

Contract 16-077-000-9121 Final Report

The Wetland Plant Partnership

A REPORT FUNDED BY A TEXAS COASTAL MANAGEMENT PROGRAM GRANT
APPROVED BY THE TEXAS LAND COMMISSIONER PURSUANT TO NATIONAL
OCEANIC AND ATMOSPHERIC ADMINISTRATION AWARD NO. NA15NOS4190162.

Contractor: Texas A&M AgriLife Extension Service

PI: John Jacob, PhD

Co-PI: Mary Carol Edwards

Submitted May 22, 2017



Contents

Section 1: Project Overview	1
<i>Executive Summary</i>	1
<i>Introduction</i>	2
<i>Project Significance and Background</i>	2
Section Two: Overview and Summary of Tasks	3
<i>Task 1: Nursery Construction and Maintenance</i>	3
<i>Task 2: Plant Collection and Propagation</i>	6
<i>Task 3: Student and Volunteer Workdays</i>	9
<i>Task 4: Education and Outreach</i>	10
<i>Task 5: Project Reporting</i>	13
Section 3: Results and Discussion	14
<i>Challenges and Successes</i>	14
<i>Next steps for the Wetland Plant Partnership</i>	15
Section 4: List of Appendices	16

Section 1: Project Overview

Executive Summary

During the course of this contract (October 2015-March 2017), Texas A&M University acting as the Texas Coastal Watershed Program (TCWP), a cooperative educational and outreach effort between Texas A&M AgriLife Extension Service and Texas Sea Grant, constructed and operated a wetland plant nursery in order to increase native plant stocks for stormwater wetlands in Brazoria, Galveston, and Harris Counties. Partnerships between TCWP, the Gulf Coast Bird Observatory (GCBO), and the Cradle of Texas

Chapter of Texas Master Naturalists (COTMN) were established, providing a location and trained volunteers for the nursery. The contract stipulated four tasks: 1) construction and maintenance of the nursery, 2) plant collection and propagation, 3) student and volunteer workdays, and 4) education and outreach on the objectives of the project. This report details the work done to satisfy these requirements.

This project supports the ongoing effort of the TCWP to establish stormwater treatment wetlands in flood control basins as a best management practice for stormwater runoff on the Texas Gulf Coast. Wetlands designed and installed in existing or future drainage infrastructure can provide water quality improvements and bird habitat. Through the activities supported by the grant, the concept and benefits of stormwater wetlands have been more widely introduced to the Brazoria County area and beyond.

Introduction

With CMP Cycle 20 funding, the Wetland Plant Partnership has formed a synergistic relationship with TCWP's Stormwater Wetland Program, GCBO, COTMN, and other organizations to provide native plant materials for demonstration wetlands. The nursery is located at GCBO's headquarters in Lake Jackson, Texas, and consists of four above-ground tanks (also referred to as "ponds"), on-grade plant holding areas, storage, and a sheltered potting area where students and volunteers can work and learn to identify, select, and grow native wetland plants. Educational workshops led by TCWP program specialists have presented Green Stormwater Infrastructure (GSI) practices and the role of wetlands in GSI.

The grant has supported a TCWP staff member responsible for planning and implementing nursery construction and management, and facilitating volunteer support and outreach events and materials. Plant collection and propagation was shared by Texas Master Naturalists including the Wetland Restoration Team, a group of volunteers from multiple TMN Chapters bringing over 15 years' experience in TCWP's large-scale wetland restoration projects.

Project Significance and Background

TCWP provides local governments and citizens knowledge about how land use decisions affect watershed health and water quality. A major effort of the TCWP is demonstrating the benefits of using stormwater wetlands in stormwater detention basins. Through the Stormwater Wetland Program, TCWP has committed to designing and constructing stormwater wetland demonstration projects in Brazoria, Galveston, and Harris counties, a three-county region that contributes water flows to the lower Galveston Bay.

Stormwater wetlands are designed to store and treat stormwater runoff, improving water quality and reducing potential flooding. Through biochemical and physical processes in constructed wetlands, plants and associated biofilms (populations of microbes, algae, and cyanobacteria) reduce levels of fecal bacteria, metals, nitrogen and phosphorus, and sediment characteristic of urban, suburban, and roadway stormwater runoff. Water is gradually released from the wetland into local waterways,

improving downstream water quality. City and county agencies are planning and designing flood reduction projects throughout Brazoria, Galveston, and Harris counties. Installation of flood detention infrastructure presents an opportunity to incorporate beneficial wetland features to improve the quality of stormwater in the Galveston Bay watershed and educate citizens about the natural environment. These stormwater wetlands become increasingly valuable as development continues and more coastal wetlands are lost.

Historically, southeast Texas contained several million acres of coastal prairie, wetlands, and riparian bottomlands making for a unique biologically productive region of native and migratory wildlife and endemic plants. Currently less than 1% of this natural habitat remains, due to agricultural production, and residential and commercial development. [U.S. Fish and Wildlife Service, U.S. Geological Survey]. Construction of wetlands for the treatment of stormwater in developed areas restores certain ecosystem functions in the built environment, including wildlife habitat. The EPA reports that up to half of all North American bird species nest, rest, breed or feed in wetlands. Additionally, as wetlands improve water quality, downstream habitats are protected, such as oyster reefs and estuarine submerged aquatic vegetation--breeding and nursery grounds for important industry and recreational fish and shellfish species.

Section Two: Overview and Summary of Tasks

Task 1: Nursery Construction and Maintenance

TCWP produced a plan and construction documents for the nursery, based on previous construction of wetland nursery tanks at Exploration Green Conservancy in Clear Lake City, TX. Construction plans were submitted to the GLO for review and approval, and copies can be found in the Appendix. The City of Lake Jackson was contacted regarding construction permitting. The project is exempt from construction permitting.

TCWP coordinated and managed the construction of four above-ground nursery tanks, or “ponds” to provide stock for stormwater wetland demonstration projects. GCBO, COTMN, and other volunteers provided assistance and labor. The ponds are formed by a 10-foot by 24-foot by 1-foot rectangular lumber frame and contain a built in UV-resistant heavy gauge EPDM waterproof liner. The ponds share a common wall creating two pairs of tanks separated by a 5’ walkway. Each pond can hold over 900 1-gallon pots. GCBO provides a water source for the nursery.

Areas for potting, storage, and on-ground plant stocks were developed. The potting area is at a metal-roofed pavilion used by the GCBO site’s previous owner for barbecue cookouts. Three wooden potting tables with 3-foot by 6-foot work surfaces were constructed by Boy Scouts, and can be moved to sun or shade as needed. Two seeding tables and a two-bin compost container were also built by the Boy

Scouts. An 8-foot by 10-foot prefabricated shed provides secure storage for tools and supplies. TCWP conducts nursery maintenance, including soil and nursery pot deliveries, and shares the cutting of grass in the nursery area with GCBO and COTMN volunteers.

Temporary CMP signage was placed at the site during construction and a permanent CMP sign provided by TXGLO has been installed. Interpretive signage for the wetland nursery was developed by TCWP and is in fabrication. Photos and graphics of signage are included in the appendix.

A summary of nursery construction and maintenance activities by month or quarter is provided below.

October 2015: TCWP conducted a project kickoff meeting October 7 with then GCBO Executive Director Chris Eberly and Cradle of Texas Master Naturalist representative Chris Kneupper. Siting of the nursery ponds, tool shed, and work area was reviewed. Site prep including brush cutting, relocation of small native trees, and pond layout was scheduled for November. Construction is scheduled to begin in December.

The City of Lake Jackson Department of Building/Permit Services was called to determine whether a building permit applied to either the tool shed or ponds. City staff reported that a construction permit did not apply to the ponds or to the tool shed, which is under 200 sf.

January 2016:

Construction of the four nursery tanks (a.k.a. ponds) began on January 5 and continued through the month. Master Naturalist volunteers from the Brazoria County Cradle of Texas Chapter and two other chapters, Galveston Bay Area and Gulf Coast, were a major force in building the ponds, guided by TCWP staff.

February 2016:

Feb 1 was the last day of construction, and stocks of wetland plants that had been amassed in the preceding months were moved into the new ponds. Water was conditioned with a commercial barley extract solution to control algae, and starter populations of mosquito fish, *Gambusia affinis*, were added to control mosquitos.

March 2016:

TCWP staff met with Boy Scouts about constructing nursery furnishings as scout projects. Carl Kneupper is constructing two potting tables and seeding tables as part of a Hornaday Award for conservation. Scott Kinski will construct a potting table, a compost bin, and shelving for the tool shed for his Eagle Scout project. The tables satisfy a deliverable on the contract work plan, and materials were supplied by this contract.

April-May 2016:

With a rainy spring, the ponds have not needed supplemental water. In fact, in two of the ponds designated for shallow-water species, a pump is used to decrease water to the level of the tops of the pots. A Master Naturalist volunteer from the Brazoria County Cradle of Texas Chapter monitors the water levels.

GCBO staff maintained the grass in the area of the nursery. TCWP staff supplied 1 gallon pots from a donated source of used pots, Landscape Arts Inc, a landscape company in League City, TX. Eight yards of soil were delivered in this time period, and miscellaneous supplies purchased.

Two scout projects which constructed furnishings for the wetland nursery were completed in this period. Details of these projects are given in Task 3: Student and Volunteer Workdays, below.

July-August 2016:

The four nursery tanks are performing as expected. A Master Naturalist volunteer from the Brazoria County Cradle of Texas Chapter monitors the water levels in the tanks and waters seedlings being raised in pots stored on-grade. GCBO staff maintained the grass in the area of the nursery. TCWP staff supplied 1 gallon pots from a donated source of used pots, Landscape Arts, in League City, TX.

October-December 2016:

The four nursery tanks are performing as expected. Additional space for low water need (facultative) wetland species has been established on the ground. A Master Naturalist volunteer from the Brazoria County Cradle of Texas Chapter monitors the water levels in the tanks and waters seedlings being raised in pots stored on the ground. GCBO staff maintained the grass in the area of the nursery. TCWP staff supplied 1 gallon pots from a donated source of used pots, Landscape Arts, in League City, TX.

December 2016: CMP project signage was received from TXGLO and will be installed at the January monthly workday, 1/19.

January-March 2017:

The four nursery tanks are performing as expected. Starting in February improvements were made to the flow and watering of the on-ground stocks of wetland species with low water need. To do this, an area of the lawn was scalped and two side-by-side 12'x 50' sections of geotextile fabric were laid out. Almost all groupings of plants in 1-gallon pots were moved to these two new sections.

TCWP staff and volunteers picked up lawn maintenance of the wetland nursery from GCBO and have begun scheduling lawn maintenance twice a month.

A Master Naturalist volunteer from the Brazoria County Cradle of Texas Chapter continues to monitor the water levels in the tanks and waters seedlings being raised in pots stored on the ground.

CMP project signage received from TXGLO and was installed at the January monthly workday, 1/19.

Deliverables:

1. Construction plans
Due Date: 2/29/2016—submitted Q1 2016 report
2. Permits
Due Date: 3/31/2016—submitted Q1 2016 report
3. Photos before, during, and after construction of above-ground nursery ponds and potting and storage areas
Due Date: 3/31/2017
4. Photos of installed CMP signage
Due Date: 3/31/2017

Task 2: Plant Collection and Propagation

TCWP staff and volunteers located and collected native plant material for the nursery from sites which were in or within 50 miles of Brazoria County. This will ensure the wetland will be ecologically consistent with the region's historical coastal natural resource areas and adapted to survive local environmental conditions. All collections will be consistent with the Natural Resource Conservation Service's Conservation Practice Standards for Wetlands, Constructed Wetlands and Conservation Cover. Inventory of plant stocks was generally performed quarterly except in winter when plant dormancy made inventory difficult. A copy of the most recent inventory, March 2017, is included in the Appendix.

A summary of plant collection and propagation activities by month or quarter is provided below.

October 2015: Wetland plants collected in summer 2015 by Cradle of Texas Master Naturalist volunteers are being maintained in the area of the wetland nursery in advance of the pond construction. The stocks include species that will be used in Brazoria County stormwater wetlands.

January 2016: On the inaugural Third Thursday workday, in addition to concurrent pond construction, thirteen volunteers also prepared and potted 507 propagules into 1-gallon pots. The plant list: 20 Southern Blue flag iris/*Iris virginica* (Sheldon Lake SP), 72 Zig-zag iris/*Iris brevicaulis* (Brazoria Co. patch #0), 97 Zig-zag iris/*Iris brevicaulis* (Brazoria Co. patch #11), 19 Dixie iris/*Iris hexagona* (Brazoria Co. patch #4), 99 Thinscale sedge/*Carex hyalinolepis*, 45 Seedbox/*Ludwigia octovalvis*, 99 Horned Beakrush/*Rhynchospora corniculata*, 7 Swamp Lily/*Crinum americanum*, 49 Gulf Cordgrass/*Spartina spartinae*.

February 2016: The Third Thursday volunteer workday on 2/18 included a plant collecting trip for Southern Blue Flag iris/*Iris virginica* at San Bernard National Wildlife Refuge in Brazoria County, by permit. Nine volunteers plus TCWP staff dug a trailer load of approximately 1200 plants. The load was divided between TCWP wetland projects at the GCBO nursery, the TCWP wetland nursery for Exploration Green Park in Clear Lake City, and the Sheldon Lake State Park wetland restoration.

March 2016: The Third Thursday volunteer workday on 3/17 included a plant collecting trip targeting Powdery alligator flag/*Thalia dealbata* from a site in Angleton, TX. The plants were divided among TCWP projects as before and 120 Thalia were added to the GCBO stocks. Several of the 8 volunteers focused on potting plants in the nursery, adding 118 Soft Rush/*Juncus effusus*, 74 Arrowhead/*Sagittaria latifolia* 20 Zigzag Iris/*Iris brevicaulis* (white flowers), 18 Zigzag Iris/*Iris brevicaulis* (purple flowers), 10 Britton's Sedge/*Carex tetrastachya*.

April 2016: The Third Thursday volunteer workday on 4/21 was cancelled due to heavy rain and flooding. The nursery went through April's record setting rains without damage.

May 2016: : The Third Thursday volunteer workday on 5/19 focused on "bumping up" seedlings of native hibiscus plants germinated in the nursery into individual 1 gallon pots. Five volunteers prepared

and potted 217 pots of Halberd-leaf hibiscus/*Hibiscus laevis* (various sources), 81 pots of the uncommon species Buttonbush flatsedge/*Cyperus cephalanthus*, and 48 pots of other sedge species.

June 2016: On the Third Thursday volunteer workday on 6/16, three volunteers bumped up seedlings of Indianola beaksedge/*Rhynchospora indianolensis* into 358 individual 1 gallon pots. This species of beaksedge is native to, but uncommon in, Brazoria County.

July 2016: On the Third Thursday volunteer workday, July 21, six participants repotted seedlings germinated in the nursery into individual pots. 146 Indianola Beaksedge/*Rhynchospora indianolensis* (an uncommon species), 43 Nealley Sprangletop/*Leptochloa nealleyii*, and 4 Woolly Mallow/*Hibiscus lasiocarpus* for a total of 283 total pots were added. Approximately 1000 Native hibiscus seeds were collected from parent plants in the nursery ponds and sown in flats. These include Woolly Mallow (Brazoria Co. FM-223), Halberd-Leaved Hibiscus/*Hibiscus laevis* (Brazoria Co., FM-2004), Halberd-Leaved Hibiscus (Calhoun Co.), Neches River Mallow/*Hibiscus dasycalyx*. Also, volunteers moved rows of on-ground stocks from a mostly-sunny location to a location with more shade, to help them weather the heat.

August 2016: : The Third Thursday workday on 8/18 focused on “bumping up” seedlings germinated in the nursery into individual 1 gallon pots. These include 68 Britton's Sedge/*Carex tetrastachya*), 178 Louisiana Sedge (*Carex louisianica*), 13 Giant Blue Sage (*Salvia azurea*), 57 Aquatic Milkweed (*Asclepias perennis*) for a total of 316 plants added to the nursery. These were placed on-ground in the shade of the large live oaks on the west side of the storage shed. Seven volunteers participated.

September 2016: On the Third Thursday volunteer workday on 9/18, seven volunteers bumped up seedlings into individual pots. The count includes 155 Halberd-leaved Hibiscus/*Hibiscus laevis*, 37 Buttonbush Flatsedge/*Cyperus cephalanthus*, 19 Woolly Mallow/*Hibiscus lasiocarpus*, 30 Spider Lily/*Hymenocallis liriosme* for 241 total pots added to the nursery. 120 seedballs using a mix of native hibiscus seed were made for use on the floating wetland islands in Pearland. Routine maintenance was done to weed the tanks.

October 2016: October 13, 7 volunteers, two TCWP staff, and two City of Pearland staff revisited the floating wetlands previously installed by TCWP in the flood control basin at the future site of the Pearland Nature Center, 4800 Magnolia St (Brazoria Co). In addition to other tasks, wetland seedballs made in the nursery at GCBO were distributed on the floating wetland mats. On the Third Thursday volunteer workday, October 20, four volunteers and TCWP staff collected bags of seedheads from plants in the nursery which were stored for future propagation. Participants then collected swamp lily/*Crinum americanum* bulbils from plants in the demonstration pond (with GCBO's permission). Bulbils were plated out on flats of potting soil to germinate. Eight flats with approximately 40 bulbils each were prepared.

November 2016: The Third Thursday workday on 11/17 had 5 volunteers and TCWP staff, who concentrated on potting sprigs of new material. 124 Blue waterleaf/*Hydrolea ovata*, 54 maidencane/*Panicum hemitomon*, and 37 Copper iris/*Iris fulva*, all new species for the nursery, were added to the stocks. Additionally, 56 Woolly mallow/*Hibiscus lasiocarpus* were transferred from germination trays to individual pots.

December 2016: On the Third Thursday volunteer workday on 12/15, 4 volunteers and TCWP staff bumped up *Iris hexagona* seedlings grown in mass in the nursery into individual pots. 376 individuals were added to the stocks.

January 2017: On the Third Thursday volunteer workday, 1/19, four volunteers and TCWP staff transplanted 198 Spider lily/*Hymenocallis liriosme* seedlings into individual pots. The plants were germinated by a Gulf Coast Chapter Master Naturalist. The crew also mass-seeding the following species into pots: 45 pots Roundhead rush/*Juncus validus*, 31 pots Horned beaksedge, *Rhynchospora corniculata*, 8 pots Indianola beaksedge/*Rhynchospora indianolensis*, 6 pots Angel-Stem beaksedge/*Rhynchospora caduca*, 1 pot Striped Rose Mallow (*Hibiscus striatus* var. *lambertianus*), 3 pots Live oak/*Quercus virginiana*. As these seeds germinate and the plants become several inches tall, they will be divided out and moved into individual pots.

February 2017: The Third Thursday workday on 2/16 had four volunteers plus TCWP staff, who concentrated on potting seedlings and reorganizing the nursery's on-ground stocks. The list of seedlings separated out and moved from nursery trays into individual pots ("bumped up") include: 356 Dixie Iris/*Iris hexagona* germinated in the nursery, and 15 Copper Iris/*Iris fulva* rhizomes donated by a Master Naturalist volunteer. Additionally, the second 12' x 50' section of geotextile was laid out and groups of wetland plants were relocated to it.

March 2017: On the Third Thursday volunteer workday on 3/16 had six TX A&M undergrad Spring Break interns, one TMN-COT volunteer, and TCWP staff. The task of moving groups of plants to the new geotextile sections continued, and all pots in these sections were given a slow release fertilizer. Mass sowing in 1 gallon nursery pots was done for these species: Aquatic milkweed/*Asclepias perennis* (15 pots), Indianola beaksedge/*Rhynchospora indianolensis* (10 pots) and Purple meadow rue/*Thalictrum dasycarpum* (8 pots). Additionally, 50 Swamp lilies/*Crinum americanum* germinated in the nursery were added to the tanks.

Sign in sheets for each workday are given in the Appendix. In addition to the regularly scheduled workdays, volunteers did independent tasks for the nursery on other days as well, so the Cradle of Texas Chapter Master Naturalist (COTMN) reported volunteer hours for each quarter are also given in the Appendix.

Deliverables:

1. Spreadsheet of plant materials collected/propagated
Due Date: 3/31/2017

2. Photos of plant materials collected/propagated
Due Date: 3/31/2017

Task 3: Student and Volunteer Workdays

Throughout the grant period, TCWP hosted at least one student/volunteer workday per month. Texas Master Naturalists, volunteers from hosting organizations, teachers and students from local schools, and others with an interest in wetlands were invited to attend the workdays. The Third Thursday of each month, from 9am-12 pm (and 8:30-11:30 in summer) is designated as the ongoing wetland nursery workday. On workdays, TCWP staff and Wetland Restoration Team members instruct and guide students and volunteers at the nursery in preparing plants for propagation or installation. Students and volunteers perform a valuable service while gaining a greater understanding and appreciation of wetlands.

A summary of student and volunteer workdays by month or quarter is provided below. For specific activities performed during workdays, see the Task 2: Plant Collection and Propagation section above. Volunteer sign-in sheets for events are included in the Appendix.

October 2015: TCWP worked with the COTMN chapter to determine a regular schedule of volunteer days at the wetland nursery which will be officially implemented January 2016. During the construction of the nursery, which is scheduled to begin December 2015, there will be volunteer workdays for master naturalists as needed.

January-March 2016: A regular volunteer workday was implemented for the Third Thursday of each month. Generally the times are 9am-12pm, with additional work after lunch as needed. Workday dates in this quarter were January 21, February 18 and March 17.

April-June 2016: A regular volunteer workday was implemented for the Third Thursday of each month. Workday dates in this quarter were April 21, May 19 and June 16.

April 2016: Two Boy Scouts donated service projects to the wetland nursery. As part of a Hornaday Award for conservation, Carl Kneupper designed, coordinated, and constructed two potting tables and two seeding tables, each with a 3'x6' surface area, based on consultation with TCWP. Scott Kanski began his Eagle Scout project in April, constructing the compost bin system and one potting table with 8 volunteers from his troop on April 16. He installed shelving in the nursery shed and added hardware to the compost bin to complete his project on May 21. Materials for the projects were purchased via this grant. Construction of the potting tables fulfills a stated grant task. A record of scout volunteer hours can be found in the attached spreadsheet.

May 2016: Wetland plants from the GCBO nursery were transplanted to TCWP's installation of floating wetland islands in Pearland on May 12. The floating wetlands, placed in March 2015, were a hit this past winter with the migratory water birds at the John Hargrove Environmental Complex, to the detriment of

the plants installed on them. Full establishment of the plants is critical to the function of the floating wetlands as a water quality improvement technique. A partial replanting was scheduled to follow the spring migration. On May 12, 300 Dixie iris/*Iris hexagona* and 120 Common rush/*Juncus effusus* were planted on the connected arc of islands by 7 volunteers plus 3 City of Pearland staff. Pearland staff also relocated the eight individual floating wetland islands to the inside of the floating wetland arc to lessen the impact of water birds and turtles, which seem to prefer congregating on isolated islands. A follow up date to replant the individual islands with GCBO nursery plants will be set for late summer.

July-September 2016: A regular volunteer workdays continued on the Third Thursday of each month. Workday dates in this quarter were July 21, August 18 and September 18.

October-December 2016: A regular volunteer workdays continued on the Third Thursday of each month. Workday dates in this quarter were Oct13, Nov 17 and Dec 15. One additional workday, Oct 13, took place in Pearland at the John Hargrove Environmental Center's floating wetland. 100 Hibiscus seedballs previously prepared in the GCBO nursery were distributed on the floating wetland mats to germinate.

January-March 2017: A regular volunteer workdays continued on the Third Thursday of each month. Workday dates in this quarter were Jan 19, Feb 16 and Mar 17. On March 23, 100 GCBO nursery plants were included in the volunteer planting of a stormwater wetland at the MD Anderson Cancer Center in Houston. The new basin was developed for runoff from a parking lot expansion at the UT Research Park on MD Anderson's South Campus.

