



Forest Carbon and Climate Program
Department of Forestry
MICHIGAN STATE UNIVERSITY

Forest Preferential Property Tax Programs and Carbon Project Compatibility

**An assessment of program compatibilities across
nine states**

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Introduction

This report explores statutory requirements, administrative interpretations, implementation, and enforcement of state forest preferential property tax programs, with a focus on their potential compatibility with voluntary carbon market forest carbon programs, particularly requirements for delayed harvest. This analysis includes forest property tax programs in nine states: Alabama, Florida, Georgia, Kentucky, Ohio, North Carolina, South Carolina, Tennessee, and Virginia (**Figure 1**).

The question of compatibility between state forest property tax programs and forest carbon programs is crucial for understanding and anticipating landowner decision-making and the potential attractiveness of forest carbon programs for landowners. Both program types offer financial incentives for undertaking forest management activities (with varying degrees of prescription) in an effort to achieve particular private forest management objectives, such as conservation, consistent harvest to maintain the state's wood feedstock, or merely keeping forests as forests. Where landowners are not eligible to enroll in both program types simultaneously, they will assess each program's relative financial value and alignment with their own forest management goals. Undoubtedly, lower compatibility across program types will lead to lower participation in forest carbon programs overall, as a loss in forest property tax incentives means an additional economic cost for landowners.

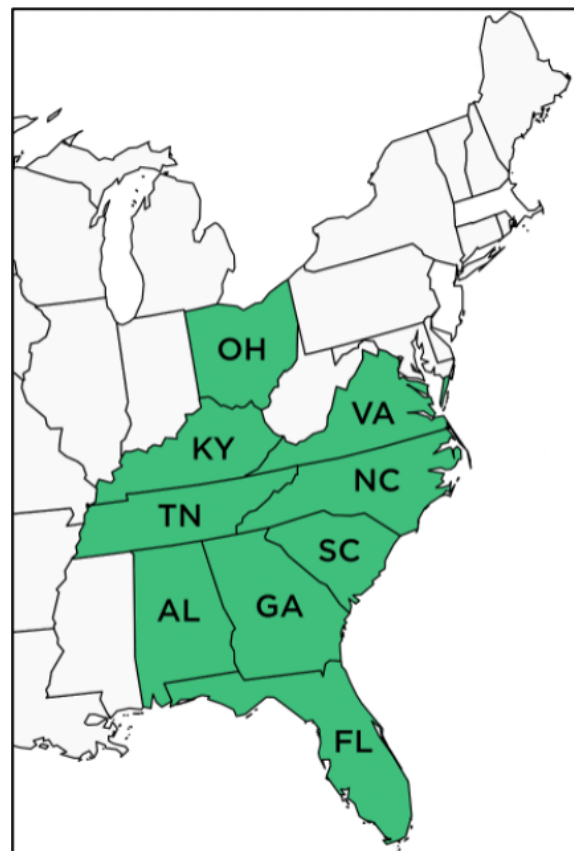
To assess the nuances of program compatibility, we conducted 37 semi-structured interviews, as well as data and document analysis, to explore state-level forest tax interpretation, eligibility, enforcement, flexibility, and county-level discretion, with a focus on tax program harvest requirements. In addition to program compatibility, our analysis further explores related questions important for understanding current and future state-level interest in and potential barriers relevant to voluntary carbon market forest carbon programs more broadly, such as perceptions and trends of landowner participation in state forest tax initiatives, landowner interest and current/future participation in forest voluntary carbon market programs/projects, and potential opposition to the voluntary carbon market and forest carbon projects in each state.

Program Descriptions

This section provides a brief overview of preferential property tax programs and forest carbon projects for the voluntary carbon market. It explores the different tax types within preferential tax treatments for forestry uses, and the three main forestry and land use project types generating carbon credits for sale on the voluntary carbon market.

Figure 1

State Compatibility Study Area



Preferential Property Tax Treatments and Extraction Taxes

While this analysis examines compatibility with preferential property tax treatments (and not extraction taxes), it's worth providing a brief description of the two. Forest preferential taxes offer landowners options to reduce, modify, defer, or eliminate their tax liability. These programs are designed to promote and encourage specified forestry-related land uses, such as commercial forestland, recreational land, or conservation (Lincoln Institute of Land Policy n.d.). In contrast, extraction taxes are tax penalties imposed when natural resources, such as timber and other forest products, are removed (TimberTax n.d.). Because extraction taxes are applied only after harvest has occurred (and do not mandate particular levels or intervals of harvest), there are no incompatibilities with voluntary carbon market programs (hence their exclusion from this analysis).

Tax policies that give preferential treatment to forestland can counteract or minimize economic pressure to convert forests to other land uses; they often have a dual objective of maintaining wood feedstocks in the state by requiring commercial harvest (Hickman n.d.). Because of these dual objectives of many forest property tax systems, the degree to which they are supportive of forest conservation and forest carbon sequestration efforts is up for debate. In part, this question hinges on the tax program's ability to minimize forest conversion.

Preferential and extraction taxes influencing forest use and decision-making exist in all fifty states. They can be grouped into six tax types: modified assessment, modified rate, forest exemption, forest rebate, severance tax, and yield tax. **Table 1** provides a description of each tax type, along with a summary of those present in the nine states covered in this study. **Figure 2** visualizes their prevalence across the US.

Table 1

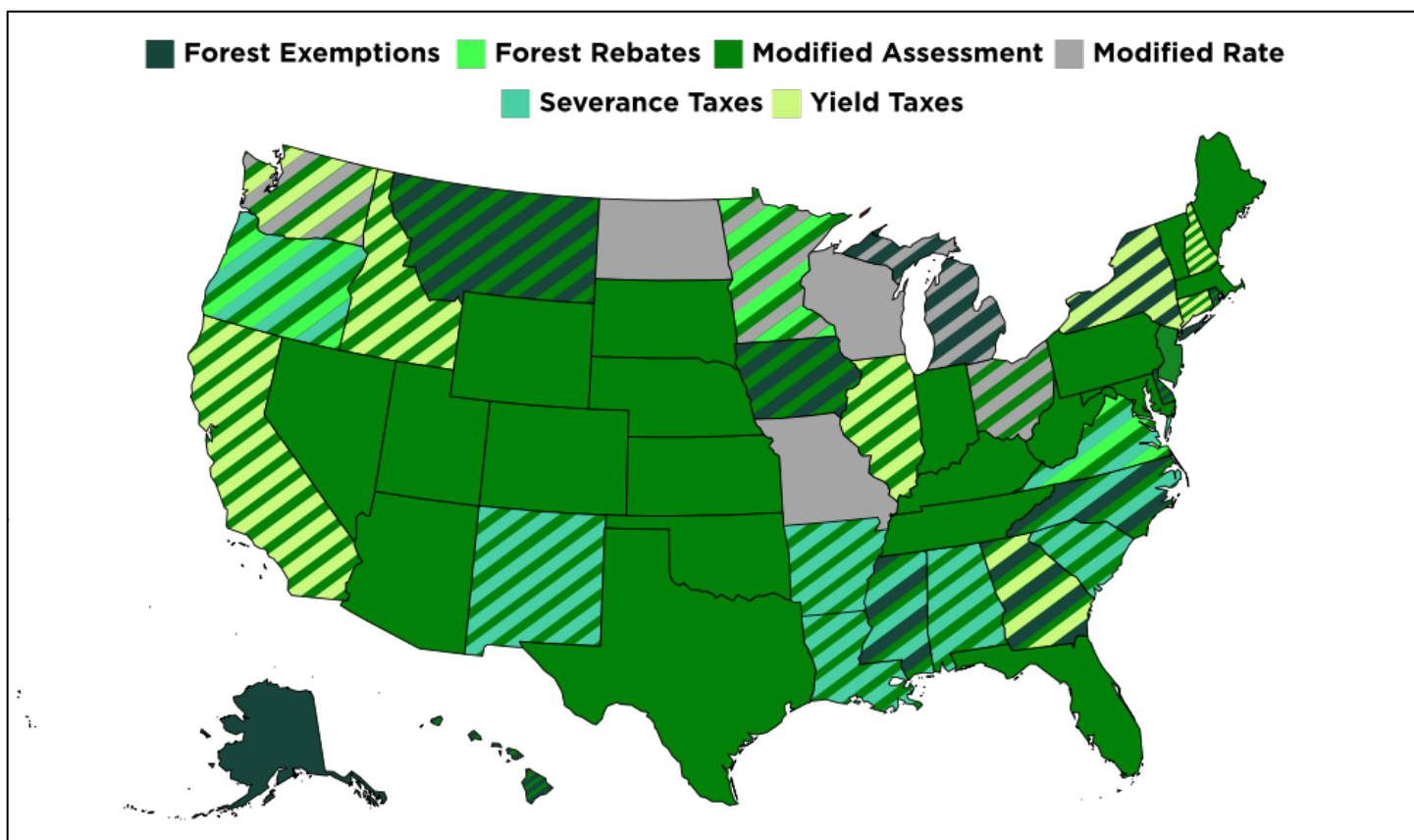
Preferential Property Tax Treatments and Extraction Taxes

Tax Type	Description	States								
		AL	FL	GA	KY	OH	NC	SC	TN	VA
Preferential Tax Treatments										
Modified Assessment	Alters the assessed value of forestland—in many cases, this involves basing the assessed value of qualifying properties on their current use value (CUV) rather than on the fair market value (FMV), which can result in lower property taxes for the landowner.	X	X	X	X	X	X		X	X
Modified Rate	Adjusts the standard tax rate applied to forestland—if the standard rate is 2%, a modified rate program might modify the rate applied to forestland to 1%, thus providing a preferential treatment.					X		X		
Forest Exemption	Provides a partial or full property tax exemption on the value of the forestland or timber—some states exempt land and timber while others only exempt timber and/or forest products.			X						



Forest Rebate	Offers a tax refund or credit for a portion of the property taxes paid on forestland—the amount might be a certain percent of the taxes paid, with a maximum yearly allowance per landowner.									X
Extraction Taxes										
Severance Tax	Tax imposed on the value of timber or forest products removed—tax rate may be a flat rate or a percentage of the value of the timber/forest product.	X						X	X	X
Yield Tax	Tax based on the estimated annual growth or yield of timber on forestland—in many cases, this is based on the stumpage value (i.e., the price a buyer is willing to pay a seller for the right to harvest on their land).				X					

Figure 2
Preferential Property Tax Treatments and Extraction Taxes, By State



While specific enrollment requirements and landowner obligations vary across states, tax program requirements commonly pertain to qualifying land acreage, stock growth, timber harvest plans, monitoring, enrollment duration, and application procedures.

Table 2 provides definitions for these provisions.



Table 2*Common Preferential Property Tax Program Requirements*

Requirement	Definition
Qualifying Land	Parcel designation under the property tax system, which is used to exclude or include land based on ownership (e.g., commercial, private, public) and/or function (e.g., plantation, reservation, unproductive land, wood manufacturing facility).
Stocking Growth	Controls that influence the number and arrangement of trees in a stand, often by establishing density requirements to meet management goals.
Timber Harvest	Rules establishing that landowners must be engaged in commercial timber harvest production, often substantiated by a management plan developed by a state forester or verified third-party, which will generally outline management objectives and practices, including thinning, prescribed burns, and harvest rotations.
Monitoring	The ability of tax officials and state foresters to inspect the property to ensure it is fulfilling management and/or land requirements.
Enrollment Duration	Stipulations for how long property can be registered in a program, ranging from indefinite enrollment to a predetermined timeframe with continued enrollment dependent upon annual confirmation of forest condition by an assessor.
Application Procedures	Applications made to county or state officials, and whether a landowner must apply for tax treatment annually or if their initial application is sufficient.

Forest Carbon Programs and Voluntary Carbon Markets

Voluntary carbon markets facilitate the purchase and exchange of carbon credits (serving as carbon offsets) between companies, individuals, and other entities to meet goals related to greenhouse gas (GHG) emissions reductions (Ecosystem Marketplace, 2022). Forest carbon credits are generated through management actions that measurably reduce carbon dioxide (CO₂) in the atmosphere relative counterfactual, or baseline, behavior.

Emissions can be avoided by actions such as deferring timber harvest or protecting forestland from being converted to agriculture or development. The latter is referred to as avoided conversion (AC) (Ecosystem Marketplace, 2022). Forest carbon sequestration and storage can be increased through activities such as improved forest management (IFM) or reforestation/afforestation (RF/AF) activities (Ecosystem Marketplace, 2022). **Table 3** breaks down the three main forestry and land use project types that generate carbon credits, which can then be sold on voluntary carbon markets.

Table 3*Forestry and Land Use Project Types*

Program Type	Description
Avoided conversion (AC)	Preventing the conversion or change of forestland from its natural or existing state.
Improved forest management (IFM)	Set of practices and strategies aimed at enhancing the carbon sequestration and storage capacity of forests through sustainable management and utilization of forest resources, including selective logging, silvicultural treatments, regeneration efforts, and invasive species control.



Reforestation/afforestation (RF/AF)

Activities which seek to restore or establish forests in areas that were previously devoid of significant tree cover or have experienced deforestation.

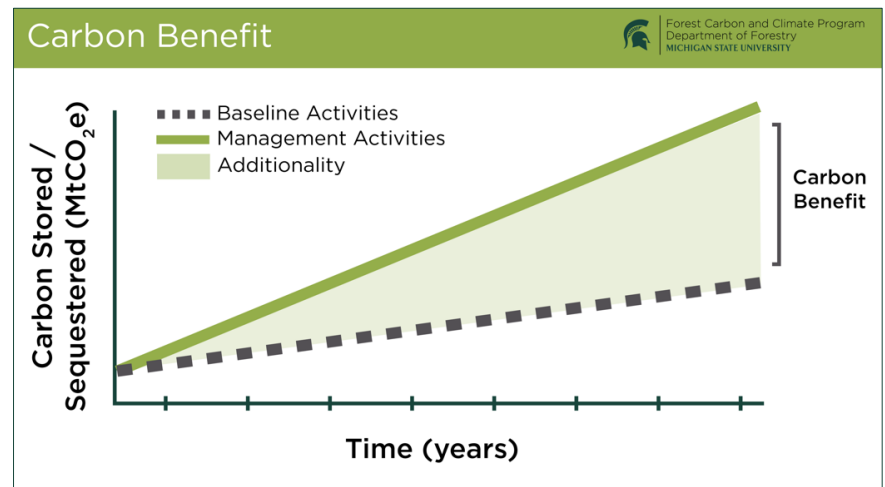
The benefits and costs for a forest landowner participating in a forest carbon program vary widely and depend on several factors, such as the size and type of forest, the particular requirements and payment structure of a forest carbon program, and current carbon offset prices (Mei and Clutter, 2022). In general, landowners derive a financial benefit through either the sale of carbon credits or measurable shifts in climate-smart forest management practices; when landowners receive upfront or pre-negotiated payments based on the latter, the program developers subsume the risks and potential benefits of voluntary carbon market carbon price fluctuations. In 2022, the average voluntary carbon market carbon credit price derived from forest projects was around \$5.80 per MtCO₂-e. (Ecosystem Marketplace, 2022).

An integral component of forest carbon projects is the concept of *additionality*. *Additionality* refers to carbon sequestered and stored that is *in addition* to an established baseline level, or additional to what would have otherwise occurred under a business-as-usual (BAU) scenario. The carbon stored/sequestered over time due to project activities, such as those defined in **Table 3**, is measured against a BAU scenario; the difference between the two is referred to as the “carbon benefit”. **Figure 3** demonstrates the concept of *additionality*, as measured against baseline activities, resulting in a carbon benefit.

Additionality leads to key sources of potential friction, or incompatibility, between forest taxes and voluntary carbon market programs. First, it is the need for *additionality* that leads many forest voluntary carbon market programs to require delayed or avoided harvest for enrollment (a requirement that stands in direct contrast with certain tax program requirements, namely those looking to ensure a constant wood feedstock via commercial harvest). From the perspective of voluntary carbon market programs, the need for *additionality* in order to generate credits can limit the ability or interest for forest carbon program developers to enroll landowners who are already incentivized to avoid harvest (e.g., via enrollment in a forest property tax initiative that explicitly does not permit, or necessitates the reduction of, commercial harvest in order to receive tax benefits).

Figure 3

Carbon Benefit Measured as Additionality



Methods and Data

Our methodological approach for identifying and ranking relative program compatibility across state forest property taxes and forest carbon projects for voluntary carbon markets entailed document and database analysis, in addition to 37 semi-structured interviews with state experts on forest tax systems.



Document and Database Analysis

Document analysis for each state's forest property tax system included a review of program guidelines, handbooks, and statutory requirements (the latter categorized and defined in

Table 2). The primary objective of this initial step was to 1) ascertain potential legal requirements (as distinct from enforced practice) and 2) compare statute language against administrative and legal interpretations.

We further incorporate data from the 2018 National Woodland Owner's Survey (NWOS) and voluntary carbon market databases to bolster understandings of current state participation in forest property tax programs and voluntary carbon market projects.

Semi-Structured Interviews

We conducted 37 semi-structured interviews among a variety of experts, including state program administrators (some of whom were also state foresters), county tax officials, university and extension specialists, private certified foresters, and forest industry representatives (**Table 4**). These interviews were conducted with the primary goal of better understanding program administration, including eligibility, statute interpretation, enforcement, and county-discretion. Interviewees were further asked about state voluntary carbon market activity, including any state-level opposition and perceived landowner interest. Interview questions can be found in **Appendix 1**.

Table 4

Expert Interviews by State and Profession

State	State Official	County Official	Extension Specialist	Private Forester	Industry Representative	Total
Alabama	0	1	1	0	1	3
Florida	0	2	1	0	0	3
Georgia	2	0	1	0	0	3
Kentucky	0	0	2	0	1	3
North Carolina	2	0	1	1	1	5
Ohio	1	3	0	0	1	5
South Carolina	1	1	1	0	1	4
Tennessee	0	1	1	2	1	5
Virginia	4	1	0	1	0	6
Total						37



Program Compatibility

This section provides a high-level look at program compatibility across states and programs and then delves into state- and program-specific details pertaining to both forest carbon programs and tax program administration, enrollment, enforcement, and other characteristics.

