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Conservation Effects Assessment Project (CEAP)
CEAP-Wildlife Conservation Insight

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Private Landowner Response to NRCS Young Forest Programs



Summary of Findings

The Working Lands for Wildlife's (WLFW) Golden-winged Warbler Habitat effort through the Natural Resources Conservation Service (NRCS) in the Appalachian states and a Regional Conservation Partnership Program (RCPP) partnership between American Bird Conservancy and NRCS in the upper Great Lakes states aim to create and restore young forest habitat on private lands for wildlife species of conservation concern.

An assessment was conducted to evaluate the social aspects of these NRCS programs by studying participating landowner experiences and post-program management intentions. Key findings include:

- Landowners had a diverse range of motivations for participating in the habitat programs. Top landowner motivations were benefiting forest health, benefiting birds that use young forest, receiving access to expert advice, and improving hunting opportunities.

- With few exceptions, the habitat programs appear successful in fulfilling landowner motivations for participation. Landowners had generally positive perceptions of program outcomes, high levels of trust in NRCS and agency partners, and high satisfaction with the program.

- Landowners were broadly interested in continuing management of young forest after program participation, either by re-enrolling in NRCS programs or through management without further cost-share assistance.

- Landowner intentions to re-enroll in similar NRCS programs were best predicted by high trust in NRCS and partners and by high importance of cost-share, environmental concerns, and improving hunting opportunities. High satisfaction with the program and possession of a written forest management plan were also associated with higher intentions to re-enroll.

- Landowner intentions to continue young forest management without further cost-share were best predicted by high importance of cost-share and environmental concerns and by group ownership (e.g., club, association, or non-profit).

- More landowners were interested in post-program use of management practices associated with habitat maintenance (e.g., herbicide use, brush clearing) than practices needed for habitat creation (e.g., harvesting or burning timber to create new patches).

- Landowners who accompanied biological technicians on monitoring site visits had higher trust in the agency and more positive perceptions of program outcomes.

- Mailing bird monitoring results to landowners did not improve their perceptions of program outcomes or agency trust but did improve their knowledge of the birds.

Background

The long-term decline of early successional forest habitat and associated wildlife species such as golden-winged warbler and American woodcock is an important conservation issue in the eastern United States. Early successional forest habitat, also referred to as "young forest," is habitat with persistent shrubs or seedling- to sapling-sized trees. This habitat is typically created by disturbance events such as a timber harvest or fire (Litvaitis 2003). A key feature of young forest habitat is the need for recurring management to sustain habitat quality for associated wildlife species (Bakermans et al. 2011).

Through contracts with landowners, the NRCS programs (WLFW and RCPP) provide incentives to create young forest on private lands in the Appalachian and Upper Great Lakes regions. With cost-share assistance from these programs, private landowners implement conservation practices such as even-aged timber management. Young forest habitat benefits many species of wildlife, but these two programs focus on providing young forest for golden-winged warblers and American woodcock.

NRCS's WLFW and RCPP programs have successfully contracted with hundreds of landowners to create young forest on private lands. Landowner experiences in the program and the management decisions landowners make after the program —through program re-enrollment or management persistence without incentives—are important for habitat continuity and long-term conservation outcomes. However, information on landowner motivations and



NRCS District Conservationist Brad Michael and Emily Heggenstaller, a golden-winged warbler biologist, meet with private landowners Mike and Laura Jackson to discuss young forest habitat management on their property. Photo by Justin Fritscher.

experiences in the programs has been limited to anecdotal evidence, and landowner management once contracts end has not been well studied (Dayer et al. 2018).

It is also important to examine how outreach to landowners can shape social outcomes of conservation program participation. Outreach is a central tool for encouraging private landowners to undertake conservation management and can include many forms of communication techniques, such as educational programs, personal contacts, and informational mailings (Stern 2008). This Conservation Insight is one piece of a larger outcome assessment of these NRCS programs that involves vegetation and bird monitoring (Bakermans et al. 2015, McNeil et al. 2017). The biological monitoring process included two methods of outreach to landowners: communication of site-specific monitoring results and biological technician site visits.

