

Understanding Family Forest Land Future Ownership and Use: Exploring Conservation Bequest Motivations

Marla Markowski-Lindsay¹ · Paul Catanzaro² ·
Anita Milman² · David Kittredge^{1,2}

Accepted: 24 December 2015 / Published online: 9 January 2016
© Steve Harrison, John Herbohn 2016

Abstract Due to an aging landowner population, there will be an unprecedented ownership shift in land-based assets in the USA. Approximately 2.7 million family forest owners (FFOs) in the USA over the age of 55 years old, reflecting 80 % of all FFO-owned land, will be deciding the future ownership and use of their land, having significant implications for the landscapes and public benefits these forests provide. Little is known about how FFOs plan for the future ownership and use of their land. This study draws from life-cycle theory and FFO decision cycle research to propose a future ownership and use decision-making framework and to explore the presence of and motivation for FFOs to make “conservation bequests” designed to maintain land in its current, forested form. Qualitative interviews with professionals working with over 1000 FFOs explore what triggers FFOs to consider their options and influence their decisions. Findings suggest triggers are universally-held (e.g. age, health) and can happen any time in an FFO’s life. FFO decisions are complex and often made in the context of family goals and dynamics. FFOs holding deep attachments to their land may be more likely to make conservation bequests. However, despite conservation preferences, due to the complex nature of the process or external influences, decisions may not always lead to conservation bequests. The framework that this study adopts allows future in-depth research on these critical decisions. In particular, additional research with landowners is required to examine the framework in more detail.

✉ Marla Markowski-Lindsay
marla@eco.umass.edu

¹ Family Forest Research Center, USDA Forest Service – University of Massachusetts Amherst, Holdsworth Way, Amherst, MA 01003, USA

² Department of Environmental Conservation, University of Massachusetts Amherst, Holdsworth Way, Amherst, MA 01003, USA

Keywords Land protection · Land transfer · Non-industrial private forest owner (NIPF) · Life-cycle

Introduction

By 2030, one-fifth of the people in the USA will be over the age of 65 (US Census Bureau 2014). This unprecedented shift in age distribution is expected to lead to the transfer of over \$59 trillion (2014 dollars) in assets from the 1998 adult population to heirs, taxes, charity and fees over the period 1998–2052 (Havens and Schervish 2003). These assets may include a combination of liquid and land-based assets. Land-based assets account for a large amount of private forest in the USA.

Approximately 58 % of USA forests are private, and nearly two-thirds of these are family forests (Butler et al. in review). In the coming years, approximately 2.7 million family forest owners (FFOs) over the age of 55 years old, reflecting 80 % of all FFO-owned land (Butler et al. 2016), will be deciding the future ownership and use of their land (i.e. sell, convert the land-use, give to an heir or organization, or some combination). Family forests provide tremendous public benefits, including: clean water and air, carbon sequestration, biodiversity, forest products, and recreational opportunities; however, the rate of urbanization of forest land has increased in the USA historically since 1982, and this trend is projected to continue over the next 50 years as population in the USA increases (Alig et al. 2010). Alig et al. predicted the area of nonfederal forest cover in the USA to decline 7 % by 2062. Thus, decisions on the future of these lands will have significant implications for US landscapes and the critical public benefits that these lands provide (Stein et al. 2005).

FFO decisions regarding the future ownership and use of their land happen infrequently (Kittredge 2004), and what triggers and influences them are not well understood. Though land is often an FFO's largest asset, it is not a typical asset because land often brings emotional attachments and personal land ethics to decisions regarding its ownership and use. FFOs may develop positive emotional bonds with their land and hold what has been referred to as *place attachment values* reflecting a relationship between owner and forest that may go beyond financial or income considerations (Altman and Low 1992; Williams and Vaske 2003; Brown and Raymond 2007; Creighton et al. 2015). In addition, there are many other non-market values associated with owning forest (Haab and McConnell 2002; Freeman III 2003), such as recreational opportunities for hiking and biking, scenic attractiveness, watershed services and carbon storage, wildlife habitat and biodiversity preservation (Barrio and Loureiro 2010). FFOs worldwide choose to own land for these types of amenity (i.e. non-market) values (Grayson 1993; Harrison et al. 2002; Butler et al. in review). Non-market values may play a pivotal role in FFOs decisions about the future ownership and use of their land (Amacher et al. 2002; Conway et al. 2003).

FFOs, like all individuals, have decisions to make about what will happen to their assets after they die, and may or may not decide to formalize these plans in an estate plan. However, beyond typical liquid assets of bank accounts, stocks and life

insurance, FFOs are faced with the more complicated decision of what to do with their land. FFOs may make bequest decisions¹ about what proportion of land they pass on, if any, and in what form they are going to transfer the forest, based on their personal, family and financial goals.

