

The Midden

July/August2008

A WOW for GBAC-TMN!!

by Sara Snell, President GBAC-TMN

Our chapter was awarded a \$500 grant through the Master Naturalist program from the Magnolia Trust for **Treasures of the Bay Teachers’ Workshop**. The money was used to purchase materials for the educators and their classrooms. We had fourteen educators who had a great time learning about prairies, the dike, plankton, insects, the marsh, beach, and the anatomy of fish and squid. The participants were from four school districts, two community colleges, and included two environmental educators. All were treated to lunch the first day and a shrimp boil the last day. One teacher commented that it was the best workshop he had ever attended in his twenty-two years of teaching. (See high lights on page 4 and 5.)

Thank you to the twenty-two GBAC members who helped put together materials, provide food, support and teach the class. Those were: **Steve Alexander, Bill Ashby, Cristi Beehn, Louise Bell, Dick Benoit, Frank Budny, Emmeline Dodd, Ellen Gerloff, Mary Lou Kelso, Sandra Linton, Vic Madamba, Julie Massey, Mel Measeles, Cliff Muehe, Tawy Muehe, Sally Paullison, Sara Snell, Nelda Tuthill, Nathan Veatch, Mary Vogas, Morgan Wilson (an intern working with Julie) and Irene Yodis.**

July will be a quieter month with a slowdown in activities. The Advanced Training Team has a pond workshop and all the prairie projects will keep many of us busy keeping the plants watered that were planted in the spring.

August activities will include the Wetlands class being held each Wednesday with the hope to add new members to the Wetlands Restoration Team. The class is a great way to learn about the many plants that are so important to our wetlands.

See you at the Chapter Meeting on Thursday August 7.

Sara

Sara scoops sand into the sieve as teachers Jac Burke and Linda Jupin collect coquina clams.



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July-November

ADVANCED TRAINING OPPORTUNITIES

by Shirley Foster, AT Chairperson

Wetland Plant Identification

Texas Agrilife Extension Galveston County

August 6, 13, 20, 27, 2008 9AM – 1 PM

16 hours AT. Class limited to 20.

For more information, contact Dick Benoit

rbenoitex@aol.com.

National Master Naturalist Meeting

New Braunfels, TX

Sept. 8th – 11th at the T bar M Resort &

Conference Center. Check out their website

<http://www.nralliance.org/index.php>

Dance of the Lepidoptera.

Moody Gardens- Banyon Room

September 25, 9AM – Noon

Long-time Master Gardner and lepidopterist, Anna Wygrys, will tell us all about the butterflies that are commonly seen in and about the Gulf Coast area. We will learn which nectar bearing and butterfly attracting plants we should have in our yards. Starting at 9 a.m. sharp, the workshop will end about 11:30 and participants will go outside to see if we can identify butterflies surrounding Moody Gardens and perhaps find eggs that they have laid!

Project Leader: Louise Bell lbell2@comcast.net

Register with Emmeline Dodd

TXDODD@aol.com

Prairie Workshop

ABNC

Thursday, Oct. 9th 9 AM – 3PM

Dick Benoit, Presenter

Project Leader: Ellen Gerloff

egerloff@sbcglobal.net

Texas Master Naturalist State Meeting

Oct. 24th – 26th Mo Ranch in Hunt, Texas

Skills of the Trade Workshop

ABNC

Saturday, Nov. 15th 9 AM – 3PM

Details TBA later.

STEWARDSHIP OPPORTUNITIES

by Dick Benoit, Stewardship Chairperson

Fall Projects of the Month

September Project of the Month

Wetland Restoration Team

September 10, 17

For more information, contact Dick Benoit

rbenoitex@aol.com.

Challenger Park Wetland Restoration I

Thursday, September 18, 2008 9 AM - Noon

Restore newly created wetlands at Challenger Park

October Project of the Month

Horseshoe Marsh Work Restoration VIII

Tuesday, October 14, 2008 9 AM - Noon

Restore developing wildlife habitat along old railroad right-of-way

Prairie Pandemonium at ABNC

Saturday, Oct. 18th 9 AM – Noon

2nd Annual Restoration of Prairie – Details later.

Contact Dick Benoit RBenoitTEX@aol.com

November Project of the Month

Prairie Pandemonium at Sheldon State Park

Saturday, Nov. 8th 9 AM – Noon

First Annual Restoration of Prairie – includes planting 2000 well-developed prairie grasses.

Contact Jim Duron wishkad@yahoo.com

Anahauc National Wildlife Refuge Butterfly Garden Maintenance VI

Thursday, November 13, 2008 9 AM - Noon

Put the Gulf Fritillary Butterfly Garden to bed for the winter

Ongoing activities:

Mondays - **Reitan Point**, second and fourth, Contact Liz Gimmler gimmler@consolidated.net

Tuesdays - **Texas City Prairie Preserve**, Contact Marybeth Arnold mbarnold@aol.com

Wednesdays - **Wetland Restoration Team**, Contact Marissa Sipocz m-sipocz@tamu.edu

Fridays – **Sundance Garden**, Contact Trudy Belz trudybelz@aol.com

Prairie Friday, ABNC- Dick Benoit

RBenoitTEX@aol.com 9AM - Noon

We Helped to Restore an Acre of Prairie Today

Friday, June 20, 2008, in Grimes Prairie at Armand Bayou Nature Center, we helped to restore an acre of prairie. The process had begun last fall with the collection of seeds of mainly prairie grasses from local prairie remnants and rescue of plants from right-of-ways. The seeds were planted mainly at Texas Master Gardner Precinct 2 greenhouses and cared for by Tom Solomon and Jim Duron at Armand Bayou Nature Center. Many of the seedlings were sprigged by the Prairie Friday crew.

