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Natural Resources Management Opportunities for Community Lands On Bull Point Plantation

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Introduction

Folk Land Management, LLC was asked by the Bull Point POA to conduct a natural resources assessment of community (Common) owned lands on Bull Point and suggest management opportunities to optimize habitat and wildlife diversity across these lands. The management suggestions proposed in this report are based on the inputs from multiple wildlife professionals who have numerous years of experience managing natural resources in the South Carolina Lowcountry.

I want to especially thank the members of the Wildlife Committee, Sustainability Committee, and Board of Directors for their willingness to meet with me, answer my questions, and provide their ideas and insight for the natural resources on Bull Point. My time on Bull Point was very enjoyable.

Historical Information

Much of the information presented in this section is taken from the document New South Associates Technical Report 256 by D.T. Elliott and J.S. Cable (1994) titled: Cultural Resources survey of the Bull Point Tract, Beaufort County, South Carolina. This report provides historical background information for Bull Point prior to residential development.

Before Bull Point was settled by Europeans, Native Americans occupied these lands. Occupation by the Yemassee Indians was confirmed by the discovery of a Yemassee Indian camp site on the southern tip of Bull Point (DePratter 1992). Analysis of artifacts suggests the Yemassee used Bull Point over a wide span of time dating from the late Archaic period (5,000 to 3,000 years ago) to the early eighteenth century (Elliott and Cable 1994). Other artifacts show Euro-American occupation starting in the mid to late nineteenth century. During the archaeological searches, no evidence was found to suggest any substantial buildings were constructed on site leading to the conclusion that Euro-American occupation was limited to more temporary structures used perhaps by slaves or tenants (Elliott and Cable 1994).

The Bull Point tract, also referred to as Huspa Neck in some historical literature, is a large, about 700 acre, inland peninsula that measures approximately 4 miles north-south by 1 mile East - West (Elliott, D.T. and Cable, J. S. 1994). Elevations range from 6 feet above mean sea level (amsl) to slightly more than 26 feet amsl on the northern end. The margin of the landform is well defined by a prominent bluff that rises more than 15 feet from the waterline on the eastern, southern, and southwestern sides. Soils at the bluff margin are generally well drained and favorable for human habitation. On the northwestern side, the land gradually slopes to the marsh edge and soils in this area are poorly drained. A large 13 acre lake (Lake Bellinger) was constructed in 1994 on the interior of the landform and fill from this activity was used by the South Carolina Department of Highways and Public Transportation (SCDHPT) as construction material on U.S. 17/U.S.21.

A survey plat of the area, drawn in 1735, contains species identifications of several boundary trees on the tract. These identifications provide some clues to the eighteenth century forest cover. The trees are all located along the edge of the landform and include, by order of frequency: Live Oak (10), Cedar (4), Pine (3), White Oak (2), Water Oak (2), Elm (2), Red Oak (1), Cypress 0), Willow (1), Hickory (1), and Swamp Willow (1). These data suggest the original forest cover was a mixed hardwood and conifer forest dominated by Live Oak with a variety of other trees that range from species found in poorly drained soil (Swamp Willow) to those found on well drained lands (Hickory). Aerial photos dating back to 1950s suggests Bull

Point has been mostly covered by a pine/hardwood forest through recent time and was not cleared for farming or other activities (Fig 1-3).

Current Resources

The common lands or the lands owned by the Bull Point Property Owners Association (BPPOA) are shown in Fig. 4. The largest forested stands are: Bird Sanctuary (27 ac), Stand 1 (17 ac), which includes the maintenance facilities, and stand 2 (15 ac). The other forest stands range from 6 to 0.6 acres. Other common lands include the Club House, Magnolia Island, and Bull Point Park. These properties support various structures and constructed facilities used by owners for recreational and meeting activities.

Because of its size, the Bird Sanctuary has the greatest opportunity to enhance habitat diversity and wildlife abundance. A raised road which makes a long loop within the Sanctuary has been constructed to encourage exploration by owners. The elevation of this stand is low and ranges from 5 to 10 feet above sea level.

The tree canopy within the Sanctuary is well developed and allows only small pockets of sunlight to reach the forest floor. This canopy is composed of a mix of various hardwood species and loblolly pine trees. An inventory of the stand in 2025 using 8, 66 ft. diameter, randomly located plots and measuring all woody stems >= 1 inch in diameter, indicated an overall plant composition of 25% Sweet Gum, 14% Loblolly Pine, 12% Water Oak, 9% Chinese Tallow, 9% Privet, 8% Wax Myrtle, and 6% Live Oak (Table 1).

