

SOUTH CAROLINA FORESTS POTENTIAL TO GENERATE CARBON CREDITS

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South Carolina (SC) has a variety of different forest types, and they all sequester a certain amount of carbon. Private forest landowners control a significant portion of the overall forestland in SC, and their management efforts can maintain or improve forest carbon stocks. Carbon sequestration is one method of mitigating climate change, and it has many environmental co-benefits. Currently, the California Carbon Market can provide a monetary value to the sequestered carbon on private land. One carbon credit is equal to one metric ton of carbon, and is currently worth around \$15.00. Certain requirements are necessary, though, for landowners to be approved to sell carbon credits. The purpose of this project is to communicate the benefits of joining the carbon market to SC landowners. In this study, we aim to educate forest landowners about various forest management practices that contribute to increasing carbon stocks and how to participate in the carbon market. Additionally, management plans have been projected to see how carbon sequestration is affected by various management practices. Implementation of the carbon market and the monetary benefits gained from sequestered carbon can encourage conservation of private forest lands across the country.

Forty-five different Forest Service Forest Inventory Analysis (FIA) plots were analyzed using the Forest Vegetation Simulator. 10 different management practices were simulated for each plot, and the carbon sequestered over 100 years in the future was determined. Out of 10 management plans, 8 had positive sequestration values (normality values >1). Consequently, the greater the average sequestration over 100 years, the greater the value of the forest to the carbon market and the bigger the payout. No Management, thinning from below every 15 years, and thinning from below every 33 years were the most productive management practices (normality values 2.8, 2.6, 2.1, respectively). Clear cutting every 20 to 25 years was negative for overall sequestration (Normality both 0.9). Prescribed fire and uneven aged harvesting were also analyzed and these sequestration values varied between forest types and location. Landowners can see the projections made in this study and select data closely matching their own conditions to see a simulated sequestration pattern over 100 years.

This data decreases the uncertainty of participating in the market by providing a basis for forest management plans. If environmental markets become commonplace, they can positively impact the ecology and ability to sustain certain species. Through economic drivers, ecological systems can be preserved.

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