



# Relationships between absenteeism, conservation group membership, and land management among family forest owners

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## ABSTRACT

Absentee landowners, or those who do not live on their forestland, own approximately 117 million acres of private forestland in the U.S. Thus, their land management decisions and activities influence the flow of forest-based goods and services. We explore the question of whether absentee family forest owners are less active land managers than resident landowners and whether membership in conservation organizations is associated with higher levels of land management activity by absentee owners. To examine these questions, we administered a mail survey to randomly-selected family forest landowners in Indiana. While we found some support for the contention that absentee owners are less active forestland managers than resident owners, we also found they are not necessarily inactive landowners. We found absentee owners were less likely to have: inspected their forestland for invasive plants, pulled or cut invasive plants, used herbicides to kill invasive plants, reduced fire hazard, or grazed livestock than resident owners. Absentee owners were more likely to be enrolled in the Indiana Classified Forest and Wildlands Program, a preferential forest property tax program. Absentee owners who are members of a conservation organization were more likely than absentee non-member owners to have undertaken a variety of land management activities, including: undertaking wildlife habitat improvement projects, inspecting their forestland for invasive plants, pulling or cutting invasive plants, enrolling in the Indiana Classified Forest and Wildlands program, and obtaining a management plan.

## 1. Introduction

Forty-four percent of family forestlands in the United States (approximately 117 million acres) is controlled by absentee owners who do not reside on their forestland (Butler et al., 2016). Given this substantial amount of forestlands under absentee owners' control, their management decisions have important implications for the flow of goods and services from these forestlands, as well as whether these forestlands would remain forested over time. Moreover, it has been suggested that absentee ownership of forestlands (Schubert and Mayer, 2012; Young et al., 2015), agricultural lands (Petzelka and Armstrong, 2015) and rangelands (Haggerty and Travis, 2006) is on the rise.

Research on the influence of family forest owners' residence status on their management intentions and behaviors has appeared in the literature for more than two decades, but our understanding of this attribute is complicated by the fact that researchers have used varying definitions of absentee ownership in their studies. While some

researchers have defined absentee owners as those who live any distance off their forestland (e.g., Kilgore et al., 2008), others have invoked various distance thresholds when defining absenteeism ranging from more than one mile from one's forestland (Butler et al., 2016) to more than 75 miles (Sagor and Becker, 2014). Others have defined absentee owners as those who live in a different county than their forestland (Fortney et al., 2011), those with a mailing address different than their parcel address (Bagdon and Kilgore, 2013), or those spending two weeks or less per year on one's forested property (Romm et al., 1987). Distance from primary residence as a continuous variable has also been used as an implicit means of addressing the impact of absenteeism (Potter-Witter, 2005).

Definitional differences aside, absentee owners have been described as unmotivated, unengaged, or less active than resident landowners (Kendra and Hull, 2005; Kittredge, 2005; Rickenbach and Kittredge, 2009; Sagor and Becker, 2014; Wiersum et al., 2005). While the influence of absentee status has not been consistent in studies of forest

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landowner attitudes, behaviors and intentions (Beach et al., 2005; Floress et al., 2019; Silver et al., 2015), there are examples in the literature that illustrate that absenteeism reduces the likelihood of landowners undertaking certain forest and land management activities. Specifically, absentee owners – however defined – have been found to be less likely to have: undertaken a commercial timber harvest (Hendee and Flint, 2013; Jammick and Beckett, 1988; Sagor and Becker, 2014), intentions to undertake a commercial harvest (Vokoun et al., 2006), harvested woody biomass (Young et al., 2015), engaged in wildlife habitat improvement projects (Sagor and Becker, 2014), planted trees (Sagor and Becker, 2014), reduced hazardous fuels on their forestland (Fischer, 2011), controlled invasive species (Sagor and Becker, 2014), or invested in their forest land (Romm et al., 1987). However, there have been a few exceptions when absentee owners have been found to be more likely than resident owners to have undertaken or intend to undertake certain activities, such as integrated timber harvests that include both a commercial and a woody biomass harvest (Aguilar et al., 2014).

Absenteeism has also been found in some studies to be associated with a greater likelihood of participation in landowner assistance programs and other policy tools. For example, absentee owners have been found to show greater support than resident owners for financial and technical assistance policy tools (Janota and Broussard, 2008), as well as be more likely to have enrolled in a preferential forest property tax program (Fortney et al., 2011) and to have intentions to participate in a forest carbon offset program (Miller et al., 2012), enroll in a government-sponsored public hunter access program (Kilgore et al., 2008), or convey a conservation easement on their forestland (LeVert et al., 2009).

Although some research has found that absentee owners may have greater interest in policy tools, research has also suggested that they may be a harder group to provide information and assistance to (Huff et al., 2017; Kendra and Hull, 2005; Rickenbach and Kittredge, 2009). For example, many absentee owners are not being reached by traditional outreach methods or targeted by government landowner assistance policies and programs (Petzelka, 2012; Petzelka et al., 2013). In their study of agricultural absentee owners, Petzelka and Armstrong (2015) found that many absentee owners are not aware of, or choose not to utilize traditional sources and channels of conservation information such as government agencies and extension agents. In addition, it is uncertain whether absentee owners are less aware, or connected to forestry professionals, other forest landowners, and/or social networks related to forestry and forestland (Rickenbach and Kittredge, 2009; Salmon et al., 2006). Ruseva et al. (2014) found that absentee forestland owners in Indiana had larger and more diverse social networks and more ties to forestry experts than resident owners, while Sagor and Becker (2014) found that absentee and resident forestland owners in Minnesota had similar-sized personal social networks through which they might receive information and advice about their forestland and forest management.