A timber inventory using a 10-factor prism to measure basal area was also conducted from the center of these 8 plots. Basal area is the cross-sectional area (square feet) of tree trunks at about 4.5 ft. above ground. The probably of a tree being included in this survey is directly related to its trunk diameter; therefore, smaller understory trees are less likely to be included and larger overstory trees more likely to be counted. Using this measurement, the forest composition is 33% Loblolly Pine, 19% Sweet Gum, 12% Live Oak, and 12% Water oak (Table 2). Average diameter of overstory trees were: Live oaks 20 inch, Loblolly Pine 18 inch, Water Oak 12.5 inch, and Sweet Gum 9 inch (Table 1). The largest Live Oak measured was 38 inches in diameter, and the largest Loblolly Pine was 25 inches.

While numerous Live Oaks are present, their canopies tend to be below the taller loblolly pines and other trees. This higher canopy is suppressing the Live Oaks causing the suppressed trees to produce long lateral stems in attempts to find canopy openings and sunlight (Fig. 5). This higher canopy appears to be suppressing Live Oaks from achieving full development.

The high density of smaller woody stems in the understory produces a wall of vegetation which limits viewing opportunities for anyone traveling through the Sanctuary (Fig. 6). These smaller stems include loblolly pine seedlings, sweet gum, and a variety of oak species which over time will grow and further increase competition for the Live Oaks and other desirable trees. The woody understory also consists of invasive species such as Chinese Tallow and Privet. These are very undesirable trees because they are non-native and are known to spread rapidly and exclude more desirable native species.

Members of the Wildlife Committee recall that around 8 years ago most of this understory was removed mechanically by having a machine mow down the smaller stems. The resulting open view scape was enjoyed by the owners. However, because no follow-up

treatments were implemented to manage new woody growth, the dense understory has redeveloped.

The interior of the Bird Sanctuary captures stormwater runoff from various parts of Bull Point and overflow from Bellinger Lake. Thus, water depth within the Sanctuary can fluctuate from dry to several inches depending on the amount and frequency of rainfall. On the lower end of the Sanctuary are several pipes install underneath the raised roadbed which allow water to flow to the marsh. At least 3 of these pipes have a cement structure attached to its opening facing into the Sanctuary (Fig. 7). The purpose of these structures is not fully understood, but may have been part of what was once a flashboard riser water control mechanism. Flashboard risers are common structures used in managing water levels in impoundments throughout the region. The riser is designed to regulate the flow of water out of an impoundment and therefore used to manage water depth within the impoundment or in this case the Sanctuary. By stacking boards atop each other in the flash board riser, water depth within the Sanctuary has to rise above the height of the top board before flowing out. Therefore, if a 6 inch high board is placed in the riser, water depth at the riser will increase to 6 inches before excess water can flow out. If a second 6 inch board is place on top of the first board, the water depth would be maintained at 12 inches. The capacity to manage and hold water depth could increase habitat diversity and opportunities to attract wildlife such as resident and migratory birds to the Sanctuary.

Stands 1 and 2 are the next largest tracts and they are strategically located at the entrance to Bull Point putting them within viewing range of all entering traffic. A basal area inventory of Stand 1 indicated this stand is comprised of densely spaced loblolly pine and various oak species (Fig. 8). The average stand basal area is 143 sq. ft. with loblolly pine comprising 58% of the BA, Oaks 34%, and Sweet Gum 8% (Table 3). Moving through the stand from east to west the stand transitions from a mostly pine overstory to a mostly hardwood overstory. On its western edge near the maintenance shed there is a wetland depression which should be cleaned of debris and managed as an ephemeral wetland.

These 2 stands also serve as a noise and visual barrier to Hwy 21/17. Another important consideration for these 2 stands is their potential role as a buffer to wild fires which might start along Hwy 21 due to cigarettes being tossed from passing vehicles or vehicular accidents which may start a fire. Therefore, management considerations for these stands should include actions that would reduce their fire fuels loads and enhances their function as a buffer to wild fires.

The remaining stands in common ownership are small in size and typically surrounded by residential lots. These stands provide visual buffers between adjacent private properties and have not been managed to achieve other objectives. In general, they have dense canopies and dense woody ground cover which might limit their use by owners. There are management opportunities for these stands but achieving these opportunities may reduce the effectiveness of these stands as noise and visual barriers between properties. Further, their management would require a commitment to sustaining management activities over time. Otherwise, these stands will redevelop their overstory canopy and dense understory.

One stand which offers a unique management opportunity is Stand 5. Much of this stand is dominated by an ephemeral wetland which can hold several inches of water from rainwater runoff. Several large trees recently fell into the wetland during a tropical storm (Fig 8). These types of wetlands, although temporary, are vital breeding habitats for reptile

and amphibian species and often support diverse and unusual plant communities while filtering out pollutants in the water. The frogs, salamanders, and insects which use this wetland may not always be noticeable, but they are all critical components of the Lowcountry ecosystem. The upper edges of this stand contain mixed loblolly pine and hardwood tree species. There is a trail along the northern side of this stand which provides public access between Bull Point Dr. and Lake Bellinger (Fig. 9).