Deliverables:

1. Report on volunteer events, including number of attendees, event dates, and work accomplished at each event
Due Date: With applicable progress report
2. Photos of volunteer workdays
Due Date: With applicable progress report

Task 4: Education and Outreach

TCWP held three workshops at the GCBO Avian Conservation Science Center entitled "Managing Our Stormwater, from Gutter to Gator". The objective was to educate the public on much needed techniques to manage stormwater in ways that also provide wildlife habitat and water quality in the Texas Gulf Coast region. The three-hour workshop was held on August 12, 2016, with a focus for volunteers and community members; September 29, 2016 with a focus for professionals (municipal staff, elected officials, environmental professionals, and others); and March 4, 2017, with a focus for educators; but was open to anyone with an interest in wetlands and Green Stormwater Infrastructure. The workshop was the genesis of a new TCWP project, Green Infrastructure for Texas (GIFT), which will educate the public about green stormwater infrastructure practices at a range of scales, from residential to regional, through outreach and demonstration projects. For the first time, three TCWP sister programs, the Wetland Restoration Program, the Stormwater Wetland Program, and the Stormwater

Management Program were integrated through the common goal of water quality and habitat improvements. The TX A&M AgriLife Extension Program Specialists for each of these TCWP sister programs spoke at the workshop: Charriss York on smaller scale on-site stormwater best management practices, Mary Carol Edwards on Stormwater Treatment Wetlands for urban and suburban settings, and Marissa Llosa on freshwater wetland restoration for large-scale regional water quality and habitat improvements. Workshop documents, including flyers, handouts, registration and sign-in sheets, and photos are included in the Appendix.

Interpretive signage was designed and installed at the nursery to educate the public on project goals, values, and benefits. Conceptual designs and draft layout text of interpretive signage were submitted and approved by the GLO prior to installation. A brochure was developed and printed to introduce the public and potential stormwater wetland site partners to the Wetland Plant Partnership project. A draft brochure was submitted to the GLO for review prior to printing. Sign and brochure graphics are included in the Appendix.

A weekly newsletter for the TCWP Stormwater Wetland Program kept volunteers and partners up to date on activities at the GCBO wetland. Copies of these articles are included in the Appendix. A summary of outreach and education activities by month or quarter is provided below.

October 2015: TCWP is currently developing topics and dates for the workshop. March 2016, October 2016, and March 2017 are targeted for workshops. TX A&M AgriLife Extension Specialists Charriss York and Marissa Llosa are confirmed presenters for two of the workshops. Dates and topics will be integrated with the schedules and agendas of GCBO and COTMN.

February 2016: TCWP has set a date for the first workshop, May 26, 2016. October 2016, and March 2017 are targeted for the next workshops. The workshop will integrate the wetland restoration work of Marissa Llosa, the stormwater treatment wetland work by Mary Carol Edwards, and stormwater management work (including rain gardens, bioswales, and roof gardens) of Charriss York under the broad topic of green infrastructure. The objective is to educate the public on much needed techniques to manage stormwater in ways that also provide wildlife habitat and water quality in the Texas Gulf Coast region. The first workshop will be focused for municipal staff, elected officials, environmental professionals, and other professionals.

April 2016: TCWP staff Mary Carol Edwards, TX A&M consultant engineer Fouad Jaber, and COTMN Chris Kneupper met for a Brazosport College site visit on 4/1 and discussion of the stormwater wetland program and Wetland Plant Partnership project to faculty and administrators. Brazosport College would like to transform a 3.5 acre detention basin on campus into a stormwater wetland and outdoor education/greenspace, and is entering into a Memorandum of Understanding with TX A&M for this project. The basin drains the campus, including parking lots, directly into Oyster Creek, which has been 303(d) listed by the EPA for high bacteria and nutrient enrichment and low dissolved oxygen. Plants from the GCBO wetland nursery will be used in the Brazosport College stormwater wetland.

May 2016: TCWP reset the date for the first workshop to August 12, 2016. September 29, 2016, and March 4, 2017 are set for the next workshops. The workshops will integrate the related programs of

three TX A&M AgriLife Extension Specialists in a new joint program called Green Infrastructure For Texas (GIFT): wetland restoration work of Marissa Llosa, the stormwater treatment wetland work by Mary Carol Edwards, and stormwater management practices (including rain gardens, bioswales and roof gardens) of Charriss York under the broad topic of green stormwater infrastructure. The target audience for the 8/12 workshop will be volunteers and community members, the 9/29 workshop will target municipal staff, elected officials, environmental professionals, and other professionals, and the 3/4/17 workshop will target youth and educators. The content of the workshops will be tailored to each audience.

Temporary signage, approved by TXGLO, was placed in the wetland nursery. A photo of the signage is included in the Appendix.

June 2016: TCWP staff Mary Carol Edwards presented the stormwater wetland program and Wetland Plant Partnership project to a meeting of the Velasco Drainage District on June 7. This Brazoria County drainage district is planning a detention basin with park programming for Richmond, TX, and could be an ideal location for a stormwater wetland using GBCO nursery plants. Approximately 25 people were in attendance.

July 2016: Preparations and announcements were made for the first of three workshops, entitled “Managing Our Stormwater from Gutter to Gator”.

August 2016: The first Managing our Stormwater from Gutter to Gator workshop was held August 12, with a focus on volunteers and community members. The event was at capacity, with 37 of the registered 43 attending as well as 5 TCWP staff and 2 GCBO staff. Participants were largely from three regional Texas Master Naturalist Chapters, with 13 Cradle of Texas MNs, 7 Galveston Bay Area MNs, 6 Gulf Coast MNs, 1 Harris County Master Gardener, and 5 representing other organizations. One participant from each of these professional entities: Galveston Bay Foundation, NASA, Rice University, one architect and one forester. Following the workshop, participants toured the wetland nursery. An online survey was sent to participants afterward. 23 of the 37 (62%) took the survey, with very positive responses to the workshop and intentions to implement Green Infrastructure practices. A copy of the survey is included in the Appendix.

September 2016: The second “Managing our Stormwater from Gutter to Gator” workshop was held September 29. The content was updated to include policy and program information for municipal staff, elected officials, environmental professionals, and other professionals. There were 34 registrations and 24 attendees as well as 4 TCWP staff and 2 GCBO staff. Participants represented the Cities of Alvin (1), Pearland (4), League City (1), Rockport (1); Texas A&M University system (3), Galveston Bay Estuary Program (2), and one each for Aransas County, LAN engineers, Sierra Club, Urban Harvest, and a forester. 2 Gulf Coast MNs, 2 Cradle of Texas MNs, and 2 unaffiliated also attended. Following the workshop, participants toured the wetland nursery. An online survey was sent to participants afterward. 12 of the 24 (50%) took the survey. A copy of the survey is included in the Appendix.

Oct-Dec 2016: Preparations for the third and final workshop of the series entitled “Managing Our Stormwater from Gutter to Gator” will resume in the next quarter.

March 2017: The third and final workshop of the series entitled “Managing Our Stormwater from Gutter to Gator” will took place Saturday, March 4. This presentation was focused for educators. Thirteen people attended. A workshop sign-in sheet and the results of a post-workshop survey are given in the Appendix.

A trifold brochure for the Wetland Plant Partnership project was been designed and produced. The brochure introduces the reader to the wetland nursery at GCBO and covers these areas: stormwater wetlands, wetland benefits to birds and other wildlife, and the Wetland Plant Partnership. It features photos of wetland plants and nursery activities taken by Master Naturalist volunteers and TCWP staff. The intended audience is potential stormwater wetland project partners in Brazoria County and beyond, as well as the general public, and will become part of the Stormwater Wetland Program outreach. A pdf copy of the brochure can be found in the Appendix.

An interpretive sign which will be installed in the nursery has been designed and sent for fabrication. Based on the Wetland Plant Partnership brochure, it features the themes of stormwater wetlands, wetland benefits to birds and other wildlife, and the Wetland Plant Partnership, plus images of key wetland plants. The 24”x 18” sign will sit on a 2”x2” post produced by the fabrication company. A pdf of the sign and order form are in the Appendix.

Deliverables:

1. Workshop materials, including number of attendees, speakers, and educational materials
Due Date: With applicable progress report
2. Photos of installed interpretive signage
Due Date: 3/31/2017
3. Copy of printed brochure
Due Date: 3/31/2017

Task 5: Project Reporting

Texas A&M AgriLife Extension Service prepared and submitted all reports, deliverables, and requests for reimbursement as required in the contract to CMPReceipts@GLO.TEXAS.GOV. Monthly progress reports are due to CMPReceipts@GLO.TEXAS.GOV on the 10th day of every month starting January 10, 2016. Texas A&M AgriLife Extension Service will submit a final report summarizing the completed work along with a project closeout form. Requests for reimbursement are to be submitted in a timely manner to CMPReceipts@GLO.TEXAS.GOV, as specified in the contract.

Oct 2015-Mar 2017: 6 quarterly reports were submitted. Submission of the reimbursement form was done by the Texas A&M University Office of Sponsored Research Services.

Deliverables:

1. Monthly progress reports and requests for reimbursement

Due Date: As specified in the contract

2. Final report
Due Date: 3/31/2017
3. Project closeout form
Due Date: 3/31/2017

Section 3: Results and Discussion

Challenges and Successes

In addition to establishing the Wetland Plant Partnership nursery as a stock of regional native plants for stormwater wetland projects in and near Brazoria County, the Wetland Plant Partnership enjoyed a number of successes, both organizational and horticultural. TCWP's previous involvement with COTMN was limited to teaching one training class per year, unlike the close relationship of over 15 years between TCWP and the GBAMN. Through this project, the nursery has become a key part of the COTMN volunteer opportunities and many hours have been given for both scheduled and independent activities. The contract also enabled a partnership between the GCBO and Texas A&M, through TCWP. Through the project, new visitors attended or participated in GCBO activities. The support of GCBO for the nursery and workshops has been hands-on and enormously beneficial, and sets the stage for future collaborations benefitting wildlife, water quality and education.

Through the operation of the nursery, several wetland horticultural advances were made. 1) Successful seed germination methods for native Iris, Hibiscus, Swamp lily/*Crinum americanum*, Spider lily *Hymenocallis liriosme*, Sedges/*Cyperus* spp, and other key stormwater wetland species makes wild collection of adult plants unnecessary. Collecting seeds is generally easier on volunteers, many of whom are of retirement age, than digging plants, and potentially produces more plants with more genetic diversity than field dug specimens. 2) COTMN volunteers sought and propagated several uncommon species. The nursery currently stocks several hundred Indianola beaksedge/*Rhynchospora indianolensis*, Buttonbush flatsedge/*Cyperus cephalanthus*, Aquatic milkweed/*Asclepias perennis* and others grown from seed, making the nursery perhaps unique in the state for propagating these species. 3) Wetland plants have varying tolerances for water levels, and limited space in the nursery tanks is giving rise to observations about what species do better being stored on-grade. For example, young transplanted Dixie iris/*Iris hexagona* and many other small seedlings prefer to be kept out of water for several months before being transferred to the tanks.

An additional success to note is that the topic developed for the workshop, "Managing our Stormwater from Gutter to Gator" was the impetus for three TCWP "sister programs" (Wetland Restoration Program, Stormwater Wetland Program, and Stormwater Management Program) to collaborate on a new project, Green Infrastructure for Texas (GIFT). The scale of these programs overlaps but generally

ranges from the smaller-scale urban site-based techniques of green stormwater infrastructure to campus and suburban-scale treatment wetlands to freshwater wetland restoration in natural areas preserved and restored at the outskirts of development. The multiplicity of benefits from green infrastructure at any scale, including floodwater control, improvement of stormwater runoff quality, creation of natural habitat, and providing green space for citizens, is a unifying factor. GIFT provides demonstration projects, research, and outreach on green stormwater infrastructure practices (including stormwater wetlands) from the small scale up to the regional scale.

One of the challenges encountered in the course of the project was local K-12 school involvement. Clear Creek ISD, one of the original project partners, has gone through a period of inactivity with TCWP after the retirement of the previous district science coordinator, who was an advocate of outdoor classroom experiences. Other school districts were not engaged in the Wetland Plant Partnership during the time of the contract. However, the opportunity for students to experience wetland education and to do volunteer service is ongoing, and will be explored as the work of the nursery and Stormwater Wetland Program continues. The student participation recorded during the contract was through Boy Scouts with Eagle and Hornaday Conservation projects, and college students acting as volunteers.

Another challenge was producing the numbers of plants originally estimated, 18,000. As of March 31, 6269 inventoried plants were in the nursery stocks. An additional 662 plants (and 120 seedballs) have been transplanted to TCWP stormwater wetland sites (Pearland Floating Wetlands, MD Anderson/UT Research Park). Many more plants are currently in seedling stage and as such are not counted in the inventory. During the contract period, potential stormwater wetland sites under consideration did not progress to the active planting phase, which would have required high numbers of plants and additional workdays and labor to propagate them. However, partnerships for potential stormwater wetlands were initiated and sites investigated (see Next Steps for the Wetland Plant Partnership, below). Future needs for wetland plant stocks will require ramping up production, and the skills and knowledge gained in the Wetland Plant Partnership will be critical to that process.

Next steps for the Wetland Plant Partnership

During the course of the contract, preliminary arrangements were made to create new stormwater wetlands sites in Brazoria and Harris counties. These projects will use wetland plants grown in the Wetland Plant Partnership nursery. The site at Brazosport College in Lake Jackson is a 3.5 acre retrofit of the existing campus stormwater detention basin which drains directly to Oyster Creek. The College would like the stormwater wetland to function as an outdoor classroom and lab, and students will play a key part in growing, planting, and monitoring. Another site is at University of Texas MD Anderson Cancer Center in the Texas Medical Center, a ½-acre basin resulting from a planned expansion of a building and parking lot in the South Campus. A goal of MD Anderson is to have the campus landscape demonstrate health-giving environmental practices, such as the natural water quality improvements of stormwater wetlands. Other potential sites which may develop are at a proposed county park in Lake Jackson and

renovation of the county park on Follett's Island. The Wetland Plant Partnership nursery is poised to meet the wetland plant demand of these and future projects.

TCWP will continue to seek funding for the ongoing operation of the nursery and stormwater wetland projects. Relationships with the regional schools will be established so that K-12 students can participate in wetland activities and education. TCWP and COTMN anticipate the continued strengthening of their partnership through additional projects, volunteer opportunities, and trainings.

An indirect result of the contract was the development of the TCWP Green Infrastructure for Texas (GIFT) program, which has evolved from the Wetland Plant Partnership workshop component. TCWP staff have been invited to present the "Managing Our Stormwater from Gutter to Gator" workshop in Victoria in June 2017, and have begun a project with an Home Owners Association in Montgomery County which will ultimately incorporate rain gardens, water cachement and other small-scale stormwater practices, stormwater wetlands in a retrofitted detention basin, and a regional wetland conservation and restoration plan. TCWP will continue to seek funding for the development of GIFT.

Section 4: List of Appendices

Appendices are arranged by the contract task number and are given as separate files to this report.

Task 1: Nursery construction and maintenance

1.1 Construction Documents

1.2 Photo sequence of construction, maintenance, and volunteer workdays

Task 2: Plant collection and propagation

2.1 Inventory spreadsheet of plants collected and propagated

2.2 Photos of plants collected/propagated

2.3 Other: Plant collection permit, Brazoria National Wildlife Refuge

Task 3: Student and volunteer workdays

3.1 Volunteer workday reports

3.2 Photos of volunteer workdays

3.3 Other: Volunteer sign-in sheets, Cradle of Texas Master Naturalist reported hours

Task 4: Education and Outreach

4.1 Outreach: Workshop documents

4.2 Outreach: Interpretive Signage and Brochure

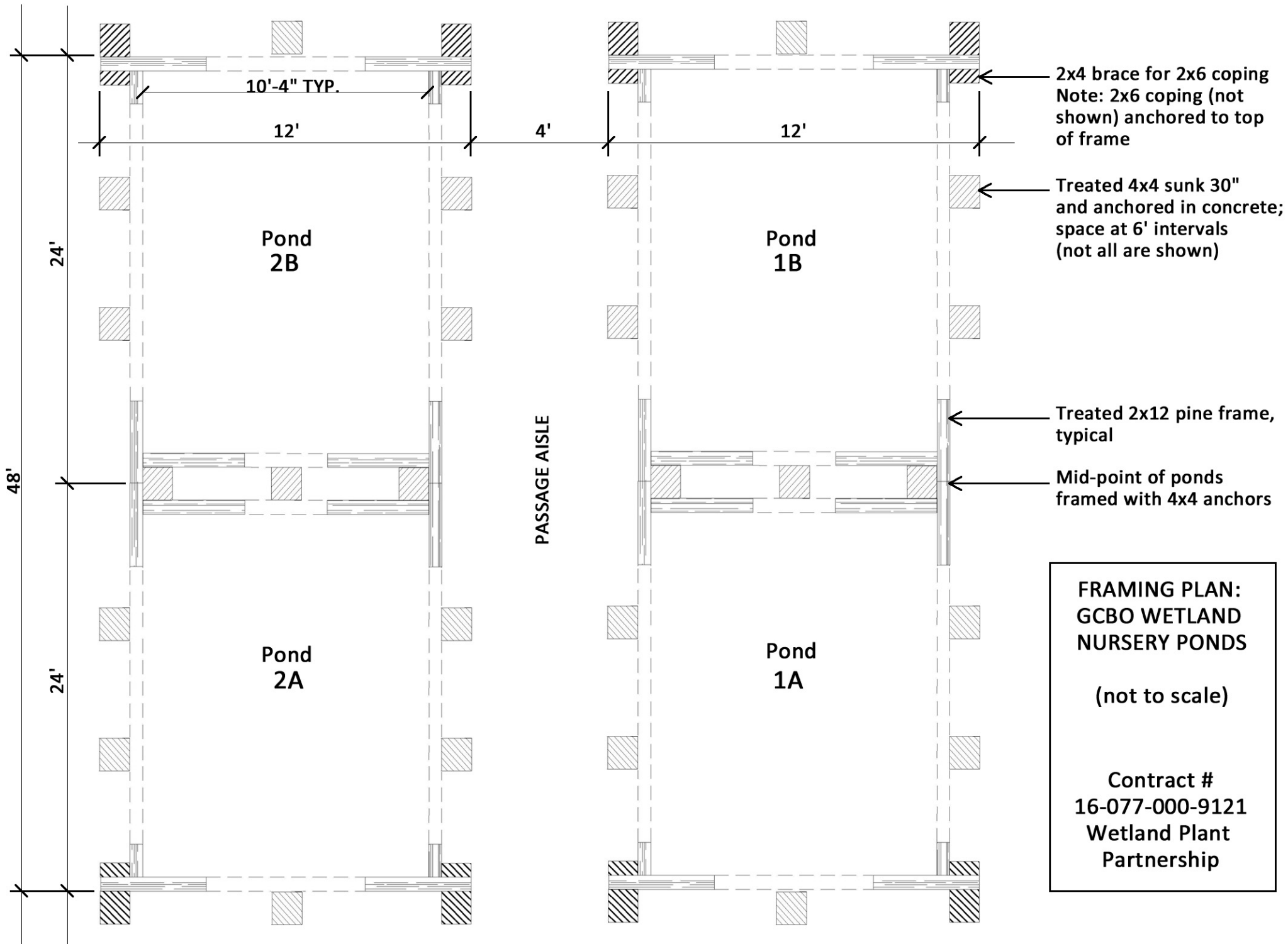
4.3 Outreach: Stormwater Wetland Program newsletters

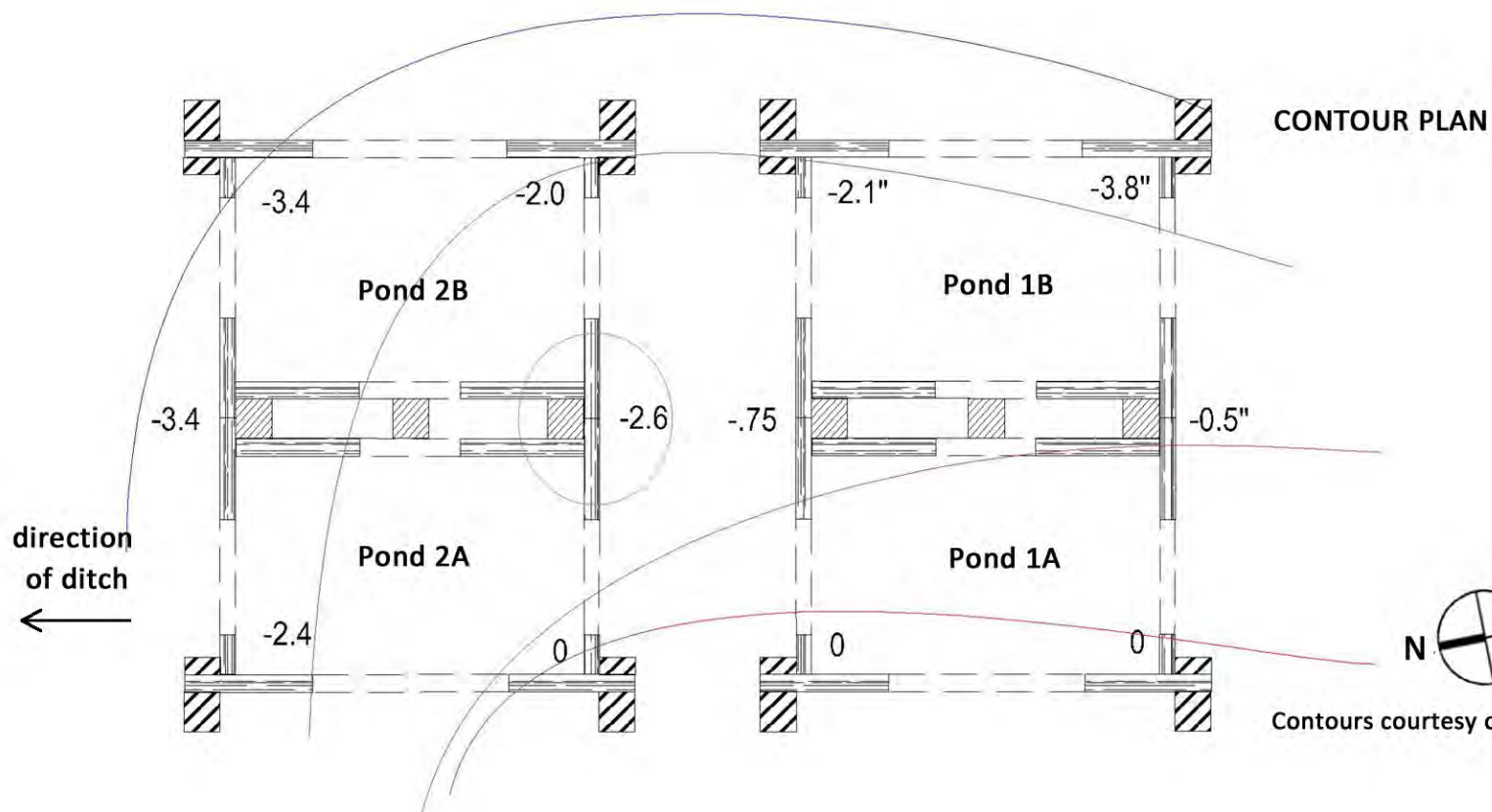
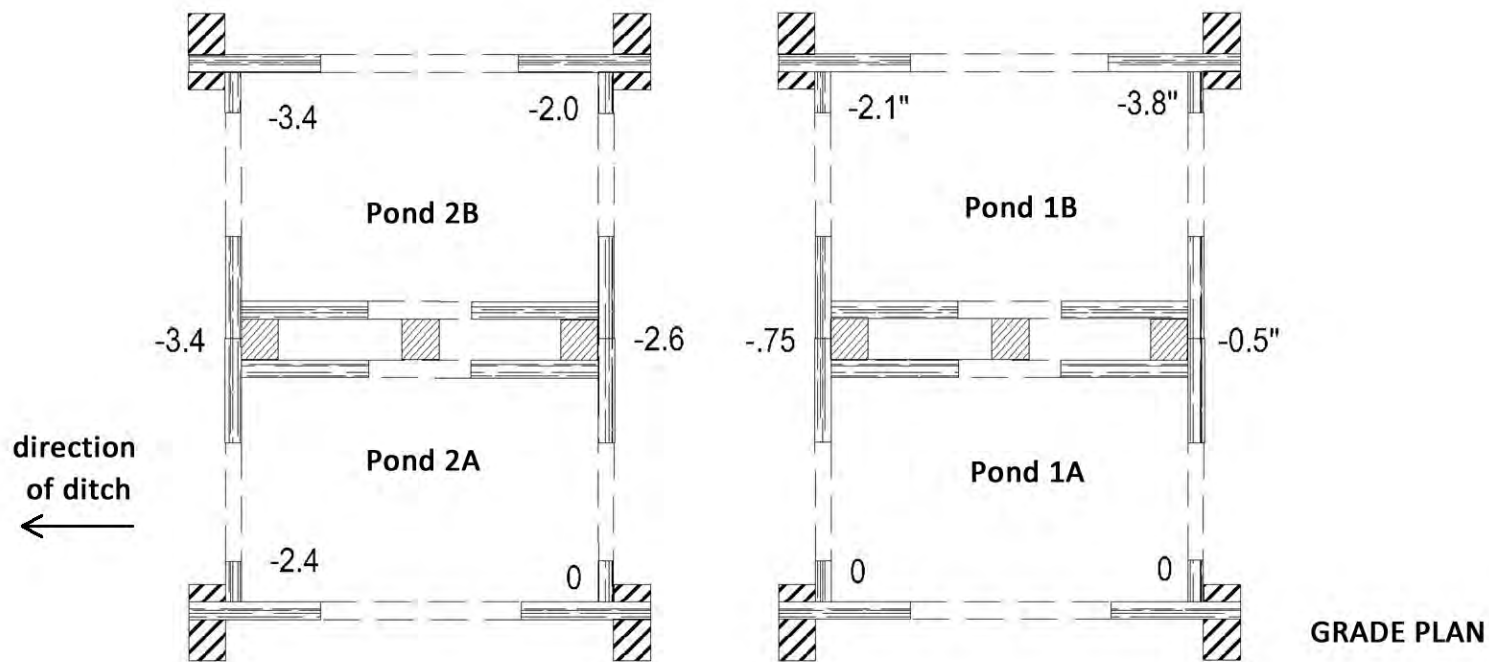
Task 5: Project reporting