We suggest that participation in a landowner organization or a conservation group might be a factor associated with absentee owners' engagement with and stewardship of their forestland. For example, in a review of factors associated with timber harvesting, membership in a woodland organization was positively associated with timber harvesting behavior (see Silver et al., 2015). However, Silver et al. (2015) cautioned that the evidence explicitly linking this variable to harvesting behavior was weak and that more research was needed to determine whether membership would be a consistent predictor or correlate of harvesting behavior. In their meta-analysis of family forest owner behaviors, Floress et al. (2019) found that participating in formal peer networks with other family forest owners was, when significant, nearly always positively related to a landowner undertaking a management behavior (77 % of the time). Others have found that the number of sources (Molnar et al., 2007) and amount of information from those sources (Brook et al., 2003) are positively associated with management.

Several studies suggest an association between membership in a landowner or conservation organization and land management behaviors and intentions. Potter-Witter (2005) found that participation in the Michigan Forest Association was positively associated with certain forest management activities, while participation in a watershed group was negatively related. Matta et al. (2009) found Florida forest landowners who belonged to a forest landowner or conservation organization were more likely to participate in a conservation incentive program to provide wildlife habitat. Sun et al. (2009) found that being a member of a forestry association was positively associated with knowledge about forest cost-share assistance programs, but negatively related to the frequency a landowner applied for these programs.

In the most in-depth examination of the influence of membership by family forest owners, Rickenbach et al. (2006) investigated the association between membership in two nonindustrial private forest owner organizations in Wisconsin and a variety of different land management behaviors and intentions. They found that members (regardless of which of the two organizations a landowner was a member of) were significantly more likely than non-members to have engaged in a variety of management activities in the past three years (thinning, tree planting, wildlife habitat improvement projects, wetland/stream improvement projects, ecological restoration, invasive species control, and recreation projects), and were more likely to consider future cross-boundary management activities with neighbors (hunting, prescribed burning, invasive species control, ecosystem management, timber sales, recreation use, ecological restoration, tree planting). Members were found to be significantly more concerned about the impact of invasive species than non-members, but no difference was found between members and non-members for recent timber harvesting.

Our work expands the literature in several areas. First, we continue the exploration of whether absentee owners differ from resident owners with respect to their land management activities and policy tool participation by exploring a broader set of activities and tools than has been previously examined in the literature. Second, we explore the question of whether membership in a forest landowner or conservation organization by absentee owners is associated with higher rates of participation in activities and programs than absentee owners who are not members. Given that research has found that absentee owners tend to be less engaged in land management as well as potentially harder to reach through traditional outreach and extension activities, we wanted to examine whether membership in a landowner or conservation organization might be a catalyst for learning, engagement and action for absentee owners.

## 2. Methods

### 2.1. Data collection

To collect data for this study, a mail survey was administered to randomly selected family forest owners throughout the state of Indiana. The study was approved by the authors' University's Institutional Review Board. Seventy-five percent of forestland in the state is owned by family forest owners. A sampling frame of family forest owners for this study was developed using information from IndianaMap (<http://www.indianamap.org/>) and the Indiana Department of Local Government Finance to gather forest parcel data and property ownership characteristics as of 2014. Removing industrial or organizational property owners and other invalid entries left a list of 163,666 family forest owners. After conducting a power analysis to determine needed sample size, our survey was mailed to 2600 randomly selected family forest owners in the state between November and December 2015. The survey was administered using the Tailored Design Method (Dillman et al., 2014). Of the 2600 mailed surveys, 112 had inaccurate or unreachable addresses and 64 were deceased or no longer owning forestland, reducing the sample size to 2424. Among these 2424 recipients with deliverable addresses, 1422 completed the survey, representing a

response rate of 58.7 %. A non-response bias check was done by comparing responses from early (first 10 %) and late (last 10 %) survey respondents as a proxy to detect differences between respondents and non-respondents (Armstrong and Overton, 1977). Specifically, early and late respondents' demographic characteristics, characteristics of their woodlands, familiarity and attitudes towards invasive plants, and their past management actions were compared. No statistically significant differences ( $p \leq 0.05$ ) were found.

Absentee owners were defined as respondents who answered no to the survey question "Is your home (primary) residence on or within one mile of any of your wooded land in Indiana?" Member owners were defined as respondents who answered yes to the survey question "Are you a member of any conservation, environmental, or woodland owners' organization?" (hereafter referred to as conservation organization).

Given that one of the activities that we wanted to examine was participation in the Indiana Classified Forest and Wildlands Program, which has a minimum acreage requirement of 10 acres without a structure, we limited our analysis to only those respondents who reported a minimum of 10 wooded acres. This resulted in a data set of 1210 records, 30 % of which were absentee owners ( $n = 368$ ). Of the absentee owners who answered the survey question about membership in a conservation organization ( $n = 346$ ), 14 % ( $n = 50$ ) indicated they did belong to one or more.

## 2.2. Bivariate statistics

Bivariate statistics were computed for absentee versus resident owners and for absentee members of a conservation organization versus absentee non-members (Tables 1–4) for the following variables: ownership objectives, demographics, size of forestland holding, management activities, management intentions, policy program participation, professional advice topics, landowner concerns, and attitudes and intentions towards the future of their forestland. We examined relationships between residence status and other categorical variables derived from the survey questions using Chi-square tests. To examine relationships between residence status and continuous variables, t-tests were used. SAS software version 9.4 was used for all analyses.

**Table 1**

Bivariate comparisons of demographic, ownership and land characteristics between absentee and resident family forest landowners owning at least 10 acres of woodland in Indiana.

