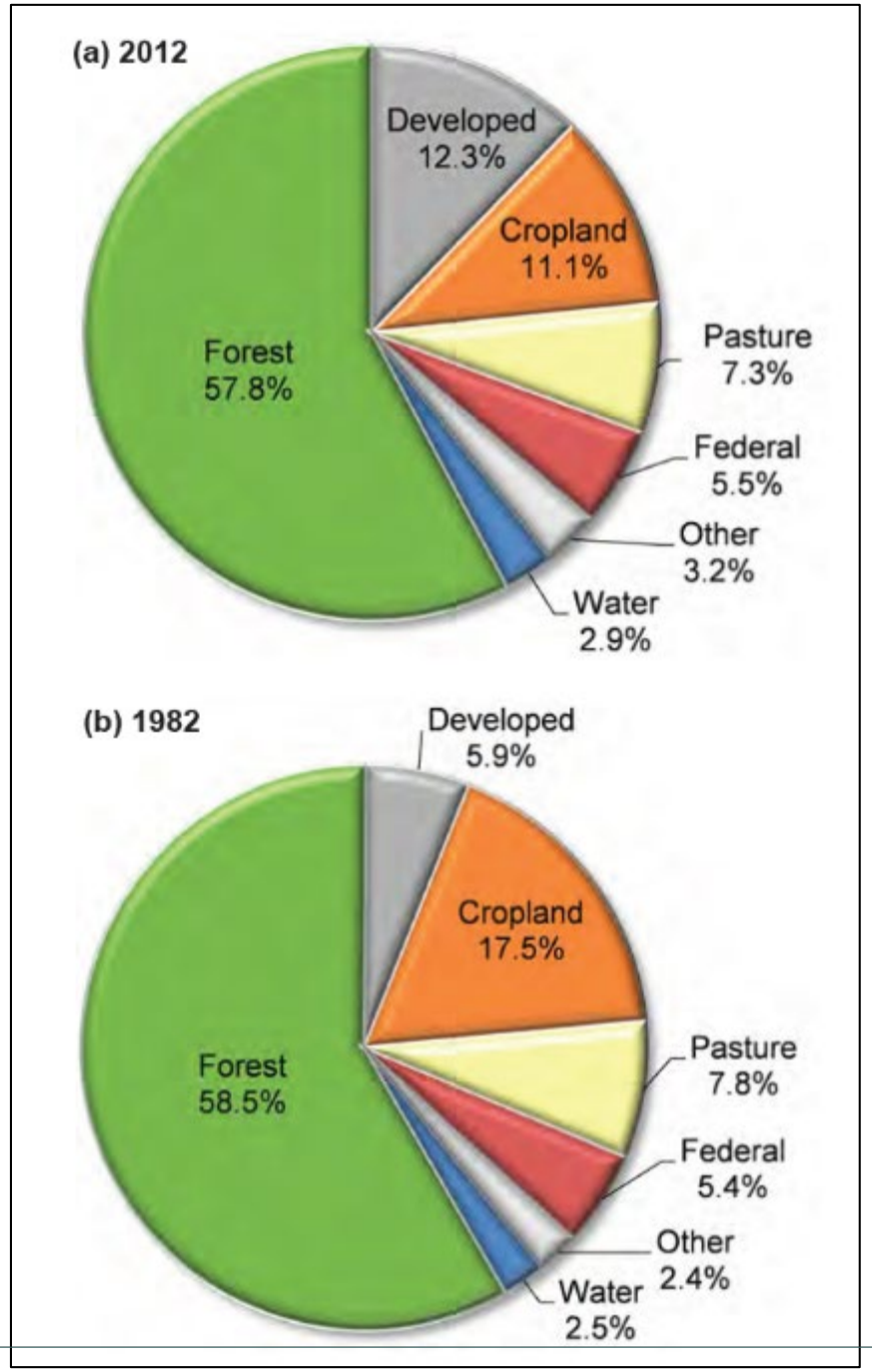
Land Sinks

Afforestation & Silvopasture

Cattle Cluster Under the Shade from a Cloud

