

A FIELD-BASED FORUM WITH EXPERTS AND  
PRACTITIONERS ACROSS THE SOUTH

NOVEMBER 2018

# BOTTOMLAND HARDWOOD LEARNING EXCHANGE



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*Forest Stewards*  
 **Guild**  
*putting the forest first*





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# INTRODUCTION

Southeastern bottomland hardwood forests provision critically important, and highly valued, ecosystem services including biodiversity, flood protection, carbon storage, recreation, and clean/clear water. Land conversion, ditching, heavy bedding/ furrowing, development, fragmentation, and narrowly-focused forest management threaten their ability to sustain flows of such integral ecosystem services long-term. Responsible forest management of bottomland forests can be done in ways that maintain or enhance their ecological integrity and stability, while simultaneously generating income and supplying wood products.

In the Atlantic Coastal Plain (ACP), clearcut harvests are commonly used to regenerate stands because of the shade tolerance of desired tree species, the flooding regime of the coastal plain, and limited availability of harvesting equipment that is economically feasible to operate in wet forest

stands. In the Lower Mississippi Alluvial Valley (LMAV), intermediate treatments (e.g., thinning) and selection system silviculture (e.g., group selection) are more common and economically attractive than in the ACP. This is partially due to differences in the silvics of tree species, increased value on forest structure and wildlife, and the availability of different harvesting equipment.

“Going into this my idea of looking at the landscape was to preserve everything along streams and leave it the way it is, but I hadn't thought too much about management to improve the forest. That is something that is going to change my thinking on the issues we focus on.

- Laura Early, Satilla  
Riverkeepers

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In November 2018, the Forest Stewards Guild brought together experts from the ACP and LMAV in Brunswick, Georgia to compare these two geographies based on social, ecological, and economic factors. We emphasized the connection between forestry and hydrology, and how responsible forest management can play an integral role in conserving the whole system on a watershed-level. The learning exchange brought together 29 participants from across the South with a wide

range of expertise. Through this event, we helped improve the management and conservation of bottomland forests and illustrated opportunities to meet diverse social values. The learning exchange built on our publication “Ecological Forestry Practices for Bottomland Hardwood Forests of the Southeastern U.S.” and participation in the Wetland Forest Initiative. This summary provides a background on the event, a synthesis of outcomes, and highlights the major takeaway ideas.

## DAY 1: ALTAMAHA RIVER FLOODPLAIN

The first day of the outdoor sessions consisted of visiting floodplain sites owned by the Georgia Department of Natural Resources (GADNR) along the Altamaha River. The Altamaha is a major stream valley originating at the confluence of the Oconee River and Ocmulgee River in Georgia and draining into the Atlantic Ocean near Brunswick, Georgia. Originating in the Southern Piedmont, the Altamaha River is a red river bottom system. A red river bottom is the floodplain of a major drainage system originating in the Piedmont or Mountains.





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# SANSAVILLA WILDLIFE MANAGEMENT AREA

The first field stop was at the Sansavilla Wildlife Management Area (WMA) where participants visited a non-tidal bottomland hardwood forest in the late stem exclusion phase of stand development. The site was likely selectively logged approximately 50 to 60 years ago and is currently well-stocked with species such as elm, ash, sugarberry, sweetgum, red oaks, and white oaks. The ecology of these sites was also impacted by an influx in sedimentation pre-1915 from the Cotton Farming Era of Georgia and by modifications to upstream hydrology.

While GADNR is not planning any commercial harvesting of these sites in the near-term, the field trip hosts asked participants to consider various forest management options as a learning opportunity. Participants characterized the site by considering topographic position, determined which trees species were most desirable to promote, and develop a management recommendation that mimics natural disturbance to promote the desired species. Through careful observation and deduction, participants agreed that the forest had not yet reached financial or biological maturity and was therefore not ready for a regeneration treatment. The whole group .



discussed opportunities for intermediate treatments to enhance forest health and improve wildlife habitat. A key topic was tradeoffs between preservation and active forest management. Participants generally agreed that poor market access would make it difficult to accomplish a quality thinning operation on this site, but that the site could benefit from non-commercial forest stand improvement or release treatments. Improved access to wood product markets was promoted as an opportunity to perform a commercial harvest to enhance the forest conditions but was also criticized as an incentive to harvest bottomland forests unsustainably.

“ You need a market to remove the trees that need to be removed for the ecology. You've got to have a market to achieve desired goals.

-- Jeff Denman



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# ALTAMA PLANTATION WILDLIFE MANAGEMENT AREA



The second stop was at Altama Plantation WMA's freshwater tidal forests and marsh. This area is made up of former rice impoundments, dating back to the early 1800s. They were likely abandoned around 1900 and are succeeding back to tidal hardwoods. Around 2,000 acres in total, the dikes and ditches persist on the landscape, affecting hydrology and slowing the forest succession process. The dikes disrupt surface water flow and increase inundation on certain sites over prolonged periods, resulting in novel freshwater marsh ecosystems and arrested forest succession.

At the Altama Plantation WMA, the field trip hosts asked participants to consider the possible historic flood pattern of the forest and determine which hydrologic restoration options, if any, would be desired and feasible. The options ranged from more passive approaches such as plugging

ditches, removing tiles, and altering dikes, to more intensive earthmoving activities to restore surface microtopography. The CADNR has decided not to act to restore historic hydrologic flow of this area due to limited resources, the unique habitat provided by the inland freshwater marshes formed by the rice impoundments, and the fact that many of the site's dikes are already breached. The group consented that there are many challenges to hydrologic restoration and that a more passive approach is often the most feasible option. The group suggested that mechanically breaching dikes with small equipment selectively on such sites could be a low-cost, high-benefit option. This sort of insight is a good example of the creative, constructive discussions participants had throughout the day.

