



Nature Notes

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President's Corner

Rich Thoma

Happy holidays to everyone in WGNSS. I hope you are enjoying the winter, watching birds at the bird feeders you've set out, catching sight of that first Bald Eagle or Trumpeter Swan at one of the nearby refuges, going for hikes on these clear crisp days or curling up in a blanket and enjoying a great nature novel. There are so many things to enjoy at this time of year; it's hard to decide what to do.

When thinking about things to do, don't forget about the **joint WGNSS – Audubon Society winter party**. **This year's event takes place on Sunday, January 30, from 1:30 to 4:00 at the Green Center in University City.** This is a great chance to spend an afternoon with your fellow naturalists, enjoying great stories about your adventures in the field. If you plan to attend, we ask that you bring a dish for all to enjoy. See the winter party announcement in this issue of *Nature Notes* for further details.

Changing subjects, please let me draw your attention to an issue that currently affects all who enjoy visiting the few remaining prairies in Missouri. You may have read in the Missouri Conservationist or the Missouri Prairie Journal how the Missouri Department of Conservation (MDC) has implanted a policy known as Patch-Burn Grazing (PBG) on several Missouri prairies. **Mike Leahy**, Natural Areas Coordinator for

MDC spoke at the December 2010 WGNSS board meeting about the PBG policy. We learned that this management technique is meant to create a mosaic of prairie microhabitats within the prairie that will create the greatest diversity of prairie endemic plants and animals. This includes creating suitable habitat for the Greater Prairie Chicken. Recently, Don Kurz, retired Natural History Lands Specialist for MDC, and well renowned prairie expert, with over 30 years experience has written a report strongly criticizing the PBG policy of the MDC. Don is very concerned that the PBG policy is not the best way to preserve Missouri's prairies. In order for all in WGNSS to better understand this issue, I have written an introductory report on PBG in this issue of *Nature Notes*. It includes several references to the major reports written for and against the PBG policy. I strongly encourage all in WGNSS to read these publications and to formulate your own opinions about the PBG policy. At the January 5th board meeting, the board will continue the discussion about the PBG policy and potentially formulating a response. We on the board would like to hear from as many members in WGNSS as possible before that board meeting. In addition to contacting a board member, we are also offering you the opportunity to offer your opinions on-line. To give us an on-line opinion, go to the WGNSS web site and navigate to the "Upcoming Events" page. On the left select "Hot Topic: Missouri Prairies". On this page you can enter your thoughts on the Patch-Burn Grazing policy, and see what others have

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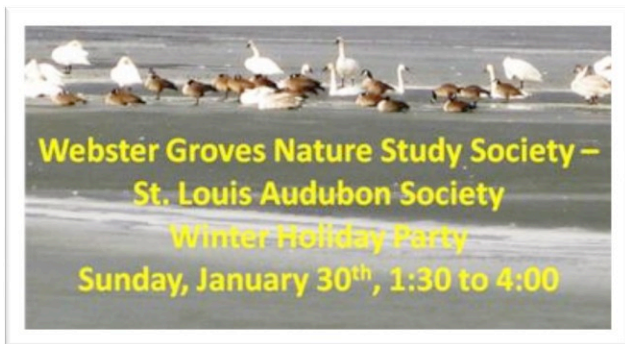
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written. You have the option to sign your name or to enter your thoughts anonymously. If you have problems using the site, please contact the WGNSS webmaster, Anne McCormack (annemccormack@sbcglobal.net).

One final note! Long time Ornithology Co-Chair and WGNSS Board Member **Jim Zoebel** is stepping away from these roles. Over many years of service, Jim has done a tremendous amount of work to make WGNSS a better organization. We thank Jim for his efforts and wish him well in the years to come. Jim will be sorely missed.

WGNSS Winter Holiday Party



Mark your calendars for **Sunday, January 30, 2011** for the WGNSS – St. Louis Audubon Society Winter Holiday Party. The party will be held from 1:30 – 4:00 p.m. at **The Green Center, 8025 Blackberry Ave., University City, Missouri**. All naturalists are welcome! Bring a dish, beverages will be provided, and door prizes will be awarded! To get there, take I-170 to Delmar, go east through 4 stoplights and turn left on North and South Road, then left again on Blackberry. [See you there!](#)

November Bird Report

Compiled by Jim Ziebol

November was typical for a fall migration affected by Global Warming. Nothing remarkable occurred except for only the second flyover sighting of Whooping Cranes ever in the fifty mile radius. While golfing at Raintree Golf Course, near Hillsboro, MO on 11/2, Bill Heady and another birder observed a flock of 20+ Sandhill Cranes and three Whooping Cranes pass overhead. Bill is an accomplished birder having seen 600+ species in North America.

