H E A R T W O O D N E W S

Prairies & Pines

A Quarterly Newsletter

Vol. 6 Issue 2 - Summer/Fall 2014

Native Bees in Texas Ecosystems

Part One

by Suzy Briseño, Heartwood TMN Member

Despite all the buzz about declining honey bees, little attention has gone to the 4,000 to 4,500 species of native bees in North America, as many as 500 of which reside in Texas and provide pollination services for native and agricultural plants. The European honey bee (Apis mellifera) is our best-known species, brought here by Europeans colonists almost 400 years ago. Due to agricultural intensification, pesticides use, disease and parasites, honey bees have declined precipitously since the 1950s. "Unabated loss of this bee will have significant repercussions for large-scale, intensive agriculture..." said Michael Warriner, former invertebrate biologist for Texas Parks and Wildlife Department. "However, it will not be an ecological calamity. The conservation challenges facing native bees are where the real concerns for natural ecosystems lie."

Natives such as leaf-cutter bees (Megachile sp.), mason bees (Osmia sp.) and sunflower bees (Diadasia sp.) are the unsung heroes of the gardens, agricultural crops and natural settings and are responsible for a significant amount of pollination in agricultural and ecological systems. Another native, the southeastern blueberry bee (Habropoda laboriosa) is much faster and more efficient at pollinating blueberry flowers than honey bees. Squash bees (Peponapis and Xenoglossa spp.), specialist pollinators of cucurbits, begin foraging just before dawn, when flowers are in full bloom, and as discussed later in this article, are faster and more efficient than honey bees at pollination.

What Exactly Is Pollination, and Why Is It So Important?

Plants ensure future generations by developing seeds that contain genetic material from both parents. Most grasses and many trees rely on wind to spread their pollen, but most fruits, vegetables and ornamental plants depend on insects–butterflies, moths and wasps, but primarily bees and occasionally other animals–to move their pollen from flower to flower. The insects' reward is nectar at the base of the flower, and as they burrow to drink, they brush against the pollen-bearing parts (anthers) coating themselves with the sticky grains they then carry to and deposit on the next flower. In the same way, a great number of plants depend on this cross-pollination by insects or other pollinators, thousands of animal species depend on the fruits, foliage, nuts or seeds the pollinated plants produce.

The Xerces Society, an international non-profit organization with a central program that focuses on native pollinators, uses an example of an apple cut crossways to illustrate the importance of pollination. In its book, Attracting Native Pollinators, Xerces claims that if an apple contains ten seeds–five on each side of the apple halves–the fruit is completely pollinated by a bee. If, however,

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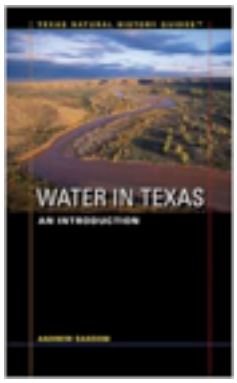


Water in Texas: An Introduction

By Andrew Sansom

by Jennifer Romero Seale, Heartwood TMN Member

Most TMN interns I've talked to come out of training with a passionate interest in at least one area of natural resource management. From native plant species use in landscaping to forest management for endangered woodpeckers to healthy soils for agriculture. For me, it was water quality and conservation issues. I spent hours poring over the Internet trying to understand who plans, regulates, and distributes water.

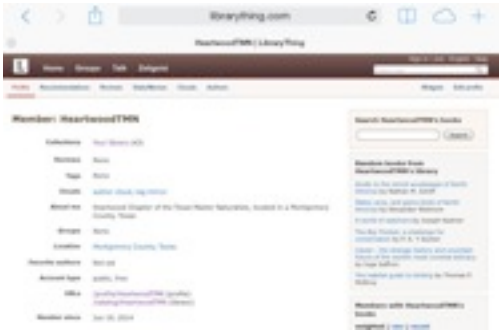
I found much of the information on the Internet confusing. I attended a regional TMN conference in Livingston where a conversation with another TMN led to a discovery that a whole book had been written on the subject. (And I was trying to sum it up in my mind in one flow chart.)

It doesn't take long researching water issues in Texas to learn THE place to turn is Texas State University in San Marcos's Meadows Center for Water and the Environment (formerly known as the Rivers System Institute.) So not much of a surprise to learn that Water in Texas: An Introduction was written by Andrew Sansom who was director of the Rivers System Institute when the book was published in 2008 and is still the Executive Director today.