Under the leadership of Mark Kramer, George Regmund, and Chris Mattox, the stewardship crew at Armand Bayou Nature Center, the project was guided to its fruition when the Corporate Planting was completed with a work crew of 40 persons from Convergent Corporation.

Prior to the planting date, the one-gallon plants of Big Bluestem, Switch Grass, and Eastern Gamma Grass were watered by Tom and Jim. A week prior to the planting, Art Carpenter and Merl Bundy augered about 1200 holes with the use of the Nature Center's tractor. The day of the planting, the well-developed planting scheme of Tom was completed with mentoring by Gail, Diane, Gerre, Liz, Lan, Tom, Jim, George and Chris.

Each of the augered holes had a pin flag to locate it. The holes were soaked with a gallon of water prior to inserting the plant, then marked with a wooden skewer with its top painted and soaked with another gallon of water. The process of planting over 1200 plants by the forty workers and nine mentors was completed by noon, at which time the crew was rewarded with a fine bar-be-cue lunch and the sense of achievement in planting an acre of prairie.

Prairie Pyramid

By Dick Benoit

**Prairie
Sun and Wind
Insects , Invertebrates
Deer, Coyotes, Kites, Sparrows
Baccharis, Iva, Persimmons, Myrtle
Baptisia, Rattlesnake Master, Coneflower
Big Bluestem, Little Bluestem, Switch, Indian
Soil, Nematodes, Bacteria, Roots, Tubers, Bulbs, Water**

Highlights of Treasures of the Bay Teacher Workshop June 17-20, 2008

Photos by Mel Measeles and Nathan Veatch

Poems from the journals of teachers at Armand Bayou Nature Center, June 17.

Prairie Haiku Genifer Lara

Prairie singing
A cool breeze blows through the heat
A prairie at peace

Prairie Friends Rose Rich

I am wispy and featherlike
Swaying gently in the soft breeze
As I mingle with my friends in the prairie

Green Haiku Sandy Ashlock

Green feather on plants
Softly swaying in the breeze
Crickets keep chirping



Dick Benoit suggests journaling techniques to the participants.

Seed Ball Making



Morgan Wilson advises Dick that they are NOT chocolates.



The volunteers had as much fun as the workshop participants!

Teachers attending the workshop were: Laura Bishop, David Bonett, Dana Decker, and Rose Rich from K. E. Little Elementary. Sandy Ashlock from Hughes Road Elem., Becky Giles from Rosenberg Elem., Jerri Jobe from Manvel Jr. High, Gina Disteldorf from Spring Woods High, Linda Jupin and Michell Puig from Ball High, Jac Burke from HCC, Michael Eames, a UHCL student, Wendy Restle of the UHCL Environmental Institute, and Genifer Lara (ABNC) and Daniel Lara from Linn Benton CC. It was really a pleasure for all the presenters to work with such an interesting and varied group.

Nathan passes around critters collected by Steve on the rocks on the Texas City Dike as the teachers fill out checklists.



Steve helps the teachers collect hermit crab shells as part of the catch and release shell collection at "Hermit Crab Heaven" near the end of The Dike.



Emmeline shares information and activities on insects with the teachers at College of the Mainland.



Wendy Reistle and Gina Disteldorf show off the great fish prints they made on Friday with Julie.

Sandra Ashlock enjoys the shrimp boil that preceded the awards ceremony on Friday. Right: Striped hermit crabs crawled on the rocks and occupied six different types of snail shells.



CAMP WILD '08

by Mary Jean Hayden

Camp Wild, an action-packed week of nature-based fun at Galveston Island State Park, finished its seventh, largest and most successful year this June. Camp Wild is jointly sponsored by Friends of Galveston Island State Park, Galveston Bay Area Chapter-Texas Master Naturalists and Galveston Island State Park. This year and for three of its seven years Camp Wild has been funded through the generosity of the Kempner Foundation.

Fifty-eight campers were randomly assigned to one of six groups that rotated through the various activities, ate lunch together and by the end of the week had become a tight bunch.

Two counselors and a junior counselor guided each group, made sure their water bottles were filled, even washed their camp tee-shirts every night! This year's wonderful crew:

Judy Anderson, Cristi Beehn, Cathy Bellmore, Lauren Bower, Jenna Creech, Melinda Creech, Molly Empey, Ellen Gerloff, Becky Giles,

Michael Giles, Andrea Hecz-Oberman, Sandra Linton, Julie Massey, Stanzie Seshier, Brenda Voller, Beverly Williams, Kristen Williams, and Morgan Wilson.



The Diamond Backs with counselors Brenda Voller and Sandra Linton. Photo by Mel Measeles.

