

Five Year Survival and Growth of Willow Oak and American Sycamore
for Wetland Restoration in the Virginia Piedmont as Influenced by Site
Preparation, Planting Aids, and Planting Stock

Project Update for Wetlands Studies and Solutions, Inc.

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Introduction:

Wetlands are valued resources that are necessary for maintaining water quality, providing essential wildlife habitat and forage areas, and provide ecosystem services to many threatened and endangered species, yet over 50% of US wetlands have been converted to non-wetlands. Compensatory wetland mitigation has become the primary method to minimize the loss of wetland systems by providing an in-kind replacement for wetlands lost to upland conversion. While construction techniques have been refined as a result of an increase in compensatory wetland construction, compensatory wetlands that provide the same functions and values of natural systems have been difficult to establish.

Project Goal:

Our goal was to compare five site preparation techniques, four planting stocks, and three planting aids on the survival and growth of two species commonly used on mitigation sites of the southeastern US Piedmont, the pioneer species *Platanus occidentalis* and the hard mast producer *Quercus phellos*.

Preliminary Results after Five Years:

Woody species survival has been one of the major challenges in creating functioning forested wetland systems. Overall survival for *P. occidentalis* was 67%, while *Q. phellos* survival was 63%. Survival for *P. occidentalis* were highest in **Flat/Disk, Mound, and Rip** treatments, while *Q. phellos* were highest in the **Mound, Bed, and Rip** treatments (**Figure 1**).

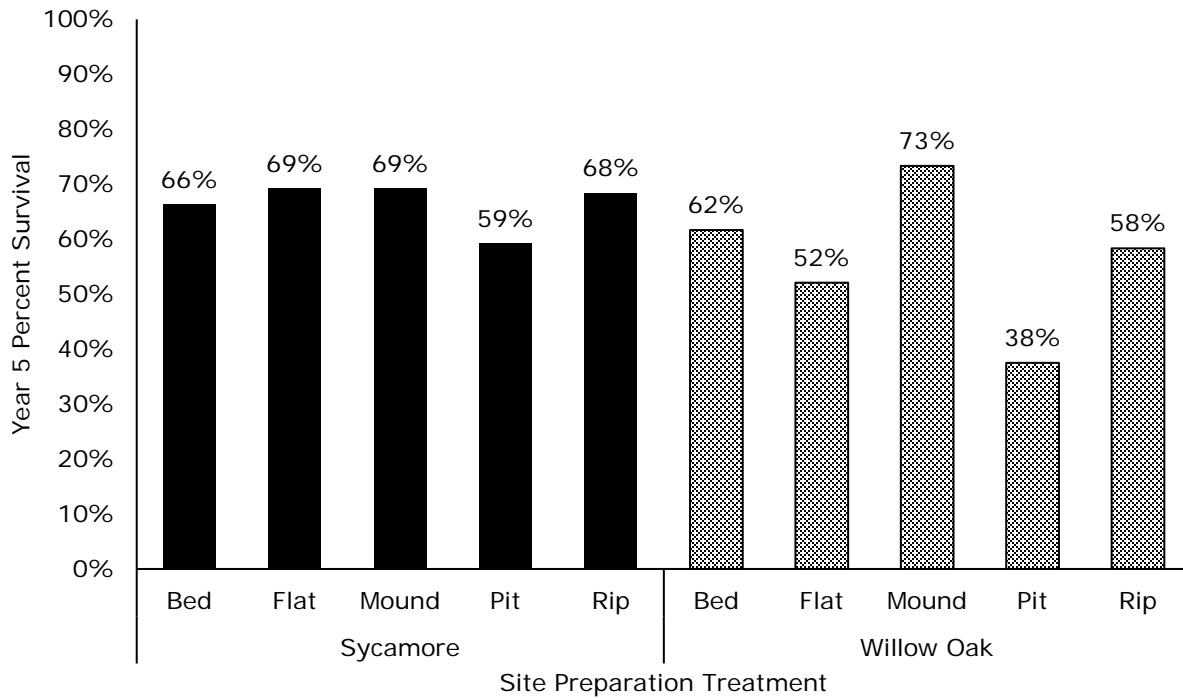


Figure 1. Year 5 survival by site preparation type for Sycamore (*P. occidentalis*) and Willow Oak (*Q. phellos*).