5.1 Letters documenting partner organization match donations

Task 1 Documents:

Nursery construction and maintenance





**ELEVATION AND
GRADE PLAN:
GCBO WETLAND
NURSERY PONDS**

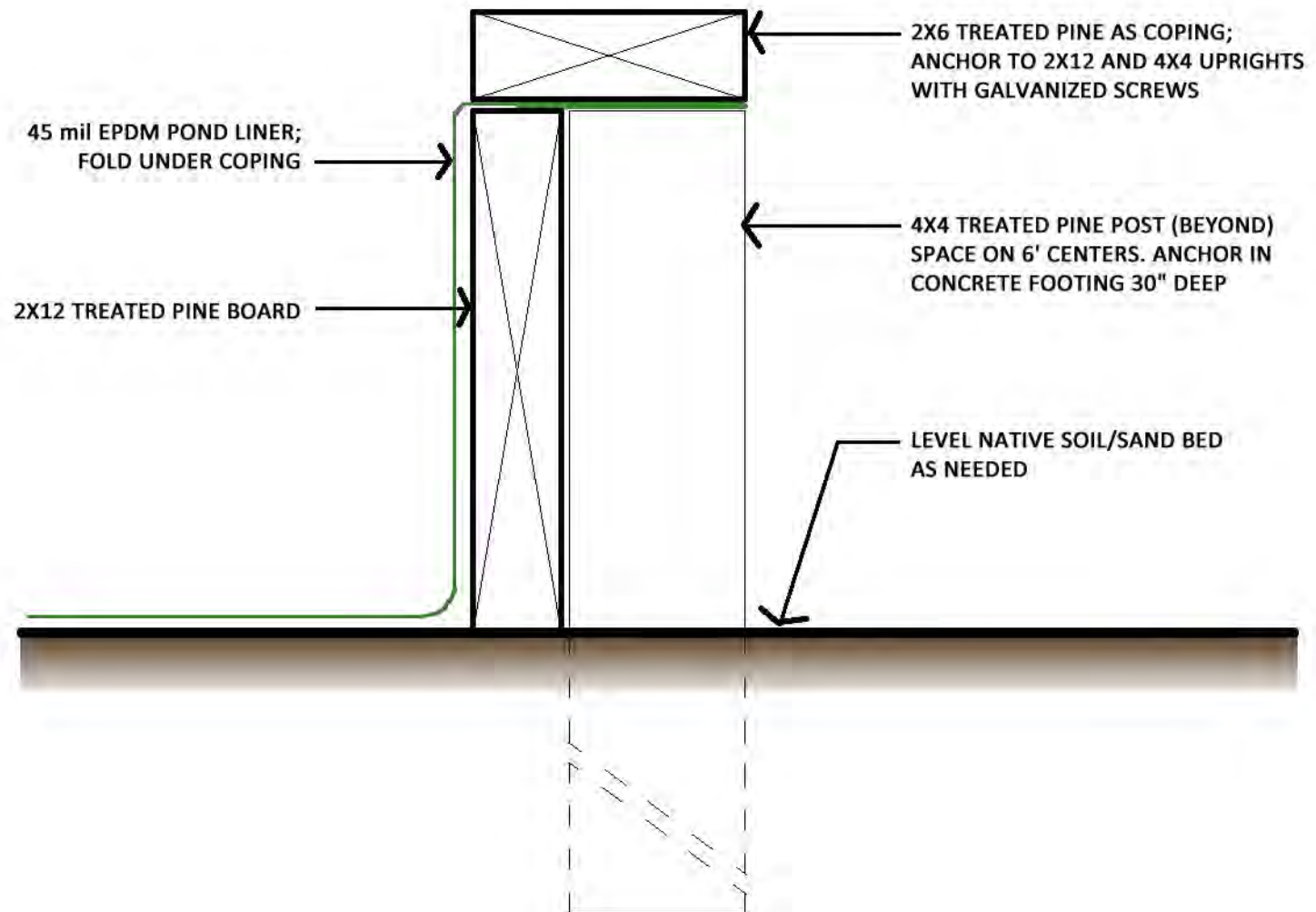
(not to scale)

**Contract #
16-077-000-9121
Wetland Plant
Partnership**

Contours courtesy of Dave Brandes, Texas Master Naturalist

SECTION OF WETLAND NURSERY POND WALL

SCALE: 1/4" = 1'-0"



GCBO nursery construction timeline

Day	Date		Task	Duration	Workers	Notes
1	5-Jan	Tuesday	Pondliners to GCBO, shop tools, stumps	full day	MC	MC: order concrete
2	8-Jan	Friday	Auger corner holes and set corner posts	full day	MC, DW	Rent auger
3	12-Jan	Tuesday	Auger holes and set posts	full day	MC, DW	Rent auger
4	15-Jan	Friday	Auger holes and set posts	full day	MC, DW	Rent auger
5	19-Jan	Tuesday	Frame sides	full day	MC, DW	
6	20-Jan	Wed	Frame sides	full day	MC +	MC: Order sand
7	21-Jan	Thurs	Frame sides	full day	MC, DW	1st scheduled GCBO workday
			Clear brush for sand delivery	part day	CK?	
8	22-Jan	Friday	Distribute and compact sand	full day	MC, DW	
9	27-Jan	Wed	Add liners. Install coping.	full day	MC +	
10	29-Jan	Friday	Construction as needed	full day	MC +	
11	1-Feb	Monday	Construction as needed/move plants in			
12	2-Feb	Tuesday	Construction as needed/move plants in			

Thursday Jan 21, 10am-4pm: Setting 4x4 posts (concurrent with the nursery plant work, 9am-12pm)

Friday Jan 22, 10am-4pm: Finish setting posts as needed, Begin framing sides

Wednesday Jan 27, 10am-4pm: Frame sides of tanks

Friday Jan 29, 10am-4pm: Clear a small area of brush for sand delivery, distribute and compact sand in bed of tanks

Monday Feb 1, 10am-4pm: Add pondliners. Install coping

Tuesday Feb 2, 10am-4pm: Construction as needed/move plants into ponds

Friday Feb 5, 10am-4pm: Construction as needed/move plants into ponds

Wetland Plant Partnership photos: October-December 2015



Site conditions, Oct 7



Site conditions before mowing,
Oct 7



Plants collected over summer of 2015
by volunteer



First load of potting soil,
November



Preliminary site layout, south view



Preliminary site layout, north view



Volunteer collecting iris,
Dec 10. Photo: Roger Allen



Volunteers collecting iris,
Dec 10. Photo: Roger Allen



Iris awaiting potting at the nursery



Tool shed delivery

Wetland Plant Partnership Photos: January 2016



(L) TCWP staff stake the locations of the nursery tanks. (R) Holes are dug by auger and 4' posts of 4x4 are placed.



(L) Posts are anchored in concrete. Photo: Pete Romfh (R) The site with posts partially set.



(L) volunteers complete setting of the posts. (R) Framing of the tanks begins. Photo: Dave Brandes

Wetland Plant Partnership Photos: January 2016



Meanwhile plants are still being propagated and cared for as the tanks are being constructed.



(L) A COTMN volunteer frames a corner. (R) Sheets of cardboard are placed in the bed of the tanks to prevent punctures to the pond liner.



(L) Sand is hauled to the tanks. Photo: Dave Brandes (R) Several inches of sand creates a bed in each tank.



(L) The first pond liner is unloaded Photo: Pete Romfh (R) Volunteers place the liner in the tank.

Wetland Plant Partnership Photos: January-February 2016



(L) Pondliners are in position (R) Volunteers pause for a photo after the pondliners are placed. Photo: Pete Romfh



(L) The top coping is installed over the pondliners. Photo: Pete Romfh (R) Coping placement continues .



(L) COTMN volunteers add the first plants (Photo: Pete Romfh), even as the last of the coping gets installed (R).

Wetland Plant Partnership Photos: February 2016



(L) The last piece of coping is placed! (R) TCWP staff and volunteers pose as the tank construction is complete.



(L) Stock of plants waiting for transfer to the ponds (R) A view of the tanks full of plants. Photo: Danny Walton.



Volunteers propagate plants on the February Third Thursday workday. Photos: Dave Brandes

Task 2 Documents:

Plant collection and propagation

**Wetland Plant Partnership Nursery Inventory
March 2017**

Location	QTY	Common name	Species	Source	
Pond 1B	4	Eastern Blue Star	<i>Amsonia tabernaemontana</i>	Jackson Co.	OBL
Seed Table	1	Longleaf Milkweed	<i>Asclepias longifolia</i> var. <i>hirtella</i>	seed from Nash Prairie near slough	FACW
weedcloth2	51	Aquatic Milkweed	<i>Asclepias perennis</i>	seedlings of pink-flowered selection "Elissa"	FAC
weedcloth2	43	Aquatic Milkweed	<i>Asclepias perennis</i>	seedlings of plants from across SW Brazoria Co.	OBL
weedcloth2	62	Aquatic Milkweed	<i>Asclepias perennis</i>	SW Brazoria Co. (52 on loan to USFWS Mid-Coast); 10	OBL
Seed Table	1	unknown Milkweed	<i>Asclepias species</i>	possibly Slim Milkweed	OBL
Seed Table	1	Whorled Milkweed	<i>Asclepias verticillata</i>	seed from Nash Prairie near road	na
Pond 2B	121	Ravensfoot Sedge	<i>Carex crus-corvi</i>	SW Brazoria Co. (CR-461)	FACU
Pond 2A	45	Thinscale Sedge	<i>Carex hyalinolepis</i>	Brazoria Co.; E end of CR-223	OBL
Pond 2B	172	Thinscale Sedge	<i>Carex hyalinolepis</i> (robust variety)	Brazoria Co.; FM-2918 @ CR-306	OBL
ground	178	Louisiana Sedge	<i>Carex louisianica</i>	seed from plants from FM-2611 @ CR-310-in wet roads	OBL
Pond 1B	35	Louisiana Sedge	<i>Carex louisianica</i>	Brazoria Co.; FM-2611 @ CR-310-in wet roadside ditch	OBL
A	2	Hop Sedge	<i>Carex lupulina</i>	Harris Co.; ~10500 C.E. King Parkway (next to roadside)	OBL
Pond 2B	10	unknown Sedge	<i>Carex spp.</i>	Brazoria Co.; FM-2004 @ Jones Creek	OBL
ground	68	Britton's Sedge	<i>Carex tetrastachya</i>	Brazoria Co.; CR-461 @ FM-521	FACW
J	10	Britton's Sedge	<i>Carex tetrastachya</i>	Brazoria Co.; S end of CR-461	FACW
ground	66	Swamp Lily	<i>Crinum americanum</i>	From flats on seed table with bulblets from plants at GC	OBL
Pond 1A	53	Swamp Lily	<i>Crinum americanum</i>	GCBO pond (mix of seed & dug-up plants)	OBL
Seed Table	18	Swamp Lily	<i>Crinum americanum</i>	Flats with seeds from plants at GCBO pond	OBL
A	1	Jointed Flatsedge	<i>Cyperus articulatus</i>	bycatch from iris collections	OBL
Pond 1B	11	Buttonbush Flatsedge	<i>Cyperus cephalanthus</i>	grown from seed from Mark Morgenstern (Nash Prairie)	OBL
Pond 1B	86	Buttonbush Flatsedge	<i>Cyperus cephalanthus</i>	plants from red tubs from Susan Conaty	OBL
Seeds	3	Buttonbush Flatsedge	<i>Cyperus cephalanthus</i>	seed from Mark Morgenstern (Nash Prairie)	OBL
weedcloth1	52	Buttonbush Flatsedge	<i>Cyperus cephalanthus</i>	plants from corms in red tubs from Susan Conaty	OBL
D	3	Pond Flatsedge	<i>Cyperus ochraceus</i>	Brazoria Co.; FM-2611 bridge @ San Bernard (1 in 5-g	FACW
D	1	Pine Barren Flatsedge	<i>Cyperus retrorsus</i>	Brazoria Co.	FACU
Seed Table	1	Pine Barren Flatsedge	<i>Cyperus retrorsus</i>	seed collected in Brazoria Co.	FACU
Pond 1B	15	Flatsedge	<i>Cyperus spp.</i>	Brazoria Co.; FM-2611 near FM-2918	FACU
Pond 1B	6	Green Flatsedge	<i>Cyperus virens</i>	Brazoria Co.; FM-2611 near FM-2918	OBL
Pond 1B	27	Green Flatsedge	<i>Cyperus virens</i>	Nash prairie plants from red tubs from Susan Conaty	OBL
A	7	Square-stem Spikerush	<i>Eleocharis quadrangulata</i>	GCBO pond (next to dock)	OBL
E	7	Square-stem Spikerush	<i>Eleocharis quadrangulata</i>	CR-309 at pipeline	OBL
F	33	Square-stem Spikerush	<i>Eleocharis quadrangulata</i>	Brazoria Co.; CR-309 at pipeline	OBL
Pond 1A	10	Spikerush	<i>Eleocharis sp.</i>	Brazoria Co. CR-309 (medium stems)	FACW
Pond 1A	10	Spikerush	<i>Eleocharis sp.</i>	Brazoria Co. CR-700 (large stems)	FACW
Pond 1A	8	Spikerush	<i>Eleocharis sp.</i>	Brazoria Co.; FM-2004 @ Jones Creek (medium stems)	FACW
Pond 1A	6	Spikerush	<i>Eleocharis sp.</i>	Brazoria Co.; small clump type; grew in pots of Iris-Jone	FACW
ground	120	Spikerush	<i>Eleocharis spp.</i>	Brazoria Co. (bycatch & volunteers; multiple locations)	FACW
ground	4	Carolina Buckthorn	<i>Frangula carolina</i>	seed from FM-2611 near CR-309	FACU
Pond 1B	1	Neches River Mallow (5-gal)	<i>Hibiscus dasycalyx</i>	Treeseach Farms	OBL (?)
Seed Table	3	Neches River Mallow	<i>Hibiscus dasycalyx</i>	seed from plants at GCBO; originally from Treeseach F	OBL (?)
Pond 1B	4	Halberd-leaved Hibiscus (5-gal)	<i>Hibiscus laevis</i>	Brazoria Co.; FM-2004 @ Jones Creek	OBL (?)
Pond 1B	1	Halberd-leaved Hibiscus (5-gal)	<i>Hibiscus laevis</i>	Calhoun Co.; Guadalupe delta	OBL (?)
Seed Table	1	Halberd-leaved Hibiscus (1 tin)	<i>Hibiscus laevis</i>	Brazoria Co.; FM-2004 @ Jones Creek - from seed coll	OBL (?)
Seed Table	4	Halberd-leaved Hibiscus	<i>Hibiscus laevis</i>	Calhoun Co.; Guadalupe delta from seeds collected at	OBL (?)
weedcloth2	62	Halberd-leaved Hibiscus	<i>Hibiscus laevis</i>	Brazoria Co.; FM-2004 @ Jones Creek - from seed coll	OBL (?)
weedcloth2	284	Halberd-leaved Hibiscus	<i>Hibiscus laevis</i>	grown from seed collected at Mid-Coast NWR office	OBL (?)
weedcloth2	27	Halberd-leaved Hibiscus	<i>Hibiscus laevis</i>	grown from seed of "Lufkin Red" at Treeseach Farms	OBL (?)
Pond 1B	13	Woolly Mallow (5-gal)	<i>Hibiscus lasiocarpus</i>	collected as small plants on E end of CR-223	na
Seed Table	1	Woolly Mallow	<i>Hibiscus lasiocarpus</i>	seed collected at Mid-Coast NWR office	na
Seed Table	1	Woolly Mallow (1 tin)	<i>Hibiscus lasiocarpus</i>	seed from plants at GCBO, originally from E end of CR-	na
weedcloth2	20	Woolly Mallow	<i>Hibiscus lasiocarpus</i>	grown from seed collected along FM-2611 at CR-310	na
weedcloth2	1	Woolly Mallow	<i>Hibiscus lasiocarpus</i>	grown from seed collected at Mid-Coast NWR office	na
weedcloth2	57	Woolly Mallow	<i>Hibiscus lasiocarpus</i>	potted up at Nov-2016 workday from seedlins of GCBO	na

**Wetland Plant Partnership Nursery Inventory
March 2017**

Seed Table	1	Crimson-eyed Rosemallow	<i>Hibiscus moscheutos</i>	grown from seed collected along Hwy-111 in Lavaca Co	OBL
weedcloth2	109	Crimson-eyed Rosemallow	<i>Hibiscus moscheutos</i>	grown from seed collected along Hwy-111 in Lavaca Co	OBL
Pond 1B	3	Striped Rosemallow (5-gal)	<i>Hibiscus striatus</i>	Calhoun Co.; Guadalupe delta	OBL
Seed Table	1	Striped Rosemallow	<i>Hibiscus striatus var. lambertianus</i>	seed from Calhoun Co.; Guadalupe delta	OBL
Seed Table	1	Striped Rosemallow	<i>Hibiscus striatus var. lambertianus</i>	seed from plants at GCBO Pond 1A (originally Calhoun	OBL
Pond 2A	124	Blue Waterleaf	<i>Hydrolea ovata</i>	Pinebrook Wetlands	
K	30	Spider Lily	<i>Hymenocallis lirisme</i>	CR-227 near BNWR + others (grown from seed)	OBL
Pond 2A	60	Spider Lily	<i>Hymenocallis lirisme</i>	seedlings from tin brought by Mary Carol Edwards	OBL
Pond 2B	12	Spider Lily	<i>Hymenocallis lirisme</i>	CR-227 near BNWR	OBL
weedcloth1	137	Spider Lily	<i>Hymenocallis lirisme</i>	seedlings from tin brought by Mary Carol Edwards	OBL
I	20	Zigzag Iris	<i>Iris brevicaulis</i>	FM-523 - White	OBL
J	18	Zigzag Iris	<i>Iris brevicaulis</i>	FM-523 - Purple	OBL
Pond 1A	110	Zigzag Iris	<i>Iris brevicaulis</i>	Brazoria Co. patch#11 (CR-461 @ FM-521)	OBL
Pond 1A	27	Zigzag Iris	<i>Iris brevicaulis</i>	Brazoria Co. patch#2 (CR309 @ CR461-north side)	OBL
Pond 1A	38	Zigzag Iris	<i>Iris brevicaulis</i>	Brazoria Co. patch#3 (CR309 @ CR461-south side)	OBL
Pond 1A	156	Zigzag Iris	<i>Iris brevicaulis</i>	Galveston Co.; I-45S Bog, League City	OBL
Pond 1B	25	Zigzag Iris	<i>Iris brevicaulis</i>	Brazoria Co. patch#10 (CR-309 @ Utility Box)	OBL
Pond 1B	87	Zigzag Iris	<i>Iris brevicaulis</i>	Brazoria Co.; FM-2004 @ Jones Creek	OBL
Pond 1B	2	Zigzag Iris	<i>Iris brevicaulis</i>	Harris Co.; North Lake Houston Parkway	OBL
Pond 1B	18	Zigzag Iris	<i>Iris brevicaulis</i>	Matagorda Co.; FM-521	OBL
Pond 2A	54	Copper Iris	<i>Iris fulva</i>	from Louisiana via Bob Salzer	OBL
Pond 2B	13	Giant Blue Iris	<i>Iris gigantiacerulea</i>	Brazoria Co. patch #9 (SBNWR-Wolfweed Wetlands)	OBL
Pond 2B	54	Giant Blue Iris	<i>Iris gigantiacerulea</i>	Brazoria Co. patch #9 (SBNWR-Wolfweed Wetlands)	OBL
Pond 2A	1	Dixie Iris	<i>Iris hexagona</i>	Brazoria Co. CR306@culvert N - powder blue selection	OBL
Pond 2A	1	Dixie Iris	<i>Iris hexagona</i>	Brazoria Co. CR306@culvert S (Pointedly Purple) - darl	OBL
Pond 2A	189	Dixie Iris	<i>Iris hexagona</i>	Brazoria Co. patch#5 (SBNWR-CR306 by Cocklebur Sl	OBL
Pond 2A	182	Dixie Iris	<i>Iris hexagona</i>	Brazoria Co. patch#8 (SBNWR Entrance Rd near Bobc	OBL
Pond 2A	6	Dixie Iris	<i>Iris hexagona</i>	Brazoria Co. SBNWR Entrance Rd. (0.7mile right) - mag	OBL
Pond 2A	5	Dixie Iris	<i>Iris hexagona</i>	Brazoria Co. SBNWR Entrance Rd. (0.9mile left) - mag	OBL
Pond 2B	48	Dixie Iris	<i>Iris hexagona</i>	Brazoria Co. patch#4 (FM-2918 @ CR-306)	OBL
Pond 2B	35	Dixie Iris	<i>Iris hexagona</i>	Brazoria Co. patch#6 (FM-2918 @ CR-306) WHITE	OBL
Pond 2B	47	Dixie Iris	<i>Iris hexagona</i>	Brazoria Co. patch#6 (FM-2918 @ CR-306) White area	OBL
Pond 2B	107	Dixie Iris	<i>Iris hexagona</i>	Brazoria Co. patch#7 (CR-306 @ SBNWR headquarter	OBL
Seed Table	1	Dixie Iris	<i>Iris hexagona</i>	seed from plants at GCBO (originally Patch #0)	OBL
weedcloth1	647	Dixie Iris	<i>Iris hexagona</i>	Brazoria Co. patch#5 (SBNWR-CR306 by Cocklebur Sl	OBL
weedcloth1	82	Dixie Iris	<i>Iris hexagona</i>	seed of Brazoria Co. patch#7 (CR-306 @ SBNWR head	OBL
Pond 1A	97	Zigzag Iris	<i>Iris hexagona</i>	Brazoria Co. patch#0 (CR-310)	OBL
Pond 2B	20	Virginia Iris	<i>Iris virginica</i>	Sheldon Lake SP; old rock well	OBL
A	1	Tapertip Rush (2-gal)	<i>Juncus acuminatus</i>	Fort Bend Co.; FM-1462 E of Damon	OBL
Pond 2A	12	Soft Rush	<i>Juncus effusus</i>	plants from red tubs from Susan Conaty	OBL
A	2	Stout Rush	<i>Juncus nodatus</i>	Fort Bend Co.; FM-1462 E of Damon	OBL
C	3	Manyhead Rush	<i>Juncus polycephalos</i>	Brazoria Co.; Hwy-332 in front of GCBO	OBL
Pond 1A	25	Roundhead Rush	<i>Juncus validus</i>	Brazoria Co.; FM-2611 @ CR-310	FACW
Seed Table	45	Roundhead Rush	<i>Juncus validus</i>	Brazoria Co.; FM-2611 @ CR-310	FACW
weedcloth2	4	Saltmarsh Mallow	<i>Kosteletsyka virginia</i>	grown from seed collected at Mid-Coast NWR office	OBL
weedcloth1	41	Nealley Sprangletop	<i>Leptochloa nealleyi</i>	seed from Mark Morgenstern	OBL
Pond 1A	86	Narrowleaf Water Primrose	<i>Ludwigia octovalvis</i>	SW Brazoria Co.	OBL
Seed Table	6	Red Mulberry	<i>Morus rubra</i>	seed from Richwood	FACU
Pond 2A	54	Maidencane	<i>Panicum hemitomom</i>	Pinebrook Wetlands	
A	1	Savannah Panic-grass	<i>Phanopyrum gymnocarpon</i>	Harris Co.; ~10500 C.E. King Parkway (in shallow stand	OBL
Pond 2A	22	Marsh Obedient Plant	<i>Physostegia intermedia</i>	Brazoria Co. CR-306 near FM-2918	FACW
Pond 2A	11	Marsh Obedient Plant	<i>Physostegia intermedia</i>	Matagorda Co. @ Hawkinsville	FACW
Seeds	2	Marsh Obedient Plant	<i>Physostegia intermedia</i>	seed from Brazoria Co. CR-630A	FACW
Seeds	2	Marsh Obedient Plant	<i>Physostegia intermedia</i>	seed of GCBO plants from Matagorda Co. @ Hawkinsvi	FACW
Pond 1B	21	Beautiful Obedient Plant	<i>Physostegia pulchella</i>	Matagorda Co. @ Cedar Lane (FM-521 & FM-457)	FACW
Seeds	2	Beautiful Obedient Plant	<i>Physostegia pulchella</i>	seed of GCBO plants from Matagorda Co. @ Cedar Lar	FACW
Seeds	2	Beautiful Obedient Plant	<i>Physostegia pulchella</i>	seed of Matagorda Co. @ Cedar Lane (FM-521 & FM-4	FACW
B	3	Swamp Smartweed	<i>Polygonum hydropiperoides</i>	bycatch	OBL
Seed Table	8	Live Oak	<i>Quercus virginiana</i>	seed from St. Mary's Cemetery (San Antonio)	
B	2	Anglestem Beaksedge	<i>Rhynchospora caduca</i>	Matagorda Co.; FM-521 E of Colorado River	OBL