The bus was almost an hour late the first day, but teamwork prevailed, and we still managed to get kids split into groups, the flags raised, group names selected, equipment distributed and marked, "full value" contract of goals and behavior formulated and still be on time for the first activity - whew! Such efficiency was mostly due to the extra hands who wanted to volunteer but could only be there Monday - thank heavens for Mary Vogas, Janice Schwash, and Becky & Bill Edmondson.



And the activities! Camp Wild is almost like a master naturalist class squeezed into a week! This year, due to its wild popularity, kayaking was a double session so Vic Madamba and Frank Budney were on the water all five days. Dawn Bello of TPWD's Houston Urban Outdoor Program delivered their trailer-load of kayaks for our use for the week at no cost and GISP staff brought the trailer to and from the maintenance shed each day. Groups went fishing and crabbing on Monday with instruction and assistance provided by Bill Callahan, Bill Holcomb, Gib Larson and Josh Parks (who also provided some young muscle for loading and unloading kayaks). These guys jumped in at the last minute when park staff had to cancel. Fish weren't biting but crabbing was good and campers loved it. Margaret Pickell and her critters enthralled the whole camp with her presentation on Tuesday. The kids lost all interest in acquiring a wild or exotic pet once Margaret had finished her talk, but they're more interested than ever in observing and protecting life in the wild. Carrie Battle

taught the insect module and campers netted a fascinating variety that they were then able to inspect using the video-flex set-up. Meanwhile, Dick Benoit instructed the kids through owl pellet dissection with fur a-

flyin'. Marsh seining was extremely popular as always, taught by Nathan Veatch and Steve Alexander (they helped load and unload kayaks too). Mel Measeles and Bob Robinson taught the kids to use digital cameras and then turned them loose. The following morning each child received a photo sheet of the pictures they took (Bob and Mel worked nights too, you see). The "usual suspects" headed up the nature art module - Linda Ercole-Musso for a seventh year, Joy Gilcrease and Rita Smith for a fifth, and Cherie Ray for a third. Campers made lovely nature sun prints this year. Several volunteers pulled double-duty. Carey Battle was indispensable - a "can-do" woman who filled in every gap - subbing where needed, printing lists, framing certificates, etc. Besides their main jobs, Nathan and Julie teamed up on Thursday to teach fish and squid dissection in three back-to-back sessions. And, after six units of nature photography, Mel & Bob also served as "Free Beach" instructors - seining in the surf, flying kites, beachcombing, building sandcastles - whatever the kids wanted. Brenda Voller dropped her counselor job for a few turns as a birding guide. She trudged off for the first one in the heat and wind, certain they'd see nothing but Mockingbirds, but came back all excited - Spoonbill, Egret, Stilt, Heron, etc.! Husband and birding guide, Mort Voller, ably took over the job on Thursday and Friday so Brenda could get back to being a counselor. One session was reserved for "group fun" - some went fishing with Josh at a different spot with better success; some did a second art project; others went back to the beach or took a wildflower hike.



But kids can't go wild on an empty stomach! Tawy & Cliff Muehe and Joie Elmer handled the huge task of planning, purchasing and serving snacks and lunches each day. The food was Grrreat - Popeye's, What-a-Burger, Pizza, Watermelon - the kids loved it and volunteers gained a few extra pounds! Every day Cliff toted a dozen and more bags of ice for water jugs and ice chests - his biceps now resemble Popeye's!

Campers, counselors and instructors were saddened as awards were presented and flags were lowered on Friday, but the fun we had and friendships we made won't be forgotten. One thing for sure - either Margaret Canavan must come back to lead us in song or we need someone new who can remember words and/or carry a tune! For their turn in our Flag ceremony, the Red Snappers wrote a song to the tune of "The Adams Family" and we even had difficulty with that!



Plans will soon be in the works for '09 and you'll be invited to join in. There's plenty of behind-the-scenes work too - printing and distributing Camp announcements, tracking registrations, ordering and readying equipment, setting up and taking down picnic tables and shade canopies (Don Ware, Bob Robinson, Haydens and park staff are our usual sweatogs but could use your help next year). It's not too early to let me know you want to go Wild next year!

A CASE 4 VOLUNTEERS

by Vic Madamba,, Longhorn Project Volunteer

Galveston Bay Area Chapter, Texas Master Naturalists were recently honored for their volunteer services during the 2008 Annual Clear Creek Independent School District, Center for Agriculture, Science and Engineering (C.A.S.E) “End of Year – Longhorn Project Celebration.” Although all of the Master Naturalist volunteers for the Longhorn Project could not attend, they were well represented by the foursome pictured from left to right: Vic Madamba, Gib Larson, Ollie Schwausch and Janice Schwausch. Volunteers for the Longhorn Project each received a plaque and a resounding ovation from the crowd and dignitaries, which included;



Mitchell Dale (*Longhorn Development Board TLBGCA Breeder and Sponsor*), Joel Walker (*Director, Center Operations Directorate, Johnson Space Center*), Greg Smith, Ph.D. (*Superintendent, Clear Creek Independent School District*), Cindy Schnuriger (*Longhorn Project Manager*) As with any event, program or project, volunteers are an important integral ingredient for success. The Longhorn Project is no different, it continually needs volunteers.