The high count for Common Loon was only eight birds seen at both HL and RMBS on 11/20-D. Becher, WGNSS. This species is really in trouble and probably is slowly disappearing in the St. Louis area. Reported high count for Horned Grebe was only in the mid teens at HL-F. Holmes. Both Great Egret and Black-crowned Night Herons were present at HL all month.-P. Leuders, F. Holmes. Two hundred plus Trumpeter Swans are wintering near RMBS again this year. Two Ross’ Geese were sighted during November-one at HL-F. Holmes and one at RMBS on 11/27-J. Cowan. Two Surf Scoters appeared at RMBS on 11/2-J. Chain, J. Allen and 2 to 8 Black Scoters were also present there on 11/10-D. Becher, WGNSS. Dave remembered back to the early 1980’s when White-winged Scoters were easiest to find in St. Louis and Black’s were very, very difficult. Buffleheads were seen in record numbers with 100 at RMBS and 80 at HL on 11/20-D. Becher, WGNSS. On 11/27, a Greater Scaup pair posed on the near shore at RMBS for several birders-C. Alwood, Y. Homeyer, mob. Two

Roughlegged Hawks were a very good find at CCNWR on 11/21, along with a Plegadis Ibis-D. Haenni.

The passerine migration was also typical with no remarkable birds found. A Phoebe was seen along with an adult Bald Eagle at Klondike Co. Pk, St. Charles Co. on 11/20-Y. Homeyer. Both Kinglets were seen in St. Louis until the end of November. A Yellow-crowned was seen at HL on 11/27-B. Rudden. A Pine Warbler was a good bird in TGP in early November-C. McClarren. On 11/18, an early American Tree Sparrow was seen with a Winter Wren at HL-J. Ziebol. The appearance of a Snow Bunting in early November in a mixed flock of Lapland Longspurs was unexpected-D. Becher, WGNSS as well as a flock of American Pipits-R. Widmer, all seen at RMBS.

Backyard Birds: Sherry McCowan reported the following backyard birds; 10/1 Swamp Sparrow, 10/13 Song Sparrow, Orange-crowned Warbler, 10/28 Orange-crowned and Eastern Towhee, 11/1 HY White-crowned Sparrow, 11/25 Eleven Juncos. Sherry also reported a Cooper's Hawk as a frequent visitor.

Abbreviations: CCNWR, Clarence Canon National Wildlife Refuge; HL, Horseshoe Lake; mob, many observers; RMBS, Riverlands Migratory Bird Sanctuary; TGP, Tower Grove Park.



October Botany Report

Compiled by George Van Brunt

October 4, 2010 – East Central College Foundation property, Warren County, MO
(contributed by Steve Turner).

Time: 9:30 - 11:30 am.

Conditions: Sunny, temperature low 50s to upper 60s F.

Participants: Wayne Clark, Nancy Clark, Bill Davit, Jack Harris, Pat Harris, Don Hays, Jim Jackson, Louise Langbein, Ken Lefarth, Peggy Lefarth, Jeannie Moe, Fr. Sullivan, Steve Turner, and George Van Brunt.

The day's destination was a roughly 70 acre plot of land, previously willed to the East Central College

Foundation on the condition that it be left undeveloped and used for educational purposes. The area of our investigation comprised a roughly hemicircular patch south of the Katy Trail about 1.1 to 1.5 miles northwest of the Katy trailhead at Dutzow. The area is fairly wet, containing at the time of our visit several shallow ponds, sloughs, and/or swampy areas. Dry access was provided by a raised berm, originally constructed in 1964 and rebuilt in 2006, which began at the Katy Trail and described a curved arc through the area.