Compatibility Concerns

Dual enrollment of forestland in both forest preferential tax arrangements and forest carbon programs is dependent on the compatibility of enrollment requirements (including eligibility criteria and compliance obligations) across the program types. The primary sticking point in compatibility comes down to harvest requirements across the two program types. Forest carbon programs often require landowners to reduce or defer timber harvest (as part of its approach to storing additional carbon); these activities often do not align with tax program eligibility requirements. While most tax programs have explicit language pertaining to timber harvest, how the statutes are worded, interpreted, and enforced varies. For instance, some tax programs require that landowners be actively engaged in commercial timber harvest operations, while others merely require that the land be *eligible* for commercial harvest (i.e., that their land be classified as forestland).

Our analysis reveals variation in compatibility along three key dimensions:

1. Whether landowners must harvest timber to retain their property tax benefits. Where eligibility is contingent on harvest, landowners are almost always required to provide some form of documentation. In most cases, this is in the form of a forest management plan. Certain programs allow other forms of documentation; for instance, some Virginia counties allow landowners to submit a copy of a filed IRS Form 1040F-Sch to demonstrate harvest and eligibility with its Land Use Value Assessment (LUVA) program.
2. Who is able to write forest management plans, should they be required, and how amendable they are (variations at the state rather than the program level). For instance, in some states landowners may submit management plans themselves; other states require that management plans be developed by certified foresters. This is important from the perspective of harvest requirements, as professionally trained foresters are unlikely to recommend or approve extended harvest rotations beyond five years. Further, when landowners are allowed to develop or amend their own plans without consultation or guidelines, there are limited checks on prescribed harvest rotations by professional foresters, and plans are generally submitted to county tax officials who are less trained on silvicultural standards.
3. Whether program-level harvest requirements are, in practice, enforced by county tax officials and other administrators.

Ultimately, compatibility is heavily determined by harvest requirements across the program types and the amenability of forest management plans, where required. Preferential property tax programs presenting the lowest compatibility concerns have no harvest requirements and often do not necessitate a management plan. Meanwhile, programs with the highest compatibility concerns have harvest requirements and the stipulation that certified foresters must prescribe sustainable forest management practices for timber harvest in forest management plans. While certified plans do allow for some flexibility in harvest schedule (in acknowledgement that certain years may not be convenient or profitable for landowner harvest), harvest deferrals beyond five years are unlikely to be approved.



Program Compatibility Rankings

To quantify these three dimensions, we developed a compatibility ranking system according to the first two dimensions listed above, as shown in **Figure 4**. The additional dimension of enforcement was left out of this compatibility ranking, as enforcement can vary by county and across time. However, levels of enforcement are included in **Table 7**, along with more specific details on harvest and plan requirements for each preferential tax arrangement.

Figure 4
Compatibility Ranking System

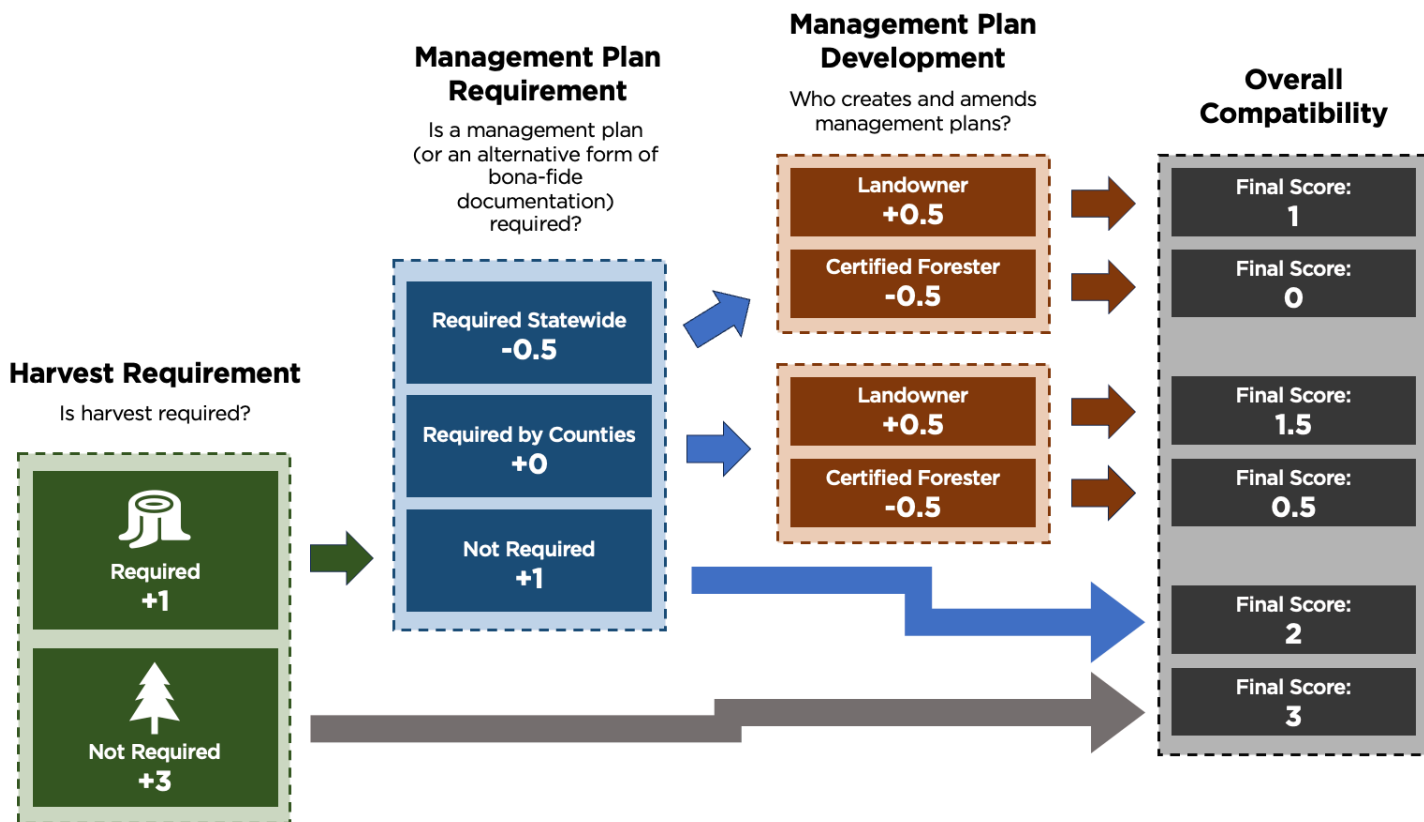


Table 5
Compatibility Score Interpretation

Final Score	Description
Limited Compatibility (0-1)	
0	Harvest and a management plan developed by certified forestry professional is required statewide.
0.5	Harvest is required statewide, with some counties requiring a management plan developed by certified forestry professional.
1	Harvest and a management plan developed by the landowner is required statewide.
Partial Compatibility (1.5-2)	
1.5	Harvest is required statewide, with some counties requiring a management plan which can be developed by the landowner.



2 Harvest is required statewide, but there is no management plan provision.

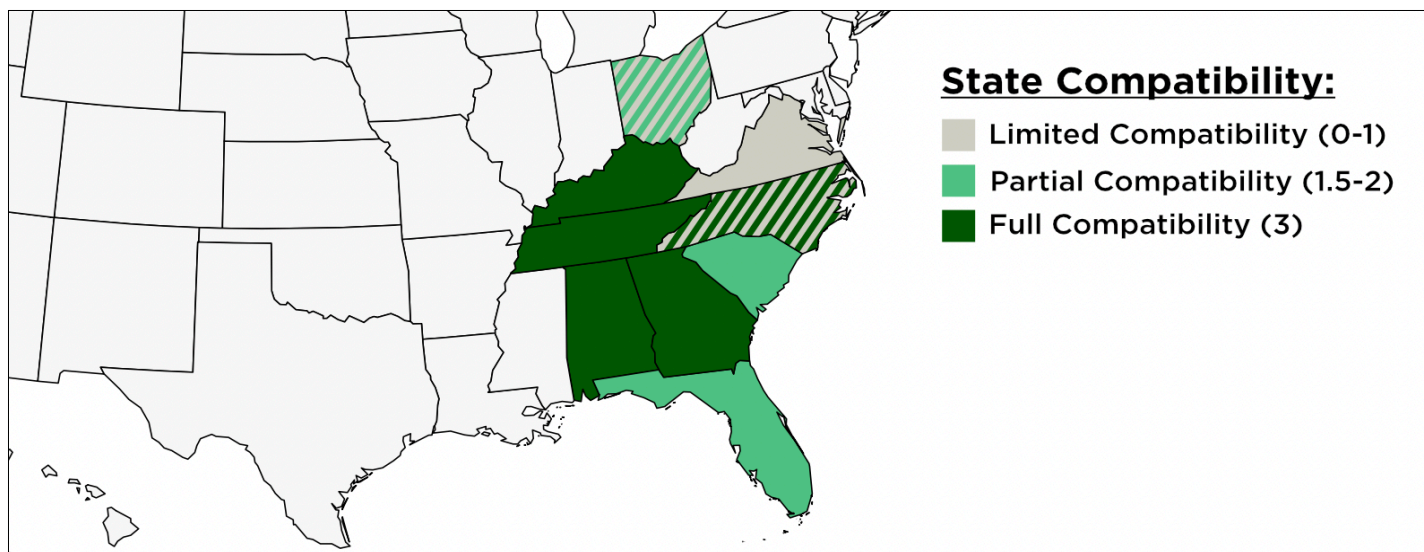
Full Compatibility (3)

3 Harvest is not required.

Utilizing the coding system outlined in **Figure 4**, compatibility rankings range from 0 (Limited Compatibility) to 3 (Full Compatibility). This overall compatibility score is determined by three features: whether harvest is required, whether a management plan is required, and whether that

Figure 5

State Compatibility Map



plan can be developed and/or amended by a landowner or certified forester. Each feature is given a different weight, based upon their include on compatibility between voluntary carbon markets and preferential property tax systems. For instance, because the requirement for harvest is ultimately the most significant barrier to participation in both program types, they are given a higher weight (+3 and +1) than the other two features (ranging from -0.5 to +1).

When harvest is not obligatory, full compatibility exists between preferential tax programs and voluntary carbon market enrollment. In cases like this, the other features are not determinant of the final ranking. If a management plan is required while harvest is not, compatibility remains consistent. The same is true when considering how managements plan are developed/amended: there is ultimately no influence on compatibility when harvest is not a required component for enrollment in a preferential tax program.

If it is determined that landowners must harvest their timber to participate in a tax program, the overall compatibility score is calculated sequentially based on the features above. Upon assigning a +1 to indicate that harvest is required, the next step is determining whether a management plan is necessary for program enrollment. If this is required statewide, the overall compatibility ranking decreases (-0.5). If plans are only required in some counties, no score is assigned (+0). If a management plan is not required, the final score increases (+1). Then, the development of management plans is assessed: who is able to create and/or amend plans? If landowners are able



to do this without a consenting forestry professional, the final compatibility score increases (+0.5). However, if a certified forester or equivalent personnel is needed to develop initial plans and amend them based on landowner objectives, the overall ranking decreases (-0.5).

The map shown in **Figure 5** visualizes where each state falls according to the compatibility ranking system. Note that while Alabama, Florida, South Carolina, Kentucky, and Tennessee each have only one preferential tax program, Georgia, North Carolina, Ohio, and Virginia each have two or more, making navigation of compatibility in these four states slightly more complex. **Table 6** displays this information in greater detail.

Table 6

State Compatibility Rankings

State	Program	Harvest Score	Management Plan Score	Plan Amendability Score	Overall Score
AL	Agricultural Land Classification	3	-	-	3
FL	Agricultural Classification (Greenbelt)	1	0	0.5*	1.5
GA	Preferential Agricultural Assessment (PAA)	3	-	-	3
	Conservation Use Valuation Assessment (CUVA)	3	-	-	3
	Forest Land Protection Act (FLPA)	3	-	-	3
	Qualified Timberland Property (QTP)	3	-	-	3
KY	Agricultural Land Classification	3	-	-	3
NC	Present-Use Value (PUV)	1	-0.5	0.5**	1
	Wildlife Conservation Land Program (WCLP)	3	-	-	3
OH	Ohio Forest Tax Law (OFTL)	1	-0.5	-0.5	0
	Current Agricultural Use Value (CAUV)	1	0***	0.5	1.5
SC	Agricultural Special Assessment	1	1	-	2
TN	Agricultural, Forest and Open Space Land Act (Greenbelt)	3 [†]	-	-	3
VA	Land Use Value Assessment (LUVA)	1	0	-0.5 ^{††}	0.5
	Riparian Forest Buffer Tax Credit	1 ^{†††}	-0.5	-0.5	0

* In Florida, some counties require forest management plans for enrolling in the Greenbelt program. It is not clear whether these plans must be developed by certified foresters, or whether landowners can create their own. In some cases, a designated templates designed by forestry professionals must be followed.

** In North Carolina, landowners enrolled in PUV are permitted to create their own plans if they have the analytical skills. However, all preparers must adhere to guidelines developed by the North Carolina Forest Service. As a result, very few landowners create their own plans. Further, plans and plan amendments are subject to state tax assessor review, with enforcement varying by county.

*** In Ohio, most counties require management plans for enrolling in CAUV, while some do not. Management plans, where required, only apply to woodland acres when enrolled as the primary source of agricultural production, rather than residual woodland associated with croplands.

[†] In Tennessee, despite state statute only necessitating management plan submission for program enrollment and nothing more, certain counties' tax offices, in an attempt to preserve revenue (according to interviewees), wrongly reject plans that do not meet their own qualifying criteria, such as those that do not adhere to the TDF plan template, in some cases



with plan content impacting county officials' decisions. This defies statute, as plan content should not affect eligibility and landowners should not be compelled to use the template.

** In Virginia, a forest management plan is not required for the LUVA program in every county. However, when they are, they often necessitate the involvement of a certified forester.

*** In Virginia, landowners can only apply for and receive the Riparian Forest Buffer Tax Credit upon the completion of harvest activities. Therefore, if a landowner has already enrolled in a carbon program that restricts harvest, they cannot receive this benefit. However, landowners could enroll in a carbon program following a harvest and the receipt of this tax credit without compatibility concerns.

Importantly, for states without harvest requirements, this coding system does not indicate whether management plan requirements also exist for a given program, as they ultimately do not influence overall compatibility. A significant case is Tennessee, where the Greenbelt program requires a management plan without compelling harvest. Below, **Table 7** outlines these provisions in detail, without regard for influence on compatibility.

Table 7

Harvest Requirements, Enforcement, and Forest Management Plan Requirements

State	Program	Harvest Required	Harvest Enforcement	Plan Required
Alabama	Agricultural Land Classification	No	No	No
Florida	Agricultural Classification (Greenbelt)	Yes	Depends on county	Depends on county, created by landowner or professional forester
Georgia	Preferential Agricultural Assessment (PAA)	Yes, but left to landowner discretion	Depends on county	When applying with less than ten acres, some counties require management plans
	Conservation Use Valuation Assessment (CUVA)	Yes, but left to landowner discretion	Depends on county	When applying with less than ten acres, some counties require management plans
	Forest Land Protection Act (FLPA)	Yes, but left to landowner discretion	Depends on county	When applying with less than ten acres, some counties require management plans
	Qualified Timberland Property (QTP)	Yes, but left to landowner discretion	Depends on county	Recommended, but not required
Kentucky	Agricultural Land Classification	No	No	No
North Carolina	Present-Use Value (PUV)	Yes	Depends on county	Yes, created by landowner or professional forester



	Wildlife Conservation Land Program (WCLP)	Depends on management activities outlined in Wildlife Habitat Conservation Agreement (WHCA)	Yes	Yes, WHCA with North Carolina Wildlife Resources Commission approval
Ohio	Ohio Forest Tax Law (OFTL)	Yes	Yes	Yes, created by professional forester
	Current Agricultural Use Value (CAUV)	Yes	Depends on county	Depends on county, created by landowner or professional forester
South Carolina	Agricultural Special Assessment	Yes, but left to landowner discretion	Depends on county	Depends on county (despite state statute not requiring plans), landowners may develop plans
Tennessee	Agricultural, Forest and Open Space Land Act (Greenbelt)	No	No	Yes
Virginia	Land Use Value Assessment (LUVA)	Yes	Depends on county	Depends on county, created by professional forester
	Riparian Forest Buffer Tax Credit	Yes	Yes	Yes, with Virginia Department of Forestry approval

Preferential Property Tax Program Compatibility in Detail

This section details compatibility results and interview findings for preferential tax arrangements in the nine states of Alabama, Florida, Georgia, Kentucky, Ohio, North Carolina, South Carolina, Tennessee, and Virginia. A profile is provided for each state with tabular data on current forest carbon projects, tax programs, and forest economy activity. This is supplemented with additional tables containing information on the current programs available in each state, including program enrollment requirements and characteristics. Program-specific and state-level insights gleaned from interviews are summarized below the tables. These provide more nuanced understandings of compatibility aspects gleaned from expert interviews, including state and landowner interest in or oppositions to voluntary carbon markets more broadly, tax objectives or intent, perceptions on tax program compatibility with forest carbon programs, and future state-level program trends.

Alabama

This section presents results from the document analysis and interviews conducted for the state of Alabama. **Table 8** summarizes information regarding carbon projects, tax programs, and the forest economy in Alabama. Currently, there are 16 carbon projects, including 6 improved forest management projects. The state's preferential tax program has a reported 37.6% participation rate, (Haya et al. 2023, Butler et al. 2021). In terms of Alabama's forest economy, the sector contributes



\$12.5 billion in economic output and 40,000 jobs annually (Alabama Department of Commerce n.d.).

Table 8

Carbon Projects, Tax Programs, and Forest Economy in Alabama

Alabama State Profile	
Carbon Projects¹	
Total Number of Projects	16 carbon projects
Number of Approved Forestry Projects	6 improved forest management projects (3 American Carbon Registry, 3 Climate Action Reserve)
Total Forestry Credits Issued	1,272,805 credits issued
First Year of Forestry Project	2019
Tax Programs²	
Tax Program Participation	37.6% yes, 41.1% no, 21.3% don't know (n = 202)
Tax Program Familiarity	62.9% familiar, 37.1% not familiar (n = 202)
High Property Tax Concern	91.1% concern, 7.9% little to no concern (n = 202)
Forest Economy³	
Employment Figures	40,000 in direct employment
Economic Output	\$12.5 billion in output

State Involvement in Carbon Markets

In Alabama, the state government is not involved in carbon markets. The Alabama Forest Action Plan doesn't mention offsets or markets, and there is no documented state strategy concerning them. According to interviewees, the state is attempting to gain a better understanding of the direction of carbon markets, and it hasn't taken a firm stance either for or against them. Instead, public universities, extension programs, and state departments have focused on providing information and educating foresters and other stakeholders.