Cindy Schnuriger, Project Manager, said during her introduction, "Volunteers are the cornerstone of the Longhorn Project." The Texas Project is a partnership in education that the GBAC Texas Master Naturalists have adopted to provide support in many areas to include: hands on abiotic, biotic, probabilities of genetic phenotype and genotype instructions. Other volunteer areas are: Center Volunteer, Teaching Science Lessons, Assisting Science Lessons, Assisting with Longhorns, Gardening and Pasture Management, and "A C.A.S.E 4 Volunteers." Master Naturalist volunteers work with CCISD 3rd graders, 7th graders and high school students in programs mentioned above. If you are interested in helping in any area of the Longhorn Project, or have ideas to improve the project, contact Cindy Schnuriger at: (281) 244-0979 or email cschnuri@ccisd.net.

Pictured below: Pond and Tomato Patch at Longhorn Project, NASA.



WETLAND *by Diane Humes*

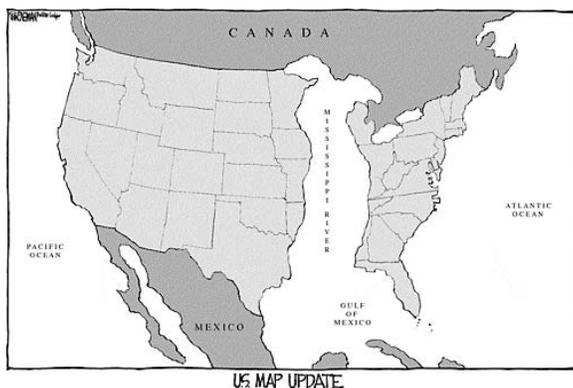
A N D E R I N G S

The Wetland Restoration Team is committed to restoring, creating, and enhancing wetlands in the greater Houston area. To that end, the Team encourages education, in addition to food, fun, and fellowship. See Calendar for August **Wetland Plant ID Class**.

Wetlands occupy the zone between dry, upland and open water. Wetlands come in myriad forms – marshes and bogs, coastal marshes and mangrove swamps, river deltas and prairie potholes, bottomland riparian forest. Wetlands slow and retain rainwater and flood waters and help recharge aquifers. Wetland soil microbes and plants filter pollutants and bacteria from the water, and trap sediment. Wetlands are home to many species, including 62 birds of high priority for conservation.

The Mississippi River Basin is America's watershed, draining 41% of the nation's waters. In 1780, wetlands comprised 45 million acres of the Mississippi River drainage; by 1980, 26 million acres of wetlands had been drained to create the farms and cities of the American Midwest. Levees were built to protect farms and towns; many remaining wetland areas lost their river connection. Flooding increased. Even in 1852, Charles Ellett, Jr. reported to Congress "that the more frequent and excessive overflows" of the Mississippi River were due to construction of levees and "that the future floods throughout the length and breadth of the delta, and along the great streams tributary to the Mississippi, are destined to rise higher and higher, as society spreads over the upper States, as population adjacent to the river increases, and the inundated low lands appreciate in value."

What are the alternatives to levees? Calculations based on the flood of 1993 show that the area of flooding would have encompassed only 13 million acres of a deep marsh (3 feet) or half of the 26 million acres of Mississippi River Basin wetlands drained for development. It is projected that a strategic placement of restored or reconnected wetlands, involving 4 or 5% of each watershed, would be enough to contain flooding of this magnitude – possibly the 4% of farmland that currently lies idle.



In addition to water, the Mississippi River Basin carries huge loads of fertilizer, pesticide, herbicide, and sediment from the agricultural heartland. In spring and summer this creates the Gulf of Mexico Dead Zone. Bacteria feed on the huge quantities of phytoplankton stimulated by warm Gulf water temperatures, sunlight, and plentiful nitrogen and phosphorus and consume the oxygen in the bottom layers of ocean. The heavy nutrient loading is also correlated with "red tide" or HAB, Harmful Algal Bloom.

Studies of nutrient runoff suggest that the same acreage devoted to wetlands for flood amelioration would also cleanse the water of pollutants. **In other words, there is a proposed ecological solution that could reduce flooding, eliminate the dead zone, and control red tides that would also increase habitat for endangered birds and other species, and provide recreational opportunities for humans, with the restoration of a fraction of the nation's wetlands.** What are we waiting for?

Sources:

- Carlisle, Elizabeth, "The Gulf of Mexico Dead Zone and Red Tides." *The Louisiana Environment*.
www.tulane.edu/~bflleury/envirobio/enviroweb/DeadZone.htm
- Hey, Daniel L. and Nancy S. Phillip. "Flood Reduction Through Wetland Restoration: The Basin as a Case History." *Restoration Ecology* 3: 4-17, 1995.
- Jenkins, Matt. "Just Add Water." *The Nature Conservancy*. Summer 2008, pp. 44-55.
- "Reducing Flood Damages in the Upper Mississippi River Basin, An Ecological Alternative." *The Wetlands Initiative, 2003-2004*. www.wetlandsinitiative.org/images/pdfs_pubs/FloodStudySummary.pdf