Assessment Approach

This assessment was conducted through a partnership between Indiana University of Pennsylvania Research Institute and Virginia Polytechnic Institute and State University. The assessment focused on evaluating (1) landowner program experiences and post-program management intentions, and (2) whether outreach could influence landowner post-program management intentions and management-related cognitions (e.g., agency trust, perceptions of outcomes).

The study population consisted of 189 landowners that signed conservation program contracts with NRCS between 2012 and 2016 to manage for young forest on properties in Maryland, Minnesota, New Jersey, Pennsylvania, and Wisconsin. After young forest management began, these landowners voluntarily allowed biological technicians onto their properties to monitor for birds and vegetation regrowth. At the time of the site visits, the properties were either under a current NRCS contract or had recently completed a contract with NRCS to create young forest. The monitoring process involved several site visits to a managed property between mid-April and mid-July in 2015 and/or 2016. Technicians notified landowners prior to each site visit. The extent of landowner-technician interactions varied: Some landowners never met with technicians, some greeted technicians at the property, and others accompanied technicians during one or more site visits.

Results Mailings

Biological monitoring data were summarized in site-specific result mailing packets for each landowner. Property visitation dates and detection numbers for golden-winged warbler and American woodcock were detailed explicitly, along with a list of other bird species that were detected on the landowner's property, with at-risk species highlighted. One group of landowners received two personalized results mailings, in October 2015 and December 2016. A second group of landowners who received no results mailings (until after surveys were conducted) served as a control group to assess the role of results mailings in landowner perceptions.

Survey Methods

Telephone surveys were conducted from January 20 – June 1, 2017. Enrolled properties came from a wide range of ownership types, so in cases of group property ownership (e.g., clubs, non-profits, corporations) the contacted individual was asked to respond on behalf of the group. Of the 189 landowners called for the main survey, 102 completed the survey for a response rate of 57.9%. A brief follow-up survey was conducted with a sub-group of landowners in May 2017, after these landowners were sent results mailings. Of 42 landowners called for the follow-up, 32 completed the survey for a response rate of 76.2%.

The study approach and findings of the assessment are discussed in greater detail by Lutter et al. (2018) and Lutter et al. (in press). Highlights are presented in this Conservation Insight.

Assessment Findings

Survey respondents were primarily male (88%) and averaged 61 years old. Sixty-six percent had a four-year college degree or higher. Twenty-nine percent lived on the property enrolled in the NRCS habitat program. Respondents owned their land for an average of 37 years and owned an average of 780 acres (median of 235 acres). Enrolled properties were located in Pennsylvania (59%), Minnesota

(30%), New Jersey (7%), Maryland (2%), and Wisconsin (2%).

Landowner Motivations

Landowners were asked to rate the importance of several possible positive outcomes that might have led them to decide to participate in the programs (Fig. 1). Of the range of outcomes in the survey, the outcomes with the highest mean importance were "improving the forest health" and "benefiting other birds that use young forest." Program outcomes with the lowest mean importance to respondents were "harvesting timber for income" and "increasing the property value."

Post-Program Intentions

A key component of the survey was to investigate landowner intentions to manage for young forest after their NRCS contract ended (Fig. 2). Likelihood of managing for young forest within 10 years after their contract by re-enrolling in an NRCS program was high, with 64.7% of respondents saying they were either "very likely" or "extremely likely" to re-enroll. If no further cost-share was available, respondents were still interested in maintaining the habitat. Few respondents (8.8%) said they were "not at all likely" to manage for young forest in the future, whether or not cost-share was available.

In addition to quantifying landowner post-program intentions, we explored the underlying variation in landowner intentions to re-enroll in NRCS programs or manage for young forest if further cost-share was unavailable. Landowner characteristics in terms of management related motivations, cognitions, and available resources were used in multiple linear regression analysis to predict these post-program management intentions.

Multiple linear regression analysis found that landowner motivations and cognitions about NRCS management explained about 27% of variation in landowner intentions to re-enroll in young forest programs. Specifically, intentions to re-enroll were highest among landowners who had a lot of trust in the agency and for whom cost-share, environmental concerns (e.g., benefiting birds, improving forest health), and hunting were important motivations. Those who had high program satisfaction and who were provided a written, property-wide forest management plan also had higher intentions to re-enroll.