**Wetland Plant Partnership Nursery Inventory
March 2017**

C	7	Anglestem Beaksedge	<i>Rhynchospora caduca</i>	Brazoria Co.; Hwy-36 N of West Columbia	OBL
C	10	Anglestem Beaksedge	<i>Rhynchospora caduca</i>	Galveston Co.; I-45S Bog, League City	OBL
Seed Table	6	Anglestem Beaksedge	<i>Rhynchospora caduca</i>	Matagorda Co.; FM-521 E of Colorado River	OBL
Seed Table	6	Anglestem Beaksedge	<i>Rhynchospora caduca</i>	seed from plants @ GCBO	OBL
Pond 1A	11	White-topped Sedge	<i>Rhynchospora colorata</i>	Galveston Co.; FM-2004 S of Santa Fe	FACW
Pond 1A	20	White-topped Sedge	<i>Rhynchospora colorata</i>	Galveston Co.; I-45S Bog, League City	FACW
Seed Table	8	White-topped Sedge	<i>Rhynchospora colorata</i>	seed from plants @ GCBO (originally Galveston Co.; FM-2004 S of Santa Fe)	FACW
Pond 1B	9	Horned Beakrush	<i>Rhynchospora corniculata</i>	Brazoria Co.; FM-2611 near FM-2918	OBL
Pond 2B	100	Horned Beakrush	<i>Rhynchospora corniculata</i>	Brazoria Co. CR-461	OBL
Seed Table	10	Horned Beakrush	<i>Rhynchospora corniculata</i>	seed from Mike Mullins	OBL
Pond 1B	24	Indianola Beaksedge	<i>Rhynchospora indianolensis</i>	grown from seed collected in Matagorda Co. (Collegeport & around)	FACW
Pond 1B	37	Indianola Beaksedge	<i>Rhynchospora indianolensis</i>	Jackson Co.	FACW
Pond 1B	34	Indianola Beaksedge	<i>Rhynchospora indianolensis</i>	Matagorda Co.; CR-374	FACW
Pond 1B	69	Indianola Beaksedge	<i>Rhynchospora indianolensis</i>	Matagorda Co.; FM-1095 near Collegeport	FACW
Pond 1B	5	Indianola Beaksedge	<i>Rhynchospora indianolensis</i>	Matagorda Co.; FM-521 E of Colorado River	FACW
Pond 1B	42	Indianola Beaksedge	<i>Rhynchospora indianolensis</i>	Matagorda Co.; FM-521 W of Colorado River	FACW
Seed Table	8	Indianola Beaksedge	<i>Rhynchospora indianolensis</i>	seed from plants @ GCBO	FACW
Seeds	2	Indianola Beaksedge	<i>Rhynchospora indianolensis</i>	seed from CR-374 Matagorda Co.	FACW
Seeds	2	Indianola Beaksedge	<i>Rhynchospora indianolensis</i>	seed from FM-1459@FM-522 (late Jun-2016) Brazoria Co.	FACW
Seeds	2	Indianola Beaksedge	<i>Rhynchospora indianolensis</i>	seed from FM-1459@FM-522 (late May-2016) Brazoria Co.	FACW
Seeds	2	Indianola Beaksedge	<i>Rhynchospora indianolensis</i>	seed from FM-521 W of STNP Matagorda Co.	FACW
Seeds	2	Indianola Beaksedge	<i>Rhynchospora indianolensis</i>	seed from FM-523@288 (late Jun-2016) Brazoria Co.	FACW
Seeds	2	Indianola Beaksedge	<i>Rhynchospora indianolensis</i>	seed from FM-523@288 (late May-2016) Brazoria Co.	FACW
Seeds	2	Indianola Beaksedge	<i>Rhynchospora indianolensis</i>	seed from Wadsworth (late Jun-2016) Matagorda Co.	FACW
weedcloth1	95	Indianola Beaksedge	<i>Rhynchospora indianolensis</i>	seed collected in Matagorda Co. (Collegeport & around)	FACW
weedcloth1	0	Indianola Beaksedge	<i>Rhynchospora indianolensis</i>	seed from Jackson Co.	FACW
weedcloth1	52	Indianola Beaksedge	<i>Rhynchospora indianolensis</i>	seed from Jackson Co. - late season collection 2015	FACW
weedcloth1	45	Indianola Beaksedge	<i>Rhynchospora indianolensis</i>	seed from Matagorda Co.; CR-374	FACW
weedcloth1	203	Indianola Beaksedge	<i>Rhynchospora indianolensis</i>	seed from Matagorda Co.; FM-1095 near Collegeport	FACW
weedcloth1	92	Indianola Beaksedge	<i>Rhynchospora indianolensis</i>	seed from Matagorda Co.; FM-521 W of Colorado River	FACW
ground	41	Brazoria Palm	<i>Sabal brazoriensis</i>	grown from seed collected at Phil Huxford's place	na
Seed Table	10	Brazoria Palm	<i>Sabal brazoriensis</i>	seed collected at Phil Huxford's place	na
ground	4	Mexican Palm	<i>Sabal mexicana</i>	grown from seed collected at Camp K near Mathis TX	na
Pond 2B	10	Grassy Arrowhead	<i>Sagittaria graminea</i>	Brazoria Co.; Hwy-36 S of Damon	OBL
B	4	Longlobed Arrowhead	<i>Sagittaria longiloba</i>	Brazoria Co.; CR-227	OBL
C	4	Longlobed Arrowhead	<i>Sagittaria longiloba</i>	Brazoria Co.; CR-700	OBL
E	6	Longlobed Arrowhead	<i>Sagittaria longiloba</i>	Brazoria Co.; CR-700	OBL
E	14	Longlobed Arrowhead	<i>Sagittaria longiloba</i>	Brazoria Co.; S end of CR-461	OBL
G	32	Longlobed Arrowhead	<i>Sagittaria longiloba</i>	Brazoria Co.; CR-700	OBL
H	32	Longlobed Arrowhead	<i>Sagittaria longiloba</i>	Brazoria Co.; CR-700	OBL
I	4	Longlobed Arrowhead	<i>Sagittaria longiloba</i>	Brazoria Co.; CR-701	OBL
Pond 2B	45	Longlobed Arrowhead	<i>Sagittaria longiloba</i>	Brazoria Co.; CR-700	OBL
ground	13	Giant Blue Sedge	<i>Salvia azurea</i>	seed collected at house (from Treeseach plants)	na
Seed Table	1	Giant Blue Sedge	<i>Salvia azurea</i>	seed collected at Nash Prairie	na
D	40	Giant Foxtail	<i>Setaria magna</i>	Brazoria Co.; BNWR (36 in styrofoam cups)	FACW
Seeds	4	Giant Foxtail	<i>Setaria magna</i>	seed collected in Brazoria Co.; BNWR	FACW
ground	1	Gulf Cordgrass	<i>Spartina spartinae</i>	from Dickinson via Mary Carol Edwards	OBL (?)
Seed Table	1	Ladies Tresses	<i>Spiranthes cernua</i>	seed from Bob Salzer's yard	FACW
ground	21	Texas Umbrellawort	<i>Tauschia texana</i>	plants at home; originally from CR-309 & BBU	FACW
Pond 1A	128	Alligator Flag	<i>Thalia dealbata</i>	Brazoria Co.; Hwy 288B N of FM-523	OBL
Seed Table	1	Purple Meadow-Rue	<i>Thalictrum dasycarpum</i>	seed from SW Brazoria Co.	FAC
Pond 1A	25	Eastern Gamma Grass	<i>Tripsacum dactylodes</i>	Brazoria Co.; Hwy-36 S of Damon	FAC
Pond 1B	35	unID'd grasses	unknown grasses	I-45S Bog, League City, bycatch + others	
Pond 1B	90	unID'd grasses	unknown wetland bycatch	mixture	
weedcloth1	39	Zephyr Lily	<i>Zephyranthes sp.</i>	Brazoria Co. FM-521 SW of Brazoria (possibly Atamascocit)	FACW
A	1	Giant Sawgrass (2-gal)	<i>Zizaniopsis miliacea</i>	Matagorda Co.; 1/2 mile south of Hawkinsville	OBL
Seeds	1	Giant Sawgrass	<i>Zizaniopsis miliacea</i>	seed from Matagorda Co.; 1/2 mile south of Hawkinsville	OBL

TOTAL 6269



San Bernard National Wildlife Refuge General Activities Special Use Permit (For Official Use Only)

Permit #: TBN-15-009CJ

OWB Control # 1813-0152
Expiration Date: 06/30/2017 3

Permit Term:

From: 5/1/2015
To: 10/31/2016

1) Permittee Name/Business:

Mary Carol Edwards

2) Permit Activity Type:

Texas Coastal Watershed Program - Plant Collection

2) Permit Status:

☒ Approved *If approved, provide special conditions (if any) in the text box below.*
☐ Denied *If denied, provide justification in the text box below.*

Collect and propagate specimens of Iris sp. for use in restored and created wetlands in the Galveston Bay Area. TCWP staff and TMN volunteers trained in wetland restoration will do the collecting. In accordance with ecological guidelines, no more than 10% of a population will be taken and collecting will be done evenly over the available site to minimize disturbance. Under ideal circumstances, we would dig 700-1000 pieces of rhizome. Our work will take place over 3-4 visits between May 2015 and October 2016.

3) Are there additional special conditions attached to the permit?

☒ Yes ☐ No ☐ N/A

4) Are other licenses/permits required, and have they been verified?

☐ Yes ☐ No ☒ N/A

5) Are Insurance and/or Certification(s) required, and have they been verified?

☐ Yes ☐ No ☒ N/A

6) Record of Payments:

☐ Full ☐ Partial ☒ Exempt

7) Is a surety bond or security deposit required?

☐ Yes ☐ No ☒ N/A

This permit is issued by the U.S. Fish and Wildlife Service and accepted by the applicant signed below, subject to the terms, covenants, obligations, and reservations, expressed or implied therein, and to the notice, conditions, and requirements included or attached. A copy of this permit should be kept on-hand so that it may be shown at any time to any refuge staff.

8) Permit approved/issued by: (Signature and title)

[Signature]
Date: 5/20/2015

9) Permit accepted by: (Signature of permittee)

[Signature]
Date: 5/21/15

https://efms.fws.gov/efms/regions/efms/visitors/SUP_layoutsPrintFormServer.aspx?XonLocation=https://efms.fws.gov/efms/regions/efms/visitors/SUP/General%20... 1/1

Logistics and Transportation

Note: Not all information is required for each use. Please contact the specific refuge where the activity is being conducted to determine what information is required. Attach additional sheets to the application if the text spaces provided are inadequate.

21) Does activity require personnel to stay overnight onsite? Yes ☐ No ☒

22) List names of personnel involved:

List Names	List Names	List Names
Mary Edwards	Marissa Spocot	Chris Kneupper
TMN volunteers based on availability		

23) Specifically describe all major equipment/gear and materials used, if required:

Hand tools only: shovels, soil knives, buckets.

24a) Provide detailed information on the logistics for onsite, intersite, and/or ship-to-shore transportation to or on the refuge, if required:

N/A

24b) Provide descriptions, license plate, or I.D. numbers of vehicles used for onsite, intersite, and/or ship-to-shore transportation, if required:

Type of transportation (onsite, intersite, or ship-to-shore)	Equipment Type	License/I.D./Registration Numbers
White Dodge Ram 2500	Van	TX 785031
Single-axle utility trailer	Trailer	TX 915928
Honda Odyssey	Mini Van	TX MMW589

25) Specifically describe onsite work and/or living accommodations:

N/A

26) Specifically describe onsite hazardous material storage or other onsite material storage space:

N/A

Sign, date, and print this form and return it to the refuge for processing.

30) Signature of Applicant: *[Signature]* Date of Application: 5/13/15FWS Form 3-1283-6
05/14

General Activities Special Use Permit Application

OWB Control # 1813-0152
Expiration Date: 06/30/2017 1

Refuge: San Bernard NWR

Address: 6801 CR 306 Brazoria, TX 77422

Attn: (Refuge Official) Curtis Jones

E-Mail: curtis_jones@fws.gov

Phone #: 9799643639

For Official Use Only:

Permit #: TBN-15-009CJ

Submittal #: 21541

Permit Term: from 5/1/2015 to 10/31/2016

Note: We do not require all information for each use. See instructions at the end of the notice and contact the refuge identified above to determine applicability of a particular item. Attach additional sheets to the application if the text spaces provided are inadequate.

1) Identify the type of Permit you are applying for: New ☐ Renewal ☐ Modification ☒ Other ☐

Applicant Information

2) Full Name: Mary Carol Edwards 3) Organization: Texas Coastal Watershed Program/ Agrilife Extension

4) Street Address: 1250 Bay Area Blvd., Suite C

5) City/State/Zip: Houston, TX 77058

6) Phone #: 281-218-6340 7) Fax #: 281-218-6352

8) E-mail: mcedwards@tamu.edu

9) List known assistants/subcontractors/subpermittees: (Only required if the assistants/subcontractors/subpermittees will be operating on the refuge without the permittee being present.)

Name/Business	Address	Phone #
Chris Kneupper	1083 Riverview Ranch Dr. Brazoria, TX 77422	9799644000
Ask Texas Master Naturalist (TMN) volunteers		

Activity Information

10) Activity type: ☐ Event ☐ Wood Cutting ☐ Group Visit ☐ Educational Activity
☐ Cabin/Subsistence Cabin ☒ Other Plant Collection

Note: Depending on the activity for which you are requesting a permit, we may ask you for the following activity information. Please contact the specific refuge where the activity is being conducted to determine what information is required.

11) Specifically identify timing, frequency, and how the activity is expected to proceed:

We would like to collect and propagate specimens of Iris sp. for use in restored and created wetlands in the Galveston Bay Area. TCWP staff and TMN volunteers trained in wetland restoration will do the collecting. In accordance with ecological guidelines, no more than 10% of a population will be taken and collecting will be done evenly over the available site to minimize disturbance. Under ideal circumstances, we would dig 700-1000 pieces of rhizome. Our work will take place over 3-4 visits between May 2015 and October 2016.

FWS Form 3-1283-6
05/14

5/1/2015

General Activities Special Use Permit - New Form



San Bernard National Wildlife Refuge General Activities Special Use Permit (For Official Use Only)

Permit #: TBN-15-00...

Permit Term:

From: 5/1/2015
To: 10/31/2016

1) Permittee Name/Business:

Mary Carol Edwards

2) Permit Activity Type:

Plant Collection - Iris sp.

2) Permit Status:

☒ Approved *If approved, provide special conditions (if any) in the text box below.*
☐ Denied *If denied, provide justification in the text box below.*

Collect and propagate specimens of Iris sp. for use in restored and created wetlands in the Galveston Bay Area. TCWP staff and TMN volunteers trained in wetland restoration will do the collecting. In accordance with ecological guidelines, no more than 10% of a population will be taken and collecting will be done evenly over the available site to minimize disturbance. Under ideal circumstances, we would dig 700-1000 pieces of rhizome. Our work will take place over 3-4 visits between May 2015 and October 2016.

3) Are there additional special conditions attached to the permit?

☐ Yes ☐ No ☒ N/A

4) Are other licenses/permits required, and have they been verified?

☐ Yes ☐ No ☒ N/A

5) Are Insurance and/or Certification(s) required, and have they been verified?

☐ Yes ☐ No ☒ N/A

6) Record of Payments:

☐ Full ☐ Partial ☒ Exempt

7) Is a surety bond or security deposit required?

☐ Yes ☐ No ☒ N/A

This permit is issued by the U.S. Fish and Wildlife Service and accepted by the applicant signed below, subject to the terms, covenants, obligations, and reservations, expressed or implied therein, and to the notice, conditions, and requirements included or attached. A copy of this permit should be kept on-hand so that it may be shown at any time to any refuge staff.

8) Permit approved/issued by: (Signature and title)

[Signature]
Date: 5/13/15

9) Permit accepted by: (Signature of permittee)

[Signature]
Date: 5/13/15

https://efms.fws.gov/efms/regions/efms/visitors/SUP_layoutsPrintFormServer.aspx

1/1

Task 3 Documents:

Student and volunteer workdays

Stormwater Wetland Volunteer Newsletters

TCWP's Stormwater Wetland Program produces a weekly newsletter to keep volunteers and friends of the program up to date on activities and opportunities. During the contract period, the following issues reported on the previous week's wetland workday at GCBO. The newsletter has 150 subscribers and is also forwarded to the GBAMN membership. October 2015-Jan 2016 newsletters were on a format that is no longer available.

2016

Feb: <http://us12.campaign-archive2.com/?u=0ee890ff935a5f3f3ec89c910&id=0b0ebcb572>

Mar: <http://us12.campaign-archive1.com/?u=0ee890ff935a5f3f3ec89c910&id=82160b102d>

Apr: <https://us12.admin.mailchimp.com/campaigns/show?id=325773>

May: <http://us12.campaign-archive1.com/?u=0ee890ff935a5f3f3ec89c910&id=b8d307e34b>

<http://us12.campaign-archive2.com/?u=0ee890ff935a5f3f3ec89c910&id=4bd67772f1>

June: <http://us12.campaign-archive1.com/?u=0ee890ff935a5f3f3ec89c910&id=eb8436cb44>

July: <http://us12.campaign-archive1.com/?u=0ee890ff935a5f3f3ec89c910&id=75f3710692>

Aug: <http://us12.campaign-archive2.com/?u=0ee890ff935a5f3f3ec89c910&id=59f97b2c17>

Sept: <http://us12.campaign-archive2.com/?u=0ee890ff935a5f3f3ec89c910&id=ed932eb28d>

Oct: <http://us12.campaign-archive1.com/?u=0ee890ff935a5f3f3ec89c910&id=c57858d6dd>

<http://us12.campaign-archive1.com/?u=0ee890ff935a5f3f3ec89c910&id=177ad17db6>

Nov: <http://us12.campaign-archive2.com/?u=0ee890ff935a5f3f3ec89c910&id=5bc61e21e0>

Dec: <http://us12.campaign-archive1.com/?u=0ee890ff935a5f3f3ec89c910&id=9ce8a7c718>

2017

Jan: <http://us12.campaign-archive2.com/?u=0ee890ff935a5f3f3ec89c910&id=f797b9187b>

Feb: <http://us12.campaign-archive2.com/?u=0ee890ff935a5f3f3ec89c910&id=ad8bb7a625>

Mar: <http://us12.campaign-archive1.com/?u=0ee890ff935a5f3f3ec89c910&id=a62e55c7c7>

Wetland Plant Partnership
Volunteer hours for October-December 2015

October 2015: GCBO wetland nursery

Event	Date	volunteer names	Organization	hours	activities
GCBO kickoff meeting	7-Oct	Chris Kneupper	TMN-COT	4	coordinate project with GCBO, TMN-COT
Plant propagation	2-Oct	Chris Kneupper	TMN-COT	4	prepare, dig, pot plants at or for GCBO
	9-Oct	Chris Kneupper	TMN-COT	6	prepare, dig, pot plants at or for GCBO
	13-Oct	Chris Kneupper	TMN-COT	1.5	prepare, dig, pot plants at or for GCBO
	15-Oct	Chris Kneupper	TMN-COT	6.5	prepare, dig, pot plants at or for GCBO
				22	Volunteer hours: October

November 2015: GCBO wetland nursery

Event	Date	volunteer names	Organization	hours	activities
Site prep	4-Nov	Phil Huxford	GCBO	3.5	brush clearing by tractor
Site prep	4-Nov	Chris Kneupper	TMN-COT	3.5	chainsaw brush
Site prep	11-Nov	Chris Kneupper	TMN-COT	2.75	soil delivery, pond siting
Chapter/TCWP coordination	18-Nov	Mike Mullins	TMN-COT	3	project admin for COTMN
Plant propagation	9-Nov	Chris Kneupper	TMN-COT	1.5	prepare, dig, pot plants at or for GCBO
Plant propagation	10-Nov	Robert Salzer	TMN-COT	6.5	prepare, dig, pot plants at or for GCBO
Plant propagation	12-Nov	Robert Salzer	TMN-COT	5.5	prepare, dig, pot plants at or for GCBO
				26.25	Volunteer hours: November