Stand 6 is small in size, but within this stand is thought to be an old family cemetery. Unfortunately, the precise gravesite locations and number are difficult to pinpoint on the ground because the headstones are missing. Identifying the grave sites needs to be a priority and their locations marked for preservation.

Stand 7 is separated from stand 6 by a residential lot. Stand 7 contains a road which provides access to the public boat ramp and dock. There are a limited number of vehicle and boat trailer parking spaces on this site. Additional spaces could possibly be added in Stand 6.

Magnolia Island is approximately 5.5 acres in size and is accessed via a wooden pier wide enough for small motorized carts to travel over. It is used for public gatherings and has a fishing and boat dock. Some erosion is occurring along its eastern edge. Numerous trees close to the marsh have died due to exposure to salinity during very high tides. These high tides and storm flows have deposited a considerable amount of dead marsh grass along the island's shoreline.

Club House and William Bull Park provide developed recreational opportunities for owners including a swimming pool, tennis courts, and buildings for meeting and entertainment. William Bull Park is located on the southern tip of Bull Point and its borders with the marsh have experienced significant erosion from recent high tides and storms. An engineering firm has been hired to develop options to protect this area from further erosion.

With an expected increase in the number of owners in the next few years, recreational facilities such as the pool, tennis courts, and other facilities may need to be enlarged at the Club House site. Currently, there is a border of mixed loblolly pine and hardwood trees along the eastern side of this site bordering Bull Point Drive. This woodland provides opportunities for management and increasing habitat diversity for the community.

Besides Bellinger Lake, 2 additional but smaller lakes, Izard and Pocotaligo have been created. The common lands surrounding these lakes border the shoreline, are narrow in width, and typically mowed regularly.

Natural Resources Management Recommendations

Most of the management opportunities in this report will focus on diversifying the extensive forest habitats and creating additional outdoor opportunities for the owners. Because so much of Bull Point is covered by a dense, forest canopy with a thick understory, most of my recommendations focus on establishing lands with open canopies which allows sunlight to reach the ground floor which will encourage more grasses and herbaceous species to flourish. These open areas will also enhance viewing opportunities as the owners travel through Bull Point.

Establishing open habitats will require the use of a combination of mechanical, chemical, and prescribed fire treatments. These treatments will be used in a sequence which may take several years to fully implement. Once the desired habitat structure is established, it is expected prescribed burning on a 2-3 year cycle will be the principle management practice used to sustain these habitats. However, occasional reapplication of mechanical and chemical treatments should be expected.

Fire was a frequent and natural component historically in this landscape and many of the plants and animals common to this region are adapted to a fire regime. Therefore, a commitment to sustaining a prescribed burning program is encouraged. Because of the high fuel loads currently existing throughout Bull Point, the first 2-3 burns will be the most challenging. Once the heavy fuel loads have been reduced, a burning frequency is established, and well developed fire lines are in place, the prescribed burns should become more routine to implement.

The successful use of prescribed burning on these sites will help educate owners on how fire can be used safely and why fire is a critical component of the local ecology. This educational process should lead to owners becoming more understanding and aware of the threats from high fuel loads around their homes and perhaps more willing to implement fire-wise safety practices on their own property.

Besides using fire to create and sustain diverse habitats, one important objective of this management is to establish permanent fire lines and forest stands with reduced fire fuel loads along the junction of Bull Point with Highway 17/21 and in other interior locations. The purpose of these activities is to reduce the opportunity of a wildfire starting along this highway to quickly spread into Bull Point. While these objectives are intended to establish buffers to wild fires, these actions do not guarantee the exclusion of fire and are only one part of what should be a larger, comprehensive effort by the POA to implement other fire-wise practices.

Bird Sanctuary

1) Reduce and manage the dense wall of understory vegetation.
    a. Repeat the mechanical treatment done about 8 years ago by having a contractor using a gyro-track mulcher mow down most of the small (<4-5 inch diameter) woody stems throughout the stand. Species targeted include any non-natives such as privet and Chinese tallow, loblolly pine, sweet gum, and oak seedlings. Pockets of grasses, palmettos, and other non-woody plants should be left undisturbed.

b. Prior to mulching, decide on location of fire lines so these lines can be cleared of woody stems. Fire lines should encompass the entire Sanctuary boundary, especially along the eastern side of the stand where it joins with residential lots. The fire line should be cleared of woody stems so the line can be plowed to bare ground and maintained with a small tractor.

c. Stump sprouting will occur during the first growing season post treatment. Use a foliar herbicide before the end of the growing season to control these sprouts and repeat the treatment in subsequent years as needed.

d. Conduct a prescribed burn during the first winter season after mulching and herbicide treatment are completed.

e. Continue prescribed burning on a 2-3 year cycle and periodically conduct the burn during a growing season. Growing season fires can be more effective in controlling woody species than dormant season fires and can encourage the growth of new species.