Landowner Interest in Forest Carbon Programs

There is potential interest among small, private landowners in participating in carbon markets. The level of interest largely hinges on profits and revenue flows, with these programs being particularly appealing for landowners who do not plan to conduct extensive harvesting activities. According to interviewees, the State Forest Commission and a few landowners have enrolled in the Natural Climate Exchange (NCX). However, the majority of landowners are adopting a "watch-and-wait" approach to see how markets unfold. If given the option, many landowners would seriously consider participating in a project, especially if enrollment came with limited requirements or concessions. Nevertheless, there are concerns regarding time commitments for carbon projects. Landowners worry about the potential generational impacts of restricting their children's land use,

¹ Haya et al. 2023

² Butler et al. 2021

³ Alabama Department of Commerce n.d.



and some are more inclined toward shorter commitments of 20 to 30 years; longer commitments are faced with greater apprehension.

Opposition to Voluntary Carbon Markets

While some may have personal reservations about voluntary carbon markets, there is no organized opposition at the institutional or organizational level. Interviews with members of the forestry community, such as landowners, loggers, and manufacturers, indicate that there is only minimal opposition among them. Where opposition does exist, it seems to be primarily rooted in skepticism about the actual carbon benefits and long-term market sustainability of these markets.

Agricultural Land Classification Program

Compatibility Score: 3 (Full Compatibility)

Established in 1978, agricultural land classification enables the valuation of farmland and timberland at current use value (ADOR n.d.). Although Title 40-7-25.1 and 40-7-25.2 of the Alabama Code states that eligibility is limited to “property used... for the growing and sale of timber and forest products”, in reality there are no harvest requirements. The most notable enrollment provision is that parcels must be at least five acres unless additional data can be provided to assessing officials to substantiate a landowner’s application.

Table 9 highlights the various enrollment requirements and characteristics underpinning agricultural land classification in Alabama.

Table 9

Enrollment Requirements and Program Characteristics for Alabama Agricultural Land Classification

Agricultural Land Classification	
Enrollment Requirements	
Qualifying Land	All real property used for raising, harvesting, and selling crops for the feeding, breeding, management, raising, sale of, or the production of livestock, including beef cattle, sheep, swine, horses, ponies, mules, poultry, fur-bearing animals, honeybees, and fish; or for dairying and the sale of dairy products; or for the growing and sale of timber and forest products; or any other agricultural or horticultural use, or animal husbandry, and any combination thereof.
Minimum/Maximum Acreage	Minimum of five acres, with five acres or less allowable upon the receipt of additional data.
Minimum Stocking Growth	No minimum stocking growth requirements.
Management Plan	No management plan is required when enrolling five or more acres. However, for less than five acres, the assessing official may require submission of additional data such as site management plans from the Alabama Forestry Commission. Photographs, surveys, verification from a county farm agent, or the United States Soil Conservation Service are also eligible sources of additional information.
Timber Harvest	No timber harvest requirements—once enrolled, landowners may harvest whenever they would like.
Program Characteristics	



Landowners Demographics	Current use valuation is attractive amongst larger, industrial owners. For smaller landowners, enrollment depends on awareness and ability to fulfill program requirements.
Total Acres Enrolled	This information is not available.
Enrollment Trends	This information is not available.
Monitoring and Compliance	There are no additional monitoring provisions outside the statewide requirement that counties appraise properties every four years, with a review of 25% or more of parcels in the county.
Enforcement and Penalties	There is no enforcement of any of the program requirements. Landowners are only disqualified if their land use changes. If found to be noncompliant, a landowner's property will be revalued at current market value and rollback taxes must be paid. These are based on the sale price or the fair and reasonable market value of such property at the time of its conversion, whichever is greater, for the preceding three ad valorem tax years.
State-County Discretion	The Department of Revenue (DoR) generates annual rates for current use valuation, which must be used by county tax assessors. However, county tax assessors are given latitude in determining forest productivity rankings, which determines the appraised value. Additionally, tax assessors have the ability to alter rollback tax penalties, making them less strict.
Management Plan Development and Amenability	Management plans are not required for parcels with five or more qualifying acres. If county officials choose to require plans for enrolling less than five acres, these plans are created in coordination with the landowner and the Alabama Forestry Commission (AFC).
Typical Harvest Windows	Softwood trees are generally managed on a 28–35-year, perhaps 40-year, harvest rotation. The AFC recommends that softwoods be managed on a 60-year rotation.

Program Enrollment

Enrolling land under Alabama's Agricultural Land Classification is a straightforward process; one interviewee noted that landowners are simply required to sign a written statement without any management or harvest expectations. As long as the land use remains unchanged and classified as forest, landowners are rarely removed from the current use valuation. However, instances of removal from the program have occurred in cases of forestland conversion, such as clearing undeveloped forestland to build a shopping mall.

Program Compatibility

Overall, interviewees generally agree that agricultural land classification should be compatible with forest carbon projects due to the absence of harvest requirements. The program mandates that the land be actively devoted to or capable of growing trees for the production of forest products, which is interpreted to mean that as long as the property can still support tree growth, it will remain enrolled.

Florida

This section presents results from the document analysis and interviews conducted for the state of Florida. **Table 10** summarizes information regarding carbon projects, tax programs, and the forest economy in Florida. Currently, there are 24 carbon projects, including 3 avoided conversion and 9



improved forest management projects. The state's preferential tax program has a reported 56.8% participation rate (Haya et al. 2023, Butler et al. 2021). In terms of Florida's forest economy, the sector contributed to \$25.05 billion in economic output and 36,000 jobs in 2016 (Court et al. 2019).

Table 10

Carbon Projects, Tax Programs, and Forest Economy in Florida

Florida State Profile	
Carbon Projects ⁴	
Total Number of Projects	24 carbon projects
Number of Forestry Projects	3 avoided conversion projects (2 American Carbon Registry, 1 Climate Action Reserve); 9 improved forest management projects (7 American Carbon Registry, 2 Climate Action Reserve)
Total Forestry Credits Issued	1,894,203 credits issued
First Year of Forestry Project	2017
Tax Programs ⁵	
Tax Program Participation	56.8% yes, 28.4% no, 14.7% don't know (n = 102)
Tax Program Familiarity	68.6% familiar, 31.4% not familiar (n = 102)
High Property Tax Concern	87.2% concern, 12.8% little to no concern (n = 102)
Forest Economy ⁶	
Employment Figures	36,000 in direct employment
Economic Output	\$25.05 billion in output

State Involvement in Carbon Markets

While the state is not actively encouraging landowners to enroll in carbon programs, the University of Florida Institute of Food and Agricultural Sciences (UF/IFAS) Extension is focused on educating landowners through outreach and education.

Landowner Interest in Forest Carbon Programs

Interviewees did not speculate on landowner interest in pursuing forest carbon program enrollment. Instead, they noted that most landowners are unaware of carbon markets, and that the small number that are participating are larger landowners with additional resources relative to most private owners.

Opposition to Voluntary Carbon Markets

Interviewees were not aware of any widespread opposition to voluntary carbon markets in Florida.

⁴ Haya et al. 2023

⁵ Butler et al. 2021

⁶ Court et al. 2019



Agricultural Classification (Greenbelt Law)

Compatibility Score: 1.5 (Partial Compatibility)

The Greenbelt Law was introduced in 1959 to preserve and encourage agricultural land uses (Olexa & Hill 2023). Throughout its history, Greenbelt has been amended several times to lower the barrier to which landowners meet enrollment classifications. For instance, it previously restricted the classification to land used “exclusively for agricultural purposes”, which was amended in 1969 to land uses “primarily for agricultural purposes” (Olexa & Hill 2023). Below, **Table 11** outlines the enrollment requirements and characteristics of the Greenbelt program.

Table 11

Enrollment Requirements and Program Characteristics for Florida Greenbelt

Greenbelt Law	
Enrollment Requirements	
Qualifying Land	<p>Agricultural classification can only be applied to land used primarily for bona fide agriculture, meaning that it must be used for the good faith commercial production of an agricultural product. The following factors are used to determine whether an agricultural use is “bona fide” (FDOR 2012):</p> <ol style="list-style-type: none"> 1. The length of time the land has been so used. 2. Whether the use has been continuous. 3. The purchase price paid. 4. Size, as it relates to specific agricultural use, but a minimum acreage may not be required for agricultural assessment. 5. Whether an indicated effort has been made to care sufficiently and adequately for the land in accordance with accepted commercial agricultural practices, including, without limitation, fertilizing, liming, tilling, mowing, reforestation, and other accepted agricultural practices. 6. Whether the land is under lease and, if so, the effective length, terms, and conditions of the lease. 7. Such other factors as may become applicable, such as the general character of the neighborhood, use of adjacent properties, and expert opinions. <p>Importantly, landowners themselves must demonstrate to taxing authorities that their agricultural operation is bona fide, in good faith.</p>
Minimum/Maximum Acreage	<p>There is no minimum or maximum acreage requirement statewide. However, tax officials are required to consider size as it related to specific agricultural uses when determining whether a parcel qualifies. For instance, a planted pine forest should be at least 10 acres in size to be viable for commercial forestry (TFC n.d.). Additionally, some counties have established minimum acreage requirements.</p>
Minimum Stocking Growth	<p>No minimum stocking growth requirements.</p>
Management Plan	<p>Although not required by statute, forest management plans are recommended in order to substantiate the continued agricultural use of an enrolled property. Some counties require management plans.</p>
Timber Harvest	<p>There is an expectation that timber will be periodically harvested. Both intensive and natural forest production regimes are permissible. While the Greenbelt Law does not substantiate clear deadlines to harvest, the landowner must demonstrate that they are actively working towards harvest. This can be done in the form of a forest management plan, contracts for timber, approval by a certified forester, etc.</p>
Program Characteristics	



Landowners Demographics	There is a lack of program awareness among untraditional agricultural communities, such as those in urban settings. Traditional farmers in rural counties understand the program, but there is untapped interest among others.
Total Acres Enrolled	This information is not available.
Enrollment Trends	This information is not available.
Monitoring and Compliance	The county appraiser is required to, at a minimum, inspect properties once every five years. However, there is a history of bad-faith actors enrolling and getting the tax benefits of the Greenbelt Law without producing agricultural products.
Enforcement and Penalties	If the parcel is no longer being used for an agricultural use, it is simply reclassified and assessed at fair market value.
State-County Discretion	Some statutes and administrative rulings pertaining to the Greenbelt Law are ambiguous, allowing county tax officials levels of interpretation. For instance, some counties might require landowners to submit a management plan, while others may not. Others require a minimum number of acres (e.g., 10-20). Additionally, some counties require landowners to submit an annual renewal application, while others waive this.
Management Plan Development and Amenability	Some counties require that management plans be updated every 7-10 years by a certified forester. Other counties that require management plans accept plans from landowners which follow designated templates designed by forestry professionals.
Typical Harvest Windows	The rotation period for shortleaf pine can range from 30-50 years, depending on growth rates and intended product outcomes. Slash pine and loblolly pine rotations are typically 25-35 years, while longleaf pine is 60-100 years.

Program Enrollment

As outlined in **Table 11**, the Greenbelt program is offered only to bona-fide agricultural land, which is classified depending on seven factors assessed by county tax officials. It is up to the landowner to prove that they meet these requirements. Beyond this statewide minimum standard, other enrollment criteria is delegated to county governments. For instance, some counties have minimum acreage and management plan requirements.

Program Compatibility

Landowners may reduce or defer harvest as long as their timber remains viable for agricultural production. According to one interviewee, compatibility hinges on whether landowners are making a good faith effort towards bona-fide production. Because the Greenbelt Law does not require a certain intensity of harvest, a landowner could operate within the confines of professionally agreed upon forest health while enrolled in Greenbelt and a voluntary carbon market. However, another interviewee noted that while reducing timber harvest might be doable, it may be difficult to substantiate to county tax officials that deferring harvest for 20-50 would be commercially viable. Their case could be strengthened by updating their management plan and presenting expert opinions from forestry professionals.

Ultimately, compatibility between the Greenbelt Law and voluntary carbon market enrollment is dependent on two major factors: whether a management plan is required by the county tax office and whether the landowner can prove that participation in a carbon market would not jeopardize their good faith effort towards the bona-fide production of timber.



Georgia

This section presents results from the document analysis and interviews conducted for the state of Georgia. **Table 12** summarizes information regarding carbon projects, tax programs, and the forest economy in Georgia. Currently, there are 15 carbon projects, including 2 avoided conversion and 1 improved forest management project. The state's preferential tax programs have a reported 66.1% participation rate (Haya et al. 2023, Butler et al. 2021). In terms of Georgia's forest economy, the sector contributed to \$36.3 billion in economic output in 2018 (GFC n.d.-a).

Table 12

Carbon Projects, Tax Programs, and Forest Economy in Georgia

Georgia State Profile	
Carbon Projects⁷	
Total Number of Projects	15 carbon projects
Number of Forestry Projects	2 avoided conversion (2 ACR), 1 improved forest management (1 CAR)
Total Forestry Credits Issued	4,792,890
First Year of Forestry Project	2017
Tax Programs⁸	
Tax Program Participation	66.1% yes, 22.9% no, 11% don't know (n = 319)
Tax Program Familiarity	78.3% familiar, 21.7% not familiar (n = 319)
High Property Tax Concern	96.9% concern, 3.1% little to no concern (n = 319)
Forest Economy⁹	
Employment Figures	55,000 in direct employment
Economic Output	\$36.3 billion in total economic output

State Involvement in Carbon Markets

Two state agencies, the Georgia Forestry Commission (GFC) and the Georgia Superior Clerks Cooperative Authority (GSCCA), manage the Georgia Carbon Sequestration Registry (GSCCCA, 2023). Established in 2004, this registry provides for the tracking and documentation of carbon projects in the state. Two of the stated aims of the registry are to “facilitate the emerging market for carbon offsets” and to “educate the public about the carbon offsets, carbon sequestration, and climate change” (GFC n.d.-b). Despite this, interviewees stated that the GFC rarely mentions the Georgia Carbon Sequestration Registry. Most landowners do not know that they can register their carbon and why doing so could be advantageous to them.

⁷ Haya et al. 2023

⁸ Butler et al. 2021

⁹ GFC n.d.-a



Landowner Interest in Forest Carbon Programs

Based on interviews with subject-matter experts, landowners are interested in voluntary carbon markets. However, this varies depending on concerns regarding costs and alignment with a landowner's management objectives.

Opposition to Voluntary Carbon Markets

According to interviewees, there is no source of organized opposition to voluntary carbon markets in Georgia. While some interest groups (e.g., forest products industry) may have concerns, there is currently nothing compelling them to act.

Preferential Agricultural Assessment (PAA)

Compatibility Score: 3 (Full Compatibility)

In Georgia, properties enrolled in preferential agricultural assessment (PAA) can be assessed at 30% of fair market value, although most eligible properties do not take advantage of this modified assessment and are thus still assessed at 40% (Izlar et al. 2011). This is then multiplied by a 75% assessment ratio. In return for this tax benefit, landowners are required to attest that their land is being used to produce agricultural products, and that it will remain as such for the entirety of their ten-year covenant. Below, **Table 13** details the enrollment requirements and characteristics of the program.

Table 13

Enrollment Requirements and Program Characteristics for Georgia PAA

Preferential Agricultural Assessment (PAA)	
Enrollment Requirements	
Qualifying Land	Land used for in the good faith production of agricultural products, including timber. Additionally, the property must be owned by one or more natural or naturalized citizens, or by an entity comprised of one or more natural or naturalized citizens, or a bona fide nonprofit conservation organization. Importantly, PAA also applies to up to \$100,000 dollars in building value on agricultural production and storage buildings (Effingham County 2023). This is a unique feature relative to the other preferential tax treatments in the state.
Minimum/Maximum Acreage	The maximum acreage is 2,000 acres. There is no minimum acreage requirement.
Minimum Stocking Growth	No minimum stocking growth requirements.
Management Plan	Forest management plans are not required. However, landowners with less than ten acres must provide proof of bona-fide agricultural production, often in the form of a Schedule T (Form 1040), IRS Form 4835, or a management plan (Muscookee County 2020).
Timber Harvest	Enrolled landowners must maintain that their property will be used for agricultural or forestry uses for ten years. However, there are no explicit requirements for landowners to harvest a given amount within a certain time period.
Program Characteristics	
Landowners Demographics	Legacy agricultural or forestry land enrolled in the program when it was most popular in the 1990s. Likely smaller landowners.
Total Acres Enrolled	There is an estimated 133,000 forestry acres enrolled.



Enrollment Trends	The PAA program has lost popularity in Georgia over time, dropping from a total of 3.3 million acres in 1994 to 218,000 acres in 2022 (University of Georgia 2022). PPA is expected to disappear within the next 10-20 years.
Monitoring and Compliance	County tax offices use a mix of aerial satellite imagery and site visits to ensure that covenants are not broken.
Enforcement and Penalties	If the ten year covenant is broken, a landowner must repay the tax accrued during the year of the breach, times a factor of: <ul style="list-style-type: none"> <input type="checkbox"/> 5, if breached during years 1 or 2 <input type="checkbox"/> 4, if breached during years 3 or 4 <input type="checkbox"/> 3, if breached during years 5 or 6 <input type="checkbox"/> 2, if breached during years 7 through 10
State-County Discretion	Beyond the maximum acreage requirement and penalty provisions, county governments decide upon all other aspects of the program. This includes enrollment requirements.
Management Plan Development and Amenability	Management plans are not required for enrollment.
Typical Harvest Windows	The rotation period for shortleaf pine can range from 30-50 years, depending on growth rates and intended product outcomes. Slash pine and loblolly pine rotations are typically 25-35 years, while longleaf pine is 60-100 years.

Program Enrollment

To apply for PAA, landowners must provide a signed PT-230 application form and outline the number of acres being used for the qualifying agricultural purpose (White County n.d.). They must also designate on a tax map the exact parcel and acreage being entered into the ten-year covenant (White County n.d.). As noted in **Table 13**, forestry landowners enrolling with less than ten acres must provide additional verification information, usually with an IRS Form Schedule T, IRS Form 4835, or a management plan.