The group of fourteen botanists began the day's investigations at a small parking area near a Katy park bench. As usual for this stage in the seasonal cycle, the number of flowering specimens in evidence was not large. The first "test" of the day was *Symphiotrichum ontarionis* (Ontario aster), which is a leafy plant with small white flowering heads and "football shaped" leaves. Also in the vicinity were both of the Missouri species of *Impatiens*: *I. pallida* (pale jewelweed) and *I. capensis* (spotted jewelweed). In addition to flowers, both of these species bore numbers of their explosively dehiscent seed pods, which are responsible for the alternative common name of "touch-me-not". The small seeds, which are green when young and black when mature, are edible, with a flavor reminiscent of walnuts. Other common plants observed near the outset were *Ageratina altissima* (white snakeroot), *Pilea pumila* (clearweed, in fruit), and *Perilla frutescens* (beefsteak plant).

Additional species became evident as we moved southeastward down the Katy trail: *Ipomoea hederacea* (blue morning glory), *Solanum ptycanthum* (black nightshade, flowers and fruit), *Sicyos angulatus* (bur cucumber, in fruit), *Smallanthus uvedalius* (bearsfoot), *Elymus hystrix* (bottlebrush rye), *Xanthium strumarium* (cocklebur), *Fallopia scandens* (false buckwheat), *Erechtites hieracifolius* (pilewort or fireweed), *Rudbeckia triloba* (brown-eyed Susan), *Rudbeckia laciniata* (goldenglow), and *Smilax tamnoides* (bristly greenbriar). A white aster, which would have been showy had it not been covered with dust from the nearby gravel road, was later keyed to *Symphiotrichum lanceolatum* (tall white aster), though differentiation from *S. lateriflorum* and *S. dumosum* was not completely unambiguous. Several euphorbs were also seen along the Katy trail; one which was relatively easy to identify was *Acalypha ostryifolia* (roughpod

copperleaf), which is the only *Acalypha* with a terminal spike inflorescence. In this species, the terminal spike is pistillate, while the axillary inflorescences are typically staminate.

Moving off the trail and into the wetland area, we noted that the standing water in the area was largely covered with *Lemna* sp. (duckweed), which is a flowering monocot and not, as sometimes assumed, an alga. Numerous examples of *Hibiscus laevis* (halberd-leaved rose mallow) were present near the water's edge, and a few of these plants were still in bloom. Specimens of a white-flowered smartweed were keyed to *Persicaria hydropiperoides* (mild water pepper) by the absence of punctate or glandular hairs on the sepals, distinguishing this species from *P. hydropiper* (water pepper). Several specimens of *Sium suave* (water parsnip) were found. These were in fruit, with seeds closely resembling carrot seeds, as befitting the plant's membership in the Apiaceae (carrot) family. This plant can be distinguished from the similar-looking *Oxypolis rigidior* by its regularly and finely toothed leaflet margins, contrasting with *Oxypolis* leaflets, which have only a few, more randomly distributed teeth. Also observed in the wetland area were numerous specimens of *Ilex decidua* (possum haw), *Cephalanthus occidentalis* (buttonbush), *Bidens* sp. (beggar's ticks), and *Scutellaria lateriflora* (mad dog skullcap) (all in fruit).

Several isolated specimens of *Lonicera maackii* (bush honeysuckle) were seen; at present, this troublesome and invasive species has not yet become dominant in this area. Another troublesome plant which was well represented was *Toxicodendron radicans* (poison ivy), with many specimens sporting the numerous white berries characteristic of this species. Its lavish abundance in the woods at the end of our trail prompted some members of the group to retrace their steps rather than bushwhack the final hundred yards of the loop.

October 11, 2010 – Victoria Glade Reserve, Jefferson County, MO (contributed by Kathy Thiele).

On a beautiful, somewhat colorful autumn day the following botanists met for a stroll on the glade: Fr. Sullivan, Ruth TenBrink, Steve Turner, Kathy Thiele, George Van Brunt, Wayne Clark, Nancy Clark, Sylvia Hosler, Jack Harris, Pat Harris,

Michele Lee, Larry Morrison, Jeannie Moe, Bill Summers, Louise Langbein, Sue Schoening, and Theresa Arnold.

The Victoria Glades are actually two glade areas across the road from each other. Victoria Glade Reserve is owned by the Nature Conservancy and consists of 101 acres. The other area, Victoria Glades Conservation Area, is comprised of 239 acres and is managed by the Missouri Department of Conservation. On this day we explored the Nature Conservancy area.