The idea of the bequest motivation itself is not new, and current understandings of human-decision-making on the management of privately-owned assets have their underpinnings in the life-cycle hypothesis of saving or *life-cycle model* of Modigliani and Brumberg (1954, 1980). This seminal model explains individuals as those who optimally allocate their resources to address consumption needs across their lifetime, from the beginning of the earning span to death (Modigliani 1986). While some bequest motives stem from a desire to pass on an inheritance to children, a significant number of households without children report a desire to leave a bequest (Laitner and Juster 1996; Kopczuk and Lupton 2007). These authors found significant evidence for bequest motives and that there was higher preference variation for households with children than those without. Ameriks et al. (2011) concluded the bequest function that is part of the life-cycle model needs to be expanded to better understand these decisions and how policies may be more effective.

The factors influencing FFO bequest decisions are understudied (Amacher et al. 2003). The few studies that have been conducted suggest family, history, and non-monetary values are important. Creighton et al. (2015) interviewed FFOs and found generational transfer challenges due to regulatory uncertainty, financial instability, and urban influences. Catanzaro et al. (2014) surveyed FFOs and found that decisions surrounding the future of the land involve multiple generations of a family. Majumdar et al. (2009) found landowners who inherited their land put greater emphasis on providing a legacy for their heirs than non-inheriting landowners. Amacher et al. (2002) and Conway et al. (2003) found that bequest intentions are related to preferences for amenity forest uses and to absentee ownership. Lidestav (2010) studied the role of gender dynamics between siblings and generations in the transfer of Swedish farm and forest, and called for further in-depth study of all family members over the course of the time-consuming process. Several authors (Cho et al. 2005; LeVert et al. 2009; Ma et al. 2012) explored characteristics of those with preferences for conservation easements, which have intergenerational implications, but these studies fail to get into the intricacies of the decision process, specifically how decisions arise and what might encourage an individual landowner to make a bequest decision.

None of the existing studies formalize the unique component of bequest options for FFOs: the option to maintain forest, change land use, or do some of both. In this paper, bequest decisions that maintain some or all of the land open or undeveloped (maintaining forest cover) are defined as *conservation bequests*. Therefore, FFO decisions about the future ownership and use of the land considered to be conservation bequests include: a bequest of land in its fee-simple form (i.e. undeveloped with all of its rights) to a conservation organization (e.g. land trust); selling or bequeathing land with a conservation easement on it which removes the

¹ A bequest is the distribution of property or money to another person or organization after death.

development rights in perpetuity but maintains other landowner rights (e.g. agriculture, recreation); and passing the land on to heirs fully intact in its undeveloped form with instructions (e.g. formal through a will or informal through verbal communication) that it will be left undeveloped.

It is important to note that conservation bequest decisions of family forest assets are not limited to the USA. Many nations share similar forest ownership patterns where FFOs are prevalent. For example, half the forest area in 23 European countries is privately owned (United Nations Economic Commission for Europe et al. 2007), with some countries including Austria, France, Norway, Slovenia and Sweden having more than 75 % of their forest in this category. Similarly, the demographics of ownership can be roughly comparable in terms of age and ownership tenure. About 57 % of FFOs in France are pensioners, and the proportions are also meaningful in Hungary and Finland (50 and 38 %, respectively) (United Nations Economic Commission for Europe et al. 2007). FFO holdings in these countries tend to be relatively small in size, and owners commonly hold a number of amenity-based goals (e.g. nature appreciation, privacy, recreation, and environmental protection) (Grayson 1993; Harrison et al. 2002). While the conservation bequest decisions of family forest assets may share some common traits worldwide (e.g. family dynamics, distribution of wealth, decision-making processes), the potential stakes in or outcomes of this transfer are likely different in Euro-Scandinavian countries and Japan where private land use is more strictly controlled—but just as concerning. For example, bequest in these areas could result in increasing the absolute numbers of landowners, absentee ownership, or creating smaller more numerous ownerships, which may complicate future management and potentially the timber supply (Kittredge et al. 1996; Sampson and DeCoster 2000; Mehmood and Zhang 2001; Egan et al. 2007; Rickenbach and Kittredge 2009).

No framework for understanding future ownership and use decisions, including conservation bequest, exists. Kittredge (2004) presented a theoretical model of an FFO decision cycle that includes both selling timber and deciding the future ownership of their land. Kittredge suggested that FFOs only occasionally think about the future ownership of their land and when triggered to do so, the FFO has multiple options that ultimately shape their forest and the public benefits it provides. The research presented in this paper builds on this nascent literature by proposing a more complete picture of FFO future ownership and use decisions to include triggers and investigating the presence of the conservation bequest motives within this framework.

An examination of the literature on the role of bequests in the life-cycle model and FFO decision-making provides the theoretical basis for the framework. Using this framework, it is hypothesized that triggers to these important decisions happen along the landowner's entire life. In addition it is hypothesized that some FFOs do indeed have conservation bequest motivations and, further, that these motivations are rooted in their non-market values, specifically place-attachment values. Using insights garnered from the literature, interviews conducted with professionals who interact with landowners (i.e. attorneys and land protection specialists) across the state of Massachusetts provide data for analysis. While the interviews are limited in number, they reflect the professionals' experience with over 1000 landowners. The results presented derive from qualitative analyses of these data.

