

Building Trails at the San Bernard National Wildlife Refuge

By Marty Cornell

A Project of the Texas Master Naturalist Cradle of Texas Chapter (COT)

2011 Annual Meeting Project Fair

Description: COT partnered with the US Fish and Wildlife Service (USFWS) and the Friends of Brazoria Wildlife Refuges (Friends) to build two ADA¹-complying loop trails totaling 2.4 miles, five boardwalks, and an observation platform on the new Dow Woods Unit of the San Bernard National Wildlife Refuge (SBNWR). Additional construction elements of the project included a gated parking lot, restrooms, a 40 foot-wide octagonal pavilion, and a culvert crossing of Bastrop Bayou.



**Friends of Brazoria
Wildlife Refuges**

Funding for the project came through the non-profit Friends, a 501(c)(3) organization, from a \$200,000 grant from the Texas Parks and Wildlife - Texas Recreational Trails Fund, a \$69,525 grant from the USFWS Challenge Cost Share program, and \$41,100 in corporate and private donations.



COT members who serve on the Friends Board of Directors wrote the grant application, administer the project cash flow, write reports, developed specifications, and composed bid packages. This administrative service exceeds 400 volunteer hours. COT, as a partner with the USFWS, organized volunteer work crews that provided over 1,000 hours of volunteer service to build trails and the boardwalks-observation deck. Over 86% of the volunteer labor has come from 30 COT members.



The SBNWR provided heavy equipment and skilled labor in the construction of the trails. As owners, the refuge provided the project oversight and assurance of compliance to government standards.

The Dow Woods Unit is a 338-acre satellite of the SBNWR. This tract is part of the unique Columbia Bottomlands Forest and is bisected by the upper reaches of Bastrop Bayou. It was donated by The Dow Chemical Company to the USFWS in December 2008, and lies in the extra-jurisdictional territory of the City of Lake Jackson, Texas. Because the Dow Woods Unit abuts developed neighborhoods on its southern and eastern boundaries, the tract is truly an



¹ American Disabilities Act

urban refuge, and was prime for development to make it easily accessible to residents of southern Brazoria County. It will serve as a venue for environmental education, both actively with classes for school children, families, and adults, and informally with educational signage along the trails, many which will have QR codes that can be scanned by smartphones to pull up Web sites, videos, and other information.

Conduction of the Project.

Funding is key to a project of this size. We targeted the TPWD Texas Recreational Trails Fund for our major support of \$200,000 based upon our past success with two much smaller trail projects. Indeed we knew that our proven track record of successful execution of these past projects would weigh heavily in our favor to be selected for a large grant from this fund. Our grant application was submitted at the end of April, 2009, after a series of meetings and site field walks with the SBNWR staff to scope out our intentions and dimensions of the project. We paid particular attention to features providing multi-use functionality and accessibility per ADA requirements. Preparation of the grant package also required the development of a minimum 20% (\$50,000) of matching funds and in-kind contribution commitment.

The notification of acceptance of our application in September, 2009 initiated activity to certify compliance with federal acts that protect artifacts of historical significance² and the environment³. Clearance on these acts was given expeditiously, which released our funds in mid-November, 2009.

Trail Surveys were made in detail in early 2010, using GPS coordinates to accurately layout the trail paths and lengths, and to locate the positions of boardwalks, drainage culverts, and the observation platform.



[Photo to right: COT members Archie Pratt and Ed Johnson survey Dow Woods Trails, 8Feb10.]

Competitive Bidding is required by TPWD for expenditures greater than \$5,000, with written bids from at least three sources for elements costing more than \$25,000. Since we had four such of the larger elements (restrooms, 0.9 mile concrete trail, 3 miles of stainless still edging, and boardwalk decking), considerable effort was put into developing bid packages, including detailed specifications, to ensure that performance requirements would be met. This effort was not a trivial task, involving almost 300 hours of volunteer time. The resulting bids validated the wisdom of such detailed preparation; the

² National Historic Preservation Act, administered in Texas by the Texas Historical Commission

³ National Environmental Policy Act (NEPA)

aggregate high bids from these four elements was 53% higher than the sum of the low bids, all of which met or exceeded specifications. Contracted construction of the restrooms and concrete path occurred in the in the summer of 2010.