Georgia Summer 2020

Photo: Richa Dwivedi



Land Use in Georgia

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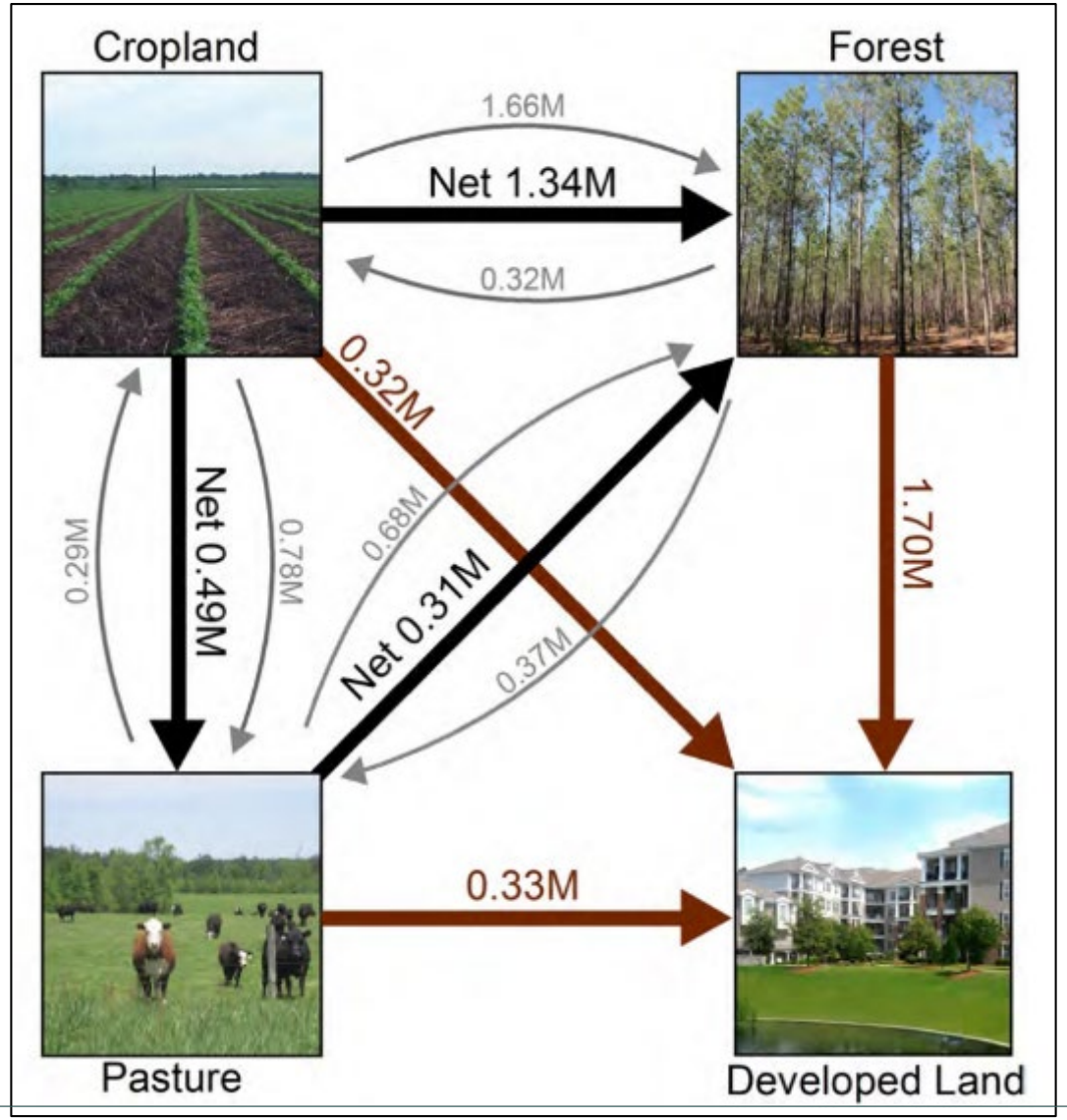
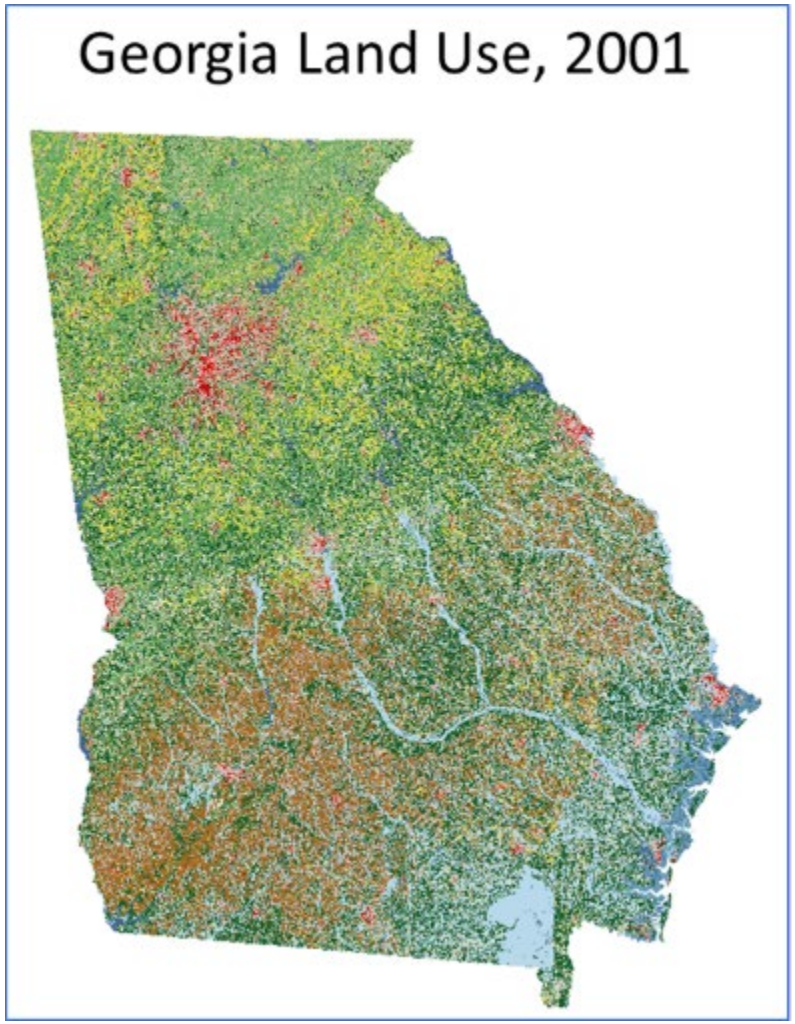
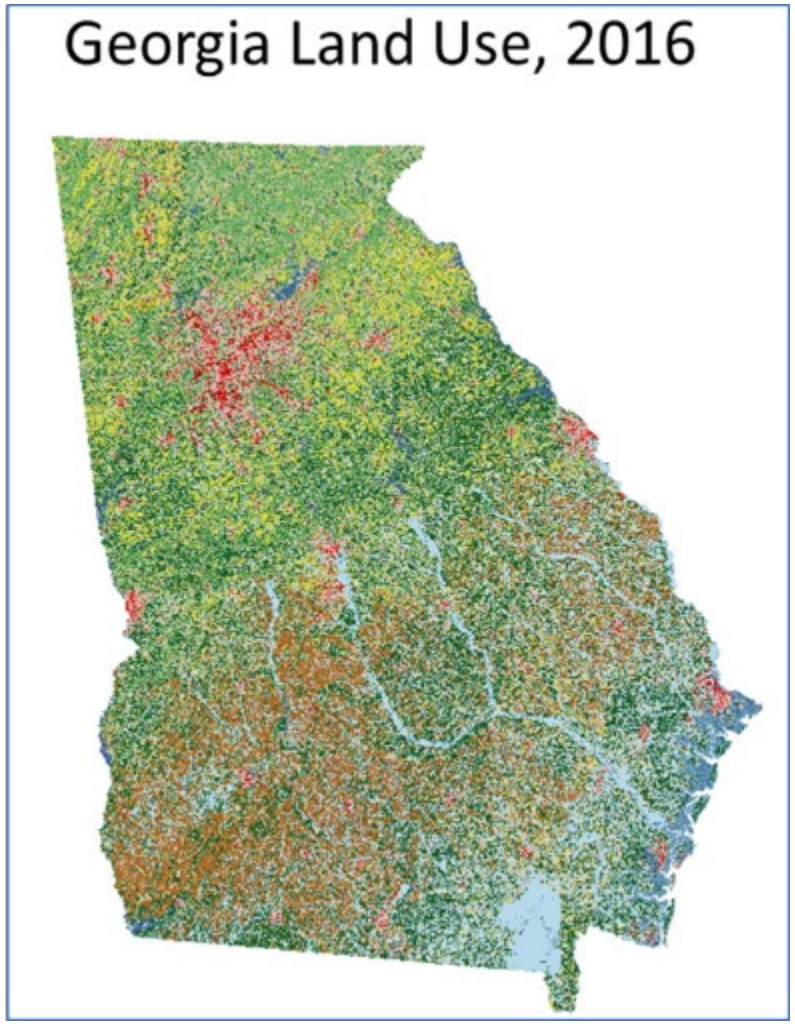


