LINKING HEIRS' PROPERTY AND SUSTAINABLE FORESTRY: INSIGHTS FROM AFRICAN AMERICAN FAMILY FOREST LANDOWNERS IN GEORGIA, USA

by

NOAH GOYKE

(Under the Direction of Puneet Dwivedi)

ABSTRACT

Since 1920 African Americans have lost 14 million acres of land. This staggering of cultural, social, and economic capital has ramifications for landowners and their communities. Efforts are currently underway to reverse this disconcerting trend, with a special focus on the role of heirs' property issues in the land loss. The research in this dissertation is intended to aid policymakers and forest professionals in those efforts. It does this through an analysis of African American family forest landowners (FFLOs) using several methodologies at different scales. The first chapter explores African American FFLOs' personal characteristics, goals, and activities using a survey of African American FFLOs in Georgia. The chapter pays special attention to complex ownership structures like absentee ownership and heirs' property. The second chapter explores the diverse management outlooks of African American FFLOs using Q Method. The third chapter explores the diverse legacy outlooks of African American FFLOs and compares the similarities and differences between African American and white FFLOs. The fourth chapter explores the possibility of forestland retention through forest income with four case studies of African American FFLOs. In a novel approach, the case studies assess the feasibility of supporting an entire property; not only forest acres. The dissertation illuminates a complex relationship between heirs' property, forest management, and land retention. In Chapter One, heirs' property has no significant effect on forest management or forest legacy, but Chapter Four demonstrates the barrier heir's property represents to land retention through forest income. Chapter Two shows efforts to increase land retention through forest management may overly emphasize forestland retention through forest

income, as many landowners have no interest in forest management for income. Chapter Three elaborates on the issue by identifying the paradox that the forest landowners with the most interest in forest income are least likely to consider land retention an important goal and vice versa. This seems to contradict Chapter One, where legacy intentions had a significant effect on forest management until one considers Chapter Four, which highlights the ways landowners can generate income to maintain their property even with limited forest management. Overall, the relationship between heirs' property, forest management, and land retention is straightforward in many cases, while in others, it is made complex by the degree of family organization and the diverse objectives of African American FFLOs.

INDEX KEYWORDS: Absentee, African American, Family Forest Landowners, Forest Legacy, Forest Management, Heirs' Property, Q Method, Race

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DEDICATION

A Zully: No podría haber hecho esto sin ti. Y no hubiera querido.

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CHAPTER 1

INTRODUCTION

In 1920 African Americans owned 16 million acres of land, mostly in the rural South. Today they own approximately 2 million acres, a loss of 14 million acres or 87% of all land once owned by African Americans (Gilbert et al. 2002). This land loss represents a staggering loss for African American forest landowners and their communities. In the rural South, land ownership is a source of wealth and power in places African Americans have been denied both (Bliss et al. 1998). To individual and communities forestland represents a means to alleviate persistent poverty, stimulate local economic growth, support community services, empower the political voice of rural African Americans (Diop and Fraser 2009), and act as cultural focal points and living bridges to family and racial heritage (Schelhas et al. 2017b).

Historically, the industrialization of farming certainly contributed to African American land loss. However, changing agriculture affected African Americans disproportionately, which implies it was not the only contributing factor. Discrimination, including land theft (Merem 2006) and denial of access to the credit and assistance, played a role in the land loss (Reid 2003).

Heirs' property is a type of tenancy in common where the real property is passed intestate, and each heir holds an undivided, fractional interest in the entire property (Hitchner et al. 2017). Southwide, it is estimated that 35.7% of African American family forestland is heirs' property (Bailey et al. 2019). Heirs' property is a precarious ownership structure, susceptible to land loss, including through tax delinquency and partition sales (Christian et al. 2013). Christian et al. (2013) strongly argued that heirs' property played a key role in African American land loss. Even the risk of loss is an impediment; owners with insecure tenure invest in their land are less likely to work towards improving it (Dyer, Bailey, and Van Tran 2009). Without clear title heirs' property is "dead capital" which cannot be used as

collateral for a loan (Johnson Gaither and Zarnoch 2017). Finally, because all heirs have an undivided interest in the property, a "tragedy of the uncommons" arises, in which a single owner can prevent all other heirs from making changes, improvements or management on the property (Deaton et al. 2009). While legal mechanisms have been advocated (Rivers 2006) and organizations are working to resolve heirs' property issues (Hill and Chastain Baker 2013), forced sales remain a threat to African American forestlands in the southern United States.

Land loss has clearly had a negative effect on African American landowners and their communities, and heirs' property has clearly played a role that loss. One central theme in the literature on African American family forest owners is the way heirs' property is a barrier to forest management (Barlow and Bailey 2017). Aside from the other issues related to heirs' property like dead capital and the tragedy of the uncommons, heirs' properties are generally ineligible for participation in programs that serve landowners. A second theme is the possible role in land retention (Schelhas et al. 2017a; Schelhas et al. 2018). Together these two themes comprise a premise: that resolving heirs' property can lead to improved forest management, through which African American forest landowners can retain their land.

In this dissertation, I explore the above premise at a variety of scales using a variety of methodological approaches. Given the complex nature of the topic of forestland ownership as a social, environmental, and economic issue, plus the legal issue of heirs' property, I feel only such a diverse approach can unpack some of the complexities and even contradictions of how and why African Americans manage their forestland. This research takes a critical look at the premise established in the literature that by resolving heirs' property issues, families will be able to engage in sustainable forest management to generate timber income and retain their forestland. It does this through examining different part of the premise and at a different scales using different methods throughout the four chapters of this dissertation.

In Chapter 2 of this dissertation, the objective is to examine the first half of the land retention premise and determine whether or not heirs' property issues represent a barrier

to forest management activity. The question is answered through a social survey of African American forest landowners in Georgia, the results of which were analyzed using a series of logit models in a modified Theory of Planned Behavior framework. In our adaptation of the Theory of Planned Behavior, we assigned heirs' property (along with absentee ownership) to the role of Perceived Behavioral Control. The results of this chapter suggest that heirs' property issues are not a significant barrier to forest management.

In Chapter 3 of this dissertation, the objective is to explore the diverse management intentions of African American forest landowners in order to examine the first part of the land retention premise from a different perspective: are African American forest landowners even interested in forest management for income? The question is answered through Q Method, a combination of pile sorting and structured interviews. Although conclusions drawn from Q studies are not representative of the larger population, the results of this chapter suggest that many African American forest landowners are not interested in forest management for timber income.

In Chapter 4 of this dissertation, the objective is to explore the diverse forestland bequest, or legacy, intentions of African American forest landowners. Again, this chapter assesses the land retention premise, albeit indirectly by asking if African American forest landowners even want to keep their land in the family. This question is also answered through Q Method. The results suggest that at least for some African American forest landowners, land retention is not an objective, while others have never considered timber income a viable path to land retention.

In Chapter 5 of this dissertation, the objective is to examine the second half of the land retention premise and whether or not sustainable forest management can generate sufficient income to meet the cost (i.e. tax) obligations of property ownership. The question is answered through economic case studies of four African American forest properties using Conservation Use Value Assessment as a proxy for unresolved heirs' property issues. The results suggest that for landowners who currently have clear title even unmanaged forestland

will generate enough revenue to cover the cost of land ownership. For heirs' property owners, resolving heirs' property issues or adopting sustainable forest management practices will be necessary for land retention through timber income.

One of my goals in conducting this research was to share as much as possible the stories of African American forest landowners in their own words, following in the tradition already well established in the literature (Dyer and Bailey 2008; Gordon et al. 2013; Hitchner et al. 2017; Schelhas et al. 2017b). Many aspects of forest management, especially motivations, are deeply personal. So too are heirs' property issues. With that in mind, I have tried, to select methodologies and write, in such a way, so to bring forward stories of African American forest landowners in Georgia, United States.

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CHAPTER 2

DO OWNERSHIP STRUCTURES AFFECT FOREST MANAGEMENT? AN ANALYSIS OF AFRICAN AMERICAN FAMILY FOREST LANDOWNERS[1]

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Abstract

Complex ownership structures like absentee ownership and heirs' property could affect management of forestlands owned by African American family landowners in the southern United States. The Theory of Planned Behavior offers a framework for understanding the role of ownership structures, along with other landowner characteristics on forest management intentions and behaviors. We used data from surveys of African American forest landowners in Georgia to inform logit models of legacy goals, management goals, management activity, and management planning. Older landowners, male landowners, and landowners who had received professional advice were significantly more likely to have legacy goals, while landowners who did not report obstacles to management were more likely to have management goals. Ownership structures did not have a significant effect on landowners' goals, nor did they have a significant effect on management activities. However, absentee ownership, along with technical advice, significantly affected management planning. Results suggest that rather than the ownership structure, the most important factor in determining forest management is professional advice. The trust and personal relationship between landowners and forest professionals ultimately determine the engagement level of African American forest landowners in sustainable forest management.

2.1 Introduction

Scholars have long emphasized African Americans' limited engagement in the forest management (Gan et al. 2003; Hilliard-Clark and Chesney 1985; Zekeri 1996), and a key premise of contemporary research (Schelhas et al. 2017a) is that African Americans are less engaged in forest management than other forest landowners. For example, the percentage of African American forest landowners with a management plan was twelve percent lower than for other forest landowners in Alabama (Gan et al. 2003). Considering their limited engagement in forest management, it is unsurprising that only a quarter of African American family forest landowners profit from their forestland (Hitchner et al. 2017). However, income generation is only one of the benefits of forest management. Others include alleviating persistent poverty,

stimulating local economic growth, supporting community services, empowering the political voice of rural African Americans (Diop and Fraser 2009), and serving as cultural focal points and living bridges to family and racial heritage (Schelhas et al. 2017b). It is important to qualify the above statements and recognize that although they represent the best available scholarship the representativeness of the results may be limited as the studies were often conducted at a small geographic scale.

Central to African American family forest management is its role in land loss prevention. Since 1920 African Americans have lost eighty-seven percent of their farm and forestlands (Merem 2006). Historically, the industrialization of farming certainly contributed to forestland loss. However, changing agriculture affected many farmers, yet African Americans experienced disproportionate land loss, which implies it was not the only contributing factor (Gilbert et al. 2002.) Discrimination, including land theft (Merem 2006) and denial of access to the credit and assistance, played a role in the land loss (Reid 2003). Even today, African Americans tend not to participate as actively as white landowners in cost-share and assistance programs (Gan et al. 2005; Christian et al. 2013b), a legacy of past discrimination. The negative historical experiences of African Americans may also influence their current attitudes toward forest landownership (Johnson 1998). Physical and psychological distance (Huff et al. 2017) from the land may also weaken attachment to forests, and as African Americans migrated to urban areas (Goyke and Dwivedi 2018), the impetus to own farm or forestland weakened. Finally, heirs' property plays a role in African American land loss (Christian et al. 2013a), with partition and tax sales of heirs' property representing a possible source of land loss. While legal mechanisms have been advocated (Rivers 2006) and organizations are working to resolve heirs' property issues (Hill and Chastain Baker 2013), forced sales remain a threat to African American forestlands in the southern United States. African American land loss is complex, with economic, cultural, and legal facets. Keeping land in the hands of people who want it will require flexible, multi-faceted solutions, including making African American family forestland more productive and profitable.

Personal Characteristics

Some factors that influence forest management include characteristics like age, sex, education, and income. Only about twenty percent of African American family forest landowners are under age 50 (Gan et al. 2003; Gan and Kolison Jr 1999; Schelhas et al. 2012; Schelhas et al. 2018). Research shows family forest landowners are less likely to engage in management as they age (Joshi and Arano 2009), although, for African Americans, the reverse may be true (Gan and Kebede 2005). Older forest landowners may not be inclined to invest in forest management if they are unsure that they will live to see the payoff of their investment (Guffey et al. 2009). Alternatively, older African American forest landowners may harvest timber as a type of retirement fund or may manage their forest as a legacy for their heirs. Most forest landowners are male, and research shows that men are more likely to engage in timber harvesting (Gan et al. 2005) while women may have different management priorities (Schelhas et al. 2012). Research also shows African American forest landowners have higher educational achievement than the general population (Schelhas et al. 2017a), and that in general higher education predicts increased management (Joshi and Arano 2009). Higher income is also strongly and positively related to more active forest management by white landowners (Joshi and Arano 2009), although for African Americans harvesting activity is inversely related to the income (Gan and Kebede 2005). The income needs of cash poor, land rich family forest landowners may encourage them to harvest.

Forest Management Characteristics

Factors like acreage, professional advice, and program participation also influence forest management. African American forest landowners who have larger acreages are more likely to harvest (Gan and Kebede 2005), as the fixed costs of harvesting makes harvesting on smaller tracts (>50 acres) economically unviable. Nearly forty percent of African American family forest landowners report owning fewer than 50 acres of forestland. Beyond size, tract location is a potential barrier to management, and many African Americans (23%) consider access to markets an obstacle (Schelhas et al. 2012). Lack of technical knowledge

is also a potential barrier, and between thirty-five percent and forty-one percent of African American family forest landowners consider lack of knowledge their primary barrier to forest management (Gan et al. 2003; Schelhas et al. 2012). One remedy is professional assistance, and research demonstrates a positive relationship between harvesting and technical assistance (Gan and Kebede 2005). Of course, the well-documented mistrust between African American landowners and forest professionals (Dwivedi et al. 2015; Schelhas et al. 2012), is a barrier to requesting technical advice. Indeed, family forest landowners consistently share stories of themselves or acquaintances being taken advantage of by unscrupulous timber buyers (Schelhas et al. 2017b). Related to technical assistance is program participation. Research shows a positive correlation between them, although the relationship between financial assistance and harvesting is weakly inversely related (Gan and Kebede 2005). Also, while African Americans have similar rates of participation in government cost-share programs as other forest landowners (30%-33% vs. 29%), they enroll more marginal land, less acreage, and for less time (Gan et al. 2005; Schelhas et al. 2017a).

Ownership Characteristics

Complex ownership structures also influence forest management. The types of ownership structures we consider complex are absentee ownership, heirs' property, and joint decision making. We pay special attention to ownership structure because it has long been a problem 'hidden in plain sight', and while there is very good current scholarship on the subject (Barlow and Bailey 2017; Hitchner et al. 2017), we are unaware of any scholarship that investigates family forest heirs' property using quantitative methods.

Absentee ownership is a complex ownership structure where the forest landowner resides elsewhere than their forestland. In Alabama, about thirty percent of African American family forest landowners are absentee owners (Fraser et al. 2005). Research suggests that absentee landowners were less likely to make improvements to their land (Dyer et al. 2009). Other research demonstrates that the distance from the forested property is inversely related to management activity (Joshi and Arano 2009), perhaps because the time and energy costs

of management are deemed too high (Huff et al. 2017).

Heirs' property is another complex ownership structure. Heirs' property is a tenancy in common where the real property is passed intestate, and each heir holds an undivided, fractional interest in the entire property (Hitchner et al. 2017). While African Americans are frequently discussed in heirs' property literature, it also affects rural Appalachia, Native Americans, and Texan *colonias* (Johnson Gaither 2017). Southwide, it is estimated that 35.7% of African American family forestland is heirs' property (Bailey et al. 2019). In Georgia, a five-county survey found 1,620 probable heirs' properties covering 5,215 acres (Hill and Chastain Baker 2013), and another 811 probable heirs' properties in Bibb County (Johnson Gaither and Zarnoch 2017). Heirs' property may impede forest management in several ways (Barlow and Bailey 2017). First, it is particularly susceptible to land loss, including through the morally dubious actions of outside actors through the partition and tax sales (Christian et al. 2013a). Even the risk of loss is an impediment; owners with insecure tenure invest in their land less. In a 2009 study, seventy percent of non-heirs' vs. thirty-one percent of heirs' properties were improved since 1970. Since 1990, improvement rates were twenty-three percent for non-heirs' properties vs. only two percent for heirs' properties (Dyer et al. 2009). Second, heirs' property generally cannot be used as collateral, which could impede cash poor, land rich forest landowners from making investments in forest management (Johnson Gaither and Zarnoch 2017). Third, many heirs' property owners are generally ineligible for participation in Federal and State programs, and many reputable loggers will not work with landowners who do not have clear title (Johnson Gaither and Zarnoch 2017). Even should a landowner have enough knowledge, acreage, and access to markets, they may not be able to sell their timber for a fair price – if at all. Finally, there is the issue of tenancy in common itself. Heirs' have an undivided fractional interest in their property. The result is a land use inefficiency that has been called the 'tragedy of the anti-commons,' where a single individual can prohibit land use (like forest management) regardless of the size of their interest (Deaton et al. 2009). Indeed, family disagreement is

a substantial barrier to forest management among heirs' property owners and, somewhat ironically, to resolving heirs' property issues (Schelhas et al. 2017a).

Finally, we consider forestland managed under multiple decision makers to be complex ownership, even if not all decision makers are owners. Especially interesting to us is when decision makers include both sexes, multiple generations, or different educational/employment backgrounds. We have already highlighted the importance of decision maker age, sex, education and income, and education to forest management activity. There is recent literature acknowledging duel-sex decision making by African American family forest landowners (Schelhas et al. 2017a), but without much consideration beyond acknowledgment. Other recent literature assessed intergenerational land transfer (Markowski-Lindsay et al. 2017), but treats the inheritor as passive; i.e. there is no consideration for whether or not the potential inheritor has intention to accept their forestland bequest. What the literature fails to address is how multiple owners interact, and whether they are synergistic, antagonistic, or result in entirely new management outlooks.

Internal and external factors and ownership structures can explain forest management goals and activities of family forest landowners. Here, we use the Theory of Planned Behavior (Ajzen 1991) as a framework to explore the relationship between forest landowners and forest management outcomes using quantitative modeling approaches. This research explores the factors influencing African American forest landowners' management goals and activities, with special attention placed on ownership structures and how they affect forest management intentions and behaviors.

2.2 Theoretical Framework

The Theory of Planned Behavior is a classic theory of behavior. It suggests that actions are the result of behavioral intentions, which are the product of personal attitudes, subjective societal norms, and perceived behavior controls (Figure 2.1). Behavioral controls are factors thought by the actor to facilitate or impede an intended behavior. Behavioral controls are distinct from attitudes and norms because they not only have an impact on behavioral

intentions but also on actions themselves.

The Theory of Planned Behavior framework has a history of use in forestry research with studies focusing on harvest activity (Munsell et al. 2009), management practice adoption (Rasamoelina et al. 2010), carbon sequestration (Thompson and Hansen 2012), and stand improvement (Karppinen and Berghäll 2015). In several studies, the Theory of Planned Behavior was customized for the specific research question. For example, Thompson and Hansen (2012) analyzed the inclusion of environmental orientation, innovativeness, perceived risk, and knowledge along with attitudes, norms, and controls in the context of land use characteristics on attitudes towards carbon sequestration. We took a similar approach, retaining the premises of the framework, namely that attitudes are internal factors, social norms are external factors, and perceived behavioral controls have an impact on both intentions and actual behaviors. However, rather than model intentions and behaviors derived from qualitative beliefs, we build our model using externally observable characteristics. Internal characteristics are analogous to attitudes, external characteristics are reflective of social norms, and complex ownership structures are representative of perceived behavioral controls (Figure 2.1).

While we use internal, external, and structural characteristics as analogous to attitudes, norms, and controls, we are not claiming that they are the same thing. We only claim they are reflective insofar as age, sex, etc. are characteristic of a specific individual, just as attitudes are. External characteristics are analogous to social norms in that they are outside the individual, and complex structure is like a behavioral control in that it can create both perceived and real barriers to management activity. Essentially, we adopt the premises of the Theory of Planned Behavior framework to inform models that use externally observable characteristics of family forest landowners to explore their management intentions and behavior.

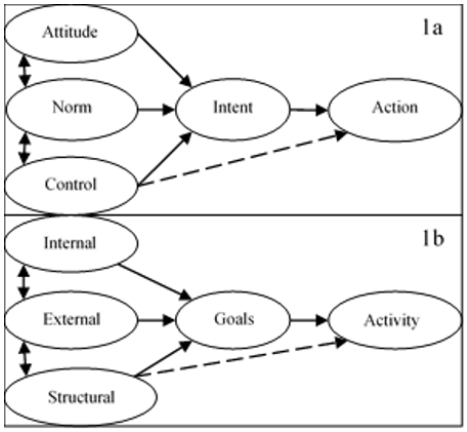

Figure 2.1: 1.1a. The Theory of Planned Behavior: Personal Attitudes, Social Norms, and Behavior Controls shape Intentions. Intentions and Behavioral Controls lead to Action. 1.1b. Modified Theory of Planned Behavior: The modified framework is adapted for externally observable variables but follows the premises of the original theory.

