Friends of Friedrich Wilderness Park Report
June 2012

This spring, fireflies flickered for mates and a supermoon lit up the night skies in the Natural Areas. As it turns out, the supermoon, which appears every 14 lunar months[1], was not as rare as the fireflies but both were a tremendous site to behold.

The full moon on May 5th was the largest and closest full moon of the year, about 15, 300 miles closer than the average distance[1,2]. However, the supermoon that occurred on March 19th 2011 was 240 miles closer than this year's supermoon[2]. A supermoon occurs when the moon is full and is within 90% of its closest approach to the Earth[1]. The next time the moon will be this close to the Earth will not be until August 10, 2014 for next year's supermoon on June 23rd 2013 will not be as close[1]. According to scientists, the closest supermoon to occur in the 21st century will be on December 6, 2052 when the moon will be 356, 421 km from the Earth[1], 534 km closer that this year's supermoon.

Picture taken by Park Police Officer Stephen Mc Connico
May 5, 2012

Perhaps more rare in the night sky than a supermoon are fireflies. We all remember when we were kids, summer nights were so exciting as we ventured out into the backyard with our insect nets and a glass jar. Fireflies seemed to be in the hundreds. Now, we get excited when and if we are lucky enough to see a few. So what happened? Well, in order to answer that question, we need to know more about the critter we call the lightning bug or firefly.

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[1] Earth & Sky. 2012. Is biggest and closest full moon on May 5, 2012 a supermoon? http://earthsky.org/tonight/is-biggest-and-closest-full-moon-on-may-5-2012-a-supermoon.
[2] USA Today. 2012. Supermoon brightens the night sky. http://www.usatoday.com/tech/science/story/2012-05-05/supermoon-saturday-myths/54777202/1.

The lightning bug is actually a beetle and there are 136 species of them across the world[3]. In Texas, we commonly see two species, the Photinus spp. and the *Photuris pennsylvanicus* (the woods firefly)[1]. Adult fireflies are winged beetles that are soft-bodied and have a bioluminating yellowish green abdomen[1]. The flashes are produced by the chemicals luciferase and luciferin both of which are being used in cancer research as well as heart disease, cystic fibrosis, and multiple sclerosis research[1]. Out of each of the 136 species of lightning bugs, each species has a distinctive rate of flashes per second[1]. These flashes are used by the males to attract females who do not fly but stay on perches on the ground, signaling back to the male[1]. They continue signaling until they find each other and mate[1]. Their eggs are laid directly into the ground and may emit bioluminescence as well[1]. The adults live only 7 to 14 days [4] but their larvae can spend up to two years in the soil as "glow worms" feeding on slugs, worms, and grubs[5].

Lightning bug populations across the globe, however, are suffering. Long-term monitoring programs in Japan for example have noted a decline in populations[6]. The same appears to be true for the United States where the "Firefly Watch" program out of the Museum for Science in Boston was just recently launched in 2009[4]. There are many substantiated theories as to why the firefly populations have declined. These theories include fire ants possibly destroying larvae in the soil, soil compaction, drought, pesticides, development, and light pollution[2,3,4]. Fireflies appear to be sensitive to moisture levels in the soil so drought could potentially have a significant impact on population numbers[4]. Artificial lighting could also have an impact on their ability to properly signal and find mates[3]. Fireflies are not known to travel far from where they hatch[3] so if you have a firefly population in your backyard, it is important to nurture them. Gardening organically and leaving fallen leaves and branches in certain areas of your yard[3] can increase your chances of having future generations of fireflies.

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[3] Brown, Linda. 2004. Beneficials in the Garden: Firefly/Lightning Bug. Galveston County Master Gardeners. Texas A & M University County Extension Agency. http://aggie-horticulture.tamu.edu/galveston/beneficials/beneficial-40_lightning_bug.htm

[4] Riley, Ed and B. Drees. 2011. Texas Fireflies Doing A Disappearing Act, Say Researchers. Texas A & M University News and Information. http://tamunews.tamu.edu/2011/07/19/texas-fireflies-doing-a-disappearing-act-say-researchers.

[5] Turner, Alan. 2011. Lack of fireflies in Houston bugs flashing beetles' fans. Houston Chronicle. http://www.chron.com/life/article/Lack-of-fireflies-in-Houston-bugs-flasing-2080784.php.

[6] Associated Press. 2009. Fireflies disappearing? Say it isn't true! Today Home & Garden. http://today.msnbc.msn.com/id/31191797/ns/today-today_home_and_garden/t/fireflies-disappearing-say-it-isnt-true/

Ecosystem Notes

Since March, staff and volunteers observed the following birds: western scrub jay (*Aphelocoma californica*), black-crested titmouse (*Baeolophus atricristatus*), Carolina chickadee (*Poecile carolinensis*), common raven (*Corvus corax*), northern mockingbird (*Mimus polyglottos*), greater roadrunner (*Geococcyx californianus*), ladder-backed woodpeckers (*Picoides scalaris*), Carolina (*Thryothorus ludovicianus*) and Bewick's (*Thryomanes bewickii*) wrens, eastern phoebe (*Sayornis phoebe*), northern cardinals (*Cardinalis cardinalis*), turkey (*Cathartes aura*) and black vulture (*Coragyps atratus*); chipping (*Spizella passerina*), white-crowned (*Zonotrichia leucophyrs*) and clay-colored (*Spizella pallida*) sparrows, American redstart (*Setophaga ruticilla*), red-shouldered (*Buteo lineatus*) and red-tailed (*Buteo jamaicensis*) hawks, red-eyed (*Vireo olivaceus*), white-eyed (*Vireo griseus*), and black-capped vireo (*Vireo atricapillus*), house finch (*Carpodacus mexianus*), summer tanager (*Piranga rubra*), wild turkey (*Meleagris gallopavo*), ash-throated flycatcher (*Myiarchus cinerascens*), golden-cheeked (*Setophaga chrysoparia*), yellow (*Dendroica petechia*), black-and-white (*Mniotilta varia*), orange-crowned (*Vermivora celata*), and black-throated green (*Dendroica virens*) warblers, yellow-billed cuckoo (*Coccyzus americanus*), lesser gold finch (*Carduelis psaltria*), painted bunting (*Passerina ciris*), great blue heron (*Ardea herodias*), chuck-will's-widow (*Caprimulgus carolinensis*) (heard), whip-poor-will (*Caprimulgus vociferus*) (heard), black-chinned (*Archilochus alexandri*) and ruby throated (*Archilochus colubris*) hummingbird, and great horned (*Bubo virginianus*) (heard), barred (*Strix varia*) (heard), and eastern screech owls (*Otus asio*) (heard).