Land Use Change



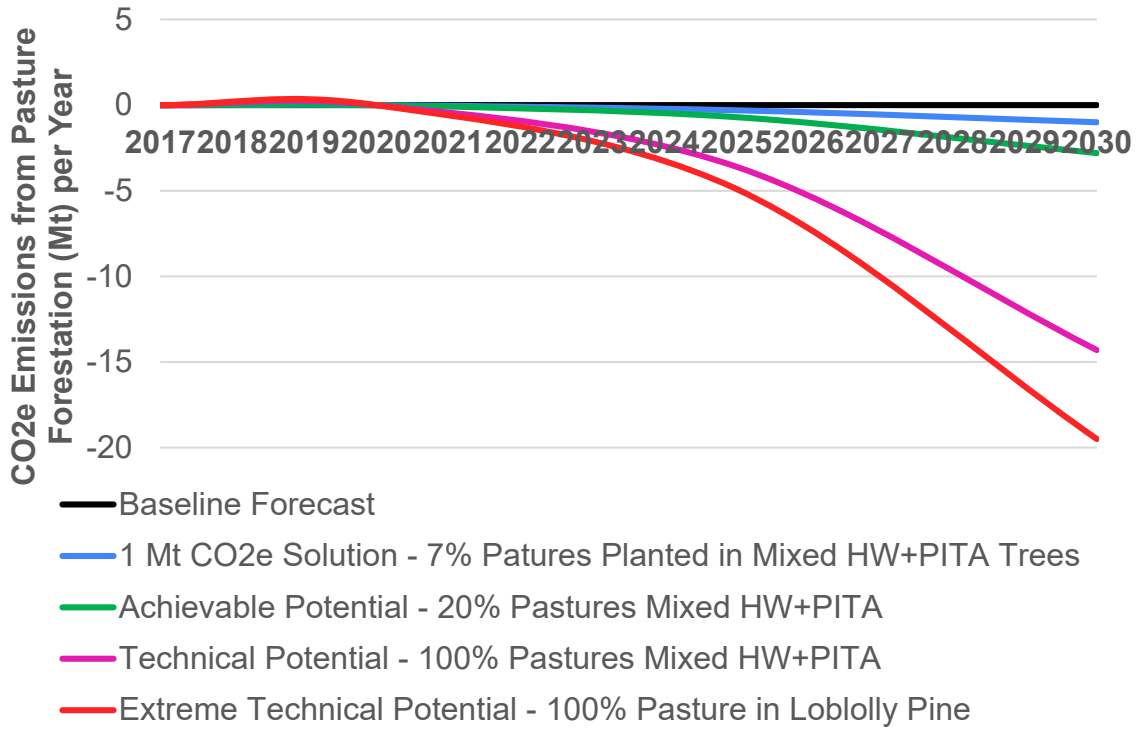


Georgia Land Use Change

Land Use Transition Matrix (NC Region of Forest Inventory Analysis Survey for Georgia, 2001 - 2016)

2001-2016	Open Water	Developed	Barren Land	Deciduous Forest	Evergreen Forest	Mixed Forest	Shrub/Scrub	Grassland	Hay/Pasture	Cultivated Crops	Woody Wetlands	Wetlands
Open Water	**96.73%**	0.66%	0.26%	0.31%	0.35%			0.98%			0.28%	0.32%
Developed		**100.00%**										
Barren Land	2.19%	36.47%	**97.19%**	16.05%	27.75%	4.82%	6.56%	47.84%	89.60%	37.18%	20.41%	100.00%
Deciduous Forest	0.14%	5.19%		**87.74%**	0.78%	0.28%	2.40%	3.31%				
Evergreen Forest		5.13%		1.20%	**81.20%**	0.31%	4.70%	7.27%				
Mixed Forest		0.93%		0.47%	0.49%	**96.66%**	0.55%	0.84%				
Shrub/Scrub		1.30%		19.24%	46.52%	24.17%	**7.64%**	1.01%				
Grassland	0.29%	6.48%	0.12%	16.97%	46.35%	9.03%	1.70%	**18.53%**	0.45%			
Hay/Pasture	0.10%	4.56%	0.11%	1.13%	2.23%	0.92%	0.24%	0.79%	**89.68%**	0.22%		
Cultivated Crops		1.25%							0.17%	**98.54%**		
Woody Wetlands	0.66%	0.39%									**96.08%**	2.80%
Wetlands	3.19%	1.49%		0.90%	0.22%	0.19%		0.41%	2.68%		46.19%	**100.00%**

Annual CO_2e Storage from Afforestation & Silvopasture (in Pastures Only)



1 $MtCO_2e$ solution in 2030 = Planting **7%** of current Pasture lands with mixed hardwood & loblolly tree species using staggered planting times.

+Improved health & productivity of livestock
+Biodiversity
+Improved stream water quality
- Potential slight reduction in forage availability

Baseline = Currently very little Silvopasture efforts in Georgia.

Achievable Potential = Planting 20% of current Pasture lands with mixed tree species (loblolly pine + hardwoods) stores **2.8 $MtCO_2e$** per year by 2030. Uses staggered tree planting half in 2020-2021 timeframe; half around 2025. Includes CO_2e stored in trees and soil.

Technical Potential = Planting 100% of current Pasture lands with mixed tree species (loblolly pine + hardwoods) stores **14.3 $MtCO_2e$** per year by 2030. Uses staggered tree planting half in 2020-2021 timeframe; half around 2025. Includes CO_2e stored in trees and soil.

Extreme Technical Potential = Planting 100% of current Pasture lands with loblolly pine (PITA) stores **19.5 $MtCO_2e$** per year by 2030. Uses staggered tree planting half in 2020-2021 timeframe; half around 2025. Includes CO_2e stored in trees and soil.