Our journey began with a short trip through some woods to get to the glade. As soon as we stepped on the trail, Fr. Sullivan began identifying the various asters in bloom. Now mostly in the genus *Symphotrichum*, the asters can be a bit of a challenge to some of us and this was a good place to practice our I.D. skills. We found *Symphotrichum lateriflorum* (white woodland aster), *S. lanceolatum* (tall white aster), *S. ontarionis* (Ontario aster), *S. pilosum* (white heath aster), *S. urophyllum* (prairie aster), *S. oblongifolium* (aromatic aster), *S. parviceps* (small white aster), and *S. oolentangiense* (azure aster). Pat and Jack Harris came armed with a copy of an aster key given to them many years ago by Edgar Denison. Consequently, they often found people peering over their shoulders at this key and in the end they decided to email a scanned copy to the group.

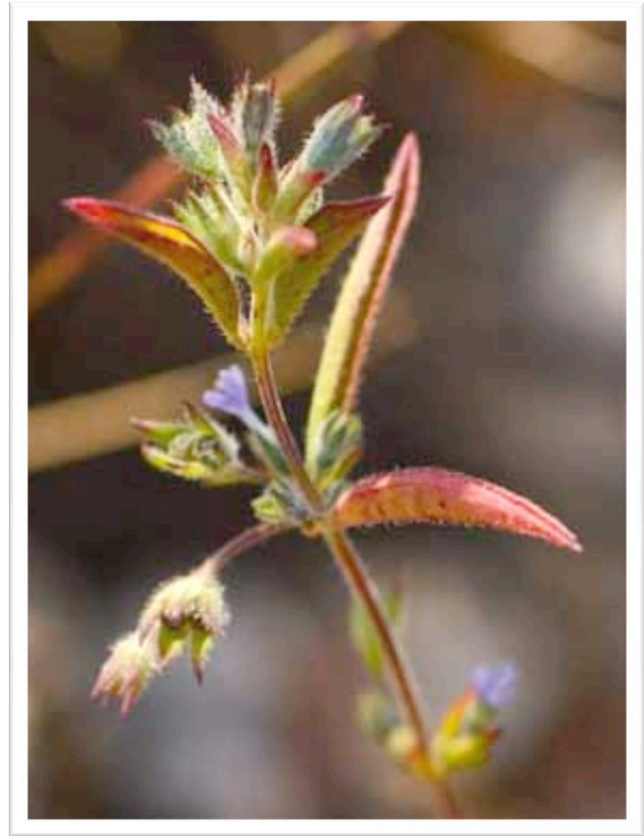
Bill Summers found *Solidago rigida* (rigid goldenrod). This is one of the few goldenrods that tend to work well in a home garden. It has a nice golden head and a clump forming habit.

Once *Spiranthes magnicamporum* (Great Plains ladies'tresses) was spotted, we seemed to find them everywhere. In fact, they may have been the most prolific species of the day. *Spiranthes magnicamporum* is closely related to *S. cernua* (common ladies tresses) but seems to like limestone glades rather than the acid soils that *S. cernua* prefers.

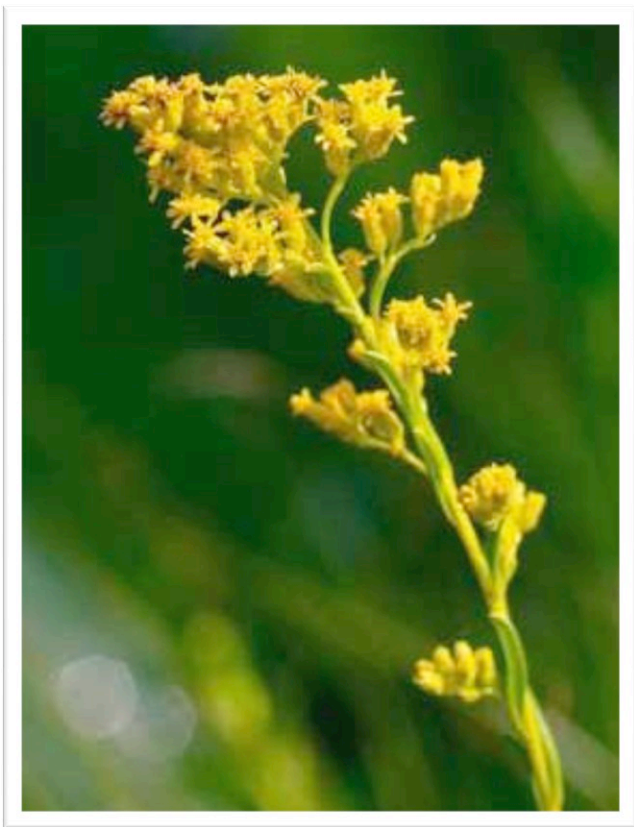
We also sought out and found gold that day – goldenrod actually -- *Solidago gattingeri* (Gattinger's goldenrod). Gattinger's goldenrod is named after Augustin Gattinger, a medical doctor and the first state botanist of Tennessee. Outside of Tennessee, this goldenrod is pretty much restricted to Missouri. Fr. Sullivan pointed out that that the involucre is almost as yellow as the flowers so it