About 18% of variation in landowner intentions to manage for young forest without further cost-share was explained by management-related motivations and resources. Management persistence intentions were highest for group landowners (e.g., clubs, associations, non-profits, corporations), landowners motivated by environmental concerns, and those less motivated by cost-share. More detail on these methods and results are presented in Lutter et al. (2018b).

Post-Program Management Practices

Respondents were asked which management practices they had already used to manage for young forest since their contracts ended and which they would use if further cost-share was not available (Fig. 3). The management practices with highest use and anticipated use after contracts ended were "establishing or maintaining native tree/shrub plantings," "herbicides for invasive plants," and "brush clearing." Few respondents said they would continue with prescribed burning or deer fencing maintenance without further cost-share, or had used those practices since their contracts ended.

Results Mailings

Mann-Whitney U tests were used to assess the effect of results mailing outreach (Fig. 4) on landowners. Survey responses from landowners who had received mailings were compared with responses from landowners who had not received mailings. No significant differences were detected between these groups in terms of program satisfaction, agency trust, or perceived effects of management.

The short follow-up survey also found no significant differences in individual landowner responses before and after receiving the mailing. An open-ended question in the follow-up survey asked landowners "what effect, if any, did the results mailing have on you?" Most responses to this question indicated that landowners had gained some knowledge about birds on their property. Some landowners mentioned that they had shared the mailing with friends and family, or that the mailing

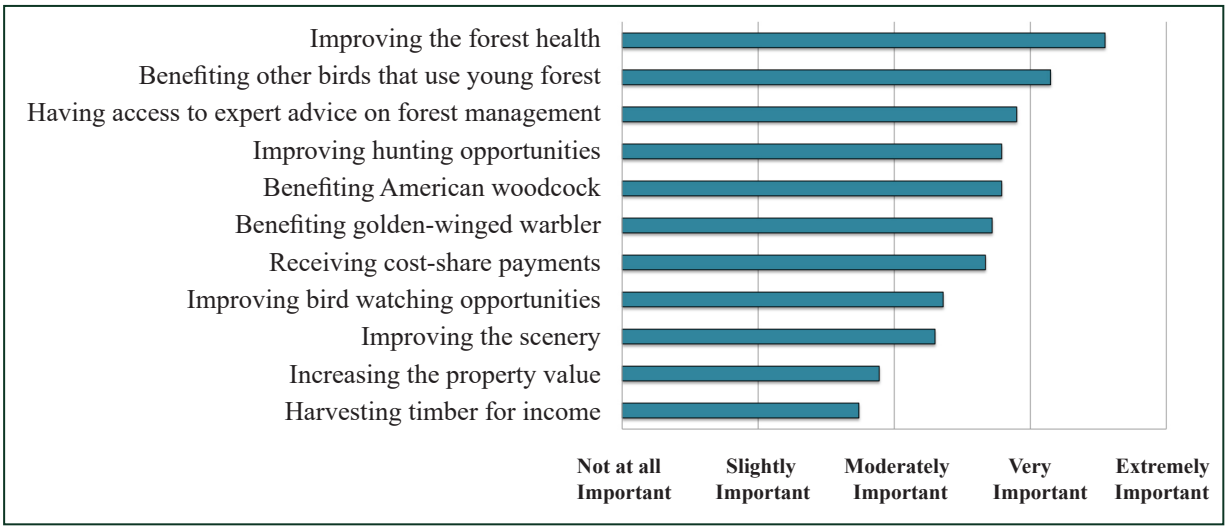


Figure 1. Landowner motivations, ranked by average importance of possible program outcomes (n=102), for participation in NRCS programs.

