



# Texas Wetland News

## and WETLAND CONSERVATION PLAN UPDATE

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J A N U A R Y 2 0 1 0

## New Watershed Policy and Management Program at TPWD

The new Watershed Policy and Management Program (WPMP) was recently created to accomplish the goal of restoring and maintaining aquatic and riparian habitats to support healthy, sustainable ecosystems throughout Texas. To accomplish this goal, the program will develop partnerships to conserve aquatic, riparian and upland habitats essential to environmentally and economically healthy watersheds that benefit the natural resources of the state.

This will be achieved through:

- 1) promoting awareness and stewardship of aquatic and riparian habitats;
- 2) establishing and nurturing local partnerships to identify conservation priorities and leverage available resources;
- 3) providing technical guidance and planning assistance;
- 4) organizing community involvement in local aquatic and riparian conservation projects.

Proper watershed management helps to raise public awareness of the value of our state's natural resources and provides quality recreational opportunities for the citizens of Texas. To facilitate proper watershed management, the WPMP will establish community-based partnerships to implement holistic and adaptive

(Continued on page 11)

## Marsh Planting Is Final Step for Burnet Bay Restoration Project

*Article and photos by Galveston Bay Foundation Staff*

This fall, the Galveston Bay Foundation (GBF) led over 150 Galveston Bay-area community and corporate volunteers in planting native marsh vegetation at its newly completed Burnet Bay Wetlands Restoration project site. Construction for the project broke ground in June and was completed the first week of October 2009. Planting marsh vegetation at the site was the final step in the process of restoring over 30 acres of marsh habitat within Burnet Bay.

Located in Baytown, Texas, Burnet Bay was historically bounded by rather extensive intertidal marsh habitat. Historical aerial images show that Burnet Bay, between the northwestern shoreline and North Independence Parkway (formerly Crosby-Lynchburg Road), experienced a gradual loss of these marshes between 1944 and 1969, and by 1978, nearly all of these vital habitats were lost due to land surface subsidence. In this area, subsidence was severe, equaling nearly 8 feet between 1906 and 1987. Since the late 1970s, subsidence has largely abated along the Houston Ship Channel and in the Baytown and Pasadena areas in the coastal lowlands south and east of Houston owing to a reduction in groundwater pumping.

(Continued on page 2)

*Volunteers plant smooth cordgrass (*Spartina alterniflora*) in Burnet Bay during a "Marsh Mania" event. Grasses were planted on earthen mounds created to raise land surface elevations in the bay.*



## Burnet Bay Restoration Project, continued

The Burnet Bay Wetlands Restoration Project restored intertidal marsh elevations to a 33-acre area within the heavily subsided segment of Burnet Bay adjacent to North Independence Parkway. Geotechnical analysis of the site revealed that this area consists of a shallow, hard bottom, making it very conducive to wetlands restoration work. The project was constructed by hydraulically dredging on-site material from a designated borrow area and creating earthen mounds to raise elevations to levels that will support intertidal marsh vegetation. Earthen berms, constructed by sidecasting *in situ* material, were also constructed to serve as protection for the mounds.

Since construction, GBF has hosted several marsh grass planting events, known locally as "Marsh Mania," at this site. The first planting was held on September 19 with volunteers from Mitsui USA and Intercontinental Terminals Company. Subsequent planting events were held on October 17 with volunteers from NRG

Energy and on November 6 with volunteers from ConocoPhillips and students from the University of Houston-Downtown. Volunteers used tools called dibbles to plant stems of smooth cordgrass (*Spartina alterniflora*) at appropriate elevations. Once established, the marsh grass will function to provide habitat and feeding grounds for fish and birds, improve water quality, and absorb wave energy to protect from shoreline erosion.