Spiranthes magnicamporum seemed to be coming up everywhere on the glade. Photo by Jeannie Moe.



The reddish tinge of *Trichostema brachiatum* stood out among the browns and yellows of the glade. Photo by Jack Harris.



Our “gold” strike of the day was *Solidago gattereri*. Photo by Jack Harris.

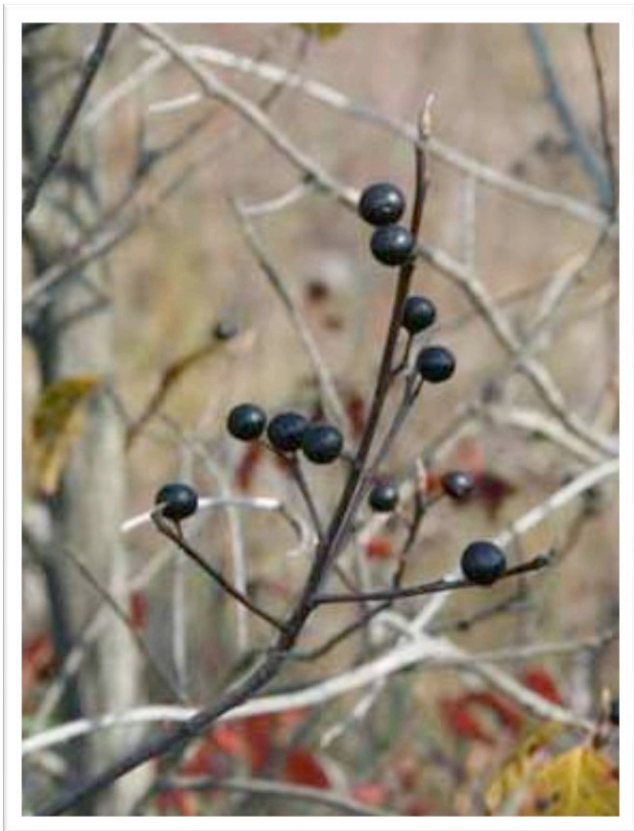
looks as though it’s still in bloom even after the petals are gone.

The unusual reddish coloration of the *Trichostema brachiatum* (false pennyroyal, also known as fluxweed) foliage caught the eye of one botanist. *Trichostema* is also the genus of *T. dichotomum* (blue curls) but *T. brachiatum* has tiny uncurled blue flowers. The name fluxweed was used for *T. brachiatum* because it was used to treat flux, a term formerly applied to dysentery. Harry Potter fans may remember that fluxweed was used in the making of the Polyjuice Potion. As with many members of the mint family, *T. brachiatum* is quite aromatic.

Another very aromatic mint we found that day was *Pycnanthemum pilosum* (hairy mountain mint). The leaves and flowers are both medicinal and edible. The purported medicinal properties include, among other things, its use for indigestion, mouth sores, colds, chills, and fever. It is supposedly also a good insect repellent so if you rub your pants with the plant before entering the woods it will repel the nasty biting bugs. Anyone willing to test



Gentiana puberulenta was a pleasant surprise for us. Photo by Pat Harris.



These *Rhamnus caroliniana* berries looked good enough to eat. Photo by Kathy Thiele.

this theory? According to Fr. Sullivan it is called “mountain mint” because it looks snow capped.