Afforestation & Silvopasture

Plant Rich Diet

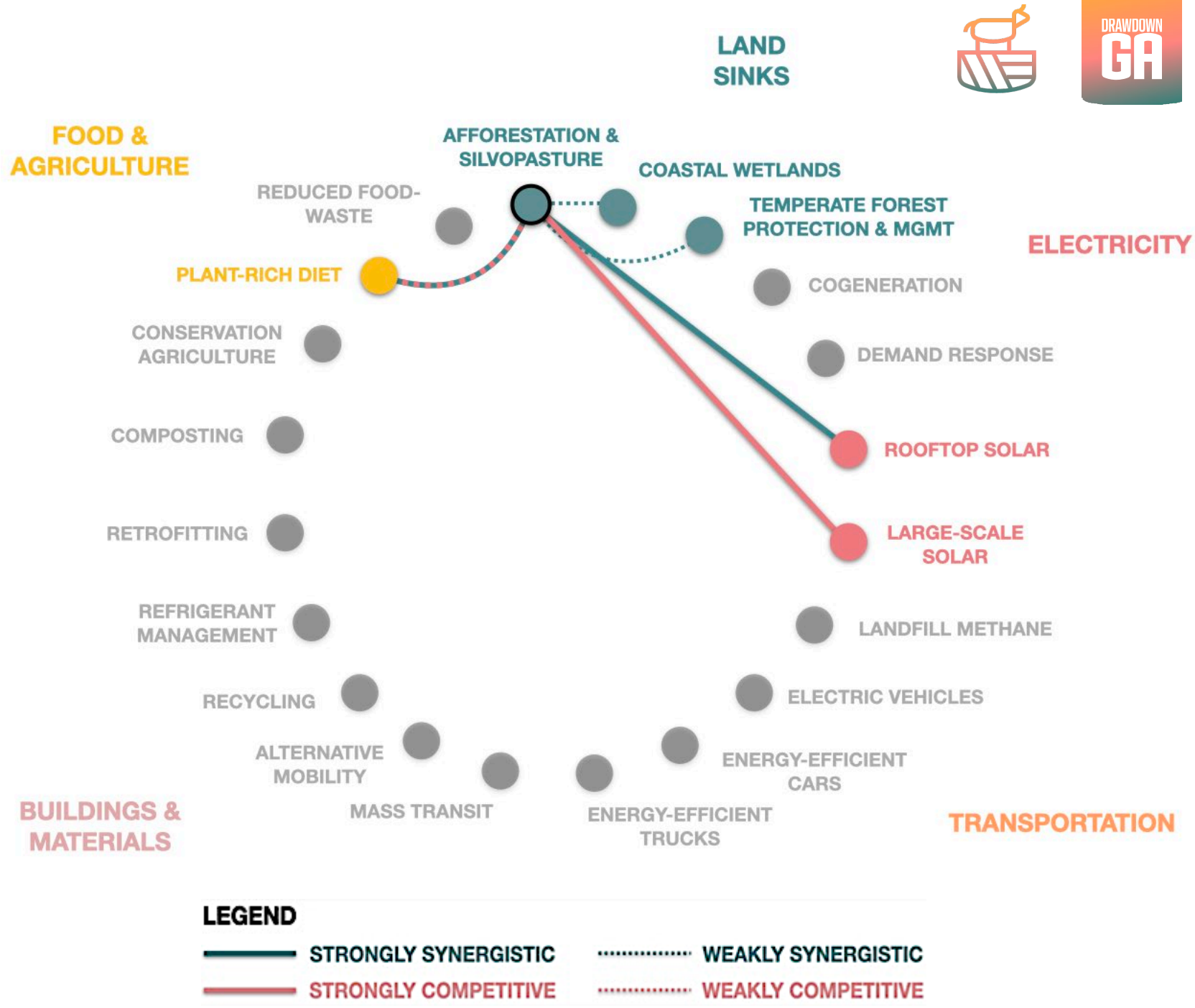
- More silvopasture would not support plant rich diets