The Burnet Bay Wetlands Restoration Project is a project of the Galveston Bay Foundation and its many project partners, including: Restore America's Estuaries, NOAA Restoration Center, Texas General Land Office Coastal Management Program, TCEQ Galveston Bay Estuary Program, Harris County, Mitsui & Co., Ltd, USFWS Coastal Program, Port of Houston Authority, Texas Parks and Wildlife Department, NRG Texas, USDA Natural Resources Conservation Service, and NOAA Fisheries Habitat Conservation Division.



*Historical aerial imagery depicts the gradual loss of marsh habitat in Burnet Bay due to land surface subsidence.*

# Slough Restoration on the Gene Howe WMA

*Article and photos by Jamie Baker, Wildlife Biologist/Assistant Area Manager, Gene Howe WMA*

**The Gene Howe Wildlife Management Area (WMA) consists of 5,394 acres and is located in Hemphill County approximately six miles northeast of Canadian, Texas. River flood-plain/wet meadows and sand-hill plains uplands are the two major ecotypes that occur on the WMA.**

**The primary mission of the Gene Howe WMA is to serve as a research and demonstration area, manage habitats for native flora and fauna, and provide public hunting and recreation opportunities. Prior to its purchase in the early 1950s, the area was a working cattle ranch. Historically, also, the WMA was the location of the nation's second-oldest rodeo, The Anvil Park Rodeo.**

Soon after purchase, TPWD implemented a slough restoration project with the intent of reestablishing natural sloughs that branched off the Canadian River in order to increase waterfowl hunting opportunities. This slough system spanned every pasture on the southern half of the WMA that was adjacent to the river. A half-century since then, the slough system, through siltation, beaver dam construction, and subsequent establishment of invasive vegetation, has become unable to fulfill its original purpose because of the loss of its natural hydrologic properties.

A portion of this slough system lies within West Bull Pasture, located in the southern middle portion of the WMA. Like the rest of the sloughs on the WMA, beaver activities and the encroachment of woody vegetation (much of which is invasive exotics such as salt cedar and Russian olive) had silted in portions of the slough channel, thus reducing available surface water for wildlife. Wild turkeys use adjacent cottonwood galleries and rangeland for roosting, nesting and brood rearing, and a suite of terrestrial and aquatic vertebrates and invertebrates depend on properly functioning slough systems for their habitat requirements.

Providing additional habitat and beneficial conditions for wild turkey was the primary intent for the current West Bull Pasture project. Our objective was to increase invertebrate production through the increased availability of riparian associated vegetation. This would increase forage and insect availability for both turkey poult and, coincidentally, quail chicks.

Even though the Rio Grande wild turkey was our primary beneficiary, the positive effects of restoration extended to the entire local plant and animal communities, particularly those habitually associated with water habitats such

*Portions of the slough system in the WMA's West Bull Pasture had become silted in due to factors such as encroaching woody vegetation.*



## Slough Restoration on the Gene Howe WMA, continued

as waterfowl and wading birds, amphibians, sedges and bulrushes, a multitude of furbearers, and a variety of fishes. Our secondary intent, which is the primary intent for the project as a whole, was to restore the natural slough and wet meadow to natural conditions through the mechanical removal of obstructive silt, vegetation and debris within the slough, thus providing accessible, open water at ground level.

The methods utilized for this project were similar to those utilized in the past. Previously, we had partnered with conservation organizations such as the National Wild Turkey Federation Guzzlers for Gobblers Project, The Playa Lakes Joint Venture Group, and Ducks Unlimited, in order to conduct similar slough restoration and revitalization in adjacent pastures on the southern portion of the WMA. The West Bull Pasture part of the project was not a stand-alone event, but rather, part of a multi-phased effort to restore the area's interconnected slough system to its original condition that has spanned many years beginning in 2003.