Future Land Ownership and Use Decision Framework

The life-cycle model provides a critical understanding of consumer assets and consumption patterns; however, in its current form it is not detailed enough to describe individual-level decisions about land assets. The life-cycle model was developed for the macro-economic scale and while the framework provides a useful starting point for discussing bequest concepts, to better understand FFO future ownership and use decisions, it is necessary to hone in on a particular type of consumer, namely one with land assets.

Given the multitude of possible options available, to characterize FFO future ownership and use decisions better, the framework presented in this paper builds on the life-cycle framework and Kittredge's (2004) FFO decision cycle to explore a decision-making framework that demonstrates life-cycle and landowner decisions pertaining to the future of their land. The framework proposes that FFO future ownership and use decisions are made in two stages:

Being Triggered to Make a Decision While the life-cycle model uses retirement as a major decision point in time regarding assets, this study proposes that FFO future ownership and use decisions are likely to occur at various points for many reasons: a life event that may have financial or emotional consequences piques FFO awareness of and need to consider the land and its future (e.g. family births or deaths or marriages, job changes, nearby forest conversions). Thus, life circumstances may trigger land ownership decisions at any time before or after retirement, as depicted in Fig. 1.

Deciding Between Future Ownership and Use Options Once triggered, it is hypothesized that FFOs have a complex set of options from which to choose. Refocusing the decision cycle developed in Kittredge (2004), this framework describes the suite of decisions that affect the ownership and use of the land. Some of these options maintain forest cover and parcel size, making these options conservation bequests, while other options do not (Fig. 2). The FFO may:

- Do nothing and defer the decision about the future of the land.
- Sell the land, which may or may not end up converted to another use.
- Give the land to heirs, who then have to make their own decisions about the fate of the land.
- Sell or donate the land to a conservation organization or place a conservation easement on it.
- Choose to do some combination of any of these options that meets their goals.

Applying this framework to landowners in Massachusetts enables a better understanding of the complex nature of future ownership and use decisions in general and conservation bequest decisions in particular. Qualitative methods allow exploration of situations triggering FFO future ownership and use decisions (indicated by arrows in Fig. 1) and, critically, the existence of the conservation bequest options within the suite of FFO future ownership and use options (represented by bolded rectangles in Fig. 2).

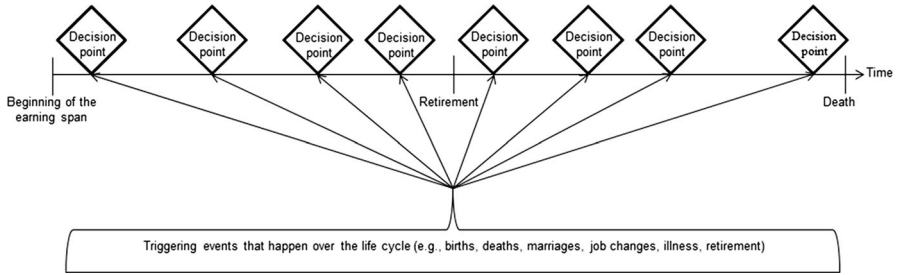


Fig. 1 Stage 1 of FFO future ownership and use decisions

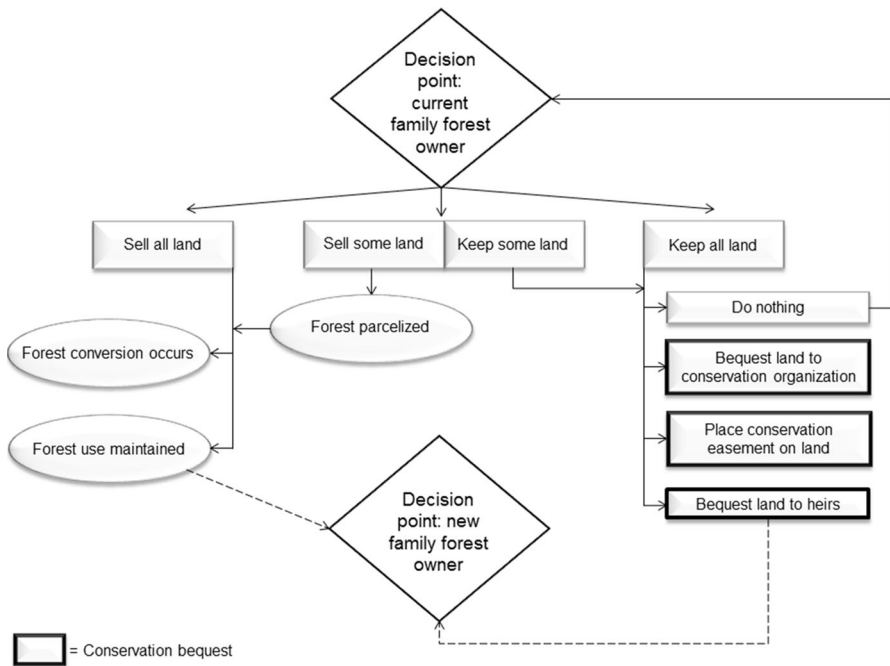


Fig. 2 Stage 2 of FFO future ownership and use decisions

Research Method

Of the 5 m ac of land in Massachusetts, over 60 % is in forest cover, making Massachusetts the eighth most forested state in the country by percent of land area (Smith et al. 2009). Over one million acres of this land is owned by an estimated 27,000 FFOs who own 10 or more acres, resulting in an average ownership size of nearly 40 acres (Butler et al. 2016)). Consistent with the national average, FFOs in Massachusetts have an average age of over 60 years. The close proximity of Massachusetts to the major metropolitan areas of Boston, Hartford, Albany and New