Samson does an excellent job painting the picture of the challenges Texas faces going forward with regard to access to water. He lays out the history of legislation, why regulation became necessary, what unique features of our culture and geography have led to the development of a mass array of agencies to manage this resource. He covers the geology, climate, rivers, streams, aquifers, watersheds and the problems that have occurred in largely the last 100 years related to each ecosystem within our borders. He spends a good deal of time looking at issues specific to the Gulf Coast. A whole chapter lists all the agencies who manage water resources leaving you to wonder how Texas gets anything decided with so many people involved in planning and implementing water use. I was disappointed with his description of the roles of each agency. Some are clearer than others, while some he only talks about what's wrong with the agency rather than describing their responsibilities. One can only speculate he has his own issues with those agencies function in the grand scale of things.

One of the most helpful chapters was his take on water legislation and the significance of historical and cultural events which have led to their implementation. He spends another chapter looking at Water Rights, flow legislation, and Water Trust to answer the question "Do we have enough water?" Another chapter looks at the planning phase to prepare for the future largely explaining the Texas State Water Plan of 2007. (The TSWP for 2012 is a good additional read.) He provides a good review of the economics related to water – trying to define how you value its worth in dollars and cents.

In his introduction to the book, Samson states, "Issues associated with ensuring sufficient clean water for both economic growth and the environment is the most significant and urgent environmental concern facing Texas in the next generation." He wraps it up with a beautiful essay on how water is our legacy – words that should motivate any good TMN to be more involved in education and advocacy "to get us through what will surely be the greatest natural resource management challenge of our time."

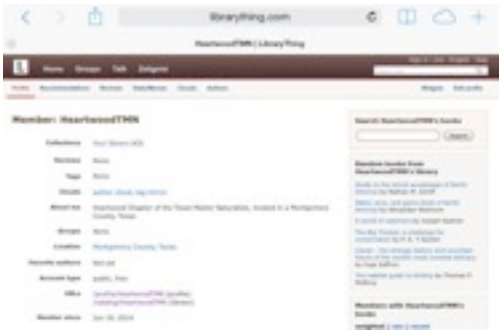


Heartwood TMN Library

by Carolyn Langlinais, Heartwood TMN Member

One of the driving reasons to become a Texas Master Naturalist is the desire to know more about the world around us. We spend a great deal of time reading about the flora and fauna of Texas, looking up bugs, plants, animals. Thankfully, answers to our most burning questions can be found on the internet after a quick Google search. Our Heartwood Chapter also has resources available beyond Google. One of those is the small library housed at Jones Forest.

Our library has recently been cataloged and a database of all the books can be found at LibraryThing.com. It isn't required that you become a member in order to look at our database. You may, however, discover the urge to catalog your own collection of books.



The website for LibraryThing.com presents a search box on the home page. Enter **HeartwoodTMN** here. Notice it displays *No results*. But if you look at the *Members* heading on the left side of the page, it shows a total of 1. In order to access our Heartwood database, you would select *Members* and the next page will be our very own library.

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Stunning Fish

by Susan Beckemeier

Marty Kelly and Nick Ellis of the Texas Commission on Environmental Quality gave a demonstration at Jesse Jones State Park on how they stun fish using an electrical charge in the water. They then collected and counted the fish. This procedure is used to collect data to try to determine the health of a given body of water. Some fish are better able to tolerate pollution than others, so a survey of the number and varieties of fish present is a good indicator of the quality of the water.

2014 Intern Presentations Overview

by Susan Beckemeier, Heartwood TMN Member

July 26 was graduation day for the Heartwood Chapter 2014 Spring Master Naturalist interns. Everyone in the class was encouraged to do a presentation about something he or she had learned or done during the five months of the course. Here's a brief summary of the presentations.

Suzy Briseño, rather than doing an oral presentation wrote an article for the previous newsletter about establishing backyard bird habitats. Providing food, water, and shelter for birds is becoming more and more important as our area becomes increasingly developed commercially.

Claire Moore is one of the interns who gave her program previous to graduation day. She shared a wonderful slide show of nature photos she had taken with a remote bird cam. Some of the scenes she captured were amusing. All were interesting.

Ann Hall and Lora Jorgensen participated in an insect survey trying to determine if our area has a greater than expected number of pine bark beetles. They showed how they set up traps and sent off the insects they caught to the agencies tracking insect populations. Their results will be reported back so we will know if we should expect unusual insect damage. They also talked about the Emerald ash borer that has devastated some eastern forests. We need to be on the lookout for them as well.