During 2003, 2005 and 2006, a similar project to dredge out 1.67 acres (approximately 1,100' long by 66' wide by 6' deep) of a slough in the southeast corner of the South Williams Pasture was conducted. This restored the slough and adjacent wet meadow to semi-natural conditions and improved habitat for a variety of wildlife species by providing easily accessible groundwater. Additionally, this work has made the surrounding area a prime hunting spot for deer, turkey and waterfowl, and an ideal location for observing the diversity of

nongame wildlife that inhabit the WMA. The slough was stocked with largemouth bass and channel catfish to provide fishing opportunities, and a walking bridge was constructed nearby to improve accessibility. It has become a popular seasonal fishing spot for many locals.

Also, during this time, a wet meadow enhancement project and flooded timber project were constructed in Hay Meadow and Bunkhouse Pastures, respectively. These small impoundments increased surface water availability by about 2.5 acres, most of that being in flooded timber and cattails, which has greatly increased waterfowl habitat on the WMA. All of the "impoundment" areas are connected by the interlacing slough channels, providing for continuous riparian habitat on the WMA. This will be improved once the remaining sloughs and seeps are cleared of the remaining silt, debris and invasive vegetation.

This past August (2009), the first phase of the West Bull slough restoration made available 1.65 surface acres of water table. The operations involved in dredging the slough consisted of utilizing a long-boom track hoe to remove the accumulated silt and debris to the predetermined width and depth, and a dozer for feathering and contouring the spoil along the bank edges.

Even with the use of a long-boom track hoe, the width and the depth of the project dictated that the spoil removal be conducted in two passes, one along each bank of the channel. This part of the operation took 200 hours of contracted track-hoe time for the spoil removal and an equal amount of time for the contouring portion.

The newly restored slough channel meanders for about 200 yards stemming off of Bunkhouse Pasture's Cottonwood Hollow, and occupies a width of about 20 yards from bank to bank. The new channel averages about 6 feet in depth and has already been colonized by several species of amphibians, a variety of minnows and mosquito fish, and their associate predators such as great blue herons and raccoons. Wild turkeys are frequently seen watering from the newly opened water hole.

The second phase of the West Bull slough restoration will include the planting of cottonwood poles to further enhance the area's appeal to wild turkey and other wildlife dependent upon tall, open canopy trees. The current project was funded by National Wild Turkey Federation and the Upland Game Bird Stamp.

*In August of 2009 the WMA set to restoring the slough system in the West Bull Pasture, increasing available habitat for numerous flora and fauna.*





Teachers participating in the summer institute received a hands-on lesson in groundwater by venturing into the depths of a Central Texas cave. Photo by Robin Gary.

## Tools for Teachers

**Summer institute trains Central Texas educators in aquatic curriculum.  
Water education and outreach resources are now available to teachers statewide.**

**Karen Marks, Outdoor Learning Training Specialist, TPWD**

Water. It's on everyone's mind these days, especially during the drought-stricken summer of 2009, when the lake levels dropped and the home lawn turned brown and crunchy. Thankfully, water is also on the minds of local teachers and their students as a result of a summer teacher institute entitled "Groundwater to the Gulf."

Each summer for the past four years, more than a dozen organizations, including TPWD, collaborate and pull their resources together to host a free three-

day institute for 50 fourth- through eighth-grade teachers from central Texas. Topics include hydrogeology, groundwater, watersheds and water quality.

Post-workshop comments conveyed the enthusiasm: *"This was an eye-opening experience. . . ." "I will definitely use them [lessons] with my students. . . ." "... you taught so much about water that I needed to know. . . ." "Extremely effective, I've already started conserving water at home and I'm spreading the message!"* Staff from the Coastal Fisheries,

Communications and Wildlife divisions of TPWD, along with external partners Barton Springs Edwards Aquifer Conservation District, Bureau of Economic Geology, City of Austin Water Utility, Parks and Recreation and Watershed Departments, City of Sunset Valley, Colorado River Foundation, Keep Austin Beautiful, Lady Bird Johnson Wildflower Center, LCRA, and the Texas Water Development Board, provide

*(Continued on page 7)*

# Alazan Bayou WMA Wetlands Receive Improvements



**Article and photo by Ron Mize, TPWD Area Biologist, Pineywoods Ecosystem Project**

The wetland cells at Alazan Bayou WMA in southern Nacogdoches County have gone through a transformation in the last three years to improve habitat for waterfowl, shore birds, wading birds and public users alike. Purchased in 1991 primarily with funds derived from the sale of state waterfowl stamps, the 2,063-acre Texas Parks and Wildlife Department (TPWD) wildlife management area is managed by the Pineywoods Ecosystem Project staff.