	Absentee Landowner (N)	Resident Landowner (N)	P
<b>Demographics</b>			
Retired	47 % (350)	48 % (804)	0.7185
Male	80 % (345)	81 % (792)	0.7516
Greater than \$100,000 household income	35 % (300)	30 % (656)	0.1239
Less than \$50,000 household income*	29 % (300)	35 % (656)	0.0695
Years of woodland ownership*	21 (350)	27 (816)	< .0001
Age of owner	63 (344)	63 (786)	0.6613
<b>Ownership Characteristics</b>			
Purchased wooded land*	77 % (368)	88 % (838)	< .0001
Inherited wooded land*	30 % (368)	23 % (838)	0.0116
Member of forest landowner or conservation organization	14 % (346)	12 % (792)	0.1832
Number of owners	1.9 (363)	2.0 (833)	0.3825
<b>Land Characteristics</b>			
Acres of woodland	99 (368)	87 (842)	0.1516
Woodland not part of a farm*	38 % (367)	21 % (835)	< .0001

Asterisks denote significant differences based on a  $p < 0.10$ .

## 3. Results

### 3.1. Absentee versus resident owners

Absentee owners were less likely than resident owners to: own their forestland as part of an associated farm, have a household income less than \$50,000, and have purchased their forestland (Table 1). Absentee owners were more likely than resident owners to have inherited their forestland. Absentee owners have owned their forestland on average 6 years less than resident owners.

In terms of land management activities and participation in forest landowner policy programs (Table 2), absentee owners were less likely to have conducted the following activities in the past five years: inspected their forestland for invasive plants, pulled or cut invasive plants, used herbicides to kill invasive plants, reduced fire hazard, or grazed livestock than resident owners. In addition, absentee owners were more likely to have undertaken none of the queried general management activities and none of the invasive plant management activities in the past five years than resident owners. However, absentee owners were more likely to be enrolled in the Indiana Classified Forest Program, a preferential forest property tax program.

### 3.2. Absentee member versus absentee non-member owners

On average, absentee member owners owned more forestland and were more likely to have purchased that land than absentee non-member owners (Table 3). In terms of land management activities, absentee member owners were more likely than absentee non-member owners to have enrolled in the Indiana Classified Forest and Wildlands Tax program, obtained a management plan, eliminated unwanted insects or diseases, engaged in work to improve trails or roads, collected non-timber forest products, and undertaken wildlife habitat improvement projects (Table 4). Related to invasive plant management activities, absentee member owners were more likely to have: inspected their forestland for invasive plants, pulled or cut invasive plants, used herbicides to kill invasive plants, participated in relevant workshops, and participated in government assistance programs to remove invasive plants. Related to information-seeking behavior, absentee member owners were more likely to have contacted a professional about invasive plants; sought financial assistance to remove invasive plants; or talked to family members, neighbors, or other forest landowners about invasive plants than absentee non-member owners. In addition, absentee member owners were less likely than absentee non-member owners to have not undertaken any of the general management activities or the invasive plant management activities.

## 4. Discussion

Our results provide evidence that absentee and resident family forest owners behave differently in terms of some of their land management behaviors. Specifically, we showed that Indiana's absentee forestland owners are less likely than resident owners to have managed invasive plants in terms of inspection and removal, and to have reduced fire hazard. For example, 33 % of absentee owners reported that they had pulled or cut invasive plants in the past five years, versus 45 % of resident owners. Further, one-quarter of absentee owners had used herbicides to treat invasive plants versus 37 % of resident owners who had undertaken this activity. This is consistent with previous literature, which found residing on one's land to be positively associated with controlling invasive species (Sagor and Becker, 2014) and managing fire risks (Collins and Bolin, 2009; Fischer, 2011).

Three factors might explain the reduced activity around vegetation management (whether for invasive plant or fire hazard purposes) among absentee owners. First, if absentee owners do not visit their forestland frequently, they may not know if they have invasive plants or excessive fuel build-up on their properties. Second, they may not have

**Table 2**

Bivariate comparisons of program participation, land management activities and invasive plant activities between absentee and resident family forest landowners owning at least 10 acres of woodland in Indiana.

	Absentee Landowner (N)	Resident Landowner (N)	p
<b>Program Participation</b>			
Land enrolled in Indiana Classified Forest Tax Program*	47 % (368)	36 % (837)	0.0007
Has a management plan	27 % (365)	23 % (837)	0.1212
<b>Land Management Activities in Past 5 Years</b>			
Cut trees for sale	24 % (365)	25 % (831)	0.5001
Eliminated unwanted insects or diseases	3 % (365)	5 % (831)	0.2680
Reduced fire hazard *	1 % (365)	4 % (831)	0.0147
Trail construction or maintenance	35 % (365)	35 % (831)	0.9494
Collected non-timber forest products	8 % (365)	10 % (831)	0.3829
Road construction or maintenance	9 % (365)	8 % (831)	0.3881
Improved wildlife habitat	32 % (365)	29 % (831)	0.2476
Livestock grazing *	3 % (365)	12 % (831)	< 0.0001
Controlled burn	2 % (365)	3 % (831)	0.2905
None of the above activities in the past 5 years *	31 % (365)	19 % (831)	< 0.0001
<b>Invasive Plant Activities in Past 5 years</b>			
Inspected my land for invasives*	32 % (357)	38 % (822)	0.0795
Pulled or cut invasives*	33 % (357)	45 % (822)	0.0003
Used herbicides to kill invasives*	25 % (357)	37 % (822)	< 0.0001
Worked with neighbor to remove invasives	2 % (357)	2 % (822)	0.4897
Participated in invasives workshop	6 % (357)	6 % (822)	0.5694
Participated in government program that assists woodland owners in removing invasive plants	2 % (357)	3 % (822)	0.2502
Contacted a professional about invasive plants	14 % (357)	12 % (822)	0.3516
Sought technical assistance to remove invasives	4 % (357)	6 % (822)	0.3065
Sought financial assistance from a government program to remove invasives	3 % (357)	5 % (822)	0.1929
Talked to family members about invasives	15 % (357)	14 % (822)	0.7722
Talked to neighbors about invasives	7 % (357)	9 % (822)	0.3634
Talked to other forest landowners about invasives	10 % (357)	12 % (822)	0.2301
Undertook none of the invasive plant activities listed above*	41 % (357)	34 % (822)	0.0254

Asterisks denote significant differences based on a  $p < 0.10$ .