December 2015: GCBO wetland nursery

Event	Date	volunteer names	organization	hours	activities
Brazosport College meeting 1	3-Dec	Chris Kneupper	TMN-COT	2	introduce stormwater wetland concept
Brazosport College meeting 2	8-Dec	Chris Kneupper	TMN-COT	3.5	introduce stormwater wetland concept
Plant collecting trip	10-Dec	Roger Allen	TMN-COT	3	Iris collection
		Chris Kneupper	TMN-COT	5.5	Iris collection
		Bob Salzer	TMN-COT	4	Iris collection
		Mike Mullins	TMN-COT	3	Iris collection
		Ken Arnold	TMN-COT	3	Iris collection
Informal workday	17-Dec	Chris Kneupper	TMN-COT	5	plant and seed collection, potting
		Bob Salzer	TMN-COT	5	plant and seed collection, potting
Plant propagation	3-Dec	Chris Kneupper	TMN-COT	1.5	prepare, dig, pot plants at or for GCBO
	10-Dec	Chris Kneupper	TMN-COT	5.5	prepare, dig, pot plants at or for GCBO
	11-Dec	Chris Kneupper	TMN-COT	3	prepare, dig, pot plants at or for GCBO
	11-Dec	Roger Allen	TMN-COT	2	prepare, dig, pot plants at or for GCBO
	14-Dec	Chris Kneupper	TMN-COT	4	prepare, dig, pot plants at or for GCBO
	15-Dec	Chris Kneupper	TMN-COT	4	prepare, dig, pot plants at or for GCBO
	17-Dec	Chris Kneupper	TMN-COT	5	prepare, dig, pot plants at or for GCBO
	19-Dec	Chris Kneupper	TMN-COT	3	prepare, dig, pot plants at or for GCBO
				62	Volunteer hours: December
Total volunteer hours: October-December 2015				110.25	

Volunteer Name		Opportunity Title	Start Date	TMN Hours	Service Performed
		RM: TCWP			
	Allen, Roger	RM: TCWP (Service	1/21/2016	3.25	Setting posts and potting plants at th
<input type="checkbox"/>	Atkins, Oron	RM: TCWP (Service	3/17/2016	3.5	GCBO Work Day - Worked with Mary Carol
<input type="checkbox"/>	Atkins, Oron	RM: TCWP (Service	3/25/2016	2.5	Informal work period at GBCO with Chri
<input type="checkbox"/>	Bettorf, Mike	RM: TCWP (Service	3/8/2016	5.5	Trail work
<input type="checkbox"/>	Brandes, David	RM: TCWP (Service	1/15/2016	6.5	Build GCBO wetland plant ponds
<input type="checkbox"/>	Brandes, David	RM: TCWP (Service	1/17/2016	2	framing design for CGBO wetland propag
<input type="checkbox"/>	Brandes, David	RM: TCWP (Service	1/19/2016	7.5	Wetland ponds construction and elevati
<input type="checkbox"/>	Brandes, David	RM: TCWP (Service	1/21/2016	5	TCWP GCBO propagation ponds construction
<input type="checkbox"/>	Brandes, David	RM: TCWP (Service	1/22/2016	6.5	TCWP GCBO Propagation Ponds construction
<input type="checkbox"/>	Brandes, David	RM: TCWP (Service	1/25/2016	2.5	TCWP ponds framing
<input type="checkbox"/>	Brandes, David	RM: TCWP (Service	2/1/2016	6.5	TCWP GCBO ponds development
<input type="checkbox"/>	Conaty, Susan	RM: TCWP (Service	1/21/2016	5	Stormwater wetland team GCBO
<input type="checkbox"/>	Conaty, Susan	RM: TCWP (Service	1/29/2016	4.5	GCBO- TCWP
<input type="checkbox"/>	Conaty, Susan	RM: TCWP (Service	2/1/2016	8	GCBO ponds
<input type="checkbox"/>	Conaty, Susan	RM: TCWP (Service	2/18/2016	5	TCW wetland restoration
<input type="checkbox"/>	Graham, Donna	RM: TCWP (Service	2/18/2016	5	Dug wild iris and potted them at GCBO.
<input type="checkbox"/>	Green, Judith	RM: TCWP (Service	2/18/2016	5	Went to San Bernard Wildlife Refuge, d
<input type="checkbox"/>	Kneupper, Chris	RM: TCWP (Service	1/3/2016	3	TCWP-went to League City to collect na
<input type="checkbox"/>	Kneupper, Chris	RM: TCWP (Service	1/4/2016	3.5	TCWP-at GCBO, pot up 140 iris collecte
<input type="checkbox"/>	Kneupper, Chris	RM: TCWP (Service	1/5/2016	4.5	TCWP-at GCBO, plant seeds, FM-2004 dug
<input type="checkbox"/>	Kneupper, Chris	RM: TCWP (Service	1/19/2016	5	TCWP-worked at GCBO to construct new p
<input type="checkbox"/>	Kneupper, Chris	RM: TCWP (Service	1/20/2016	4.5	collect plants in SW Brazoria Co. for
<input type="checkbox"/>	Kneupper, Chris	RM: TCWP (Service	1/23/2016	3	TCWP-at GCBO, dug up Crinum & Eleo
<input type="checkbox"/>	Kneupper, Chris	RM: TCWP (Service	1/27/2016	3.5	TCWP-at GCBO, pot up Ravensfoot sedge
<input type="checkbox"/>	Kneupper, Chris	RM: TCWP (Service	1/28/2016	3.5	TCWP-at GCBO, help DENise to spread ca
<input type="checkbox"/>	Kneupper, Chris	RM: TCWP (Service	1/29/2016	6.5	TCWP-at GCBO, spread sand, install pon
<input type="checkbox"/>	Kneupper, Chris	RM: TCWP (Service	2/1/2016	5.5	TCWP-at GCBO, finish construction of p
<input type="checkbox"/>	Kneupper, Chris	RM: TCWP (Service	2/2/2016	2.5	TCWP-at GCBO, continue stocking of pon
<input type="checkbox"/>	Kneupper, Chris	RM: TCWP (Service	2/4/2016	6.25	TCWP-Clear Lake workday
<input type="checkbox"/>	Kneupper, Chris	RM: TCWP (Service	2/4/2016	1	TCWP-at GCBO, added Mosquitofish to po
<input type="checkbox"/>	Kneupper, Chris	RM: TCWP (Service	2/5/2016	6.5	TCWP-at GCBO, sorted plants & plac
<input type="checkbox"/>	Kneupper, Chris	RM: TCWP (Service	2/8/2016	5.5	TCWP-dig iris at SBNWR, & then tra
<input type="checkbox"/>	Kneupper, Chris	RM: TCWP (Service	2/11/2016	3	TCWP-at GCBO, pot up iris & transf
<input type="checkbox"/>	Kneupper, Chris	RM: TCWP (Service	2/15/2016	2.5	TCWP-at GCBO, continue to move plants
<input type="checkbox"/>	Kneupper, Chris	RM: TCWP (Service	2/15/2016	3	TCWP-at GCBO, transfer plants to new p
<input type="checkbox"/>	Kneupper, Chris	RM: TCWP (Service	2/16/2016	3	TCWP-at GCBO, transfer the last remain
<input type="checkbox"/>	Kneupper, Chris	RM: TCWP (Service	2/18/2016	6	TCWP-from GCBO, guide workday to colel
<input type="checkbox"/>	Kneupper, Chris	RM: TCWP (Service	2/17/2016	2	TCWP-at GCBO, count plants for invento
<input type="checkbox"/>	Kneupper, Chris	RM: TCWP (Service	2/23/2016	2	TCWP-at GCBO, transfer hibiscus &
<input type="checkbox"/>	Kneupper, Chris	RM: TCWP (Service	2/26/2016	1	TCWP-at GCBO, water potted plants
<input type="checkbox"/>	Kneupper, Chris	RM: TCWP (Service	3/3/2016	4	TCWP-dig iris & sedges; at GCBO, p
<input type="checkbox"/>	Kneupper, Chris	RM: TCWP (Service	3/6/2016	4	TCWP-collect Squarestem Spikerush &
<input type="checkbox"/>	Kneupper, Chris	RM: TCWP (Service	3/8/2016	2.5	TCWP-collect iris & sedges @ Jones
<input type="checkbox"/>	Kneupper, Chris	RM: TCWP (Service	3/10/2016	1	TCWP-at GCBO, bailed ponds after heavy
<input type="checkbox"/>	Kneupper, Chris	RM: TCWP (Service	3/16/2016	3.5	TCWP-gather Sagittaria, Soft Rush &
<input type="checkbox"/>	Kneupper, Chris	RM: TCWP (Service	3/17/2016	7	TCWP-dug up Iris on FM-523, then to GC
<input type="checkbox"/>	Kneupper, Chris	RM: TCWP (Service	3/20/2016	4	TCWP-at GCBO, my son Carl & I buil

<input type="checkbox"/>	Kneupper, Chris	RM: TCWP (Service	3/22/2016	3	TCWP-picked up Carl at school & bth
<input type="checkbox"/>	Kneupper, Chris	RM: TCWP (Service	3/23/2016	3	TCWP-drive to SBNWR & then Matagor
<input type="checkbox"/>	Kneupper, Chris	RM: TCWP (Service	3/28/2016	1	TCWP- water plants at GCBO.
<input type="checkbox"/>	Kneupper, Chris	RM: TCWP (Service	3/29/2016	2.25	TCWP-at GCBO, plant many varieties of
<input type="checkbox"/>	Kneupper, Chris	RM: TCWP (Service	3/25/2016	3.5	TCWP-at GCBO, build one seedling table
<input type="checkbox"/>	Kneupper, Chris	RM: TCWP (Service	3/31/2016	3.5	TCWP-take meeting @ BC with Faoud Jabe
<input type="checkbox"/>	Mullins, Mike	RM: TCWP (Service	1/21/2016	4	Constructing wetlands nursery
<input type="checkbox"/>	Mullins, Mike	RM: TCWP (Service	2/18/2016	3.5	digging La. Iris for transplanting at
<input type="checkbox"/>	Peterson, Larry	RM: TCWP (Service	3/17/2016	6	TCWP - Gulf Coast Bird Observatory T
<input type="checkbox"/>	Peterson, Larry	RM: TCWP (Service	3/25/2016	3	TCWP - Potting Thalia at GCBO Grow-Out
<input type="checkbox"/>	Romfh, Peggy	RM: TCWP (Service	1/23/2016	5.5	GCBO Wetlands nursery
<input type="checkbox"/>	Romfh, Peggy	RM: TCWP (Service	1/27/2016	5	Building wetlands nursery ponds at GCBO
<input type="checkbox"/>	Romfh, Peggy	RM: TCWP (Service	1/29/2016	6	building wetlands nursery ponds at GCBO
<input type="checkbox"/>	Romfh, Peggy	RM: TCWP (Service	2/18/2016	6.5	TCWP: plant collection at SBNWR and po
<input type="checkbox"/>	Romfh, Peggy	RM: TCWP (Service	3/3/2016	5.5	TCWP: Clear Lake Nursery potting activ
<input type="checkbox"/>	Romfh, Pete	RM: TCWP (Service	1/21/2016	5.5	GCBO Nursery; Help build new ponds. As
<input type="checkbox"/>	Romfh, Pete	RM: TCWP (Service	1/26/2016	2	Planning, send out upcoming schedule
<input type="checkbox"/>	Romfh, Pete	RM: TCWP (Service	1/27/2016	5	GCBO Nursery build out.
<input type="checkbox"/>	Romfh, Pete	RM: TCWP (Service	1/31/2016	1	process & distribute pix from two
<input type="checkbox"/>	Romfh, Pete	RM: TCWP (Service	2/18/2016	6	TCWP: Plant Collection SBNWR & Pot
<input type="checkbox"/>	Romfh, Pete	RM: TCWP (Service	3/3/2016	6	TCWP: potting @ Exploration Green + .5
<input type="checkbox"/>	Sabathier, Donald	RM: TCWP (Service	1/21/2016	6.5	Participated in the construction of we
<input type="checkbox"/>	Sabathier, Donald	RM: TCWP (Service	2/18/2016	6	Harvest plants from Wildlife Refugee a
<input type="checkbox"/>	Sabathier, Donald	RM: TCWP (Service	3/3/2016	5	Worked at League City Plant Nursery re
<input type="checkbox"/>	Salzer, Robert	RM: TCWP (Service	1/21/2016	4.5	Wetland plant nursery work, GCBO
<input type="checkbox"/>	Salzer, Robert	RM: TCWP (Service	1/22/2016	6.25	Wetland plant nursery work, GCBO
<input type="checkbox"/>	Salzer, Robert	RM: TCWP (Service	1/29/2016	6	Wetland plant nursery work, GCBO
<input type="checkbox"/>	Salzer, Robert	RM: TCWP (Service	2/1/2016	7.25	Wetland plant nursery work, GCBO
<input type="checkbox"/>	Salzer, Robert	RM: TCWP (Service	3/17/2016	3.5	Wetland plant field collection
<input type="checkbox"/>	Williams, Sheila	RM: TCWP (Service	1/21/2016	4	Stormwater Wetlands Workday at GCBO, L
<input type="checkbox"/>	Williams, Sheila	RM: TCWP (Service	3/17/2016	4	GCBO Nursery

Summary info (for all 80 rows)

16 Volunteers 1 Opportunity N/A 336.25 N/A

Average info (for all 80 rows)

1 Volunteers: N/A N/A 4.319 N/A

All Other Volunteers, Jan-Mar 2016

Volunteer name	Organization	Date	Activities
Apgar, Denise	GCBO	2/1/2016	5.5 Setting posts and potting plants at th
Apgar, Denise	GCBO	1/28/2016	3.5 spread cardboard layer as base of ponds
Apgar, Denise	GCBO	1/27/2016	5 GCBO Nursery build out.
Apgar, Denise	GCBO	2/1/2016	5.5 Finish construction of ponds
Bryan, Joe	GBATMN	1/21/2016	5 Setting posts and potting plants at th
Bryan, Joe	GBATMN	3/17/2016	5 Digging and potting Thalia
Dollinger, Jerry	GCTMN	1/29/2016	6 building wetlands nursery ponds at GCBO
Dollinger, Jerry	GCTMN	2/1/2016	5.5 Setting posts and potting plants at th
Dollinger, Jerry	GCTMN	2/18/2016	5 digging Iris for transplanting at
Humes, Diane	GBATMN	1/21/2016	5 Setting posts and potting plants at th
Kneupper, Carl	BSA scout	Feb-March	22.5 Potting and seeding benches
Rottman, Ray	GBATMN	1/21/2016	5 Setting posts and potting plants at th
Rottman, Ray	GBATMN	3/17/2016	5 Digging and potting Thalia

83.50 Total

TCWP Volunteer Hours by TMN-COT Members		131.20	Hours	QTR 2, 2016
Volunteer Name	Opportunity Title	Start Date	TMN Hour	Service Performed
Geissler, Julia	RM: TCWP (Service Project)	5/12/2016	4.5	TCWP: Replant and upgrade Floating Wetlands at PNC.
Kneupper, Chris	RM: TCWP (Service Project)	4/5/2016	2	TCWP-at GCBO, water seedling plants & also pot up "red" SBNWR irs.
Kneupper, Chris	RM: TCWP (Service Project)	4/7/2016	3.5	TCWP-collect more "red iris" at SBNWR & Physostegia; then take to GCBO to pot; water plants; reorder & refill ponds.
Kneupper, Chris	RM: TCWP (Service Project)	4/12/2016	4	TCWP-travel to Matagorda Co. to collect Physostegia pulchella, and then tall white iris at SBNWR; return to GCBO to pot up, water plants, & plant iris at GCBO pond.
Kneupper, Chris	RM: TCWP (Service Project)	4/13/2016	0.75	TCWP-drop by GCBO, drain ponds partially after overnight rain, and clean up.
Kneupper, Chris	RM: TCWP (Service Project)	4/15/2016	1.5	TCWP-at GCBO, clean tables and pavilion, and use weedeater to clear pond areas.
Kneupper, Chris	RM: TCWP (Service Project)	4/16/2016	6.5	TCWP-supervise Eagle project at GCBO to build potting table & compost; also moved Eleocharis out & Soft Rush into ponds.
Kneupper, Chris	RM: TCWP (Service Project)	4/18/2016	3	TCWP-at GCBO, help son Carl to get supplies at Lowe's & complete 2nd seedling table, & also move Aq. Milkweed & Thalia.
Kneupper, Chris	RM: TCWP (Service Project)	4/20/2016	3	TCWP-at GCBO, drained ponds with submersible pump due to rain filling them too much.
Kneupper, Chris	RM: TCWP (Service Project)	4/22/2016	2.5	TCWP-at GCBO, drain ponds & fill in low spots w/dirt.
Kneupper, Chris	RM: TCWP (Service Project)	5/8/2016	1.5	TCWP-travel to GCBO to water plants & check on milkweed seedlings. Repair animal damage.
Kneupper, Chris	RM: TCWP (Service Project)	5/9/2016	1.25	TCWP-travel to GCBO to fertilize seedlings & collect Phystostegia seed. ID plants for Tues. pickup for Pearland planting on Thurs.
Kneupper, Chris	RM: TCWP (Service Project)	5/10/2016	3	TCWP-at GCBO, tend to seedlings, mow grass, and meet Danny Walton to load plants for Pearland.
Kneupper, Chris	RM: TCWP (Service Project)	5/16/2016	1.5	TCWP-at GCBO, drain ponds due to rain, and tend to seedling crop.
Kneupper, Chris	RM: TCWP (Service Project)	5/19/2016	5	TCWP-at GCBO, help lead monthly workday & clean up afterwards.
Kneupper, Chris	RM: TCWP (Service Project)	5/21/2016	2.75	TCWP-at GCBO, supervised final work period for Eagle Scout project, also did some plant maintenance & drained ponds after rains.
Kneupper, Chris	RM: TCWP (Service Project)	5/27/2016	5	TCWP-drive to Sweeny, Damon & Angleton to collect specimens and seed of Indianola Beaksedge; returning home to press specimens for donation to UT Herbarium.
Kneupper, Chris	RM: TCWP (Service Project)	5/28/2016	5.5	TCWP-drive to Houston to discuss milkweed ID with Jason Singhurst of TPWD; stop by GCBO upon return to drain ponds after heavy rain & check on seedlings.
Kneupper, Chris	RM: TCWP (Service Project)	5/30/2016	1.75	TCWP-at GCBO, pot up seedlings of Indianola Beaksedge.
Kneupper, Chris	RM: TCWP (Service Project)	6/7/2016	1.75	TCWP-travel to Velasco District office in Clute to assist Mary Edwards in giving presentation about TCWP to their board of supervisors.
Kneupper, Chris	RM: TCWP (Service Project)	6/16/2016	3.75	TCWP-GCBO workday (planted seedlings of Indianola Beaksedge; drained ponds)
Kneupper, Chris	RM: TCWP (Service Project)	6/18/2016	1	TCWP-go to GCBO to water plants.
Kneupper, Chris	RM: TCWP (Service Project)	6/17/2016	4.25	TCWP-travel to Matagorda Co. to survey sites of Indianola Beaksedge & collect seed.
Kneupper, Chris	RM: TCWP (Service Project)	6/17/2016	2	TCWP-go to GCBO to water newly-planted pots & move some to shade.
Kneupper, Chris	RM: TCWP (Service Project)	6/20/2016	2	TCWP-at GCBO, re-pot milkweed seedlings, move Flatsedge to Pond 1B & water plants.
Kneupper, Chris	RM: TCWP (Service Project)	6/24/2016	1	TCWP-at GCBO, water plants.
Kneupper, Chris	RM: TCWP (Service Project)	6/26/2016	1.5	TCWP-at GCBO, water plants and adjust water levels in ponds.
Mullins, Mike	RM: TCWP (Service Project)	4/21/2016	2.45	Potted 27 green flatsedge and 12 soft rush.
Mullins, Mike	RM: TCWP (Service Project)	5/12/2016	4.75	planting floating islands
Romfh, Peggy	RM: Managing Natural Resource Areas and Wildlife (Service Project)	5/12/2016	5	TCWP wetlands replant at Pearland Nature Center
Romfh, Peggy	RM: Managing Natural Resource Areas and Wildlife (Service Project)	5/19/2016	7	TCWP wetlands planting at GCBO nursery

Romfh, Pete	RM: TCWP (Service Project)	5/12/2016	5	TCWP: Replant and upgrade Floating Wetlands at PNC.
Romfh, Pete	RM: TCWP (Service Project)	5/16/2016	1.5	Process pictures for TCWP Newsletter. Misc. email correspondence.
Romfh, Pete	RM: TCWP (Service Project)	5/19/2016	7	Work day at GCBO nursery. Pot app 300 specimens for propagation. 2hrs in field locating potential specimens
Sabathier, Donald	RM: TCWP (Service Project)	5/12/2016	4.5	worked on the Pearland Storm Water Retention Pond replanting project.
Safley, Susan	RM: TCWP (Service Project)	5/12/2016	5	Restoration of wetlands
Salzer, Robert	RM: TCWP (Service Project)	5/19/2016	5	Wetland plant nursery work, GCBO
Salzer, Robert	RM: TCWP (Service Project)	6/16/2016	4.75	Wetland plant nursery work, GCBO
Williams, Sheila	RM: TCWP (Service Project)	6/17/2016	3.5	GCBO
		Total Hours for the QTR	131.2	

Volunteer Name	TMN Hour:	Start Date	Opportunity Title	Service Performed
Atkins, Oron	3.5	8/18/2016	RM: TCWP (Service Projec	Repotted sedge and milkweed at GCBO
Bouley, Betty	4.5	7/7/2016	RM: TCWP (Service Projec	Texas Watershed Coastal Program/Stormwater Wetland Program. Mary Carol Edwards, Coordinator. Pla
Bouley, Betty	4	7/21/2016	RM: TCWP (Service Projec	TCWP @ GCBO - Work Day\\nTexas Coastal Watershed Program; wetland nursery plants; TMN-COT Cont
Kneupper, Chris	2	7/1/2016	RM: TCWP (Service Projec	TCWP-at GCBO, water plants & pot up Ludwigia and milkweed. Also, arranged with GCBO staff about buil
Kneupper, Chris	2.5	7/5/2016	RM: TCWP (Service Projec	TCWP-at GCBO, rationalize last-year seedlings, move plants into ponds & collect seed. Also, refill kiddie p
Kneupper, Chris	1	7/4/2016	RM: TCWP (Service Projec	TCWP-at GCBO, water plants.
Kneupper, Chris	1.25	7/8/2016	RM: TCWP (Service Projec	TCWP-at GCBO, water plants and add water to Ponds 1A & 1B.
Kneupper, Chris	1.5	7/12/2016	RM: TCWP (Service Projec	TCWP-at GCBO, water plants & add water to ponds.
Kneupper, Chris	2.25	7/15/2016	RM: TCWP (Service Projec	TCWP-at GCBO, water plants, add water to pools, & weed-eat the area around ponds.
Kneupper, Chris	4.5	7/21/2016	RM: TCWP (Service Projec	TCWP-GCBO workday - re-pot sedges, plant hibiscus seed, water plants
Kneupper, Chris	1.5	7/20/2016	RM: TCWP (Service Projec	TCWP-at GCBO, water plants & prepare area for workday.
Kneupper, Chris	1.5	8/4/2016	RM: TCWP (Service Projec	TCWP-at GCBO, watered plants and tended seedlings & ponds.
Kneupper, Chris	2	8/6/2016	RM: TCWP (Service Projec	TCWP-at GCBO, water plants, and also pot up Bauhinia seedlings.
Kneupper, Chris	2.75	8/16/2016	RM: TCWP (Service Projec	TCWP-at GCBO, pot up Bauhinia and other plmats, tend seddlings, and prepare area for workday on Thur:
Kneupper, Chris	2.25	8/18/2016	RM: TCWP (Service Projec	TCWP-workday at GCBO
Kneupper, Chris	1	8/21/2016	RM: TCWP (Service Projec	TCWP-at GCBO, label pottings from last workday, and make count.
Kneupper, Chris	1	8/24/2016	RM: TCWP (Service Projec	TCWP-at GCBO, tend to seedlings & water plants.
Kneupper, Chris	3	9/1/2016	RM: TCWP (Service Projec	TCWP-at GCBO, drain ponds & mow grass
Kneupper, Chris	2.5	8/31/2016	RM: TCWP (Service Projec	TCWP-at GCBO, drain ponds, pot & water plants, prepare for XHX.
Kneupper, Chris	1	9/8/2016	RM: TCWP (Service Projec	TCWP-water plants & get area ready for XHX
Kneupper, Chris	5.25	9/15/2016	RM: TCWP (Service Projec	TCWP-workday at GCBO; arrived early to prepare area for the work and stayed late to count results.
Kneupper, Chris	1	9/16/2016	RM: TCWP (Service Projec	TCWP-prepare GCBO nursery for XHX & transfer milkweed to plant sale.
Kneupper, Chris	1	9/25/2016	RM: TCWP (Service Projec	TCWP-at GCBO, tend plants & ponds after rain.
Kneupper, Chris	1	9/29/2016	RM: TCWP (Service Projec	TCWP-at GCBO, water plants.
Mullins, Mike	4.5	9/15/2016	RM: TCWP (Service Projec	potting wetlands plants at GCBO wetlands nursery
Romfh, Peggy	5.5	7/21/2016	RM: TCWP (Service Projec	TCWP GCBO wetland plant potting
Romfh, Peggy	4	8/18/2016	RM: TCWP (Service Projec	TCWP at GCBO nursery; wetland plants potting
Romfh, Peggy	5.5	9/15/2016	RM: TCWP (Service Projec	TCWP: plant propagation at GCBO nursery
Romfh, Pete	5.5	7/21/2016	RM: TCWP (Service Projec	TCWP: Work day @ GCBO nursery.
Romfh, Pete	4	8/18/2016	RM: TCWP (Service Projec	TCWP: Workday at GCBO Nursery.
Romfh, Pete	5.5	9/15/2016	RM: TCWP (Service Projec	Work Day @ GCBO Nursery
Salzer, Robert	4.75	7/21/2016	RM: TCWP (Service Projec	Wetland plant nursery work, GCBO
Williams, Sheila	3	8/18/2016	RM: TCWP (Service Projec	GCBO Nursery
Williams, Sheila	3.5	9/15/2016	RM: TCWP (Service Projec	GCBO Nursery
Total for Q3_2016	96			