GBAC-TMN Junior Naturalist Club

By Mary Jean Hayden

A Short History: Many of the students participating in our Bay and Island Adventures program of once-a-month in-class presentations express a hunger for more - "When are you coming back?" "I wish I could do this some more!" Volunteers feel it too - "If only we had more time and could do more activities with those kids who are really into this stuff!" Dick Benoit (of course) knew how to satisfy both parties - start a Jr. Master Naturalist program! So on a three-hour plane ride to Milwaukee in June 2006, he guided and goaded and together we outlined a program. Our MN Board of Directors set aside some funds; Carey Battle, Shirley Foster, Sandra Linton, Sandy Rubin and Pam Stone volunteered as team leaders; and we implemented a pilot Jr. Naturalist Club that fall at Galveston's Morgan Elementary. Twenty-five kids registered the first day! The club met every other Tuesday for after-school investigation and experimentation based on the topics taught in-class each month, i.e. Water, Galveston Bay, Wetlands, Coastal Prairie, Birds and Gulf of Mexico. We investigated the properties of water, designed a watershed, studied wildflowers; dissected oysters, etc. MN experts volunteered to conduct sessions in their specialties, i.e. Julie Massey handled water testing, Emmeline Dodd taught insects. Each month was topped off with an associated field trip on an early-release day. We all learned a lot that first year!



'07-'08 This year was great! We received a Kempner grant to handle expenses (primarily bus transportation for fieldtrips) and worked again at Morgan. Carey and I continued and Judy Anderson, Cheryl Henry, Diane Reiff and Norma Rubin came on board as new team leaders. Past and current volunteers met at Norma's to hash over successes and problems and to plan activities for the entire year. We developed power-point slides and lab note forms to keep all four teams on the same track as they worked through each experiment or other inquiry-based activity and we focused even more on participant ownership and team collaboration. Outfitted with "lab" aprons, goggles and gloves, students identified the "X" fish that Diane's husband had caught, demonstrated osmosis using a chicken egg (thanks for the idea, Dick), made pond biomes and studied plankton under Steve Alexander's guidance; dissected fish and squid and did Gyotaku with Julie's help; and learned about taxonomy using the Nathan Veatch's shoe-pile method. Carey taught the insect module and Sandra Linton came back to teach the wildflower session. Club members even conducted a town meeting. Each wore a suitable hat to get into character for a contentious discussion about suburban development around Perch Pond. "Billy Dozer" and "Phoebe Bird" were in complete opposition and one character became pretty darned adamant about what the development would do to taxes!! Fieldtrips were, of course, a high point - water and sewer plant tours reinforced our water study; the trip to the High Island Rookery included several parents who loved it as much as we did. Club members planned their own graduation party and although their idea of constructing a brown pelican piñata seemed a bit over-zealous to the adults, the kids did a masterful job of it in just two club meetings. Parents, siblings and instructors joined us for the graduation ceremony as certificates, dragonfly pins, and special awards were presented. A feast of pizza, punch and a cake decorated with the Junior Master Naturalist frog (and oh yes, the piñata's candy) was followed by lots of hugs and goodbyes 'til next year.

The Future: This fall we'll be working with 5th graders at Galveston's new science magnet campus, Austin Middle School. **Continued at the bottom of the next page.**

Master Naturalists Conclude 2008 Sea Turtle Patrols

by Steve Alexander

For the second year, GBAC Texas Master Naturalists participated in a program to document the nesting of Kemp's Ridley sea turtles on the upper Texas coast. Texas Master Naturalists recently completing 2008 nesting season patrols include Steve Alexander, Ron Atkins, Jack Clason, Bev Frannea, Bill Holcombe, Mel Measeles, Leo Symmank, and Beverly Williams.

Patrollers attended a mandatory March training session prior to the April 1 start of nesting season. Patrollers then signed up for April, May, and June foot patrols on designated Galveston Island beaches.

Highlighting this year's patrols was the opportunity to work with a nesting sea turtle or a sea turtle nest. Two TMN volunteers (Steve Alexander and Jack Clason) worked with Ila, the female Kemp's Ridley that came ashore May 1 at 39th Street on Galveston Island. Three other TMN volunteers worked with Missy, the female Kemp's Ridley that came ashore May 20 at Jamaica Beach on Galveston Island. And one other TMN volunteer helped excavate a nest full of sea turtle eggs.

Along the entire Texas coast, a record 182 Kemp's Ridley nests have been found in 2008 (as of June 29), compared to 128 nests found in 2007. Of the 182 nests this year, 15 were found on the upper Texas coast, six of these on Galveston Island. Of the 128 nests found in 2007, 15 were found on the upper Texas coast, seven of these on Galveston Island.

Given the success of this program in documenting the comeback of the Kemp's Ridley sea turtle, it is anticipated that patrols will begin again April 1, 2009. If you are interested in participating during the 2009 nesting season, watch for information on the March patrol training session.



Photos by Jack Clason Above: Ila returns to the Gulf fitted with a satellite-tracking device. Right: Her eggs are packed ready for shipment to Padre Island National Seashore where they will hatch and the young turtles will return to the Gulf.

Junior Master Naturalists Club continued The principal and staff are so excited that we'll be allowed to conduct the program during school hours and have been promised the assistance of at least one of the Science teachers. Serving as a team counselor is a big commitment, but oh boy, it is really a rewarding volunteer opportunity! Please let me know if you're interested because a couple of last year's volunteers will be moving on to other things. I promise you a year's worth of fun and adventure in the good company of some scientists of the future!