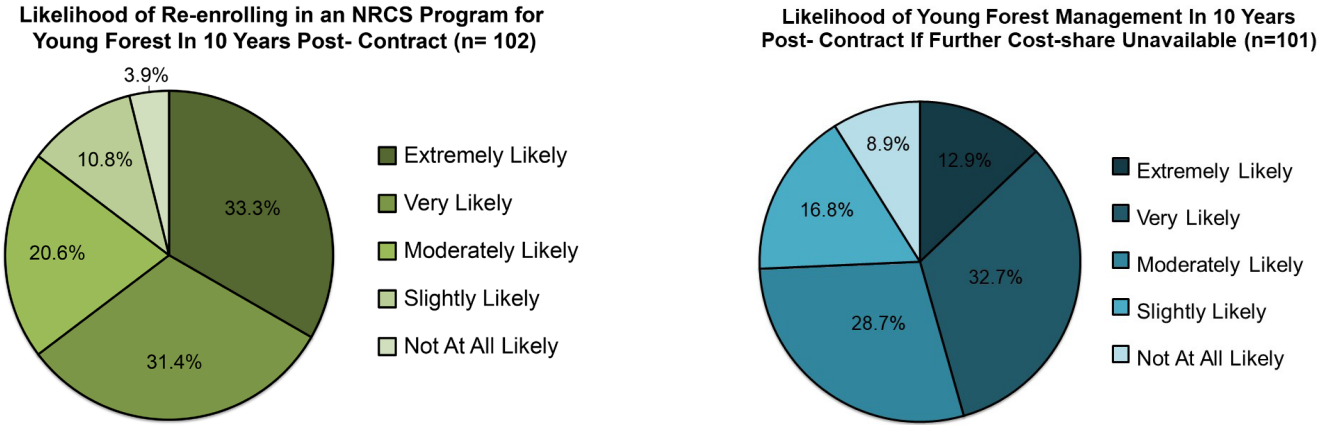


Figure 2. Landowner intentions to re-enroll in an NRCS program to manage young forest, or to manage for young forest if a cost-share program was unavailable within 10 years post-program contract.

had motivated them to look for birds or take further management actions.

Technician Interactions

The second component of outreach involved in the CEAP monitoring process was biological technician site visits. Possible effects of interactions with biological technicians were assessed with Mann-Whitney U tests. Survey responses from landowners who had accompanied technicians on at least one site visit were compared with survey responses from landowners who had not done so. Significant differences were detected between these groups in terms of perceived effects of management (Fig. 5) and trust of NRCS (Fig. 6).

Landowner perceptions of program effects were positive overall. Landowners who had accompanied biological technicians on at least one site visit had significantly more positive perceptions of program effects for "access to expert advice" and "bird-watching opportunities" on their property.

Landowner trust in NRCS and agency partners was generally high. Landowners who had accompanied biological technicians on at least one site visit more strongly agreed that NRCS and agency partners shared their values. More detail on methods and findings related to these outreach analyses are presented in Lutter et al. (2018b).

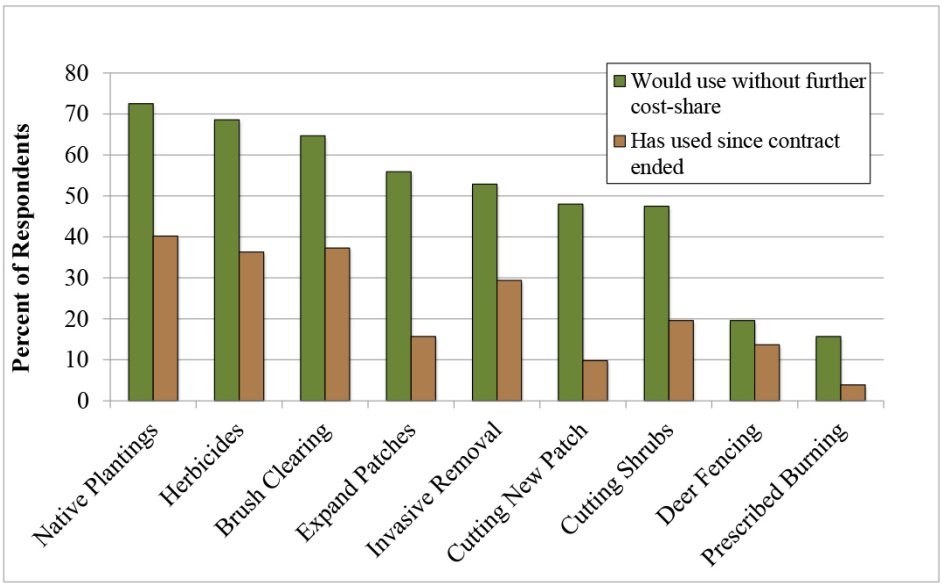


Figure 3. Landowner post-program young forest management actions and intentions, by specific management practice (n=102).

