

**BURNT MILL CREEK - DOYLE BAYOU
CONSERVATION UNIT**

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I. GENERAL DESCRIPTION OF CONSERVATION UNIT

The Burnt Mill Creek - Doyle Bayou Conservation Unit (CU) is a 4,867 (+/-) acre tract located northeast of West Bay in Sections 2-5, 7-9, 16, 17, and 19-21 of Township 2 South, Range 15 West; Sections 13 and 24 of Township 1 South, Range 16 West; and Sections 17-19, 22, 23, 25-30, 34, and 35 of Township 1 South, Range 15 West in Bay County, Florida (see Figure 1: General Location Map). The 4,867 total acres are broken into 4,117 acres of Type 1 CU and 750 acres of Type 2 CU. The geographic position of the Burnt Mill Creek - Doyle Bayou CU is within the Burnt Mill Creek sub-basin. Burnt Mill Creek is a major tributary to West Bay and 9,169 acres of its drainage area is located within the GPEMA2 area. The wetlands in this area are dominated by blackwater seepage, which is recharged from the adjacent wetlands and Sandhills. Since this creek provides a significant amount of input to West Bay, the CU is vital to the protection of West Bay as it protects 149,607 feet of shoreline.

The land cover of the Burnt Mill Creek - Doyle Bayou CU is dominated by coniferous plantation (47%), forest regeneration areas (15%), wetland forested mixed (12%), and mixed coniferous/hardwood (4%). There are also small inclusions of salt marsh, upland coniferous/hardwood forest, wetland coniferous forest, wetland scrub/shrub, stream, freshwater marsh, lake, cypress, wetland hardwood, tidal flats, shrub/brush, residential, and utility. The National Wetland Inventory identifies 45% of the CU as palustrine wetlands, 16% as estuarine wetlands, 1% as water, and the remaining 38% as uplands, which is similar to the wetland coverage based on the soil types. Based on soil types the CU is comprised of 65% wetlands and 35% uplands. The majority of the uplands and half of the wetlands are currently planted with slash pine (*Pinus elliottii*).

The wetlands within the Burnt Mill Creek - Doyle Bayou CU are comprised of Basin Swamps, Baygalls, Floodplains, and Seepage Slopes/Wet Prairies that drain into Blackwater Streams and Tidal Creeks before entering West Bay. Uplands in the CU are dominated by Sandhills and Mesic Pine Flatwoods. A majority of these plant communities (Wet Prairie, Mesic Pine Flatwoods, and Sandhills) have been replaced by pine plantations; however, these areas currently provide forestry resources and habitat for wildlife. Once these areas are placed into a conservation easement, they can potentially be restored to their historical plant communities. These plant communities provide habitat for State and Federally listed flora and fauna. There are documented threatened species within 1 mile of this site (FLEO, 2009). Table 1 provides a list of species that would be expected to use these habitats.

II. REGIONAL SIGNIFICANCE

The Burnt Mill Creek - Doyle Bayou CU protects both uplands and wetlands that are important for recharge within the Burnt Mill Creek watershed and West Bay. This CU protects the majority of the length of Burnt Mill Creek and smaller creeks that flow into

Burnt Mill Creek. This CU is also directly connected to the Little Burnt Mill Creek CU, the Fannin Bayou-Warren Bayou CU, and the Crooked Creek-West Bay CU and will help maintain wildlife corridors and hydrological connectivity between these CUs. Burnt Mill Creek drains to the south directly into West Bay. Conserving this CU to its natural conditions will provide significant protection and buffering to open water portions of Burnt Mill Creek, which is a major tributary of West Bay.

The Burnt Mill Creek – Doyle Bayou CU consists of 149,607 feet of shoreline within estuarine and freshwater habitats. The estuarine shoreline length is 85,823 feet, while the freshwater shoreline is 63,784 feet. It is essential to protect these shorelines to maintain ecological productivity.

The Burnt Mill Creek - Doyle Bayou CU is identified as a Strategic Habitat Conservation Priority Area (SHCA) by the Florida Fish and Wildlife Conservation Commission (FFWCC) (Endries, et al., 2008). Further, this CU is ranked as a priority area by FFWCC based on their Integrated Habitat Ranking System (IHRS) (FFWCC, 2008). These rankings take into consideration the types of habitat and the species likely to use these habitats. Due to the landscape-scale conversion of this CU to pine plantation, the historical habitats within the CU, Wet Prairies and Pine Flatwoods, are listed on FNAI's list of underrepresented plant communities (FNAI, 2009).

This CU provides an important north-south corridor connecting several other CUs to one another and directly to West Bay. The CU is therefore vital to water quality treatment and storage, habitat conservation, and species conservation. Further, this CU protects the majority of the length of Burnt Mill Creek, from the headwaters to its confluence to West Bay.