We all got a big surprise when Theresa Arnold wanted to know what a particular blue flower was and it turned out to be *Gentiana puberulenta* (downy gentian). *Gentiana puberulenta* is an intense blue that is absolutely breathtaking and none of us could remember having seen that plant at Victoria Glade before.

October 18, 2010 – Washington State Park,
Washington County, MO (report pending).

October 25, 2010 – Robertsville State Park,
Franklin County, MO (contributed by George Van Brunt).

Steve Turner, Ruth TenBrink, Wayne Clark, Nancy Clark, Maggie Hover, Kathy Thiele, Jack Harris, Burt Noll, Jeanne Clauson, Juanita Feigenbaum, John Oliver, and George Van Brunt were supposed to meet Fr. Sullivan in the boat launch parking area of Robertsville State Park but instead met him at the side of North Montgomery Road, the road leading to the park. Fr. Sullivan, who arrived first, noticed a large clump of *Symphotrichum praealtum* (willow-leaved aster) growing next to a ditch between the road and the adjacent railroad tracks. Unlike many plants which are turning brown at this time of year, these plants were in full bloom with healthy green leaves. As each person arrived, he or she parked by the side of the road, got out, said hello, and inspected the plants. Many photographed them as well. Willow-leaved aster grows to about 5 feet in height and thrives in wet areas like the ditch where we found it. The numerous closely bunched flower heads are each about 1 inch in diameter with lavender rays and yellow disks. This species is grown commercially and is found in many home gardens. Its natural range is the eastern two thirds of North America as far west as Colorado and New Mexico.

At 9:30am, we drove the remaining distance to the boat launch parking area and began our walk through Meramec River bottomland forest. Here we saw many species in fruit, many becoming senescent, a few still in bloom, and a few showing fresh green leaves for next spring. *Verbesina alternifolia* (wingstem) were widespread with their small, globular fruit clusters. Also very common in this area were *Asimina triloba* (pawpaw). We did not see any fruits and several members commented



Carex grayi fruits May 1, 2006. Photo by George Van Brunt.

that they had seen very few pawpaw fruits this year. Many small, green specimens of *Symphyotrichum ontarionis* (Ontario aster), a flood plain loving species, were growing here. Also abundant were flowering and fruiting *Persicaria punctata* (dotted smartweed), fruiting *Boehmeria cylindrica* (false nettle), and green leaves of *Pilea pumila* (clearweed).

Eventually we came to a powerline cut and entered a moist prairie-like area. We walked parallel to the cut for a while and then crossed it and re-entered the forest. In the cut, we found *Carex grayi* (Gray's sedge) in fruit. This sedge was named for Asa Gray, 1810-1888, an American botanist and professor at Harvard University, author of *Gray's Manual of Botany*. Its spherical fruiting spike resembles an early space satellite and Fr. Sullivan jokingly calls the species *Carex sputnikii*. The fruits had dried and turned brown unlike the early season photograph shown below. We also found *Rubeckia laciniata* (goldenglow) and *Symphyotrichum pilosum* (white heath aster) both in bloom.

Back in the forest we found *Blephilia ciliata* (Ohio horsemint), *Elephantopus carolinianus* (Carolina elephant's foot), *Diarrhena americana* (American

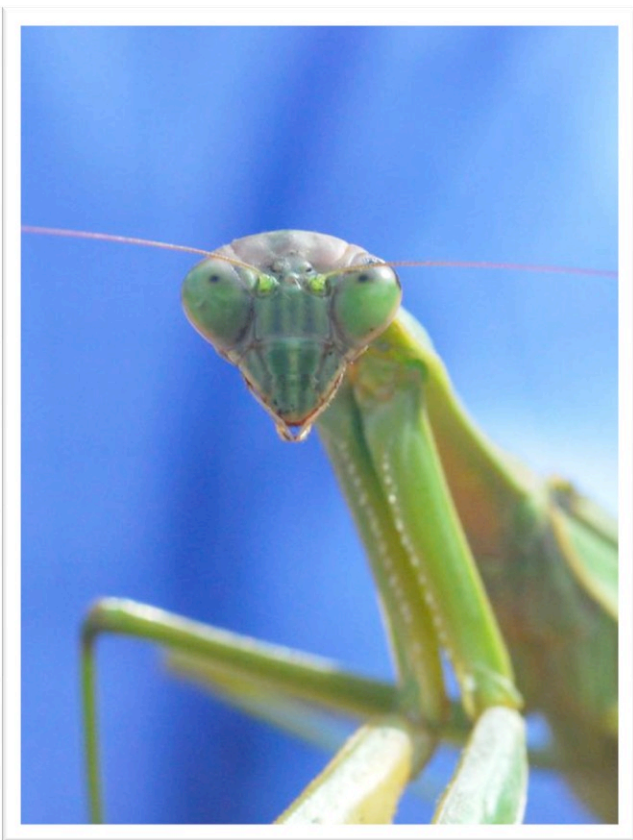


Aplectrum hyemale winter leaf. Photo by Steve Turner.