2.3 Materials and Methods

Survey

We collected data through surveys of African American family forest landowners in south Georgia (Figure 2.2), where African Americans comprise a large percentage of the population (Diop and Fraser 2009) and forestry is moderate to critically important for income and employment (Riall 2010). Our one-page (front and back) survey began with an eligibility question and consisted of nine sections: primary respondent, forestland, other decision makers, management activities, interactions with forest professionals, forestry advice, heirs' property issues, management goals, and management obstacles. Prior to use, the survey was reviewed by the experts. The survey was subsequently field tested with three forest landowners. These landowners represented both sexes, absentee and resident landowners, titled and heirs' property landowners, and practiced different levels of engagement with forest management.

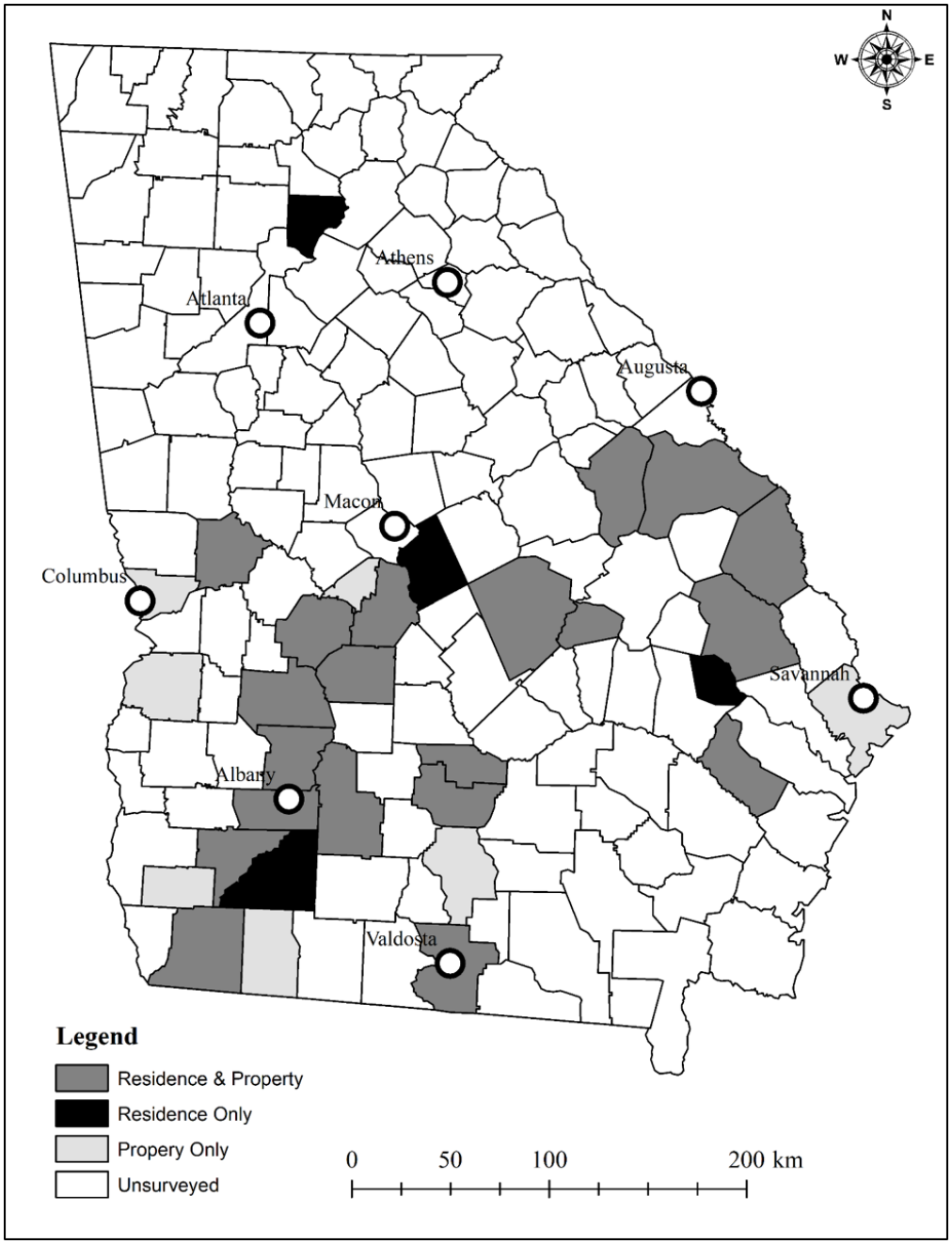

Figure 2.2: The surveyed counties. Grey counties are those with resident landowners. Light grey counties contain only forest property. Black counties are home to absentee landowners.

On October 12, 2017, we mailed 472 surveys to landowners in the Fort Valley State University (FVSU) Cooperative Extension family forest landowner database. Surveys were delivered by following the Dillman method (Dillman 2011). On April 20, 2018, a reminder and a second copy of the survey were mailed to all 412 non-respondents from the first round.

Due to a low anticipated response rate, we decided early in the planning process to augment the mail surveys with face-to-face surveys beginning May 2018. Face-to-face surveys were conducted by the FVSU extension personnel and undergraduate students at the respondent's residence or local extension office. Only non-respondents from the original mailing list were surveyed, and any survey completed by a respondent not on the original mailing list was considered invalid. Other studies have reported using a similar mix of mail and face-to-face surveys working with African American forest landowners (Gan et al. 2003) mostly due to low response rates in mail surveys.

Model

Using the Theory of Planned Behavior framework and published literature for guidance, we selected seven independent and four dependent variables. (Table 2.1). Given our low response rate (n=75), we modeled behavioral intentions and actions using separate models. We modeled intentions as legacy and management goals as functions of the independent variables. We modeled activities as a function of management goals, legacy goals, management planning, and structural variables. Aggregated, these three models represent the entire customized Theory of Planned Behavior framework (Figure 2.3). We also modeled management planning as a function of the independent variables. All models were logit models and were developed in MPlus 8 software (Muthén and Muthén 2017).

Table 2.1: Description of dependent and independent variables used in logit models.

Dependant Variables	Description
Management Goals	Respondent has goals for Timber, Wildlife and/or NFTP's. (1=Yes, 0=No)
Legacy Goals	Respondent has goals for land transfer w/in the family. (1=Yes, 0=No)
Plan	Respondent reports a written forest management plan. (1=Yes, 0=No)
Activity	Respondent reports management activity. (1=Yes, 0=No)
Independent Variables	
Owner Characteristics	
Age	Respondent's age. (Years)
Sex	Respondent's sex. (1=Female, 0=Male)
Education+	Respondent's education. (Years)
Employment*	Respondent's employment status. (1=Employed, 0=Unemployed)
Management Characteristics	
Acres	Respondent's forest acres
Advice	Respondent has sought advice from an outside source. (1=Yes, 0=No)
Program°	Respondent reports participation in assistance program(s). (1=Yes, 0=No)
Obstacles	Respondent reports obstacles related to forest management. (1=Yes, 0=No)
Structural Characteristics	
Absentee	Respondent is an absentee landowner. (1=Yes, 0=No)
Heirs' Property	Respondent's property is heirs' property. (1=Yes, 0=No)
Makers	The number of additional decision makers (not including the respondent) (#)

* Makers was strongly correlated with Heirs' Property (p <.001) and was dropped from the model

+ Education was strongly correlated with Sex ($p = .001$) and was not included in the model.

* Employment was strongly correlated with Age ($p = .009$) and was not included in the model.

° Program was strongly correlated with Advice ($p = .001$) and was not included in the model.

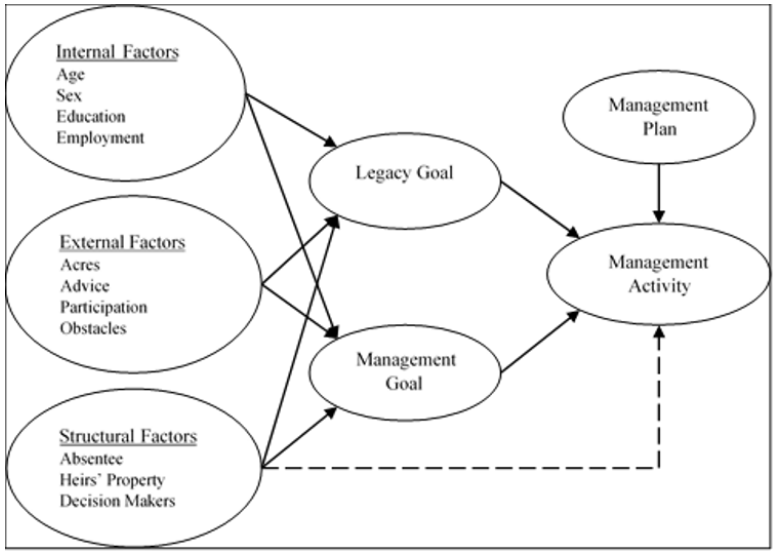

Figure 2.3: Modified Theory of Planned Behavior Model. The Internal, External, and Structural factors are composed of several discrete variables.

2.4 Results

Sixty (13%) were received out of 472 mailed surveys. Sixteen were valid. Invalid responses included ineligible responses, incomplete surveys, and responses from multiple owners of the same property. Of 77 in-person surveys, 59 were valid. The overall response rate was twenty-nine percent, and the valid response rate was sixteen percent. We do not have non-response data. Our research was conducted in close collaboration with the FVSU's Cooperative Extension, and we suspect that there is a response bias towards landowners who are engaged with or interested in Cooperative Extension. A t-test comparing the mail and face-to-face surveys showed no significant difference ($\alpha = 0.05$) for age (p= 0.58), acreage owned (p= 0.98), and forest acreage owned (p= 0.13). Fisher's Exact Test comparing the mail and face-to-face surveys showed no significant difference ($\alpha = 0.05$) for sex (p= 0.12), residency (p= 0.25), or title status (p= 0.16). The forestlands of respondents were spread across 31 counties (Figure 2). Twenty counties were home to resident landowners, and seven counties had the only forestland owned in absentia. Four counties were only the residence of absentee landowners.

Forest Landowners and Lands

A typical African American family forest landowner is older, male, with some education after high school (Table 2.2). Nearly half of the respondents were over 65, while only four percent were under 50 years old. Most respondents were men (80%), and women tended to be slightly older, more often retired, and a higher percentage had a college degree. Most landowners had education beyond high school (64%), although a high school diploma was the most common terminal achievement (36%), with higher achievements progressively less common. Landowners were closely split between working (52%) and retired (48%).

Many respondents owned multiple tracts under multiple uses. Forest was most common (93% of tracts), followed by row crops (49%), pasture (37%,) and orchards (13%). Most forested tracts were small (<50 acres), and a third were very small (<10 acres), with the median acreage (20 acres) was roughly half the mean (38 acres). Seven of the 31 large forest tracts (>50 acres) were completely forested. A third of forested tracts were profitable, although only a sixth of large forest tracts (>50 acres) were profitable.

Table 2.2: Socioeconomic characteristics of African American forest landowners in Georgia (n=75).

	#	%
Age		
<50	3	5%
50-64	35	47%
65+	36	48%
Sex		
Male	60	80%
Female	15	20%
Education		
High School	27	36%
Some College	21	28%
College	22	29%
Graduate	5	7%
Employment		
Full Time	19	25%
Part Time	3	4%
Self-Employed	17	23%
Retired	36	48%
Total Acres		
<10	19	17%
11-50	35	31%
51-100	22	20%
>100	35	31%
Forest Acres		
<10	35	34%
11-50	39	38%
51-100	18	17%
>100	12	12%
Profitability		
Profit	31	30%
Break Even	33	32%
Lose Money	16	16%
Unsure	23	22%

Forest Management Characteristics

The typical respondent is engaged in forest management, has sought technical advice, is planning for the future, and does not see many forest management obstacles (Table 2.3). Overall, seventy-five of landowners have either done some recent management or have plans for management in the near future. Common management activities were planting (24%),

site preparation (19%), herbicide application (16%), and controlled burning (16%). Most landowners have sought or plan to seek management advice (71%), most commonly from extension personnel (55%). A third of landowners have management goals. Nearly two-thirds of landowners have legacy goals, i.e., plans for intergenerational land transfer. The most common obstacles to forest management were money (36%), labor availability (16%), time (13%), lack of technical knowledge (13%), and lack of interest (13%). Almost a third of landowners reported having no obstacles to management, and there was no substantial difference in reporting obstacles between landowners of small (70%) or large forests (67%).

Table 2.3: Management characteristics of African American forest landowners in Georgia (n=75).

	#	%
Management Activities		
Site Preparation	14	29%
Planting	18	24%
Herbicide	12	16%
Fertilization	10	13%
Burning	12	16%
Thinning	10	13%
Harvesting	11	15%
Agroforestry	7	9%
Nothing	19	25%
Management Plan	19	27%
Participate in Cost-Share	15	21%
Sources of Advice		
Personal Contact	12	26%
Private Contact	15	20%
Public Contact	31	41%
None	22	30%
Goals		
Timber Goals	24	32%
Non-Timber Goals	23	31%
Legacy Goals	48	64%
Obstacles		
Motivation	10	13%
Time	10	13%
Money 27	36%	
Labor 12	16%	
Knowledge	10	13%
Family Agreement	7	9%
Connections to Forest	8	11%
Access to Markets	6	8%
Small Acreage	8	11%
None	23	31%

Ownership Structures

Complex ownership structures represented a minority of ownership (Table 2.4). Twenty-five percent of owners had heirs' property, and twenty percent were absentee owners. This includes seven percent who had doubly complex ownership structures, i.e., heirs' property owned in absentia. Land in complex ownership structures tended to be larger than those in

simple ownership (Figure 2.4), and several of the largest forest tracts were in doubly complex ownership. Tracts in complex ownership also tended to have more decision makers. Heirs' property and doubly complex owners reported minimal participation in state and federal programs. Absentee owners were the most likely to report profiting from their forestland, and no tract in doubly complex ownership was profitable. In terms of intentions and behaviors, they were generally similar between different ownership structures (Figure 2.5). In the case of management planning, absentee, heirs' property, and normal ownership were nearly identical, with a quarter of respondents reporting a written management plan. Absentee landowners had legacy goals at a higher rate and management goals at a lower rate than other groups and practiced more management activity. Heirs' property landowners were nearly the opposite; they had the highest rate of management goals, the lowest rate of legacy goals. They also practiced management activity more than normal landowners.

Table 2.4: Characteristics of structurally complex ownership by African American forest landowners in Georgia. Values in parentheses are the percent of the total.

	All	Title	Heirs'	Resident	Absentee	Heirs' & Absentee
#	75	56 (75%)	19 (25%)	60 (80%)	15 (20%)	5 (7%)
Forest Tracts	104	86 (83%)	18 (17%)	87 (84%)	17 (16%)	5 (5%)
Forest Acres	4199	2799 (65%)	1400 (35%)	3141 (75%)	1058 (25%)	553 (13%)
Average Forest (acres)	37.5	33	74	33	62	111
Advice	43 (57%)	31 (55%)	12 (63%)	33 (55%)	10 (67%)	4 (80%)
Perceived Obstacles	52 (69%)	39 (68%)	13 (68%)	40 (67%)	12 (80%)	4 (80%)

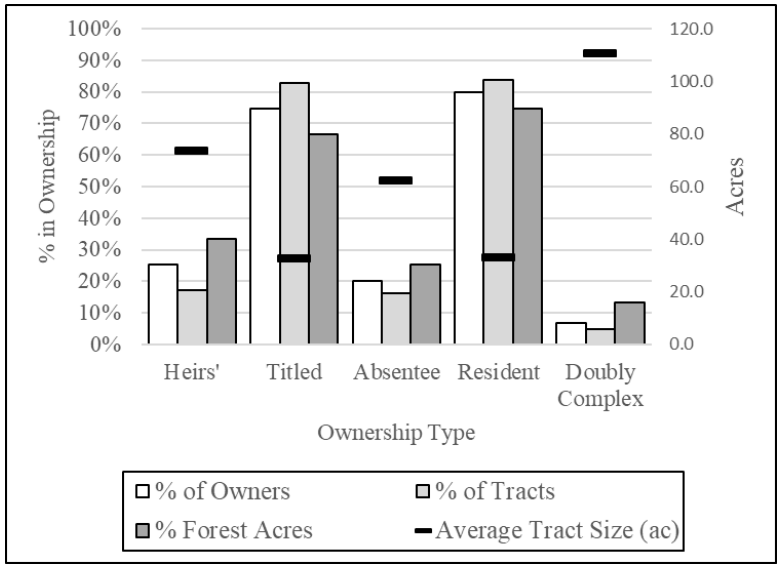

Figure 2.4: Share of owners, tracts, and forest acres and average forest acres/tract for five different ownership types. Notice the consistently disproportionate lower share of tracts and higher share of forest acres for complex ownership types.

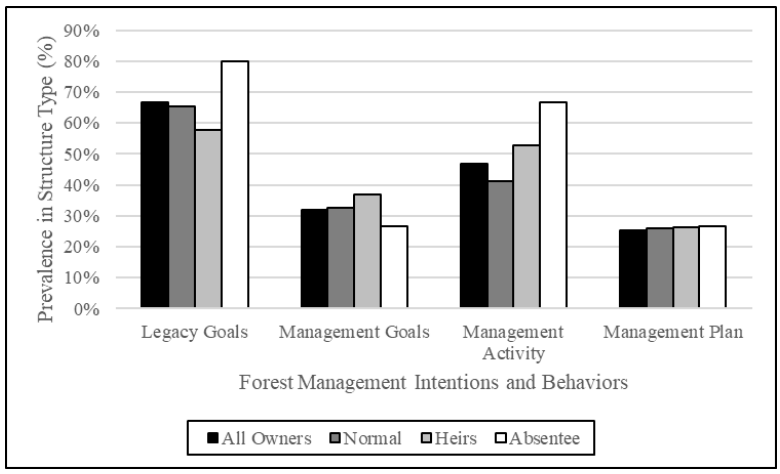

Figure 2.5: The prevalence of management intentions and behaviors, plus management planning among different ownership structures. For the purposes of this figure, normal landowners are those who are not absentee owners and do not have heirs' property regardless of the number of decision makers.

Models Summary

Three models comprise the Theory of Planned Behavior framework. Two modeled intentions, whereas one modeled behavior (Table 2.5). Given a small sample size and the complexity of human behavior, we selected a significance threshold of $\alpha = 0.1$ for all models. For

management goals, obstacles was the only variable with a significant effect ($p = 0.038$), which was inverse. Both structural variables had the expected negative coefficient, although neither was significant at $\alpha = 0.1$. Age ($p= 0.012$) had a direct effect on legacy goals. Sex ($p= 0.074$) had an inverse effect, i.e., men have higher odds of having legacy goals than women. Advice ($p= 0.003$) also had a direct effect. Absentee ownership had a direct effect on legacy goals while heirs' property ownership had an inverse effect, though neither were significant. Only legacy goals ($p= 0.098$) had a significant effect on management activity at the $\alpha = 0.1$ level for the model of management activities. Heirs' property had a direct effect on management activity, and absentee ownership had an inverse effect. Neither was significant. Although outside the Theory of Planned Behavior framework, we were interested in what variables affect management plans. Technical advice had a significant effect ($p= 0.020$). Both structural variables also had a direct effect on management planning, although only absentee ownership was significant ($p= 0.075$) (Table 2.6).

Table 2.5: Coefficient estimates for the internal, external, and structural factors on forest landowner's goals and management activities using logit models. The odds ratios are reported in brackets after each coefficient.

Variable	Legacy Goals	Mgmt. Goals	Mgmt. Activities
Internal Factors			
Age	0.09[1.09]**	0.00[1.00]	
Sex	-1.32[0.27]*	0.11[1.12]	
External Factors			
Advice	1.89[6.62]***	0.95[2.59]	
Acres	-0.010.99]	0.01[1.01]	
Obstacles	-0.02[0.98]	-1.21[0.30]**	
Structural Factors			
Heirs' Property	-0.78[0.46]	-0.03[0.97]	0.07[1.08]
Absentee	1.36[3.90]	-0.50[0.61]	-0.22[0.80]
Moderating Variables			
Legacy Goals			1.16[3.20]*
Mgmt. Goals			0.39[1.47]
Mgmt. Plan			0.83[2.29]

* $p<0.1$, ** $p<0.05$, *** $p<0.01$

Table 2.6: Coefficient estimates for the internal, external, and structural factors on management planning logit model. The odds ratios are reported in brackets after each coefficient.