Krien VerBerkmoes has been helping with work to develop a plot of land on Lake Creek to make it a nature preserve with public hiking trails and eventually an interpretive center. He showed us photos of the area as well as opportunities for future volunteer involvement. He generated a lot of interest in this project among the interns. This particular opportunity is of very high value for future master naturalist support.

Don Begley said he enrolled in the program in part to share his wife's interest and also to reconnect with nature. The classes opened his eyes to the importance of things like water usage, and the value of different ecosystems, especially the prairies.

Kim Andrews (Don's wife) talked about restoring an area on their property that had

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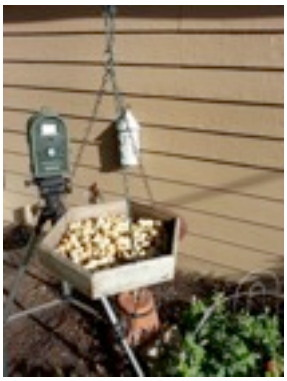
Breakfast with the Birds

by Susan Beckemeier, Heartwood TMN Member

The relocation to Jones Forest of two nesting pairs of red-cockaded woodpeckers got one step closer on July 29. That's when 10 artificial nesting cavities were inserted into suitable pine trees.

Gangs of volunteers had been working for hours to clear the area of tall underbrush prior to the boxes being installed. Many volunteers came to eat a little breakfast and watch two skilled men from Raven Environmental scale the chosen trees and cut rectangular holes in them, about 20 feet off the ground. The boxes which had been purchased with money donated by a number of organizations and individuals, were then inserted into the holes and secured in place. The trees were spray painted with white stripes to mimic the sap that would normally weep from the trees. The hope is that the birds will be attracted to those markings.

According to Donna Work from the Forest Service, we should receive two pairs of woodpeckers from Louisiana in late fall or early winter. Watching their release into their new neighborhood will be another event to anticipate. Let's hope they appreciate all the effort and settle down in their new custom homes.



Automated, Autonomous Cameras for Wildlife Watching

by Claire Moore, Heartwood TMN Member

For those interested in a little closer look at wildlife but without the time to sit in a bird blind for hours and hours, there is a new class of automated, autonomous cameras that can facilitate this. My experience is with the BirdCam 2.0 by Wingscapes, but there are several companies that offer these types of cameras to take pictures of birds or wildlife in your backyard or elsewhere. These cameras generally cost between $50 and $200 and come with a wide range of features. For this article, I will be sharing my experiences and results with my BirdCam 2.0 – this model is no longer available from the manufacturer and has been replaced by the BirdCam Pro.

I love the BirdCam because you can "set it and forget it" and return days later to see what type of action you have captured. The views you get of animals and birds seem to be more natural and candid then if you were sitting at the window watching. And the results are sometimes very surprising!

Pictured above is an example of my set up. I have my BirdCam mounted on a tripod and have it pointed at the scene that I am trying to photograph. You can set up the autonomous camera very close to the scene, so that you can get close up pictures of the action. Because the camera is stationary, it becomes part of the landscape to the birds and they ignore it. Depending on the camera, just make sure and set the focus properly based on the distance to your subject. For instance, my BirdCam 2.0 has four focus lengths and you just pick the correct one: 18"-23", 24"-37", 38"-8', and over 8'. The newer BirdCam Pro has many more focus options for sharper focus.

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Emerald Ash Borer Monitoring in W.G. Jones State Forest

by Lora Jorgensen and Ann Hall, Heartwood TMN Members

You may have heard the unfortunate news this summer that the Emerald Ash Borer was newly detected in six counties in southwestern Arkansas, creeping dangerously closer to the Texas border. So far, the invasive pest has not been detected in our state.

The Emerald Ash Borer (EAB), Agrilus planipennis, a metallic green beetle, was accidentally introduced into the United states in 2002, most likely from imported wooden crates originating in Asia. Since then, despite efforts to quarantine firewood and nursery stock to control it, the beetle has radiated outward from that area to infest Ash trees in 24 states and Canada, killing nearly 100% of the Ash trees in its path. The damage to the tree is caused by the larval stage, which burrows through the inner bark , disrupting the tree's ability to transport water and nutrients. Tens of millions of trees in the affected states have been killed, causing huge economic losses as well as significant ecological disruption. There are 282 species of arthropods that rely on Ash trees for food and shelter, including 42 species that feed exclusively on Ash. These creatures now face possible extinction if the Ash population is not saved. The large and sudden die-off of Ash trees in infested areas has caused disruption to the tree canopy and the forest floor, affecting native plants, animal habitat, and soil composition.