beakgrass), and *Lindera benzoin* (spicebush) in fruit. Jack Harris discovered the first *Aplectrum hyemale* (Adam-and-Eve orchid) winter leaf of the season after which, we found many more. Burt Noll spotted some small white spots on a dead grapevine which he examined closely and found to be bird's nest fungi. Bird's nest fungi are in the family Nidulariaceae of phylum Basidiomycota (club fungi). Other familiar members of Basidiomycota include mushrooms, puffballs, shelf fungi, and rusts. Species in family Nidulariaceae develop small fruiting bodies which at first are completely enclosed. The top disintegrates to leave a nest-shaped structure filled with egg-like peridioles. The peridioles are filled with spores and are surrounded by a waxy coat. The "nest" is a splash cup and when a raindrop falls into it the peridioles are ejected and settle on nearby plants or the ground. The peridioles may be eaten by herbivores and distributed in their feces or may grow where they land. These fungi are saprobes, growing on dead organisms, contributing to their decay. The species Burt found was *Crucibulum laeve*. Their nests are about 4 mm in diameter. For a more detailed description of these fungi go to <http://en.wikipedia.org/wiki/Nidulariaceae>.



Crucibulum laeve (bird's nest fungus). Photos by Jack Harris.



Tenodera sinensis (Chinese mantid). Photo by Steve Turner.

Finally, we emerged from the woods onto the road and walked back to the parking lot. Along the way, we saw *Prunella vulgaris* (self-heal), *Agalinis tenuifolia* (narrow-leaved false foxglove), and *Lobelia inflata* (Indian tobacco) in bloom. *Hibiscus lasiocarpus* (rose mallow), *Cyperus esculentus* (yellow nutgrass), *Eupatorium altissimum* (tall boneset), and *Cirsium discolor* (field thistle) were in fruit. Also in fruit was *Tridens flavus* (purple top, grease grass) a native grass which, when you rub it with your hand, has a greasy feel and leaves a greasy residue. This is due to secretion of greasy or sticky globules at the branch points of the inflorescences and upper stem nodes. (George Yatskievych, *Flora of Missouri*, Volume 1, page 738). We also found a very cooperative *Tenodera sinensis* (Chinese mantid) which allowed Jack to pick up the leaf on which it was sitting and pose it for photographs. This species was imported to the United States around 1895 for the purpose of pest control and is now widespread here.



November Entomology Report: How Bugs Got Their Wings

Jane Walker

We can't draw on the fossil record because it is incomplete.

Fourteen members of the Entomology Group met at Bush Wildlife Conservation Area on Thursday November 18 to hear Rich Thoma talk about the

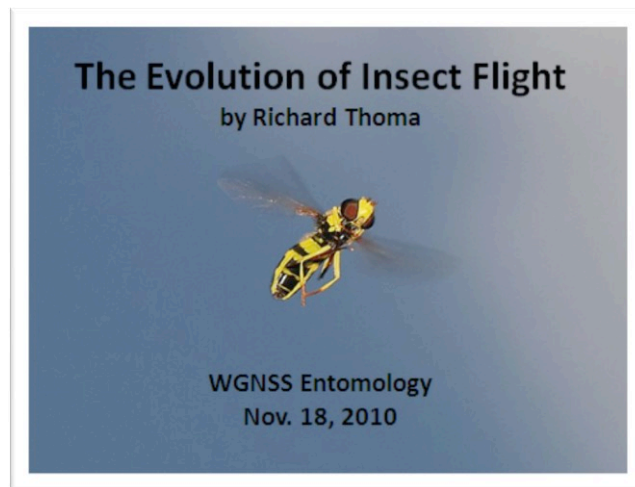


Photo credit: Alvesgaspar, <http://en.wikipedia.org>.

evolution of insect flight. This was a great topic for Rich because it combined his personal interests in insects, fossils, and evolution. Insects first arose 400 million years ago during the Devonian Period of the Paleozoic era. These first insects were apterygotes or “wingless”. The first winged insects appeared during the Carboniferous period, 350 million years ago. We know this from the fossil record. Some of the insects from the Carboniferous were huge with three foot wing spans. Most of the insect fossils come from Florissant, Colorado and Elmo, Kansas.