All seedlings had the best vertical growth on the **Mound** site preparation treatment. *P. occidentalis* growth was lowest on the **Flat** site treatment, while the **Pit** treatment had the lowest vertical growth for *Q. phellos* (**Figure 2**).

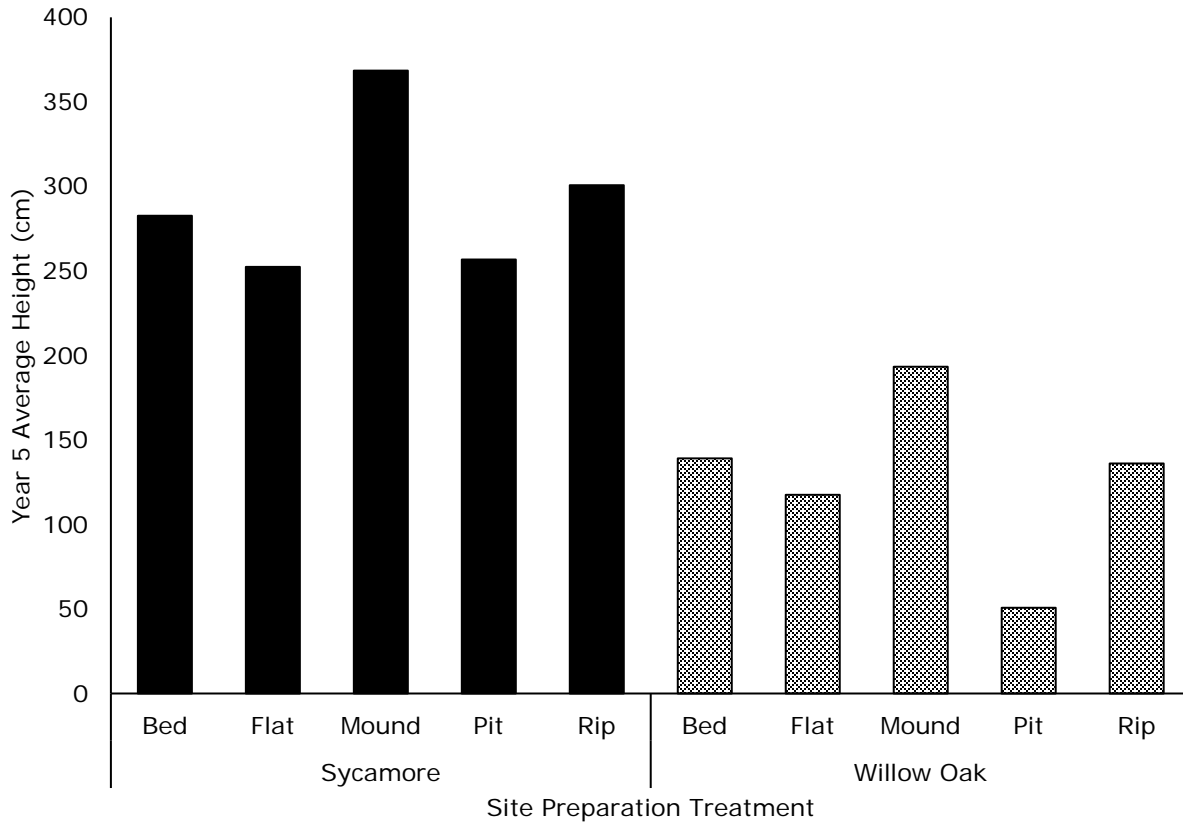


Figure 2. Year 5 height (cm) by site preparation type for Sycamore (*P. occidentalis*) and Willow Oak (*Q. phellos*).

Conclusions:

Based upon these preliminary results, the use of mounding or bedding may increase survival and growth within Piedmont mitigation sites. Further analysis to determine the effects of seedling type, planting aids, and the interaction effects with site preparation treatments on survival and growth will provide further direction in determining the most viable methods to increase survival and growth of woody species planted on compensatory mitigation sites.