Rooftop Solar

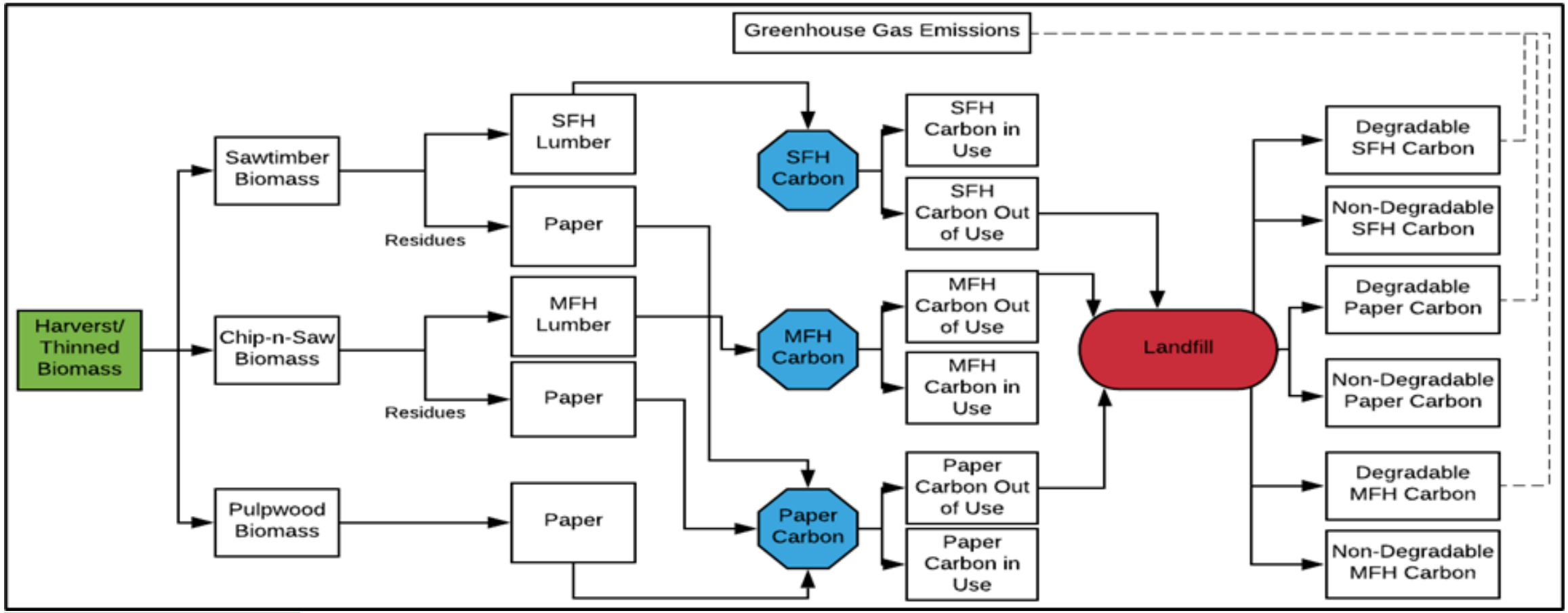
- Would not compete with new forest acreage and croplands

Large-Scale Solar

- New forest and croplands would occupy lands that otherwise could be used for solar farms