During this process, landowners are not required to outline when they will harvest, or to provide a management plan to the county tax office. When approved, the covenant agreement is registered with the GSCCCA and filed in the county book of deeds (White County n.d.).

Program Compatibility

Because enrollment is not contingent on harvest, there should be full compatibility between PAA and voluntary carbon market arrangements. According to one interviewee, agricultural preferential assessment would not interfere with participation in a forest carbon program. Another stated that the covenant is only breached if the land use changes. As long as landowners are growing trees, there should be no issues.

Conservation Use Valuation Assessment (CUVA)

Compatibility Score: 3 (Full Compatibility)

In 1992, the Conservation Use Valuation Assessment (CUVA) program was introduced to offer additional tax benefits to land primarily used for agricultural purposes (Ashley 2018). Rather than fair market value, CUVA properties are valued based on their current use and assessed at 40% of that derived amount. Below, **Table 14** profiles the enrollment requirements and characteristics of the program.



Table 14

Enrollment Requirements and Program Characteristics for Georgia CUVA

Conservation Use Valuation Assessment (CUVA)	
Enrollment Requirements	
Qualifying Land	Land and improvements primarily used in the good faith production of agricultural products or timber. Includes property used for hunting purposes. Additionally, the property must be owned by one or more natural or naturalized citizens, or by an entity comprised of one or more natural or naturalized citizens, or a bona fide nonprofit conservation organization.
Minimum/Maximum Acreage	The maximum acreage is 2,000 acres. There is no minimum acreage requirement statewide, although some counties require at least 25 acres. One interviewee commented that this was “unconstitutional,” as the Constitution of Georgia and state statute do not explicitly reference the ability of counties to set minimum acreage requirements.
Minimum Stocking Growth	No minimum stocking growth requirements.
Management Plan	Forest management plans are not required. However, landowners with less than ten acres must provide proof of bona-fide agricultural production, often in the form of a Schedule T (Form 1040), IRS Form 4835, or a management plan (Muscookee County 2020).
Timber Harvest	Enrolled landowners must maintain that their property will be used for agricultural or forestry uses for ten years. However, there are no explicit requirements for landowners to harvest a given amount within a certain time period.
Program Characteristics	
Landowners Demographics	Given the 2,000 acre limit and the absence of a minimum acreage requirement, the program is popular among smaller, non-industrial landowners.
Total Acres Enrolled	The CUVA program is the second most popular among forestry landowners, with an estimated 8.6 million acres enrolled (University of Georgia 2022).
Enrollment Trends	The number of acres enrolled in CUVA increased between 1994 and 2015. Since 2015, numbers have plateaued and steadily declined.
Monitoring and Compliance	County tax offices use a mix of aerial satellite imagery and site visits to ensure that covenants are not broken.
Enforcement and Penalties	If the ten year covenant is broken, the holder must pay an amount equal to twice the property tax savings incurred from the year the covenant was entered until it was breached, plus interest. As of 2002, taxpayers who are at least 65 years old are eligible for an “early out”, removing their covenant obligations (Izlar 2011). However, it is unlikely that many landowners are aware they have this option.
State-County Discretion	Beyond the maximum acreage requirement and penalty provisions, county governments decide upon all other aspects of the program. This includes enrollment requirements.
Management Plan Development and Amenability	Management plans are not required for enrollment.
Typical Harvest Windows	The rotation period for shortleaf pine can range from 30-50 years, depending on growth rates and intended product outcomes. Slash pine and loblolly pine rotations are typically 25-35 years, while longleaf pine is 60-100 years.



Program Enrollment

Due to the decentralized administration of the CUVA program, each county has different application requirements. In fact, the only state-wide requirement is an acreage limit of 2,000 acres. To apply for CUVA, landowners are instructed to contact their local county tax office.

If applying with less than ten acres, landowners may be required to provide proof of bona-fide agricultural production. In some cases, counties may require a management plan, while others simply accept tax forms.

Program Compatibility

Because CUVA participation is dependent on land use designation rather than harvest, there is full compatibility between the program and voluntary carbon markets. Interviewees did not express any doubts about landowners being able to dual-enroll in both programs.

Forest Land Protection Act (FLPA)

Compatibility Score: 3 (Full Compatibility)

The Forest Land Protection Act (FLPA) was introduced in 2008, providing an ad valorem tax exemption for qualifying landowners. Also known as “Super CUVA,” the FLPA program does not have a maximum acreage limit like the CUVA program, making it popular among larger landowners (Izlar 2011). Below, **Table 15** outlines the enrollment requirements and characteristics underpinning the program.

Table 15

Enrollment Requirements and Program Characteristics for Georgia FLPA

Forest Land Protection Act (FLPA)	
Enrollment Requirements	
Qualifying Land	<p>Land for which the primary use is the good faith subsistence or commercial production of trees, timber, or other wood and wood fiber products. This includes land conservation and ecological forest management, in which commercial production of wood and wood fiber products may be undertaken primarily for conservation and restoration purposes rather than financial gain. Properties may have a secondary use, such as:</p> <ul style="list-style-type: none"> <input type="checkbox"/> The promotion, preservation, or management of wildlife habitat. <input type="checkbox"/> Carbon sequestration in accordance with the Georgia Carbon Sequestration Registry. <input type="checkbox"/> Mitigation and conservation banking that results in restoration or conservation of wetlands and other natural resources. <input type="checkbox"/> The production and maintenance of ecosystem products and services, such as, but not limited to, clean air and water. <p>Up to 50% of the land may lie dormant, however, the unused portion may not be used for any other business use. It is unclear whether carbon markets would be deemed “any other business use.” Additionally, the property must be owned by one or more natural or naturalized citizens, or by an entity comprised of one or more natural or naturalized citizens, or a bona fide nonprofit conservation organization. Importantly, corporate owners can participate in FLPA, unlike the other programs.</p>
Minimum/Maximum Acreage	The minimum acreage is 200 contiguous acres. There is no maximum acreage requirement.



Minimum Stocking Growth	No minimum stocking growth requirements.
Management Plan	Forest management plans are not required. However, landowners with less than ten acres must provide proof of bona-fide agricultural production, often in the form of a Schedule T (Form 1040), IRS Form 4835, or a management plan (Muscookee County 2020).
Timber Harvest	Enrolled landowners must maintain that their property will be used for agricultural or forestry uses for ten years. However, there are no explicit requirements for landowners to harvest a given amount within a certain time period.
Program Characteristics	
Landowners Demographics	FLPA is more likely to attract larger landowners, given its minimum acreage requirement of 200 contiguous acres.
Total Acres Enrolled	5.8 million acres of forestland are under the FLPA program, making it the most popular preferential tax program among forest landowners.
Enrollment Trends	Enrollment increased rapidly between 2008 and 2015, and is now experiencing a plateau.
Monitoring and Compliance	County tax offices use a mix of aerial satellite imagery and site visits to ensure that covenants are not broken.
Enforcement and Penalties	If the FLPA covenant is broken, a landowner must pay back twice the amount of savings they received over the life of the covenant up to the point in which it was breached, plus applicable interest.
State-County Discretion	Beyond the maximum acreage requirement and penalty provisions, county governments decide upon all other aspects of the program. This includes enrollment requirements.
Management Plan Development and Amenability	Management plans are not required for enrollment.
Typical Harvest Windows	The rotation period for shortleaf pine can range from 30-50 years, depending on growth rates and intended product outcomes. Slash pine and loblolly pine rotations are typically 25-35 years, while longleaf pine is 60-100 years.

Program Enrollment

On the application form, landowners applying for FLPA are required to designate the number of acres they would like to enroll in the program. Additionally, they may identify secondary uses such as wildlife habitat management, carbon sequestration, mitigation or conservation use banking, and the production or maintenance of ecosystem products. Importantly, only landowners with 200 acres or more qualify for FLPA. According to Li and Izlar (2021), the average size of a FLPA property is 682 acres.

As with CUVA, if landowners apply with less than ten acres, they may be required submit a management plan and/or additional tax forms to prove they hold a qualifying land use.

Program Compatibility

Similar to PAA and CUVA, FLPA does not require timber harvest. This makes it fully compatible with forest carbon project participation. With the addition of carbon sequestration as a legitimate secondary use, there are limited barriers for landowners to participate in both programs simultaneously, at least from the perspective of the property tax system.



Qualified Timberland Property (QTP)**Compatibility Score: 3 (Full Compatibility)**

Effective since January 2019, the Qualified Timberland Property (QTP) program is the newest preferential tax regime in Georgia. The enabling legislation enumerated qualified timberland as a “separate and distinct class of real property,” in which landowners would be assessed based on 40% of the fair market value of their properties (GDOR 2019). Below, **Table 16** details the enrollment requirements and other program characteristics for QTP.

Table 16

Enrollment Requirements and Program Characteristics for Georgia QTP

Qualified Timberland Property (QTP)	
Enrollment Requirements	
Qualifying Land	The primary activity taking place must be commercial timber production, where the landowner declares that their property is used for the bona fide production of trees. Landowners must demonstrate accordance with accepted commercial forestry practices, such as reforestation, periodic thinning, undergrowth control of unwanted vegetation, fertilization, prescribed burning, sales of timber, and maintenance of firebreaks.
Minimum/Maximum Acreage	There is a minimum acreage requirement of 50 contiguous acres (Li & Izlar 2020). There is no maximum acreage requirement.
Minimum Stocking Growth	No minimum stocking growth requirements.
Management Plan	Applicants may, but are not required to, include a forest management plan to demonstrate the proper use of accepted commercial forestry practices (GDOR 2023).
Timber Harvest	There are no explicit requirements for landowners to harvest a given amount within a certain time period.
Program Characteristics	
Landowners Demographics	QTP is most popular among larger landowners, either those with intensive commercial forestry operations or those engaged in land speculation.
Total Acres Enrolled	Approximately 87,000 acres of forestland are enrolled in the QTP program.
Enrollment Trends	Since being launched in 2019, QTP has grown gradually. Long-term trends cannot yet be determined (University of Georgia 2022).
Monitoring and Compliance	County tax offices use a mix of aerial satellite imagery and site visits to ensure compliance.
Enforcement and Penalties	QTP is not subject to ten year covenants or tax penalties. Landowners remain enrolled for a year, and have the opportunity to re-apply each subsequent year thereafter.
State-County Discretion	The Georgia Department of Revenue (GDOR) determines whether a property applies based on whether there is “reasonable attainable economic salability of the timber products within a reasonable future time” and that “production of trees is being done for the purpose of making a profit and is the primary activity” (GDOR 2019). This information is then directed to county tax officials, who assess QTP-enrolled properties at 40% of fair market values determined annual by GDOR.
Management Plan Development and Amenability	If a management plan is provided, it should be written by a registered forester.



Typical Harvest Windows

The rotation period for shortleaf pine can range from 30-50 years, depending on growth rates and intended product outcomes. Slash pine and loblolly pine rotations are typically 25-35 years, while longleaf pine is 60-100 years.

Program Enrollment

Unlike PAA, CUVA, and FLPA, applications for QTP designation made to the Georgia Department of Revenue (GDOR), rather than the county tax office. Applications should be made online between January 1 and March 1 (GDOR 2023). To qualify, landowners must have at least 50 contiguous acres. While landowners are encouraged to submit management plans, they are not compelled to do so. After enrolling, landowners will receive the modified assessment for the tax year in which they submitted their application. To receive a QTP designation in subsequent years, landowners must renew their initial application (GDOR 2023).

Program Compatibility

Given the short-term nature of the QTP program and lack of harvest requirements, there should be limited to no compatibility issues. According to an interviewee, landowners are never required to harvest a certain amount by a given year.

Kentucky

This section presents results from the document analysis and interviews conducted for the commonwealth of Kentucky. **Table 17** summarizes information regarding carbon projects, tax programs, and the forest economy in the state. Currently, there are 19 carbon projects, including 11 improved forest management projects. The state's preferential tax program has a reported 1.1% participation rate, although this is likely higher considering enrollment is automatic (Haya et al. 2023, Butler et al. 2021). In terms of Kentucky's forest economy, the sector contributed to \$13.5 billion in economic output and 25,825 jobs in 2022 (UK Extension 2022).

Table 17

Carbon Projects, Tax Programs, and Forest Economy in Kentucky

Kentucky State Profile	
Carbon Projects¹⁰	
Total Number of Projects	19 carbon projects
Number of Approved Forestry Projects	11 improved forest management projects (5 American Carbon Registry, 6 Climate Action Reserve)
Total Forestry Credits Issued	1,605,235 credits issued
First Year of Forestry Project	2017
Tax Programs¹¹	
Tax Program Participation	1.1% yes, 83.9% no, 15% don't know (n=181)
Tax Program Familiarity	20.9% familiar, 79.1% not familiar (n=181)

¹⁰ Haya et al. 2023

¹¹ Butler et al. 2021



High Property Tax Concern	86.2% concern, 12.2% little to no concern (n=181)
Forest Economy¹²	
Employment Figures	25,825 in direct employment
Economic Output	\$13.5 billion in output

State Involvement in Carbon Markets

The 2020 Kentucky Forest Action Plan, co-developed by the Kentucky Division of Forestry (KDOF) and The Nature Conservancy (TNC), includes a dedicated section on carbon markets, acknowledging the increasing interest in these markets without explicitly discussing their carbon benefits. It recognizes that while water, wetland, and biodiversity markets are driven by regulatory protection, the carbon market operates through voluntary participation (KDOF 2020). The plan suggests that, to ensure funds are available for landowners managing their forests for the benefits of all Kentuckians, rates and payments for carbon services should be established as financial incentives for forest management (KDOF 2020). However, interviewees emphasized that carbon market participation remains voluntary, and it is unlikely for the state to be involved in setting carbon prices.

While Kentucky's Forest Action Plan references the role carbon markets can play in helping to finance forest benefits, Kentucky does not have a state-wide policy or programmatic approach to carbon markets; there is no incentivization nor are there barriers from the state. One interviewee noted that because Kentucky is a leading producer of coal, renewable resources do not get positive attention.

Landowner Interest in Forest Carbon Programs

Interviewees acknowledged that some landowners might show interest in forest carbon programs, but their decision would depend on the associated costs and requirements. It was suggested that typical landowners who are currently engaged in harvesting activities may not be keen on enrolling in a carbon project due to the oversight and stipulations they entail. However, landowners who are not actively involved in harvesting might be attracted to the prospect of additional revenue generation through carbon programs, as long as their hunting rights and practices remain unaffected.

Opposition to Voluntary Carbon Markets

Concerns have been raised within the wood products industry regarding carbon markets and their potential impact on feedstock quality and supply. One interviewee specifically cited worry about the Family Forest Carbon Program, expressing that a 20-year harvest deferral could be detrimental to white oak forests. They recommended that AFF engage in discussions with state partners and avoid lobbying for legislation that might face industry opposition. Another comment from the wood products sector voiced doubt about the outcomes of voluntary carbon market forest projects, particularly casting doubt on the claims of additionality (i.e., the claim that the carbon offsets are additional and not already part of existing carbon sequestration efforts), highlighting skepticism within the industry.

¹² UK Extension 2022



Both the Kentucky Division of Forestry (DoF) and the Kentucky Forest Industries Association (KFIA) have engaged in communication regarding voluntary carbon markets. They have agreed to collaborate and coordinate action in response to perceived threats to the wood products sector, such as policies limiting or incentivizing a complete halt to timber production. An interviewee noted that KFIA, along with the University of Kentucky Extension (UK) and the DoF, are committed to preventing the passage of "harmful legislation" or any operating environments that could negatively impact the industry.

Agricultural Land Classification Program

Compatibility Score: 3 (Full Compatibility)

Since an amendment to the Kentucky State Constitution in 1969, agricultural land has received preferential assessment based on its current use value (LRC 2016). Legislation passed in 1992 removed application and minimum income requirements, leaving the ten-acre minimum as the only major provision (LRC 2016). Due to limited barriers to entry, concerns have been raised about residential tracts being enrolled in agricultural classification, despite no agricultural activities taking place (LRC 2016). This is possibly a result of county tax officials granting the agriculture assessment simply if the tract met the minimum acreage requirement and had income-producing capability. Although the number of misclassified acres is unknown, in 2015, deferred assessment from 324,000 agricultural tracts resulted in forgone state property tax revenue of \$44.7 million.

Below, **Table 18** outlines the enrollment requirements and program characteristics of agricultural land classification in Kentucky. This includes minimum statewide requirements, county discretionary powers, and more.

Table 18

Enrollment Requirements and Program Characteristics for Kentucky Agricultural Land Classification

Agricultural Land Classification	
Enrollment Requirements	
Qualifying Land	Agricultural land committed to the commercial growing of crops, including timber production.
Minimum/Maximum Acreage	Minimum of 10 contiguous acres.
Minimum Stocking Growth	There is no minimum stocking growth requirement.
Management Plan	There is no forest management plan requirement.
Timber Harvest	There are no timber harvest requirements.
Program Characteristics	
Landowner Demographics	This information is not available.
Total Acres Enrolled	There are 324,000 tracts enrolled in special assessment, including forest land. This represents \$44.7 million in forgone revenue.
Enrollment Trends	This information is not available.



Monitoring and Compliance	There are no proof of income requirements for forested land. If there is timber growing on the property, there is an assumption that the land is being using for growing timber.
Enforcement and Penalties	If land is converted to another use, that portion of the land which has changed use will be subject to tax for the succeeding tax year at its fair market value. The owner of the property, at the time the land use change is initiated, must report the change to the property valuation administrator, within 90 days.
State-County Discretion	Annual values are established by the Department of Revenue. Each county Property Valuation Administrator (PVA) uses these values to generate appraised values.
Management Plan Development and Amendability	There is no forest management plan requirement.
Typical Harvest Windows	In general, harvest windows are 20–40 years for softwoods, and 60–80 years for hardwoods.

Program Enrollment

Significantly, Kentucky's agricultural land classification is automatically granted to landowners with at least 10 contiguous acres (Kentucky Revised Statute § 132.010). County tax officials operate under the assumption that if there are trees growing on the land, it is being managed for timber harvest. There are no further requirements for timber harvesting under this program. The primary goal of the agricultural land classification is not to incentivize forest management, but instead to create an equitable tax situation that ensures forested lands remain as such. However, some active woodland owners expressed a desire to align the program more closely with the state's cropland requirements under the agricultural land classification, which requires landowners to demonstrate active management.