**Table 3**

Bivariate comparisons of demographic, ownership, and land characteristics of absentee family forest landowners who are members of a forest landowner or conservation organization to absentee landowners who are not members of an organization owning at least 10 acres of woodland in Indiana.

	Absentee Member (N)	Absentee Non-Member (N)	p
<b>Demographics</b>			
Retired	44 % (50)	47 % (295)	0.6827
Male	80 % (49)	81 % (291)	0.8488
Greater than \$100,000 household income	37 % (46)	35 % (249)	0.7925
Less than \$50,000 household income	26 % (46)	29 % (249)	0.6961
Years of woodland ownership	20 (49)	21 (282)	0.8798
Age of owner	63 (50)	63 (289)	0.9599
<b>Ownership Characteristics</b>			
Purchased wooded land*	86 % (50)	75 % (296)	0.0981
Inherited wooded land	26 % (50)	30 % (296)	0.5286
Number of owners	1.9 (48)	1.9 (293)	0.9765
<b>Land Characteristics</b>			
Acres of woodland*	172 (50)	90 (296)	< 0.0112
Woodland not part of a farm	42 % (50)	38 % (296)	0.6076

Asterisks denote significant differences based on a  $p < 0.10$ .

as much time to devote to vegetation management activities if they do not live onsite. Third, this may reflect an “out-of-sight, out-of-mind” situation as explored by Ulrich-Schad et al. (2016) in the broader context of absentee farmland owners and their perceptions of conservation.

This lower level of engagement in vegetation management among absentee family forest owners is an important finding given that both invasive plant control and forest fuel reduction require landscape-scale, multi-owner approaches. Individual absentee owners not controlling invasive plants on their properties could lead to their land becoming a source of invader propagule, increasing management costs for

neighboring private and public landowners (Clarke et al., 2019; Daab and Flint, 2010; Epanchin-Niell et al., 2010; Hershendorfer et al., 2007). Similarly, individual absentee owners not reducing fire hazards would lead to increased fire risk for neighboring private and public landowners (Jakes et al., 2003; Petrzeka et al., 2013). As such, our research provides evidence suggesting an important need to engage absentee owners or identify other strategies to address vegetation management challenges on forestlands owned by absentee owners.

One opportunity to engage absentee owners may exist in the context of forest property tax programs. We found that absentee owners were more likely to be enrolled in Indiana’s Classified Forest and Wildlands Program than resident owners (47 % of respondents versus 36 %), which provides landowners with a property tax reduction in exchange for developing and following a professionally written management plan that encourages timber production, watershed protection, and wildlife habitat management on private lands in Indiana. The influence of residence status on enrollment or intentions to enroll in a forest property tax program has been inconsistent in the literature. Some research found residence status to be an insignificant factor in enrollment (e.g., Meier et al., 2019; Nagubadi et al., 1996; Williams et al., 2004), while Fortney et al. (2011) found absentee owners more likely to enroll in West Virginia’s forest property tax program.

In studies of various forest landowner populations, a variety of factors have been found to be positively associated with a landowner’s decision to enroll in their state’s preferential property tax program, which include landowner characteristics (e.g., household income), forestland characteristics (e.g., woodland acreage, having timber production as an ownership reason), and the property tax program characteristics (Kilgore et al., 2018; Meier et al., 2019). One explanation for why absentee owners may be more likely to enroll in the Indiana Classified Forest tax program is that they are primarily seeking the tax advantages associated with the program and looking to defray the cost of their forestland ownership. Given that enrollment in the tax program requires a management plan, participation in the program provides an important opportunity for absentee owners to make a connection with

**Table 4**

Bivariate comparisons of program participation, land management activities and invasive plant activities of absentee family forest owners who are members of a forest landowner or conservation organization to absentee owners who are not members owning at least 10 acres of woodland in Indiana.

	Absentee Member (N)	Absentee Non-Member (N)	p
<b>Program Participation</b>			
Land enrolled in Indiana Classified Forest Tax Program*	80 % (50)	41 % (296)	< 0.0001
Has a management plan*	68 % (50)	20 % (293)	< 0.0001
<b>Land Management Activities in Past 5 Years</b>			
Cut trees for sale	30 % (50)	22 % (293)	0.2055
Eliminated unwanted insects or diseases*	8 % (50)	3 % (293)	0.0609
Reduce fire hazard	2 % (50)	1 % (293)	0.7292
Trail construction or maintenance*	68 % (50)	31 % (293)	< 0.0001
Collected non-timber forest products*	22 % (50)	7 % (293)	0.0005
Road construction or maintenance*	22 % (50)	7 % (293)	0.0005
Improved wildlife habitat*	62 % (50)	28 % (293)	< 0.0001
Livestock grazing	0 % (50)	4 % (293)	0.1637
Controlled burn	4 % (50)	1 % (293)	0.1890
None of the above activities in the past 5 years*	12 % (50)	33 % (293)	0.0023
<b>Invasive Plant Activities Past 5 years</b>			
Inspected my land for invasives*	61 % (49)	26 % (287)	< 0.0001
Pulled or cut invasives*	69 % (49)	27 % (287)	< 0.0001
Used herbicides to kill invasives*	49 % (49)	21 % (287)	< 0.0001
Worked with neighbor to remove invasives	4 % (49)	1 % (287)	0.1047
Participated in invasives workshop*	24 % (49)	4 % (287)	< 0.0001
Participated in a government program that assists woodland owners in removing invasive plants*	8 % (49)	1 % (287)	0.0013
Contacted a professional about invasive plants*	33 % (49)	10 % (287)	< 0.0001
Sought technical assistance to remove invasives	8 % (49)	4 % (287)	0.1749
Sought financial assistance from a government program to remove invasives*	10 % (49)	2 % (287)	0.0032
Talked to family members about invasives*	35 % (49)	12 % (287)	< 0.0001
Talked to neighbors about invasives*	27 % (49)	4 % (287)	< 0.0001
Talked to other forest landowners about invasives*	29 % (49)	7 % (287)	< 0.0001
Undertook none of the invasive plant activities listed above*	16 % (49)	46 % (287)	< 0.0001

