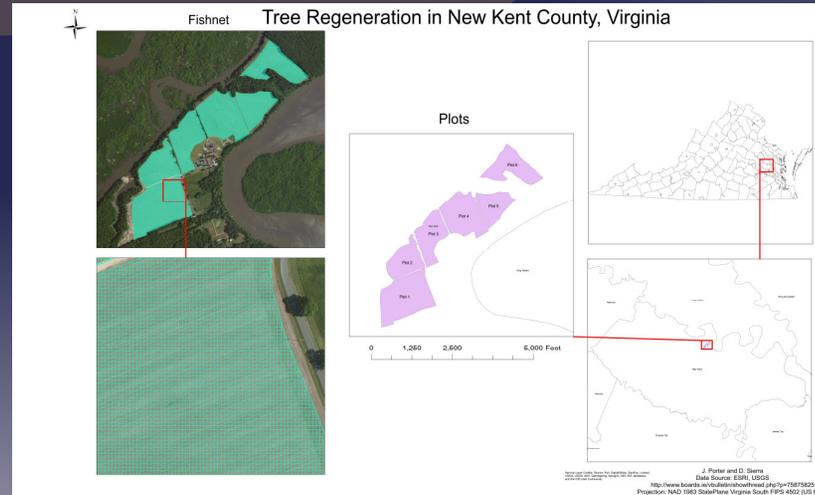
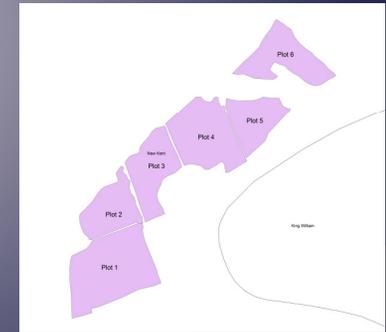


Tree Regeneration in New Kent County, Virginia

D. Sierra and J. Porter

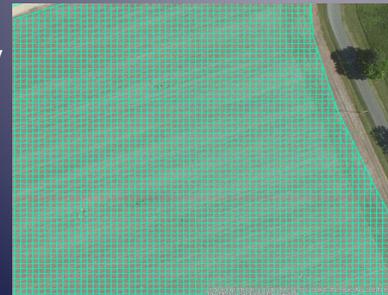
The Cumberland Marsh Natural Area Preserve in New Kent County, Virginia was studied to see what areas would be suitable for tree regeneration. Six flat, empty areas were found around the Cumberland Hospital for Children and Adolescents next to the Pamunkey River. The Nature Conservancy of Virginia has projects similar to this that seek to promote the progression and importance of trees in the environment.



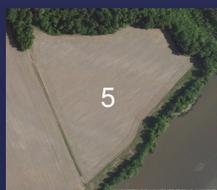
Abstract

Everyday forests are cut down for land development depriving animals of their habitats, destroying precious resources for oxygen, and causing more and more erosion into the Pamunkey river, affecting its inhabitants. To counter this, GIS will be used to plan a new area for forest regeneration in the Cumberland Marsh Natural Area Preserve. Six polygons will be created for the sectioned off, previous farm land for the new forest. An analysis of each polygon will include square footage, acreage, and the estimate of the amount of trees each area can support. Once the quantitative analysis is finalized, a fishnet will be created to visualize where each planted tree will grow. When the approximate amount of trees per lot are configured, a vertical bar graph will be created to more clearly represent the amount of trees in each plot. This reforestation project is believed to be a great improvement to Preserve's environment.

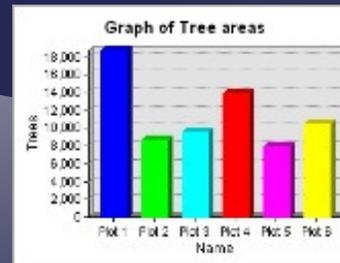
A fishnet was applied to each plot to evenly distribute every tree and estimate how many trees could possibly be plated in each area. Research was done to show that trees require about a 10x10 area to grow without becoming overcrowded. Each square was made to be 10x10 feet to accommodate every tree's needs.



These areas are thought to have previously been farm lands, making them ideal candidates for naturally restoring parts of the forests. The areas are divided into separate plots which hold varied amounts of trees at full maturity with plenty of room to grow and breathe. Would all of this time, money, and hard work be worth it? Considering these trees would be providing oxygen for the air people breathe, homes, protection, and food for animals in the area, and prevention of erosion into the river; this idea is only making a small dent in the enormous need for reforestation but a dent much needed.



After the quantitative analysis was done, each plot holds a substantial amount of trees.
 Plot 1- 18,705 trees
 Plot 2- 8,700 trees
 Plot 3- 9,570 trees
 Plot 4- 13,920 trees
 Plot 5- 7,830 trees
 Plot 6- 10,440 trees
 This accumulates to 69,165 trees which equates to about 70 acres of pure forest area.



Name	acres	Trees_1
Plot 1	43	18705
Plot 2	20	8700
Plot 6	24	10440
Plot 5	18	7830
Plot 4	32	13920
Plot 3	22	9570