2016 Q4 Volunteer Hours reported to the Cradle of Texas Chapter Master Naturalists

Volunteer Name	Start Date	TMN	Service Performed
		Hours	
Geisler, Julia	12/1/2016		TCWP Potted wetland plants at Exploration Green Nursery, Clear Lake City, TX
Kneupper, Chris	10/4/2016	1	TCWP-at GCBO, water & tend plants.
Kneupper, Chris	10/7/2016	1	TCWP-at GCBO, water & tend plants.
Kneupper, Chris	10/13/2016	1	TCWP-at GCBO, water & tend plants.
Kneupper, Chris	10/19/2016	2	TCWP-refill ponds, water & tend plants
Kneupper, Chris	10/20/2016	4	TCWP monthly workday at GCBO
Kneupper, Chris	10/31/2016	1.25	TCWP- water, tend or organize plants.
Kneupper, Chris	10/25/2016	1	TCWP-water & tend plants
Kneupper, Chris	12/15/2016	4	TCWP-workday at GCBO
Kneupper, Chris	12/22/2016	1.5	TCWP-at GCBO, plants seeds of Live Oak, Bur Oak & water plants
Romfh, Peggy	11/17/2016	4.5	TCWP: wetlands planting at GCBO
Romfh, William (Pete)	11/17/2016	5	TCWP: Workday @ GCBO
Sabathier, Donald	10/13/2016	4	worked in Pearland, TX pond by the recycling building removing invasive species
Sabathier, Donald	11/17/2016	5	Work at the GCBO wetlands project
Sabathier, Donald	12/1/2016		Work in Exploration Green, Wetlands Nursery in Clear Lake, TX
Sabathier, Donald	12/8/2016		TCWP Office separating and cleaning seeds
Sabathier, Donald	12/15/2016	5.5	Wetlands plant potting at GCBO nursery ponds.
Sabathier, Donald	12/22/2016		worked at Wetlands nursery in Clear Lake potting aquatic plants.
Salzer, Robert	10/20/2016	4.5	Wetland plant field collection; nursery work at GCBO
Salzer, Robert	11/17/2016	5.25	Wetland plant field collection; nursery work at GCBO
Salzer, Robert	12/15/2016	4.75	Wetland plant nursery work, GCBO
Williams, Sheila	10/20/2016	3	GCBO Nursery
Williams, Sheila	11/16/2016	3	Workday GCBO Nursery
Williams, Sheila	12/15/2016	2.5	Workday GCBO Nursery
Total Hours for Q4		63.75	

Please note that hours reported for activities not related to the Wetland Plant Partnership contract were removed.

Cradle of Texas Chapter TMN Volunteer Hours: January-March 2017

Volunteer Name	TMN		Service Performed
	Start Date	Hours	
Atkins, Oron	3/18/2017	1	GCBO - Site Maintenance habitat
Kneupper, Chris	1/19/2017	5	TCWP-workday at GCBO
Kneupper, Chris	1/20/2017	2	TCWP-at GCBO, count & water newly-planted seeds & plants, and drain ponds.
Kneupper, Chris	1/23/2017	2.5	TCWP-at GCBO, plants seeds , drain ponds, and tend seed pots.
Kneupper, Chris	1/26/2017	2	TCWP-at GCBO, pot up Crinum Lily and Carolina Buckthorn; water plants.
Kneupper, Chris	2/1/2017	1.5	TCWP-at GCBO, water & tend plants.
Kneupper, Chris	2/5/2017	1.5	TCWP-at GCBO, water & tend plants.
Kneupper, Chris	2/8/2017	8	TCWP-at GCBO, resolve electrical issue at nursery pavilion, lay weedcloth, move & weed pots,
Kneupper, Chris	2/16/2017	4.5	TCWP-monthly workday at GCBO
Kneupper, Chris	2/21/2017	4	TCWP-at GCBO, drain ponds & weed/cull/move Milkweed, Yellow Nutsedge & La. Iris.
Kneupper, Chris	2/22/2017	3	TCWP-at GCBO, burn scrap lumber, move Hibiscus & Crinum, cull La. iris.
Kneupper, Chris	3/3/2017	4	TCWP-at GCBO, clean & organize ponds for tour on Sat, also plant seeds of 7 batches Indianola Beaksedge and 4 batches Physostegia.
Kneupper, Chris	3/2/2017	1.5	TCWP-at GCBO, water & tend plants.
Kneupper, Chris	3/16/2017	5.5	TCWP-GCBO monthly workday
Kneupper, Chris	3/20/2017	1.5	TCWP-at GCBO, water plants & adjust level in ponds
Kneupper, Chris	3/15/2017	2	TCWP-at GCBO, prepare site for workday on the following day, drain ponds, transplant items from pools, etc.
Kneupper, Chris	3/22/2017	1.5	TCWP-at GCBO, water plants & create Eleocharis pool.
Kneupper, Chris	3/24/2017	1.5	TCWP-at GCBO, water & tend plants.
Kneupper, Chris	3/31/2017	2.5	TCWP-at GCBO, plant seeds, move & water plants.
Kneupper, Chris	3/30/2017	1.5	TCWP-at GCBO, water plants.
Mullins, Mike	3/20/2017	2.5	Moving donated pots from wells nursery to GCBO for wetlands plants propagation
Romfh, Peggy	1/19/2017	5	GCBO wetland nursery - potting rushes
Romfh, Peggy	1/30/2017	0.5	TCWP - habitat status review, Pearland Nature Center
Romfh, William (Pete)	1/19/2017	5	TCWP: Workday at GCBP. Potting seedlings + 1.5 hr travel
Romfh, William (Pete)	1/30/2017	0.5	habitat status review PNC
Sabathier, Donald	1/26/2017	4.5	worked in Clear Lake Wetlands Nursery
Sabathier, Donald	2/16/2017	6	worked at GCBO in the wetlands plant repotting and sorting and moving of plants to new locations
Salzer, Robert	1/19/2017	5	Wetland plant nursery work, GCBO

Cradle of Texas Chapter TMN Volunteer Hours: January-March 2017

Salzer, Robert	2/16/2017	5.75	Wetland plant field collection; nursery work at GCBO
Salzer, Robert	3/26/2017	1	Wetland plant field collection
Salzer, Robert	3/28/2017	3	Wetland plant field collection

7 Volunteers

95.25 Hours logged

TCWP Volunteers/TMN-COT Members/Scouts		69.00	Hours	QTR 2, 2016
Volunteer Name	Opportunity Title	Start Date	TMN Hour	Service Performed
Kneupper, Karl	Hornaday Award service project	4/18/2016	22.5	2 potting tables, 2 seeding tables for GCBO nursery
Kanski, Scott	Eagle Scout service project	4/15/2016	20	Coordinate project, plan construction, pick up materials
8 troop volunteers	Eagle Scout service project	4/16/2016	24	Construct compost bin system, and 1 potting table
Kanski, Scott	Eagle Scout service project	5/21/2016	2.5	Install nursery shed shelving, compost bin hardware
		Total Hours for the QTR	69	



Event: ^{OFFICIAL} 1st VOLUNTARY WORKDAY @ GCBO
 Date: 1/21/16
 Location: GCBO

Name	Email & Organization/School Name
1 Mike Mullins	COT
2 Roger K. Allen	COT
3 Don SABATHIER	COT
4 Sheila Williams	COT
5 Susan Conaty	COT
6 Robert Salzer	COT
7 Ray Rottmann	GBAMN
8 Dene' Humes	GBAMN
9 Joe Bryan	GBAMN
10 Peggy Romph	COT
11 Pete Romph	COT
12 DAVE BRANDER	COT
13 CHRIS KNEPPER	COT
14	
15	
16	
17	
18	



Event: THURSDAY SW WETLAND WORKDAY
 Date: 1/28/16
 Location: EXPLORATION GREEN NURSERY + GCBO

Name	Email & Organization/School Name
1 Jerry Dellinger	GC
2 Ray Rottmann	GBA
3 Joe Bryan	GBA
4 Leda Parker	GBA
5	
6	
7	
8 *AT GCBO, SAME DAY	
9 CHRIS KNEPPER	COT
10 DENICE APGAR	COT
11	
12	
13	
14	
15	
16	
17	
18	



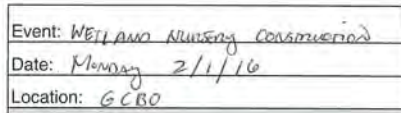
Event: Wetland Nursery Construction
 Date: 1/27/16
 Location: GCBO

Name	Email & Organization/School Name
1 Chris Knepper	COT
2 Peggy Romph	COT
3 Pete Romph	COT
4 Denise APGAR	dapgar1702@aol.com 713 417 6377
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	



Event: Wetland Nursery Construction
 Date: 1/29/16
 Location: GCBO

Name	Email & Organization/School Name
1 PETE ROMPH	TNM-COT
2 PEGGY ROMPH	TNM-COT
3 DAVE BRANDER	TNM-COT
4 Bob Salzer	TNM-COT
5 Jerry Dellinger	TGCMN
6 Susan Conaty	TNM-COT
7 CHRIS KNEPPER	TNM-COT
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	



STORMWATER
WETLAND
PROGRAM



STORMWATER
WETLAND
PROGRAM

Event: Stormwater Thursday Workshop
Date: 2/18/16
Location: SAN BERNARDINO NWR / GC130



STORMWATER
WETLAND
PROGRAM

Event: PEARLAND FLOODING WETLANDS
Date: 5/12/16 WORKDAY
Location: JOHN HARGREVE COMPLEX, PEARLAND

Name

Email & Organization/School Name

1 Julia Geisler

MJ-COT GEISLER@HUGHES.NET

2 DON SABATHIE

GBATMN

3 Ray Rottmann

GBATMN

4 Martha Richeson

"

5 Peggy Romph

COT

6 Pete Romph

COT

7 Mike Mullins

COT

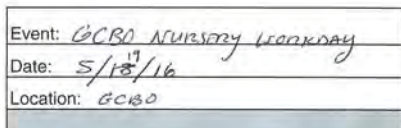
8 SUZIE SAFLEY (GURAN)

COT SUZIESAFLEY@YAHOO.COM

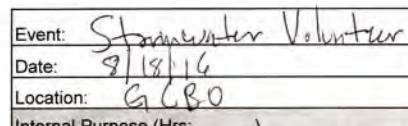
10 PEARLAND STAFF:

11 Kenonick Gray

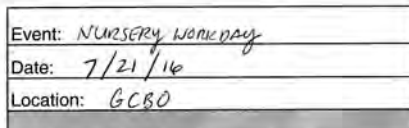
12 Tim Gray



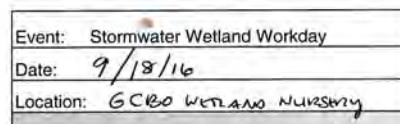
	Name	Email & Organization/School Name
1	Chris Knappner	LOT TMN
2	Peggy Romth	"
3	Pete Romth	"
4	Bob Salzer	"
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		



	Name	Contact (Phone or Email) or School Name (mentors/team members leave blank)
1	Sheila Williams	TMU-COT
2	Perry Routh	↓
3	Peter Routh	
4	Oran Atkins	
5	JOE BRYAN	GB TMH
6	Kathlyn Bradlock	TXTECH STUDENT
7	Diani Humes	GBAC-TMN
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		



	Name	Email & Organization/School Name
1	PETE ROMAN	TMN-COT
2	PERCY ROMAN	TMN-COT
3	Betty Bouley	TMN-COT bettybouley56@gmail.com
4	Robert Salzer	TMN-COT
5	Kaitlyn Braddock	—
6	CHRIS KNEPPER	TMN-COT
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		



PROGRAM	
Name	Email & Organization
1 Janine Tanner	j9tanner@peoplepc.com GCMN
2 PETE ROMPH	TMN - COT
3 PEGGY ROMPH	" "
4 Sheila Williams	TMN - COT
5 CHRIS KNEUPPER	TMN - COT
6 Mike Mullins	" "
7 SUSAN CONARY	TMN COT
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	

- BRINE CUPS TO GCB
- 3 BAGS POTTING MIX
- PERLITE PERLIZON LIKE OSMOCONE



Event: Stormwater Wetland Workday
 Date: 10/13/16
 Location: Pearlman Nature Ctr

Name	Email & Organization
HARTLEY	
Don SATATHIER	GBAMN
Kendrick Gray	Pearland
Jerry Bradshaw	Pearland - Urban Forester
Jennifer Drummond	jenn.drummond@gmail.com TXGCMN
Martha Richardson	GBAMN
Janine Tanner	j9tanner@peoplepc.com
Deane Humes	treinerhumes@earthlink.net
George Kyame	GBAMN



Event: Stormwater Wetland Workday
 Date: 11/17/16
 Location: GCRBO

Name	Email & Organization
Don SATATHIER	TMN-COT
Sheila Williams	TMN-COT withersche971@hushmail.com
PETE ROMFH	TMN-COT PATE & ROMFH @ COMCAST.NET
PEGGY ROMFH	TMN-COT PEGGY.ROMFH@COMCAST.NET
Bob Salzer	TMN-COT

Hymenaea 28 x 4 = 116 + 8 = 124
 LAS ALVA 37
 MARIEN CAMP 18 x 3 = 54 woolly mulberry = 56



Event: Stormwater Wetland Workday
 Date: 10/20/16
 Location: GCRBO WETLAND NURSERY

Name	Email & Organization
CHRIS KNEUPPER	TMN-COT kneupper@brazoria.net.com
Sheila Williams	TMN-COT withersche971@hushmail.com
Janine Tanner	TMN-GG j9tanner@peoplepc.com
Robert Salzer	TMN-COT



Event: Stormwater Wetland Workday
 Date: 12/15/16
 Location: GCRBO WETLAND NURSERY

Name	Email & Organization
Bob Salzer	TMN-COT
Sheila Williams	TMN-COT
Don SATATHIER	TMN-COT
CHRIS KNEUPPER	TMN-COT

376 INDIANIS FROM Hwy 376.



Event: Stormwater Wetland Workday

Date: 1/19/17

Location: GCB0 WETLAND NURSERY

Name	Email & Organization
1 PBTE RomFH	TMN - COT
2 PBTE RomFH	TMN - COT
3 CHRIS KNEPPER	TMN - COT
4 Robert Salzer	TMN - COT
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	



Event: Stormwater Wetland Workday @ GCB0

Date: 3/16/17

Location: GCB0 NURSERY + PLANT CONFERENCE/BRANCH

Name	Email & Organization
1 J. Brandon Pearson	Texas A&M
2 William M. Hec	Texas A&M
3 Laura Mae Kinson	" "
4 Thuy Chau	" "
5 Abigail Brown	" "
6 Maryam Cheta	" "
7 CHRIS KNEPPER	TMN - COT
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	



Event: Stormwater Wetland Workday

Date: 2/16/17

Location: GCB0 WETLAND NURSERY

Name	Email & Organization
1 Chris Knepper	COTMN
2 Joe Bryan	GBAMN
3 Don Salathian	COTMN
4 Bob Salzer	*
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	

Wetland Plant Partnership Photos: March 2016

Third Thursday workday volunteers propagate plants in the nursery and field-collect wetland species in Brazoria Co.



Wetland Plant Partnership (Contract 16-077-000-9121): photos from April-June 2016 reporting period



Scout Carl Kneupper constructed two potting tables and two seeding tables for the nursery, completed 4/18. Photos: Chris Kneupper



Eagle Scout project conducted by Scott Kanski 4/15 produces a compost bin system and a third potting table for the wetland nursery.. Photos: Chris Kneupper



Volunteers transplant plants grown in the GCBO nursery to the floating wetlands at the John Hargrove Environmental complex in Pearland, TX. Photos: Pete Romfh



Scenes from Third Thursday volunteer workdays, May 19 and June 16 . Photos: Mary Carol Edwards



Temporary CMP signage installed at the GCBO wetland nursery. Photo: Danny Walton

Green Infrastructure Project in Progress

Helping to protect water quality in your backyard



THIS PROJECT IS FUNDED BY A TEXAS COASTAL MANAGEMENT PROGRAM GRANT APPROVED BY THE TEXAS LAND COMMISSIONER PURSUANT TO NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION AWARD NO. NA14NOS4190139

Wetland Plant Partnership (Contract 16-077-000-9121): photos from July-Sept 2016 reporting period



Scenes from Third Thursday volunteer workday, July 21 . Photos: Mary Carol Edwards



Scenes from the Third Thursday volunteer workday, August 18. Photos: Pete Romfh



Scenes from the Third Thursday volunteer workday, September 18. Photos:

Wetland Plant Partnership (Contract 16-077-000-9121): photos from July-Sept 2016 reporting period



Scenes from the first "Gutter to Gator" stormwater workshop, August 12 . Photos: Stephanie Hendrickson, Jerry Hamby



Scenes from the second "Gutter to Gator" stormwater workshop, Sept 29. Photos: Race Hodges

Wetland Plant Partnership (Contract 16-077-000-9121): photos from Oct-Dec 2016 reporting period



October 13: Volunteers maintain Pearland floating wetlands, including distributing wetland seedballs prepared at GCBO



October 20: Volunteers collect swamp lily bulbls from the GCBO pond and set them in flats to germinate



October 20: Volunteers collect seedheads from plants in the nursery

Wetland Plant Partnership (Contract 16-077-000-9121): photos from Oct-Dec 2016 reporting period



November 17: Volunteers pot sprigs of Blue waterleaf/*Hydrolea ovata* and other species



November 17: pots are added to a nursery tank



December 15: a view of the wetland nursery with on-surface plants in the foreground



December 15: Volunteers separate young iris germinated in the nursery and replant them in individual pots



Wetland Plant Partnership (Contract 16-077-000-9121): photos from Jan-Mar 2017 reporting period



1/19: Volunteers clean seeds (i.e., work them loose from stems and capsules) , making them ready for sowing



1/19: (L) A tray of spider lily seedlings are divided and transferred into individual pots. (R) Pots of seeds are placed on a seeding table. Photo: Pete Romfh.



1/19: These photos show the on-ground stocks of plants need a better system of organization

Wetland Plant Partnership (Contract 16-077-000-9121): photos from Jan-Mar 2017 reporting period



(L) 2/8: On a maintenance day, the first section of geotextile is laid out for relocating on-ground stocks of plants

(R) 2/16: Volunteers lay out a second section of geotextile and load it with plants



3/17: (L) Students pot Swamp lily seedlings into individual pots. (R) On-ground plants receive slow-release fertilizer



3/17: (L) TX A&M interns break for lunch on the GCBO back porch. (R) Students wild-collect Thalia in Brazoria County

Task 4 Documents:
Education and Outreach



Learn about natural techniques to clean and conserve stormwater for humans and wildlife, at any scale: backyard to urban/suburban/industrial to regional.

Managing our Stormwater, from Gutter to Gator

Gulf Coast Bird Observatory
299 Hwy TX-332
Lake Jackson, TX 77566

There is no cost to attend,
but RSVPs are required.
For more information or to register,
go to tcwp.tamu.edu/events

**Saturday
March 4
9am-12pm**



Texas A&M AgriLife Extension/ Texas Sea Grant speakers and topics include:

Charriss York, Green Stormwater Infrastructure Program Specialist:

- **Collecting and cleansing stormwater runoff at home and in the neighborhood**

Mary Carol Edwards, Stormwater Wetland Program Specialist:

- **Using wetlands in flood control basins for water quality and habitat**

Marissa Sipocz, Wetland Restoration Program Specialist:

- **How large-scale wetland restoration benefits us all**



TEXAS COASTAL WATERSHED
P R O G R A M

TEXAS A&M
AGRI LIFE
EXTENSION





green infrastructure
practices



stormwater treatment
wetlands



wetland restoration

Managing Our Stormwater, From Gutter to Gator

*A workshop on natural techniques to clean
and conserve stormwater for humans and
wildlife, at any scale*

August 12, 2016
September 29, 2016
March 4, 2017

Gulf Coast Bird Observatory,
299 Hwy TX-332, Lake Jackson, TX 77566



Workshop Schedule

- | | |
|-------------|---|
| 8:30-9:00 | Registration |
| 9:00-9:10 | Opening remarks by Carol Jones, GCBO Director |
| 9:10-9:20 | Introductions by Mary Carol Edwards |
| 9:20-10:05 | Charriss York on capturing and cleansing stormwater runoff at home and in the neighborhood |
| 10:05-10:50 | Marissa Sipocz on large-scale freshwater and estuarine wetland restoration with regional benefits |
| 10:50-11:10 | Break |
| 11:10-11:55 | Mary Carol Edwards on changing the way we design flood control basins, using stormwater wetlands |
| 11:55-12:00 | Concluding remarks |

You are encouraged to visit the GCBO wetland nursery and site.