Asterisks denote significant differences based on a  $p < 0.10$ .

forestry professionals in developing such a plan. Previous research has shown that interaction with forestry professionals and having a management plan often are associated with more active forest management (see Floress et al., 2019; Silver et al., 2015). Enrollees in the Indiana Classified Forest and Wildlands Program receive free technical assistance from agency foresters and wildlife biologists as well as priority for conservation cost share activities such as invasive species control and timber stand improvements (<https://www.in.gov/dnr/forestry/4801.htm>). Moreover, enrollees receive newsletters about conservation and stewardship topics, including invasive forest plants like Japanese Barberry ([https://www.in.gov/dnr/forestry/files/fo-Danger\\_Japanese\\_Barberry.pdf](https://www.in.gov/dnr/forestry/files/fo-Danger_Japanese_Barberry.pdf)). Enrollment in the Classified Forest and Wildlands Program affords an enrollee access to information, cost share assistance, and professional advice on topics related to forest conservation and stewardship, including invasive plant treatment and control. Thus, we suggest that participation in landowner assistance programs like forest property tax programs may represent an important way to foster learning and engagement with their land by absentee forest owners, and to connect absentee owners to forestry professionals.

Another opportunity to engage absentee owners may be through membership in a conservation organization. As reported earlier, 14 % of absentee owners in our study belong to a forest landowner, environmental or conservation organization. Further, we found that absentee member owners were more likely than absentee non-member owners to be enrolled in the Indiana Classified Forest and Wildlands Program (80 % versus 41 %). The higher rates of enrollment in this tax program by absentee member owners versus non-member owners could be a function of greater awareness of the program either because the organizations they are members of emphasize or provide information about the tax program, or because of the opportunity to learn from peers who are members in the organization and who might inform or influence others to enroll in a tax program. Additionally, absentee member owners in our study own more acreage on average than absentee non-members (172 versus 90 acres), meaning that the tax

benefits would be greater for this cohort of owners, which could influence their enrollment decisions. Parcel size is positively associated with policy tool participation more often than not (see Floress et al., 2019), and our study shows that this held true even when owners are absentee.

In addition to greater participation in a preferential forest property tax program, our research demonstrates that absentee member owners are more likely to undertake a wide variety of forest and land management activities than absentee non-member owners. For example, 62 % of absentee member owners undertook a wildlife habitat improvement project versus 28 % of absentee non-member owners, and 69 % of absentee member owners pulled or cut invasive forest plants versus 27 % of absentee non-member owners. One possible explanation for these positive relationships between membership in forest conservation organizations and land management activities among absentee owners may be that members gain more awareness of forest management issues as well as make connections with other forest owners who share similar interests, goals, attitudes and values through their organizational membership and the associated communications and programs. The information from the organization and other members might in turn increase awareness, confidence, and motivation for absentee owners to undertake land and forest management activities. Further, such information and connections may even serve to reduce the psychological distance between absentee owners and their forestlands, which is important given that absentee owners tend to think of their forestlands less frequently than resident owners (Huff et al., 2017) and may view the idea of being a forestland owner more abstract and less engaging (Cocking and Renninger, 1993). For example, in a review of the organizations in Table 5, many examples were found on their websites and in their magazines and newsletters about topics such as invasive plant treatment and prescribed burning to enhance biodiversity, game habitat and forest health (Indiana Wildlife Federation, Whitetails Unlimited, National Woodland Owners Association, Indiana Woodland Steward) and threats from invasive insects and diseases to hardwood tree

**Table 5**  
List of the Conservation, Environmental and Woodland Owners' Organizations to Which the Absentee Woodland Owners Belong.

Forestry Organizations	Wildlife Organizations	Land Conservation Organizations	Environmental Conservation Organizations	Other
American Forest Foundation	Ducks Unlimited	Central Indiana Land Trust	Hoosier Environmental Council	American Farm Bureau Federation
American Tree Farm	Indiana Audubon	Sycamore Land Trust	Indiana Association of Soil and Water Conservation Districts	Indiana Master Naturalist Program
Arbor Day Foundation	Indiana Wildlife Federation	Wood-Land-Lakes RC&D Land Trust	Izaak Walton League	Indiana Native Plant and Wildflower Society
Indiana Forestry and Woodland Owners Association	Martinsville Conservation Club		Nature Conservancy	Kentucky Native Plant Society
Lincoln Hills Forestry Committee	National Audubon Society		Sierra Club	Purdue Master Gardener Program
Ohio Forestry Association	National Wildlife Federation			
National Woodland Owners Association	National Wild Turkey Federation			
New York Woodland Owners Association	Pheasants Forever			
Society of American Foresters	Whitetails Unlimited			
Walnut Council				
Woodland Steward				

resources (Walnut Council)<sup>1</sup>. Thus, members of these organizations are gaining exposure to the topics of invasives and fire, among others, if they choose to read materials from the organization, attend their events, and/or interact with other members. Future research is needed, however, to identify and confirm mechanisms through which membership in a conservation organization affects management activities, particularly the relationships between membership and psychological distance associated with absentee landownership.