Putting Findings into Practice

The purpose of this assessment was to evaluate landowner response to NRCS young forest habitat programs in the Appalachian and Great Lakes regions of the United States. These assessment findings can be used to maximize the contribution of these NRCS programs toward reversing the decline of young forest habitat and associated wildlife.

Our findings highlight the variety of landowner motivations for participating in NRCS young forest programs. Several of these motivations, such as a desire to improve hunting or to benefit birds, were also related to long-term management intentions. Embracing varied landowner motivations in program-related messaging and recruitment could broaden program appeal and advance long-term conservation gains. Focusing on providing positive experiences to boost program satisfaction and expanding management plans into more extensive property-wide plans could also encourage program re-enrollment.

While landowners were generally interested in continued management with or without cost-share, financial incentives were a key factor in decision-making for some landowners. Post-program management intentions were influenced by how much a landowner was motivated by cost-share, while the use of specific management practices post-program was likely limited by expense.

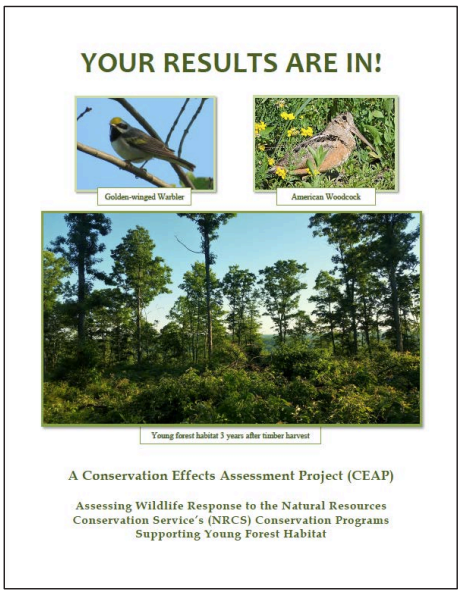


Figure 4. Cover page of the results mailing packet, with images of golden-winged warbler, American woodcock, and young forest habitat.

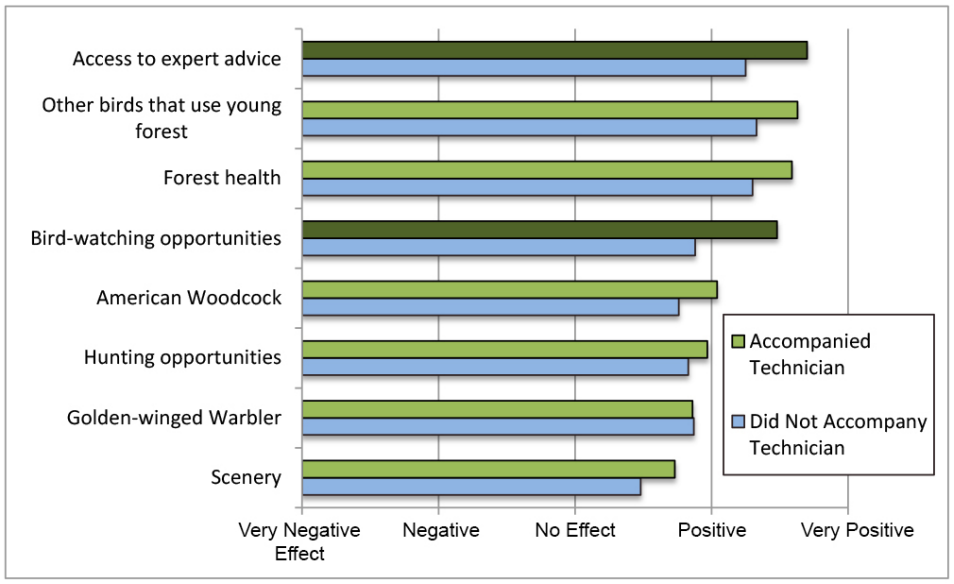


Figure 5. Average perceptions of program participation effects for landowners who had accompanied biological technicians on at least one site visit versus landowners who had not accompanied technicians. Darkened green bars indicate significantly higher values ($p < 0.05$).