York City result in high rates of development and parcellation (DeNormandie et al. 2009) and increased real estate values. The heavily-forested, FFO-dominated nature of Massachusetts, combined with an average age consistent with FFOs nationwide, makes it an ideal location to investigate the nature of FFO future ownership and use decisions. The rapidly urbanizing nature of Massachusetts underscores the importance of understanding future ownership and use decisions, because Massachusetts is on the leading edge of the land use changes that other states are or will soon be facing.

One-on-one semi-structured interviews with attorneys and land protection specialists (i.e. professionals who work with land trusts or other conservation organizations and who specialize in working with landowners and facilitating easements) were conducted across Massachusetts. These individuals have knowledge of future ownership and use decisions due to their experiences working with landowners and their families. Twenty-four participants were identified, reflecting three categories of land-conservation experience: eight attorneys having experience with conservation bequests, eight attorneys without that experience, and eight land protection specialists. Of the land protection specialists, four were drawn from land trusts and four from state conservation agencies. Sampling across this range of professions provides a more holistic view of the process, and the interviewees provide a broader perspective on the topic than what could be found from a few landowners because each has experience working with multiple families. Rather than conducting a case-study with few FFOs, information was gathered from resource professionals whose experience cumulatively reflects over 1000 landowner decisions. Regardless of professional experience, all participants had to have experience working on future ownership and use decisions with at least 5 individuals or families who own ten or more acres of land.

Interviews were conducted between July and September of 2013, lasting between 45 and 75 min. The same interview protocol was used across all participant categories. Participants were asked about their impressions of the events and circumstances that led landowners they have worked with think about the future of their land and conservation bequests (if applicable). All interviews were audio-recorded and transcribed. NVivo qualitative analysis software was used to code and analyze the data. Data coding was iterative. Contextual information about the participants and transcriptions were initially coded using preliminary themes (a priori codes). Emerging patterns and secondary coding were then applied to further identify recurring themes and theoretically important concepts (inductive codes).

Results

Future Ownership and Use Decision Framework

Decision-Making Triggers

The interviews with attorney and land protection specialists confirmed that there is no one primary trigger for a landowner considering their future ownership and use

options; rather, the impetus to consider options may be triggered at many and varied points throughout an FFO's lifetime. As one might anticipate, common triggers based on the interviews were unsurprising and self-explanatory: increasing age (particularly around retirement or when downsizing assets as part of the aging process), poor health, concerns about finances, economic circumstances (e.g. tax incentives), and numerous life-driven events such as births, deaths, marriages, and divorce that landowners experience or encounter in some way. The nature of the triggers suggests that as FFOs age, they are likely to face more triggers (e.g. retirement, poor health, death of a spouse).

Beyond the common triggers one would expect, the interviewees identified additional family-related issues. Participants noted that when FFOs came to terms with the fact that their family would have a difficult time deciding what to do with the land, they were motivated to act:

They realize that their kids either aren't going to be able to work it out or are not going to work it out the way they would hope. Or they want to take care of it [land] and their kids don't want to worry about it [the land]. ~Land protection specialist

In addition, participants noted that FFOs may be triggered to act once exposed to the consequences of another family's dysfunction arising from the process the other family went through to decide future ownership and use of the land or the other family's lack of planning:

I would say something like they see a fight or something with another family. A lot of people will say to me, "Oh, I saw what happened with my cousin's family and everyone was fighting about it." ~Attorney with conservation experience

Finally, development was also noted as being something that would trigger a landowner to act. Individuals may be motivated to act because of development that was happening around them or because they were encouraged to think about the future by another individual.

Sometimes it is development that's going up somewhere else nearby and makes them think about, "Well, what's going to happen with mine?" Sometimes it's been a result of they are (sic) being approached by a developer. ~Attorney with conservation experience

Future Ownership and Use Options

The interviews validated the complexity of future ownership and use decisions. Once the need for a decision is recognized, participants indicated that FFOs are faced with a wide range of choices for the future ownership and use of their land. All combinations provided in Fig. 2 were mentioned.

