

Atlantic-White Cedar: Here & Now

Aiken Gopher Tortoise Heritage Preserve, Aiken County, SC

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Introduction

On 02 October 2002, Johnny Stowe et al (2004) and a group of workers hand-planted roughly 6,000 Atlantic white-cedar (*Chamaecyparis thyoides*; AWC) seedlings in a recently drained, 10-acre man-made impoundment along Spring Branch, a first order blackwater stream on Aiken Gopher Tortoise Heritage Preserve (AGTHP) and Wildlife Mangement Area (WMA) in Aiken County, South Carolina (Figures 1 & 2). The seedlings had been grown for one year in Ropak Multi-Pots (6 cubic inch cell) and a second year in Anderson bands (3 x 3 x 9 inches). This project sought to restore ecosystem integrity by restoring “natural” (1) processes (e.g. streamflow), (2) species composition (AWC plus other native wetland species), and (3) structure (AWC, pocosin, and bog vegetation grading upslope to frequently burned longleaf pine (*Pinus palustris*)—wiregrass (*Aristida stricta*) ecotype).

The AWC monitoring will continue on a regular basis, and they will be measured on a 5-year cycle. Since the initial planting in 2002 many trees have grown to a height of 20+ feet and have diameters ranging from 2 to 4 inches.

The American beaver (*Castor canadensis*) has been allowed to resume its natural function in this unique ecosystem by establishing a network of beaver dams and lodges (photos below). Even though some of the original AWC that were planted have been negatively influenced—stunted growth or death—by beaver-induced flooding, a majority of the AWC have not been affected. Moreover, the permanently flooded area and restored stream act as a transport corridor for the seeds produced by the viable AWC that have survived.



Johnny Stowe 2004 Jimmy Sizemore 2004



AWC & Brett M. Moule April 2009



Johnny Stowe & Gee Atkinson 2004



AWC & Brett M. Moule April 2009

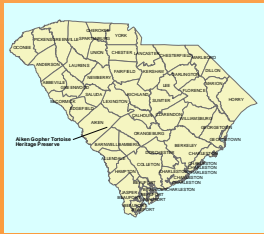


Figure 1: South Carolina State Map



Figure 2: AGTHP

Experiment

To determine if temporal variation in planting date affected seedling survival and growth, 120 AWC seedlings were planted in mid-September, -October, -November, and -December (Figure 3). This study continued until July 2006 when it was determined that there was no residual effect from initial planting date (Table 1). However, the data gathered to that point indicated that initial height when planted was significantly less for plants that were planted in September, the total height was similar for all treatments, and total growth since planting was greatest for the September planting date. There was no difference in growth between the rows, probably because the rows were so close together.

Step 1: Processes

Even though one of the first steps should have been to remove the existing man-made dams and restore the natural stream flow along Spring Branch, several thousand AWC became available in 2002. Consequently, the stream restoration had to be delayed. In 2007, the man-made dams were removed and the slopes were returned to their natural grade (photos below).

Step 2 & 3: Species Composition & Structure

In the Southeast, AWC usually grows within the once extensive longleaf pine ecosystems that dominated the Coastal Plain from VA to TX. It is not only important to focus on the forest type, but it is critical to focus on the individual species that make up the forest. Trumpet pitcher plants (*Sarracenia flava*) and other aquatic vegetation thrive in many AWC swamps, whereas sandhills milkvetch (*Astragalus michauxii*) and Oak Ridge lupine (*Lupinus diffusus*) can be found in the upland xeric longleaf ecosystem (photos below).



Figure 3: Brett M. Moule & AWC 2005

Table 1. Growth of Atlantic white cedar planted on various dates in the fall of 2002, Aiken Gopher Tortoise Heritage Preserve, South Carolina. Measured 12 July 2006.

Planting Date	No. trees	Initial Height (in)	Height 12 July 06 (in)	Growth (in)
Sept	30	18.8	196	87
Oct	30	21.1	198	77
Nov	30	22.2	194	67
Dec	30	21.2	196	65
Sept vs Oct	ns	ns	ns	**
Sept vs Nov	ns	ns	ns	ns
Sept vs Dec	ns	ns	ns	ns

NS, ** Non-significant or significant at P<0.05 or 0.01, respectively.

Literature Cited

Stowe, J., E. Hinesley, M. Wicker, J. Dozier, and J. Sizemore. 2004. Atlantic white-cedar: Disappearing blackwater treasures. Poster presented at Southeastern Assoc. of Fish and Wildlife Agencies. Annu. Meeting, 30 Oct -03 Nov 2004. Hilton Head Island, SC.