Each year the Heartwood Chapter of Master Naturalists conducts an invasive pest monitoring program in conjunction with the National Early Detection and Rapid Response (EDRR) Project. EDRR is a U.S. Forest Service project that attempts to identify areas

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OCTOBER

October 4 – Estuaries 101, designed for MNs by John O'Connell, County Extension Agent for Coastal and Marine Resources in Brazoria County**. Jones Park in Humble, 9am to 4pm.** Learn about the effects of human activities on water quality from upstream creeks and rivers all the way to the Gulf. Estuaries 101 is a comprehensive course on estuaries, the nurseries of marine life. The objective of this course is to familiarize the learner with the physical, chemical, and biological components of Texas estuaries. Students will receive approximately 6 hours of classroom instruction, including hands-on demonstrations. An optional field trip will be planned. The field trip will allow students to exam first-hand the concepts presented during the classroom portion.

18 – All about Composting, with Bob Dailey and Linda Crum, Master Composters with Heartwood Chapter. **Jones Park in Humble, 10am to noon**. Composting is a time-honored tradition. Good, nutrient-rich compost has no bad orders, does not attract varmints and works wonders on your plants. Make your own simply and easily by recycling your leaves, grass and other green waste. Learn how to make compost tea and apply it. Worm composting is a great activity for children, and worms also make great compost for your plants.

25 - TRICKS and TREATS AMONG the TREES-**Jones Park in Humble, 3:30pm - 7pm**. Kids and the young at heart are invited to a free trick-or-treat nature trail and Halloween fun with crafts, live creepy critters, games, hayrides, a critter storybook trail, and more. Costumed trick-or-treaters are encouraged. Proceeds from carnival-inspired games benefit Jones Park.

31 - HALLOWEEN

NOVEMBER

1 – Art from Nature, with Elissa Fletcher, Art Instructor and Heartwood member**. Jones Park in Humble, 10am to 2pm.** *explore, discover, imagine, and express* the magic of our natural surroundings. Discover nature's secrets in a new way of "seeing." Be inspired to play in creative ways to express and record your experiences. Reservations REQUIRED. Details for reservations will follow.

5 - Heartwood Chapter Meeting at **Jones State FOREST, 6pm**

8 - Pioneer Day at **Jones PARK, 10am to 4pm**

13 - Aquatics Science Ed project with DeKaney HS students at **Jones PARK, 9am to Noon** - Volunteers needed!

15 - BSA Service Day at **Jones PARK, 9am to 3pm** - Volunteers needed!

21 - Homestead Tour with ALL groups at **Jones PARK, 1pm to 3pm**

22 - STARGAZING- **Jones Park, 6pm.** Spend and evening learning about the plants, stars, and other celestial bodies with help from the North Houston Astronomy Club. Participants are encouraged to bring telescopes or binoculars. *Reservations required beginning Nov. 12th.*

27 - THANKSGIVING DAY

DECEMBER

(No December Heartwood Meeting)

13 - Whooper Monitoring Workshop with Mark Klym at **Jones State FOREST, times tentative at 10am to 3pm**

20 - CRITTER'S CHRISTMAS - **Jones Park, 10am.** Have you thought of decorating a tree outside just for the critters? Learn how to make decorative edible treats for the birds and other wildlife that visit your yard this time of year.

24 - CHRISTMAS EVE

25 - CHRISTMAS DAY

31 - NEW YEAR'S EVE

JANUARY

1 - NEW YEARS DAY

3 - Birding + Winter Bird Count at **Jones PARK, 7:45am to Noon**

7 - Heartwood Chapter Meeting at **Jones State FOREST, 6pm**

17 - Arbor Day Celebration at **Jones PARK 10am to 4pm**, with Paper Making Workshop with Ginger Winningkoff from **10am to Noon**

18 - Arbor Day continues with Tree ID walks at **10am and 2pm**

31 - Winter Tree Walk at **Jones PARK**, with Tree ID walks at **10am and 2pm**

Meet Ken Kramm

by Kerry Spencer, Heartwood TMN Member

Ken became a Texas Master Naturalist to help others learn about and appreciate nature. He believes this is critically important because the more high-tech our lives become, the more nature we need in order to achieve a natural balance. He learned about the Texas Master Naturalist program in 2008 and was certified in 2009.

In 2009, he established a wildlife habitat initiative (wildscape habitat garden, Bluebird trail, and self-guided nature trail) for the common areas of the homeowners association where he lives. This ongoing project requires regular maintenance, invasive species removal and communication with the HOA Board and residents. In addition to this major project, Ken tries to "give a hand" whenever other Texas Master Naturalist's request assistance.