Staff also observed a first ever "golden" porcupine (*Erethizon dorsatum*) at Rancho Diana as well as a gray fox (*Urocyon cinereoargenteus*) and a coach whip snake (*Masticphis flagellum testaceus*). Feral hogs continue to devastate vegetation in the Natural Areas especially in the endangered Black-capped vireo management areas and the katydids make it impossible to hear anything these days because they seem to be in the billions.

Friedrich Wilderness Park

The trailhead/kiosk construction is proceeding well. Some delay was experienced with the early May rains. About half the sidewalks are completed and the large concrete pour for the pavilion and kiosk is scheduled for the week of June 11. The hardscape is essentially complete. The San Antonio Native Plant Society donated the large trees for the landscape. Other plant material will be ordered in the next few weeks. Interpretive panel design is completed and we will now work on fabrication. We would like to tie the dedication ceremony in with the Friends' annual meeting.

Texas Parks and Wildlife has awarded the Friends the Trail Grant. We think. It was announced in their recent newsletter but we have not yet seen/received formal notification. We have contacted S and S Trail Services who we anticipate

using for the project. After getting them under contract, they will finalize a trail layout based upon staff's preliminary layout. Then an archaeological survey will be performed prior to initiation of trail building (after bird season).

The large water bar on south leg of Main Loop has been reworked to improve the loose tread. We are installing an experimental handrail to see if this also helps. The small bridge to a bench on the lower trail has been closed due to hazardous boards. The Eagle Scout candidate that requested this project has defaulted. We will look at soon doing this in-house. Fern Dell Trail and the north slope have received lots of repairs. Staff has done minor repairs to asphalt in parking lot.

Fencing of 24 acres addition to Friedrich is completed.

At Woodland Hills West, volunteers built and placed about 20 wildlife exclosures to protect seedlings/saplings of selected tree species including escarpment cherry, cedar elm, and TX red oak. The hope is that protecting these young trees will maintain or improve future hardwood canopy cover, particularly in golden-cheeked warbler habitat.

Staff and volunteers began removal of the flagging tape used to mark "to be cut" areas and "keeper" trees as part of woody species management. Volunteers also removed junipers that were left by the contractor because of the junipers' location near large "keeper" trees.

Volunteers pulled invasive plants including Malta star thistle and cabbage mustard.

Crownridge Canyon Natural Area

Volunteers removed cabbage mustard and Malta star thistle from not only the wildflower meadow in the front, but also parking lot beds, the switchback planted area, along trails and the strip between the sidewalk and the Natural Area along Luskey.

Eisenhower Park

A current project has added a cedar log fence along the edge of the restoration area in the center of the park, and will soon include 3 new benches at the wildscape and restoration area near the restrooms.

The solar powered lights and ventilation fan on the composting toilets have been repaired.

Nest box monitoring team continued to monitor boxes at EP. No bluebirds, but many other birds are using the boxes.

Staff removed Malta star thistle in the parking lot and along Cedar Flats Trail.

Volunteers successfully completed golden-cheeked warbler surveys. Compared to last year, there was limited activity at the park. We did not have a bird nesting over a trail as we did last year. We still need to look at the data a little more carefully to determine how many birds were on the property this year.

It was a very interesting year for the bracted twistflower (*Streptanthus bracteatus*) population. A moist fall and winter led to great germination rates but the dry spell in April caused many plants to dry up before they were able to bloom while others did not have enough resources to set seed. By the end of April of the 71 plants left standing, only 21 made siliques (fruits). The population was also guarded this spring by a mild mannered diamond-backed rattlesnake (*Crotalus atrox*). Staff had two encounters with this snake on two different occasions.

A recent Eagle Scout candidate project completes the standardization of trail signage in all the Northern Natural Areas. This replaces the old propped up trail signs with the NA standard capped 8 x 8 post and signage that includes ADA rating, trail length and shortest route to exit the park.

Another Eagle Scout candidate successfully completed his project that consisted of installing a rainwater harvesting system on one of the buildings with a wildlife watering station diverted into the woods.

Rancho Diana

An attempt was made to document the location and status of every Streptanthus plant at the Rancho Diana population. To date, approximately 150 plants have been located and tagged out in the field. GPS coordinates for the plant as well as data on the health and status of the plant were also documented. US Fish and Wildlife Services has awarded a $10,000 grant through the Friends to help the city fence the population from herbivores like the white-tailed deer that have proven to have a negative impact on this species. We look forward to getting started on this fence in the fall.

A cow bird trap has been stationed on the property. This was our first year running the trap with the help of volunteers. We hope that next year will be even more successful than this year!

Golden-cheeked warbler surveys were completed on the property but the data still needs to be processed before we can know how many birds those surveys yielded. Black-capped vireo surveys are being completed on the property and it is shaping up to be a very productive season.