Green Corner Potpourri

From the Green Team

Check out our new, improved, enhanced **RECYCLING LINK** on the Master Naturalist website. We have compiled a list of local recycling opportunities and will keep it updated *with your help*. We consider all our Master Naturalists to be part of the Green Team. Take a look at <http://gbamasternaturalist.org/Recycle%20Tips.htm>

Here are some other “green” ideas:

Use and then recycle compact fluorescent light bulbs (CFLs): CFLs use up to 75 percent less energy, last longer and cost less over time than incandescent bulbs. The average household can reduce its energy bills by \$12 to \$20 a month by using CFLs. According to the EPA's ENERGY STAR(R) program, if every American switched one incandescent bulb to a CFL, it would save more than \$600 million in annual energy costs and prevent greenhouse gases equivalent to the emissions from 800,000 cars.

The Home Depot will recycle CFLs at any of their stores. Bring in used and unbroken CFL bulbs, and give them to the store associate behind the returns desk. The bulbs will be handled by an environmental management company that will coordinate CFL packaging, transportation and recycling to maximize safety and ensure environmental compliance. Home Depot is also selling bulbs that have cut the amount of mercury most bulbs contain in half. IKEA stores also recycle CFLs-- <http://www.enr.com/pollution/article/37523>

The Right Way to Throw Out Medicine, Paint, Batteries

- **Medications:** On your next trip to the pharmacy, ask if it will properly dispose of old medications for you.
- **Ink-jet or toner cartridges:** FedEx-Kinko's and stores like Office Depot accept them. Simply drop them off when you buy new ones. PetsMart provides postage paid mailing envelopes for them and receives manufacturer contributions for animal rescue groups.
- **Motor oil, antifreeze, and car batteries:** Patronize an auto shop that recycles. Check www.earth911.org to find one near you. And check your local recycling center.
- **Other batteries:** Put single-use batteries in a plastic bag to prevent leakage in landfills (they are NOT recyclable at present). Many places accept rechargeable batteries, check <http://www.rbr.com> for recycling options near you.
- **Paint:** Let latex paint dry, then put it out with your regular trash. (Mix in cat litter or sand to dry up cans more than a quarter full.) Take oil-based paints to waste-collection centers.-- *Real Simple Magazine*

Did you know:

- ❖ About 630 steel cans are recycled every second!
- ❖ By Recycling 1 ton of paper you save 17 trees
- ❖ Glass never wears out -- it can be recycled forever.
- ❖ Americans throw away enough aluminum every three months to rebuild our entire commercial air fleet
- ❖ Approximately 3.8 million tons of rubber tires (or 257 million scrap tires- about 1 tire per person in the United States) were generated in 1995.
- ❖ In a lifetime, the average American will throw away 600 times his or her adult weight in garbage.
- ❖ Each of us generates on average 4.4 pounds of waste per day per person.
- ❖ American's throw away enough office and writing paper annually to build a wall 12 feet high stretching from Los Angeles to New York City.
- ❖ Five recycled plastic bottles make enough fiberfill to stuff a ski jacket

❖ Motor oil never wears out, it just gets dirty. Oil can be recycled, re-refined and used again, reducing our reliance on imported oil-- <http://www.texas-city-tx.org/BioFunFacts.htm> 07/05/2008, *Houston Chronicle*, p.B7.

A Consumptive Naturalist

by Bill Ashby

While speaking to a group of teachers at the Treasures of the Bay workshop, I mentioned that my interest in Galveston Bay and the Gulf Coast region was intertwined with two of my other interests, namely cooking and eating.



Many good meals have graced my table courtesy of the wilds of the area. Nathan and others encouraged me to share some of my favorite recipes, so I decided to give it a shot. Hopefully you'll find something here that you'll want to try or something that gives your creativity a starting point in your own kitchen. Since so many of us like to get outdoors in the summer and fish, I'll start with a fish dish that uses the outdoor grill to keep the kitchen cool.



- ◆ Start with a whole flounder or pompano (they're roughly the same thickness from head to tail so they will cook evenly) or a filet from a larger fish.
- ◆ After scaling and cleaning the fish, make diagonal cuts across the body about ¼" to ½" deep and about an inch apart. Usually I skip this step with a filet.
- ◆ Brush on olive oil or smear butter over the entire upper surface of the fish.
- ◆ Sprinkle your favorite seasoning on both sides. We vary from plain salt and pepper to any of the commercial Cajun or Greek seasonings depending on our mood.
- ◆ Make a shallow pan from aluminum foil slightly larger than the fish and roughly the same shape. Use olive oil or butter to smear the bottom of the pan to keep the fish from sticking. I like to add a couple of extra pats of butter to the pan for good measure.
- ◆ Lay the fish in the pan and squeeze the juice of a lime (or lemon if you prefer) over it. You can also sprinkle some chopped garlic and onion around and over the fish if you like.
- ◆ Place this on a medium hot grill and cook for 8-10 minutes or until the fish is flaky. Try your best not to over cook as this will make the fish tough.
- ◆ When it's done you can remove the skin and lift individual portions off the backbone with a spatula. For the most part these portions will be boneless but be careful around the base of the fins and in the rib area where tiny bones can lurk.
- ◆ Enjoy.