Program Popularity

According to interviewees, agricultural land classification is popular among forest landowners as it allows them to reduce their property taxes by up to 40%. However, this popularity contrasts with the self-reported enrollment rate of only 1.1% of landowners detailed in the 2018 NWOS (Butler et al. 2021). It is speculated that landowners might not be fully aware of their enrollment (as it is automatic) or the potential benefits from the program.

The number of enrolled acres is expected to remain stable, but with the number of landowners enrolled decreasing over time. This is due to 1) re-enrollment accounting for a large portion of applications (inherited land must be re-enrolled); and 2) when land is re-enrolled, it is often consolidated (which leads to fewer enrolled landowners, each with more acreage).

Future Program Trends

In terms of future trends, some woodland owners in Kentucky are advocating for further reductions in the existing forest tax rate, arguing that forestland generates less income than agricultural land and should therefore have a lower tax rate. The Kentucky Woodland Owners Association (KWOA) and the wood products industry have proposed additional requirements, such as having a forest management plan and demonstrating active management, to justify additional tax incentives.



However, interviewees expect that changes to the program are unlikely due to concerns that drawing attention to it might lead to adverse legislative action, ultimately harming landowners.

Program Compatibility

As outlined in **Table 11**, interviewees expressed that there are no compatibility concerns between carbon projects and agricultural land classification, and that enrollment in a forest carbon project would not impact landowner tax incentives. Some even suggested that a landowner could consider the carbon credit as an agricultural product, although this distinction is not necessary, as the property classification is based on the classification of the land as woodland rather than the production of timber or other agricultural products.

North Carolina

This section presents results from the document analysis and interviews conducted for the state of North Carolina. **Table 19** summarizes information regarding carbon projects, tax programs, and the forest economy in the North Carolina. Currently, there are 27 carbon projects, including 6 avoided conversion projects. The state's two preferential tax programs have a reported 36.6% participation rate (Haya et al. 2023, Butler et al. 2021). In terms of North Carolina's forest economy, the sector contributed to \$21.6 billion in economic output and 73,600 jobs in 2015 (North Carolina Forest Service 2016).

Table 19

Carbon Projects, Tax Programs, and Forest Economy in North Carolina

North Carolina State Profile	
Carbon Projects¹³	
Total Number of Projects	27 carbon projects
Number of Approved Forestry Projects	6 avoided conversion projects (1 American Carbon Registry, 5 Climate Action Reserve)
Total Forestry Credits Issued	1,418,530 credits issued
First Year of Forestry Project	2020
Tax Programs¹⁴	
Tax Program Participation	36.6% yes, 46.6% no, 16.7% don't know (n=262)
Tax Program Familiarity	63.7% familiar, 36.3% not familiar (n=262)
High Property Tax Concern	94.7% concern, 4.6% little to no concern (n=262)
Forest Economy¹⁵	
Employment Figures	73,600 in direct employment
Economic Output	\$21.6 billion in output

¹³ Haya et al. 2023

¹⁴ Butler et al. 2021

¹⁵ North Carolina Forest Service 2016



State Involvement in Carbon Markets

The state itself is not actively promoting or discouraging participation in voluntary carbon markets; instead, there seems to be a “wait-and-see” approach among policymakers as they determine whether the market has fully stabilized and established itself.

Landowner Interest in Forest Carbon Programs

According to interviewees, there is a growing acknowledgment of carbon markets among landowners. As it is a relatively new concept, many are attempting to understand how the market and associated forest carbon projects operate. One interviewee mentioned that people are still undecided about certain carbon market programs, citing controversy over NCX’s carbon measurement methodology. While there was substantial promotion of NCX carbon projects in North Carolina a few years ago, its prevalence has decreased.

Interviewees did expect that if there were clear opportunities for landowners to enroll in carbon markets, there would likely be significant demand, interest, and participation. However, time commitments were mentioned as a concern among landowners, especially considering that the average age of forest landowners in North Carolina is 56; landowners might be hesitant to commit their land for extended periods without certainty about their children’s involvement. Interviewees expressed that forest carbon projects might attract landowners who already have conservation easements, but that there might be skepticism about longer contract commitments, such as those lasting 40 years. Forest carbon projects may also be popular among landowners who are interested in being compensated more for maintaining their land without changing their current practices.

Opposition to Voluntary Carbon Markets

Interviewees were not aware of any significant opposition to voluntary carbon markets. Instead, they noted, many organizations are trying to understand the current state of carbon markets. Critically, the North Carolina Farm Bureau and the North Carolina Forestry Association (NCFA) have not expressed negative attitudes toward carbon markets. However, it was noted that the NCFA would be opposed to any measures perceived as harmful to the forest products industry.

Present Use Value (PUV) Program

Compatibility Score: 1 (Limited Compatibility)¹⁶

The Present-Use Value (PUV) Program was enacted in 1974, allowing agricultural land, horticultural land, and forestland to be appraised at its current-use value (NCDOR 2023). To qualify, landowners must have twenty acres and conform to a forest management plan either produced by a qualified forester *or similar in quality to a plan developed by a forestry professional* (NCDOR 2023). Importantly, the primary objective of the management plan must be the commercial production of timber. Any secondary objectives (e.g., wildlife conservation) must not significantly detract from this objective (NCDOR 2023). Table 13 establishes additional enrollment requirements and program characteristics.

¹⁶ In North Carolina, landowners enrolled in PUV are permitted to create their own plans if they have the analytical skills. However, all preparers must adhere to guidelines developed by the North Carolina Forest Service. As a result, very few landowners create their own plans.



Table 20

Enrollment Requirements and Program Characteristics for North Carolina PUV

Present-Use Value (PUV) Program	
Enrollment Requirements	
Qualifying Land	Land that is a part of a forest unit that is actively engaged in the commercial growing of trees under a sound management program.
Minimum/Maximum Acreage	A minimum of twenty acres is required for forestland classification. Residual woodland acres can also be enrolled with certain agricultural or horticultural tracts, for which there is no minimum acreage requirement.
Minimum Stocking Growth	No minimum stocking growth requirements.
Management Plan	To meet sound management requirements, forestland must comply with a written sound management plan for the commercial production of timber. For agricultural or horticultural tracts containing more than twenty acres of woodland, the woodland is required to be under a sound forestry management plan. This includes all the woodland, not just the woodland over the twenty-acre threshold.
Timber Harvest	Timber harvest rotations should be outlined in forest management plans. The plans should not be open-ended and should include a timetable for re-evaluating the forestry management plan, especially in the early growth years of a forest unit.
Program Characteristics	
Landowner Demographics	The average plot size is 53 acres, with 75% of landowners enrolling between 10–49 acres. The majority of enrolled forest owners have smaller sized parcels, as large industrial owners do not qualify.
Total Acres Enrolled	There are approximately 30,010 landowners enrolled in the program.
Enrollment Trends	This information is not available.
Monitoring and Compliance	Each county assessor is required by law to periodically review all properties that are receiving the benefit of the present-use value classification, and to verify that these properties continue to qualify for the classification. Some counties reassess properties every eight years, while others reassess 12.5% of enrolled parcels every year.
Enforcement and Penalties	There may be limited enforcement of plans, as enforcement depends on county resources, capacity, and assessor understanding of management plans during compliance reviews. Usually, when land becomes disqualified from the present-use value program, the deferred taxes for the current year and the three previous years with accrued interest, will become due and payable.
State-County Discretion	All counties must adhere to minimum program requirements, including acreage and sound management provisions. However, discretion is given to county assessors when determining appraised value. The North Carolina Use-Value Advisory Board publishes recommended rates on an annual basis, but these are not required to be followed. For instance, some counties have decided not to divide landowners into soil type productivity classes. Additionally, some counties will only accept management plans co-developed with a certified state forester.



Management Plan Development and Amendability	Forest management plans can be prepared by an independent consulting forester, by a forester with the North Carolina Forest Service, or by the property owner. However, if the owner prepares the plan, the owner must have the appropriate forestry management and analysis skills to prepare a plan comparable to one prepared by a qualified forester. Plans should be amended to reflect changes in landowner objectives or major land use impacts, such as natural disasters.
Typical Harvest Windows	Softwood trees, like loblolly pine (<i>pinus taeda</i>), can generally be harvested after 20-35 years; long and short leaf pines after 50-65 years; and hardwoods, such as oaks, anywhere from 65-100 years.

Program Objectives

The PUV program acknowledges that certain land uses, such as agriculture, forestry, or conservation, may not yield as much income as commercial uses. To compensate landowners for potential income loss, particularly from not selling or developing the land, the program provides a lower assessment value for qualifying properties, aiming to reduce the difference between the PUV valuation and fair market value (FMV) of the land. While an Advisory Board proposes PUV rates based on soil productivity, counties have the option to choose rates independently. In urban areas, the difference between FMV and PUV tends to be more significant due to higher demand for land and development pressures.

Program Enrollment

To participate in the PUV program, landowners must demonstrate that their land is actively devoted to commercial timber production. A forest management plan is mandatory and must outline objectives, forest stands, stand descriptions, recommended management practices, and regeneration-harvest methods. The plan may be prepared by independent foresters, the North Carolina Forest Service, or the landowners themselves, provided they have adequate forestry management skills. Moreover, it must be approved by the county tax assessor; if deemed inadequate, the landowner can appeal the decision at various levels. The forest management plan also includes timber harvest schedules, with some flexibility allowed for natural disasters, market conditions, and other unforeseen situations.

Importantly, there are no management plan or harvest requirements for residual woodland acres enrolled alongside agricultural or horticultural acres. Residual acres are assessed at current-use value, with the same tax benefits are applied across the entirety of a landowner's parcel.

Program Enforcement

Interviewees suggested limited enforcement of forest management plans, noting that some landowners do not adhere to them at all. Many commented that enforcement appears less stringent in rural counties compared to urban ones. Additionally, urban counties have shorter evaluation cycles and are more likely to audit landowners upon application. This stricter scrutiny likely aims to limit the number of properties enrolled in the PUV program in urban counties in order to avoid a reduction in municipal tax revenues; in urban counties, where land is more valuable, the difference between FMV and PUV is much greater, leading to greater potential revenue loss in urban counties for each additional enrolled property.



Program Compatibility

Overall, compatibility between the PUV program and potential forest carbon projects is not straightforward, depending on the specific attributes of the land and its management plan regime. Interviewees pointed out that although the Department of Revenue has started discussing voluntary carbon markets, they have yet to delve into compliance with the Present-Use Value (PUV) program, which could have implications for landowners' enrollment decisions.

According to the PUV Program Guide, questions have arisen regarding the coexistence of carbon sequestration activities and the PUV program (NCDOR 2023). It notes that “given the myriad of practices, it is impossible to address each practice directly,” and if landowners would like to engage in a carbon market program and maintain their PUV eligibility, “the practices must not interfere with or diminish the ability of the land to meet the statutory requirements of the present-use value program” (NCDOR 2023). As a result, landowners are advised to “consult with the tax assessor prior to [forest carbon project] implementation” to ensure practices are compatible with the PUV program (NCDOR 2023). The program guide explicitly states that forest management plans can be written to include forest carbon projects, but the compatibility with the PUV program remains untested (NCDOR 2023).

Interviewees stated that tax assessors would scrutinize any changes in harvest regimes to ensure they align with sound forest management practices. For instance, if a landowner was growing loblolly pine (which typically has a 25–30-year rotation) and the stand is already 20 years old, a harvest deferral might not be considered sound management by the tax office. A 20-year harvest deferral of a hardwood stand, on the other hand, would likely be fine. In general, the acceptability of such changes may depend on the forest type, with deferral for hardwood stands likely more acceptable than for fast-growing pine stands.

Enrolling in the PUV program and participating in forest carbon project could be possible for landowners whose designated future harvest time does not conflict with the forest carbon project requirements, making NCX potentially the easiest program to enroll in due to its shorter timeframe and lower commitment.

Wildlife Conservation Land Program (WCLP)

Compatibility Score: 3 (Full Compatibility)

Beginning in 2010, the Wildlife Conservation Land Program (WCLP) was created to offer a tax deferral that was not conditional on harvesting or agricultural production, providing enrollment options for landowners ineligible for the PUV program (NCDOR 2023). **Table 21** outlines enrollment requirements and program characteristics.

Table 21

Enrollment Requirements and Program Characteristics North Carolina WCLP

Wildlife Conservation Land Program (WCLP)

Enrollment Requirements



Qualifying Land	Land must meet one or more of the three land use criteria to qualify for WCLP. The first criterion is met if one or more protected wildlife species lives on the land and the landowner agrees to manage the land to protect the species. The second is met if the landowner conserves one or more priority wildlife habitats identified in the North Carolina Wildlife Action Plan. The third criterion is met if the landowner manages their land as Wildlife Reserve Land. Land primarily maintained for uses such as lawns, livestock pastures, golf courses, solar arrays, or land primarily managed for financial gain through forest or agriculture commodity production will generally not qualify as Wildlife Reserve Land. Landowners must maintain three or more management activities as agreed upon with the North Carolina Wildlife Resources Commission (NCWRC).
Minimum/Maximum Acreage	A minimum of twenty acres, fulfilling one or more of the three land use criteria, is required for enrollment. Total acreage enrolled in the WCLP cannot exceed 1,000 acres per landowner per county. Up to 200 acres of an owner's land in each county may be classified as wildlife conservation land under any combination of land use criteria 1 or 2. A maximum of 800 acres of an owner's land in each county may be classified as wildlife conservation land under land use criterion 3.
Minimum Stocking Growth	No minimum stocking growth requirements.
Management Plan	There is no management plan requirement. Instead, landowners sign a Wildlife Habitat Conservation Agreement (WHCA) with the NCWRC, which documents habitat conditions and/or management activities.
Timber Harvest	There are no timber harvest requirements, except in circumstances where harvest is necessary to fulfill agreed upon management objectives. While property must not be used for any commercial purpose, commercial harvest may qualify as "habitat control" when conducted as specified in the WHCA to directly enhance wildlife habitat.

Program Characteristics

Landowner Demographics	The average WCLP landowner has 50-100 acres. Many of these landowners live on their property, and do not want to harvest their timber in order to qualify for tax deferment. The program is more popular on the west side of the state than on the east.
Total Acres Enrolled	In total, the Commission has 325-340 agreements across the state, with approximately 6,500 acres enrolled.
Enrollment Trends	Currently, the NCWRC is intentionally not advertising the WCLP, instead focusing on landowners with a real interest in wildlife conservation, not just those wanting a tax deferment. Despite this, interest is increasing amongst landowners.
Monitoring and Compliance	Land enrolled under Criterion 3 must be inspected by a certified wildlife biologist, or qualified NCWRC staff person, at least once every five years to ensure the WHCA is being followed; at least three of the seven qualifying management activities are maintained; and the WHCA is updated as needed. The landowner must keep a log of actions conducted to install and/or maintain management activities as well as other supporting documents as evidence that selected practices were maintained over the five-year period. A county tax office may request that a NCWRC biologist visit any property enrolled in the WCLP to confirm the WHCA is being followed and management is appropriately documented. This is usually conducted every 10 years.



Enforcement and Penalties	If the land loses its eligibility for the deferment, is found to be in violation of the WHCA, or is voluntarily removed from the program, a financial penalty will be levied by the county tax collector. Similar to PUV, this payment is calculated based on the value of the deferment for the previous three years and an applicable interest penalty. Deferred taxes are not due in special circumstances defined in statute.
State-County Discretion	Requirements are established by the state and are standardized across the state. Variation only occurs based on habitat type and land use criteria.
Management Plan Development and Amendability	Although management plans are not required, WHCA agreements are necessary for enrollment. NCWRC staff biologists are available to assist landowners with completion of the agreement and NCWRC approval of the WHCA is required prior to submission to the county tax assessor's office.
Typical Harvest Windows	Softwood trees, like loblolly pine (<i>pinus taeda</i>), can generally be harvested after 20–35 years; long and short leaf pines after 50–65 years; and hardwoods, such as oaks, anywhere from 65–100 years.

Program Enrollment

Unlike other tax programs, the WCLP specifies that “property must not be used for any commercial purpose” (NCWRC, 2023). However, some WCLP agreements allow for limited active management under a Wildlife Habitat Conservation Agreement (WHCA), which is signed by both landowners and an authorized NCWRC representative. Active management criteria are tailored to habitat type and property characteristics. Under certain conditions, including legislative changes introduced in 2018 and 2020, limited commercial harvesting is allowed if it enhances habitat quality.

Land must meet one of three land use criteria to qualify, with appropriate documentation required for each:

- Criterion 1: protecting a wildlife species designated by the NCWRC as endangered, threatened, or special concern (NCWRC 2023).
- Criterion 2: conserving priority wildlife habitats (NCWRC 2023).
- Criterion 3: dedicating land as a wildlife reserve, managed according to three or more of seven specified activities (NCWRC 2023).

Notably, commercial harvest is limited to land enrolled in Criterion 3, as “harvest may qualify as ‘habitat control’ when conducted as specified in the WHCA to directly enhance wildlife habitat” (NCWRC 2023). Again, this is due to legislative changes which expanded the program’s scope, raising concerns about whether the WCLP will remain entirely conservation focused. Some individuals believe that the addition of Criterion 3, which was introduced as a way to increase enrollment (due to limited participation in the program), might undermine the program’s key conservation aspects.

Program Compatibility

Given that harvest is not required and only allowable should it be beneficial to a habitat, there is no obvious incompatibility between the WCLP and forest carbon programs *from the perspective of the WCLP*. Exceptions to this may arise in cases where harvesting is deemed necessary for sound wildlife/habitat management, per Criterion 3, but not permitted under the forest carbon program.



Ultimately, compatibility with voluntary carbon market programs hinges on the specifics of the WHCA agreement, but the longevity of timber stands and the small scale of the management requirements outlined for Criterion 3 makes the WCLP compatible with voluntary carbon market programs in most (if not all) cases. An interviewee noted that they believed mitigating any differences between a WHCA and carbon market enrollment would be doable. It was suggested that landowners enrolled in both program types should contact the NCWRC to prevent compliance issues.

Importantly, from the perspective of the forest carbon program, dual enrollment in both the WCLP and the forest carbon program may present concerns about additionality.