[Some clients] had very specific wishes about the lot, about subdividing the property after they were gone. And some of it had already been subdivided and deeded out to several of their children who built their own homes. But, for the

land that's still remained undeveloped and still owned by them, they had very specific wishes about how they wanted that land to be passed out to the next generation, or in some cases grandchildren, after they're both gone.
~ Attorney without conservation experience

They sold part of it [the land] to Audubon [land trust] and State. And then they kept a lot of it too. But they sold the easement and the ability to build on it, and things like that. ~ Attorney without conservation experience

[Landowners come to me and say] "I really want or need to sell the land, but I don't want to see it developed. So, how can I find a land conservation organization that would purchase it..." ~ Land protection specialist

A lot depends on their financial circumstances. I mean some people can basically give away their land and they get a tax deduction or not or any money for it or not. Just knowing it's going to be in good hands is good enough. And other people, and I would say most people who come to me, they need to get cash and value out of the property because they need it to get through the rest of their lives or to buy another place, or to set one of their children up for something like that. They can't just afford to give it away.
~ Attorney with conservation experience

But, I would say in most cases it's more a concern of what's best for their family and their own personal goals, whether it's to preserve the land or to allow their kids to do whatever they want with the land. And when it gets to that stage, typically if they [the children] are not from this area then it's sold to a developer. ~ Attorney without conservation experience

Numerous participants discussed the difficulties in deciding how or whether to give land to some heirs and financial assets to others, to make it "fair" to all parties, thereby affecting what kind of decision is made, if a decision can be made at all. Splitting up land equally or equitably is not as straightforward as it may be with financial assets when some heirs have more interest in managing the land itself (Taylor and Norris 2000).

I think the biggest issue ... facing a lot of families is fairness to everybody. And yet, that same strong, abiding love in the land they've always had but now it's conflicting with dealing with being fair to all the kids, which I think is a tough one. ~ Attorney with conservation experience

I've seen a lot of paralysis that would be improved by facilitative process. People get stalled. They get stalled, really stalled. And it's often over that fairness issue thing. I mean, that is the biggest stumbling block. ~ Attorney with conservation experience

Existence of and Motivation for Conservation Bequests

The discussions of conserving the land with participants confirmed the existence of a conservation bequest motive for some, but not all, individuals, suggesting support

for the idea that some landowners receive utility from conservation as evident in Cho et al. (2005), LeVert et al. (2009), and Ma et al. (2012). Further, participants identified characteristics of landowners that may make them more likely to pursue a conservation bequest once a decision has been triggered.

Participant responses indicated that FFOs who have deep attachments to the land were more likely to pursue conservation bequests. The attachments cited were often related to landholding tenure, inherited land, and geographic proximity—reflecting a concept not dissimilar to that discussed in the place attachment value literature (Altman and Low 1992; Williams and Vaske 2003; Brown and Raymond 2007).

I think it's extremely personal. Most people view land a little bit like they view their left arm. It's part of them if they've had it a long time. It's not a question of: "Where's my financial advantage or how does it work or what do my kids need?" ~Attorney with conservation experience

Some of them really care about it [the land]. Some of them it's been in the family for generations. Some of them it's just been purchased as an investment and they have no connection to it. ...[I]t's the people who do feel a connection to the land and want to see it protected that are going to seek out land protection. ~Land protection specialist

The majority of participants talking about landholding tenure mentioned that long-term FFOs have a deep connection with the land, do not want to see it changed, and want to see it preserved. Participants noted land is like a family member to them, more than for other owners who have more recently purchased the land.

Usually these situations are pieces of land that have been in the family a long time. They love the land. They love this particular parcel. And they love it the way it is. They don't want to see it changed. ~Attorney with conservation experience

The importance of relationships between FFOs and neighbors to the estate planning outcome were also mentioned as sometimes being important. When land has been held for a long time, the impact of the outcome on the neighbors may be considered.

I think folks who have had land maybe for generations would be concerned about selling land to a developer when it's going to extremely impact the neighbors who want to preserve the land. ~Attorney without conservation experience

Participants who discussed inherited land generally held that it often resulted in greater connection with the land and possibly a sense of responsibility to keep it undeveloped.

Generally family lands have been passed down from generation to generation with people living on the land... I see more of a connection toward conservation. A lot of times the connection is old family land. "Hey, it's been in my family for a hundred years," so protection is what you want. ~Land protection specialist

Despite the motivation for wanting to keep their land forested and open, there may be instances where this does not happen. Numerous participants raised the issue that land hoping to be conserved was often coupled with owners being “land rich” but “cash poor,” thereby preventing a conservation bequest that may have been desired.

A lot of people that you work with are land poor. They’ve got a lot of land, but they don’t have anything else. And they’ve inherited this land. It’s been in the family for years. But that’s all they have. And so, they really can’t afford to give it away or give away a conservation easement that diminishes the value so that there’s nothing left. ~ Attorney with conservation experience

Further, participants discussed how conservation bequests are affected by geographic distance in the family. Participants suggested that when land is being considered for conservation bequest, geographic distance in the family can get in the way of a successful deal. Participants discussed how much easier it is to implement a conservation bequest when there is a sole decision-maker, but when family members are across the country, there is often fighting for more money and other issues that complicate the process. Despite this potential complication to the conservation bequest process, some indicated that distance can be overcome when there is a connection to the land.

In my experience, that [geographic distance] certainly is a factor, whether the children, the next generation are local or have moved away. But I put it more in the category of how interested the next generation is in the property, as opposed to where they happen to be living because you get people moving back a lot. ~ Land protection specialist

Conservation bequests motivations are not universal. Participants mentioned instances where despite the land tenure or inheritance, some families are simply not interested in conservation bequest.