Speaker Contacts

Charriss York cyork@tamu.edu
Green Stormwater Infrastructure Program
Texas A&M AgriLife Extension Program Specialist

Marissa Sipocz m-sipocz@tamu.edu
Wetland Restoration Program
Texas A&M AgriLife Extension Program Specialist

Mary Carol Edwards mcedwards@tamu.edu
Stormwater Wetland Program
Texas A&M AgriLife Extension Program Specialist

Notes

Workshop: Managing Our Stormwater, From Gutter to Gator		
March 4, 2017		
NAME	EMAIL	ORGANIZATION
Alice O'Quin	Alice O'Quin	GBMA GBMA
Bill Ahlstrom	Bill Ahlstrom@gmail.com	TNN-COT
Dave Brandes		
Dietrich Gaitz	dietrich.gaitz@gmail.com	TNN
Dwight Rhodes	drhodes@colusa-college.edu	Albion Community College
Heather Lewis	h.lewis@duke.edu	ACC
Heather O'Keefe	okeefe@gnail	TX Master Naturalist in training
Jill Breeden		
Judy Green		
Judy Thomas		
Julie d'Ablain	julie.dablain@duke.edu	ACC
Julie Hernandez		
Larry Ruhr	ruhrfamily@gmail.com	TNN-COT
Mary Waters		
Susan Conaty	pmcsmc2@centurylink.net	COT-PAH
Wayne O'Quin	WYOQUIN@GBMA.ORG	TNN
Martin HANE	MHANE@GORD.ORG	GORD
Paul & Earlene		GORD

Default Report

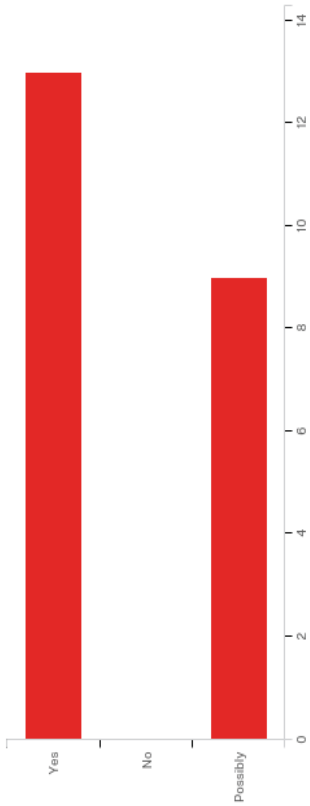
August 12 workshop survey: Managing Our Stormwater, from Gutter to Gator
October 6th 2016, 2:06 pm MDT

Q1 - Please give your evaluation of these areas:

Answer	%	Count
Excellent	72.73%	16
Good	27.27%	6
Neutral	0.00%	0
Poor	0.00%	0
Total	100%	22

Question	Excellent	Good	Neutral	Poor	Total
Ease of online registration	72.73%	16 27.27%	6 0.00%	0 0.00%	22
Quality of the room and venue	59.09%	13 40.91%	9 0.00%	0 0.00%	22
Quality of the presenter: Charriss York, green stormwater infrastructure	81.82%	18 18.18%	4 0.00%	0 0.00%	22
Quality of the presenter: Marissa Sipocz, wetland restoration	81.82%	18 18.18%	4 0.00%	0 0.00%	22
Quality of the presenter: Mary Carol Edwards, stormwater wetlands	90.91%	20 9.09%	2 0.00%	0 0.00%	22
Overall experience	86.36%	19 13.64%	3 0.00%	0 0.00%	22

Q2 - Do you plan to implement green infrastructure practices at your home, neighborhood, work or other place?

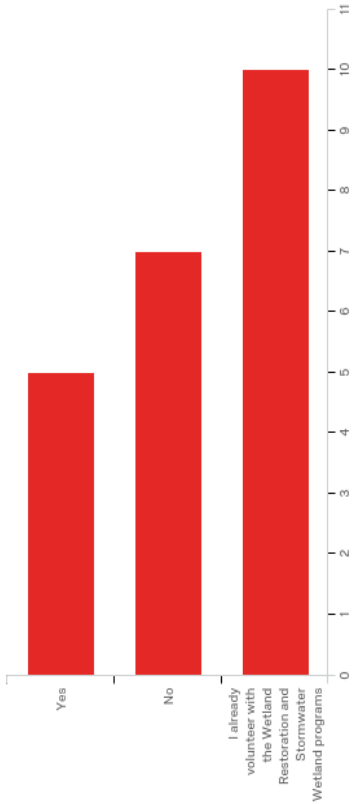


Answer	%	Count
Yes	59.09%	13
No	0.00%	0
Possibly	40.91%	9
Total	100%	22

Q3 - Which green infrastructure practice(s) will you implement?

Which green infrastructure practice(s) will you implement?
Backyard improvements
Undecided at this point. Possibly a rain garden in a low area on our 3 acres.
All of them
water catchment: rain garden; swales
No specific plans at this time, but as a homeowner in the city the logical options are: watersmart landscaping and enhancing yard for wildlife i.e. birds.
No specific plans at this time. But very much like having this knowledge.
Build a rain garden to slow down the run off in my area.
Help Exploration Green implement their plan
Install sustainable drainage system and green embankment structure
I will capture rain off and develop existing swale on my property into a small wetland.
Use of rain barrels, more native plants. I'd love to do a rain garden.
We are interested in green infrastructure solutions for onsite storm water detention and campus landscaping.
turning a low area into a wetland garden
Water harvesting
I will participate in the wetland planting projects at Exploration Green.
Better use of rainwater runoff at our home
Have several in mind for Woodland Park. Hoping to get Charriss out for a look see.
Might plant flowers if I can figure out where.

Q4 - Are you interested in being contacted about wetland and stormwater wetland events and volunteer opportunities?



Answer	%	Count
Yes	22.73%	5
No	31.82%	7
I already volunteer with the Wetland Restoration and Stormwater Wetland programs	45.45%	10
Total	100%	22

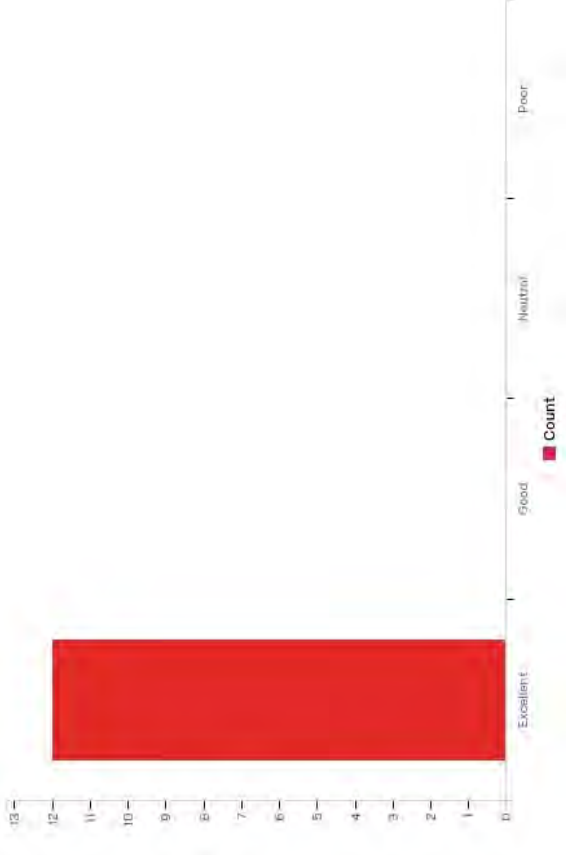
Q5 - Do you have suggestions that will make the next green infrastructure workshop a better experience?

Do you have suggestions that will make the next green infrastructure worksh...
Nothing to add. A lot of information was conveyed and many questions asked, but time allowance seemed ample.
None - this one was excellent
No. Excellent for my purpose.
No. I thought it was wonderful. Thank you for all the time and effort.
no
It was very well done.
location to attract attendees from other areas
No.
Decrease the amount of material covered so it doesn't feel rushed.
No, I thought the program was very well planned and executed.
having it last longer so the presenters were not rushed
?
The chair and table configuration would be more comfortable if the audience faced the speakers directly.
On events like this, 1/2 day, it is nice to include a picnic lunch opportunity after the event for fellowship. Just a place near by to sit and chat.
I live within city limits and lot size is under 10,000 sq. ft.. Seemed many ideas were for much larger areas. Might want to ask participants city/county. Less than 10,000 sq. ft./ more than/more than an acre to get an idea of solutions to present.

Default Report

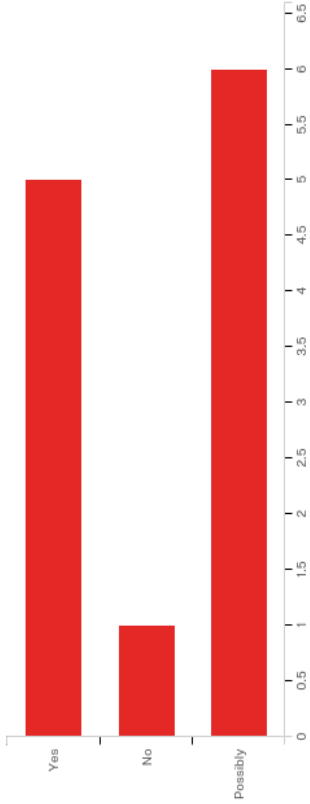
Sept 29 workshop survey: Managing Our Stormwater, from Gutter to Gator
October 21st 2016, 3:01 pm MDT

Q1 - Please give your evaluation of these areas:



Question	Excellent	Good	Neutral	Poor	Total
Ease of online registration	100.00%	12	0.00%	0	12
Quality of the room and venue	63.64%	7	36.36%	4	11
Quality of the presenter: Charriss York, green stormwater infrastructure	83.33%	10	16.67%	2	12
Quality of the presenter: Marissa Sipocz, wetland restoration	83.33%	10	16.67%	2	12
Quality of the presenter: Mary Carol Edwards, stormwater wetlands	83.33%	10	16.67%	2	12
Overall experience	66.67%	8	33.33%	4	12

Q2 - Do you plan to implement green infrastructure practices at your home, neighborhood, work or other place?



Answer	%	Count
Yes	41.67%	5
No	8.33%	1
Possibly	50.00%	6
Total	100%	12

Q3 - Which green infrastructure practice(s) will you implement?

Which green infrastructure practice(s) will you implement?
rain garden to help cleanse the water run off going into our drainage ditches and retention ponds.
I would like to have assistance in wetland preservation for a parcel of land in my area (Rockport) that is critical to the county's drainage system.
Vegetation in ditches
Residence--swales and rain gardens; gathering info on possible greywater system
Possibly some of the plant bed designs
Rain water harvesting
Personal: Permeable landscaping and native plants in yard; wetland/pond construction.
Local: Recommendations for street design implementation measures that incorporate more permeable surfaces and biofiltration opportunities.
Regional: Oso Creek TMDL Implementation plan committee recommendations for improving the watershed. Continue planting native plants.

Q4 - Are you interested in being contacted about TCWP volunteer events? This includes wetland restoration, stormwater wetland creation, and WaterSmart landscape demonstrations. If so, please enter your email address.



Data source misconfigured for this visualization.

Data source misconfigured for this visualization

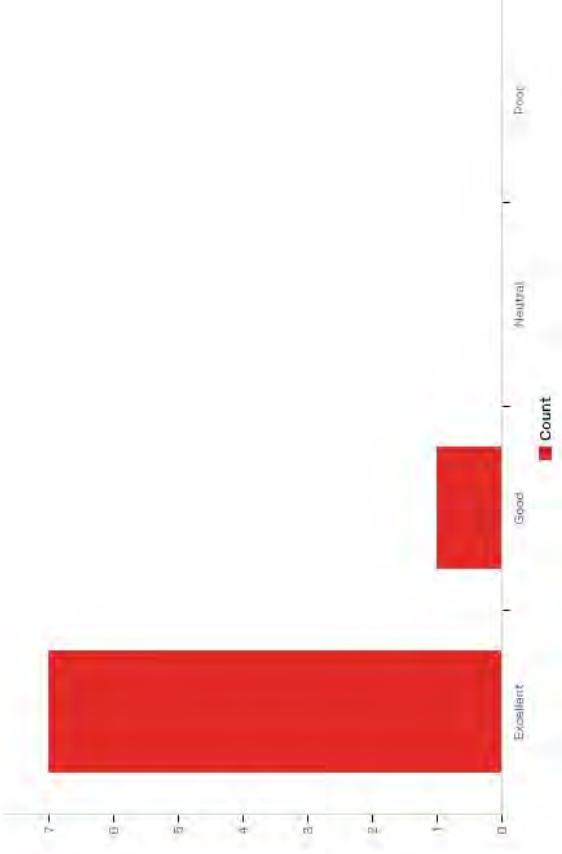
Q5 - Do you have suggestions that will make the next green infrastructure workshop a better experience?

Do you have suggestions that will make the next green infrastructure worksh...
GPS could not find location, not anyone's fault but the makers of google maps and the makers of "Here Drive" mapping app, both took me to different end points in the general area but well short of the final destination. Glad someone answered the desk phone at the bird sanctuary, they were able to give me directions from where the GPS took me.
Have one in the Corpus Christi area!! :)
Variety of presentations, since last two were about wetlands.

Default Report

March 4 workshop survey: Managing Our Stormwater, from Gutter to Gator
March 21st 2017, 8:01 am MDT

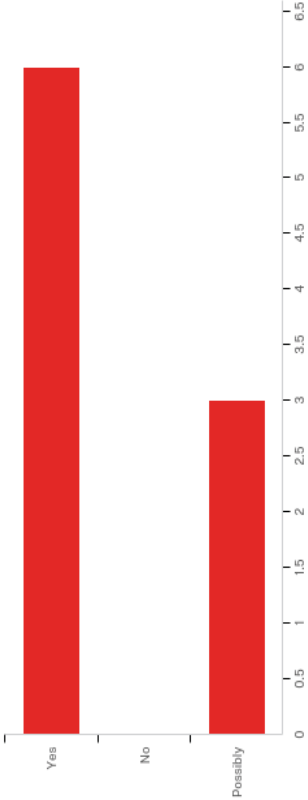
Q1 - Please give your evaluation of these areas:



	ation: Charri York. green stormw ater infrastr ucture Quality of the present									
4	ation: Marissa Sipocz wetland restora tion	7	22.22%	2	0.00%	0	0.00%	0	0.00%	9
5	Quality of the present ation: Mary Carol Edward stormw ater wetland s	8	11.11%	1	0.00%	0	0.00%	0	0.00%	9
6	Overall experie nce	9	0.00%	0	0.00%	0	0.00%	0	0.00%	9

#	Questio n	Excellen t	Good	Neutral	Poor	Total
1	Ease of online registra tion	87.50%	12.50%	0.00%	0.00%	8
2	Quality of the room and venue	100.00%	0.00%	0.00%	0.00%	9
3	Quality of the present	100.00%	0.00%	0.00%	0.00%	9

Q2 - Do you plan to implement green infrastructure practices at your home, neighborhood, campus or other place?



#	Answer	%	Count
1	Yes	66.67%	6
2	No	0.00%	0
3	Possibly	33.33%	3
	Total	100%	9

Q3 - Which green infrastructure practice(s) will you implement?

Which green infrastructure practice(s) will you implement?
Rain water barrels, water retention style gardens
Considering a rain garden in my front yard- need to investigate shade tolerant wet plants.
Rain garden
creating a rain water garden.
Green Stormwater infrastructure
Water runoff management, rain barrel and condensate collection
Rain garden
We would like to eventually add rain water tanks.

Q5 - Do you have suggestions that will make the next green infrastructure workshop a better experience?

Do you have suggestions that will make the next green infrastructure worksh...
Not really. I think it is great as it is.
Example projects and photos are excellent - small and large scale projects - everyone can then relate to their own scale.
No, the instructors did a fine job in their presentations.
I can't think of any. Great workshop!

Wetland Plant Partnership (Contract 16-077-000-9121): photos documenting signage

Green Infrastructure Project in Progress

Helping to protect water quality in your backyard



THIS PROJECT IS FUNDED BY A TEXAS COASTAL MANAGEMENT PROGRAM GRANT APPROVED BY THE TEXAS LAND COMMISSIONER PURSUANT TO NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION AWARD NO. NA14NOS4190139



Temporary CMP signage: Approved sign file (L) and placement onsite (R)



Permanent CMP signage onsite, placed on nursery shed

Wetland Plant Nursery

The nursery you see before you is dedicated to growing native wetland plants. More than 4,000 native wetland plants can be grown here at a time, plants that will find homes in future stormwater wetlands in Brazoria County and beyond.

What are Stormwater Wetlands?

Similar to natural wetlands, stormwater wetlands are constructed in flood control basins to treat stormwater runoff and improve water quality.

Stormwater wetlands are planted with species native to Brazoria County such as the Southern blue flag iris seen in the background photo. Through natural physical and biochemical processes, wetland plants and microorganisms reduce levels of contaminants that are characteristic of urban, suburban and roadway stormwater runoff.

After passing through wetlands, cleaner, clearer water is gradually released into local waterways, bayous and bays.

How Does a Wetland Nursery Benefit Birds?

According to the U.S. Environmental Protection Agency, about half of all bird species in North America spend some part of their life feeding, breeding, nesting or resting in wetlands.

While wetlands are vitally important to birds and other wildlife, natural coastal wetlands and prairies are becoming increasingly rare due to urban development and sprawl.

Stormwater wetlands can provide a much needed habitat for birds and wildlife while also acting as open space for humans to enjoy. The wetland nursery houses plants needed to create these stormwater wetlands.

The Wetland Plant Partnership

This project is a collaboration between the Texas Coastal Watershed Program (a part of the Texas A&M AgriLife Extension Service and Texas Sea Grant), the Gulf Coast Bird Observatory and the Texas Master Naturalists.

The partners work together to grow and provide native plant materials for demonstration stormwater wetlands being constructed in the Brazoria County area.

In addition, the Partnership provides public education and outreach on issues of green stormwater infrastructure, water quality, wildlife and wetlands.

A selection of plants you may see:



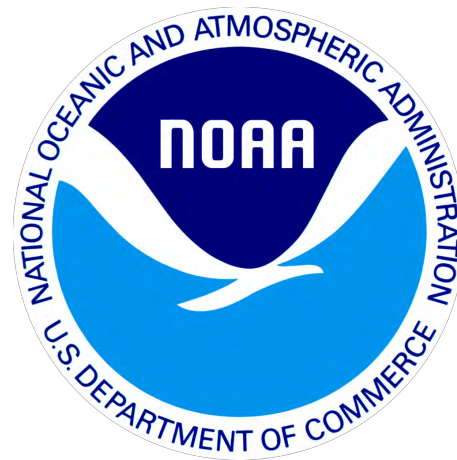
What about mosquitoes?

While mosquitoes may be annoying, they are not a threat to the wetland nursery. Mosquitoes that breed in the nursery are not the same as those that breed in standing water. The nursery is designed to drain water quickly, reducing the risk of mosquito breeding.

Wetland Nursery Interpretive signage was submitted for production March 30, but as of May 22, fabrication has not been completed.

Green Infrastructure Project in Progress

Helping to protect water quality in your backyard



THIS PROJECT IS FUNDED BY A TEXAS COASTAL MANAGEMENT PROGRAM GRANT APPROVED BY THE TEXAS LAND COMMISSIONER PURSUANT TO NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION AWARD NO. NA14NOS4190139

Wetland Plant Nursery

The nursery you see before you is dedicated to growing native wetland plants. More than 4,000 native wetland plants can be grown here at a time, plants that will find homes in future stormwater wetlands in Brazoria County and beyond.

What are Stormwater Wetlands?



Similar to natural wetlands, stormwater wetlands are constructed in flood control basins to treat stormwater runoff and improve water quality.

Stormwater wetlands are planted with species native to Brazoria County, such as the Southern blue flag iris seen in the background photo. Through natural physical and biochemical processes, wetland plants and microorganisms reduce levels of contaminants that are characteristic of urban, suburban and roadway stormwater runoff.

After passing through wetlands, cleaner, clearer water is gradually released into local waterways, bayous and bays.

How Does a Wetland Nursery Benefit Birds?



According to the U.S. Environmental Protection Agency, about half of all bird species in North America spend some part of their life feeding, breeding, nesting or resting in wetlands.

While wetlands are vitally important to birds and other wildlife, natural coastal wetlands and prairies are becoming increasingly rare due to urban development and sprawl.

Stormwater wetlands can provide a much needed habitat for birds and wildlife while also acting as open space for humans to enjoy. The wetland nursery houses plants needed to create these stormwater wetlands.

The Wetland Plant Partnership

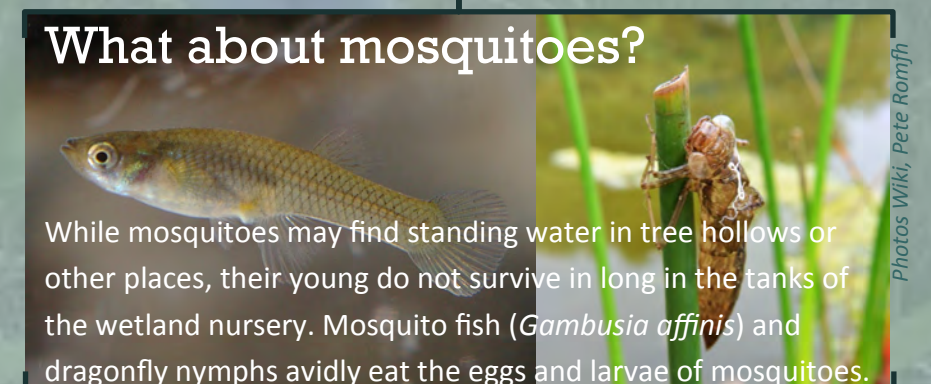
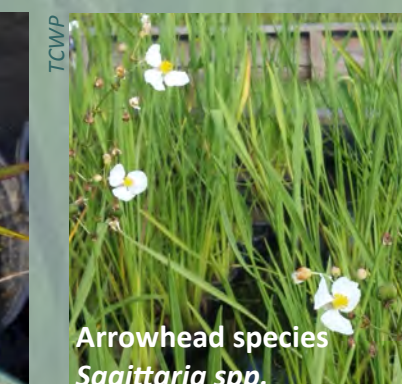
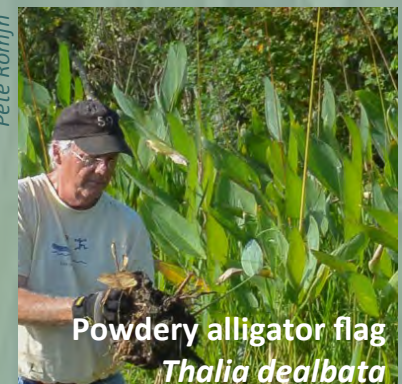


This project is a collaboration between the Texas Coastal Watershed Program (a part of the Texas A&M AgriLife Extension Service and Texas Sea Grant), the Gulf Coast Bird Observatory and the Texas Master Naturalists.

The partners work together to grow and provide native plant materials for demonstration stormwater wetlands being constructed in the Brazoria County area.

In addition, the Partnership provides public education and outreach on issues of green stormwater infrastructure, water quality, wildlife and wetlands.

A selection of plants you may see:



Publication funded by a Texas Coastal Management Program Grant approved by the Texas Land Commissioner pursuant to National Oceanic and Atmospheric Administration (NOAA) Award No. NA15NOS4190162, and by an Institutional Grant (NA14OAR4170102) to the Texas Sea Grant College Program from the National Sea Grant Office, NOAA, and U.S. Department of Commerce.



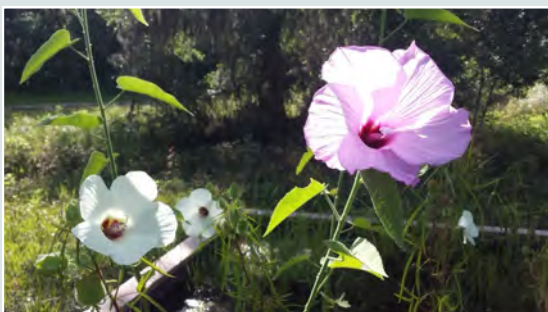


The wetland nursery at GCBO hosts monthly volunteer workdays.

The serene landscape of the Gulf Coast Bird Observatory (GCBO) in Lake Jackson is the site of a unique feature: a wetland plant nursery.

More than 4,000 native wetland plants can be grown here at a time, plants that will find homes in future stormwater wetlands in Brazoria County and beyond.

To find out how you can be involved, go to tcwp.tamu.edu.



Local wetland species, including uncommon varieties, are propagated.



The wetland nursery tanks were constructed by Texas Master Naturalists and TCWP staff.



tcwp.tamu.edu

Publication funded by a Texas Coastal Management Program Grant approved by the Texas Land Commissioner pursuant to National Oceanic and Atmospheric Administration (NOAA) Award No. NA15NOS4190162, and by an Institutional Grant (NA14OAR4170102) to the Texas Sea Grant College Program from the National Sea Grant Office, NOAA, and U.S. Department of Commerce.