Future Program Trends

It's unlikely that the state will alter the WCLP to make carbon market enrollment a primary objective. Instead, the NCWRC is expected to focus on more active management recommendations, such as thinning and controlled burning for open canopies. Interviewees noted that active management required by WCLP would generally be smaller in scale than commercial harvest. Changes to Criterion 3 are uncertain due to its recent introduction, and the state legislature's stance remains unclear.

Ohio

This section presents results from the document analysis and interviews conducted for the state of Ohio. **Table 22** summarizes information regarding carbon projects, tax programs, and the forest economy in the state. Currently, there are 201 carbon projects, including 1 improved forest management project. The state's two preferential tax treatments, the Current Agricultural Use Value Program and the Ohio Forest Tax Law Program, have a reported 18.8% participation rate (Haya et al. 2023, Butler et al. 2021). In terms of Ohio's forest economy, the sector contributed to \$16.1 billion in economic output and 54,445 jobs in 2017 (Public Sector Consultants 2020).

Table 22

Carbon Projects, Tax Programs, and Forest Economy in Ohio

Ohio State Profile	
Carbon Projects ¹⁷	
Total Number of Projects	201 carbon projects
Number of Approved Forestry Projects	1 improved forest-management project (American Carbon Registry)
Total Forestry Credits Issued	302,408 credits issued
First Year of Forestry Project	2020
Tax Programs ¹⁸	
Tax Program Participation	18.1% yes, 62.7% no, 19.2% don't know (n=255)

¹⁷ Haya et al. 2023

¹⁸ Butler et al. 2021



Tax Program Familiarity	33.3% familiar, 66.7% not familiar (n=255)
High Property Tax Concern	92.9% concern, 6.2% little to no concern (n=255)
Forest Economy¹⁹	
Employment Figures	54,445 in direct employment
Economic Output	\$16.1 billion in output

State Involvement in Carbon Markets

According to interviewees, no guidance has been provided to county officials by the state government to encourage or discourage enrollment in voluntary carbon markets. Instead, compatibility is considered on a case-by-case basis, with the particularities of a landowner's situation being assessed.

Landowner Interest in Forest Carbon Programs

Landowners who are interested in participating in forest carbon programs have raised inquiries about the feasibility of enrolling in one of the state's preferential tax programs at the same time. However, there is a lack of general awareness regarding voluntary carbon market programs, including the necessary land management commitments entailed. An interviewee expressed reservations about the potential adoption of carbon programs, suggesting that individuals value having control over their land.

Opposition to Voluntary Carbon Markets

Significant and organized opposition to voluntary markets has not emerged in Ohio, as interest group lobbies are still in the process of understanding the potential benefits and costs voluntary carbon markets present for constituent groups. One interviewee highlighted the forest product industry's concern that voluntary carbon markets might lead to restrictions on harvesting activities.

Landowner Participation

In Ohio, a larger number of landowners are enrolled in the CAUV program compared to the Ohio Forest Tax Law (OFTL) program. While landowners qualifying for OFTL are also eligible for CAUV, it is not possible to enroll in both programs on the same acre. Splitting a parcel between OFTL and CAUV is an option, provided the requirements for both are met.

Current Agricultural Use Value (CAUV) Program

Compatibility Score: 1.5 (Partial Compatibility)²⁰

The Current Agricultural Use Value (CAUV) program provides current use valuation for land devoted to commercial agriculture (ODT n.d.). Although landowners apply through county tax offices, the Ohio Department of Taxation (ODT) establishes annual use values based on soil types, which are then used by county assessors. Although the CAUV program is mandated by the state

¹⁹ Public Sector Consultants 2020

²⁰ Most counties require management plans for enrolling in CAUV, while some do not. Management plans only apply to woodland acres enrolled as the primary source of agricultural production, rather than residual woodland associated with croplands.



constitution, it is administered variably by counties due to home rule. Below, **Table 23** outlines enrollment requirements and program characteristics for the CAUV program.

Table 23

Enrollment Requirements and Program Characteristics for Ohio CAUV

Current Agricultural Use Value (CAUV) Program	
Enrollment Requirements	
Qualifying Land	Land devoted to commercial agriculture, including timber production, is eligible for the CAUV program. If a farm is devoted exclusively to agricultural use, adjacent non-commercial forestland may qualify under certain circumstances.
Minimum/Maximum Acreage	A minimum of 10 acres devoted exclusively to commercial agricultural use for the three years prior to the year of application is required. For parcels less than 10 acres, landowners must demonstrate an average gross income of at least \$2,500 per year for three years, or anticipated income must be at least \$2,500 for the year of application.
Minimum Stocking Growth	There is no minimum stocking growth requirement.
Management Plan	Most counties require a forest management plan, but this is not a minimum statewide provision. Management plans are not required if a landowner is enrolling adjacent non-commercial forestland.
Timber Harvest	Timber harvest is required to participate in the program, in order to demonstrate commercial use. However, if enrolling adjacent non-commercial forestland, there is no requirement for commercial production.
Program Characteristics	
Landowner Demographics	For all agricultural land, 95% of enrolled parcels are greater than 20 acres. For forestland specifically, there are not many large, industrial landowners participating in CAUV. Instead, participation is made up of mostly smaller, private owners attempting to maintain their woodland.
Total Acres Enrolled	This information is not available.
Enrollment Trends	This information is not available.
Monitoring and Compliance	Not many counties review CAUV properties on a consistent basis. Some will inspect forestland properties every five years during reappraisals. Others will simply ask landowners to self-report that they are pursuing timber harvest.
Enforcement and Penalties	Enforcement varies based on county resources and staffing capacities. If landowners are found to be outside compliance or voluntarily withdrawal from the program, there is a recoupment penalty equal to the tax savings for the preceding three years.
State-County Discretion	Each year, CAUV values are determined by the Division of Tax Equalization (DTE) within the Department of Revenue. Counties cannot deviate from the values drafted by the DTE, although the county tax assessors determine the productivity ranking of given properties. Counties do have discretion over other requirements, such as the forest management plan.
Management Plan Development and Amenability	Most counties that require forest management plans do not require certification by a State Forester, and even allow landowners to produce



	their own management plans. Plans may be amended, as long as the owner can demonstrate a continued commitment to agricultural production.
Typical Harvest Windows	Harvest rotations are generally 15–35 years, although this is dependent on species, soil quality, age of the stand, and how harvest is being conducted.

Program Enrollment

Statewide, landowners with under 10 acres in agricultural (including forestry) production need to demonstrate a minimum annual gross income of \$2,500. Those with over 10 acres aren't required to demonstrate income from the land (ODT n.d.). Importantly, proof income must be land-tied, not from rents. Thus, carbon market revenue cannot be considered proof of income.

Crucially, CAUV applies to both cropland and forestland, with no necessity for both sectors to engage in commercial activity for the entire land to qualify. *Woodland lots qualify automatically if landowners fulfill the commercial activity requirement through agricultural production*; woodland lots are referred to as residual wooded acreage in such cases.

When landowners enroll their forestland *based on woodland productivity* (and not as residual wooded acreage), entry requirements vary by county. While most (not all) counties mandate forest management plans in such cases, the majority don't require that those plans be certified (unlike for eligibility with Ohio's Forest Tax Law (OFTL)); rather, landowners may write their own plans (ODT n.d.). Residual wooded acreage benefiting from productive agriculture land enrollment does not require a forest management plan, certified or otherwise (ODT n.d.).

Program Compatibility

For landowners who enroll their forest as residual woodland and are eligible for CAUV due to their cropland, there are no compatibility concerns. This is because enrollees are not required to have a forest management plan or engage in commercial harvest or active management on residual woodland acres. However, for landowners looking to achieve eligibility via their forestland alone, in counties that require a forest management plan compatibility depends on the plan's recommended harvest schedule. An interviewee noted that ineligibility might not be an issue if landowners are only engaging in timber harvest every 15–25 years anyway, but that a 40-year harvest rotation would likely be too long. This would be true even in counties where the landowner is permitted to produce their own plan, because county tax officials have been given guidance from the Ohio Division of Forestry (ODF) surrounding what an "acceptable plan" looks like from a forester's perspective. However, this depends on the discretion of county officials, making it difficult to determine what would be approved.

Essentially, as long as a landowner is making an active effort to comply with their forest management plan, compatibility is not a concern. Issues arise when there is no effort being demonstrated.

Ohio Forest Tax Law (OFTL) Program

Compatibility Score: 0 (Limited Compatibility)

With a one-time \$50 application fee, the Ohio Forest Tax Law (OFTL) program provides a modified rate of 50% of the local tax rate. To apply, landowners must have at least 10 acres of forestland enrolled under a certified forest management plan. A management plan, as defined by the Ohio Administrative Code, "establishes the direction and goals for the management of a



specific forest land area” (ODNR n.d.). This document must “specify all silvicultural practices and activities necessary to accomplish the merchantable production of a forest product,” including mapping the site location and outlining a management schedule for timber harvest (ODNR n.d.). **Table 24** summarizes enrollment requirements and program characteristics.

Table 24

Enrollment Requirements and Program Characteristics for Ohio OFTL

Ohio Forest Tax Law (OFTL) Program	
Enrollment Requirements	
Qualifying Land	Qualifying land is that for which the primary purpose is the growing, managing and harvesting of a forest product of commercial species under accepted silvicultural systems through natural or artificial reforestation methods and for which there is an approved forest management plan. Commercial orchards and Christmas tree plantations do not qualify as forestland under OFTL.
Minimum/Maximum Acreage	Minimum of 10 contiguous acres and at least 120 feet wide
Minimum Stocking Growth	Forestland must include, per acre, at least 300 stems for younger plantations or 50 square feet of basal tree for native or long-established plantations. The trees counted toward this requirement must be commercial species such as oak, hickory, maple, beech, cherry, walnut, yellow-poplar, and pine.
Management Plan	A certified forest management plan is required to apply for the OFTL program.
Timber Harvest	Landowners must declare that their forestland will be devoted exclusively to forestry, with a primary objective of producing merchantable forest products. Additionally, landowners may include its allied fields such as wildlife conservation, recreation, and aesthetics, where these do not interfere with the productivity of the forest.
Program Characteristics	
Landowner Demographics	This information is not available.
Total Acres Enrolled	There are approximately 128,000 acres enrolled in OFTL, amongst 3,300 different landowners.
Enrollment Trends	This information is not available.
Monitoring and Compliance	Every five years, landowners are required to self-certify that they are following their forest management plan, and their forestland will be subject to a random examination by a State Forester to ensure compliance with the plan and with other requirements under OFTL.
Enforcement and Penalties	If landowners deviate from their management plan, there is a 180-day period in order to correct issues. If issues remain after this period, landowners are removed from the program. There are no penalties for involuntary or voluntary withdrawals.
State-County Discretion	Regulations are established at the state level, the only involvement of county governments is when OFTL applications are sent to them by the Division of Forestry.



Management Plan Development and Amendability	To qualify, landowners must have a written plan prepared by a professional consulting forester and approved by a State Forester working for the Division of Forestry. It should include details like the site location, a property description, map, and management schedule. These plans are amendable, as they are supposed to be fluid and open to modification based on environmental changes, insect and disease problem, storms, changing landowner goals, and other situations.
Typical Harvest Windows	Harvest rotations are generally 15–35 years, although this is dependent on species, soil quality, age of the stand, and how harvest is being conducted.

Program Enrollment

A pivotal condition for enrollment in the OFTL program is the landowner's declaration that their forestland will be solely devoted to forestry, *emphasizing the primary objective of generating marketable forest products*. Additional secondary objectives, such as wildlife conservation, recreational opportunities, and aesthetic considerations, can be considered, provided these facets do not compromise the forest's productivity (ODNR n.d.). Landowners must outline plans for forest management via a certified forest management plan, which is subject to updates every decade (ODNR n.d.). These plans are designed to remain adaptable, in particular, capable of accommodating alterations arising from environmental shifts, disease outbreaks, climatic events, evolving landowner goals, and other pertinent circumstances. In tandem with this, landowners are mandated to self-certify compliance with their FMP every five years. Moreover, the state reserves the right to conduct random inspections of certified forestland through state foresters.

Forest Management Plan Flexibility

Within the context of the OFTL, the deferral of harvest activities is viable, contingent upon alignment with the parameters set forth in a landowner's forest management plan. The length of deferral allowed depends on whether a certified forester feels it will remain within sustainable bounds. Timber harvest rotations conventionally span 15 to 20 years, thus any deviation from this temporal range is likely to be deemed non-compliant. However, forest management plans offer some flexibility in that they do not prescribe exact harvest dates but, rather, note appropriate harvest windows or temporal ranges, offering adaptability in the face of market dynamics. Additionally, while landowner objectives are always considered, certified foresters will adhere to the realm of practicality, preventing the inclusion of unfeasible goals within the plan, such as recommending a 300-year rotation. This underscores the balance between aspirational goals and the pragmatic viability of forest management practices within the context of the OFTL program.

Program Compatibility

Compatibility between voluntary carbon market participation and the OFTL program is considered on a case-by-case basis, taking into account the specific goals of landowners and the condition of their forests. Most importantly, compatibility is contingent upon the specifics of the forest management plan and the unique attributes of the property. An extension of 2–10 years beyond the stipulations of a management plan could be acceptable, as plans typically outline a 10–20-year harvesting timeframe without rigid targets. Accordingly, single-year carbon projects with NCX present no conflicts with OFTL, as harvest is deferred within acceptable limits. This *could* apply to 10–20-year harvest rotations. However, rotations extending beyond fifty years could pose issues, as this potentially exceeds a forester's recommended timeframe.



It was emphasized that short-term deferrals due to market fluctuations differ from extended postponements of two decades. The decision hinges on balancing sustainable forest needs with landowner goals. If a 20-year harvest delay aligns with sustainable forest needs, it might be permissible. In cases where waiting two additional decades could risk tree health due to overcrowding or disease, this harvest would likely put the landowner in conflict with the OFTL program. Simply put, if carbon market participation obstructs essential forestry activities, obstacles with the OFTL program will arise. To date, direct conflicts between carbon markets and the OFTL program have not emerged.

South Carolina

This section presents results from the document analysis and interviews conducted for the state of South Carolina.

Table 25 summarizes information regarding carbon projects, tax programs, and the forest economy in South Carolina. Currently, there are 17 carbon projects, including 4 avoided conversion and 8 improved forest management projects. The state's agricultural special assessment classification has a reported 32.5% participation rate (Haya et al. 2023, Butler et al. 2021). In terms of South Carolina's forest economy, the sector contributes to \$23.2 billion in economic output and 100,133 jobs annually (Von Nessen 2022).

Table 25

Carbon Projects, Tax Programs, and Forest Economy in South Carolina

South Carolina State Profile	
Carbon Projects²¹	
Total Number of Projects	17 carbon projects
Number of Forestry Projects	4 avoided conversion (2 ACR, 2 CAR), 8 improved forest management (4 ACR, 4 CAR)
Total Forestry Credits Issued	2,963,216
First Year of Forestry Project	2007
Tax Programs²²	
Tax Program Participation	32.5% yes, 64.9% no, 2.6% don't know (n = 280)
Tax Program Familiarity	56% familiar, 44% not familiar (n = 280)
High Property Tax Concern	94.6% concern, 5% little to no concern (n = 280)
Forest Economy²³	
Employment Figures	100,133 in direct employment
Economic Output	\$23.2 billion in total economic output

²¹ Haya et al. 2023

²² Butler et al. 2021

²³ Von Nessen 2022



State Involvement in Carbon Markets

The Forestry Association of South Carolina (FASC) is actively promoting any market opportunities for landowners, given the valuable economic benefits for landowners. Meanwhile, the South Carolina Forest Commission and Clemson University Extension are supporting outreach initiatives to educate landowners about the positive attributes of forest carbon projects.

Landowner Interest in Forest Carbon Programs

One interviewee stated that landowners are interested in enrolling in carbon programs once learning about them, but remain wary of market uncertainty, land use restrictions, and monitoring requirements. Another interviewee noted that most available markets are only accessible to larger landowners, which deflates participation. This interviewee stated that landowners would be interested in 20-40 year contracts, and that FASC is positively anticipating FFCP expansion into the state.

Opposition to Voluntary Carbon Markets

No interviewee identified organized opposition to voluntary carbon markets, although one noted that the forest industry is concerned about markets constraining timber supply. However, due to the small number of acres enrolled in forest carbon projects, this is currently a non-issue.

Agricultural Special Assessment

Compatibility Score: 2 (Partial Compatibility)

In South Carolina, qualifying landowners may apply for agricultural special assessment and receive a modified assessment rate. Privately owned agricultural land is assessed at 4% of fair market value, while land owned or leased by corporate entities is assessed at 6% (TimberTax 2020). **Table 26** outlines the enrollment requirements and characteristics of agricultural special assessment in South Carolina.

Table 26

Enrollment Requirements and Program Characteristics for South Carolina Agricultural Special Assessment

Agricultural Special Assessment	
Enrollment Requirements	
Qualifying Land	<p>The land must qualify as real agricultural property, defined as a “tract of real property which is used to raise, harvest or store crops, feed, breed or manage livestock, or to produce plants, trees, fowl or animals useful to man” (TimberTax 2020). Land used for recreation, hunting clubs, finishing clubs, vacant land, and any other similar uses do not qualify.</p> <p>South Carolina law allows for six factors to be considered when determining if the agricultural use of a property is genuine in nature:</p> <ol style="list-style-type: none"> 1. The nature of the terrain. 2. The density of the marketable product (timber, etc.) on the land. 3. The past usage of the land. 4. The economic merchantability of the agricultural product.