2) Reduce overstory canopy coverage.

a. Work with a registered forester and mark all trees to be cut to minimize damage to desired trees such as Live Oaks. Several staff with FLM are registered foresters and can assist with this project

b. The goal should be to reduce stand basal area to about 60-70 ft^2 per acre.

c. Contract with a commercial logger to remove targeted trees. By using a commercial logger the harvested trees will be removed and sold to a mill which should produce some income for the POA. These funds could offset the cost of other management activities.

d. The volume of trees in this one stand alone may not be sufficient to be economical to attract a timber logging operation, so timber removal from multiple stands such as stands 1 and 2 should be combined into a single logging contract.

3) Reestablish Green Tree Reservoir (GTR) management capability

a. This is an optional objective and should be considered experimental to explore possible benefits. The retrofitting of the flash board risers should be a minor cost.

i. Attach metal flash board riser mechanism to existing cement structures on drainage pipes. This attachment should allow the placement of wooden boards at the entrance of the drainage pipes.

ii. Other drainage pipes which do not have a flash board riser structure will have to be plugged by placing metal or plywood sheeting in front of the pipe opening.

d. Objective for the GTR is to hold water at a depth to attract various species of wading birds as well as waterfowl to forage on the acorns, invertebrates, and other foods occurring within the wetland. Water depth target might be between 12-18 inches, but some experimentation will be needed to determine optimum depths for bird use.

e. Retain water only during the dormant growing season for trees, (November 1 – January 31). All boards and plugs should be removed from pipes allowing water to drain normally before the start of the next growing season. Holding water on living trees will cause harm to the trees.

Stand 1

1) Thin timber using commercial logging contractor and establish a pine/hardwood savanna grassland community. Established a fire line along the boundary with Hwy 21/17 that can be maintained with tractor and plow.

a). In the portion of the stand containing the maintenance shop and boat parking (west of Huspa Creek Dr.), thin trees to 50-70 ft^2 BA. If desired, the thinning could be increased to 40-50 ft^2 BA which would create enough open space to under plant with Longleaf Pine. Longleaf Pine was likely the dominant pine tree occurring on this site historically. At some future time, the remaining Loblolly Pine could be logged leaving a stand of Longleaf Pine which has a much longer lifespan that Loblolly Pine. Regardless, this stand should be maintained using prescribed burning on a 2-3 year rotation.

b). In the portion of the stand adjoining the entrance to Bull Point (east of Huspa Creek Dr.), retain only a few isolated trees to establish a very opened landscape. Within this open landscape install raised garden beds for owners to use to grow fresh foods. This site would need an irrigation source and fencing to exclude white-tailed deer and other browsers. Collectively, the open grassland and gardens would provide a different and welcoming entrance into Bull Point.

Stand 2

a. Thin trees to a 70-80 ft^2 BA and establish a fire line around this stand.

b. Periodic prescribed burning should be used to manage fire fuels.

c. Maintain fire line and frequent prescribed burning program to help reduce the impacts of any wild fires starting along the highway.

Stands 3, 4, and 4.1

a. Management opportunities for these stands are challenging due to their small size and juxtaposition to private properties. Management for these stands could range from no management to clearcutting of trees to create open, early successional habitats.

b. Each stand could be managed to achieve different habitat structures. For example, thin stand 3 to a 40-50 ft^2 BA and managed by prescribed burning on a 2-3 year schedule

c. Remove all trees on Stand 4 and 4.1 and managed by establishing native pollinator plants in some areas, plant food plots to attract wildlife, use some of the site to expand gardening or other recreational opportunities for owners, and convert part or all of the stand to a longleaf pine savanna.

Stand 5

a. Manage this stand as an ephemeral wetland habitat.

b. Priority should be the removal of fallen trees. Perhaps a contractor clearing a home building site could be hired for this task.

c. Have contractor remove other trees growing within or along the edges of the depression to open the canopy above the depression.

d. Trees along the higher parts of the stand should be thinned and trees along its boundary cleared to establish a walking trail that encompasses the wetland and connects to the existing trail leading to Bellinger Lake. This trail will also serve as a fire line for prescribed burns.

Stand 6

a. Accurately mark the boundaries of the cemetery and locate as many grave sites as possible.

b. Keep some large trees for shade. Periodic prescribed burns could be used to sustain this site as an open grassland meadow.

c. Give consideration to installing a marker which contains information about the cemetery.

d. Once the cemetery boundary is identified, additional parking spaces for vehicles and boat trailers associated with the boat ramp can be established.