The project he enjoys most is studying vultures and he frequently give workshops on them. Vultures are mis-understood by the general public. They keep the environment clean by eating dead animals and preventing the spread of diseases like rabies. As a Texas Master Naturalist and member of the Turkey Vulture Society, he helped the Forensic Science Program at Carl Wunsche Sr. High School conduct detailed studies on the impact vultures have on decomposition in a body farm. Rather than human cadavers, the student studied animals at a facility provided by Montgomery County Precinct 3. This project required more than 150 hours volunteer time. See the attached video link for details: https://www.youtube.com/watch?v=1VmOWzhe_Xk

His favorite aspect of being a Texas Master Naturalist is he learned he has a lot of friends who enjoy the same interests. Friends who help others learn about and appreciate nature.

Ken has a popular YouTube Channel (https://www.youtube.com/user/KennethKramm) and Facebook page (https://www.facebook.com/BuschcraftAndNature) that link with his Texas Master Naturalist volunteer activities. Whenever he goes hiking or visits a Texas State Park, people recognize him and say: "Aren't you the guy on YouTube? I love your videos." His YouTube Channel has more than 16,000 subscribers and receives an average of 6,000 hits every day. He receives more than 50 emails every day from subscribers world-wide asking for advice and information on nature related topics.

Being a Texas Master Naturalist has allowed Ken to make changes to his own landscape. His yard is certified as a "Best of Texas Backyard Wildscape Habitat." (http://www.tpwd.state.tx.us/huntwild/wild/wildlife_diversity/wildscapes/). He learned about certification when taking a Heartwood Chapter Workshop in 2008. The Best of Texas Backyard Habitats Program is a joint effort of the National Wildlife Federation and Texas Parks and Wildlife Department that allows Texans to certify under both programs with a single form. Best of Texas Backyard Habitat took the best of the two individual programs and pushed the bar a little higher, challenging Texas wildlife gardeners to create a habitat that seeks to maximize wildlife benefits and highlight sound conservation stewardship within the bounds of urban restrictions.

The Texas Master Naturalist training has also been helpful while traveling. It has taught him about the natural history of Texas and its many eco-regions. He uses the information he has learned every time he travels in Texas. Yes, every time!

Meet Robert Johnston

by Kerry Spencer, Heartwood TMN Member

Robert's love for the outdoors and the environment inspired him to become a Texas Master Naturalist. He majored in Wildlife Biology and minored in Forestry. When he graduated, he went into the Oil and Gas Industry and has been working in the industry for 42 years. The Texas Master Naturalist program gave Robert a way to back into nature and allowing him to volunteer and help on projects. He has been a member of Heartwood since 2013.

Robert is currently working on four main projects and several other projects when possible. The first project is crawfish frog monitoring at Sheldon State Park for the Texas Parks and Wildlife. The second project is the Texas Nature Trackers's Texas Hummingbird Roundup, which provides more insight on conservation and habitat needs for hummingbirds. The third project is CoCoRaHS.org, which stands for Community Collaborative Rain, Hail and Snow Network. This network of volunteers measure and map rain, hail and snow by using measurement tools in order to provide the highest quality data for natural resource, education and research applications. Robert learned about this project while attending the South East Regional meeting in Livingston. The forth project is eBird, which is part of Cornell University. This project is a real-time, online checklist program. This data will become the foundation for a better understanding of bird distribution across the western hemisphere and beyond.

Other projects Robert helps with are the Great Grow Out program with the Katy Prairie Conservancy. This program allows volunteers to grow plants for restoration projects from the comfort of their own home. He also discovered a bridge in Montgomery County that is inhabited by bats, which he now monitors. Another program he participates with is Marsh Mania put on by the Galveston Bay Foundation. This is a nationally recognized community-based marsh restoration and education event for the Galveston Bay area. It's goal is to involve local citizens in hands-on marsh restoration activities while increasing their awareness and appreciation of wetland habitats. Robert is limited by his 50-60 hour work week, so everything is accomplished in the evening or on weekends.

The Texas Hummingbird Roundup is project he enjoys most because he is able to observe how the hummingbirds interact with each other. However, the most rewarding opportunity is participating in Marsh Mania with his two grandsons. The bonding and fun experience is priceless. His favorite aspect of being a Texas Master Naturalist is knowing that his efforts are helping and making a difference.

Currently, Robert is converting to native plant species in his landscape. He has always fed birds and hummingbirds, but now he wants to make sure that what he plants is suitable for them and butterflies as well.