Variable	Mgmt. Plan
Internal Factors	
Age	-0.02[0.98]
Sex	-0.67[0.51]
External Factors	
Advice	1.24[3.46]**
Acres	-0.01[0.99]
Obstacles	-0.45[0.64]
Structural Factors	
Heirs' Property	0.54[1.42]
Absentee	1.20[3.32]*

* $p<0.1$, ** $p<0.05$, *** $p<0.01$

2.5 Discussion

Although there is no recent literature on African American forest landowners in Georgia (Goyke et al. 2019); we prepared a synthesis of 20 years of research on African American family forest landowners across southern states (Table 2.7). Compared to other landowners from other states, African American family forest landowners in Georgia family forest landowners tended to have fewer years of education (often technical degrees), and smaller forest holdings, these differences may reflect farmer forest landowners more than Georgia forest landowners, although more research is needed for ascertaining the cause of smaller forest holdings. In other literature (Gan and Kolison Jr 1999; Gan et al. 2003; Schelhas et al. 2012; Schelhas et al. 2017a), African American family forest landowners had were focused on timber income; the most common objective was investment, and the most common activity was harvesting. Georgia landowners were more future-oriented. Their top objective was to leave their forestland as a legacy, and the most common activity was tree planting. Georgia landowners were also more likely to have a management plan than landowners from previous studies. A higher prevalence of management plans could reflect different management priorities, a predilection of farmers or those involved with Cooperative Extension toward management plans, or a continuation of increased management planning by African American forest landowners over time (14% in 1999, 23% in 2015, 25% in 2018). The last

possibility may also suggest that historical distrust between African American landowners and forest professionals is fading with time; however, more research is needed for ascertaining this assumption.

It is also worthwhile to compare our findings with those in the Georgia National Woodland Owner Survey (NWOS), the respondents of which were 96.5% white (Butler et al. 2016). Compared to Georgia family forest landowners, African American family forest landowners are similar in terms of sex, age, education attainment, forest holding size, and the primary objective (Table 2.7). However, there were several differences as well. Georgia family forest landowners at large reported harvesting rather than planting as their most common recent activity. This may reflect that many of the the participants in our study (39%) were practicing or retired farmers and may be transitioning to forestry, while the participants in the NWOS are established family forest landowners. Georgia family forest landowners at large also had lower rates of management planning and participation in cost-share programs than our study participants. Although this seems to contradict previous research, it is likely a result of our study sample's close association with Cooperative Extension, which may imply they have more knowledge or and participation in state or federal programs.

Table 2.7: Comparison of owner, ownership, and management characteristics of African American forest landowners from a synthesis of the literature, the Georgia National Woodland Owners Survey (NWOS), and this original research.

	This Study (n=75)	Literature (n=407)	Georgia NWOS (n = 256)
Female	20%	32%	19.90%
Age	50-65	50-65	55-64
Education	Some College	College	Some College
Acres	Oct-50	50-99	20 -49
Objective	Leave to Heirs	Invest in Land	Leave to Heirs
Practice	Tree Planting	Harvest	Harvest
Mgmt. Plan	27%	17%	9.3%
Main Barrier	Money	Money	-
Assistance	21%	32%	10.60%

(Butler et al. 2016; Gan et al. 2003; Gan and Kolison Jr 1999; Schelhas et al. 2012; Schelhas et al. 2017a)

Beyond comparisons with other work, this research explores the relationship between

complex ownership structures and forest management. Although complex ownership, especially heirs' property, is often given a negative connotation in the literature (Barlow and Bailey 2017; Deaton et al. 2009), other literature casts it in a positive light, for example by highlighting why some landowners choose to let a property become heirs' property in order to provide a refuge for all future heirs in hard times (Hitchner et al. 2017). One of the most important, largely unexplored, possible benefits of a complex ownership structure is apparent from our data: the prevalence of multiple decision makers. For example, although women only comprise twenty percent of respondents, thirty-six of responses included a female decision maker. Given the different management priorities of male and female landowners, understanding complex ownership could be important for professionals attempting to engage family forest landowners in multiple use management. Similarly, five percent of respondents were under 50 years old, but twenty-three percent of responses included a decision maker under 50. This could have important implications for the management outlook for the forestland, especially considering the importance of legacy, i.e., keeping land in the family. Actively engaging younger generations in management also has implications for long-term management planning. Finally, while having multiple decision makers is characteristic of heirs' property and absentee ownership, it is not unique to them. As evidenced by the 1.6 decision makers per tract, even some forestland that is not owned in absentia or heirs' property can be categorized as 'complex normal' ownership if it has multiple decision makers. Of these 'complex normal' ownerships, half were multi-generational, and two-thirds had female and male decision makers.

The most common goal among respondents was to leave their forestland as a legacy. It is perhaps unsurprising, but still very important that landowners were more likely to have legacy goals as they age. We suspect the better odds of having a legacy goal for male landowners has to do with the management control traditionally being within the male domain, even though our data show that eighty percent of female respondents share decision-making responsibilities with male family member. It is also interesting that management advice made

such a significant contribution to legacy goals - the landowners who received advice were almost six times as likely as others to have them. We believe that this highlights not only the importance of the advice as such but also the importance of the interpersonal relationship between the advice giver and landowner, something highlighted in recent literature (Hitchner et al. 2019). Among the different types of ownership structures, there was variation in the prevalence of legacy goals. Absentee landowners were most likely to consider legacy a goal (90%), and heirs' property owners were least likely (57%). One important point when considering the lower rate of legacy goals among heirs' property landowners is that some consider land in heirs' property a burden, as opposed to a legacy (Goyke et al. 2019). For 'complex normal' ownerships, seventy-one percent of landowners reported legacy goals (compared to 65% of other 'normal' landowners). The share of landowners who report engaging in some management activity is slightly higher (50%) for those with a legacy goal than those who do not (40%), although the number who report recently engaging in regeneration activity is lower thirty percent vs. thirty-six percent. It seems for many landowners the land itself is the legacy, in the form of a bridge between a family and the past, rather than the value of the land or the timber on the land.

Management goals about were half as common as legacy goals (32%), which may be best explained by the fact that perceived obstacles to management had essentially no impact on the odds of forming legacy goals, whereas landowners who reported obstacles were over three times less likely to have management goals. It could be that in a sense legacy goals are 'passing the buck,' and that obstacles are unimportant because the next generation will resolve them. Like legacy goals, ownership structure had little effect on their prevalence, and once again 'complex normal' landowners were more likely to have goals (57%) than 'normal' landowners (33%). This is a case of two heads being better than one, or at least having more ideas. With multiple generations, multiple sexes, and multiple socioeconomic realities, it should be unsurprising that joint decision makers have multiple ideas about forest management, or that balancing multiple ideas means they had to be articulated (and made

explicit enough to show up in our survey).

Forest management is contingent on informed planning, and two management barriers highlighted in the literature are lack of technical knowledge and lack of trust in forest professionals (Schelhas et al. 2017a). However, the share of landowners with a management plan seems to be rising, while the share of landowners listing lack of knowledge as a primary management barrier is declining: 28% in 1999 (Gan and Kolison Jr 1999), 14% in 2018 (Schelhas et al. 2018). Trust between forest landowners and management professionals seems to be improving, as forty-one of respondents reported working with public forest professionals. This uptick in trust (reflected in more advice received) is critical and was the single most significant variable to having a written management plan. That there was no real difference in the prevalence of management plans between different ownership structures. That advice was the most important factor to having a management plan reinforces our conclusion that the most important factor for engaging African American family forest landowners in forest management is a personal connection to a forest professional.

One product of the growing number of management plans is that the most common activities among forest landowners are site preparation and tree planting; the early steps in forest management. We had anticipated that forest management plans would be on the rise because many farmer forest landowners are near retirement age. A high rate of site preparation activity may represent land conversion and matches our assumption that for retired farmers, forestry offers a viable, but less capital and labor-intensive, land use compared to farming or ranching. And while this is reflected in the positive effect of increasing age on legacy goal setting, there was no significant relationship between age and management planning, maybe because many of the older landowners were more focused on their legacy than the present. Or perhaps for retiring farmers, accustomed to complex farm management, forest management on small acreage is simple enough not to require a written document. Ownership structure affected management planning as well; all else equal, the odds of absentee owners having a management plan were three times higher than resident landowners.

However, they did not have management plans at a higher rate than any other ownership structure, which would seem to indicate there is some characteristic common to absentee landowners that systematically reduce their odds of having a management plan. The truth may be that all things being equal, at present about a quarter of landowners have enough interest in forestry to invest in drafting a management plan, regardless of internal, external factors, and structural controls.

The relationship between management goals and practices reveals three important trends. First, for every ownership type except for 'complex normal,' management activities were more common than management goals. However, there is a stark difference between absentee and resident landowners in this regard; absentee landowners are several times as likely to engage in management activity as have management goals, while resident landowners are only slightly more likely to do so. The second is that for all the potential benefits of joint decision making, and the indication that joint decision making encourages setting management goals, having multiple decision makers has a limiting effect on the ability of landowners to implement their plans. This is an area where the assistance of a professional forester, serving as a mediator and trained in multiple use management, could play an invaluable role in helping landowners put their ideas into practice. The evidence seems to support this supposition as we found that management advice had a significant, positive effect on legacy goals and management planning. Third, the disconnect between the management goals and practices of landowners is not a disconnect at all. The best factor in predicting management activity is a legacy goal; the odds of doing management activity are three times greater for landowners with legacy goals. It seems that for many landowners, the objective is not to manage forestland or timber but to manage a legacy, which they do in part through forestland or timber management. For many landowners, it may be that legacy and forest management are more synonymous than they appear to forest management professionals.

Our finding concerning heirs' property ownership: relatively high rates of activity and planning, no significant effect on intentions or behaviors, and positive effects on activity and

planning, are unusual considering that a key premise of the literature is that heirs' property has a negative effect on forest management (Bailey et al. 2019; Barlow and Bailey 2017). That premise is well constructed and requires that we consider the data carefully as we attempt to reconcile our findings with the literature. First and foremost, we are unaware of any research which considers heirs' property among African Americans in quantitative models, and while a single small study is not nearly enough to challenge the establish premise, it should be enough to encourage other scholars to conduct similar research. We believe it is especially important to conduct quantitative and qualitative research with African American family forest landowners who have resolved heirs' property issues to investigate how that resolution has or has not influenced their forest management. Second, it is important to remember that our sample frame was not all African American family forest landowners but a list of landowners working with Cooperative Extension; primarily farmers. We would not be surprised if our sample, by the nature of working with Cooperative Extension, is more active and engaged in management than the population at large. However, as other scholars have relied on institutions to contact participants, we believe our sample is not unusual in this regard compared to other literature. Third, it is possible that owners of multiple forested properties have some land in heirs' property and some with a clear title and are managing the later but not the former. Finally, it is possible the importance of two substantial barriers described in the heirs' property literature, the inability to mobilize heirs' property as capital and the inability to participate in state or federal programs, is overstated. There is no data we could find that shows the rate at which family forest landowners use private loans to fund their management. It is also well established the African Americans generally have low participation in state and federal programs (Gan et al. 2005; Christian et al. 2013b) and it is possible that heirs' property owners simply manage without participation, for example by relying on natural regeneration, limited inputs, and advice from friends or family members. In sum, while the theory that heirs' property impedes forest management is sound, this work suggests much more empirical research is needed.

2.6 Conclusion

The challenge facing many African American family forest landowners is clear. They have small acreages limited capital, low profitability from their forests. While their forest remains unprofitable, there is limited means or incentive to invest in management, and landowners risk becoming caught in a cycle where forestland becomes a money sink, as the income generated from the land is insufficient to cover the cost of maintaining it (i.e. tax obligations). For landowners with enough income, this may be acceptable. For others, the consequences could be forestland loss through conversion or sale, and in the case of heirs' property landowners, this may be an involuntary loss. The consequence of failure to engage in forest management contributes to the persistent loss of land among African Americans, depriving individuals, and their communities of the myriad benefits of forest landownership.

Still, the data indicate that the situation is improving as the share of African American forest landowners with management plans is on the rise. That African American family forest landowners are not only making management plans but also engaging in the early stages of management is encouraging for the future of sustainable forest management and the larger effort to stem or reduce the trend of land loss. Concurrently, although heirs' property is a widespread and persistent phenomenon, interactions with landowners and our data demonstrate that family forest landowners are aware of heirs' property issues and that many are taking steps to either resolve the issues they have or else taking steps to prevent new heirs' property issues from arising. Indeed, forty percent of respondents with titled land reported taking steps to either resolve or prevent heirs' property issues. The importance of the second cannot be overstated in the effort to eliminate heirs' property issues, as the legal hurdles to prevent heirs' property issues are orders of magnitude smaller than those necessary to rectify them.

Apart from the continuing efforts to generally engage African American family forest landowners and resolve heirs' property issues, we have four suggestions for forest management professionals. The first is to reconsider complex forest landownership. As its starkly

negative connotation has changed through a deep look into the social and cultural aspects of tenancy in common, we would urge forestry professionals to broaden their view of complex ownership. Second, forest professionals should be proactive in engaging with multiple decision makers during the planning process, especially those who are in line to inherit the property someday. A decision-making body that is comprised of different sexes, ages, and socioeconomic backgrounds could very well lead to productive and truly sustainable forest management for multiple uses. Third, our data highlight the importance of absentee landowners to forest management. Not only do they have larger acreages and fewer land use options than resident landowners, but they are also the group most likely to consider legacy a goal and can, therefore, be expected to be the most interested in planning for their forests on a long-term horizon. Identifying and purposefully engaging with these landowners is a strong opportunity to encourage sustainable forest management. Identifying and engaging with metropolitan absentee owners is a promising frontier for future research. Finally, it is important for forest management professionals to remember that for many African American family forest landowners, legacy is more important than timber management. This does not mean that the two are mutually exclusive. Instead, it is important for forest management professionals to understand what legacy means to the individual landowner and how to incorporate their idea of legacy into a management plan. They can also remind landowners that one of the best ways to keep the land in the family is to turn it into an income source through sustainable forest management.

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CHAPTER 3

EXPLORING DIVERSITY IN FOREST MANAGEMENT OUTLOOKS OF SOUTHERN AFRICAN AMERICAN FAMILY FOREST LANDOWNERS FOR ENSURING SUSTAINABILITY OF FORESTRY RESOURCES[1]

[1]Goyke N, Dwivedi P, Hitchner S, Schelhas J, Thomas M. 2019. Human Ecology. 1572-9915
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Abstract

African American forest landowners in the Southern United States (US) are typically considered a homogenous group in current studies, at least insofar as no studies address their intragroup differences in the context of natural resources. In this work, we challenge this assumption by identifying four distinct forest management outlooks among African American forest landowners using Q Method. Sustainable Harvesters focus on balanced land use with a long-term outlook. Back 40ers appreciate the presence of forests on their property but focus on alternative land use, while Land Use Pragmatists are also interested in alternative land use and primarily view forest as an economic resource. Recreationalists value their forestland not for economic value but as a place for personal use. Finally, some landowners are Indecisive about how to best manage their forestland. We argue that an understanding of different forest management outlooks will improve sustainable forest management by better targeting extension efforts for African American forest landowners in the US South.

3.1 Introduction

Family forests comprise 42.7% of forestland in the United States (US), and 57.7% in the US South (Butler et al. 2016). The southern state of Georgia is the largest roundwood producing state in the US, and fifty-four percent (5.4 million hectares) of Georgia's forests are family forests, second-most among the states (Butler et al. 2016). Family forests play a critical role in supporting the state's forestry sector, which in 2016 supported 144,537 jobs, provided $8.5 billion in direct compensation, and contributed $778 million in state tax revenue (Georgia Institute of Technology 2016). At the county level, 47 of 159 Georgia counties (30%) are moderate to critically dependent on the forest sector, i.e., more than five percent of private sector wages are forest-related (Riall 2010). Considering the extent and economic impact of family forests, family forests management is fundamental to a healthy forestry sector and strong rural communities in Georgia.

Compared to corporate and industrial owners' focused economic objectives and public forest objectives informed by the policy of multiple uses and stakeholder collaboration, fam-

ily forest landowners have diverse objectives and motivations. The USDA Forest Service's National Woodland Owners Survey (NWOS) indicated that for family forest landowners in Georgia, the following objectives are important or very important: legacy (84.9%), scenic beauty (81.1%), and protecting wildlife (80.0%) (Butler et al. 2016). The drawback to the NWOS (and similar surveys) is that generalization of landowners is useful as a baseline but not operationally. Alternatively, reporting the results of individual surveys is unhelpful for drawing any sort of useful conclusion. Faced with the dilemma of too much or too little generalization, some researchers have found a middle ground by grouping landowners based on demographics, landholding objectives, and management priorities (Blanco et al. 2015; Silver et al. 2015).

Often lost in the discussion of family forest management are marginalized forest landowners, especially minorities and women (Schelhas et al. 2003). In Georgia, about 3,000 African American families own roughly 76,000 hectares, constituting 2.9% of owners and 1.7% of family forestlands (Butler et al. 2016). Research demonstrates that like white forest landowners, African American forest landowners have diverse objectives (Gan et al. 2003; Gan and Kolison Jr 1999; Schelhas et al. 2012), but that their objectives are often different than those of white forest landowners. For example, African Americans consider non-timber products and firewood more important, and scenic beauty less important, than do white forest landowners (Schelhas et al. 2012). In some ways, forest landownership has a higher value for rural African American communities than other rural communities. For African Americans, land can be a source of wealth and power (Bliss et al. 1998) in places they have been denied both. Wealth and power, in turn, can grant forest landowners a sense of social independence, and it is unsurprising that African American landowners are an important part of civic life in rural communities and were among the first to join the Civil Rights Movement (Gilbert et al. 2002).

One key difference between African American and white forest landowners in the South is the prevalence of tenancy in common among African American landowners (Johnson Gaither

2016). Tenancy in common, or heirs' property, is the result of real property left intestate upon the death of the owner. All heirs of the original owner own a fractional interest in the entire property, including rights of exclusion. This situation sometimes referred to as the "tragedy of the anti-commons," adversely affects the ability to manage forests, discourages investment, and excludes heirs' property owners from leveraging their land as capital or enrolling the land in government programs (Deaton et al. 2009). At the same time, land in heirs' property sometimes strengthens the socio-cultural value of the land (Dyer and Bailey 2008; Merem 2006). Ethnographic work from Mississippi (Gordon et al. 2013), the Carolinas, and Alabama (Hitchner et al. 2017) repeatedly encountered the theme of land ownership as a connection to the past. For some forest landowners, their family forest is a reminder of the historic struggle of African Americans dating back to the antebellum period, while for many their family forest serves as a direct link to ancestors who lived on the same land (Hitchner et al. 2017). Today, despite all of the drawbacks and complications of clouded titles and heirs' property issues, and the strong push to resolve them, many owners still see family forest in heirs' property as a symbol of the contemporary struggle of African Americans for economic independence and a political voice (Reid and Bennett 2012), and even credit the status of heirs' property for saving their land from being sold by other family members (Dyer and Bailey 2008).

Important as family forestland is to African Americans and the communities they live in, the outlook for landowners is bleak. Nationally, land loss is of growing concern for all small landholders, and the phenomenon is particularly acute for African Americans (Gilbert et al. 2002). Economics of scale, migration out of rural communities, and discrimination have all played a role in African American land loss. Property in common is particularly vulnerable and is often lost due to delinquent tax payments or court-ordered sales (Mitchell 2014). Whatever the proximate cause, the ultimate contributor to land loss is that it is not sufficiently economically valuable to its owner (Merem 2006). One path to improving the economic value of family forestland is better management, in part contingent on professional

advice targeted to the needs of individual forest landowners (Christian et al. 2013; Schelhas et al. 2018). Considering the importance of family forest landownership to rural African American communities, their diversity of management priorities, the historical, social, and cultural differences between the African American and white population, and the real danger that land loss presents to individual family forest landowners and their communities, the lack of research addressing the typologies of African American (or any minority) forest landowners is a serious gap in the literature. We address this gap by exploring African American forest management priorities using Q Method, which will ultimately inform forest management professionals and help them craft strategies that align with the management objectives of the people they serve.