Club House

a. Consider thinning/opening the timber bordering Bull Point Dr.

b. The thinned area could be managed with prescribed burning to enhance habitat diversity for wildlife while also becoming a demonstration site for owners to see how fire can be used to manage habitats.

c. In specific locations tree gaps could be large enough to provide garden bed sites for use by owners living on the southern portion of the property.

American Alligator Management

The American Alligator has made a remarkable recovery from its near extinction and inclusion on the endangered species list in the early 1970s. There are very few places in the Lowcountry which has ponds of standing water that do not have alligators using the ponds. Although rare, alligators have attack humans and to minimize these encounters it is essential people follow a few basic guidelines:

a. When around waterways, always assume alligators are nearby even if they are not visible.

b. Keep a distance of at least 10 feet from the edge of water when walking and increase this distance if you are walking with a pet. Never allow your pet to go near water during any season. Alligators are ambush predators and they will often hide under water near the edge of a pond and ambush animals as they walk by.

c. Even if a 'nuisance' alligator was recently removed from a pond or area, do not assume there are now no alligators in that pond. Alligators are always on the move searching for new ponds to occupy. This is especially true in the spring – summer months when breeding and egg laying are occurring.

d. The most critical rule everyone should followed is: DO NOT FEED ALLIGATORS. Fed alligators will associate humans with food, and these fed alligators will allow humans to approach closer to them than unfed gators, giving people less time and opportunity to escape if the gator attacks.

e. The SC Department of Natural Resources (SCDNR) has posters and other educational material available which can be obtained for free. This material should be given to all owners of Bull Point and especially supplied to all new homeowners.

f. The SCDNR will provide the Bull Point POA with a limited number of alligator culling tags. These tags can be used to legally remove any nuisance alligator at any time. The removal of an alligator should be done by a professional. The removed animal has to be euthanized. Nuisance animals cannot be moved and released on another property. This just moves a problem animal to someone else's property. Also, alligators have tremendous homing instincts and have been shown to travel many miles to return to the site where they were captured.

White-tailed Deer Management

a. Although once hunted to such low numbers that hunting was forbidden, the white-tailed deer has made a remarkable recovery. Today, some of the most heavily developed communities in the Lowcountry support densities of deer well above what is measured in more rural 'natural deer habitats' in this region. Therefore, urban communities have been forced to develop deer management plans to balance the positives of residents seeing deer around their homes with the negatives high densities of deer can cause such as over-browsing planted landscapes, natural plant communities, and collisions with moving vehicles.

b. Deer survey reports for Bull Point indicated deer densities as high as 4.7 ac/deer in 2021, 4.3 ac/deer in 2022, and 5.3 ac/deer in 2023.

c. Records through the SCDNR indicate the first culling of deer occurred in 2014/15 when 50 culling tags were issued and 31 deer removed. The next culling occurred in 2021/22 when 35 permits were requested and 14 deer removed. In 2023/24, 40 tags were issued and 40 deer removed.

d. A deer density of <=10 ac/deer should be considered high.

e. Develop a deer management program with a goal to manage deer abundance at densities > 20-25 ac/deer. At this density owners of the community will see deer but the impacts of the deer on plants and habitats will be reduced.

f. The culling of deer by sharp-shooting has been used successfully for > 20 years in the Lowcountry. Other deer management methods are chemical or surgical sterilization, and live trapping deer and transporting trapped deer to other areas. These methods are significantly more costly than sharp-shooting and trap and release has not been approved for any urban community.

g. Spotlight deer counts should be done annually so deer population trends can be understood and the management program can be evaluated and adjusted based on data.

Armadillo Management

Residents have complained about the damage armadillos are doing by digging escapes holes or while rooting for insects and other foods in their yards and landscape plantings. The Nine-banded Armadillo is the only species found in the U.S. and it gets its name from the nine bands that rap around its torso. Armadillos have poor eyesight and hearing but are capable runners and exceptional swimmers. Female armadillos will produce 1 litter of about 4 pups/year in the spring and all individuals in the litter are usually of the same sex. These young pups will reach sexual maturity in 1 year.

Armadillos tend to be nocturnal but they may be seen occasionally during the day. While digging for foods they can create cone-shaped holes up to 3 inches deep and 5 inches wide. Their borrows can be 8 inches in diameter and up to 15 feet in length. They may have multiple burrows within their home range.

Armadillos can be shot or trapped at any time on private lands, there is no closed season for the state. To shoot an armadillo, you need to have a valid hunting license and you can only do so in places where it is legal to discharge a firearm.