But when it’s family land that’s been in the family for a while, I think they share more, tend to share more. They tend to be more thoughtful about the process, have more clear goals I think or—and that doesn’t mean that the goals would be going in the direction of conservation. Their goal might be we’ve held this land for so long, we want to cash in. ~ Land protection specialist

Some people feel that family allegiance whenever it’s passed down from generation to generation. Some people see dollar signs. Some clients or their heirs are probably just waiting for the day until they get that property, so they can sell it. ~ Attorney without conservation experience

Discussion

While decades have been spent studying life-cycle decisions, very little has incorporated future land ownership and use decisions, especially as these relate to FFOs, despite the tremendous impact these decisions have on our forests and the

public benefit they provide. This qualitative research is the first of its kind to put a framework on future ownership and use decision-making regarding land-based assets and to discuss how land-based assets are not the same as other financial assets because of the emotional attachment that can be developed through land ownership. This research not only provides additional evidence of a bequest motivation for these land-based assets but also support for the existence of *conservation bequests*—bequests of land that serve to maintain it in its current forested form.

The events and circumstances that arise as most common triggers for thinking about the future ownership and use of land appear to be largely universal (i.e. not unique to landowners or FFOs); however, there may be some important triggers that are related to land ownership. These motivators include seeing nearby forestland developed and not wanting the same for their own land, family disagreement as to what will happen to the land, and watching another family's dysfunction as the members try to decide the future use and ownership of the land. Of further importance is that although triggers can happen at any point along an FFO's life, the likelihood they will happen increases as the landowner ages.

The process of deciding the future ownership and use of the land is decidedly complex and involves a number of options. The interviewed participants who work with landowners confirmed the options outlined in Fig. 2 as common options used by FFOs to meet their personal and financial needs. Figure 2 places these common options into a framework that allows for a systematic investigation of these FFO decisions. Additional investigation can help to clarify the influences of FFO decisions regarding their land's future ownership and use.

In addition to articulating the common options used by FFOs, the results support the existence of the bequest motivation as discussed in the life-cycle savings model literature and FFO literature, e.g. Amacher et al. (2002), Conway et al. (2003), and Majumdar et al. (2009). Importantly, they also validate the existence of conservation bequest motives and show that there are factors which influence an FFO's choice to put the land in a conservation bequest. For example, many individuals who have inherited their land, owned it a long time, and/or live near it have developed a relationship to the land and to the community, which makes them want the land to be maintained in its current state. These findings suggest that non-market characteristics may play an important role in conservation bequests. Further investigation into possible other non-market values that can be more easily influenced by policy may provide the opportunity to increase the number of conservation bequests.

These results provide an important contribution to the *place attachment* literature. Like Brown and Raymond (2007) who showed that landscape importance values, especially spiritual and wilderness values, have significant association with place attachment, this study provides evidence that the land holds value beyond its market value that makes it worth conserving. Brown and Raymond's results imply that aesthetic, recreation, economic, spiritual and therapeutic values contribute to place attachment. Creighton et al. (2015) showed that FFOs have strongly held forest values, a well-developed sense of place attachment, and a concern about the breakdown of generational transfer of their land to heirs. While they did not call it *conservation bequest*, Creighton et al. were indeed talking about passing the land on in its current, forested state. Farmer et al.'s (2011) survey and interviews with

private forest and agricultural landowners revealed that place attachment (i.e. personal connection to a location) was the greatest motivation for implementing a conservation easement.

This study finds that FFOs hold value for their land beyond the financial value of the property. When these deep attachments are held, this study showed that very often FFOs want to pass them and the land on to heirs. Creighton et al. (2015) proposed that the more FFOs involve their heirs in the current management and working of the land the more these values are passed down to future generations. The interviews in this research did not specifically mention values associated with managing the land, but rather deep-seated emotional ties that may come from having held the land for a long time, having inherited the land, or loving the land for the amenity values that it provides. Perhaps the forest offers timber management, but it may also offer values beyond that—e.g. wildlife watching, hiking, altruism, open space. The findings in this research suggest that these non-market values may play a more important role in creating the land attachment that leads to increased conservation bequests than does financial or forest management activity.

Even when landowners have preferences for a conservation bequest, various other aspects interact to shape the final decision, including the complex nature of the decisions, issues related to family and fairness, and external factors, e.g. personal finances and economic disincentives, similar to what was found in Creighton et al. (2015). A preferred outcome may not be the actual outcome due to unique characteristics of the land asset (e.g. potentially large sentimental or emotional attachment coupled with potentially high real estate value; heirs uninterested or living too far away to make the inheritance of the land appealing to them). That is, non-conservation bequest decisions may be made even though the landowner is interested in conservation. In these cases, the value of keeping the family together, their other financial assets and other personal decisions may outweigh the value associated with keeping the land conserved.

Conclusions and Policy Implications

Stabilizing the forest land base by stemming the tide of conversion and parcellation is critical to ensuring the many public benefits that flow from this land. The biggest driver of these landscape changes are FFO decisions about the future ownership and use of the land. These decisions are highly complex, involving financial consideration, personal beliefs and family dynamics.