Alternatively, it could be that those who choose to voluntarily join a conservation organization may have already been engaged landowners with more knowledge, awareness, motivation or means to actively manage their forestlands, and thus, membership in an organization is not a driver of land management activity, but rather an effect. Rickenbach et al. (2006) also noted that they could not discern from their data whether membership in a landowner organization is a causal factor that leads to more active management, or whether it reflects a cohort of family forest owners who simply desire connection, interaction and information exchange with other landowners. Although they studied the broader family forest owner population rather than focusing on absentee owners, they concluded that regardless of whether membership is a cause or effect, membership was shown to have a positive relationship with more activity on one's forestland such as tree planting, wildlife habitat improvement, and ecological restoration. Family forest owners who were members of woodland owner associations (again, not necessarily absentee owners) were also more likely to consider future cross-boundary management activities with their neighbors such as prescribed burning, invasive species control, and timber sales (Rickenbach et al., 2006). As such, our research extends the work of Rickenbach et al. (2006) by highlighting the complex relationship among absentee landownership, membership in a conservation organization, and level of engagement in forest and land management. More importantly, our research suggests that a better understanding of these relationships may provide a critical opportunity for identifying strategies to more effectively engage absentee owners in forest and land management.

It is important to point out that in our study family forest owners were asked not only to indicate whether they belonged to any conservation, environmental or woodland owners' organization, but also to specify to which organization(s) they belonged. Absentee member owners in our study reported membership in a diversity of organizations with varying goals, activities, and scales of operation, ranging from local to national organizations. Overall, the 50 absentee member owners listed 33 unique conservation organizations to which they belonged (Table 5). Given the diversity of organizations, this may suggest that it is not membership in any specific group that is necessarily associated with the enhanced level of forest and land management by absentee owners. Rather, perhaps it is the act of membership in any organization that brings together conservation-minded people or landowners who are concerned about the future of their land and landscape that may enhance a landowner's awareness, interest, confidence, and willingness to implement various management activities and increase their exchange of information with professionals and peers. This contention is supported by Rickenbach et al. (2006) who found only minor differences in land and forest management intentions and behaviors when comparing members of two forest landowner groups with very different foci and organizational structure. As such, our research suggests that forest landowner and other conservation

<sup>1</sup> Indiana Wildlife Federation (<https://www.indianawildlife.org/iwf-issues/forest-management/>), Whitetails Unlimited ([https://www.whitetailsunlimited.com/i/p/bk\\_enhancement.pdf](https://www.whitetailsunlimited.com/i/p/bk_enhancement.pdf)), National Woodland Owners Association (<https://woodlandowners.com/wpcontent/uploads/2017/04/NW%20Winter%202017.pdf>), Indiana Woodland Steward (<http://www.inwoodlands.org/indiana-hardwood-strategy/>), Walnut Council (<https://walnutcouncil.org/resources/growing-hardwoods/insects-and-diseases/>).

organizations can be important and effective conduits for providing information, professional contact, and peer learning to absentee forest landowners.

Finally, in addition to the differences we found between behaviors of absentee and resident owners, it is also important to note that there were a number of land management activities where the rates of participation by absentee and resident owners were not statistically different: having a commercial timber harvest, having a management plan, engaging in trail or road building activities, and participating in wildlife habitat improvement projects. These findings refute the narrative that absentee owners are unengaged and inactive forest managers (Huff et al., 2017; Kendra and Hull, 2005; Rickenbach and Kittredge, 2009). While some research, ours included, has shown examples of absentee owners being less engaged for certain activities (Jamnick and Beckett, 1988; Sagor and Becker, 2014; Young et al., 2015), our research suggests it is not accurate to categorize absentee owners as inactive across all types of management activities. Instead, our research first acknowledges the challenge of engaging absentee owners who may not spend much time on their forestland and/or have connections to forestry professionals or other landowners (Petzelka et al., 2013), and further highlights opportunities for facilitating absentee owners to act as stewards of their forestlands through collaboration with forest tax programs, landowner associations, and other types of conservation organizations.

## 5. Conclusion

This research on Indiana family forest owners contributes to our understanding of how residence status is associated with the management of forestlands, and how policy tools that encourage membership in conservation groups may serve to reduce or moderate potential barriers to management among absentee owners. Specifically, our research provides evidence that Indiana absentee family forest owners undertake some management activities such as timber harvesting and wildlife habitat improvement projects in similar rates as resident owners. However, Indiana absentee family forest owners are less engaged in the management of landscape-level threats such as invasive plant control and wildfire hazard reduction on their forestlands. This presents a significant challenge for addressing these landscape-level threats that require actions by both resident and absentee forest owners. This result highlights a critical need for multi-faceted and innovative ways to raise awareness and to facilitate management among absentee owners.

Our findings refute an existing assumption that absentee forest owners are not motivated to manage or steward their lands, and support the need and value in including this type of landowner in programming, outreach and assistance. In addition, our research shows that membership in landowner associations or conservation organizations can positively affect management activities among absentee owners. However, future research is needed to explore the mechanisms through which membership in these groups shape absentee owners. For example, how does participation in a landowner association or conservation organization change absentee forest owners' psychological distance to their forestland and in turn affect their willingness to engage in land management? To what extent does membership in a landowner association or conservation organization change absentee forest owners' access to information and professional assistance? Does such membership shape absentee forest owners' interest and opportunities to engage in peer learning?