For urban communities, the safest and most effective method of control is to trap armadillos at sites where they have become a nuisance. However, state regulations prohibit the relocation of a trapped animal to another site. Rather, the animal has to be euthanized. The SC Department of Natural Resources has a list of wildlife removal contractors who provide these types of services. The Bull Point POA may want to contact several of these contractors from the local area and provide them with procedures to follow when capturing, euthanizing, and disposing of armadillos on Bull Point. The POA could then provide this list of 'approved' contractors to residents if they have armadillo issues.

Additional information on armadillos and their management can be found at the following websites:

Clemson Cooperative Extension Home & Garden Information Center; Factsheet #2912; https://hgic.clemson.edu/.

SC Department of Natural Resources, https://www.dnr.sc.gov/wildlife/publications/nuisance/armadillos.pdf.

Lake Management

The narrow bands of mowed grass along the edges of the lakes do not offer many opportunities to diversity habitats along the lakes. The POA should consult with local lake management companies to monitor water quality and fish population composition with the lakes so that they provide quality fishing experiences for owners.

References

Depratter, C.B. 1992. The Search for the Yemassee: The 1991 Project. South Carolina Institute for Archaeology and Anthropology, Columbia.

Elliott, D.T. and J.S. Cable. 1994. Cultural resources survey of the Bull Point Tract, Beaufort County, South Carolina. Prepared for Metropolitan Properties, West Columbia.

Table 1. Density, diameter at breast height (dbh), and species composition (%) of all woody stems >= 1.0 dbh in the Bird Sanctuary Stand measured in randomly distributed plots (n=8) which were 66 feet in diameter.

Species	Plot 1 n=24[1]		Plot 2 n=16		Plot 3 n=69		Plot 4 n=12		Plot 5 n=14		Plot 6 n=16		Plot 7 n=22		Plot 8 n=60		Stand Ave n=233	
	dbh inch	Comp	dbh inch	Comp	dbh inch	Comp	dbh inch	Comp	dbh inch	Comp	dbh inch	Comp	dbh Inch	Comp	dbh inch	Comp	dbh inch	Comp
Sweet gum	4	48%			4	3%	12	33%	13	43%	12	38%	11	32%			9	25%
Tallow	7	12%			2	61%									1.5	2%	3	9%
Swamp Chestnut Oak	9	20%															9	2.5%
Red Maple	15	4%	17.5	6%	9	4%											14	2%
Loblolly	22	12%	25	6%	10	3%	9	25%	21	7%	19	31	23.5	14	11	13	18	14%
Water Oak			7	25%			15	25%	18	21%	16	19%	6	5%			12.5	12%
Willow Oak			3	6%					2	7%							2.5	1.6%
Laural Oak			8	38%	6.5	1%											10	5.5%
Live Oak			19	19%	8	7%					38	6%	22	9%	15	8%	20	6%
Wax Myrtle					2	20%	1.5	17%					1	27%			1.5	8%
Am. Holly									16	7%			6	5%			11	1.5%
Sweet Bay									1	14%							1	2%
Spruce Pine											5	6%	7	5%			5	1%
Hickory																	7	0.5%
Privet															1.5	75%	1.5	9.5%
Red Cedar															1.5	2%	1.5	0.5%

[1]This number represents the total number of woody stems measured in each plot.

Table 2. Basal Area (ft2/acre stem diameter at 4.5 ft height for trees) measured using a 10 factor prism on 8 randomly selected points within the Bird Sanctuary stand on Bull Point.

Species	Plot 1		Plot 2		Plot 3		Plot 4		Plot 5		Plot 6		Plot 7		Plot 8		Stand Ave.	
	BA	Comp	BA	Comp	BA	Comp	BA	Comp	BA	Comp	BA	Comp	BA	Comp	BA	Comp	BA	Comp
Sweet gum	20	18%					30	23%	50	33%	20	18%	60	43%			23	19%
Tallow	10	9%	10	10%	10	17%											4	3%
Swamp Chestnut Oak	20	18%															2	1%
Red Maple	10	9%	10	10%	10	17%											4	3%
Loblolly	50	45%	30	30%	20	34%	40	31%	50	33%	60	55%	20	14%	50	63%	40	33%
Water Oak			10	10%			50	38%	20	13%	20	18%	10	7%			14	12%
Laural Oak			10	10%	10	17%											3	2%
Live Oak			30	30%			10	8%	10	7%	10	9%	30	21%	30	37%	15	12%
Am. Holly									10	7%							1	1%
Palmetto Palm					10	17%											1	1%
Red Oak									10	7%			20	14%			14	12%
Total BA	110		100		60		130		150		110		140		80		121	100%

Table 3. Basal Area (ft2/acre stem diameter at 4.5 ft height for trees) measured using a 10 factor prism on 5 randomly selected points within Stand 1 on Bull Point.