Composed of bottomland hardwood and old agricultural fields when purchased, the scope and management of the WMA has been directed toward the conservation and management of bottomland hardwoods, waterfowl habitat enhancement, and public use opportunity.

In 1996, an MOU between TPWD and Ducks Unlimited was signed to establish a Matching Aid to Restore State's Habitat (MARSH) project on approximately 320 acres of Alazan's abandoned fields. From elevation surveys and a topography map of the area produced by the Natural Resources Conservation Service, DU designed six wetland cells intended to flood approximately 112 acres. Work began on the cells in 1997.

The plans hit some initial snags. The original intent to flood the wetland cells with water derived from winter flood overflows was found to be unreliable. Invasives, such as Chinese tallow, quickly grew on the rich alluvial soils, and the wetland cells largely became thickly forested and without manageable water control.

It was recognized that a dependable water source was needed and that the original intent of the wetlands to supply wintering waterfowl habitat was not being met. To correct the water supply issue, in 2005 TPWD and the Lower Neches Valley Authority entered into an agreement to flood the new wetland cells with water diverted from Moral Creek and Alazan Bayou.

Availability of seasonal water alone would not correct the conditions that had developed in the wetland cells. In 2006, staff began efforts to remove encroaching woody vegetation. In May, the cells were aerially sprayed with herbicides, followed by a roller drum chopping in August to reduce the amount of smaller stems.

*Abandoned agricultural fields have been converted to wetland cells, where numerous species of waterfowl have since been documented.*



## Alazan Bayou, continued

Five of the six cells filled with mid-winter rains in 2007 and all flooded acreage was mapped. In spring 2007, DU performed GPS surveys and made assessments and recommendations for possible wetland cell improvements.

In the summer of 2008, staff again conducted herbicide treatment of invasive species such as tallow; increased the height of three water control structures, and made improvements and repairs to others; increased the height of two spillways; improved water drainage problems on a levee/creek road on two other cells; cleaned out drainage ditches for improved

water flow; improved access at the pump ramp; and shredded dense vegetative areas prior to fall flooding. A new fenced parking lot and road gate were installed to reduce the volume of vehicular traffic through the wetland cells. Hunters and other users will utilize the new parking lot during winter and spring months and access the wetland cells and hardwood bottom via the road, mowed strips and levees. This walk-in recreational use will improve wetland wildlife utilization of the cells.

In October and November of 2008, three wetland cells were flooded. This was an

historical first fall flooding for which wading birds, quickly followed by shore birds and blue-winged teal, responded within the first few days of water pumping. Additional species to follow have included green-winged teal, gadwall, northern shoveler, mallard, ring-necked duck, hooded merganser and wood duck.

In just a few years the Alazan Bayou WMA wetland cells have made a transition from agricultural field to moist-soil units, and the habitat has been greatly improved for waterfowl and other wetland wildlife species. More improvements are planned for the future.

## Tools for Teachers, continued

valuable resources, staff and field trip destinations for the institute.

During the institute, teachers climb down into a cave to view groundwater at its source. They get their feet wet in Onion Creek while learning how to survey for macroinvertebrates to test for water quality. River, reservoir and dam systems are examined at LCRA's Redbud Center and ROC (River Operations Centers), otherwise known as the Dam Control Room.