A Message from the President

by Teri MacArthur, Heartwood Chapter President

Here is a way to serve your chapter

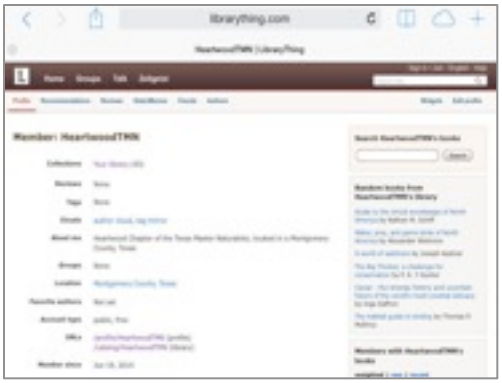
Remember that the president, vice president and secretary of our chapter are all ending their terms (multiple terms in fact) so that there will be open positions on our board. Two other positions, treasurer and chapter rep to the state, have volunteers willing to serve upon confirmation at the November election meeting. (Just a note that I will continue to serve on the board as past president.)

President's duties include chairing meetings - board and chapter - and helping lead the board in organizing and implementing chapter projects.
Vice president in our chapter typically is the primary organizer - themselves or over a committee - to locate, create, schedule and implement volunteer service projects and advanced training events. By recruiting chapter members to chair and serve on a committee, the vice president becomes the overseer and helps in coordinating.
The Secretary, as you would expect, keeps track of meeting minutes and assists with communication to the membership. In Heartwood, the secretary has also typically assisted with securing presenters for our chapter meetings, although if a committee were formed, the secretary could just oversee the effort.

We will hold a business meeting to elect officers to fill all five positions at the November meeting. If no one volunteers for each position, we will have gaps. Our current board members have served for many years past their initial term of office and are ready to relinquish the decision making to some "new blood," so we can see some fresh ideas. Please consider serving the chapter in this way.

Heartwood continued from Page 2

Searching for books in our library is very simple. Notice there are two search bars on the screen. One is for searching LibraryThing. The other is for searching HeartwoodTMN's books. It's important to enter your search terms in the correct search bar. Books can be looked up by author, title, keyword, and series. The books are cataloged using the Library of Congress call number system. Search results should display the call number. If you find that the call number doesn't appear, simply change the STYLE at the top of the results page to A.



The database does a great job of showing what we actually own but not what is checked out. We'll still do that the old fashioned way, with a card in a pocket. To check out books, print your name and the date on the card and leave it in the box on the Heartwood TMN desk. Checking in books, return the correct card to the pocket. If you aren't sure where it should go on the shelf, just leave it on the desk. Library fairies will take it from there!

Now that we have a sophisticated way to access our books, if you're feeling generous and would like to donate naturalist-themed books, just place them on the desk with a note. There are library fairies for cataloging, too!

Two outstanding information resources are available to library patrons of the Montgomery County Library System. One is the ability to search databases that access scientific and popular journals. We also have access to ebooks and audiobooks, free of charge, through Overdrive.

Books in many instances take time to publish. Journals provide more up-to-date information, acting as a more timely resource for our information needs. So let's find some articles!

Start by going to the www.countylibrary.org. Notice under the home page banner there is a link for Databases. Select that link. The next screen groups databases by broad subjects. We are interested in the Sciences, so find that icon and click on it.

There are several broad groupings under science, everything from plant life to biomes to psychology. Select any of these icons and start exploring! Be sure to have your library card handy; you'll need to input your number to have access to these databases.

The Result List screen will show which hits return Full Text articles. Some searches only return the abstract information. You can request full text of these abstracted articles from your local library. For the articles that show a Full Text version is available, click on the Full Text link to read. You can also limit your results to the Full Text version using the menu on the left.

To add more databases to a search from this screen, select the Choose Databases link above the search bar. You can really broaden or narrow your searches here.

You may find that your search is returning puny results. Notice under each title there are additional subjects. These subjects can be used to broaden and refine your searches also.

Explore, explore, explore!

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been damaged by development. She spoke of the importance of enhancing the soil by making an environment friendly to the development of soil microbes. She stressed plants that have a role in nitrogen fixation. In her words, she doesn't need to grow plants. "They know how to do that themselves." She needs to enhance the soil so that they can grow.

Carolyn Langlinais used her experience as a librarian to organize the Heartwood library. A list of the available books is now available on Libraryeverthing.com. Carolyn showed us how to use that web site as well as Overdrive.com, a web site library of e-books.