The 1.5 mile Bayou Loop Trail was started with volunteer and USFWS labor in May, 2010 with a volunteer day coordinated by COT. This involved staking metal edging six feet apart along the mowed pathway and infilling with three inches of crushed concrete. This effort occurred periodically over the next year, culminating in the topping of this trail with a fine granite aggregate. Technique improved with time, evolving from wheelbarrow to the small motorized front-end loader delivery of the infill material.



USFWS Project Leader Jennifer Sanchez delivering a load of crushed concrete the hard way to COT member Georgia Monnerat.



COT member Jerry Krampota installing galvanized edging strips on the Bayou Loop Trail.



COT members Billy Heck, Ed Johnson, and Elaine Crews laying edging.



COT member Jerry Eppner taking a rest on part of three miles of trail edging.

The boardwalks were built as a separate exercise by a crew of five COT volunteers with experience in building similar structures for four other projects at our local refuges.



COT members Archie Pratt, Don Van Dragt, and Billy Heck with Jim Payne of USFWS setting posts on the Tveten Trail.



COT member and Crew Chief Kirby Rapstein working on a boardwalk section.



Archie Pratt and Kirby Rapstein putting finishing touches on a Bayou Loop Trail boardwalk.



Don Van Dragt (in rear) and Gerald Forrest building a boardwalk on the Bayou Loop Trail.



The boardwalk at the oak with the burls on the Tveten Trail.



The finished product from the in-progress photo directly above.

Pitfalls and Lessons Learned:

- ✓ Begin by thoroughly scoping out the project with active involvement by partners and other stakeholders. This includes a clear agreed upon definition of the project use and a definition of success.
- ✓ At the beginning, determine realistic cost projections of the project elements. Consult others who have successfully completed similar projects to learn from their experience.
- ✓ If your TMN chapter does not have 501(c)(3) status, partner with an organization that does, or else attain that charitable status for your chapter.
- ✓ Line up the major source(s) of funding. If a track record has not been established, start with small projects to demonstrate competency before tackling a large project.
- ✓ Assure adequate cash flow capability. Many grants, like this Texas Recreational Trail Fund grant, only reimburse a percentage of expenses already spent. For this grant, we were reimbursed for 80% of the total of invoice dollars and in-kind value upon submission of a request for reimbursement. Most grants that we process require a 50% match.
- ✓ Line up the major sources of in-kind support. For this Dow Woods Trail project, our \$50,000 in-kind match requirement was easily met, with to-date contributions exceeding \$91,000, including over 1,400 hours of volunteer labor valued by TPWD at \$10/hour. TPWD have informed us that future Texas Recreational Trail Fund grants will utilize the federal government rate, which now exceeds \$21/volunteer hour. Thus, in-kind requirements will be easier to attain.
- ✓ Keep detailed records of in-kind contributions, including signed volunteer time logs. Professional contributions accrue value at local labor rates plus benefits, and rental rates can be used to value equipment used (trucks, backhoes, portable generators, saws, compactors, etc.).
- ✓ Expect unexpected issues that will shift the tactical execution of the project. Funding agencies are typically tolerant of such shifts as long as the definition of success is met.
- ✓ Build in extra timing to accommodate inevitable delays due to weather, processing of permits, backordered materials, etc.
- ✓ Spend time upfront to develop clear, detailed specifications and descriptions of contracted items to insure clarity of expectations.
- ✓ Bid competitively for major items even if not required by the grant contract. Quote spreads are almost always quite dramatic.
- ✓ Recruit depth of members committed to the project. It is especially important to have backup capability for project administration, bid package development, construction competencies, and volunteer coordination.



Bastrop Bayou from the Bayou Loop Trail



Our community enjoying the trails at Dow Woods
on opening day, October 15, 2011

Contact Information:

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