During their visit to McKinney Falls State Park, they learn about the geology of the area. Using a Project WILD activity entitled Wetland Metaphors, participants learn the importance of wetlands and their vital functions, and how to identify plants indicative of a wetland using a Wetland Plant ID Wheel from WOW!, the Wonder of Wetlands curriculum guide.

If you're looking for resources for your wetland outreach education activities, look no further. Activities like those mentioned above are available in TPWD's education trunks: Wetland Discovery Trunk or Dip Into Texas Waters Trunk. The education trunks are available for loan to formal and informal educators and youth leaders FREE of charge.

The Wetland Discovery trunk includes lesson plans, books, posters, videos, Texas Amphibian Watch materials (including a frog and toad calls CD) and field equipment to guide students in their investigations of wetland habitats.

A variety of fun, hands-on activities, resources (posters, videos and curriculum guides) and field investigation equipment have been collected in The Dip Into Texas Waters trunk. The purpose of this trunk is to help educators (formal or informal) and students of all ages to learn about freshwater in Texas, water basics, aquatic ecosystems, and water stewardship and conservation principles.

Many water education resources and activities have also been consolidated into a Water Education CD produced by TPWD's Outdoor Learning Programs. The recently released "Texas: The State of Water" Educational Resources CD includes PowerPoint presentations on water issues for use in community presentations; posters; a "library" complete with downloadable publications; and reference materials. You'll also find Web links, a "media room" with podcasts and video transcripts, and an image library on the CD.

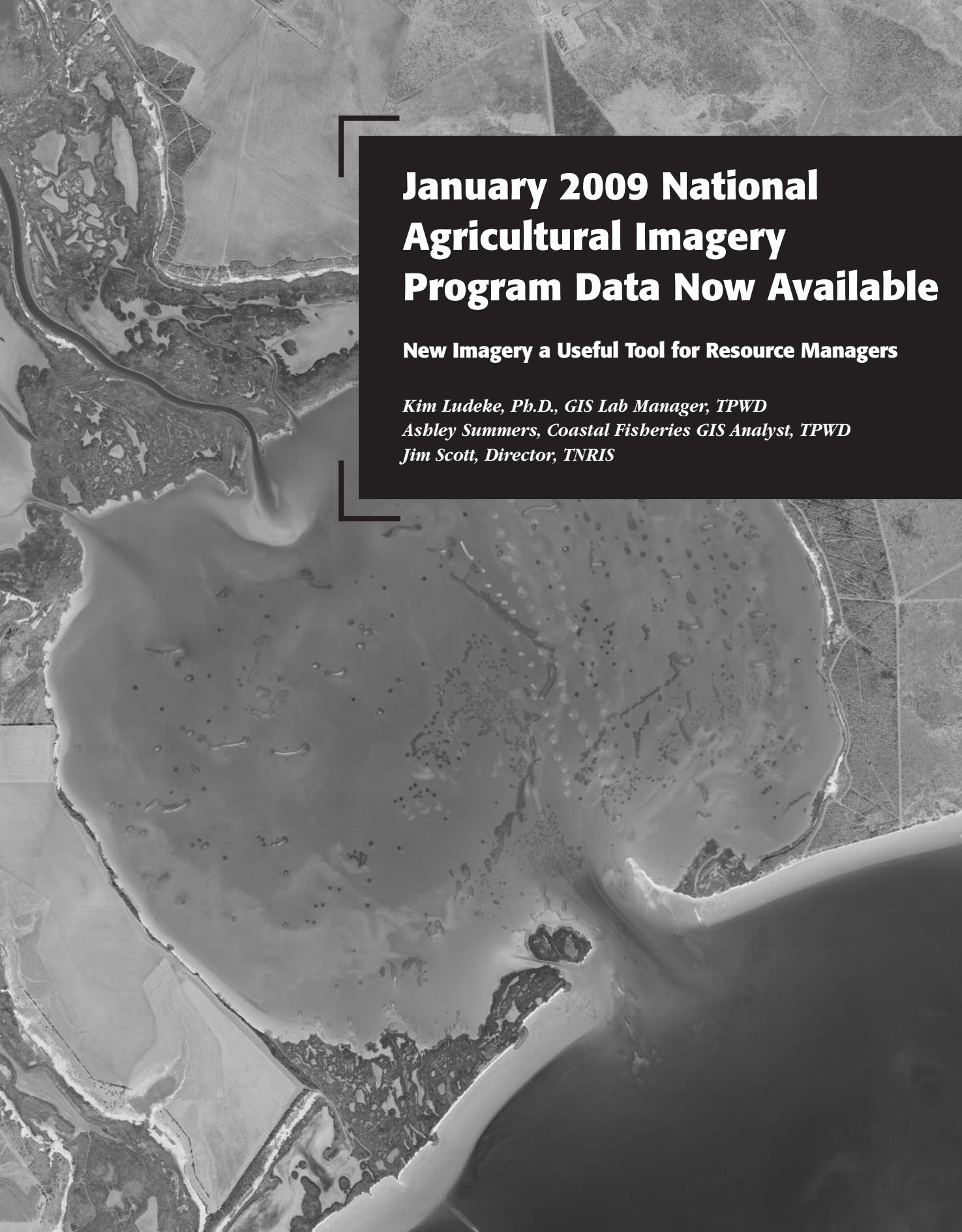
*Texas Treasures: Wetlands* is a colorful and informative 11-page booklet ideal for youth or adults. Contact the Outdoor Learning Programs to order a free set. An electronic version is also available online if you prefer to download a copy at [www.tpwd.state.tx.us/publications/](http://www.tpwd.state.tx.us/publications/).