Increasing the number of FFOs that succeed with their conservation bequests will increase the sustainability of our future forested landscapes. While facets of these decisions are outside the influence of policy or extension (e.g. the economy, land tenure, inheritance of land), there may be other facets that policy or extension could encourage so as to nudge towards conservation bequests (Thaler and Sunstein 2008). The triggers associated with increasing age, economic circumstances, or life-driven events (e.g. poor health, marriages) may be targeted for assistance or education. In addition, the complexity of the options and process of formalizing one's wishes for the future use and ownership of the land can be addressed, at least in part, through effective outreach that can clarify the options and impacts, and

connect FFOs to professionals that can help them with their plans. Finally, if the goal is to increase conservation bequest motivation and action, it may be possible to encourage land connection through the fostering of amenity values. Encouraging more land connection may include less of a focus on market-based values through forest management, a focus that has traditionally dominated forest outreach.

Developing a structured framework describing FFO decision-making about the future use of their land is imperative for understanding preferences for options and patterns of behaviour. The framework and qualitative results presented in this paper set the stage for more effectively and specifically investigating what owners prefer and the way owners behave with regard to their land asset and its future. Interviewing those professionals guiding FFO decisions was an excellent starting point to understanding the nuances of these complex decisions and framing important research questions. What is needed now is a more rigorous study with landowners themselves, and how they and their family or heirs interact in the decision process for deciding the future ownership and use of their land. Using the framework laid out in this study, it is now possible to systematically untangle the complexity of the decisions and begin to gain a better understand of where interventions may be able to help FFOs with conservation bequest motivations to implement a plan that meets their goals by conserving the land and, in doing so, protecting the many public values their land provides.

Acknowledgments We would like to thank Wendy Ferris and Jay Rasku for their interviewing efforts as well as the interview participants themselves who provided their insights into the estate planning process. This material is based upon work supported by the National Institute of Food and Agriculture (NIFA), US Department of Agriculture (USDA), Massachusetts Agricultural Experiment Station and Department of Environmental Conservation at the University of Massachusetts Amherst, under Project Number MAS 000017. The contents are solely the responsibility of the authors and do not necessarily represent the official views of the USDA or NIFA.

Compliance with Ethical Standards

Conflict of interest Dr. David Kittredge is a member of the Editorial Board of *Small-scale Forestry*.

References

- Alig RJ, Plantinga AJ, Haim D, Todd M (2010) Area changes in US forests and other major land uses, 1982 to 2002, with projections to 2062. US Department of Agriculture, Forest Service, Pacific Northwest Research Station, Newtown Square PA, General Technical Report PNW-GTR-815
- Altman I, Low SM (eds) (1992) Place attachment. Plenum Press, New York
- Amacher GS, Koskela E, Ollikainen M, Conway MC (2002) Bequest intentions of forest landowners: theory and empirical evidence. *Am J Agric Econ* 84(4):1103–1114
- Amacher GS, Conway MC, Sullivan J (2003) Econometric analyses of nonindustrial forest landowners: Is there anything left to study? *J For Econ* 9(2):137–164
- Ameriks J, Caplin A, Laufer S, van Nieuwerburgh S (2011) The joy of giving or assisted living? Using strategic surveys to separate public care aversion from bequest motives. *J Finance* XLVI(2):519–561
- Barrio M, Loureiro ML (2010) A meta-analysis of contingent valuation forest studies. *Ecol Econ* 69(5):1023–1030
- Brown G, Raymond C (2007) The relationship between place attachment and landscape values: toward mapping place attachment. *Appl Geogr* 27(2):89–111
- Butler BJ, Hewes JH, Dickinson BJ, et al Family forest ownerships of the United States, 2013: findings from the US Forest Service's National Woodland Owner Survey. *J Forestry* (in review)