Species	Plot 1		Plot 2		Plot 3		Plot 4		Plot 5		Stand Ave.	
	BA	Comp	BA	Comp	BA	Comp	BA	Comp	BA	Comp	BA	Comp
Sweet Gum	10	7%	20	12.5%	20	18%	10	10%	0	0%	12	10%
Loblolly	95	68%	120	75%	30	27%	20	18%	150	75%	83	53%
Oak spp.	35	25%	20	12.5%	60	55%	75	71%	50	25%	48	38%
Total	140		160		110		105		200		143	

Figure 1. Historic aerial imagery showing forest canopy cover and other features of Bull Island in1955 and 1979.

Figure 2. Aerial imagery showing forest canopy cover and excavation of Bellinger Lake on Bull Point in 1994 and 2011.

Figure 3. Aerial photo of Bull Point showing existing forest canopy coverage and residential development in 2024.

Figure 4. Map showing residential parcels and parcels belonging to the Bull Point POA which are discussed in the Resource Management Plan.

Figure 5. Image from the Bird Sanctuary stand on Bull Island demonstrating the dense tree growth and canopy coverage competing with Live Oaks.

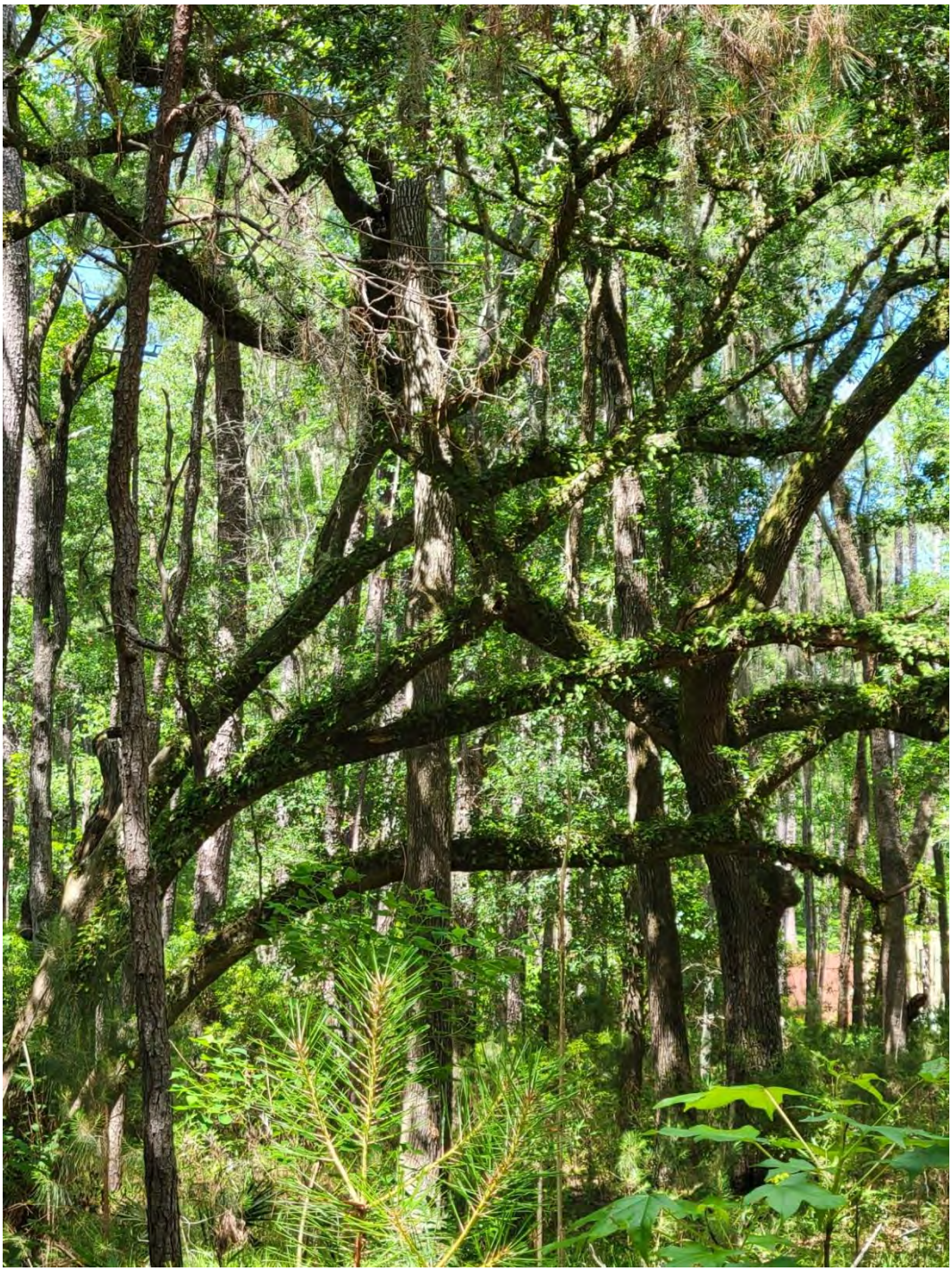

Figure 6. Photo from the Bird Sanctuary stand showing the high density of woody stem growth occurring in the understory which reduces opportunities for residents to see into and explore the stand, and limits the development of grasses and herbaceous plants on the ground floor.