When World Wetlands Day (February 2) or Earth Day (April 22) rolls around and you're looking for tools to use in a school or community presentation, remember that these wonderful resources are available through the Outdoor Learning Programs at TPWD.

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For more information contact Karen Marks, Outdoor Learning Programs, TPWD, at (512)389-8833 or [Karen.Marks@tpwd.state.tx.us](mailto:Karen.Marks@tpwd.state.tx.us). To find an educational trunk near you, visit our Web site: [www.tpwd.state.tx.us/learning/resources/trunks/](http://www.tpwd.state.tx.us/learning/resources/trunks/).

For information on the next Groundwater to the Gulf Summer Institute for Central Texas Educators, visit Keep Austin Beautiful's Web site at [www.keepaustinbeautiful.org/GroundwatertoGulf/](http://www.keepaustinbeautiful.org/GroundwatertoGulf/).



# January 2009 National Agricultural Imagery Program Data Now Available

**New Imagery a Useful Tool for Resource Managers**

*Kim Ludeke, Ph.D., GIS Lab Manager, TPWD  
Ashley Summers, Coastal Fisheries GIS Analyst, TPWD  
Jim Scott, Director, TNRIS*



**During January 2009, 0.5-meter-resolution, true-color National Agricultural Inventory Program (NAIP) was flown for both East Texas and the Texas coast. Normally, NAIP data is optimized for the collection of terrestrial data and flight conditions rarely meet the high standards required for collection over water targets. Remarkably, the 2009 coastal data was acquired under near-perfect conditions for most of the bays and exhibit clear water, low tide, and low turbidity for much of the coast. Benthic habitats, such as seagrass beds and oyster reefs, are easily discernable with this data and will be a useful tool for resource managers. This data is currently available from the Texas Natural Resources Information System (TNRIS) by request and can also be viewed in Google Maps if zoomed to the appropriate resolution.**

The 0.5-meter data (JPEG 2000) for east Texas and the coast is now available from TNRIS at\*:  
[ftp://ftp2.tnris.org/TOP\\_HalfM\\_08-09](ftp://ftp2.tnris.org/TOP_HalfM_08-09)

The Farm Service Agency has received stimulus funding for the NAIP program and has advanced the timeline for Texas' next statewide acquisition to 2010. TNRIS is seeking partnership contributions from interested agencies to meet the partnership requirements that have been reduced to 10 percent of the total project cost. If Texas can secure the 10 percent funding share, the state will receive an upgrade to the base data to include infrared spectral information useful in natural resource assessments. Additional opportunities for acquiring higher resolution imagery are possible but require full funding contributions from the state.

