

# RESTORATION OF *ARUNDINARIA GIGANTEA* (RIVERCANE) TO THE OCONOLUFTEE RIVER FLOODPLAIN, CHEROKEE, NC

Western  
Carolina  
UNIVERSITY



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## INTRODUCTION

Rivercane (*Arundinaria gigantea*) is a bamboo native to the United States. For millennia, Native American tribes of the southeastern US have used native rivercane for basketry and other purposes. The loss of large, monotypic stands of rivercane, called cane brakes, gained attention in the scientific community with Noss' publication (1995) while the plant's cultural importance has been reinvigorated by the Revitalization of Traditional Cherokee Artisan Resources Program (RT-CAR) funded by the Eastern Band of Cherokee Indian (EBCI). Recent efforts by the Eastern Band of Cherokee Indians (EBCI) to revitalize traditional arts and crafts have resulted in major research effort into the ecology and restoration of cane. Starting in March, 2005, a GIS database of 45 local sites with plant characteristics such as height and diameter (Table 1) was developed and shared with EBCI planners (Bugden-Storie, 2005).

Successive research at 20 sites identified the variability of site and soil parameters controlling the distribution of rivercane in southwestern North Carolina. These parameters included soil bulk density, nutrient levels, saturated hydraulic conductivity, particle size, total CNS, pH, site area, elevation, slope, and associated species. One important conclusion of these studies is that, while rivercane is often listed as a wetland plant, in the areas studied, it is clearly not inhabiting hydric soils (see Griffith et al. 2009).



Table 1: Rivercane site and plant characteristics

	Mean	Range
Culm diameter	1.5 cm	1.0-2.36 cm
Height	3.8 m	2.5-7 m
Area of brake	0.56 acres	0.001-2.89 acres
	2255m <sup>2</sup>	42.5-11690 m <sup>2</sup>
Elevation	593 m	500-683 m
	1944 ft	1640-2240 ft
Soil types	Sandy to sandy loam, various	
Slope	0-5 degrees slope	
Associated species	<i>Lonicera japonica</i> (honeysuckle) <i>Rosa multiflora</i> <i>Juglans nigra</i> (black walnut) <i>Planatus occidentalis</i> (sycamore) <i>Impatiens capensis</i> (jewelweed)	



Doubleweave Fish Basket of rivercane dyed with butternut and bloodroot made by Ramona Lossiah. Approximately 5.5" H x 4.25" W x 6.5" L.