Ellen Tarbox's hobby is nature photography. She showed us a number of excellent photographs she has taken of wildflowers in a presentation she calls "Wildflowers of Southeast Texas.

Susan Beckemeier related her experience helping Donna Work band red-cockaded woodpecker chicks. In a slide show of pictures taken by her and by Debby Layer that morning, she showed how Donna attached a ladder to the tree where the birds are nesting and fished the babies from their nest.

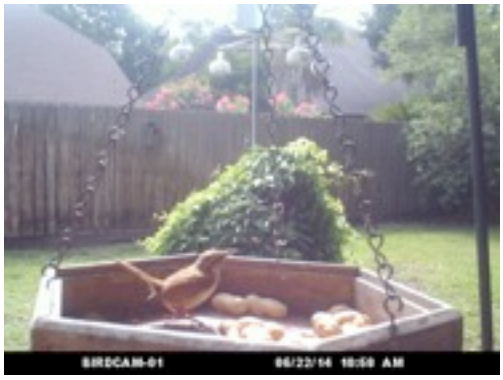
The last speaker was Mark Beckemeier. He has logged more volunteer hours than any other intern, mostly clearing brush for the RCW relocation project. He related that experience to the extinction of the passenger pigeon. Before the last pigeon died in the Cincinnati Zoo 100 years ago, people lined up for hours to look at her. Mark said clearing brush for 40 hours was easier than standing in line to see the very last red-cockaded woodpecker, in view of the sobering reality that only one-half of one percent of their original numbers still survive. That summed up why we do what we do for all of us. We may not be able to save the world, but we can do something.

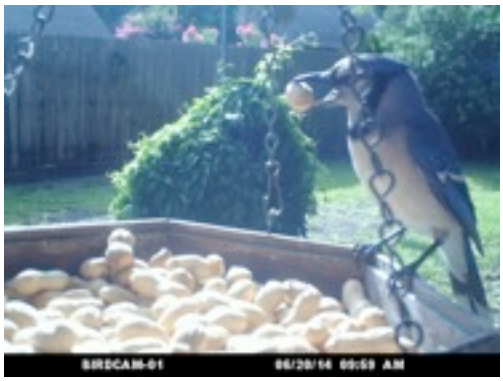
That is just a sample of the presentations by the class of 2014. I hope the interns themselves will expand that information and write articles for this newsletter. I apologize for anything I got wrong or omitted. I really enjoyed working with everybody in the class.

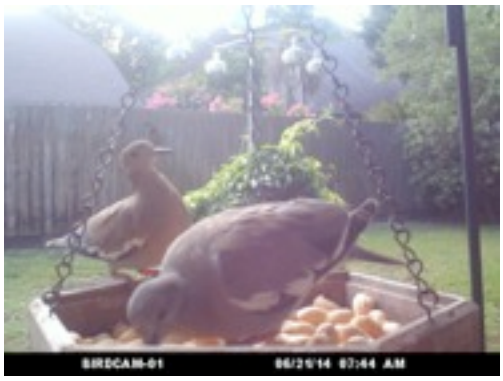
Editor's Note: Claire Moore, Ann Hall, Lora Jorgensen, and Carolyn Langlinais wrote articles for this newsletter.

Automated continued from Page 4

Here are some examples of pictures that I got using the set up above to capture the action at this platform feeder filled with raw peanuts.







In addition to still photos, this BirdCam 2.0 can also take 10 second videos when movement is detected. This can lead to interesting discoveries including interactions between species on the feeders. I have videos of woodpeckers chasing off various other bird species from suet feeders. I also have a video that captures a very quick sequence where a Rufous Hummingbird ran off a Ruby-Throated Hummingbird.

Another interesting feature of the BirdCam 2.0 is the ability to capture time lapse images. It can be set to take photos at various time intervals; then you can use the free software to combine these images into a movie. I have used this feature to make a time lapse movie of several Monarch caterpillars eating all the leaves off a butterfly weed plant over a day and a half. You could also use this to document a construction project, etc.

I tend to use the BirdCam much of the time while pointed at the hummingbird feeder because I love trying to capture images of these tiny birds. Here are some examples of pictures I have captured of hummingbirds.

Other interesting locations to place the BirdCam are at your water feature or even on the ground for some eye-to-eye views of birds walking around. Here is an example.

Other useful features of the BirdCam 2.0 is that it is weather proof, has laser aiming built in and has optional flash capabilities for night time photos.

You never know what types of surprises will great you when you check your pictures!