Around 12 percent of Texas is now covered by LiDAR (Light Detection And

Ranging) data, and more is coming. Recently, data have been collected for Tarrant, Dallas, Zapata, McMullen and Goliad counties. The data deliverables for the new LiDAR collection include:

- Las Point Clouds (classified)
- Intensity Images
- Bare earth ASCII (American Standard Code for Information Interchange) files
- Digital Elevation Models (DEMs)
- Breaklines

Additional counties are being identified based on partnership interest from the Natural Resources Conservation Service and alignment with priorities developed with the National Flood Insurance Program Mapping initiatives at TNRIS.

In addition, LiDAR is going into the National Elevation Datasets (NED) at 1/3 and 1/9 arc seconds (~10 and ~3 meters).

The U.S. Geological Survey (USGS) is producing 1:24k GeoPDFs for the U.S. Texas will be completed in FY 2010. It will incorporate 2008/2009 ortho-imagery, roads, geographic names, contours from the NED, hydrology, building footprints, and grids. It will be bundled with the historic USGS 1:24k quad maps. It will be available at [www.nationalmap.gov](http://www.nationalmap.gov).

**\*Note:**

The TNRIS FTP site is organized by USGS degree block or county. If you download the StratMap County Boundaries, <ftp://ftp2.tnris.org/Boundaries/StratMap/>, and the USGS Indices, <ftp://ftp2.tnris.org/Boundaries/Indices/>, you should be able to source anything from the TNRIS FTP site. The quad number in each data filename corresponds to the TEXAS\_NUM in the USGS 24k Index. See metadata for 0.5m DOQQ filename convention.

# Master Naturalist Program Seeks Applicants

Twelve chapters of the Texas Master Naturalist program have announced training classes for volunteers wanting to help conserve our natural resources.

The Texas Master Naturalist program—with 38 chapters—aims to develop a corps of well-informed citizen volunteers who educate their communities about the management of natural resources. The main qualification needed to become a Certified Texas Master Naturalist is an interest in learning and playing an active part in conservation. Volunteers will receive about 40 hours of training from educators and specialists from places such as universities, agencies, nature centers and museums. Training topics include interpretation and management of natural resources, ecological concepts, eco-regions of Texas and natural systems management. Volunteers are expected to give 40 hours of service a year in community education, demonstration and habitat enhancement projects. They are also expected to pursue a minimum of eight hours of advanced training in areas of personal interest.

Texas Master Naturalist chapters offering volunteer training beginning in January 2010 are listed with contact information. Enrollment is limited in most chapters. Some chapter registration deadlines may have passed, but you may contact the chapter to see if seating is still available.

## **AMARILLO–Panhandle Chapter**

Training begins February 13. For more information, phone (806) 367-0648 or e-mail: sec@pctmn.org.

## **BRENHAM–Gideon Lincecum Chapter**

Class begins February 6 at the Winedale Historical Center. Details are available from Judith\_deaton@yahoo.com or call (936) 878-9900.

## **BURNET–Highland Lakes Chapter**

Classes begin March 4 and registration is due by December 31, 2009. For information, phone (325) 379-1455 or e-mail: drayb@tstar.net.

## **CONROE–Heartwood Chapter**

Training begins on March 27 and applications are due no later than March 15. Details are available at (832) 381-6921 or e-mail: training@heartwoodtmn.org.

## **DALLAS–North Texas Chapter**

The chapter will host an open house for applicants on January 12. The application deadline is January 22 and classes begin February 16. Information is available at education@ntmn.org.