3.2 Q Method

Q method (Q) was developed to quantify subjective views that comprise a discourse (**stephenson1953study**). Unlike R methodologies, which examine correlations between variables, Q examines correlations between subjects (Brown 1980), and the subject correlations are used to generate typologies. Importantly, the typologies are exploratory and fixed spatiotemporally (McKeown and Thomas 1988). The typologies are not assumed to be an exhaustive list of all possible views in the discourse, and there is no claim that the distribution of subjects among the typologies is representative of the population at large. Rather than providing generalizations about a population, Q allows researchers to discover a starting place for understanding complicated issues (Brown 1980).

In practice, Q is an exercise in prioritizing and sorting statements that comprise a discourse, like forest management, usually accompanied by an interview. Its most important characteristic is that the sorting is self-referential, i.e., participants are free to define and prioritize statements based on their own subjectivity and lived experiences rather than based on an objective standard. This has three benefits. First, by using their own subjective point of reference, Q reduces the influence of researcher bias. Second, having each participant define the discourse in their own terms reduces the error that arises from disagreement over

what different ranks mean. While ranking statements on a scale of one to ten, for one participant strong agreement may be a ten, where for another it is a seven. Third, because the method is self-referential (and exploratory) and statistical error is therefore not relevant, the large sample size is unnecessary; in fact, too large a sample size can be counterproductive. According to Watts and Stenner (2005) [a large sample size] "can easily negate many of the subtle nuances, complexities, and hence many of the essential qualities contained in the data."

Although statement sorting is self-referential, it is the responsibility of the researcher to select the statements that comprise the discourse (McKeown and Thomas 1988). The statements must represent the breadth and depth of the discourse. In Political Subjectivity, Brown (1980), clearly outlines the decisions the researcher must make when electing statements. The first is whether to use naturalistic or standardized statements. Naturalistic statements are drawn from previous statements from participants themselves, media, or the literature. Standardized statements are those shared across a discipline. The second decision involves either a structured or unstructured sample. In a structured sample, the statements systematically cover the breadth and depth of the discourse, while an unstructured sample is comprised of the statements most commonly encountered without regard to a balance of themes. Finally, there is the question of forced normal sorting versus free sorting. In a forced normal distribution, participants are required to sort statements into a distribution roughly approximating a normal distribution, while in a free distribution, participants are free to place their statements along the spectrum however they wish.

As a method with a quantitative component (factor analysis) and qualitative component (qualitative interviews), Q is considered a mixed-method approach to forest landowner typology. Mixed-method studies represent ten percent of all typology studies (Ficko et al. 2019), and Q studies represent an even smaller share. However, we believe that Q has much to offer that other methods do not. First, there is a risk in studies that use surveys and clustering, the most common methodology (87%) (Ficko et al. 2019). The risk is that participants will

be clustered based on their characteristics and that researchers will make assumptions about their motivations. Q avoids this by combining factor analysis with qualitative interviews. Second, in their comparison of R and Q methodologies, Eyvindson et al. (2015) determined that both give comparable results, with an important exception, that Q highlights views outside of the popular perspective. Using a method that highlights views outside the hegemonic view of family forest management is important (Takala et al. 2017), especially when working with a marginalized population.

3.3 Materials and Methods

Study Area

Georgia is an ideal state for investigating African American attitudes toward forest management due to its large African American population and thriving forestry sector. As of the 2010 national census, Georgia ranked third among states in percent (30%) and first in total African American population (2,910,673) (Winkler et al. 2013). As of 2013 Georgia ranked fourth in acreage under African American family forest landownership (76,486 ha), and fifth in the total number of African American family forest landowners (3,000) (Butler et al. 2016). This study is specifically targeted to South Georgia, an area we define as the area below the Fall Line running approximately from Augusta to Columbus by way of Macon (Figure 3.1).

Q Statements

We chose to use naturalistic statements, believing participants would respond more strongly to statements that reflect their own words. The statements were drawn from the literature on African American forest management (Guffey et al. 2009; Gordon et al. 2013; Hitchner et al. 2017; Schelhas et al. 2017) and from ethnographic literature about rural African Americans (Dyer and Bailey 2008). Initially, more statements than necessary were generated, and 20 statements were selected for use in pile sorting. We elected to use a structured sample of statements to capture the entire discourse in a systematic way. We structured the

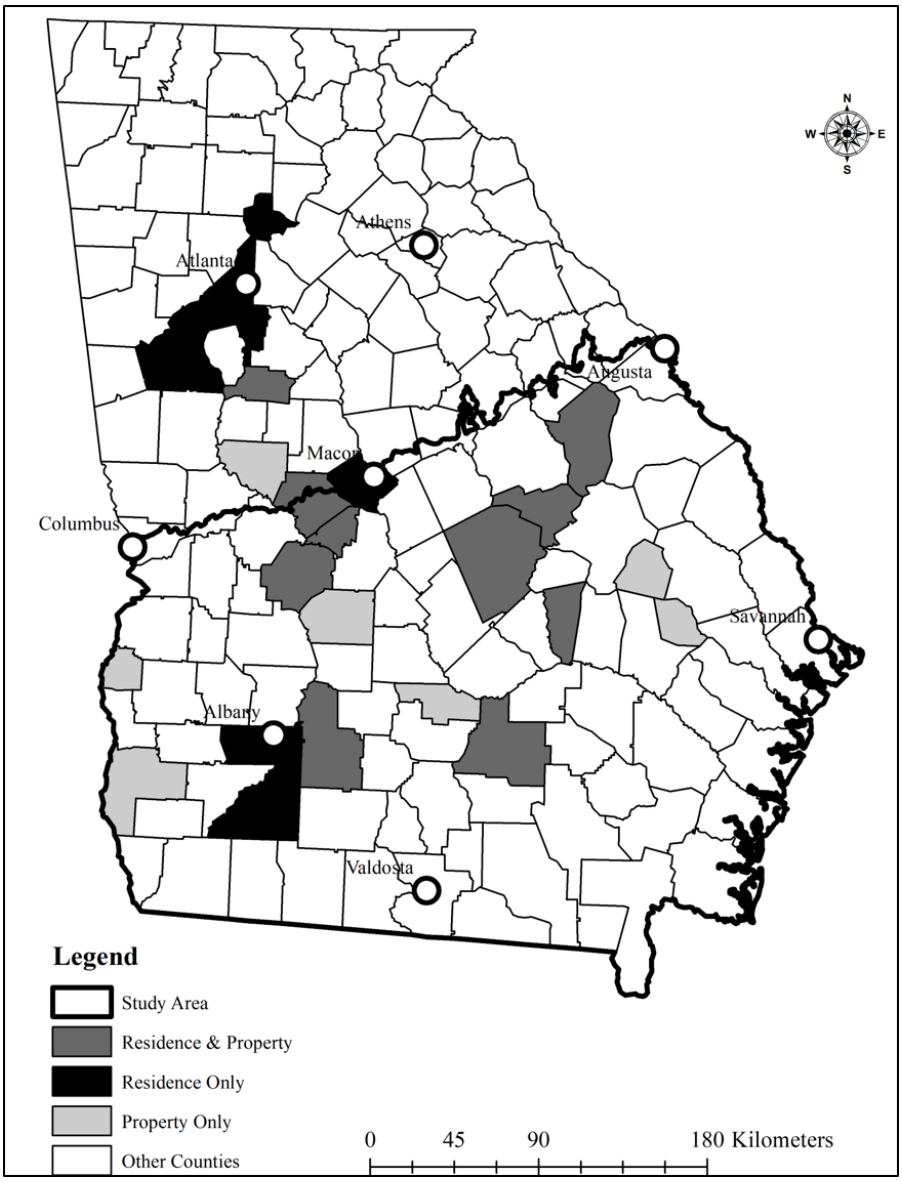

Figure 3.1: The study area for this research is South Georgia. Shaded counties represent the residence and property of participants. The black counties are only home to absentee landowners, the light gray counties only contain forestland owned in absentia, and the dark gray counties contain resident landowners and their forestland.

statements around two objectives: non-timber and timber management. Each objective was broken into five themes: aesthetics, conservation, financial return, long-term investment, and management advice. For each objective/theme pairing, two statements were selected for the final set, one positive and one negative, for a total of 20 statements (Table 3.1). After the statements were selected, they were edited for clarity, reviewed by experts, and field tested with three African American forest landowners located in south Georgia.

Table 3.1: Statements used for pile sorting. As a structured sample, each statement was assigned a combination of an objective: Timber or Non-Timber and theme: Aesthetics (A), Conservation (C), Financial Return (FR), Long-term Investment (LTI), or Management Advice from forestry professionals (MA). For adding robustness, each objective/theme combination was iterated twice, with the iteration worded to make either a Positive or Negative Statement. The statements were randomly rather than systematically numbered to avoid participants bias at the time of sorting.

#	Statement	Objective	Theme	Positive/Negative
1	For me, harvesting timber is not really a viable income source	Timber	FR	Negative
2	The only advice anyone seems to want to give is how to profit from timber	Non-Timber	MA	Negative
3	I trust the timber management advice I get from others	Timber	MA	Positive
4	I worry that the timber harvesting advice isn't in my best interest	Timber	MA	Negative
5	Timber is too long-term an investment	Timber	LTI	Negative
6	Forestland ownership is more of a burden than a source of value	Non-Timber	LTI	Negative
7	Wildlife habitat is an important management priority	Non-Timber	C	Positive
8	Owing land is itself a form of economic security	Non-Timber	LTI	Positive
9	For me, harvesting timber can be an important source of income	Timber	FR	Positive
10	I don't harvest timber because I want to preserve nature	Timber	C	Negative
11	Managing my timber could be a great investment for the future	Timber	LTI	Positive
12	I'm not interested in harvesting timber, because it leaves an eyesore	Timber	A	Negative
13	Forest products like firewood, berries, and natural medicine aren't important in the 21st century	Non-Timber	A	Negative
14	I feel I get good feedback for all of my management ideas	Non-Timber	MA	Positive
15	Timber is not the only valuable resource on my property	Non-Timber	FR	Positive
16	You always have to choose between conservation and profits	Non-Timber	C	Negative
17	I enjoy a natural setting, with woods and animals	Non-Timber	A	Positive
18	A well-managed forest is a better place to live than one that runs wild	Timber	A	Positive
19	Timber can be harvested without unduly harming nature	Timber	C	Positive
20	Aside from timber, I don't see a lot of value in the land I own	Non-Timber	FR	Negative

Participant Selection

Participant selection was purposive by necessity and design. There is no database of African American forest landowners in Georgia to serve as a sample frame. Additionally, Q is better served with a diverse as opposed to a representative sample, and by interested and enthusiastic participants. The participant selection was a collaborative process. The three forest landowners who agreed to help field test the statements were recruited as a part of the grant writing process for this project's funding. Those three forest landowners, as well as contacts at Fort Valley State University (FVSU) Cooperative Extension, provided the contact information for additional potential participants. The researchers then contacted them to explain the process and schedule a meeting. In addition to the contacts recommended by other participants and FVSU extension, landowners were approached at regular workshops sponsored by FVSU. At the workshops, one of the researchers would be given time to address the participants, explain the purpose of the research, and ask for volunteers to participate. Oral consent was always solicited from volunteers, and it was encouraging to the researchers that many individuals declined to participate or dropped out part-way through the process, as this was a sign that the consent process was well understood and that only individuals with a genuine interest in participating did so. At the workshops, some participants agreed to sit down with researchers for an interview, and some participants elected to simply participate in the pile sorting and leave their thoughts and feedback on their statement record worksheet.

Pile Sorting

Participants began pile sorting by reading all 20 statements and sorting the statements into 'agree' and 'disagree' piles. They then prioritized the 'agree' statements, followed by the 'disagree' statements, with the result approximating a normal distribution. Throughout the process, participants were reminded that they were free to move statements between columns at any time and that the order of statements within the column did not matter. Participants were encouraged to provide a commentary on their placement process and highlight

any statements that presented difficulty to sort. Six of the pile sorts were preceded by extended qualitative interviews conducted at the participant's home. The remaining 28 did not include extended interviews. Irrespective of setting, participants completed a short survey of demographic and landholding characteristics and were asked to record their thoughts on their statement record sheet.

Analysis

Q is essentially a factor analysis, where the correlation matrix is based on a correlation between participants. Principal Component Analysis (PCA) resulted in seven components with an eigenvalue of at least 1.00, a common benchmark for a factor's consideration for further analysis (McKeown and Thomas 1988). Ultimately, we selected four factors for interpretation. This decision was made to satisfy a second common criterion for choosing factors that at least two participants loaded significantly for the factor. We also chose four because they were intuitively interpretable and well justified by interview data. The four selected factors were rotated using varimax rotation. A cutoff of 0.43 was used in determining significant loading for a factor:

$$2.5\frac{1}{\sqrt{34}} = 0.43$$

. Each participant was assigned to one factor, that for which they loaded most. Although uncommon, it is possible for a participant to be assigned a factor for which they have a negative loading. In this case it is necessary to interpret the inverse composite sort during factor interpretation.

After factor analysis, Q uses weighted loadings to create composite sorts, which represent the prototypical sort for each factor. First, a factor score is assigned to each statement for each factor. The magnitude and sign of the factor scores indicate the relationship the statements within each factor. For example, the statements with the two largest factor scores for a factor are assigned values of +3. Factor scores come from merging the pile sorts of all participants who load significantly for a factor. Before merging, participants are weighted so that those with higher loading have a larger influence on the final factor score. The weight

(w) of the factor loading (f) is first calculated where:

$$w = \frac{f}{1 - f^2}$$

Then the sum weighted reciprocal of the largest weight (wL) is used to generate a z-score for each statement using the statement computation weight (T), average computation weight for all statements $(\bar{X}\,T)$, and variance of computational weight for all statements (S). The statement z-scores are then arranged numerically to make the composite sort. All analysis was done using the PQMethod software available at http://schmolck.org/qmethod/.

$$ComputationalWeight : (T) = \Sigma w|\frac{1}{w_L}| \times 10$$

$$z = \frac{\bar{X}_T}{S}$$

3.4 Results

Landowner Profile

The 34 landowners who participated in this study are a fair approximation of African American family forest landowners in the US South (Table 3.2). The participants were like the general forest landowner population in terms of in age, education, and forest area. However, women formed a larger proportion of the participants than forest owners at large. Participants had management plans at twice the rate of the general forest landowner population, which is perhaps a result of participants being contacted through the FVSU extension. Participants owned forestland in 17 counties and resided in 16 counties. One-third of participants were absentee landowners. The absentee owners lived in five counties, which included large urban centers like Atlanta, Macon, and Albany. Of the eight counties that contained forestland owned in absentia, six were rural counties, and none has a population greater than 15,114 (Figure 3.1). One-quarter of the participants were heirs' property owners.

Table 3.2: Characteristics of the African American family forest landowner population and study participants (N=34). Population characteristics are a composite of the literature on African American family forest landowners in the US South.

	Population	Study Participants	References
Age	50-65	65	1,2,3,4
Sex (% Male)	68%	62%	2,4
Education (Median Achievement)	College	College	1,2,3,4
Management Plan (%)	17%	30%	2,4
Forest Area (ha)	20-40	25	1,2,3,4

Management Typologies

Each of the four factors selected for interpretation represents a distinct typology of forest management (Table 3.3). The fourth factor included participants who loaded positively and negatively for the factor, and so both the factor and its inverse are interpreted below. In the following discussion of the typologies the numbers in parentheses refer to the statement that supports the interpretation of the typology. It is important to keep in mind that no typology is perfectly representative of any individual forest landowner; even participants who load for one of the factors have some characteristics of the others (Figure 3.2).

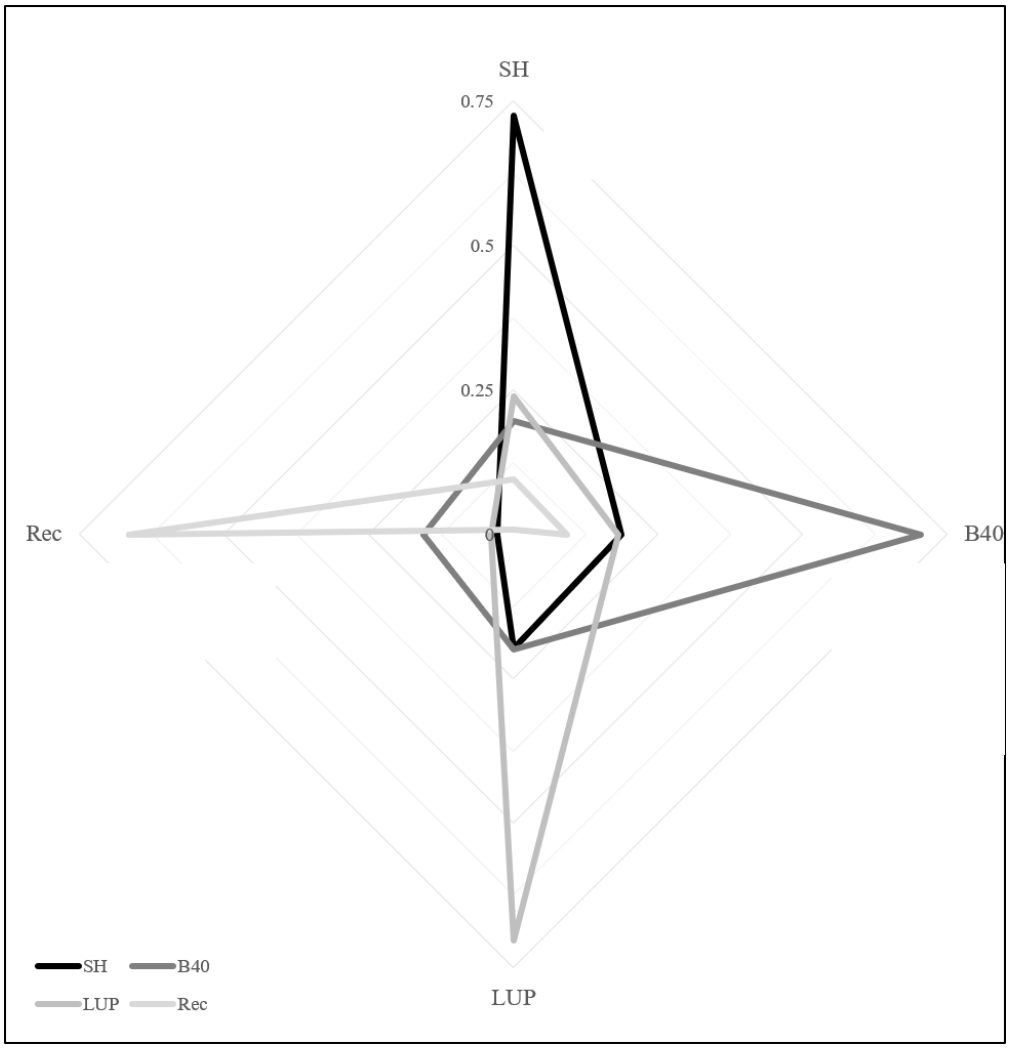

Figure 3.2: A visual representation of the four typologies. All four experience some overlap, just as all participants exhibit some degree of agreement with multiple typologies.

Table 3.3: The management typologies and their factor scores. The factors scores are a composite sort of the participants who load significantly for the factor.