The Florida pompano, *Trachinotus carolinus*, is the most sought after type of Jackfish in the surf.



Barcodes of Life

by Diane Humes



Our blue planet, third from the Sun, teems with life - 1.8 million plants and animals are presently known to science. The

number of known species is constantly in flux as new ones are discovered and described, and taxonomic difficulties and redundancies revised. Living organisms have not been equally studied and many more species are yet to be discovered. Current estimates range between 3.6 and 100 million for the total number of species living on Earth, with the best estimate around 10 million species.

Organisms are classified according to the system developed by Linnaeus in 1735, whereby each type of organism is given a unique name, such as *Homo sapiens* or *Andropogon gerardii*. Relationships between organisms were originally based on similarities of morphology found in living specimens. Evolutionary relationships were inferred from comparison with fossil specimens. With the technical ability to sequence DNA has come an explosion of knowledge, leading to a reorganization of the classification of plants and animals. The **Tree of Life** project is attempting to create a universal tree of life that will show the genetic and evolutionary affinities of all forms of life. There are currently about 9000 species posted on the Tree of Life, which can be accessed at: www.tolweb.org.

The Tree of Life recently joined forces with the **Encyclopedia of Life** (EOL), www.eol.org. Because no central registry exists to track all species, this ambitious project aims to construct a Web site accessible through a single Web portal for each of the known species on Earth. Beginning in 2007 with fish and followed in 2008 by plants in the family Solanaceae

(potatoes, tomatoes, peppers - 2008 is the Year of the Spud!), EOL aims to produce a page for each of 1 million species within 5 years! Information will be presented like a field guide, with verified scientific information about habitat, range, natural history, and conservation status. For each species there will be illustrations and detailed information about each species' place on the tree of life and links to more specialized scientific literature. There will be opportunities to contribute to this project, both scientific information and monetary help – something for Master Naturalists to consider.



Another application of computer and DNA technology will have all Master Naturalists swooning in the streets – guaranteed. The **Barcodes of Life Initiative** (see www.DNABarcodes.org, www.barcodinglife.org, and www.bolinfonet.org) would like to create a catalog of every species based on a “barcode” of a unique region of DNA. The barcode catalog of all species will be able to be stored in a hand-held device capable of generating specimen identification in the field. Positive identification will occur in minutes of that squashed caterpillar or bit of leaf. And, lest you think this is science fiction, groups of scientists around the world are busily creating barcodes from type specimens found in museums; up to 84,599 barcodes have already been generated. I do not think you can buy the de-coder yet, but start saving those pennies!

The challenge of discovering and describing all life on Earth is a mind-boggling task. Edward O. Wilson writes, “The smaller the organism, the more poorly known the group to which it belongs. About 69,000 species of fungi have been distinguished and named, but as many as 1.6 million are thought to exist. Of the nematode worms, making up to four of every five animals on Earth (and, it is said, so abundant that if all solid matter on the surface of the planet were to disappear, its ghostly outline could still be seen in nematodes), 15,000 species are known but millions more might await discovery. Nematodes in turn are dwarfed in diversity by the bacteria and archaeans, the black hole of biological systematics. Although only 6000 have been formally recognized, approximately that many, almost all new to science, can be found in only a few grams of rich forest soil. Our ignorance of these microorganisms is epitomized by bacteria of the genus *Prochlorococcus*, arguably the most abundant organisms on the planet and responsible for a large part of the organic production of the ocean, yet unknown until 1988. *Prochlorococcus* cells float passively in open water at 70,000–200,000 per ml, multiplying with energy captured by sunlight. They eluded recognition so long because of their extremely small size. Representing a special group called picoplankton, they are much smaller than conventional bacteria and barely visible at the highest optical magnification.”