- Butler BJ, Dickinson BJ, Hewes JH, et al (2016) US Forest Service National Woodland Owner Survey: national, regional, and state statistics for family forest and woodland ownerships with 10+ acres, 2011–2013. US Department of Agriculture, Forest Service, Northern Research Station, Newtown Square, Resourc. Bulletin NRS-99
- Catanzaro P, Markowski-Lindsay M, Millman A, Kittredge D (2014) Assisting family forest owners with conservation-based estate planning: a preliminary analysis. *J Ext* 52(2):2FEA9
- Cho S-H, Newman DH, Bowker JM (2005) Measuring rural homeowners' willingness to pay for conservation easements. *For Policy Econ* 7(5):757–770
- Conway MC, Amacher GS, Sullivan J, Wear D (2003) Decisions nonindustrial forest landowners make: an empirical examination. *J For Econ* 9(3):181–203
- Creighton J, Blatner KA, Carroll MS (2015) For the love of the land: generational land transfer and the future of family forests in western Washington State, USA. *Small-Scale For*. doi:[10.1007/s11842-015-9301-2](https://doi.org/10.1007/s11842-015-9301-2)
- DeNormandie J, Corcoran C, Clarke J (2009) Losing ground: beyond the footprint, patterns of development and their impact on the nature of Massachusetts, 4th edn. Audubon, Massachusetts
- Egan A, Taggart D, Annis I (2007) Effects of population pressures on wood procurement and logging opportunities in northern New England. *North J Appl For* 24(2):85–90
- Farmer JR, Knapp D, Meretsky VJ et al (2011) Motivations influencing the adoption of conservation easements. *Conserv Biol* 25(4):827–834. doi:[10.1111/j.1523-1739.2011.01686.x](https://doi.org/10.1111/j.1523-1739.2011.01686.x)
- Freeman AM III (2003) The measurement of environmental and resource values. Resources for the Future, Washington, DC
- Grayson AJ (1993) Private forestry policy in western Europe. CAB International, Wallingford
- Haab TC, McConnell KE (2002) Valuing environmental and natural resources: the econometrics of non-market valuation. Edward Elgar, Cheltenham
- Harrison SR, Herbohn J, Niskanen A (2002) Non-industrial, smallholder, small-scale and family forestry: What's in a name? *Small-Scale For Econ Manag Policy* 1(1):1–11
- Havens JJ, Schervish PG (2003) Why the \$41 trillion wealth transfer is still valid: a review of challenges and questions. *J Gift Plan* 7(1):11–15, 47–50
- Kittredge DB (2004) Extension/outreach implications for America's family forest owners. *J For* 102(7):15–18
- Kittredge DB, Mauri MJ, McGuire EJ (1996) decreasing woodlot size and the future of timber sales in Massachusetts: When is an operation too small? *North J Appl For* 13(2):96–101
- Kopczuk W, Lupton JP (2007) To leave or not to leave: the distribution of bequest motives. *Rev Econ Stud* 74(1):207–235
- Laitner J, Juster FT (1996) New evidence on altruism: a study of TIAA-CREF retirees. *Am Econ Rev* 86(4):893–908
- LeVert M, Stevens T, Kittredge D (2009) Willingness-to-sell conservation easements: a case study. *J For Econ* 15(4):261–275
- Lidestav G (2010) In competition with a brother: women's inheritance positions in contemporary Swedish family forestry. *Scand J For Res* 25(S9):14–24
- Ma Z, Butler BJ, Kittredge DB, Catanzaro P (2012) Factors associated with landowner involvement in forest conservation programs in the US: implications for policy design and outreach. *Land Use Policy* 29(1):53–61. doi:[10.1016/j.landusepol.2011.05.004](https://doi.org/10.1016/j.landusepol.2011.05.004)
- Majumdar I, Laband D, Teeter L, Butler B (2009) Motivations and land-use intentions of nonindustrial private forest landowners: comparing inheritors to noninheritors. *For Sci* 55(5):423–432
- Mehmood SR, Zhang D (2001) Forest parcelization in the United States: a study of contributing factors. *J For* 99(4):30–34
- Modigliani F (1986) Life cycle, individual thrift, and the wealth of nations. *Am Econ Rev* 76(3):297–313
- Modigliani F, Brumberg R (1954) Utility analysis and the consumption function: an interpretation of cross-section data. In: Kurihara KK (ed) *Post Keynesian economics*. Rutgers University Press, New Brunswick, pp 388–436
- Modigliani F, Brumberg R (1980) Utility analysis and aggregate consumption functions: an attempt at integration. In: Abel A (ed) *The collected papers of Franco Modigliani, vol. 2, The life cycle hypothesis of saving*. The MIT Press, Cambridge
- Rickenbach M, Kittredge DB (2009) Time and distance: comparing motivations among forest landowners in New England, USA. *Small-Scale For* 8(1):95–108. doi:[10.1007/s11842-008-9071-1](https://doi.org/10.1007/s11842-008-9071-1)
- Sampson RN, DeCoster L (2000) Forest fragmentation: implications for sustainable private forests. *J For* 98(3):4–8

- Smith WB, Miles PD, Perry CH, Pugh SA (2009) Forest resources of the United States, 2007. US Department of Agriculture, Forest Service, Washington, DC
- Stein SM, McRoberts RE, Alig RJ et al (2005) Forests on the edge: housing development on America's private forests. US Department of Agriculture, Forest Service, Pacific Northwest Research Station, Portland
- Taylor JE, Norris JE (2000) Sibling relationships, fairness, and conflict over transfer of the farm. *Fam Relat* 49(3):277–283
- Thaler RH, Sunstein CR (2008) *Nudge: improving decisions about health, wealth, and happiness*. Yale University Press, New Haven
- United Nations Economic Commission for Europe, FAO, MCPFE, CEPF (2007) Enquiry on private forest ownership in Europe. <http://www.unece.org/forests/fr/outputs/privateforest.html>. Accessed 12 Sep 2014
- US Census Bureau (2014) 2012 national population projections. <https://www.census.gov/population/projections/data/national/2012.html>. Accessed 14 April 2014
- Williams DR, Vaske JJ (2003) The measurement of place attachment: validity and generalisability of a psychometric approach. *For Sci* 49(6):830–840