TAMU-SG-17-304

The Wetland Plant Partnership



Photos: TCWP, Pete Romfh



TEXAS COASTAL WATERSHED PROGRAM

A cooperative educational and outreach effort between Texas A&M AgriLife Extension Service and Texas Sea Grant

What are Stormwater Wetlands?

Similar to natural wetlands, stormwater wetlands are constructed in flood control basins to treat stormwater runoff and improve water quality.

Through natural physical and biochemical processes, wetland plants and microorganisms reduce levels of hydrocarbons, metals, excess nutrients, bacteria and sediment that are characteristic of urban, suburban and roadway stormwater runoff.

After passing through wetlands, cleaner, clearer water is gradually released into local waterways, bayous and bays.



One stormwater wetland example is at Mason Park in Houston, which filters runoff from a nearby neighborhood before it enters Brays Bayou.

How Does a Wetland Nursery Benefit Birds?

According to the U.S. Environmental Protection Agency, about half of all bird species in North America spend some part of their life feeding, breeding, nesting or resting in wetlands.

While wetlands are vitally important to birds and other wildlife, natural coastal wetlands and prairies are becoming increasingly rare due to urban development and sprawl.

Stormwater wetlands can provide a much needed habitat for birds and wildlife while also acting as open space for humans to enjoy. The wetland nursery houses plants needed to create these stormwater wetlands.



Snow geese and other migratory birds rely on fresh-water wetlands along the Texas Gulf Coast.

The Wetland Plant Partnership

This project is a collaboration between the Texas Coastal Watershed Program (a part of the Texas A&M AgriLife Extension Service and Texas Sea Grant), the Gulf Coast Bird Observatory and the Texas Master Naturalists.

The partners work together to grow and provide native plant materials for demonstration stormwater wetlands being constructed in the Brazoria County area.

In addition, the Partnership provides public education and outreach on issues of green stormwater infrastructure, water quality, wildlife and wetlands.



Volunteers gather American crinum pods for propagation in the wetland nursery.

Quote No. IZONE 25440

Page 1 of 6



March 22, 2017

Customer Texas Coastal Watershed Program**Reference** TCWP Panel - Opt 1**Bill to**

Texas Coastal Watershed Program
 Mary Carol
 1250 Bay Area BLVD
 Houston, TX 77058
 US
 T: (281) 218-8100
 Email: mcedwards@tamu.edu

Ship to

Texas Coastal Watershed Program
 Mary Carol
 1250 Bay Area BLVD
 Houston, TX 77058
 US
 T: (281) 218-8100
 Email: mcedwards@tamu.edu

Valid Until	05/21/2017	Revision Date	03/22/2017	Lead Time	3 - 4 Weeks	SR	Cody Crittenden
F.O.B.	FCA shipping point	Revision No		Ship Method	UPS	PM	Jill Birdwell
Terms	No Deposit Required						
Project Name	TCWP Panel						

No.	Item	Description	Qty	UOM	Unit Price	Extension
1.	CHPL panels:1/2" XT	18 H X 24 W : 1/2" Exterior Panel Single Sided (3,000 SQ FT) FINISHING OPTIONS: Matte Finish - Exterior 1/4" Radius Corners Qty (4) 1/4" Threaded Holes, price includes 1/2" long 1/4"- 20 Button Socket Cap Black Oxide Screws	1	Each	206.73	206.73
2.	CFI	Low Profile Single Pedestal, 12"X12" Mount Plate 45 degree angle, In Ground black texture powdercoat.	1	Each	141.48	141.48
3.	PDF Proofs	PDF Proofs for content	1	Each	0.00	0.00
4.	Lab Sample	LAB (8" x 10" crop of full size panel in laminate) for color and resolution	1	Each	25.00	25.00
5.	Set-up Fee	Set up Fee	1	Each	150.00	150.00
6.	Wrapping and Crating		1	each	45.00	45.00
7.	Shipping and Handling	Estimated* Shipping and Handling to 77058.	1	Each	107.48	107.48
*Estimate does NOT include any special services such as a Lift Gate or delivery to a residential address. Additional charges may apply.						

continued on next page

Quote No. IZONE 25440

Page 2 of 6



March 22, 2017

Customer Texas Coastal Watershed Program

Reference TCWP Panel - Opt 1

Subtotal	675.69
Sales Tax (0 %)	0.00
Total	675.69

Quote Valid Until: May 21, 2017



* Must be Completed for Production to Begin

Project Data Sheet

GENERAL INFORMATION:

Your PO No. **WPP/IZONE 25440** (copy required)

Your Target Delivery Date (*Rush fees may apply): **3-4wks**

Total No. of Panels **/** No. of Original Panels:

Included panel list(attached) & qty of each

WPPSIGN-V2.pdf

Signed Terms & Conditions ☒

PROOFS:

Business ☒

Home

Electronic (PDF)

Ship

Email **mcedwards@tamu.edu**

Contact **MARY CAROL EDWARDS**

Street **1335 REGENTS PK DR. 260**

City/State **HOUSTON, TX**

Zip **77058**

Phone **281 989 5517 (PLEASE NOTE NEW NUMBER)**

PRODUCT SHIPPED TO:

Business ☒

Residential

Lift Gate (no dock)-extra charge

Delivery appt. required-extra \$

Other Specify:

Company **TX A&M AGRI LIFE / TX COASTAL WATERSHED PGM**

Contact **MARY CAROL EDWARDS**

Shipping Contact Email **mcedwards@tamu.edu**

Street (No PO Boxes) **1335 REGENTS PK DR. 260**

City **HOUSTON**

State **TX**

Phone **281 989-5517**

SHIPMENTS OUTSIDE THE U.S. REQUIRE A CUSTOMS BROKER

Broker

Acct#

Contact Name

Address

Phone

Fax

Signature 

ACCOUNTS PAYABLE INFORMATION

Company **N.A.**

Accts Payable Contact

AP email

AP Phone

Address

SUBMIT ARTWORK:

iZone Design Guidelines met

CD/DVD

FTP location / file name **WPPSIGN-V2.pdf**

COLOR MATCHING:

Match to Pantone Solid Coated Colors

Specify:

NA

Match to Previous iZone Job

NA

HARDWARE:

Threaded Holes(1/4" Std.)

PER ESTIMATE

Thru Holes* please specify hole diameter

Panel mounts in frame

Cleats: per Izone's discretion

Panel mounts to Pedestal

Type, Manufacturer Part #, etc. - drawing required

* A CUSTOMER SUPPLIED TEMPLATE FOR PROPER LOCATION IS REQUIRED FOR ALL THREADED HOLES AND THRU HOLES

FINISHING DETAILS:

Eased Edges

Square Corners

Radius Corners, Specify

PER ESTIMATE

Custom Bevel, Specify

Index Cut

Indexed files provided

Special Cut/Panel Shape

Raw Cut, Std. on .040

Sheet Goods or Panels

Task 5 Documents:

Project reporting

Wetland Plant Partnership: Match Sources

Contributor	2015 Q4 hours	2016 Q1	2016 Q2	2016 Q3	2016 Q4	2017 Q1	Total Hours	Total Value
TMN Cradle of Texas Chapter	110.25	336.25	131.2	96	63.75	95.25	832.7	\$20,909.10
TMN Galveston Bay Area Ch	0	12	9	6	9	3	39	\$979.29
Clear Creek ISD	177						0	\$3,991.35
GCBO: donation of location	ref comparable							\$13,000.00
GCBO: workshop venue								\$900.00
GCBO: nursery water, power	18 months x \$30							\$540.00
GCBO staff and volunteers	avg 4 hr/mo						72	\$1,807.92
Landscape Arts, Inc	6000 nursery pots							2314.29
								\$44,441.95

Volunteers from the following organizations recorded service hours, but the project does not have a letter of documentation.

TMN Gulf Coast Chapter	0	9	0	3	9	0	21	\$527.31
Boy Scouts of America		69					69	\$1,732.59
Other volunteers				6	6	24	36	\$903.96
								\$3,163.86

NOTES:

2015 TX volunteer hour value:	\$25.11
2016 volunteer hour value:	(not released yet)
Total CMP contribution:	\$97,614.94
40% minimum match requirement:	\$39,045.98
Total, per contract:	\$178,304.41

Julie McEntire, Project Manager
Texas General Land Office
1700 Congress Ave
Austin, TX 78701



Dear Ms. McEntire,

The Gulf Coast Bird Observatory is pleased to have hosted the wetland plant nursery and educational events as partner organization in the Wetland Plant Partnership.

The mission of the Gulf Coast Bird Observatory is to protect the birds and their habitats around the Gulf of Mexico. We have become recognized as an innovative organization, which has designed and conducted a significant number of large conservation projects, including migration studies, habitat enhancement, land acquisition, regional habitat mapping, and others.

GCBO's In Kind contributions to the Wetland Plant Partnership in the period October 2015—March 2017 have been:

- Use of a 0.5 acre site including an existing pavilion for the wetland nursery. (Est. value 13,000 based on real estate comparables)
- Water and power for the nursery and workshops (Est \$30 x 18 months =\$540)
- Meeting space in the GCBO main building for 3 workshops (Comparable to \$100/hr x3 hrs x 3 events=\$900.)
- GCBO Staff and volunteer contributions, (Avg of 4 hrs/month x 18 months = \$1807.92 value): Introductory speech by the Executive Director for each of the 3 workshops; staff time to assist setting up and taking down of the 3 workshops; site mowing by GCBO volunteer.

The total value of these contributions is \$16,247.92.

Sincerely,

Martin Hagne
Executive Director



CRADLE OF TEXAS CHAPTER
AGRI LIFE EXTENSION BLDG.
21017 CR 171, Angleton, TX
77515-8903 <http://tmn-cot.org>

May 15, 2017

Julie McEntire, Project Manager
Texas General Land Office
1700 Congress Ave.
Austin, TX 78701

Dear Ms. McEntire,

The Cradle of Texas Chapter of Master Naturalists (TMN-COT) is pleased to be a part of the Wetland Plant Partnership and a participant in the wetland plant nursery at the Gulf Coast Bird Observatory.

The mission of the Texas Master Naturalist Program is to develop a corps of well-informed volunteers to provide education, outreach, and service dedicated to the beneficial management of natural resources and natural areas within their communities for the State of Texas. For the Wetland Plant Partnership, TMN-COT volunteers helped to construct the nursery, collected wetland species' seeds and plants which were then propagated in the nursery, monitored growth, and contributed to the maintenance of the plant stocks and nursery.

TMN-COT members gave a recorded 832.7 hours to the Wetland Plant Partnership in the period October 2015—March 2017. This is over the 600 hours originally anticipated for this project. Using the most recent value of a volunteer hour in Texas, per independentsector.org, the total value of these contributions is \$20,909.10.

Sincerely,

Kristine Rivers, President

Texas Master Naturalist Program, Cradle of Texas Chapter
Brazoria County AgriLife Office
21017 County Road 171
Angleton, TX 77515-8903

T E X A S



Julie McEntire, Project Manager

Texas General Land Office

1700 Congress Ave

Austin, TX 78701

Dear Ms. McEntire,

The Galveston Bay Area Chapter of Texas Master Naturalists (GBAMN) is pleased to be a part of the Wetland Plant Partnership and a participant in the wetland plant nursery at the Gulf Coast Bird Observatory.

The mission of the Galveston Bay Area Chapter of Texas Master Naturalists is to preserve and restore our area's natural resources and educate others about our local ecosystems. For the Wetland Plant Partnership, GBAMN volunteers helped to construct the nursery, collected wetland species' seeds and plants which were then propagated in the nursery, monitored growth, and contributed to the maintenance of the plant stocks and nursery.

GBAMN members gave a recorded 39 hours to the Wetland Plant Partnership in the period October 2015—March 2017. Using the most recent value of a volunteer hour in Texas, per independentsector.org, the total value of these contributions is \$979.29.

Sincerely,

A handwritten signature in black ink, appearing to read "George Kyame". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

George Kyame, President





April, 18, 2017

Dear Ms. McEntire,

Mary Carol Edwards
Stormwater Wetland Program Specialist
Texas Coastal Watershed Program
Texas A&M AgriLife Extension Service/ Texas Sea Grant
1335 Regents Park Drive, Suite 260
Houston, TX 77058

Landscape Art, Inc. is a full-service landscape company located in League City, TX. Landscape Art installs landscaping, irrigation and light construction for all types of commercial, institutional and governmental projects.

Over the last seventeen years, we have focused primarily on high-end, architect-supervised, commercial projects. Our work includes award-winning office complexes, neighborhood entries, common areas and parks, playgrounds, spray parks, roof gardens and landscape decorating for professional golf tournaments.

Landscape Art donated 6000 1-gallon pots to the Wetland Plant Partnership for use in the wetland nursery at the Gulf Coast Bird Observatory. Using comparable values of \$27 for a case of 70 injection molded 1-gallon nursery pots, the value of the donation is \$2,314.29.

Sincerely,

Jose (Carmelo) Orellana
Vice-President of Operations

SRS Cost Sharing Volunteer Report Texas A&M System
CCISD Wetland Plant Partnership - AL Extension Project 07-586111

586111-033022

Workshop		Teacher Name	Student Name	Campus	Time	Hours	Volunteer		Total Hourly	
Date	Volunteer Title	Adult Sponsor				Worked	Hourly Rate			
1	10/3/15	Habitat Clean up Ed White ES	Lauren Jernigan	CFHS	9:00 - Noon	3	\$	22.55	\$	67.65
2	10/3/15	Habitat Clean up Ed White ES	Dusty Pace	CFHS	9:00 - Noon	3	\$	22.55	\$	67.65
3	10/3/15	Habitat Clean up Ed White ES	Alex Sheppard	CFHS	9:00 - Noon	3	\$	22.55	\$	67.65
4	10/3/15	Habitat Clean up Ed White ES	Vanessa LeVick	CFHS	9:00 - Noon	3	\$	22.55	\$	67.65
5	10/3/15	Habitat Clean up Ed White ES	Jordan Hoke	CFHS	9:00 - Noon	3	\$	22.55	\$	67.65
6	10/3/15	Habitat Clean up Ed White ES	Erin Brown	CFHS	9:00 - Noon	3	\$	22.55	\$	67.65
7	10/3/15	Habitat Clean up Ed White ES	Zaida Espinosa	CFHS	9:00 - Noon	3	\$	22.55	\$	67.65
8	10/3/15	Habitat Clean up Ed White ES	Alexis Smith	CFHS	9:00 - Noon	3	\$	22.55	\$	67.65
9	10/3/15	Habitat Clean up Ed White ES	Han Ansted	CFHS	9:00 - Noon	3	\$	22.55	\$	67.65
10	10/3/15	Habitat Clean up Ed White ES	Trinity Varela	CFHS	9:00 - Noon	3	\$	22.55	\$	67.65
11	10/3/15	Habitat Clean up Ed White ES	Tmandine Bayet	CFHS	9:00 - Noon	3	\$	22.55	\$	67.65
12	10/3/15	Habitat Clean up Ed White ES	Angel Lawpillo	CFHS	9:00 - Noon	3	\$	22.55	\$	67.65
13	10/3/15	Habitat Clean up Ed White ES	Logan Smith	CFHS	9:00 - Noon	3	\$	22.55	\$	67.65
14	10/3/15	Habitat Clean up Ed White ES	Nga Le	CBHS	9:00 - Noon	3	\$	22.55	\$	67.65
15	10/3/15	Habitat Clean up Ed White ES	Si-Dat Nguyen	CBHS	9:00 - Noon	3	\$	22.55	\$	67.65
16	10/3/15	Habitat Clean up Ed White ES	Justin M.	CFHS	9:00 - Noon	3	\$	22.55	\$	67.65
17	10/3/15	Habitat Clean up Ed White ES	Emily Robinson	CFHS	9:00 - Noon	3	\$	22.55	\$	67.65
18	10/3/15	Habitat Clean up Ed White ES	Anne M. Smith	ESC - Elementary Science	9:00 - Noon	3	\$	22.55	\$	67.65
19	10/3/15	Habitat Clean up Ed White ES	Ryan Berry	Teacher Volunteer	9:00 - Noon	3	\$	22.55	\$	67.65
20	10/3/15	Habitat Clean up Ed White ES	Shella Grigsby Brown	U of H Clear Lake EIH	9:00 - Noon	3	\$	22.55	\$	67.65
21	10/3/15	Habitat Clean up Ed White ES	George Kyame	GBMN	9:00 - Noon	3	\$	22.55	\$	67.65
22	10/3/15	Habitat Clean up Ed White ES	Emily Morris	CFHS - Teacher	9:00 - Noon	3	\$	22.55	\$	67.65
23	10/3/15	Habitat Clean up Ed White ES	Erika Montgomery	Ed White Art Teacher	9:00 - Noon	3	\$	22.55	\$	67.65
24	10/3/15	Habitat Clean up Ed White ES	Victoria Cowart	CFHS	9:00 - Noon	3	\$	22.55	\$	67.65
25	10/3/15	Habitat Clean up Ed White ES	Alexandria Trevino	CFHS	9:00 - Noon	3	\$	22.55	\$	67.65
26	10/3/15	Habitat Clean up Ed White ES	Chantel Vonutassy	Volunteer	9:00 - Noon	3	\$	22.55	\$	67.65
27	10/3/15	Habitat Clean up Ed White ES	Kaila Hill	Volunteer	9:00 - Noon	3	\$	22.55	\$	67.65
28	10/3/15	Habitat Clean up Ed White ES	Elizabeth Pham	Volunteer	9:00 - Noon	3	\$	22.55	\$	67.65
							Total	\$	1,894.20	

1	10/5/15	CFHS Greenhouse Planting	Sheila Grigsby Brown		U of H Clear Lake EIH	1.5	\$	22.55	\$	33.83	
2	10/5/15	CFHS Greenhouse Planting		Victoria Mattison	CFHS	1.5	\$	22.55	\$	33.83	
3	10/5/15	CFHS Greenhouse Planting	Emily Morris		CFHS - Teacher	1.5	\$	22.55	\$	33.83	
4	10/5/15	CFHS Greenhouse Planting	Terri Berry		ESC - Secondary Science	1.5	\$	22.55	\$	33.83	
5	10/5/15	CFHS Greenhouse Planting		Angel Campillo	BSIS	1.5	\$	22.55	\$	33.83	
6	10/5/15	CFHS Greenhouse Planting		Logan Smith	CFHS	1.5	\$	22.55	\$	33.83	
									Total	\$	202.95

SRS Cost Sharing Volunteer Report Texas A&M System
CCISD Wetland Plant Partnership - AL Extension Project 07-586111

Workshop		Teacher Name	Student Name	Campus	Time	Hours Worked	Volunteer		Total Hourly
Date	Volunteer Title	Adult Sponsor					Hourly Rate		
10/18/15	Wetland Outdoor Classroom		Alexander Hobstetter	BSIS	1:00 - 4:00	3	\$ 22.55	\$	67.65
10/18/15	Wetland Outdoor Classroom		Natalie Zerecheck	BSIS	1:00 - 4:00	3	\$ 22.55	\$	67.65
10/18/15	Wetland Outdoor Classroom		Jamie Labberton	BSIS	1:00 - 4:00	3	\$ 22.55	\$	67.65
10/18/15	Wetland Outdoor Classroom		Mackenzie LeBlanc	BSIS	1:00 - 4:00	3	\$ 22.55	\$	67.65
10/18/15	Wetland Outdoor Classroom		Danielle Pennycoff	BSIS	1:00 - 4:00	3	\$ 22.55	\$	67.65
10/18/15	Wetland Outdoor Classroom		Madison Holm	BSIS	1:00 - 4:00	3	\$ 22.55	\$	67.65
10/18/15	Wetland Outdoor Classroom		Reese Welty	BSIS	1:00 - 4:00	3	\$ 22.55	\$	67.65
10/18/15	Wetland Outdoor Classroom		Ray Rottmann	BSIS	1:00 - 4:00	3	\$ 22.55	\$	67.65
10/18/15	Wetland Outdoor Classroom		Marcus Pannell	BSIS	1:00 - 4:00	3	\$ 22.55	\$	67.65
10/18/15	Wetland Outdoor Classroom		Elise Fontenot	BSIS	1:00 - 4:00	3	\$ 22.55	\$	67.65
10/18/15	Wetland Outdoor Classroom		Ava Moughon	BSIS	1:00 - 4:00	3	\$ 22.55	\$	67.65
10/18/15	Wetland Outdoor Classroom	Marie Yancey		BSIS - Teacher	1:00 - 4:00	3	\$ 22.55	\$	67.65
10/18/15	Wetland Outdoor Classroom		Rachel Reed	BSIS	1:00 - 4:00	3	\$ 22.55	\$	67.65
10/18/15	Wetland Outdoor Classroom		Mia Robinson	BSIS	1:00 - 4:00	3	\$ 22.55	\$	67.65
10/18/15	Wetland Outdoor Classroom		Audrey Hughes	BSIS	1:00 - 4:00	3	\$ 22.55	\$	67.65
10/18/15	Wetland Outdoor Classroom		Laruen Woods	BSIS	1:00 - 4:00	3	\$ 22.55	\$	67.65
10/18/15	Wetland Outdoor Classroom	Emily Morris		CFHS - Teacher	1:00 - 4:00	3	\$ 22.55	\$	67.65
10/18/15	Wetland Outdoor Classroom		Bryana Alberto	BSIS	1:00 - 4:00	3	\$ 22.55	\$	67.65
10/18/15	Wetland Outdoor Classroom		Chris Alberto	BSIS	1:00 - 4:00	3	\$ 22.55	\$	67.65
10/18/15	Wetland Outdoor Classroom		Angel Campillo	BSIS	1:00 - 4:00	3	\$ 22.55	\$	67.65
10/18/15	Wetland Outdoor Classroom		Carie Kostak	BSIS	1:00 - 4:00	3	\$ 22.55	\$	67.65
10/18/15	Wetland Outdoor Classroom		Alex Meyer	BSIS	1:00 - 4:00	3	\$ 22.55	\$	67.65
10/18/15	Wetland Outdoor Classroom	Shella Grigsby Brown		U of H Clear Lake ETH	1:00 - 4:00	3	\$ 22.55	\$	67.65
10/18/15	Wetland Outdoor Classroom		Erin Tara Brown		1:00 - 4:00	3	\$ 22.55	\$	67.65
10/18/15	Wetland Outdoor Classroom	Ryan Berry		Teacher Volunteer	1:00 - 4:00	3	\$ 22.55	\$	67.65
10/18/15	Wetland Outdoor Classroom	Terry Berry		ESC - Secondary Science	1:00 - 4:00	3	\$ 22.55	\$	67.65
10/18/15	Wetland Outdoor Classroom	Mary Carol Edwards		AgriLife - Master Naturalist	1:00 - 4:00	3	\$ 22.55	\$	67.65
10/18/15	Wetland Outdoor Classroom	Caleb John Hairgrove		CFHS - Teacher	1:00 - 4:00	3	\$ 22.55	\$	67.65
							Total	\$	1,894.20

Grant Total	\$ 3,991.35
-------------	-------------

0 Hwy 332, Lake Jackson, TX 77566 | MLS #62265



0 Hwy 332, Lake Jackson, TX 77566

130.23 acres

Approximately 130 ACRES, WOODED, COMPUTER GENERATED DIMENSIONS: 332 FRONTAGE 2080', BACK 2800', DEPTH 1775'. BASE FLOOD ELEVATION 21'. ELEVATION 14' TO 18'. FENCED, LEASED FOR CATTLE AT PRESENT.

FACTS

- 173 days on Zillow
- Views since listing: 1,154
- All time views: 2,679
- 3 shoppers saved this home
- MLS #: 62265
- School district: Columbia/Brazoria

FEATURES

ADDITIONAL FEATURES

- Type & Style: Raw Land
- Utilities: Other-See Remarks
- Easements: Public Roadway
- Fence: Barbed Wire
- Access: Highway
- Size of Tract: 100-500 acres
- Topography: Sloping

OTHER

- Zillow Home ID: 2102334893