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## DAY 2: SATILLA RIVER FLOODPLAIN:

The second day of the outdoor session consisted of visiting floodplain sites along the Satilla River. The Satilla is a large blackwater river (a floodplain of major water system originating in the Coastal Plain) that originates near the town of Fitzgerald, Georgia and drains into the Atlantic Ocean 10 miles south of Brunswick. Unlike the Altamaha River Basin, which has been conserved primarily through public land acquisition, properties along the Satilla River have been conserved primarily through private land protection and conservation easements.



## COFFEE COUNTY CLUB

Participants visited a private forestland with a working forest conservation easement, allowing for timber harvesting on the flats but not in the sloughs. The flats are currently dominated by sixth or seventh growth pine, and the sloughs consist of second growth hardwoods and cypress. The hosts asked participants to consider the diverse goals of family forest landowners and assess forest management options on the flatwood sites.

“Because all pots of money are limited, understanding what outcomes you want further downstream as well as onsite is important. The priorities you can do on this patch of land are important to the owners, but there are other scales that are important to think about.

- Gordon Rogers,  
Flint Riverkeeper (cohost)





Participants identified constraints to forest management such as poor soil productivity and low site index, pine seedling mortality from flooding, lack of commercial viability of timber harvesting on small acreages, and hydrologic alterations from previous bedding for the pine plantation. They suggested possible opportunities to enhance the site including mechanically knocking down beds to improve cross-flow, enrichment planting desirable hardwood species in open areas, forest stand improvement and release treatments, and thinning the stand once trees reach commercial viability. A more active approach to restoration



could include mechanical or chemical site preparation, prescribed burning, or creating dikes to flood the area to kill existing vegetation and restart the successional process. However, taking a more intensive approach is not the most financially efficient option and may only be appropriate for those with money to spend and explicit interest in creating a pond for duck hunting. Additionally, engaging family forest landowners on a community, watershed-level requires providing options that are cost-effective, as not all members of the community can afford to invest in forest restoration.



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# BUFFALO RIVER ESTUARY



Climate change predictions for this region suggest an increase in catastrophic storms and sea-level rise. Participants visited a site along the Buffalo River where mature hardwoods have succumbed to mortality from increased salination and salt marsh intrusion. This is likely being caused by a combination of sea-level rise and draining adjacent wetlands. Adaptation, in the context of forest management, is action intended to enhance the ability of ecosystems to adapt to climate change and its effects. Adaptation includes a wide variety of actions that complement the sustainable management, conservation, and restoration of forests and help to maintain ecosystem integrity and environmental benefits

Considering the various climate adaptation options of resistance, resilience, and transition, participants assessed the site along the Buffalo River and made



recommendations. Resistance could include increasing freshwater inputs from upland wetlands to flush salt out of rivers or removing straight channels that facilitate saltwater flow straight into a river system. Incorporating resilience into a tidal bottomland hardwood forest could include planting salt-tolerant cypress trees. While incorporating resilience into the system could be valuable, the rate of change in some coastal areas and increased marsh encroachment into tidal bottomland forests is happening so quickly that facilitating transition may be the only option. Transition in such dynamic ecosystems could include managing forests upstream now to promote species you know will be lost by increased salination downstream. However, bottomland hardwood trees are not salt tolerant, so there are few options of tree species to promote that are adapted to future conditions.



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## MAJOR TAKEAWAYS

- Increased access to wood product markets must be coupled with good silviculture and a well-trained forester to achieve positive environmental impact.
- While preservation is sometimes the best option for maintaining the ecological integrity of bottomland hardwood forests, taking a hand-off approach may not accomplish various landowner goals (e.g., wildlife habitat improvement).
- Hydrologic restoration can often be cost prohibitive and a more passive approach is generally recommended.
- Restoring sites to historic hydrologic flow is sometimes not the most desirable given landscape-level objectives for freshwater marsh habitat.
- The decision not to actively manage an area is sometimes the best option for achieving landowner goals.



## SYNTHESIS

The learning exchanged provoked great discussions in the fields and even “experts” came away with new ideas. For some participants coming from a land preservation background, the learning exchange increased appreciation for the role ecological forest management in enhancing environmental values.

It was important to have participants from different regions and the learning exchange increased understanding the

similarities and differences in bottomland hardwood forests in the LMAV and ACP. Ecological conservation and management in the ACP face a number of limitations including the lack of markets, hunting lease opportunities, landowner awareness, low-impact harvesting equipment, forester training, and sites demonstrating ecological management. Site productivity can also limit options for bottomland hardwoods in the ACP.

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Even with these differences, the idea of 'wildlife forestry' resonated in both regions. The learning exchange helps highlight the recreational value of lowlands streams and the potential recreational value of bottomlands. All participants saw the connections between seemingly separate land management actions throughout an entire watershed. The Buffalo River site underscored a concern for many coastal forests: sea-level rise and salinization.

The learning exchange catalyzed collaborations between participants and laid the groundwork for continued exchange between the regions. One participant asked toward the end "when is the next one?" – highlighting the need to continue talking and learning about these unique ecosystems.



**HEADQUARTERS:**  
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[WWW.FORESTSTEWARDSGUILD.ORG](http://WWW.FORESTSTEWARDSGUILD.ORG)

The Forest Stewards Guild practices and promotes ecologically, economically, and socially responsible forestry as a means of sustaining the integrity of forest ecosystems and the human communities dependent on them. The Southwest Region of the Forest Stewards Guild promotes excellence in forest stewardship by working with partners, youth, forest workers, wildland fire professionals, and landowners to promote a sustainable forest-based economy and resilient forests, communities, and watersheds.

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