## **MCKINNEY–Blackland Prairie Chapter**

The chapter will host an open house on January 12 at the Heard Museum. Registration is due by February 1. Class begins on February 10. Details are available at (972) 248-6283 or e-mail: svevans@sbcglobal.net.

## **ROCKPORT–Mid-Coast Chapter**

Class begins on February 13 and registration is needed by December 15, 2009. Information is available at (361) 578-3893 or e-mail: lynne.hughes@visd.com.

## **SAN ANTONIO–Alamo Area Chapter**

Classes start February 25 and applications are due by February 9. For information, phone (210) 764-1921 or e-mail: pbball12@satx.rr.com.

## **SAN BENITO–Rio Grande Valley Chapter**

Registration is due January 6 for the class that begins on January 13. Details are available at rgvctmneduchair@gmail.com or call (956) 455-9204.

## **TYLER–East Texas Chapter**

Class begins on January 12 and your registration is needed by January 8. More information is available at irene.hamel@tpwd.state.tx.us or phone (903) 566-9394.

## **WACO–Heart of Texas Chapter**

Plans are currently being made to host an orientation program at the Lake Waco Wetlands on January 14. Information and details are available from meganmi@ci.waco.tx.us.

## **WICHITA FALLS–Rolling Plains Chapter**

Class begins on March 23 and registration is needed by March 16. Details available by calling (940) 766-2383 or e-mail: mark.howell@tpwd.state.tx.us.

Texas Parks and Wildlife Department and Texas AgriLife Extension co-sponsor the Texas Master Naturalist program. For more information about existing chapters or forming a new chapter, contact Sonny Arnold, Assistant Program Coordinator, 111 Nagle Hall, 2258, TAMU, College Station, TX 77843-2258. Call (979) 458-1099 or e-mail: sarnold@ag.tamu.edu. Complete information about the Texas Master Naturalist program is available at: <http://masternaturalist.tamu.edu>.

## New Watershed Program, continued

approaches that restore and conserve watersheds by combining available expertise and grassroots initiatives.

The program will work with existing watershed protection programs where involvement opportunities exist and will develop and initiate new plans for watershed conservation based on priority and opportunity.

Additionally, through technical guidance, planning assistance and project coordination, the program will: establish and nurture local partnerships to conserve aquatic and riparian habitats; enable citizens, local communities and private landowners to identify and implement

strategies to protect, restore and enhance aquatic and riparian habitats; create awareness of the environmental, economic and societal benefits of healthy aquatic and riparian habitats; and promote stewardship of natural resources.

Specific objectives of the new program are:

- Improve or maintain healthy upland environments
- Establish, improve and maintain riparian zones
- Improve or maintain water quality
- Improve or maintain watershed connectivity
- Improve or maintain appropriate hydrologic conditions for biota

- Establish, improve or maintain appropriate sediment flows
- Maintain and restore physical habitat
- Restore or improve the ecological balance in habitats negatively affected by non-indigenous, invasive or problem species

Program staff are looking forward to working with interested stakeholders across the state, so please contact the WPMP Program Director, Gary Garrett (830) 866-3356, extension 212, [gary.garrett@tpwd.state.tx.us](mailto:gary.garrett@tpwd.state.tx.us), if you have questions or want to get involved in watershed conservation.



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### HAVE AN ARTICLE YOU'D LIKE TO SUBMIT?

If you would like to submit an article or announcement concerning wetland-related activities, initiatives, or workshops\* for the next *Texas Wetland News*, please e-mail the editor at: [ryan.mcgillicuddy@tpwd.state.tx.us](mailto:ryan.mcgillicuddy@tpwd.state.tx.us)

\*Please note that the newsletter cannot include announcements of for-fee seminars or workshops for which Texas Parks and Wildlife Department is not a sponsor.

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method. Wetland management  
methods used depend on the  
specific goals of the project.

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and WETLAND CONSERVATION PLAN UPDATE

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