Statement	Sustainable Harvester	Back 40er	Land Use Pragmatist	Recreationalist	
				Recreationalist	Indecisive Owner
1	-1*	0*	-2*	2*	-2*
2	0**	-2	2*	-2	2
3	0	-2*	0	0	0
4	0	-1	-2	-3*	3*
5	-2**	2	3	1*	-1*
6	-2*	-3	-3	0*	0*
7	2	1	-1	-2	2
8	3	3	3	1*	-1*
9	2	-2	2	-1	1
10	-1	-1	-3*	-1*	1*
11	3**	1	1	-2*	2*
12	-2**	0	0	2*	-2*
13	-3	2*	-1*	-3	3
14	0	0	1	0	0
15	2	3*	0*	2	-2
16	-1**	0	1	0	0
17	1	2	2	3	-3
18	1	1	0	3*	-3*
19	1	-1*	-2*	1	-1
20	-3	-3	-1	-1	1

*: $p < 0.05$

**: $p < 0.01$

Typology 1: Sustainable Harvester

The Sustainable Harvester exemplifies multiple use management, with a balanced approach to both timber and non-timber resources. The defining feature of this typology is agreement that timber could be a great future investment (#11), which is significantly different from other typologies at $\alpha = 0.05$. The Sustainable Harvester believes that forestry and conservation are compatible, and they reinforce this belief through an agreement that timber is good investment (#11) and source of income (#9), that wildlife habitat is important (#7) and that their forestland has valuable resources apart from timber (#15). For the Sustainable Harvester timber products are important, but they also see a place for non-timber forest products (NTFPs) (#13), which highlights their balanced priorities. Sustainability also im-

plies a long-term view of the land, which comes out strongly in this typology through the disagreement that timber is too long term an investment (#5) and the land has no value beyond timber (#20). Instead, land ownership itself is intrinsically valuable to the Sustainable Harvester (#8). One landowner timber directly stated that management is about the future: 'Pines are an investment in the future. An investment in the property and in the future. When I retire, at least I'll have that.' Another also noted that sustainable management is an investment: 'The trees will eventually make money. The last set didn't because we didn't manage them. We'll do these differently.' For the Sustainable Harvester, the land itself is valuable, and a long-term timber investment is a way to improve the value of the land for the future. 'Legacy' was a word that came up frequently in discussions with participants. One elderly landowner said: 'Oh yes. I want my children to have a legacy. To be able to say: "Paw Paw did this, Paw Paw did that".' Another said: 'If your family left you a legacy, you want to pass it on if you can.' The Sustainable Harvester considers timber, wildlife, and NTFPs to all be management goals and has a long-term view of the intrinsic value of his or her land, a view that often includes future generations.

Typology 2: Back 40er

The Back 40er appreciates the presence of forest on the land, but as a part of the background, while they emphasize more profitable land uses. Two significant features of this typology are lack of importance placed on NTFPs (#13) and importance of resources beyond timber (#15), which demonstrate a lack of emphasis assigned to any forest product, timber or NTFP. Neutrality regarding timber for income (#1) further highlights that timber is not a management priority. Agreement that timber management could be a good investment (#11) demonstrates an interest in timber as a management goal for Back 40ers, although the agreement that timber is too long-term an investment (#5), seems to preclude any active investment or management of timber on the owner's part, with timber production being opportunistic rather than intentional. Instead, this typology characterizes those who see value in land uses other than timber (especially row cropping or pasture), as highlighted by strong

agreement that land has high intrinsic value (#8) and their land has valuable resources other than timber (#15, #20). One landowner's statements are typical of the Back 40er: 'I want to diversify the property... maybe the front in forestry and farming in the back – it's more flat land.' The land itself is valuable to a Back 40er, and it has many valuable resources aside from timber. The Back 40er also appreciates woods on their property, especially well managed or park-like woods, even if for nothing beyond personal enjoyment (#17, #18). Of all the typologies, the Back 40er group is the most well-educated, has the highest rate of employment, and are generally resident owners. It is possible that living on the property and having access to more income motivates the Back 40er to invest in more capital-intensive land use practices. More than any other typology, the Back 40er is distrustful of timber management advice (#3), perhaps because traditional timber management advice is so out of line with their land use goals. The Back 40er appreciates forests but sees little economic value in them, instead emphasizing the value of agriculture as an alternative to forestry.

Typology 3: Land Use Pragmatist

The Land Use Pragmatist appreciates the value of owning forested land, recognizes the role of forests in the environment, and is comfortable making tradeoffs of conservation for economic gain. This typology is best exemplified by agreement that they must choose conservation or profits (#16) and disagreement that wildlife habitat is a management priority (#7), a strong deviation from other owner typologies. The Land Use Pragmatist recognizes a tradeoff between economics and conservation and makes it clear that their priority is profit and not conservation. This prioritization is further supported by disagreement that timber harvesting can be done without harming nature (#19) and that concern for nature impedes their harvesting goals or activities (#10); the Land Use Pragmatist believes that harvesting is harmful to nature but will harvest anyway. Additionally, the short-term, extractive nature of this typology is highlighted by agreement that harvesting timber is a good short-term income source (#9) and long-term investment (#11), but also a strong agreement that growing timber takes far too long (#5). The Land Use Pragmatist considers the extraction of

both timber (#1) and NTFPs (#13) important. However, the Land Use Pragmatist is more interested in using the resources currently available to her or him than in investing in future resources. The words of one participant sum up the attitude nicely: 'Trees – I prefer it all pasture land or farmland … The trees are okay. I like to look at them. There's no money. It's a long, drawn out to set it out in pines. Might take 25 years before you can get a cut.' Finally, the Land Use Pragmatists see value on their land beyond timber (#20), partly in non-timber resources (#15), though largely in the land ownership itself (#8). Together, this suggests that their management goals are motivated by making the land valuable through land uses like agriculture or ranching rather than investing in the future of the [limited] timber resources already on the land. The Land Use Pragmatist defines management priorities based on extracting value from timber on the land, with little interest in making long-term investments in timber or regard for the adverse effects of timber harvesting on the environment.

Typology 4a: Recreationalist

The Recreationalist values the forest less for its economic value than for its recreational or aesthetic value. The Recreationalist sees no present or future value in their timber, which they make abundantly clear though disagreement with positive statements (#9, #11) and agreement with negative statements (#1, #5) about timber for income and investment. The Recreationalist also places a significantly lower value on the intrinsic value of the land (#8) and tend to see forestland ownership as neither an economic benefit nor economic burden (#6). The land is not a source of value, security, or a burden; it is a place to enjoy. Simultaneously, the Recreationalist sees non-economic value in their forestland (#15, #20). The primary management objective is to create a place for the owner to enjoy, someplace that is a natural setting (#17), perhaps managed to the landowner's tastes (#18), but never harvested to the point it becomes unattractive to the owner (#12). The emphasis on creating a place to enjoy may not be surprising, considering that the landowners of this typology are the most likely to reside on their property and own on average the smallest [least commercially

viable] forest tracts. It is important not to confuse a Recreationist with an environmentalist. Although they are not interested in harvesting timber, it is for personal motives rather than environmental ones, as highlighted by belief that timber could be harvested without harming nature (#19), emphasis that the Recreationalist does not harvest for personal rather than conservationist motivations (#10), and clearly stating that wildlife habitat is not a management priority (#7). The personal motives of this typology are given a final emphasis though the value they place on NTFPs (#13); the Recreationalist personally enjoys and extracts the resources the forest has to offer. The Recreationalist is interested in managing their forest land for personal enjoyment, not through motivation for economic gain or environmental conservation.

Typology 4b: Indecisive Owner

The Indecisive Owner best thought of in contrast to the Recreationalist. They assign no value to manage their forests for recreation (#12, #18), do not particularly value being in the woods (#17), and have no interest in NTFPs (#13). However, it would be a mistake to conflate the Indecisive Owner with either a Back 40er or Land Use Pragmatist. Unlike those two typologies, the Indecisive Owner sees little value in land uses other than timber (i.e., agriculture, pasture, etc.) (#15, #20), and they value timber as a source of income (#1, #9), and future investment (#11). Along with timber, the Indecisive Owner also values wildlife (#7), although this may be a consumptive rather than the aesthetic value of wildlife. And, unlike the Sustainable Harvester, the Indecisive Owner is uneasy about reconciling their multiple objectives; they recognize that timber production has environmental tradeoffs (#19) and are reluctant to harvest timber for that reason (#10), even though timber is clearly a management goal. Their unease is compounded by lack confidence in the professional advice they receive, both because they aren't getting advice on the breadth of topics that interest them (#2) and because they are unsure whether the advice they get is what is best for their management goals (#4). The Indecisive Owner has a use-oriented view of the forest landownership, multiple objectives they find difficult to reconcile, and may be

undecided about how to best manage their forest.

3.5 Discussion

One of the difficulties of generalizing forest landowner typologies is the extent to which they are dependent on local context (Blanco et al. 2015). That has not prevented several recent attempts to generalize forest landowner typologies at the global scale by synthesizing the results of diverse studies (Urquhart et al. 2012; Blanco et al. 2015; Silver et al. 2015). The syntheses generally agreed in the number of broad typologies (5 or 6), and their typologies were analogous: Conservation, Consumption, Multi-objective, Passive, Production, and Recreation. Additionally, in a survey of the methodology applied to forest landowner typology problems, Ficko et al. (2019) identified the most common descriptors, the six most common of which are analogous to the six general typologies identified in the review papers. The four typologies we identified among African American family forest landowners all seem to align with the general typologies identified, although the fit is not always perfect considering differences across scales (local and global). The Sustainable Harvester aligns well with the Multi-objectivist and the Recreationist with the Recreationist. We consider the Land Use Pragmatist to align most closely with the Production typology and Back 40er with the Consumption typology; we make this distinction because Land Use Pragmatists generally place little value on anything but economics, while the Back 40er consider factors other than profit an important (if minor) component of forestland ownership. The Indecisive Owner is the most difficult to align with the global level typologies. It shares characteristics with the Multi-objective (interest in conservation and economics), Consumption (interest in timber and hunting), and Passive (possibly a case of paralysis by analysis) typologies. To forcefully align the Indecisive Owner with just one of the three is unnecessary and unproductive. They represent a voice that is unique to African Americans in the US South that has been missed or ignored in other research.

While the typologies we identify are well-aligned with those on the global scale, (Blanco et al. 2015) have highlighted the difficulty deriving specific policy applications from global,

generic typologies. Instead, policy recommendations should be derived from local typologies along with local context, which in the case of African American family forest landowners includes the well-documented constraints they face to engaging in forest management. In addition to the factors affecting African American landowners previously discussed, it is important to highlight that thirty-eight percent of African American family forest landowners considered lack of knowledge a primary barrier to forest management, second only to financial resources (49%) (Gan and Kolison Jr 1999; Gan et al. 2003; Schelhas et al. 2012). An elegant solution to limited financial resources would seem to be utilizing financial assistantship programs like the Natural Resource Conservation Service's Conservation Reserve Program (CRP), Environmental Quality Incentive Program (EQIP) including the Longleaf Pine Imitative (LLPI), and Healthy Forest Reserve Program (HFRP). However, research shows that African Americans have not engaged in financial assistance programs to the same degree as white landowners (Gan et al. 2005), and underutilization of financial assistance programs remains a key constraint on African American forest management today (Schelhas et al. 2018). Underutilization in turn is a result of lack of awareness (Schelhas et al. 2018), lack of trust between forest landowners and forestry professionals (Dwivedi et al. 2015), and the challenges of heirs' property ownership. Understanding the typologies presented in this research will not help forest professionals overcome many of the present constraints. However, understanding them may play an important role in the knowledge/awareness constraint by helping forest professionals present forest landowners with information that aligns with their management goals.

For example, a family forest landowner who falls into the Land Use Pragmatist typology may be receptive to information about the benefits of reforestation as in the EQIP program, but not if the information emphasizes the ecological value of forests like the HFRP or CRP. Instead, information about the benefits of agroforestry (especially silvopasture) to livestock may be more effective, although it is something about which landowners and even forest professionals often need more education (Stutzman et al. 2019). Based on their typology and

thoughts articulated in the qualitative interview, the Sustainable Harvester is very receptive to traditional forest management information that emphasizes the economic, environmental, and future benefits of forest management and may be open to participating in a program like CRP or HFRP. However, Sustainable Harvesters also have the highest rates of heirs' property ownership; resolving those issues is an important first step toward improved forest management and is something forest professionals should be educated about. As the Land Use Pragmatist, the Back 40er will likely be less receptive to information that emphasizes forestry as a land use that is distinct from agriculture. For the Back 40er, an emphasis on pine straw from longleaf pine (*Pinus palustris*) may appeal to their commercial and other management priorities (Dickens et al. 2012). The LLPI could help landowners in this regard, and while land enrolled in CRP cannot be raked for pine straw, post-CRP land can be very productive for pine straw. The Recreationalist is likely to be unmotivated by either economic gain or active environmental protection. While their small tracts have little impact on regional or even local timber markets, these landowners can play an important role in providing both wildlife habitat and ecosystem services. Management professionals can help them ensure compliance with best management practices, for example, to limit trail erosion and respect riparian buffers, and possibly encourage them to consider options like long-term enrollment in HFRP or even applying for a conservation easement. For the Indecisive Owner, the most important first step may be to simply talk with a forest professional about their ideas, or even connecting them with peers who already practice forest management. Recent research suggests that social networks, and especially connections to knowledgeable and trusted individuals are key to engaging African Americans in sustainable forestry (Hitchner et al. 2019). African American landowners prefer information from personal contacts over print media (Gordon et al. 2013). So emphasis on personal connections to Indecisive Owners is especially important at a time when forest professions are diminishing the amount of time they spend with individual landowners (Dwivedi et al. 2015).

While the available programs address the environmental and economic needs of all four

typologies if they reach the right audience, they are unsuccessful in addressing the cultural aspect of forest landownership, something that is especially important to the Sustainable Harvester and to the Back 40er and Recreationalist. The importance of culture and connection to the land came out very strongly in the qualitative interviews. There are already programs that address cultural heritage, although they have two potential shortcomings: that both landowners and forest professionals have very little knowledge or awareness of these programs, and that they typically address sites of historical or archeological importance and not the aspects of a forest property that make it significant to the landowner. If we were to make one recommendation, it would be for policymakers to not only consider what a forest can provide but also what it already provides to its owners in terms of cultural significance and as a connector between the landowner's past, present, and future.

3.6 Conclusion

Much of the literature treats minority family forest landowners as a homogenous group, insofar as there is no literature to our knowledge that explores the intragroup differences of African Americans in a natural resource context. Our work demonstrates that although African American family forest landowners are superficially homogenous, their views about forest management are diverse. Information about forest management should account for the diversity of viewpoints, even while accounting for the special circumstances surrounding African American landowners.

The findings of this research provide important insights into African American forest management outlooks and how to serve their forest management objectives in an effective manner. However, they also raise several new questions. The first is to question our assumption about differences between African American and white forest landowners. We plan to address this issue by repeating our methodology with white landowners from the same region. The other question our research raises is understanding what motivates the different management outlooks of African Americans. Although this was addressed to a degree in the qualitative interviews, we plan on conducting in-depth research into the connections between

African American family forest landowners and their forestlands. Finally, the results from this work are exploratory, and there is an opportunity to use the typologies uncovered as the basis for research that is representative of the population at large.

It is important to recognize the possibility that participants in this study are not representative of the African American forest landowner population. Compared to the literature, participants included more farmers and were more interested or actively engaged in forest management than is typical. This makes sense considering their connection to FVSU extension. While important to recognize, we do not believe it diminishes the validity or importance of our work.

This work, aside from providing insight into African American family forest management, contributes to a small but growing body of literature that uses Q Method to understand natural resource issues. It highlights how the method can be used to explore the diverse viewpoints of seemingly homogenous populations to design and implement natural resource management programs that contribute to increasing prosperity of family forest landowners, maintaining the ecological integrity of forested landscapes, and supporting vibrant rural communities.

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CHAPTER 4

HOW AFRICAN AMERICAN AND WHITE FAMILY FOREST LANDOWNERS CONCEPTUALIZE FOREST LEGACY IN GEORGIA, UNITED STATES?[1]

[1]Goyke N & Dwivedi P. Submitted to [Small Scale Forestry] [July 11, 2019]

Abstract

Legacy, intergenerational transfer, or bequests of forestland is an important subject for family forest owners. While the literature primarily considers legacy from an economic perspective or as a function of landowner characteristics; our research explores how past, present, and future connections to forestland shape forest landowners' conceptions of legacy. This research uses Q method, a mixed qualitative/quantitative method, to explore differences between African American and white family forest landowners. It identifies four distinct typologies for landowner conceptualization of legacy: Family Forest Managers, Family Forest Investors, Family Forest Stewards, and Family Forest Skeptics. Despite some historical and landowner characteristic differences, the differences between the typologies are minimal between the races. Principally African American landowners are more motivated by the collective struggle of African Americans to obtain and retain forestland, while white landowners are more motivated by personal identification with their forestland. For policy makers, understanding family forest owners' conception of legacy and motivations concerning intergenerational land transfer is valuable for planning for forest futures.

4.1 Introduction

With good cause the group of landowners once defined by what they were not, non-industrial private forest landowners, are now defined by one of their most important characteristics, family forest landowners. The key is family, and the importance of relationships between past, present, and future forest landowners is well documented (Majumdar et al. 2009; Karppinen 2012; Butler et al. 2017; Markowski-Lindsay et al. 2018). Across the United States, a majority (68.2%) of family forests owners consider legacy, intergenerational land transfer, to be an important objective (Butler et al. 2016). The importance of legacy is even greater in the US South (76.2%), where in one Alabama study, both African American (85%) and white (75%) forest landowners consider legacy an important goal (Schelhas et al. 2012). Furthermore, nearly half of Southern family forest landowners (45.9%) inherited their land from the previous generations (Butler et al. 2016), with no substantial

differences between African American and white landowners (Schelhas et al. 2012). Family forest landowners have diverse views on forest management, and one of their few shared characteristics is the importance of family legacy to forestland ownership.

While forest legacy is important as an objective, it also has effects on forest management. For example, in their review of timber harvesting literature. Silver et al. (Silver et al. 2015) identified a positive effect of family tenure/inheritance on timber harvesting. For African American family forest landowners, legacy goals had a significant effect on management activities (Goyke et al. 2019b). Legacy may also help to maintain continuity on the landscape, and play a role in environmental conservation (Markowski-Lindsay et al. 2016). From an economic perspective, for family forest landowners the forest sector is a web of personal and professional relationships built on trust (Lind-Riehl et al. 2015; Hitchner et al. 2019), and introducing new generations into those relationships could help maintain economic continuity as well. For African Americans in particular, formalizing intergenerational land transfer can help avoid a legacy of the clouded land title (Hitchner et al. 2017) and open up many potentially unviable management opportunities (Barlow and Bailey 2017).

Yet despite its apparent importance, legacy is understudied in the literature (Markowski-Lindsay et al. 2016), where one key takeaway is that non-market and family values play an important role in bequest intentions (Amacher et al. 2002). In this article, we explore legacy through the lens of the past, present, and future family connections to forestland: intergenerational connections. Our primary objective is to explore the ways in which family forest landowners conceive of their intergenerational connections and their legacies. Our assumption is that despite the prevalence and importance of legacy in the family forest landowner literature, there is a variability in the way forest landowners think about their personal legacies.

Our second objective is to explore the differences in the ways African American and white family forest landowners consider intergenerational connections and legacy. The literature indicates we should expect to find some differences, because of different past, present, and

future conditions. Historically, it was more difficult for African Americans than for whites to obtain real property (Copeland 2013) which may motivate some African American family forest landowners to make holding onto family property their primary objective (Schelhas et al. 2017). Among contemporary landowners, there are barriers between African American family forest landowners and forest management. One barrier is the lack of trust in forest professionals (Schelhas et al. 2018). Another is underutilization of cost-share programs, which to a degree is an issue for landowners of all races. However, African Americans face barriers to participation because of racial discrimination (Christian et al. 2013b) while many white family forest landowners elect not to participate because of local historical social norms (Lind-Riehl et al. 2015). The threat of land loss also disproportionately affects African Americans (Christian et al. 2013a), particularly those with heirs' property issues (Dyer and Bailey 2008). Finally, changing demographics may influence how landowners think about legacy, and especially for African Americans as younger generations become increasingly urbanized (Goyke and Dwivedi 2018), and new immigrants fill niches on the rural landscape they once occupied (Crowley et al. 2015). These past, present, and future differences suggest that we should expect that African American and white family forest landowners to consider intergenerational connections and legacy differently.

This study uses Q method (Watts and Stenner 2005), a mixed methods technique, to investigate two objectives. The first objective explores the ways in which family forest landowners conceive of legacy, whereas the second objective identifies the differences between African American and white family forest landowners. In doing so, we hope to fill a gap in the family forest bequest literature, highlight the complexity of the legacy concept, and proffer policy suggestions to forest professionals to better engage with family forest landowners.