Our study also highlights an important area of future research with respect to formalizing a shared meaning of absenteeism or absentee landownership. As discussed in the Introduction, absentee landownership has been defined in numerous ways. The nuances in how absentee versus resident owners are defined could underlie conflicting results in the literature about how each is related to different management behaviors and intentions. For example, Floress et al. (2019) found that

when absenteeism was included as an explanatory variable in family forest owner behavior models, it was not significant 9 of 11 times. When the opposite – the owner resides on their land – was included as a model variable, it was positively related to forest management behavior 16 of the 29 times, and not significant 9 times. This may be an artifact that it is easier to define someone living on their land versus being an absentee owner. However, we suggest that research is needed to examine how the manner in which an absentee owner is defined influences analyses of behaviors and intentions. We further suggest that some different paradigms for absentee ownership be explored, such as measures of the time it takes for an absentee owner to travel to their forestland rather than measures of distance between one's residence and forestland. Private forestlands are under increasing threat of fragmentation and subject to landscape-scale threats like invasive species and wildfire risks. Given this, it is important to seek ways to motivate and incentivize all types of family forest owners, regardless of whether they live on their forestland or not, to steward their forestlands.

## Declaration of Competing Interest

None

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## References

- Aguilar, F.X., Cai, Z., D'Amato, A.W., 2014. Non-industrial private forest owner's willingness-to-harvest: how higher timber prices influence woody biomass supply. *Biomass Bioenergy* 71, 202–215.
- Armstrong, F.X., Overton, T., 1977. Estimating nonresponse bias in mail surveys. *J. Mark. Res.* 14 (3), 396–402.
- Bagdon, B., Kilgore, M.A., 2013. Observing forest property tax enrollment preferences in light of a multi-year restriction on development. *North. J. Appl. For.* 30 (2), 58–66.
- Beach, R.H., Pattanayak, S.K., Yang, J.-C., Murray, B.C., Abt, R.C., 2005. Econometric studies of non-industrial private forest management: a review and synthesis. *For. Policy Econ.* 7, 261–281.
- Brook, A., Zint, M., De Young, R., 2003. Landowners' responses to an endangered species act listing and implications for encouraging conservation. *Conserv. Biol.* 17 (6), 1638–1649.
- Butler, B.J., Hewes, J.H., Dickinson, B.J., Andrejczyk, K., Butler, S.M., Markowski-Lindsay, M., 2016. USDA Forest Service National Woodland Owner Survey: national, regional, and state statistics for family forest and woodland ownerships with 10+ acres, 2011–2013. Res Bull. NRS-99. Newtown Square, PA: US Department of Agriculture, Forest Service. Northern Research Station. <https://doi.org/10.2737/NRS-RB-99>.
- Clarke, M., Ma, Z., Snyder, S.A., Floress, K., 2019. What are family forest owners thinking and doing about invasive plants? *Landsc. Urban Plan.* 188, 80–92. <https://doi.org/10.1016/j.landurbplan.2018.10.024>.
- Cocking, R.R., Renninger, K.A., 1993. *The Development and Meaning of Psychological Distance*. Lawrence Erlbaum Associates, Inc, Hillsdale, New Jersey.
- Collins, T.W., Bolin, B., 2009. Situating hazard vulnerability: people's negotiations with wildfire environments in the U.S. Southwest. *Env. Man.* 44 (3), 441–455.
- Daab, M.T., Flint, C.B., 2010. Public reaction to invasive plant species in a disturbed Colorado landscape. *Invasive Plant Sci. Manag.* 3, 390–401.
- Dillman, D.A., Smyth, J.D., Christian, L.M., 2014. *Internet, Phone, Mail and Mixed-mode Surveys: the Tailored Design Method*, 4th ed. John Wiley and Sons, Hoboken, NJ.
- Epanchin-Niell, R.S., Hufford, M.B., Aslan, C.E., Sexton, J.P., Port, J.E., Waring, T.M., 2010. Controlling invasive species in complex social landscapes. *Front. Ecol. Environ.* 8 (4), 210–216.
- Fischer, A.P., 2011. Reducing hazardous fuels on nonindustrial private forests: factors influencing landowner decisions. *J. of For.* 109 (5), 260–266.
- Floress, F., Huff, E.S., Snyder, S.A., Koshollek, A., Butler, S., Allred, S.B., 2019. Factors associated with family forest owner actions: a vote-count meta-analysis. *Landsc.*

