programs
was not within the feasible limits of this
study. However, the results of this synthesis
provide the groundwork for a more detailed
inventory or for localized case studies of individual program effectiveness in the future.

Conclusions
At least 39 peer-learning programs targeting private forest owners multiply the value of the public investment in Extension Forestry faculty and staff by leveraging small annual budgets to support the work of volunteers, many of whom remain active for years. Peer learning PMs have traditionally sought external funds to keep their programs operational. Dependence on a small number of funding sources, in particular FSP and RREA, poses a challenge to the future stability of these programs, which serve as a foundation for the broad suite of public investments to support the conservation and management of the nation’s privately owned forest resources. Because they operate through peers and personal networks, MV and OPL programs are well positioned to engage specific subgroups of the broad and diverse family forest owner population, a task facilitated by recent advances in landowner segmentation and typology development. However, many MV PMs expressed a need for more streamlined and effective volunteer communications and evaluation systems to effectively document and report the public value created by their programs; the rise in use of digital technologies may facilitate the process of addressing this need. In summary, these programs constitute a significant component of Extension Forestry’s private landowner outreach effort and will likely continue to be an important tool for Extension in reaching this community, especially as the programs evolve to incorporate new technologies and to address the changing needs and interests of the landowner community.

Literature Cited