	<p>5. The use or not of recognized care, cultivation, harvesting and like practices applicable to the product involved, and any implemented plans thereof.</p> <p>6. The business or occupation of the landowner or lessee, however the fact that the tract may have been purchased for investment purposes does not disqualify it if actually used for agricultural purposes.</p> <p>Both corporations and private landowners may apply, for the agricultural special assessment.</p>
Minimum/Maximum Acreage	There is a minimum acreage requirement of five acres. If adjacent parcels, or those under the same management system, are less than five acres they are treated as part of the qualifying tract. Additionally, residual acres eligible for the special assessment when owned in combination with other tracts of non-timberland agricultural real property that qualify as agricultural real property.
Minimum Stocking Growth	No minimum stocking growth requirements.
Management Plan	Although management plans are not required by statute, they may help landowners substantiate bone fide agricultural production, particularly as it relates to the factors listed above.
Timber Harvest	Although there is a harvest requirement, landowners may establish harvest intensity and rotation length as they see fit. There must be an intention to harvest at some point in the future, but this is up to the landowner's management objectives.
Program Characteristics	
Landowners Demographics	The special assessment is more popular among smaller landowners than larger, industrial ones.
Total Acres Enrolled	This information is not available.
Enrollment Trends	The state is experiencing a confluence of trends. There is increasing awareness among forest landowners about the special assessment option. The most "proficient" landowners (e.g., those with a forest management plan, those seeking professional assistance) are enrolling in the program. At the same time, county governments are increasing enrollment barriers and making it harder to enroll.
Monitoring and Compliance	Monitoring is dependent on the resources available to the county tax office. Some counties use GIS and/or aerial photography to ensure commercial harvest or management is ongoing. If landowners submit a forest management plan, tax offices will typically cross check the plans to ensure activities are being implemented.
Enforcement and Penalties	If a landowner becomes noncompliant, they are liable for rollback taxes. There are calculated by taking the difference between the taxes paid on the basis of the special assessment and the taxes that would have been paid otherwise in the year of the change and each of the five immediately preceding years (Spartanburg County n.d.).
State-County Discretion	The factors used to determine whether a property should qualify are not meant to be mutually exclusive: they should all be considered and weighted equally. However, some counties are increasingly requiring forest management plans in lieu of considering other factors, despite this being against state statute.
Management Plan Development and Amenability	For the purposes of the special assessment, landowners may develop their own management plans if they choose to provide them. They can easily be updated by informing the county tax office.
Typical Harvest Windows	For pine, the typical harvest rotation is 27-32 years.



Program Enrollment

When a landowner applies for agricultural special assessment, their property is deemed eligible or ineligible by county tax officials based on the six factors listed in **Table 26**. Additionally, tracts must be at least five acres, with residual acres eligible for the special assessment when owned in combination with other tracts of non-timberland agricultural real property that qualify as agricultural real property.

When accepted into the program, there is an expectation that timber will be harvested. However, the landowner may choose their own harvest schedule and level of intensity.

Program Compatibility

Because harvest is a requirement for enrollment, agricultural special assessment is ranked as partially compatible based on the scoring system outlined in **Figure 4**. However, given that landowners can designate their own schedule and level of intensity, enrollment in both the tax system and a voluntary market scheme should be relatively feasible.

Tennessee

This section presents results from the document analysis and interviews conducted for the State of Tennessee. **Table 27** summarizes information regarding carbon projects, tax programs, and the forest economy in the state. Currently, there are 20 carbon projects, including 13 improved forest management projects. The state's preferential tax program has a reported 47.3% participation rate, (Haya et al. 2023, Butler et al. 2021). In terms of Tennessee's agroforestry sector, it contributed \$56.3 billion in economic output and 342,658 jobs in 2019 (Menard et al. 2021)

Table 27

Carbon Projects, Tax Programs, and Forest Economy in Tennessee

Tennessee State Profile	
Carbon Projects ²⁴	
Total Number of Projects	20 carbon projects
Number of Approved Forestry Projects	13 improved forest-management projects (9 American Carbon Registry, 4 Climate Action Reserve)
Total Forestry Credits Issued	6,275,954 credits issued
First Year of Forestry Project	2007
Tax Programs ²⁵	
Tax Program Participation	47.3% yes, 34.5% no, 18.2% don't know (n=220)
Tax Program Familiarity	64.5% familiar, 35.5% not familiar (n=220)
High Property Tax Concern	92.7% concern, 6.8% little to no concern (n=220)

²⁴ Haya et al. 2023

²⁵ [Butler](#) et al. 2021



Forest Economy²⁶

Employment Figures	342,658 in agroforestry jobs
Economic Output	\$56.3 billion in output

State Involvement in Carbon Markets

In the Tennessee Forest Action Plan, there is a section focused on increasing participation of private forest landowners (across a wider range of ownership types and sizes) in carbon markets (TDF 2020). Four actions were proposed to achieve this goal, including developing outreach and educational programs for landowners, educating policymakers about the benefits of carbon markets, evaluating carbon projects on publicly owned land, and implementing the Family Forest Carbon Program (TDF 2020).

Landowner Interest in Forest Carbon Projects

The level of interest among landowners in forest carbon projects is characterized by curiosity rather than fervor. While there isn't a strong urgency for information on voluntary carbon markets, some landowners have previously enrolled in NCX. Notably, longer-term commitments spanning generations elicit caution among landowners. There appears to be an absence of substantial inquiries about voluntary carbon market programs, with one interviewee pointing to political ideology and skepticism toward government institutions and any institutions seen as related to or potentially cooperating with the government. According to an interviewee, an article from the Farm Bureau discussing voluntary carbon markets and carbon credits generated considerable interest during statewide meetings, yet this interest was accompanied by apprehension among landowners.

Opposition to Voluntary Carbon Markets

The Tennessee Forestry Association (TFA) and the Tennessee Division of Forestry (TDF) have expressed concerns linked to trends shown in Forest Inventory and Analysis (FIA) data. While forestland has shown gains, there has been a noticeable increase in low-quality trees. Consequently, both the government and industry harbor reservations about programs that could hinder effective active management practices. An interviewed forester emphasized the importance of not crossing the threshold into "willful neglect" of a timber stand, giving an example of excluding harvesting beyond specific stand ages. Their concern stems from concern about the potential disintegration and degradation of the stand.

Agricultural, Forest, and Open Space Land Act (Greenbelt Program)**Compatibility Score: 3 (Full Compatibility)**

The goal of the Agricultural, Forest, and Open Space Land Act, commonly referred to as the Greenbelt program, is to preserve agricultural, forest, and open space land by valuing the land at current use, rather than fair market value (Tennessee State Board of Equalization 2022). For landowners to enroll, they must have between 15 and 1500 acres and be operating under a forest management plan. However, the Greenbelt program does not mandate harvest; the objective of the program is simply to avoid land conversion, not incentivize the production of timber or other

²⁶ Menard et al. 2021



agricultural products. **Table 28** underscores the enrollment requirements and program characteristics of the Greenbelt program in Tennessee.

Table 28

Enrollment Requirements and Program Characteristics for Tennessee Greenbelt

Agricultural, Forest and Open Space Land Act (Greenbelt)	
Enrollment Requirements	
Qualifying Land	To qualify, land must constitute a forest unit engaged in the growing of trees under a sound program of sustained yield management, or any tract of 15 or more acres having tree growth in such quantity and quality and so managed as to constitute a forest.
Minimum/Maximum Acreage	Minimum of 15 acres, maximum of 1,500 acres
Minimum Stocking Growth	There is no minimum stocking growth requirement.
Management Plan	A forest management plan is required to apply for preferential forestland classification under the Greenbelt program.
Timber Harvest	Despite there being a management plan requirement, there are no timber harvest requirements. To derive tax benefits from the Greenbelt program, forestland must only be “engaged in the growing of trees under a sound program of sustained yield management.”
Program Characteristics	
Landowner Demographics	The program is popular amongst smaller landowners. Because smaller parcels are appraised at a high dollar-per-acre value, even if located in the same area, the program is much more beneficial to small landowners.
Total Acres Enrolled	There are 233,000 parcels enrolled in Greenbelt. These are not just forestland, but split between the agricultural classifications.
Enrollment Trends	While applications have been increasing, this is likely due to ownership changes. Thus, most new acreage enrollment is simply land which was previously enrolled under a prior owner.
Monitoring and Compliance	Properties should be reappraised every six years. In practice, however, there is no real monitoring of parcels by county offices. Tax officials usually monitor properties with remote sensing to ensure land use has not changed, but do not actively consider management plans. Some counties require landowners to create new plans every 10 years, while some only require that old plans be renewed.
Enforcement and Penalties	If land use changes, forest landowners are liable for the difference in the present-use value assessment and the value assessment using general valuation provisions for each of the preceding three years.
State-County Discretion	While minimum requirements are set by the state, counties vary in their interpretation of certain program provisions, especially for management plans. Because the Greenbelt statute does not outline which components must be included in a management plan, each county accepts plans of widely different quality.



Management Plan Development and Amendability	Under statute, anyone can produce a forest management plan. In practice, however, some counties require that landowners follow a certain template and reject applications which do not meet their quality requirements. Plans can be amended at any time but must be approved by county tax officials.
Typical Harvest Windows	For softwoods, a typical rotation is 40–60 years. For hardwoods, the usual rotation length is 80–100 years.

Program Enrollment

The Greenbelt program mandates that forestland must engage in tree cultivation under a sustainable yield management strategy, *implying active tree growth and not necessitating harvest* (Tennessee State Board of Equalization, 2022). Requirements for sustainable yield management are about ensuring that the land is able to grow trees “in such quantity and quality and is so managed as to constitute a forest (Tennessee State Board of Equalization, 2022; 12).” The requirement for sustained yield management, albeit minimal, is seldom enforced. This can be attributed to a deficiency in the capacity to conduct property audits, which limits the ability to ensure compliance.

To qualify for the tax program, the land must maintain its forest classification and the landowner must possess a forest management plan (Tennessee State Board of Equalization, 2022). The management plan outlines landowner goals, which may or may not involve harvest. *Importantly, plan content should not affect tax program eligibility.* The application process involves submitting the management plan, with county-level variation on rules and strictness of plan approval; the land should be subsequently enrolled with no further follow-up required. Landowners are able to create their own plans, which were noted as often being of “low quality”. While the TDF once crafted plans for landowners, this practice ceased due to lack of profitability and an availability of private consultants.

A minimum statewide prerequisite is having an FMP; beyond that, plans' contents lack specific guidelines. Despite state statute only necessitating management plan submission for program enrollment and nothing more, certain counties' tax offices, in an attempt to preserve revenue (according to interviewees), wrongly reject plans that do not meet their own qualifying criteria, such as those that do not adhere to the TDF plan template, in some cases with plan content impacting county officials' decisions. This defies statute, as plan content should not affect eligibility and landowners should not be compelled to use the template.

Program Compatibility

Given a lack of harvest requirements and the ease in which landowners can update their own management plans, the Greenbelt programs is highly compatible with forest carbon projects. One interviewee, representing the Farm Bureau, perceived moderate-to-high compatibility between the Greenbelt program and carbon market enrollment, rating it at 6–7 on a scale of 1 to 10. The lower score is attributed to the fact that the tax program was originally formulated in the 1970s without considering voluntary carbon market aspects. The interviewee highlighted that while forest carbon projects align operationally with the day-to-day operations of the Greenbelt program, there might be a lack of compatibility in terms of their underlying ethos. While the interviewee envisioned challenges during the initial adoption of voluntary carbon market programs, they expressed optimism for their formal integration in the future.



Future Program Trends

The core elements of the program have remained unchanged since 1977 and 1983. However, according to some interviewees, the Greenbelt program is now in need of legislative updates to enhance its effectiveness. To address the issue of forest loss, potential changes under consideration include:

- Debates surrounding the adequacy of the minimum acreage requirement of 15 acres and the potential perception of the maximum 1,500-acre limit as being too low.
- A desire among certain lawmakers to completely eliminate the rollback tax provision, which would lead to a significant shift in the program's structure.

Virginia

This section presents results from the document analysis and interviews conducted for the state of Virginia.

Table 29 summarizes information regarding carbon projects, tax programs, and the forest economy in the Virginia. Currently, there are 28 carbon projects, including 13 improved forest management projects. The state's two preferential tax programs have a reported 36% participation rate (Haya et al. 2023, Butler et al. 2021). In terms of Virginia's forest economy, the sector contributes to \$21.6 billion in economic output and 108,000 jobs annually (VDOF n.d.).

Table 29

Carbon Projects, Tax Programs, and Forest Economy in Virginia

Virginia State Profile	
Carbon Projects²⁷	
Total Number of Projects	28 carbon projects
Number of Approved Forestry Projects	13 improved forest management projects (3 American Carbon Registry, 10 Climate Action Reserve)
Total Forestry Credits Issued	5,059,917 credits issued
First Year of Forestry Project	2002
Tax Programs²⁸	
Tax Program Participation	36.0% yes, 51.7% no, 12.3% don't know (n=236)
Tax Program Familiarity	57.6% familiar, 42.4% not familiar (n=236)
High Property Tax Concern	97% concern, 3% little to no concern (n=236)
Forest Economy²⁹	
Employment Figures	108,000 in related jobs

²⁷ Haya et al. 2023

²⁸ Butler et al. 2021

²⁹ VDOF n.d.



Economic Output

\$21.6 billion in output

State Involvement in Carbon Markets

While the state of Virginia has established policies and procedures related to the compliance-based Regional Greenhouse Gas Initiative (RGGI), it has no stated objectives related to voluntary carbon markets. The Virginia Department of Forestry (VDOF) Strategic Plan, updated in 2020, makes no mention of carbon markets, offsets, or other related mechanisms (VDOF 2020).

Landowner Interest in Forest Carbon Projects

There is notable interest in carbon markets amongst forest landowners statewide. In fact, questions have arisen regarding the compatibility between carbon projects, their harvest requirements, and property tax programs. Responding to this trend, the VDOF has focused on disseminating information and educating landowners about the available options. Numerous informative sessions on this subject have been organized to address their concerns.

However, amid the growing interest, certain landowners remain doubtful about committing their land for extended periods, particularly 50 years or more. A specific interviewee pointed out that the appeal of long-term projects diminishes when landowners are required to postpone harvests for such extended periods. Despite this, the Family Forest Carbon Program (FFCP) garners attention as it accommodates the needs of smaller landholders with a more manageable 20-year commitment period. Notably, while FFCP offers alignment with these needs, an interviewee noted that it falls short in terms of financial benefits compared to other programs. The sentiment expressed is that landowners are inclined towards programs that yield profits without imposing substantial resource commitments.

Opposition to Voluntary Carbon Markets

Interviewees noted that the forest products industry is harboring reservations about the potential repercussions of voluntary carbon markets on timber supply. Although they haven't been overtly vocal about this concern so far, should voluntary carbon markets witness increased participation, opposition may become public. The industry is closely monitoring the situation and its developments.

During discussions, an interviewee drew attention to the precedence set by the opposition to voluntary carbon market programs in West Virginia, which sparked concerns within the forest industry. Despite this, no public expressions of opposition have been voiced at present. The anticipation, however, remains that legislative conversations similar to those in West Virginia could surface, raising industry concerns about the implications of market participation on their operations.

Land Use Value Assessment (LUVA) Program

Compatibility Score: 0.5 (Limited Compatibility)

In 1974, Virginia passed legislation enabling localities to provide tax relief to landowners in order to preserve agricultural, horticultural, forestland, and open space lands (Virginia Tech n.d.). This was done with the explicit purpose of providing the public with the benefits of their preservation. However, not all counties choose to offer this tax relief. The state is tasked with setting LUVA tax



rates, but counties are not required to adopt them if they have a “reasonable” motivation not to. Below, **Table 30** outlines the enrollment requirements and characteristics of the LUVA program.

Table 30

Enrollment Requirements and Program Characteristics for Virginia LUVA

Land Use Value Assessment (LUVA) Program	
Enrollment Requirements	
Qualifying Land	Real estate devoted to forest use, or land which includes standing timber and trees, is eligible for the LUVA program. Landowners must certify that their land is being used in a planned program of timber management and soil conservation practices. Both productive and nonproductive forest land is eligible. To qualify under productive, the land must be growing a commercial forest crop that is physically accessible for harvesting when mature. Nonproductive is land devoted to forest use but is not capable of producing a crop of industrial wood because of inaccessibility or adverse site conditions.
Minimum/Maximum Acreage	A minimum of 20 acres is required. In practice, some counties combine different classifications. If a landowner has 10 acres of forestland and 10 acres of open space, a county tax official might offer LUVA regardless.
Minimum Stocking Growth	Productive forestland must have commercially valuable trees of any size sufficient to compose at least 40% normal stocking of forest trees. There are no requirements for nonproductive land.
Management Plan	To demonstrate commercial intent to harvest, landowners may submit either a signed commitment to maintain and protect forestland by documenting their land-use objectives, or a sound forest management plan. For the first option, a copy of a filed IRS Form Schedule F (Form 1040) may serve as documentation.
Timber Harvest	To qualify as productive forest acreage, the land must be growing a commercial forest crop that is physically accessible for harvesting.
Program Characteristics	
Landowner Demographics	Statewide, the program is popular amongst smaller non-industrial private landowners and larger industrial owners.
Total Acres Enrolled	There are 3,462,050 acres enrolled in the program, consisting of approximately 74,000 parcels.
Enrollment Trends	This information is not available.
Monitoring and Compliance	Landowners must renew their applications and revalidate their property every six years. During site visits, assessors ensure landowners are following their management plan. When management plans expire after 10 years, this provides another opportunity for monitoring. In practice, it is not likely that monitoring is strict, given limited county capacities.
Enforcement and Penalties	If forestland that qualifies for the LUVA program is subsequently reclassified under a non-qualifying use, additional “roll-back” taxes must be paid. In localities that have not adopted a sliding scale for use value assessment and taxation, the required roll-back tax payment is equal to the difference between the tax assessed based on LUVA valuation and the taxes that would have been payable had property taxes been assessed based on the



	property's fair market value. This penalty applies to the current year and is applied for each of the five years immediately preceding the year of the land use change.
State-County Discretion	Some counties do not offer LUVA to landowners. Each year, the State Land Evaluation Advisory Council (SLEAC) creates recommended values for county assessors. However, counties can establish their own rates if there is a "reasonable" need to do so. Additionally, counties can require program renewals more often than the statewide minimum of six years.
Management Plan Development and Amendability	If required by the county, FMPs must be prepared by a professional forester. Plans may be amended at any time as long as the landowner is able to demonstrate a continued commitment to sustainable management and commercial production of timber.
Typical Harvest Windows	This information is not available.

Program Enrollment

To qualify for the LUVA program, certain criteria must be met, including the requirement that the land must be dedicated to tree growth and forest utilization, with timber harvest as an explicit objective (SLEAC 2020). There is county-level discretion on how landowners must demonstrate compliance with program requirements; across the state, but depending on the county, there are three conditions that landowners may be asked to show in order to demonstrate operational suitability for program eligibility (SLEAC 2020):

1. A signed commitment (affidavit) detailing intention to preserve and safeguard forestland, along with pertinent information such as income, production history, timber harvesting dates, and quantities (64% of landowners report this as a requirement). While a landowner's signature is legally sufficient, having a forester's signature as well is said to enhance the credibility of the claim.
2. A sound forest management plan developed by a certified forester (54% of landowners report that this is required).
3. Submission of IRS Form 1040F-Sch T serves as supplementary support, indicating compliance with the management plan affidavit (reported as required by 68% of landowners).