- Urban Plan. 188, 19–29.
- Fortney, J., Arano, K.G., Jacobson, M., 2011. An evaluation of West Virginia's managed timberland tax incentive program. *For. Policy Econ.* 12, 69–78.
- Haggerty, J.H., Travis, W.R., 2006. Out of administrative control: absentee owners, resident elk and the shifting nature of wildlife management in southwestern Montana. *Geoforum*. 37, 816–830.
- Hendee, J.T., Flint, C.G., 2013. Managing private forestlands along the public-private interface of Southern Illinois: landowner forestry decisions in a multi-jurisdictional landscape. *For. Policy Econ.* 34, 47–55.
- Hershendorfer, M.E., Fernandez-Gimenez, M.E., Howery, L.D., 2007. Key attributes influence the performance of local weed management programs in the southwest United States. *Rangel. Ecol. Manag.* 60, 225–234.
- Huff, E.S., Leahy, J.E., Kittredge, D.B., Noblet, C.L., Weiskittel, A.R., 2017. Psychological distance of timber harvesting for private woodland owners. *Psychological distance of timber harvesting for private woodland owners. For. Policy Econ.* 8, 48–56.
- Jakes, P.J., Agrawal, S., Monroe, M., 2003. *The Palm Coast Community: Steps to Improve Community Preparedness for Wildfire*. Available online at: [www.treesearch.fs.fed.us/pubs/11803](http://www.treesearch.fs.fed.us/pubs/11803).
- Jamnick, M.S., Beckett, D.R., 1988. A logit analysis of private woodlot owner's harvesting decisions in New Brunswick. *Can. J. Res.* 18, 330–336.
- Janota, J.J., Broussard, S.R., 2008. Examining private forest policy preferences. *For. Policy Econ.* 10 (3), 89–97.
- Kendra, A., Hull, R.B., 2005. Motivations and behaviors of new forest owners in Virginia. *For. Sci.* 51 (2), 142–154.
- Kilgore, M.A., Snyder, S.A., Schertz, J.M., Taff, S.J., 2008. The cost of acquiring public hunting access on family forest lands. *Hum. Dimens. Wildl.* 13 (3), 175–186.
- Kilgore, M.A., Ellefson, P.V., Funk, T.J., Frey, G.E., 2018. State property tax programs promoting sustainable forests in the United States: a review of program structure and administration. *J. of For.* 116 (3), 257–265.
- Kittredge, D.B., 2005. The cooperation of private forest owners on scales larger than one individual property: international examples and potential application in the United States. *Forest Policy and Econ.* 7, 671–688.
- LeVert, M., Stevens, T., Kittredge, D.B., 2009. Willingness-to-sell conservation easement: a case study. *J. For. Econ.* 15, 261–275.
- Matta, J.R., Alavalapati, J.R.R., Mercer, D.E., 2009. Incentives for biodiversity conservation beyond the best management practices: Are forestland owners interested? *Land Econ.* 85 (1), 132–143.
- Meier, J.T., Kilgore, M.A., Frey, G.E., Snyder, S.A., Blinn, C.R., 2019. A comparison of participants and non-participants of state forest property tax programs in the United States. *For. Policy Econ.* 102, 10–16. <https://doi.org/10.1016/j.forpol.2019.02.002>.
- Miller, K.A., Snyder, S.A., Kilgore, M.A., 2012. An assessment of forest landowner interest in selling forest carbon credits in the Lake States. USA. *Forest Policy and Economics*. 25, 113–122.
- Molnar, J.J., Schelhas, J., Holeski, C., 2007. Nonindustrial private forest landowners and the Southern Pine Beetle: factors affecting monitoring, preventing, and controlling infestations. *South J. Appl. For.* 31 (2), 93–98.
- Nagubadi, V., McNamara, K.T., Hoover, W.L., Mills Jr., W.L., 1996. Program participation behavior of non-industrial forest landowners: a probit analysis. *J. Agric. Appl. Econ.* 28 (2), 323–336.
- Petrzelka, P., 2012. Absentee landowners in the Great Lakes Basin: who they are and implications for conservation outreach. *Soc. Nat. Resour.* 25 (8), 821–832.
- Petrzelka, P., Armstrong, A., 2015. Absentee landowners of agricultural land: influences upon land management decision making and information usage. *J. Soil Water Conserv.* 70 (5), 303–312.
- Petrzelka, P., Ma, Z., Malin, S., 2013. The elephant in the room: absentee landowner issues in conservation and land management. *Land Use Policy* 30, 157–166.
- Potter-Witter, K., 2005. A cross-sectional analysis of Michigan nonindustrial private forest landowners. *NJAF* 22 (2), 131–138.
- Rickenbach, M.G., Guries, R.P., Schmoltd, D.L., 2006. Membership matters: comparing members and non-members of NIPF owner organizations in southwest Wisconsin, USA. *For. Policy Econ.* 8, 93–103.
- Rickenbach, M., Kittredge, D.B., 2009. Time and Distance: comparing motivations among forest landowners in New England. USA. *Small-scale Forestry*. 8, 95–108.
- Romm, J., Tuazon, R., Washburn, C., 1987. Relating investment to the characteristics of nonindustrial private forestland owners in northern California. *For. Sci.* 33 (1), 197–209.
- Ruseva, T.B., Evans, T.P., Fischer, B.C., 2014. Variations in the Social Networks of Forest Owners: the effect of management activity, resource professionals, and ownership size. *Small-scale For.* 13, 377–395. <https://doi.org/10.1007/s11842-014-9260-z>.
- Sagor, E.S., Becker, D.R., 2014. Personal networks and private forestry in Minnesota. *J. Environ. Manage.* 132, 145–154.
- Salmon, O., Brunson, M., Kuhns, M., 2006. Benefit-based audience segmentation: a tool for identifying nonindustrial private forest (NIPF) owner education needs. *J. For.* 104, 419–425.
- Schubert, J.R., Mayer, A.L., 2012. Peer influence of non-industrial private forest owners in the western Upper Peninsula of Michigan. *Open J. For.* 2 (3), 150–158.
- Silver, E.J., Leahy, J.E., Weiskittel, A.R., Noblet, C.L., Kittredge, D.B., 2015. An evidence-based review of timber harvesting behavior among private woodland owners. *J. For.* 113 (5), 490–499.
- Sun, X., Sun, C., Munn, I.A., Hussain, A., 2009. Knowledge of three regeneration programs and application behavior among Mississippi nonindustrial private forest landowners: a two-step sample selection approach. *J. For. Econ.* 15, 187–204.
- Vokoun, M., Amacher, G.S., Wear, D.N., 2006. Scale of harvesting by non-industrial private forest landowners. *J. For. Econ.* 11, 223–244.
- Ulrich-Schad, J.D., Babin, N., Ma, Z., Prokopy, L.S., 2016. Out-of-state, out of mind? Non-operating farmland owners and conservation decision making. *Land Use Policy* 54, 602–613. <https://doi.org/10.1016/j.landusepol.2016.02.031>.
- Wiersum, K.F., Elands, B.H.M., Hoogstra, M.A., 2005. Small-scale forest ownership across Europe: characteristics and future potential. *Small-scale For. Econ. Manage. Policy* 4 (1), 1–19.
- Williams, E.D., Gottfried, R.R., Brockett, C.D., Evans, J.P., 2004. An integrated analysis of the effectiveness of Tennessee's Forest Greenbelt Program. *Landsc. Urban Plan.* 69, 287–297.
- Young, T., Wang, Y., Guess, F., Fly, M., Hodges, D., Poudyal, N., 2015. Understanding the characteristics of non-industrial private forest landowners who harvest trees. *Small-scale For.* 14, 273–285.