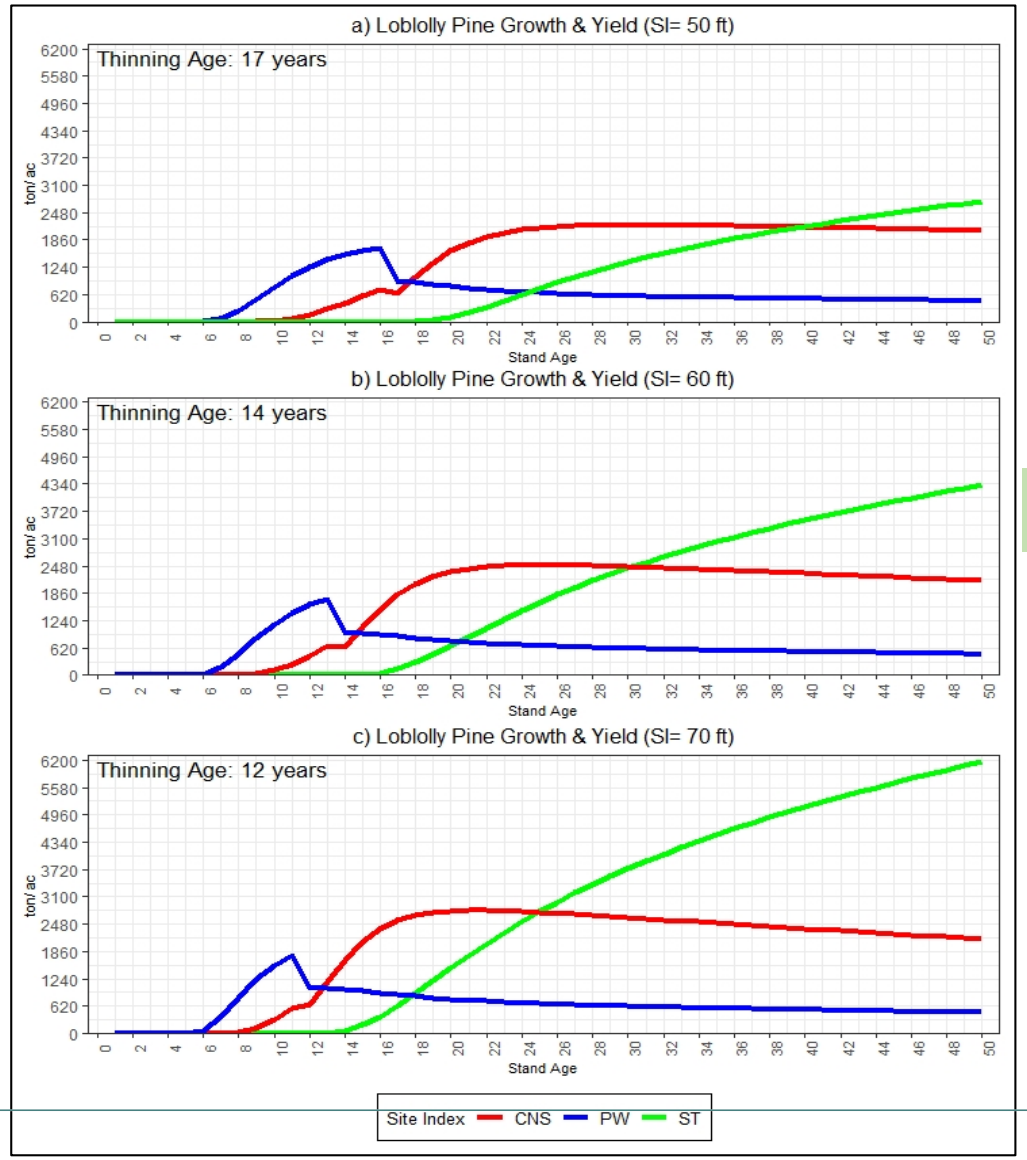


Forestation (Afforestation + Silvopasture)



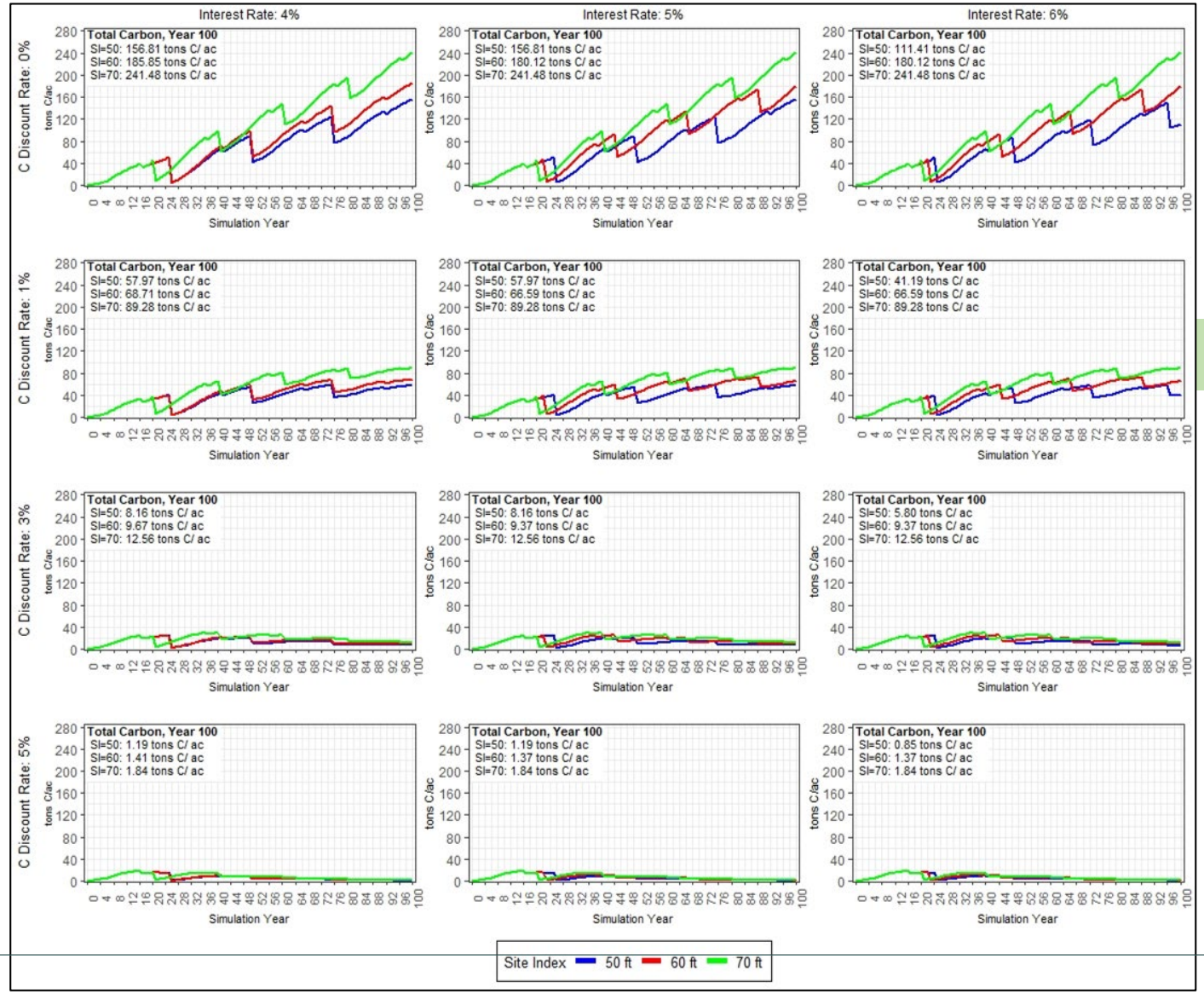
System Boundary

Forestation (Afforestation + Silvopasture)