Figure 7. View of the cement structure attached to some drainage pipes in the Bird Sanctuary which may be the remnants of a flashboard riser water control system.

Figure 8. View of the ephemeral wetland and down trees in Stand 5 on Bull Point.

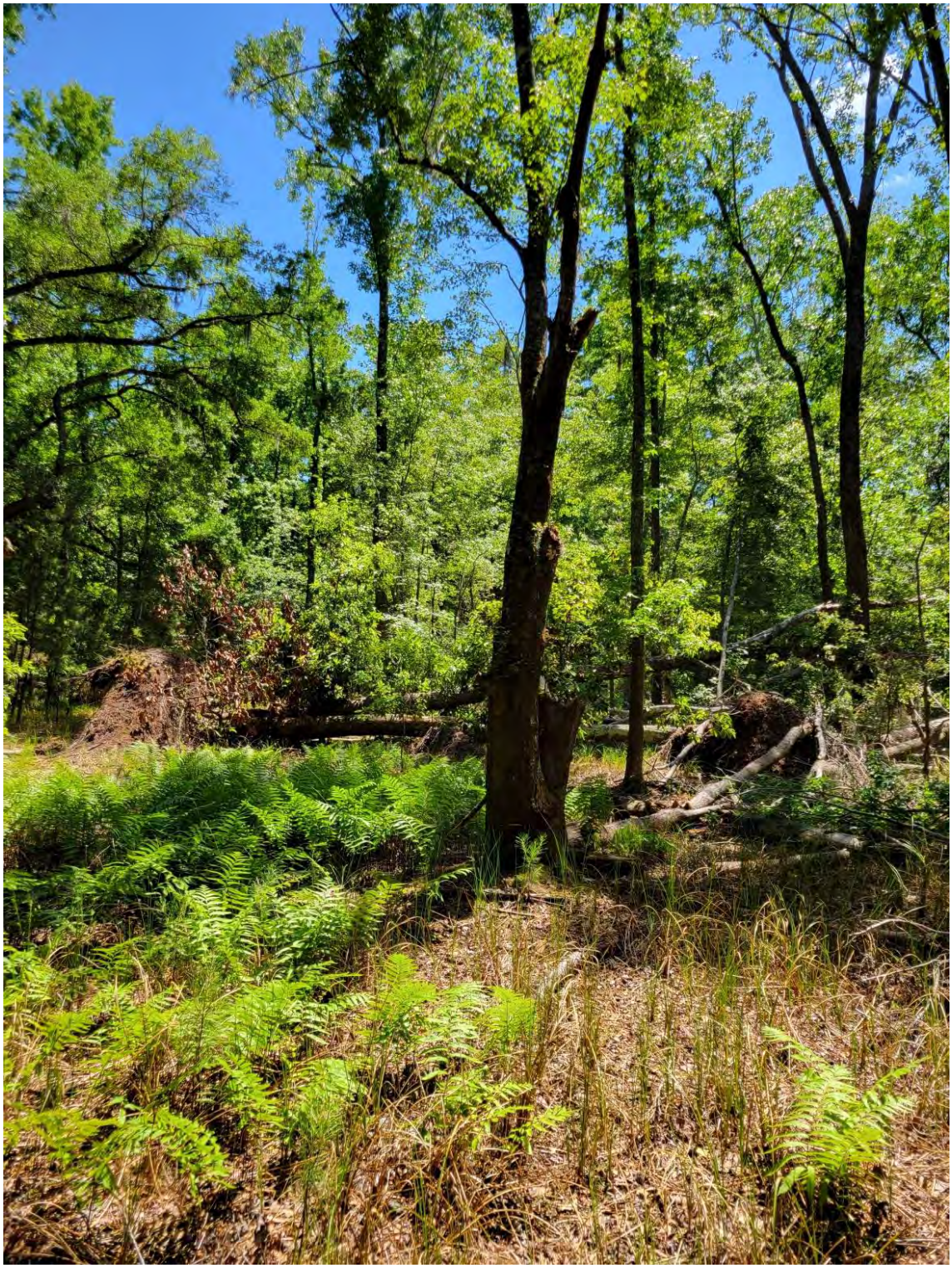

Figure 9. Existing trail on north side of Stand 5 which could be extended around this stand to establish a fire break for prescribed burning.