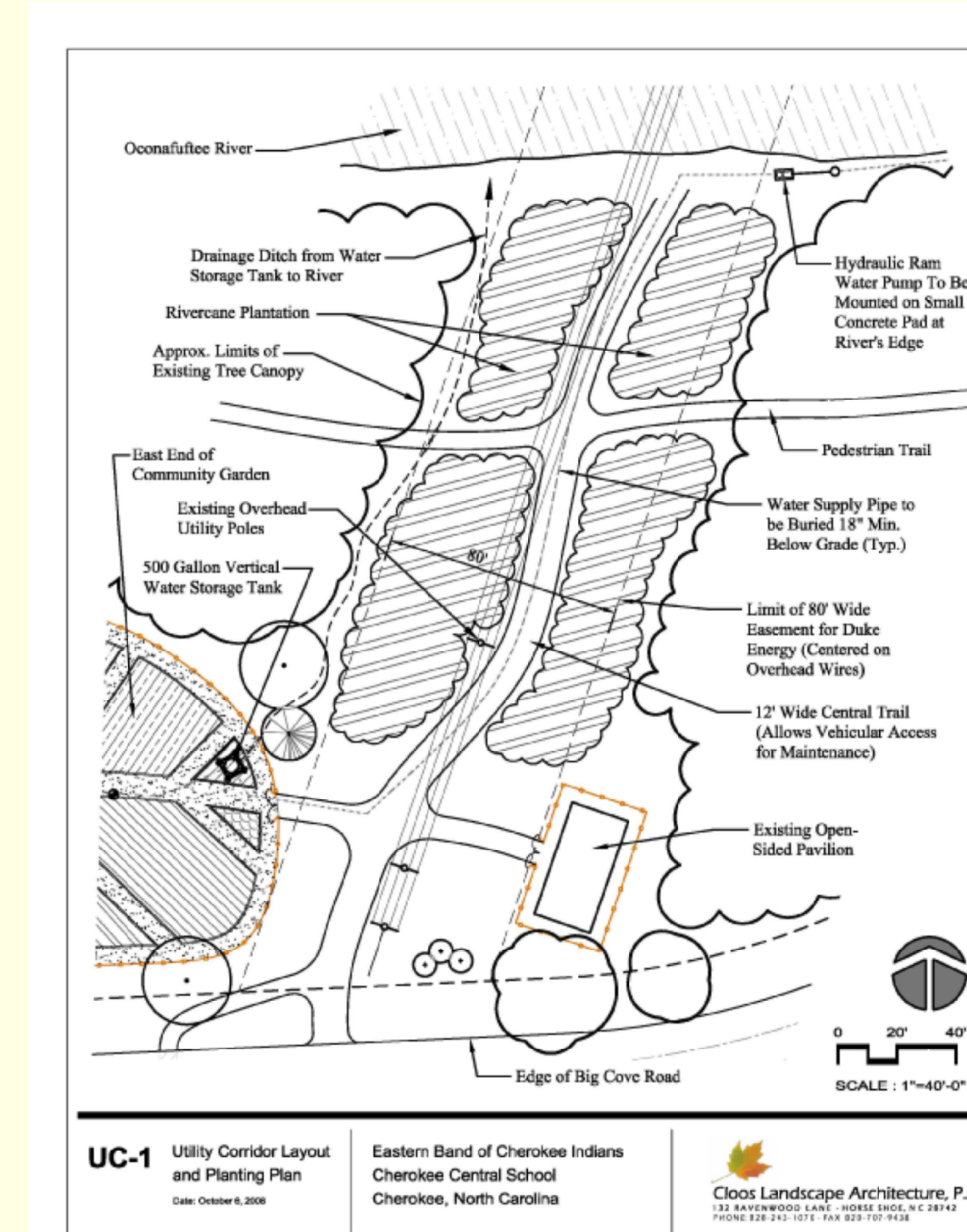


Rivercane basket dyed with bloodroot by Roberta Walkingstick. Approximately 9.75" H x 7" D.

## PROJECT DESCRIPTION

Information and data gathered from 2005 - 2009 has guided the planning and establishment of pilot restoration plots of rivercane on tribal land at the campus of Cherokee Central Schools. To reduce the likelihood of hydric soil formation, the site elevation was raised 40-45 cm with a mixture of 40% sand, 40% top-soil, and 20% mulch. The 700 cubic meters of amended soil increases infiltration rate, reduces bulk density, and provides nutrients to the restored rivercane.

Nearby "donor" stands of rivercane have provided material for transplanting, the preferred method of restoration since seed production is infrequent and unreliable. Soil moisture levels and plant characteristics will be monitored jointly by students at Cherokee Central Schools and Western Carolina University, creating a unique opportunity for educational collaboration. Student researchers will maintain a shallow water table underneath an experimental plot within the transplant area to examine the hypothesis that rivercane does not grow well in wetland soils.



Plans by landscape architect Greg Cloos provide ample room for expansion of the rivercane onto the floodplain while maintaining access to the power lines overhead.



Before construction began, the site was rich with non-natives and even a few wetland species.



Road construction underway to secure the right-of-way under the power lines.



Site preparations are completed very close to the specifications of the landscape architect.

## BY THE NUMBERS

23 volunteers  
200 hours of labor  
40 culms planted  
30 linear feet of rhizomes



Note the length of the plants in the photo at left. A trailer was used for transport and plants wrapped in tarps for protection.

## FUTURE PLANS

Transplanting activity will resume in March, 2011. Future goals for the Cherokee restoration are:  
- 100 volunteers  
- 1000 volunteer hours  
- 5 donor sites

The nearby town of Dillsboro, NC is another possible restoration location. A recent \$500,000 dam removal project on the Tuckaseegee river has generated interest as a restoration site for rivercane.



WCU and EBCI volunteers provide muscle to make the project a success.

## WORKS CITED

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This large dam removal project has produced ideal restoration sites for rivercane previously covered by water.



The dense network of rhizomes and roots make the transplanting very labor intensive.

## ACKNOWLEDGMENTS

Funding provided by the Eastern Band of Cherokee Indian through Revitalization of Traditional Cherokee Artisan Resources Program  
WCU student and staff volunteers  
EBCI volunteers  
Katie McDowell for presentation support  
David Cozzo