4.2 Methods

This study took place in state of Georgia, where fifty-four of forest acres are owned by family forest landowners (Butler et al. 2016) and are vital to the forestry sector which contributes $35.2 billion to the state economy (Georgia Institute of Technology 2016). The

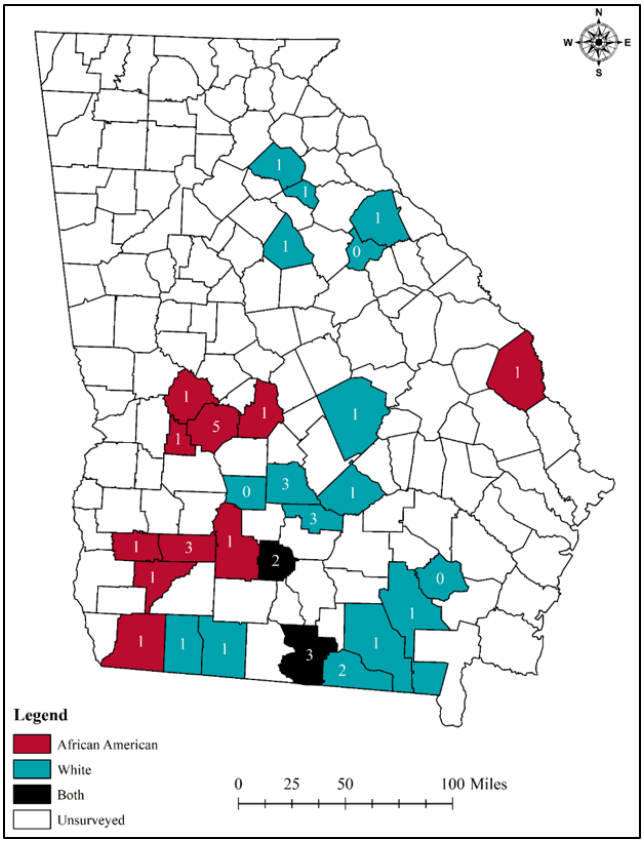

Figure 4.1: Distribution of study participants. Counties shaded in dark gray represent those with African American landowners. Counties shaded in light gray represent those with white landowners. Counties shaded in black have both African American and white landowners. The label indicates the number of participants residing in each county. The label "0" indicates a county with forestland owned in absentia.

participants in this study represent mostly the southern part of the state (Figure 4.1), where the forest sector accounts for three to five percent of total employment, with even more in some counties (Georgia Institute of Technology 2016). African American participants hailed from 12 counties, white participants from 18 counties and two counties had participants of both races.

Participant selection was purposive, and participants were identified in collaboration with Fort Valley State University (FVSU) Cooperative Extension and the Greene–Morgan Forest Landowners Association. Purposive selection ensured that participants were forestland owners and were also interested and enthusiastic, important for productive dialogue during qualitative interviews. Some participants participated at workshops, and others were met

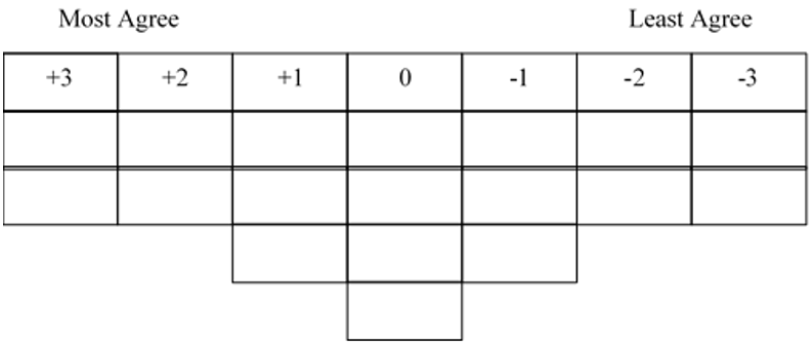

Figure 4.2: The forced normal distribution. Participants were asked to sort statements to fit a quasi-normal distribution.

individually at their residences. In all cases, oral consent was solicited from participants, and they were clearly informed of their right to discontinue participation at any time.

Participants were surveyed using a combination of a short survey, pile sorting, and interviews. First, each participant completed a short socio-demographic survey. Second, participants sorted 18 statements (Table 4.1) into approximately normal distributions (Figure 4.2). The statements represented two themes (economic and cultural connections), with three dimensions (past, present future) and three iterations (positive, neutral, negative) The theme, dimension, iteration structure of the statements were meant to provide complete coverage of the discourse related to our specific research question. During pile sorting participants were encouraged to share their thoughts related to individual statements as well as their rationale for how they sorted the statements. Eight African American and three white landowners agreed to participate in an interview. Although participants who participated at workshops were invited to interview after the workshop, most declined due to time constraints. Participants who choose not to participate in the interview were encouraged to leave comments on their record sheet.

Table 4.1: The Q statements. The themes are economic (E) and cultural (C) connections. The dimensions are past (Pa), present (Pr) and future (F). The iterations are positive (+), negative (-) and neutral (/). The statements were randomly numbered to reduce bias.

#	Theme	Dimension	Iteration	Statement
1	E	Pa	(/)	I don't consider the past when I manage my forestland.
2	E	Pr	(/)	I don't really think about my forestland in terms of economics.
3	C	Pr	(-)	Forestland ownership always seems to cause family headaches.
4	E	Pr	(+)	My forestland is or could be a good income source.
5	E	F	(+)	My forestland is a good long-term investment.
6	E	F	(-)	Investing in things other than forest management is more profitable in the long term.
7	C	Pr	(/)	I see my forestland as more of an investment than a part of my identity.
8	C	F	(+)	I would like to pass on my forestland to future generations.
9	E	Pa	(-)	Inherited land can be a source of difficulty.
10	C	F	(/)	I'd consider passing on my forestland to the next generation if they seem interested.
11	C	Pa	(/)	There isn't a connection between forestland and my family's heritage.
12	E	Pa	(+)	The struggle of past generations to get land motivates me to manage my land well.
13	C	Pa	(+)	Forestland is deeply connected to my family history.
14	E	Pr	(-)	Making my forestland profitable is not likely in the near future.
15	C	Pr	(+)	My forestland is something that is a part of my identity.
16	C	Pa	(-)	Owning forestland keeps people stuck in the past.
17	E	F	(/)	Future generations are responsible for future management of my land.
18	C	F	(-)	I do not want to burden the next generation with forestland ownership.

The African American and white participants were separated for factor analysis. When deciding on how many factors to interpret, we considered four criteria. First, a selected a minimum eigenvalue of 1.00. Second, at least two participants who loaded significantly, including negative loadings. Third, the interpretability of the factors selected, i.e., the subjective ability to construct a narrative around the sorted statements supported by participant

interviews. Finally, we would interpret the same number of factors for the African American group and the white group. The factor analysis was done using PQMethod software available at http://schmolck.org/qmethod/.

4.3 Results

Landowner Profile

We surveyed 23 African American and 26 white family forest landowners (Table 4.2). A t-test showed no significant difference ($\alpha = 0.05$) between the groups in terms of age (p= 0.22), acreage owned (p= 0.92) or forest acres owned (p= 0.11). A chi-square test showed no significant difference in education attainment (textitp= 0.25), and Fisher's exact test showed no significant difference in residency (p= 0.26), prevalence of family land (p= 0.07) or prevalence of recent management (p= 0.10), although the sample of white forest landowners had significantly more female landowners (p= 0.04).

Table 4.2: Characteristics of African American and white family forest landowners (N=49).

	African American	White
Age	59	63
Female	27%	54%
Male	73%	46%
Acres	158	162
Forest Acres	55	111
Absentee	13%	19%
Resident	87%	81%
Family Land	95%	75%
Management	45%	25%
Heirs' Property	35%	-

Landowner Typologies

In the typologies presented below, numbers in parentheses refer to the relevant Q statement. Statements marked with an asterisk (*) are significantly different from in the other typologies at the $\alpha = 0.05$ level. It is important to keep in mind that although the following typologies represent the 'ideal', no landowner aligns perfectly with a single typology. Instead, all landowners share some characteristics of all three typologies (Figure 4.3).

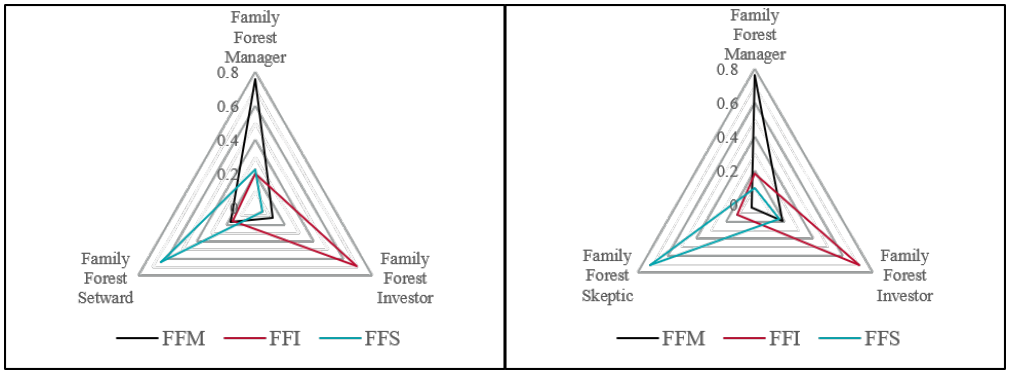

Figure 4.3: Average factor loadings for participants who load significantly for each factor. Neither African American (3a) nor white (3b) participants load entirely for a single factor but have some characteristic of all three. The triangles represent the average factor loading for each factor for Family Forest Managers (FFM), Family Forest Investors (FFI), and Family Forest Stewards/Skeptics (FFS).

African American Typologies

The three African American family forest landowner typologies are Family Forest Manager, Family Forest Investor, and Family Forest Steward. Some landowners did not load significantly for any of the three typologies. Although the sample is too small to be tested for statistically significant differences between typologies, there are some apparent demographic differences between the different typologies (Table 4.3).

Table 4.3: Selected characteristics of African American participants. College Education is the percent of participants with a college degree. Absentee ownership is defined as living in a different county than the forestland property. Family Land is land that was passed from the preceding generation.

Factor (n)	Age	Sex	College Education	Ownership (%)	Forest Acres	% Forest	Family Land	Mgmt. Activity	Heirs' Property
FFM (11)	55	36%	91%	0%	71	37%	91%	45%	45%
FFI (4)	63	25%	50%	25%	17	17%	75%	0%	25%
FFS (3)	64	0%	100%	0%	37	30%	67%	67%	33%
None (5)	64	20%	80%	20%	55	37%	80%	40%	0%

Typology 1: Family Forest Manager

The Family Forest Manager is best described as a future-oriented forest manager motivated by the past. The defining statement for the typology is that the struggles of past generations

motivate present management (#12*). To quote one landowner: "I used to hear my dad say how hard it was on them to purchase. Which he did eventually... against the odds." While another said: "[My father] made a lot of sacrifices to keep that land." Family Forest Managers also explicitly acknowledge that they consider the past when making management decision (#1*). Their connections to the past are also very personal with forest playing an important role in family history and heritage (#11*, #13). One landowner said: "We're the third generation. We're training the fourth [generation] now." Another said: "I think there's a deed in the courthouse showing 1868. We live on the original plot. It's in your blood." The Family Forest Manager is far from backward-looking (#16) and considers passing on their forestland very important (#8, #10). Family Forest Managers also take the economics of forest landownership seriously (#2*). While the Family Forest Manager does not necessarily consider forestry the best investment (#6*), they believe that forestry is a good future investment and source of income (#4, #5). Landowners said: "[I like my forest] as an investment... make some money," and "The trees will eventually make money." This may indicate the importance of family heritage and legacy in the calculus to consider managing the land in forestry; forest management accomplishes the dual objectives of economic gain and keeping the land in the family. Of the three typologies, Family Forest Managers are the most likely to acknowledge the potential of family forestland to cause family conflict (#3*). One landowner admitted: "there are a lot of problems with families and farms," another said: "you're putting people... as directorship [of an LLC], they might not have the same interests as you." The Family Forest Manager is motivated by family history and heritage to manage their forest as an economic investment and a legacy for future generations.

Typology 2: Family Forest Investor

The Family Forest Investor is best defined by the economic potential they see in the forestland. For the Family Forest Investor forestry is the best possible investment (#6*, #5), and a good source of income (#4, #14). One landowner said it best: "Really, this place... was an investment for me." Like the other typologies, Family Forest Investors are motivated by

previous generations' struggles (#12), but to a lesser degree (#1). For example, they do not see a strong connection between family heritage and forestry (#11, #13*) and instead consider forest primarily an investment (#7*, #15). The Family Forest Investor is also ambivalent about their land as a legacy to future generations. They are not interested by default in passing on their land (#8*), although if a family member were to express interest in owning and managing the land, they would consider passing it on (#10). The problem in the eyes of one landowner was interest: "My kids they're in the City. They abhor this place." While the Family Forest Investor does not agree that forestland ownership causes headaches (#3), they do see their land as a potential source of difficulty for the next generation (#9*). As one landowner said, "Some of them would probably take it. They just have to pay the taxes." Minimizing family headaches may be why the Family Forest Investor is only interested in passing down their land to an interested family member. Indeed, Family Forest Investors are adamant that future generations decide on their own way to use the land, rather than look to the past (#17*), again perhaps to avoid potential difficulty. The Family Forest Investor views their forestland primarily as a good investment and/or source of income instead of a part of their heritage and would be interested in passing on their forestland as a legacy only to a keen family member.

Typology 3: Family Forest Steward

The Family Forest Steward is best described as the custodian of family legacy. They consider their most important duty passing their land on to the next generation (#8, #10*). One landowner summed up the typology saying: "My goal is to pass the land on to [my kids]. That's my primary goal." Their motivation comes partly from the struggle of past generations to get land (#12), but primarily from their family heritage (#11, #13) and personal identity as a forest landowner (#15*). Said one landowner: "This was family land. I wanted it... because it was family land." For the Family Forest Steward, forestland is not a source of difficulty (#9) or family problems (#3) and is to be considered a boon rather than a burden (#18). Family Forest Steward do not consider their forestland in terms of economics

(#2) or investment (#6*), and explicitly reject the notion that their forestland is (#4*) or could be (#5*) a good investment. Said one landowner: "Trees are a long, drawn-out thing. There won't be any harvest anytime soon." Family Forest Stewards place a low emphasis on the economic value of their forestland and instead maintain it for its value as a bridge to family history and heritage, and in term serve as a bridge to future generations.

White Typologies

The three white family forest landowner typologies are Family Forest Manager, Family Forest Investor, and Family Forest Skeptic. Some landowners did not load significantly for any of the three typologies. Although the sample is too small to be tested for statistically significant differences between typologies, there are some apparent demographic differences them (Table 4.4).

Table 4.4: Selected characteristics of white participants. College Education is the percent of participants with a college degree. Absentee ownership is defined as living in a different county than the forestland property. Family Land is land that was passed from the preceding generation.

Factor (n)	Age	Sex	College Education	Ownership (%)	Forest Acres	% Forest	Family Land	Mgmt. Activity
FFM (11)	61	73%	73%	45%	181	79%	82%	27%
FFI (7)	61	14%	57%	0%	60	53%	57%	0%
FFS (4)	63	75%	100%	0%	19	25%	75%	25%
None (4)	72	50%	50%	0%	88	59%	50%	50%

Typology 1: Family Forest Manager

The Family Forest Manager is best defined by the importance of forestland ownership to their personal identity (#15*) and family history (#11, #13*). Indeed, for the Family Forest Manager family and identity is more important than management or investment (#7). However, Family Forest Managers also value the economic benefits of forest landownership (#2*) and consider forests are a good source of present (#4) and future income (#5*, #14). One landowner commented on their record sheet about the importance of income from hunting leases as well as timber sales. Still, family heritage is so important to the Family Forest

Manager that they explicitly acknowledge considering the past when making management decision (#1). Still, they do not feel attached to the past (#16) and do not except future generations to follow exactly in their managerial footsteps (#17). What is important to the Family Forest Manager is passing on the land to future generations (#8), especially to those who are interested in future management (#10). One landowner typified the typology when they said: "Keeping land in the family is important, no matter what." Importantly, the Family Forest Manager is aware of the potential difficulties of family forest landownership (#3*, #9) and do not wish to burden future generations with forestland (#18*). Still, in the eyes of the Family Forest Manager, the potential downside is minimal, and they consider forestland an important legacy. As one landowner said: "[Forestland] is a blessing, not a burden." The Family Forest Manager is motivated by family history and personal connection to their forestland to manage their forest as an economic investment and a legacy for future generations.

Typology 2: Family Forest Investor

For the Family Forest Investor, family forest landownership is an investment more than an identity (#7*), and Family Forest Investors are very optimistic about the present (#4) and future (#5*) economic benefits of forest landownership. Said one landowner: "Other things could be a better investment, but I don't want to [invest in anything else]." Indeed, the Family Forest Investor does not consider forest landownership an important part of their heritage (#13) or personal identity (#11, #15), although one landowner said: "[Forest landownership] has grown on me over time." Another said: "I like [forest landownership], but it's not ME." Furthermore, the past and connections to it are unimportant to the future-oriented Family Forest Investor (#1, #12, #16). While the Family Forest Investor is future-oriented in terms of economics, they place less value on passing their forestland on to future generations compared to other typologies. One landowner typified the indifference of this typology to legacy saying: "The next generation can manage it, or they can sell it." Interestingly, despite the Family Forest Investors relative disinterest in leaving the land as a legacy, they

do not foresee any difficulty of forest landownership (#3*). This apparent paradox is resolved after considering that the Family Forest Investor only considers passing on land to heirs who express interest in managing it (#10, #17) to avoid burdening future generations with forestland they do not want. The Family Forest Investor sees a lot of economic benefit in owning forestland and would consider passing it on to future generations, but only to someone who expressed interest.

Typology 3: Family Forest Skeptic

The Family Forest Skeptic is differentiated from the other typologies primarily by their strong agreement that family forest landownership is a source of difficulty (#3*, #9*). The Family Forest Skeptic does not consider their forestland important to their personal identity (#13, #15) or family heritage (#11*), and they reject the notion that the past influences their management decisions, for good or ill (#1*, #12, #16). The Family Forest Skeptic does not consider their forest an important part of their identity, not consider it an economic asset (#2, #7). In fact, their other defining feature is their skepticism towards the income (#4*, #14) or investment potential of their forestland (#5*). Despite their outlook, Family Forest Skeptics feel strongly about passing their land on to the next generation (#8), with a caveat. Considering their perceived limited economic value and potential problems of forest landownership, the Family Forest Skeptic is primarily interested in passing on land to an interested heir (#10*), otherwise, they fear the gift will be a burden (*18). The Family Forest Skeptic sees little economic value in their forestland and instead considers it a potential problem. While they have no strong interest in retaining their forestland and no qualms about selling it they generally express openness to passing on their land to an heir who expresses active interest in it.

Differences

The African American and white Family Forest Managers are very similar in most ways. The most important difference is the positional swapping of statements #12 (The struggle of past generations motivates me) and #15 (Forestland is part of my identity). For the

African American Family Forest Manager, statement #12 is significant and positive, while statement #15 is neutral. The opposite is true for the white Family Forest Manager, implying that while African Americans are motivated by cultural and racial heritage, whereas whites' motivation comes from more personal connections to their forestland. The African American and White Family Forest Investors are also very similar, with two key differences. African American Family Forest Investors are much more optimistic about the economic potential of forest management specifically (#6), and they are less invested in passing their land on to the next generation (#8). Indeed, of the typologies, only African American Family Forest Investors disagree that they would like to pass on their forestland to future generations. Both the Family Forest Steward and Family Forest Skeptic are pessimistic about the economic potential of their foreland. However, while the Family Forest Steward is defined by intergenerational connections, the Family Forest Skeptic emphasizes the difficulties, problems, and uncertainty of their forestland legacy.

4.4 Discussion

Ample literature exists on family forest landowner typologies (Urquhart et al. 2012; Blanco et al. 2015; Silver et al. 2015; Ficko et al. 2019). In general, published typologies emphasize management activities and behaviors (Blanco et al. 2015; Silver et al. 2015), and follow the Production, Consumption, Protection framework outline by Urquhart and Courtney (2011), a framework that excludes questions of legacy and intergenerational connections. Similarly, the themes or problems explored in family forest landowner typologies are questions of production or policy (Ficko et al. 2019), and legacy appears to be a novel theme to family forest landowner typology research. However, despite never appearing as defined typologies, the six typologies presented here all align with what might have been expected based on the literature.