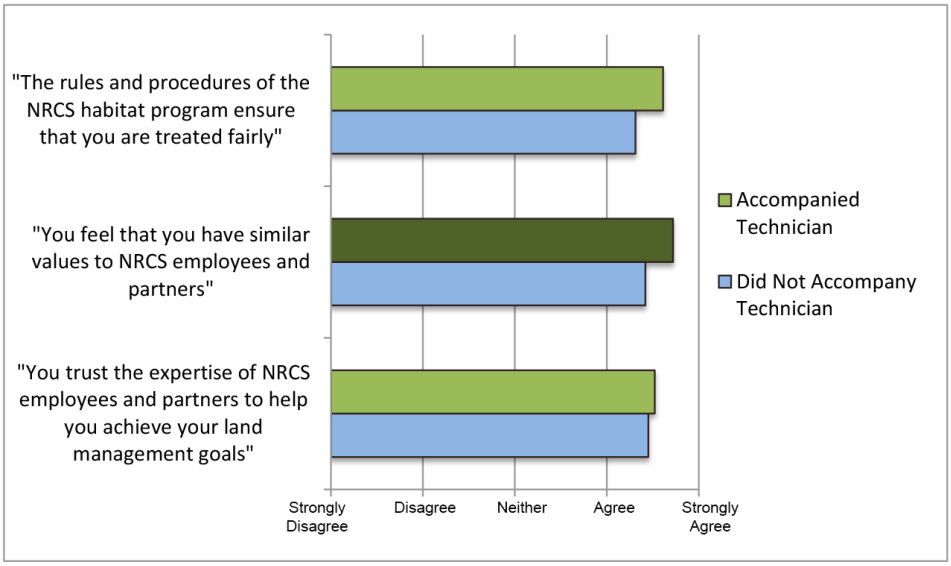


Figure 6. Average responses to agency trust-related questions of landowners who had accompanied biological technicians on at least one site visit compared to landowners who had not accompanied technicians. Darkened green bars indicate significantly higher values ($p < 0.05$).

Landowner trust in NRCS and agency partners was a significant predictor of intentions to re-enroll in NRCS programs, indicating an important role of interpersonal relationships for program outcomes. Outreach to landowners may have potential to build that trust, especially through in-person contacts with landowners such as biological technician site visits. If landowners are interested and contexts are suitable, encouraging biological technicians to take landowners on monitoring site visits could help build positive relationships.

Results mailings had some beneficial effects, such as increasing bird knowledge and encouraging interest in bird watching and young forest management among some landowners. While these effects were limited in scope, it may be worthwhile to integrate this outreach into similar biological monitoring efforts when easily communicated data are collected. Providing feedback on management effects can also be a supportive exchange for landowners who allow technicians onto their properties for monitoring projects.

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Conservation Effects Assessment Project: Translating Science into Practice

The Conservation Effects Assessment Project (CEAP) is a multi-agency effort to build the science base for conservation. Project findings will help to guide USDA conservation policy and program development and help farmers and ranchers make informed conservation choices.

One of CEAP's objectives is to quantify the environmental benefits of conservation practices for reporting at the national and regional levels. Because wildlife is affected by conservation actions taken on a variety of landscapes, the CEAP-Wildlife national assessment complements the other three CEAP national assessments for cropland, wetlands, and grazing lands. The CEAP-Wildlife national assessment works through numerous partnerships to support relevant assessments and focuses on regional scientific priorities.

This assessment was conducted through a partnership among NRCS, Indiana University of Pennsylvania (IUP), and Virginia Tech. Primary investigators on this project were Ashley Dayer (Virginia Tech) and Jeff Larkin (IUP). Seth Lutter (Virginia Tech) is the lead author of the assessment.

For more information, visit www.nrcs.usda.gov/technical/NRI/ceap/, or contact Charlie Rewa at charles.rewa@wdc.usda.gov

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