While in some counties a signed affidavit or a 1040F-Sch T form can be submitted instead of a forest management plan, other counties may request all three forms of documentation. Significantly, the manner in which harvests are executed is malleable and contingent on landowners' objectives as outlined in their management plans, where professional foresters offer flexibility. Additionally, some counties require plans to be renewed every 10 years, while others only require self-verification from landowners. Enrollment renewal every six years is mandatory and is usually conducted in autumn. Site visits generally take place in spring and summer to confirm adherence to a management plan or affidavit stipulations.

Program Compatibility

Should the harvest rotations and other objectives in a forest management plan align with mandated harvest reductions or deferments as part of forest carbon program participation, landowners can retain LUVA eligibility. However, if participation in a forest carbon project compels



landowners to deviate from the sustainable management practices outlined in their management plan, their enrollment in LUVA would be revoked.

Importantly, landowners can decrease or defer timber harvests if these changes are approved and documented in an amended plan. However, to update their plans, a certified forester is needed, where harvest parameters are determined by landowner objectives and the professional forester’s judgment. The prospect of deferring harvests over several decades could pose challenges since such an extended timeline might not align with most effective management plans.

Significantly, an interviewee emphasized that involvement in a forest carbon program could harmonize with the LUVA program’s overarching objective of safeguarding farmland and forested areas. They pointed out that LUVA demonstrates compatibility with working forest conservation easements, highlighting the potential synergy with reduced harvest activities instead of a complete cessation.

Riparian Forest Buffer Tax Credit

Compatibility Score: 0 (Limited Compatibility)³⁰

The Riparian Forest Buffer Tax Credit provides Virginian landowners who harvest timber and retain a streamside buffer with a tax credit equal to 25% of the value of the timber retained as a buffer up to a maximum of \$17,500 in the tax year (VDOT 2023). **Table 31** summarizes enrollment requirements and program characteristics.

Table 31

Enrollment Requirements and Program Characteristics for Virginia Riparian Forest Buffer Tax Credit

Riparian Forest Buffer Tax Credit	
Enrollment Requirements	
Qualifying Land	Forested land containing a streamside buffer, which must be at least 35 feet wide and no greater than 300 feet wide, qualifies for the tax credit. All waterways of the Commonwealth are eligible and must follow the stream designation as identified in the “Forestry Best Management Practices in Virginia” Technical Guide.
Minimum/Maximum Acreage	Minimum of 10 acres, including contained buffers
Minimum Stocking Growth	There is no minimum stocking growth requirement.
Management Plan	An approved forest stewardship management plan is required to receive the tax credit.
Timber Harvest	Landowners only receive the tax credit after timber harvest. However, at least 50% of the crown cover must remain following the harvest.
Program Characteristics	
Landowner Demographics	Enrolled landowners includes a mix of small, non-industrial and larger, industrial owners. Generally, the program will have 65-70 applications per year, with 15

³⁰ As noted above, if a landowner has already enrolled in a carbon program that restricts harvest, they cannot receive this benefit. However, landowners could enroll in a carbon program following a harvest and the receipt of this tax credit without compatibility concerns.



	applications from industrial owners. In some cases, there will be 80-100 applications per year. Overall, it is a fairly under-utilized program. This is due to a lack of promotion amongst private foresters along with the stewardship plan requirement, which goes above the purview of a traditional management plan.
Total Acres Enrolled	This information is not available.
Enrollment Trends	This information is not available.
Monitoring and Compliance	Before the tax credit can be claimed, an inspection is conducted to ensure that the site is fulfills program requirements and that there are no water quality issues.
Enforcement and Penalties	Landowners must keep the buffer intact for 15 years. If the buffer is cut before then, landowners must pay back the tax credit in full.
State-County Discretion	There is no discretion given to counties, the program is operated by the Virginia Department of Forestry.
Management Plan Development and Amendability	The stewardship plan must be approved by the Virginia Department of Forestry.
Typical Harvest Windows	This information is not available.

Program Enrollment

The Riparian Forest Buffer Tax Credit is given to landowners with a minimum of ten acres *following the completion of timber harvest operations* (VD OF 2023). Landowners can initiate their application for this credit upon harvesting their timber, with a final inspection conducted post-harvest to verify site stability and to ensure the absence of water quality issues. The credit can be claimed within a year of the harvest's conclusion, with the option to spread the payment over a span of five years (VD OF 2023). Several entities are eligible for the tax credit, including individuals, partnerships, S-corporations, family partnerships, grantors, trusts, and limited liability corporations, provided they are Virginia taxpayers (VD OF 2023).

Integral to the application is the requirement for landowners to possess a stewardship plan linked to the Forest Stewardship Program (VD OF 2023). While traditional forest management plans typically prioritize landowner objectives, stewardship plans encompass additional prerequisites such as addressing endangered species, preserving historical sites, and integrating cultural goals. Applicants must also provide:

- Proof of ownership
- Proof of timber value within buffer
- Map of the property

Importantly, landowners must agree to maintaining the buffer zone undisturbed for a duration of 15 years. If any alteration to the buffer occurs during this timeframe, the landowner is obligated to reimburse the received tax credit (VD OF 2023).

Tax Benefit

The computation of the buffer value is conducted on a per-acre basis, determined by the rate at which landowners received payment for timber sold from the remaining area of the tract (VD OF



2023). The buffer value is derived by multiplying the per-acre rate by the acreage within the buffer zone (VDOF 2023). The buffer width options include a minimum of 35 feet, a recommended width of 50 feet, and a maximum width of 300 feet (VDOF 2023). Landowners can claim 25% of this value; however, this percentage drops to 12.5% if a selective cut is executed within the buffer. The maximum credit attainable is capped at \$17,500 (VDOF 2023).

Program Compatibility

Landowners cannot concurrently benefit from the Riparian Forest Buffer Tax Credit and participate in forest carbon programs if the market initiative mandates harvest deferral. This limitation arises because the tax credit eligibility is contingent upon the completion of the harvest. However, there is no conflict between the two programs if a landowner opts to participate in a forest carbon program subsequent to harvest and receipt of the tax credit.

Policy Implications

This compatibility analysis has revealed several policy implications for preferential property tax programs, voluntary carbon markets, and the interaction between them:

1. **State governments have a role in providing direction to landowners and county tax officials on how to engage with emerging voluntary carbon markets.**

Without clear strategies in place at the state level, landowners lack clear understandings about the compatibility between tax programs and forest carbon projects, and the opportunities to engage with both. Currently states that do have strategies focus on educating landowners on the types of carbon markets that exist and how they operate, with compatibility considerations addressed on a case-by-case basis (e.g., Ohio, North Carolina). Landowners often do not know where to start and find it difficult to engage in carbon markets, leaving room for state governments to take on a more active role as market stewards.

2. **Reforms to preferential property tax programs may be necessary should states want to increase participation in forest carbon projects among small, non-industrial forest landowners.**

Emerging out of legislation passed in the 1970s, agricultural and forestry preferential regimes were created around potentially different land use and management priorities than those that guide decision-making today. The current focus for some landowners is more heavily weighted toward sustainable management and conservation than in previous decades, which may put landowners at odds with tax programs oriented towards the commercial production of timber.

States can make it easier for landowners to engage with both tax programs and forest carbon projects for voluntary markets through tax reform. For instance, some in Tennessee recognize that changes to tax codes may better facilitate landowner participation in multiple programs—a concept that was not considered when the Greenbelt program was created 50 years ago—but taxes remain a politically charged issue. With the rising popularity of forest carbon programs and other federal-level conservation programs, such as the Environmental Quality Incentives Program (EQIP), tax reforms that will make these programs more compatible with voluntary markets can help landowners take advantage of the maximum benefits available to them. This includes revising the eligibility criteria for property tax



programs to incorporate sustainability and conservation practices as qualifying factors alongside traditional criteria like timber production. States can look to other states' property tax statutes that present lower compatibility concerns.

- 3. Preferential tax treatments for agricultural and forest lands can result in revenue shortfalls for both county and state governments. This situation can be especially burdensome for rural counties, putting a strain on their public finances and requiring them to raise taxes through alternative means such as real property taxation.**

As one interviewee noted, counties with a large agricultural tax base lose substantial portions of their revenue as a result of preferential arrangements for forestry and agricultural land uses. Likewise, state governments are losing out on tax revenue. As mentioned above, Kentucky forgoes approximately \$45 million in state property tax each year as a result of deferred assessment. In order to avoid this, some counties have taken to making tax program enrollment more burdensome, or have increased real property taxation (e.g., homestead property) to supplement the shortfall. This raises implications for agricultural communities, local economies, and overall tax policies.

Conclusion

Forest property tax arrangements are primarily aimed at: 1) preservation, or “keeping forest as forests” by providing an incentive for landowners to resist economic pressure to sell their forestland for other land use such as development; 2) supporting forest-based industry by including commercial intent to harvest (or evidence of harvest) as an enrollment requirement (Hickman, n.d.). However, with increased interest in carbon markets and conservation more broadly, there is a need to revisit how tax programs incentivize landowner behavior and the degree to which they are compatible with other incentivization programs and shifting landowner interests.

Incompatibilities between tax programs and forest carbon programs for voluntary markets will necessarily increase landowner costs associated with forest carbon program participation; any potential gains to come from forest carbon program participation will be discounted by a loss in preferential tax benefits. This will undoubtedly make it more difficult to attract landowners to forest carbon programs.

This report explores compatibility between preferential tax treatments and forest carbon programs in nine states: Alabama, Florida, Georgia, Kentucky, Ohio, North Carolina, South Carolina, Tennessee, and Virginia. Harvest requirements associated with preferential property tax regimes were the main factor limiting compatibility across the program types, as many tax programs mandate harvest while forest carbon programs often necessitate deferring harvest rotation cycles. By shifting harvest practices, landowners may be at odds with tax program harvest. There are three main questions to consider when looking at tax program harvest requirements:

1. Is timber harvesting required for program eligibility?
2. Where eligibility is contingent on having (and following) a forest management plan, how rigid or amendable are those plans? Can plans be written by the landowner or must a certified forester write or approve them?



3. What level of enforcement exists? Do county tax officials examine the existence or content of management plans and other documentation when determining eligibility and successive program participation? Are inspections conducted by certified foresters?

Of the nine states we analyzed, Georgia, North Carolina, Ohio, and Virginia each have two or more distinct preferential tax arrangements; Alabama, Florida, South Carolina, Kentucky, and Tennessee have one each. Using the compatibility ranking system detailed in **Figure 4**, key compatibility takeaways from the states' respective tax program are the following:

- In Alabama, there is full compatibility between agricultural land classification and voluntary carbon markets. Landowners are not required to develop management plans, and timber harvest is not necessary to enroll.
- In Florida, there is partial compatibility with the Greenbelt program. Harvest is required, and some counties require management plans for enrollment.
- In Georgia, there is full compatibility between voluntary market participation and the state's four preferential tax treatments, including PAA, CUVA, FLPA, and QTP. These programs are based on land use rather than harvest requirements, and FLPA allows carbon sequestration as a secondary use.
- In Kentucky, there is full compatibility between agricultural land classification and voluntary carbon markets. Landowners are not required to develop management plans, and timber harvest is not necessary to enroll.
- In North Carolina, there is limited compatibility with the Present-Use Value (PUV) program and full compatibility with the Wildlife Conservation Land Program (WCLP).
 - For the PUV program, a management plan is required for forestland, agricultural land, or horticultural tracts containing more than 20 acres of woodland. While management plans (or other documentation of bona-fide production) are required, plans may be developed by a professional forester or by a landowner with the necessary skills to do so. If a landowner chooses to develop their own plan, it must pass a review by the county tax office. When residual woodland is enrolled alongside certain agricultural or horticultural tracts, there are no management plan or harvest requirements for these acres.
 - For the WCLP, commercial harvest is not required and only allowable should it be beneficial to a habitat. Forest carbon project incompatibility with the WCLP is more likely to arise from the perspective of the forest carbon project and its need for demonstrated additionality.
- In Ohio, there is a partial compatibility with the Current Agricultural Use Value (CAUV) program and limited compatibility with the Ohio Forest Tax Law (OFTL) program.
 - For the CAUV program, harvest is required unless woodland is enrolled as residual acreage alongside qualifying agricultural land. Most counties require forest management plans, but this is not a statewide provision. Landowners may develop their own plans.
 - For the OFTL program, harvest is required and management plans must be developed by a certified forester. Thus, compatibility is only possible in cases where a carbon program's harvest deferral aligns with the management plan created by a forester.



- In South Carolina, there is partial compatibility with agricultural special assessment. Harvest is required, but the volume and time of harvest is outlined by the landowner. Management plans are not required by state law, but may help quicken the pace of acceptance into the program.
- In Tennessee, there is full compatibility between the Agricultural, Forest, and Open Space Land Act (Greenbelt). A management plan is required but may be created by the landowner, and there are no harvest requirements.
- In Virginia, there is limited compatibility for both the Land Use Value Assessment (LUVA) program and the Riparian Buffer Tax Credit.
 - For the LUVA program, harvest is required, but there is county-level discretion on how landowners must demonstrate compliance (with 64% of landowners reporting requirements for a management plan). If required, plans must be created by a professional forester.
 - For the Riparian Buffer Tax Credit, landowners may only claim the tax credit after harvest. Therefore, if a landowner has already enrolled in a carbon program, they cannot receive this benefit. However, there are no compliance concerns with enrolling in a forest carbon program *after* harvest and receipt of the Riparian Buffer Tax Credit.

Overall, this analysis discovered that while there are currently no large interest groups opposing voluntary carbon markets in the nine evaluated states, without definitive and transparent guidance from state and local government, market stewards, and non-profit organizations, landowners may be less likely to pursue carbon project enrollment due to incompatibilities with current tax programs (and the additional cost burden that would represent), the desire to maintain autonomy over their land, and uncertainties about the current state and future of voluntary carbon markets. Across the nine states, landowners have expressed skepticism about the perceived longevity and stability of carbon markets in comparison to more established tax programs.

Overall, state guidance on landowner enrollment in carbon projects is lacking. In states that do address or engage with voluntary carbon market participation, guidance is made on a case-by-case basis (e.g., North Carolina). There is a need for further research investigating compatibility between forest carbon programs and preferential tax arrangements for forestry, so that reasonable guidance may be drafted, and policy decisions made.



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Appendix I: Interview Questions

1. Please describe your position and how your role relates to the _____ program(s).
2. How many landowners participate in the _____ program(s)?
 - a. Is it popular amongst private landowners? Particular groups more than others (e.g., smaller non-industrial versus larger industrial owners)?
 - b. If not popular overall or among particular groups, why do you think this is the case? Lack of awareness? Insufficient incentive? Other barriers?
 - c. Have there been any trends or shifts in landowner participation, e.g., increasing or decreasing enrollment/adoption overall or by landowner type?
 - d. Any indication of future changes?
3. It seems that _____ program has _____ harvest requirements.
 - a. What determines the quantity and time frame of the required harvest? Do wood land managers or conservation foresters play any role here?
 - b. How is this harvest requirement interpreted in practice?
 - c. How is it monitored?
 - d. How is noncompliance treated?
 - e. Are there any allowable exceptions for noncompliance?
4. Are forest management plans required? And who is able to develop them (e.g., certified foresters only or the landowners themselves)
 - a. Do these plans prescribe specific amounts to be harvested within a given timeframe?
 - b. How precisely are those prescriptions given (e.g., how large might the ranges for harvest amount and timeframe be)?
 - c. What is the typical length of harvest rotations prescribed?
 - d. How amendable are forest management plans (both in terms of timeline and scale of harvest)? And who is able to amend them (e.g., certified foresters only or the landowners themselves)?
 - e. Who ensures changes fulfil program requirements?



5. Are there any other management/enrollment requirements
6. Does the _____ program vary from county to county in terms of what is expected of landowners and who can participate (i.e., is there some county-level discretion), or are practices and landowner expectations fixed at the state level
7. [IF MULTIPLE PROGRAMS] I am wondering about the overlap between _____ programs. Are landowners able to enroll in both? Is there a benefit to doing so?
8. How would you describe the general approach to voluntary carbon markets in your state (e.g., encouraging or opposing landowner participation, interest in providing awareness about them, etc.)?
9. From your perspective or experience, do you believe there is an interest in voluntary carbon markets among private landowners? If so, which types of landowners (e.g., family forest land, smaller non-industrial owners, large industrial owners, all types equally)
10. If a landowner reduced harvest (but did not stop altogether) for 10 years as part of a forest carbon project, is your understanding that they would be out of compliance with the _____ program? How about...
 - a. 20 years?
 - b. 100 years?
 - c. How much less could they harvest and still be considered compliant?
 - d. What if they stopped harvesting altogether for those time periods?
11. What if a landowner reduced or stopped harvest for other reasons? That is, not because of a forest carbon project? If they just stopped seeing economic benefit in harvesting, for instance.
12. From the state forest property tax perspective, could a landowner enroll part of their land in a forest carbon project (and reduce or stop harvest on those areas accordingly) without falling out of compliance with the _____ program? (i.e., if they continued to harvest on their other lands?)
13. Does the _____ program apply tax benefits to residual acres? For example, forests land that borders agricultural land on the same parcel?
14. Have you ever encountered any conflicts or misunderstandings related to the interaction between FCPs and the _____ program? Among landowners or between program administrators, as examples.
15. Do you see preferential tax programs in your state evolving in the future? More lenient requirements? Stricter?



- a. [If MULTIPLE PROGRAMS] If so, which programs? And what factors do you think will drive these changes?
 - b. If not now, do you think compatibility with voluntary carbon markets might be something your state will strive to change in the future (in either direction—more or less compatible)?
 - c. Have there been any efforts to move toward compatibility with voluntary carbon markets in the past?
16. That you know of, are there any organizations or interest groups in the state with strong opposition to voluntary carbon markets and forest carbon projects?
17. Are there any other factors or considerations that you believe are important to understand when examining the current or potential interaction and compatibility between voluntary carbon markets and preferential forest property tax programs in your state?
18. Are there any other people or organizations you could recommend I reach out to about these questions?