Both the African American and white Family Forest Managers had large acreages and high educational attainment, and the literature suggests that they should be engaged in forest management (Floress et al. 2019). Family Forest Managers of both races were also the

youngest typology for both races, and the literature suggests younger family forest landowners are more likely to engage in forest management (Silver et al. 2015; Floress et al. 2019). African American Family Forest Managers already displayed the characteristics that they considered important, having family land and practicing forest management. This is important as past behavior is a significant predictor of future forest management (Floress et al. 2019). Among African American Family Forest Managers, almost half had heirs' property issues. This may not be as substantial a barrier to legacy or forest management as the literature implies (Barlow and Bailey 2017), as research suggest that for some African Americans heirs' property is a mechanism to ensure a legacy (Dyer and Bailey 2008; Hitchner et al. 2017) and empirical evidence demonstrates heirs' property issues have no significant effect on forest management activity (Goyke et al. 2019b). No African American Family Forest Managers were absentee owners, which makes sense, as several studies suggest absentee ownership has a negative effect on management (Silver et al. 2015). On the other hand, white Family Forest Managers had high rates of absenteeism, which some studies have found to be irrelevant (Floress et al. 2019), especially considering that white Family Forest Managers have substantially larger than average forest properties (Butler et al. 2016). It is worth noting the large gender disparity between the African American and white Family Forest Managers. While some scholarship suggests male and female landowners behave (and perhaps think) differently (Schelhas et al. 2012) other recent work suggests that for many forest management behaviors gender does not have a significant effect (Butler et al. 2018; Floress et al. 2019).

Like Family Forest Managers, African American and white Family Forest Investors share some characteristics: lower educational attainment, and no recent management activity. The effect of education on forest management is mixed in the literature (Silver et al. 2015; Floress et al. 2019), and past behavior is generally a significant predictor of future forest management behavior. However, there may be an even more important factor as Family Forest Investors of both races had the highest share of farmers among their number. There is no consensus in

the literature of the effect of being a farmer on forest management (Silver et al. 2015), but the attitudes described by the Family Forest Investor fit the behaviors described for "Farmer Forest landowners" (Silver et al. 2015) and Back 40ers (Goyke et al. 2019a) in the family forest landowner typology literature.

Three characteristics differentiate Family Forest Stewards from Family Forest Managers, two of which help explain why Family Forest Stewards consider intergenerational connections important, but not economics. First, Family Forest Stewards are older, and older family forest landowners are significantly less likely to engage in forest management (Silver et al. 2015; Floress et al. 2019). Second, Family Forest Stewards generally have small (<50 ac) tracts, which are usually considered non-operationally sized. Additionally, Family Forest Stewards have the lowest rate of family land among African Americans. Their motivation to keep the land may outweigh all other objectives because rather than being motivated by the difficulty previous generations had in obtaining the land, they are motivated by their own acquisition experience and the desire to establish a legacy. Despite their claimed disinterest in economics, Family Forest Stewards practice the highest rate of forest management of any typology. This fits with the literature; for African Americans legacy goals, not management goals, had a significant effect on management activity (Goyke et al. 2019b).

The Family Forest Skeptic is substantially different from all other typologies. Perhaps the best explanation for the differences can be traced to the high percentage of female landowners in the typology. As previously states, there is evidence to suggest male and female landowners are not significantly different in many respects. However, there is literature that also suggests the views expressed by the Family Forest Skeptic align with a particular group of women, forest landowning widows (Schelhas et al. 2012). The characteristics of the Family Forest Skeptic, predominantly female, advanced age, prevalence of family land are all characteristics expected of a widowed forest landowner. One widowed landowner even indicated her land belonged to her husband's family, not her own. Of course, the presence of some male owners clearly indicates that not all Family Forest Skeptics are widowed, and it may be that aside

from the single self-identified widow the driving characteristic of the Family Forest Skeptic is the non-operationally sized forest tracts.

4.5 Conclusion

The literature makes it clear that legacy and intergeneration connections are important to many family forest landowners. This research shows those ideas are not as monolithic as typically presented. It also shows that despite the differences in the historical and contemporary circumstances, differences that have resulted in unequal land holdings, clouded title, and technical deficiencies for African Americans, both races have similar views when it comes to intergenerational connections and legacy. Yet there are differences, and they seem to relate to African American's struggle to obtain land. For African American Family Forest Managers, the struggle of all African Americans was a significant motivator to keep their forest land in the family. For African American Family Forest Investors forest landownership seems to be such a struggle that they have no desire to burden the next generation with it. Family Forest Stewards experiences with family and personal struggles to obtain forestland seem to motivate them to keep land in the family at all cost, while the absence of those struggles for Family Forest Skeptic may play a role in their devaluing forestland ownership.

From a policy perspective, the key takeaway from this research is that forest professionals need to be aware of the complexity in the idea of legacy. Not only is it essential to recognize diversity of legacy outlooks, it is also important to be aware of the differences between African American and white family forest landowners' ideas and to understand that while the motivations of a Family Forest Steward may be economically irrational, they are perfectly logical in the context of that landowners personal and family experiences. Finally, it is essential that forest professionals keep in mind that while management plans and goals are useful tools, legacy may be the strongest driver of forest management activity.

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CHAPTER 5

Is Sustainable Forestry a Better Income Option? Case Studies of Four African American Private Forest Landowners in Georgia, United States [1]

[1]Goyke N & Dwivedi P. Submitted to [Journal of Forestry] [January 31, 2020]

Abstract

Since 1920 African Americans have lost 14 million acres of land, a staggering loss of capital with ramifications for landowners and communities. One proposed means to land retention is using forest income to meet property tax obligations. Currently, African American forestland owners report low rates of profitability, and improving forest management is a priority for policymakers and forest professionals. This study explores the ability of African American forest landowners to meet their tax obligations with forest income through four case studies. For each case, we compared two management scenarios; business-as-usual and sustainable forest management. We found that while sustainable forest management is more profitable than business-as-usual, business-as-usual can be profitable if tax obligations are sufficiently low. Our most important finding is the importance of Conservation Use Valuation to reduce tax obligations, something out of the reach of heirs' property owners, which may contribute to heirs' property loss.

5.1 Introduction

In 1920 African Americans owned 16 million acres of farmland, mostly in the rural south. A century later, that number is less than 2 million acres, a eighty-seven percent loss (Gilbert et al. 2002). Some land loss stemmed from changing agricultural practices and impacted all family farmers, yet African Americans lost disproportionately more land than whites (Gilbert et al. 2002). The differences are attributed to discrimination, including direct racism on the part of the United States Department of Agriculture and indirect racism that resulted in African American farms being more susceptible to "going under" (Gilbert et al. 2002). Heirs' properties, where tenants in common have an undivided fractional interest in the land, are especially susceptible to land loss through tax delinquency or partition sales (Hitchner et al. 2017). All told, the land lost by African Americans represents a staggering loss of economic and social capital with ramifications for landowners and their communities. Land retention and reclamation are key to preserving the family and cultural heritage of many rural African Americans. Improving rural communities where land and the capital it represents can be

a resource both for immediate economic gain and a platform on for building generational wealth (Bailey et al. 2019).

While scholarship highlights the loss of African American farmland, we believe African American forestland has experienced a similar trend. Historically most forest landowners were farmers. There are also factors that make forestland especially susceptible to land loss, for example, the long wait to return on investment. Heirs' property issues may further complicate forest landownership on the thirty-five percent of African American forestland the affect (Bailey et al. 2019), although the significance of heirs' property on forest management is unclear (Goyke et al. 2019b). What is clear is that despite historic losses, most contemporary African American forest landowners are intent on retaining their lands (Schelhas et al. 2012; Goyke et al. 2019b).

Currently, African Americans report low rates of profitability from their forestland (Schelhas et al. 2017; Goyke et al. 2019b), and one proposed solution to the problem of African American land loss is sustainable forest management. The premise that income from sustainable forest management is a means to prevent forestland loss is established in the literature (Schelhas et al. 2017), especially for heirs' property owners (Engle 2020). In theory, if forest landownership is profitable African American forest landowners should be less likely to sell their land voluntarily. This is important because, despite the attention paid to partition and tax sales, voluntary sales are likely a driving force of African American forestland loss (Hitchner et al. 2017). For landowners with heirs' property issues, forest income may help avoid family conflicts and land loss due to tax delinquency (Hitchner et al. 2017). The potential for forest income may also encourage families to resolve their heirs' property issues and remove forestland from precarious ownership.

Despite the positive dimensions of managing forests for income, we recognize that forest landowners have diverse management objectives beyond income (Goyke et al. 2019a). Regardless of management objectives, the literature shows that the legacy intentions of African American forest landowners have a positive effect on management activity (Goyke

et al. 2019b). This suggests that some landowners recognize that sustainable forest management is an avenue to land retention. A final aspect of forestland retention is the intention of inheritors towards a forestland bequest. Intuitively, we suspect that inheritors are more likely to accept a profitable versus an unprofitable forestland bequest.

African American forest landowners have lost and are losing land. Yet for many retaining land is a priority (Schelhas et al. 2012; Goyke et al. 2019b). Profitability through sustainable forest management could be a key to land retention (Dwivedi et al. 2015). It seems correct to assume that forestry can be a profitable enterprise for African American forest landowners in Georgia, as at the state level forestry is a $35.2 billion industry (Georgia Institute of Technology 2016). However, literature suggests that forest incomes are insufficient to sustain family forest properties (D'Amato et al. 2010). In this context, this study aims to determine whether there is potential for profitability on African American forestland under the existing forest management practices. It accomplishes this aim through comparing profitability of current management and sustainable forest management in four cases studies focusing on African American forest landowners in Georgia, United States.

5.2 Methods

Our participants came from a larger pool of African American forest landowners who participated in another research funded by the same grant. Those 40 landowners were identified in collaboration with Fort Valley State University Cooperative Extension and by soliciting volunteers at landowner workshops. We selected the four cases based on two subjective criteria. First, we selected cases with properties large enough to be operational (50+ acres). Second, we selected cases to represent diverse management activity, future goals, absentee status, and heirs' property status. Each landowner participated in a structured interview about their history, current management, and future plans. We also visited each property to speak with the landowner (or a caretaker in the case of absentee landowner) and better understand the property's history and management.

For each case, we compared the profitability (as measured by Land Expectation Value

[LEV]) between a business-as-usual scenario (BAU) and a sustainable forest management scenario (SFM). We located the parcel(s) for each case using the qPublic database (https://qpublic.schneidercorp.com) to obtain property size and value information for the most recent year. If the owner's residence was on a separate parcel, we excluded it from our analysis. If the owner's residence was on a forested parcel, we excluded the home's value from our analysis. The rationale for the exclusion is that we are interested in whether forest income is a means to land retention, not the ability of landowners to live exclusively off forest income. We downloaded each parcel boundary file from qPublic and used the 2016 National Landcover Database (NLCD) to determine the landcover (Yang et al. 2018). The exception was Case 4, where we determined landcover through a combination of NLCD data and researchers' discretion due to the inability to identify agroforestry cover through the NLCD data alone.

The cases are not based on actual landowner costs, timber receipts, or management activities. Instead, the cases are hybrids of management scenarios described in the literature and real data about parcel size, land cover, and property valuation. In each case, we elected to take a conservative approach in our analysis, using the highest costs and lowest incomes if ranges were provided in the literature. All three management scenarios had several common characteristics. In each scenario, there were two fixed costs, \$3.76/acre for annual maintenance as per Alabama Extension (Maggard and Barlow 2018) and property tax/acre based on property valuation from qPublic. For the properties eligible for Conservation Use Value Assessment (CUVA)[2], that value was used to determine annual tax/acre. Where applicable, hunting lease income/acre was determined by dividing the hunting lease value by the property size. In each scenario, we used county-specific timber prices from the Georgia Department of Revenue (https://dor.georgia.gov/table-owner-harvest-timber-values). In each scenario, we considered two property classes: timberland and non-timberland. Timberland is acreage from which timber will be harvested and includes natural and planted pine stands.

[2]Conservation use property is assessed at 40% of its current use value rather than fair market value, which reduces the landowner's tax obligations.

Non-timberland is land from which timber will not be harvested and includes hardwood stands, stream management zones, and land without forest cover.

Business as Usual

In this scenario, only natural pine cover was considered timberland. The only costs were maintenance and taxes (Table 5.1). The only income was from hunting (if applicable) and final timber harvest. Timber volume was from a growth and yield model by Martin and Brinster (1999). Our assumption of site index 55' (base age 25) was based previous research in the study area (Martin and Brister 1999). We shared the assumption of 100 ft^2 basal area and 150 trees/acre at age 25 consistent with Martin and Brinster (1999) and used twenty percent hardwood basal area as a conservative assumption. Final harvest age was the optimal rotation age (ORA), the age with the maximum LEV.

Table 5.1: Per acre costs and revenues from the business as usual scenario by year. Tax is from valuation data for the property from qPublic. Timber prices are county prices from the Georgia Dept. of Revenue.

Year	Activity	$ amount
All	Maintenance	$3.75
All	Tax	By Case
ORA	Harvest	By Price

Sustainable Forest Management

In this scenario, we assumed that mixed hardwood/pine cover and natural pine cover were converted to managed pine and that acreage constituted timberland. We based pine management on guidelines from the literature (Dickens et al. 2014). In this scenario, there were several costs besides maintenance and taxes (Table 5.2). Site preparation costs were $378.40/acre and included $140.99 for mechanical site prep, $78.47 for chemical site prep, $28.94 for controlled burring, $43.20 for containerized seedlings, and $86.80 for planting costs. Planting density was 540 trees/acre. Herbaceous weed control costs in year 1 were $57.11/acre. N (175lbs) and P (25lbs) P were applied in year 5 for $64.7/acre. N (190lbs) and P (25lbs) were applied in year 17 at the rate of $79.55/acre. Establishment and man-

agement prices are per Alabama Extension (Maggard and Barlow 2018). Income came from hunting (if applicable), final harvest, and one thinning. The thinning occurred at age 17. The stand was thinned to 70 ft^2 basal area. Timber volume was from a growth and yield model developed by Gonzalez-Benecke et al. (2011). We assumed a site index of 55' (base age 25), and final harvest at the ORA.

Table 5.2: Per acre costs and revenues from the sustainable forest management scenario by year. Tax is from valuation data for the property from qPublic. Timber prices are county prices from the Georgia Dept. of Revenue.

Year	Activity	$ amount
All	Hunting	If Applicable
All	Maintenance	$3.75
All	Taxes	By Case
0	Site Prep	$378.40
1	Herbicide	$57.11
5	Fertilizer	$64.75
17	Fertilizer	$79.55
17	Thin	By Price
ORA	Harvest	By Price

Agroforestry

One case is currently being managed as a pine/cattle silvopasture system, and for that case, agroforestry (AF) is included as a third scenario. In this scenario timberland was the area currently in an agroforestry system. The scenario is based on Husak and Grado (2002). The LEV for the system was calculated for 30 years (Table 5.3).

Table 5.3: Per acre costs and revenues from the agroforestry scenario by year (or by head where indicated). Tax is from valuation data for the property from qPublic. Timber prices are county prices from the Georgia Dept. of Revenue.

Year	Activity	$ amount
All	Forage	$120.22
Feb-30	Maintenance	$59.54/head
All	Taxes	By Case
0	Site Prep	$152.06
1	Herbicide	$57.11
2,7,12, 17, 22, 27	Bull Purchase	$2500/head
2, 12,22	Cow Purchase	$750/head
Feb-30	Yearling Sales	$1300/head
7,12, 17, 22, 27	Bull Sales	$1080/head
12,22	Cow Sales	$700/head
ORA	Harvest	By Price

Site preparation costs were $152.06/acre and comprised $28.94 for controlled burning $46.40 for containerized seedlings and $86.80 for planting. Planting density was 540 trees/ acre. The only income source from timber was the final harvest. Timber volume was from a growth and yield model developed by Gonzalez-Benecke et al. (2011). To reflect the closer spacing in this scenario, we modeled timber production at 908 trees/acre and divided the resulting volume in half. We assumed a site index of 55' (base age 25).

Following Husak and Grado (2002), we introduced cattle to the system in year 2 to allow seedlings to gain sufficient height. As per the literature, we used a stocking rate of 0.74 animal units/acre. The system was fully stocked at year four with 54 animals: 1 bull, 19 cows, 17 calves, and 17 yearlings. This assumes 1 animal unit per cow or cow with calf, 0.75 animal units per yearling, and 1.5 animal units per bull. Costs include $120.22/acre annually for grass maintenance, $40.40/head for fence maintenance, and $19.14/head for veterinary maintenance. Cows were purchased in years 2, 12, and 22 for $750/head. Bulls were purchased in years 2, 7, 12, 17, 22, and 27 for $2500/head. Income was from yearling, cow and bull sales. Yearlings were sold annually from years 4 to 30 for $1800/head. Cows were sold in years 2, 12 and 22 for $701/head. Bulls were purchased in years 2, 7, 12, 17, 22, and 27 for $1080/head. Costs and incomes are from the University of Georgia

(https://agecon.uga.edu/extension/budgets.html).

Analysis

To asses the ability of the landowners to retain their property through forest income we used LEV as a measure for comparison where:

$$LEV = \frac{NPV \times (1+i)^t}{(1+i)^t - 1}$$

and:

$$NPV = \Sigma \frac{FutureValue}{(1+i)^t}$$

i=discount rate (5%)

t=time (in years)

First, we calculated LEV/acre for timberland and for non-timberland. Non-timberland had only one associated cost, taxes, and one associated income, hunting. Second, we multiplied LEV/timberland acre by the number of timberland acres and LEV/non-timberland acre by the number of non-timberland acres and added the two totals to generate property level LEV. If the property level LEV was >$0, we considered the scenario means to achieve forestland retention. If the property level LEV <$0, we considered the scenario unprofitable and the property at risk of loss. In addition to comparing the two scenarios, we investigated the effects of changing conditions, including replacing the AF scenario with BAU, discontinuing hunting leases, and changing CUVA enrollment status. We consider the effects of CUVA on forest profitability especially important as tax policy is considered an important tool for encouraging continued forest management (D'Amato et al. 2010).

5.3 Results

Overview

The four case studies represent diverse owner characteristics like age, education and absentee status, and diverse ownership characteristics such as property size, percent forest cover, heirs' property status, location, and current management. (Table 5.4).

Table 5.4: A summary of the landowners' characteristics, their properties, and the management scenarios for the four case studies.

Case	Description
Case 1	The landowner is a 56-year-old and college-educated. He/she is an out of state absentee owner. The property is 505 acres, with 61 pine acres, 105 mixed pine/hardwood acres, and 219 hardwood acres. Land is in a county located in central Georgia. It is managed by a hunting club.
BAU	61 acres of timberland. ORA is 29 years. This scenario is profitable.
SFM	166 acres pf timberland. ORA is 24. This scenario is profitable.
Case 2	The landowner is a 61-year-old and college-educated. He/she is an instate absentee owner of heir's property. The property is 150 acres, with 63 pine acres, 17 mixed pine/hardwood acres, and 52 hardwood acres. Land is in a county located in eastern Georgia. There is no current management.
BAU	63 acres of timberland. ORA is 29 years. This scenario is not profitable.
SFM	80 acres of timberland. ORA is 25 years. This scenario is profitable.
Case 3	The landowner is an 81-year old and college-educated. He/she is a residential owner. The property is 219 acres, with 88 pine acres, 40 mixed pine/hardwood acres, and 22 hardwood acres. Land is in Central Georgia. There is no current management.
BAU	88 acres of timberland. ORA is 30 years. This scenario is profitable.
SFM	128 acres of timberland. ORA is 25 years. This scenario is profitable.
Case 4	The landowner is a 77-year old with an Associate degree. He/she is a residential owner. The property is 205 acres with 43 mixed pine/hardwood acres and 71 hardwood acres. 57 acres are in pine/cattle silvopasture. Land is in Southwest Georgia. It is managed in a silvopasture system.
BAU	An agroforestry system. 57 acres of timberland. The time frame is 30 years. This scenario is profitable.

Case 1

The landowner, in this case, is the third-generation owner of the property, which was purchased in 1931 and retains clear title. The two tracts that make up the property are divided by a paved road. The property is used primary by a hunting club whose dozen members pay an annual lease. The hunters also maintain the property. According to the club president, there is no current forest management, although natural pine has been harvested.