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potentially threatened by invasive pests including the EAB, detect those threats, then assess the impacts of those pests and respond as needed. Prompt containment and eradication of the pest, when possible, can reduce environmental and economic impacts. Local volunteers are trained how to set traps and monitor them on a regular basis, for a period of 12 weeks, collecting, preserving, and sending all trapped insects to be analyzed by entomologists. The entomologists then enter the resulting data into a national web-based database, allowing invasive species to be monitored on a national basis.

This year, Heartwood Master Naturalists Ann Hall and Lora Jorgensen monitored 3 traps at W.G. Jones State Forest on Hwy 1488 in Conroe, Texas and collected insects from April through June. All collected insects were sent to Entomologist Wood Johnson, at the U.S. Forest service Alexandria Field office in Louisiana for analysis. The results from this year's trapping indicated no invasive species. Will we be so fortunate next year?

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http://www.fs.fed.us/invasivespecies/earlydetection.shtml

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Emerald Ash Borer Invasion of North America: History, Biology, Ecology, Impacts, and Management

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there are fewer than 10 seeds, not enough pollen has reached the flower's stigma to develop all the seeds. Without enough pollen, the apple will be small or perhaps misshapen; without any pollen, the flower will fail to develop into a fruit.

Some garden vegetables that rely on bees for pollination include broccoli, okra and cucurbits, such as cucumbers, squash and pumpkins. Solanaceae (the nightshade family, e.g., tomatoes, peppers and eggplants) store their tiny pollen grains in long, narrow, tubular anthers that require sonication or buzz-pollination from bumble bees (Bombus spp.) to dislodge and spread their pollen.

What Makes Native Bees Such Great Pollinators?

According to Warriner, if the USDA were to pay native bees an annual dollar amount for the pollination service they freely provide, it would be over $3 billion. He asserts that two traits make native bees pre-eminent pollinators: First, their purpose in visiting flowers is to collect pollen to feed their offspring. Using special, long, branched, stiff hairs (scopae) or a pollen basket (corbicula), bees are especially good at trapping sticky pollen, which is then moved from flower to flower. Over the course of one day, a female bee may visit several hundred flowers, leaving pollen behind as she goes. Second, native bees tend to be specific about the flowers they visit. "During a foraging trip," Warriner says, "a female may only visit the flowers of a particular plant species. The benefit of such foraging preferences is that the plants' pollen is not deposited on the flowers of a different plant species and wasted."

Commercial farmers and some home gardeners have come to rely on honey bees to take care of the job of pollination; however, more and more scientists are now reporting that honey bees, while conveniently manageable and transportable, are not necessarily the best pollinators. According to Cornell University entomologist Bryan Danforth, native bees are two to three times better pollinators than honey bees, more abundant than previously thought and not as susceptible to the colony collapse disorder that has devastated honey bee numbers. "An individual visit by a native bee is actually worth far more than an individual visit by a honey bee," Danforth said. "Honey bees are more interested in the nectar. They don't really want the pollen if they can avoid it," he continued. "The wild, native bees are mostly pollen collectors... they are collecting pollen to take back to their nests."

Native Bees Can Augment Pollination of Honey Bees

An impressive alliance of bee researchers from several countries examined the process of pollination in dozens of different crops, including cherries, coffee, strawberries, and watermelons. As they reported in the journal Science, adding wild, native insects, such as bumble bees or carpenter bees, to an ample supply of commercial honey bee hives gave crops a marked advantage. "The surprising message in all of this is that honey bees cannot carry the load," says a Maria Spivak, professor of entomology at the University of Minnesota. "Honey bees need help from their cousins and relatives, the other wild bees. So let's do something to promote it, so that we can keep honey bees healthy and our wild bee populations healthy."

Unfortunately, a subsequent report, also released in Science, made it clear that scientists believe that many native bees are now experiencing population declines. Research has documented range reductions for several bumble bee species across North America. Franklin's bumble bee (Bombus franklini) has been petitioned for protection under the U. S. Endangered Species Act. Texas Parks and Wildlife Department regards 18 native bee species as those with greatest conservation need. Consequently, many scientists are working to help native bees and in turn help farmers who benefit from their invaluable pollination services.

TO BE CONTINUED...

Editor's Note: This article will continue with more great information about native bees in the next edition of our Heartwood Newsletter.

The Texas Master Naturalist Program is a natural resource-based volunteer training and development program jointly sponsored statewide by the Texas AgriLife Extension Service and the Texas Parks & Wildlife Department (TPWD). These agencies have come together in partnership to make this educational volunteer program available to you. Our ultimate goal is to help improve your natural resource understanding and management activities in Texas.

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