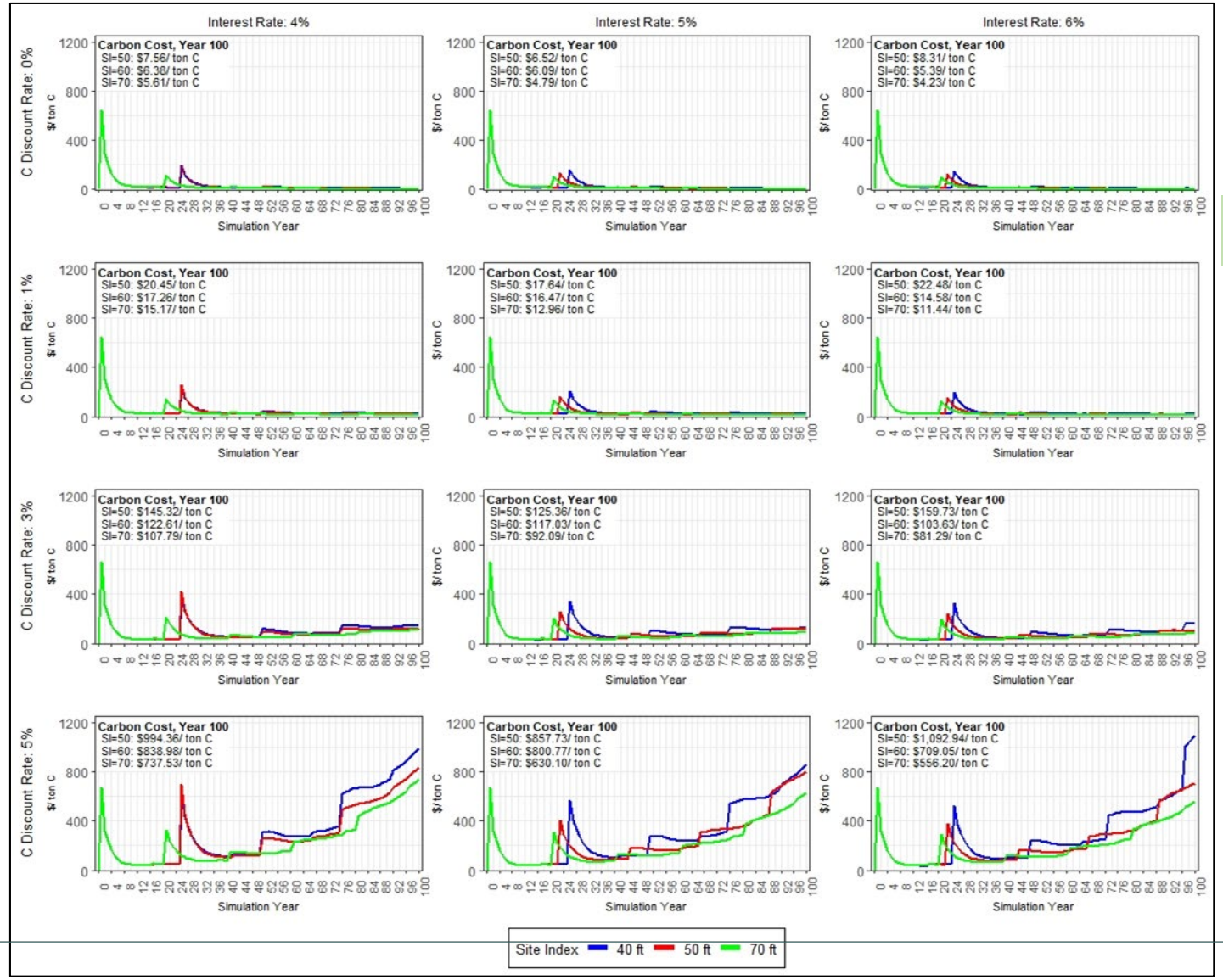
Simulated Loblolly Pine Stands

Forestation (Afforestation + Silvopasture)



Present Value of Stored Carbon

Forestation (Afforestation + Silvopasture)



Present Value of Cost of Carbon Stored

Programs Supporting Afforestation

- Conservation Reserve Program (CRP)
- Emergency Forest Restoration Program (EFRP)
  - Hurricane Michael
- Huber “Trees for Georgia” Program
  - Specific Counties (Banks, Barrow, Clarke, Elbert, Franklin, Greene, Gwinnett, Habersham, Hall, Hart, Jackson, Lincoln, Lumpkin, Madison, Morgan, Oconee, Oglethorpe, Stephens, Taliaferro, Walton, White and Wilkes)
- One Tree Planted – Oak Establishment Program

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