Per acre of timberland under the BAU ($643/acre) and SFM ($889/acre) scenarios were both profitable and would remain so if the property were not enrolled in CUVA (Figure 5.1). At the property level BAU ($80,068) and SFM ($281,048) are profitable (Figure 5.2). Were the property not enrolled in CUVA, the BAU scenario would not be profitable. The BAU scenario would also be unprofitable if the hunting lease was discontinued (-$44,744, not show

in Figure 2).

The keys to this case are CUVA and the hunting lease. Were the property to leave CUVA enrollment, the BAU scenario would no longer be profitable, although SFM would be because of the high percentage of timberland cover. Similarly, were the hunting lease discontinued BAU scenario would not be profitable. The hunters are opposed to any changes that may disrupt their, which includes conversion to planted pine. At the same time, the president of the hunting club expressed doubts that the club's future as many of the hunters are growing older. In this case, SFM represents a more secure future. However, the landowner is presently uninterested in adopting timber management. In his/her words, "I don't need the money, so I don't need to cut the timber." While he/she is not considering sustainable forest management, the landowner seems ready for a future without hunting lease revenue. In his/her words, "[I plan to] cut timber, convert to hay fields. [I've] been approached by solar power people... Solar panels would pay a lot more [than timber]."

This case demonstrates that forestland income can sustain a property without sustainable forest management and highlights the complex nature of forest landownership through the importance of the hunting club to maintaining the property and fulfilling its tax obligations. It also highlights that in the future novel revenue streams may be key to forestland retention.

Case 2

The landowner is a fourth-generation owner. The property is currently heirs' property, with eight tenants in common. Several tenants live on the property. The two tracts of the property are split by a highway. The property includes a small lake and four residences. A natural pine stand was harvested seventeen years ago and was regenerated by volunteer pines. Presently there is no management. In the words of the landowner, "we [the heir's] don't really have a vision of what we want to do."

Per acre of timberland under the BAU ($91/acre) and SFM ($420/acre) scenarios were both profitable and would be more so were the property eligible for CUVA enrollment (Figure 5.1). At the property level, the BAU scenario is not profitable (-$31,019), while SFM is

profitable ($3,832) (Figure 5.2). Were the property enrolled in CUVA, BAU would still not be profitable, while SFM would be more profitable.

The key to this case is the heirs' property status. As heirs' property, the property is effectively ineligible for CUVA enrollment, which contributes to the negative LEV in the BAU scenario. The low proportion of natural pine relative to the property size also impacts the profitability of the BAU scenario. The landowner is interested in getting the land to pay for itself, perhaps through solar farming, but his/her top priority is "keeping the family together." While SFM is a clear route to profitability, the realities of heirs' property ownership present what seems to be an insurmountable barrier of what the landowner called "paralysis of analysis." Clearing title would make the property eligible for CUVA enrollment and ease the transition into sustainable forest management or another profitable enterprise, but "hard feelings between some brothers and sisters – some of the them haven't talked in 20, 30 years", presents an enormous obstacle to overcome.

This case highlights the complexity of land ownership with multiple decision-makers and the detrimental effects that clouded title has on forest management. This case clearly illustrates the way that heirs' property issues endanger land retention.

Case 3

The landowner purchased his/her property in 1996. The property is boarded by a country road and is adjacent to two parcels owned the landowner; his/her residence and land leased for a cell tower. Neither is included in this analysis. The landowner purchased the property after a clear-cut. He/she attempted to replant approximately 120 acres in pine. The regeneration failed, and since that time, there has been no management on the site. The landowner hunts the property for recreation but does not have a hunting lease.

Per acre of timberland under the BAU ($448/acre) and SFM ($861/acre) scenarios were both profitable and would remain so if the property were not enrolled in CUVA (Figure 5.1). At the property level BAU ($23,000) and SFM ($81,400) are profitable (Figure 5.2). Were the property not enrolled in CUVA, the BAU scenario would not be profitable.

One key to this scenario is CUVA enrollment, without which the BAU scenario would not be profitable. A second key is the high percentage of acreage in natural pine, likely a result of volunteer pines replacing the clear-cut pine stands. While the BAU scenario profitable, the landowner expressed awareness that sustainable forest management is more profitable. He/she also expressed interest in adopting sustainable forest management for his/her heirs' benefit. In his/her words, "It [forestland] is an investment, and it's equity. It's something tangible that can be used for generations to come". The landowner also acknowledged the importance of continuity for the success of a long-term enterprise like sustainable forest management and emphasized conversations about the future of the property and its forest with his/her heirs. He/she said, "I instructed my sons that if they ever sold it, I'll come back from my grave and get them. I want them to understand how important it is."

This case highlights the risks inherent in investing in sustainable forest management, as the failed regeneration represents a loss in time and money. The case also highlights the importance of CUVA enrollment and of involving future generations in management, as without continuity the SFM scenario may well become something akin to the BAU scenario.

Case 4

This property consists of four tracts that include family land purchased upon the death of the previous owner and land inherited from his/her in-laws. The two purchased properties are a few minutes drive from the residence and separated by a road. The inherited properties are adjacent to one another and are divided by an unpaved road. The residence itself is on a small parcel adjacent to the inherited land and not included in this analysis. The current management is a pine/cattle silvopasture system, an arrangement the landowner has no plans to change. In his/her words, "I'm trying to maximize the cows I can run [on] it and maximize the trees I can grow on it. I don't see anything in the future that could beat this."

Per timberland acre AF ($2,301/acre) is profitable and would remain so if the property were not enrolled in CUVA ($2,109). At the property level, AF is profitable ($114,024) profitable and would remain so even without CUVA enrolment ($104,371).

Agroforestry is the key to this case, which, even more than Case 3, highlights the importance of involving future generations in forest management. Silvopasture is labor-intensive and the landowner's heir does not live in the area. He/she is unlikely to continue agroforestry management. The landowner has discussed future management with his/her heir, including proposing management for pine straw. In the landowner's words, "I'm planning to let him/her know that money doesn't grow on trees, but you can grow trees to make money." In a hypothetical situation in which an heir inherited the property and changed the land use from agroforestry to forest management timberland acres would be profitable in BAU ($378) and SFM ($749) (Figure 5.1). At the property level, both BAU ($21,434) and SFM ($58,426) would be profitable if the property remained enrolled in CUVA (Figure 5.2). In this hypothetical future, the ORA is 29 years for BUA and the ORA is 25 years for SFM. Both scenarios would include the land in agroforestry as timberland.

This case demonstrates not only the potential for forest management revenue to maintain a property, but also for substantial income generation. Like case 1, this case highlights the complexity of private forest landownership.

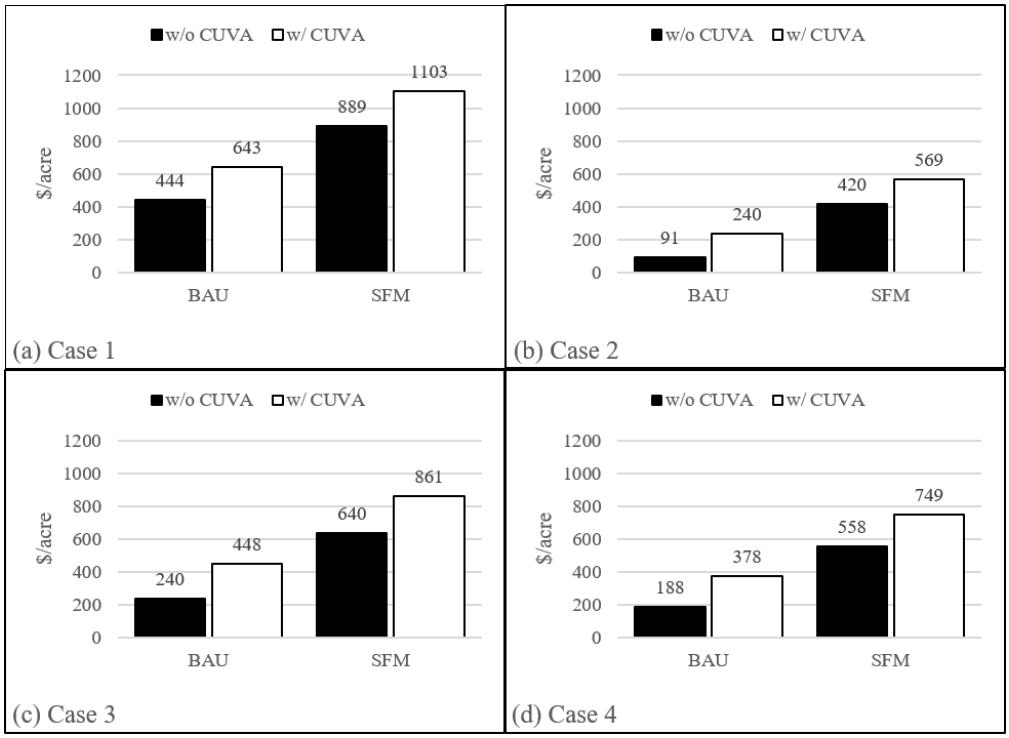

Figure 5.1: The LEV ($/acre) of timberland for Cases 1-4 (panels a-d) For each case LEV is reported for the BAU and SFM scenarios, and both scenarios are reported with and without CUVA enrollment.

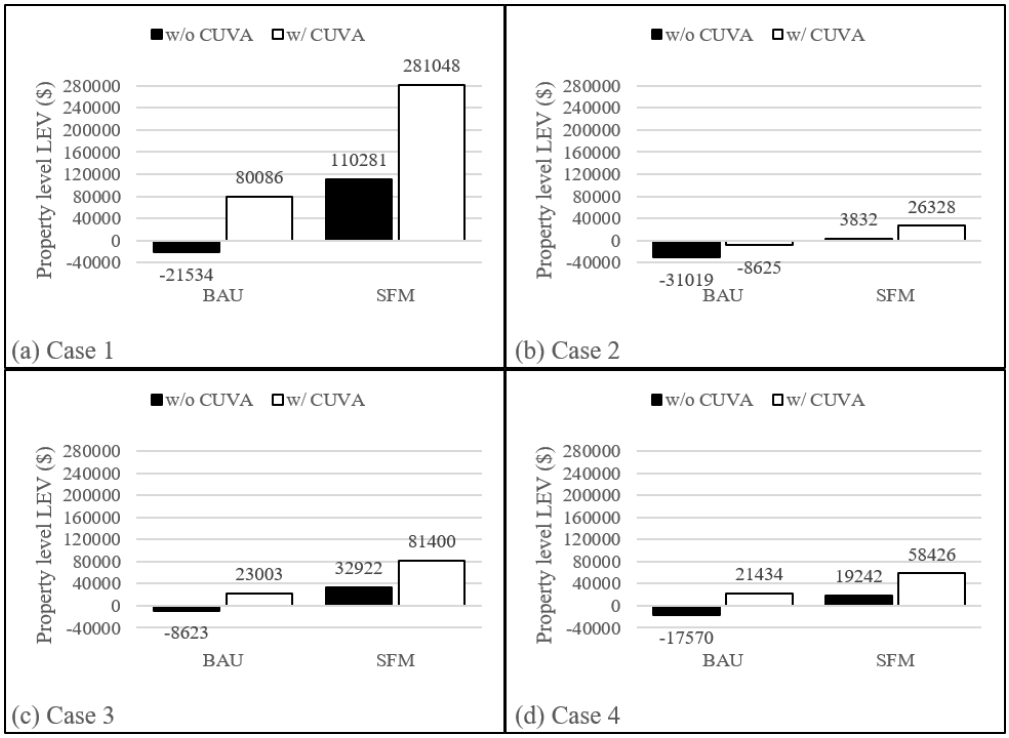

Figure 5.2: The property level LEV ($) for Cases 1 – 4 (panels a-d). For each case property level LEV is reported for the BAU and SFM scenarios, and both scenarios are reported with and without CUVA enrollment.

5.4 Discussion

The discount rate we selected is comparable to the discount rate used in other similar studies (Dickens et al. 2014; Engle 2020). However, studies on the estimated discount rates of family forest landowners varies from 2.6% to 18.0%. The highest rates are reported in studies with very large properties while the lowest rates are from literature that specifically addresses limited resource and underserved landowners, including African American landowners (Atmadja and Sills 2009). However, for landowner with specific legacy intentions (i.e., written wills), the estimated discount rate was much higher: 14.7%. This seems to corroborate literature that highlights legacy intentions as the most significant driver of management activity (Goyke et al. 2019b). It also aligns with our findings; Landowner 3 was the only landowner to mention legacy goals and conversations with his/her heirs explicitly and was also the only landowner with plans to improve forest management on the property.

Our results also corroborate literature that shows there is no single way that forest

landowners manage their forestland (Goyke et al. 2019a). During the interview, Landowner 1 expressed interest in bioenergy as a potential revenue source. Landowner 1 and Landowner 3 also lease small portions of their land for power lines and a cell tower, respectively and expressed interest in solar farming. Landowner 3 also expressed interest in fruit trees. Landowner 4 mentioned that he/she previously raked pine straw and was interested in doing so again. In interviews for related research, African American landowners expressed interest in other opportunities like wind turbines. In a future in which diverse income opportunities like these exist, it is likely that some African American forest landowners will be interested in taking advantage of those opportunities too.

Our finding that properties enrolled in tax programs are more profitable than unenrolled programs and that managed properties are more profitable than unmanaged is consistent with the literature (D'Amato et al. 2010). Yet unlike other literature, we found forest landownership can be profitable even without sustainable forest management if the property is enrolled in a tax program. This is an especially important finding as up to now, as the inability to enroll in current use tax programs has not been addressed in the heirs' property literature (Barlow and Bailey 2017). These differences highlight the importance of considering local context, including title status, timber markets, tax environments, and we hope they will encourage other researchers to consider these local contexts in their future work (Kilgore et al. 2018).

Absent from our cases were mentions of cost-share or other programs that could increase forest profitability, benefits usually included in analysis not grounded in visits with landowners (Engle 2020). This corroborates literature that suggests African Americans do not take full advantage of available programs (Gan et al. 2005) and that minorities participate in cost-share programs at a significantly lower rate (Butler et al. 2019). While lack of trust or knowledge may explain lower participation rates (Dwivedi et al. 2015; Schelhas et al. 2017), it is also possible that they are the result of the same factor that keeps African American forest landowners from adopting sustainable forest management despite the benefits: diverse

management objectives. It is well established that forest landowners have diverse management objectives and that for African American forest landowners, financial gain is less important than other objectives (Goyke et al. 2019a). Minority forest landowners without financial objectives are significantly less likely to participate in available programs (Butler et al. 2019). Low rates of program participation may be the result of a vicious cycle where landowners do not participate because they do not have financial objectives and they do not have financial objectives because without program participation, their forest landownership is not [sufficiently] profitable. One option highlighted in the literature but not considered in the four case studies is selling a conservation easement (D'Amato et al. 2010). Lack of knowledge may be a substantial barrier to selling an easement, and heirs' properties issues it effectively impossible. Landowners may also be unwilling to sell a conservation easement as they want to let their heirs make their own decisions about the land. For all four landowners' legacy was the number one priority, but although they wanted their land to remain in the family, they also made it clear that future decision making is up to the next generation.

Several of the cases highlight other key points about forestland that is profitable in a BAU scenario. First, despite the potential profits from sustainable forest landowners consider it a risk. In Case 3, the landowner had tried and failed to plant pines at a loss of time and the expense. The caretaker in Case 1 was highlighted fixed incomes for elderly landowners as an important factor in decision making. Fixed or limited income is an important consideration because if a landowner cannot cover initial a process that should increase wealth may have the opposite effect. When planning, forest professionals must carefully what is realistically within the means of the landowner. Second, the planning process should include considerations about future landowners. In Cases 1 and 4, profitability was contingent on current landowner activities. Landowner 3 is considering starting sustainable forest management, a cycle he will likely not live to see completed. The retention of these properties will be partly determined by the success of the landowners' heirs carrying on the management currently in place. For forest professionals and those interested in the issue of African American land retention, these

cases highlight the importance of involving future generations in the present conversation about forest management and crafting management plans that blend objectives of the current and future landowners.

5.5 Conclusion

As expected, the four case studies demonstrated that sustainable forest management is more profitable than BAU. Despite increased income from forest management, we reject the idea that it is objectively "better" than BAU. The goodness of forest management is determined by landowner objectives and include considerations like aesthetic preferences, recreations preferences, willingness to invest time in the property, and family dynamics.

Contrary to our expectations and the implications in the literature, the BAU scenario was profitable in several cases. The implication is that even unmanaged forests can be sufficiently profitable for forestland retention in some situations. However, there are several important considerations. First, the profitability for unmanaged forests hinges tax programs that reduce landowner costs. For heirs' property owners ineligible for CUVA and similar programs, profitability in a BAU scenario seems unlikely, and heirs' property could be a considerable barrier to land retention. Second, all four cases had large properties with a high percentage of timberland. For small properties or properties with a low percentage of timberland acres, BAU may not be a viable path to profitability.

Although not necessarily representative of all the African American forest landowners in Georgia, these case studies illuminate several important points. For researchers, these case studies provide evidence to support the assumption that heirs' property issues are a barrier to forest profitability. At the same time, they demonstrate that for some forest landowners, sustainable forest management isn't necessary for profitability. For forest professionals, this research highlights the potential value of sustainable forest management to African American forest landowners and can be used to help motivate them to become involved in sustainable forest management. Based on these results, we would also encourage forest professionals to make a point of involving future owners in forest planning and decision making to advance

the goal of African American land retention.

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CHAPTER 6

CONCLUSION

The overarching purpose of this dissertation is to explore the premise posited in the literature that resolving heirs' property issues will lead to improved forest management, which will in turn lead to [increased] timber income and result in property retention by African American forest landowners. By using a mix of quantitative and qualitative approaches to examining the premise, approaching the premise from different geographical scales, and using the words of landowners themselves whenever possible, I believe that the results of this dissertation have shed considerable light on the validity of the premise and also on possible next steps for researchers.

The first conclusion from this dissertation is to a question implicitly answered in the affirmative by the premise: Do African American forest landowners *want* to keep their land? The answer in this research is a more qualified *yes, but....* As demonstrated in Chapter 3, while many African American forest landowners are interested in passing their forestland on to their heirs, some do not. That those uninterested in passing on their land includes those most interested in forest management for timber income demonstrates that the second half of the premise, that improved timber income will lead to land retention, is something that researchers need to be wary of believing is universally true and should remember that family dynamics are as important as economic means when it comes to land retention.

In addressing the first part of the premise, will resolving heirs' property issues lead to improved forest management, the results in this dissertation highlight the complexity of the answer. As demonstrated in the results of Chapter 2, heirs' property does not have a significant effect on forest management, even though, in theory, it should. There are two key points that help explain the apparent contradiction and also highlight how much more researcher is needed on the issue. First, as demonstrated in Chapter 2, about a quarter of

landowners are engaged in forest management, regardless of ownership structure. Chapter 3 highlights this further by identifying only one forest management outlook that included landowners interested in forest management for income. Resolving heirs' property issues will only lead to forest management if the landowner is also interested in forest management. Second, not all heirs' properties are equal. For families who are cooperative and organized many of the barriers that heirs' property represents to forest management can be surmounted. The first half of the premise is likely true for some families, and a priority for future research should be following up with families who have resolved their heirs' property issues to see the degree they engage in forest management.

In addressing the second part of the premise, will improved forest management leads to land retention, the results in this dissertation support the premise. Chapter 5 demonstrates that for all landowners, sustainable forest management is a better income option and will cover all cost (i.e. tax) obligations for property ownership. The significant relationship between legacy goals and management activity highlighted in Chapter 2 shows that landowners intuitively understand this relationship. The results of Chapter 5 also highlight the ways that the path laid out in the premise of resolving heirs' property issues will lead to improved forest management, which will, in turn, lead to [increased] timber income and result in property retention is not the only path to land retention for heirs' property owners. For some, simply resolving their heirs' property issues is enough to lower tax obligations and make it possible to retain their land. For organized families, sustainable forest management is enough to cover the costs of land ownership, even without resolving heirs' property issues.

The relationship between heirs' property, forest management, and land retention is a complex one. By using a variety of methods at a variety of scales and telling landowners' stories in their own words, this dissertation elucidates some of those complexities and highlights the danger to scholars of overemphasizing the legal structure of heirs' property, when the personal objectives and family dynamics of individual landowners seem to have a far greater role in forest management and ultimately in land retention.