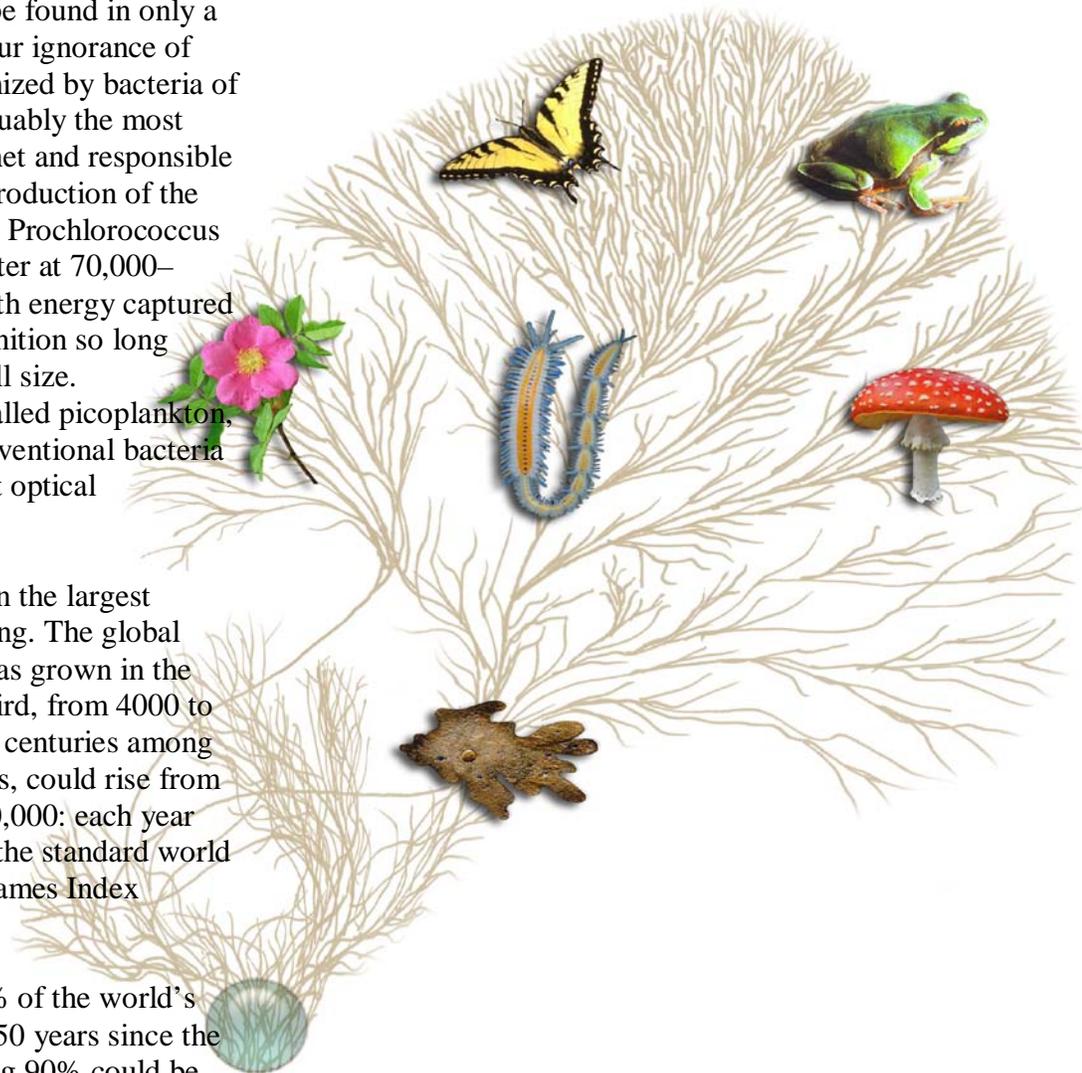
Wilson adds that, “Even the largest organisms await a full accounting. The global number of amphibian species has grown in the past 15 years by more than a third, from 4000 to 5400. The flowering plants, for centuries among the favorite targets of naturalists, could rise from the present 272,000 to over 300,000: each year 2000 new species are added to the standard world list of the International Plant Names Index (<http://www.ipni.org>).”

Consider that about 10% of the world’s species were described in the 250 years since the time of Linnaeus. The remaining 90% could be found and catalogued in just one-tenth the amount

of time. Although all the information known and yet to be discovered about living species represents a **huge** amount of data, scientists agree that the technology exists to complete a global biodiversity census in the next 25 years. However, it is sobering to think that 25% of all species may go extinct in this same time, should habitat destruction continue and climate predictions prove accurate.

Sources:

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 Wilson, E. O. *The Creation: An Appeal to Save Life on Earth*. New York: W. W. Norton & Company, Inc., 2006.



Guppies from Julie
by Julie Massey

Summer is a terrific time of year! Sure it's hot, but then you have Camp Wild and the Treasures of the Bay Educators Workshop! This summer two students that I have mentored in marine biology volunteered with these Master Naturalists projects!



Morgan Wilson (currently a student at Mount Holyoke College) and Stanzie Seshar (a Clear Creek senior) along with 2 other students loaded in the big white truck every day for Camp Wild! We all had a blast at camp and would share our tales of the day after a stop at Sonic for a cold, icy treat! Then came the Treasures of the Bay Educators Workshop – and Morgan was there – helping everyday!

In late June, Morgan, Stanzie, Noel Lampazzi (fall 2008 mentorship student) and I attended the blessing and christening of the *Manta*, a new research vessel for the Flower Garden Banks National Marine Sanctuary! The brass band played and we sat under a tent... sweating as the *Manta* pulled up to the dock! World renowned oceanographer, Dr. Sylvia Earle was on hand for the dedication. Dr. Earle has pioneered deep ocean research - walking at the deepest depth of any human being (1250 feet below the ocean's surface) untethered. The day was thrilling! A new NOAA research vessel, Dr. Earle and 3 young women interested in ocean and environmental sciences!



I am fortunate to have inspiration all around me! Getting to work with Master Naturalists is awesome! Your accomplishments are amazing! Your commitment, dedication and joy are wonderful - just ask the Camp Wild campers and the teachers from the Treasures Workshop! The words – “This is awesome” – were said by both campers and teachers about experiences they enjoyed thanks to you!



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This newsletter is published by **Galveston Bay Area Chapter – Texas Master Naturalists.**

Texas AgriLife Extension Service
5115 Highway 3
Dickinson, TX 77539-6831

For comments on this issue or to suggest content for future issues, please contact **Nathan Veatch** at **281-480-6985** or by e-mail at nveatch@swbell.net