III. BIODIVERSITY

The habitats within the Burnt Mill Creek - Doyle Bayou CU consist of herbaceous and forested wetlands and uplands. The Wet Prairie/Seepage Slope component has a dense herbaceous layer, while the Basin Swamps contain their diversity in the canopy, subcanopy, and shrub strata. The Basin Swamps grade into Floodplain Forests that surround Blackwater Streams. Groundwater seeps through these systems from the surrounding Sandhills and Mesic Flatwoods. Further downstream these blackwater streams flow into tidal creeks and eventually West Bay. In the current condition, the existing pine plantations have altered the plant communities and wildlife composition. Although these landscapes are planted in pine, they have retained physical characteristics that would allow for restoration to their historical plant communities. The tidally influenced portions of this CU are intact.

The Burnt Mill Creek - Doyle Bayou CU has been documented to overlap with the potential habitat of at least eight wildlife species resulting in a species richness index of 8 (FFWCC, 2008). This CU has also been ranked as a SHCA by FFWCC due to the

potential to protect imperiled species (Endries, et al, 2008). Additionally, this CU has been ranked as a priority under the IHRS (FFWCC, 2008) due to an analysis of various factors affecting the ecological significance of land areas including species richness, listed species locations, and SHCA.

No threatened species have been documented within the CU, while *Verbesina chapmanii*, *Drosera intermedia*, *Xyris isoetifolia*, *Gentiana pennelliana*, *Haliaeetus leucocephalus*, *Gopherus polyphemus*, and *Picoides borealis* have been documented within 1 mile of the CU (FNAI, 2009). This CU is identified as potential habitat for the indigo snake and a portion of the CU is categorized with a rank of 4 for rare species conservation (FNAI, 2009). Further, there are 41 plants and 9 animals identified in Bay County as Threatened or Endangered Species that could potentially occur in this CU. Conserving these areas will help to maintain habitat for listed species in the region. Table 1 provides a list of species that may be expected to use these areas if the planted pine areas are restored to their historical plant communities.

IV. WATER QUALITY

The Burnt Mill Creek - Doyle Bayou CU is located within the Burnt Mill Creek sub-basin of the St. Andrews Bay watershed. Burnt Mill Creek flows directly into West Bay. The CU is comprised of 53% of the Burnt Mill Creek - Doyle Bayou Hydrologic Unit Code 12 drainage area within the GPEMA2; therefore, the preservation of this CU will provide significant protection to this watershed. Further, this CU is in the downstream portion of Burnt Mill Creek, which will ensure that the tidally influenced portions of the creek are protected from development.

Burnt Mill Creek is not listed on either the 305(b) or 303(d) list of impaired waters. There are currently no known point sources in the watershed and non-point sources are limited to forestry roads. Conserving lands within the CU will help to maintain a large buffer around the mouth of Burnt Mill Creek. This CU protects 85,823 feet of estuarine and 63,784 feet of freshwater shorelines. This buffer will help to provide treatment of non-point source input from upstream before it enters West Bay. Maintaining this buffer in a natural condition will ensure water quality protection and will reduce future impairment from point and non-point sources

The wetland habitats within the Burnt Mill Creek - Doyle Bayou CU are shallow Wet Prairie/Seepage Slopes that grade into Basin Swamps and then eventually into Blackwater Streams. These streams eventually flow into Tidal Creeks before discharging into West Bay. Seepage through these systems comes from the adjacent Mesic Pine Flatwoods and significantly contributes to surface water inflows to both Burnt Mill Creek and West Bay. These habitats have experienced minor alterations from being planted in pine; however, they still provide valuable water input, water filtration, and water storage function.

This CU has been identified by FNAI as a significant surface water priority (FNAI, 2009) primarily due to the support it provides to coastal surface waters. Burnt Mill Creek provides a large portion of the recharge for West Bay. West Bay is a Class II waterbody that supports extensive Tidal Marsh and seagrass beds. Preserving the lands surrounding Burnt Mill Creek will help to maintain the brackish shallow water estuaries.

IV. ESSENTIAL FISH HABITAT AND MARINE RESOURCES

Land areas within the Burnt Mill Creek sub-basin drain into Blackwater Streams that flow into tidal creeks associated with Burnt Mill Creek and eventually West Bay. West Bay is classified as Class II waters. The majority of West Bay is conditionally approved for shellfish harvesting with some areas classified as prohibited for shellfish harvesting. West Bay and St. Andrews Bay are not classified as Essential Fish Habitat but seagrasses in both West Bay and St. Andrews Bay provide resources for fish and a variety of non-game species. As mentioned above, preserving this CU will contribute to water quality protection both at the headwaters and further downstream, which will help maintain the downstream aquatic resources.