While fossil evidence can be scarce for insects, enough fossils have been found to begin to piece together information on the evolution of insect flight. First, we know that insect flight probably only arose once in the past. The wing venation found fossils is basically unchanged in modern day insects. But how insects actually got their wings is less clear. Three theories help explain how insect wings and flight came to be. One theory postulates that wings arose from flaps located on the pronotum of the thorax. The second postulates that wings originated from gills and the third theory says wings began as some extension or structure on the legs. Which theory is correct awaits more fossil evidence. Rich believes this is a matter of time and that new fossils are continuing to be found. Just recently a large fossil bed dated from 120,000 years ago has been found in Denver, CO. This fossil bed is not only has a wealth of large mammals, it is also rich in plant and insect fossils. While the fossils are too modern to learn more about insect origins, they may fill in other pictures and information on the insect class.

Thanks to Mike Arduser for hosting the meeting at Bush Wildlife. We will not be meeting in December. Our next meeting will be January 17, 2011 at the Butterfly House. Our guest speaker will be James Trager. The title of his talk is “Fire and Natural Area Arthropods - A Review”. In conjunction with this talk, we may be able to start a group project, looking at the effects of burning on insects. Mike Arduser suggested the possibility of such a project at LaBarque Creek Conservation Area, soon to become LaBarque Creek Natural Area. Mike said that MDC was in the process of developing a burning plan to start restoration of the glades. As a group, we may be able to develop

baseline information to be tracked over time. Come with your ideas.



Patch-Burn Grazing

Rich Thoma

Yet the more we love this place as it is, the more we feel the pain of what it so recently was. The wild prairie ecosystem is gone. And this tragedy is compounded by the realization that we don't even know exactly what it is we have lost. - Candace Savage (2004)

One hundred fifty years ago, nearly half the state of Missouri was covered in tall grass prairie. Today, nearly all of that disappeared, as our ancestors turned that vast prairie ecosystem into farmland. What remains of the original millions of acres is approximately 90,000 acres, and of the 90,000 acres, almost all of it has had some human impact such as haying and/or cattle grazing at some point in its history. As Candace Savage said, in Missouri, the wild prairie ecosystem is gone. The best we can say for these remaining prairies is that so far as we know most have not been plowed. There's not much land to work with, preserve and return to its natural state.

Prairies are considered very dynamic being shaped by rainfall, fire and the animals that feed on the plants. A prairie is constantly changing. If we took away fire and/or grazing animals, a prairie would in a few short years become something else. We know that in Missouri, cedar trees swiftly invade undisturbed prairies. Fire is essential to prevent the invasion of woody plant species. We also know that Bison had a major impact on shaping prairies. Bison ate primarily grasses, allowing other forbs be part of the prairie ecosystem increasing species diversity.

We the citizens of Missouri have asked our state agencies, primarily the Missouri Department of Conservation (MDC) and the Missouri Department of Natural Resources (primarily Prairie State Park) to be to be the land stewards, protecting the few remaining prairie ecosystems in

the state. For each department, one of the major goals (though not the only one) is to preserve what prairie remains and if possible return the prairie to what is believed to be its natural state. That is not an easy task!

No one really knows what a natural prairie looks like. We have some good ideas based on the writings of early pioneers such as Lewis and Clark and Henry Schoolcraft. There is also a growing body of scientific knowledge from all over the country about the many prairie endemic plant and animal species and the interactions that create the prairie ecosystem.

Based on this historical and scientific knowledge, the MDC has recently implemented a policy known as Patch-Burn Grazing (PBG) on several of Missouri's prairies including Hi Lonesome, Taberville, Wah 'Kon-Tah, Niawathe, and Bethel prairies. PBG is believed to be based on the best historical and scientific knowledge and is being successfully implemented in nearby Kansas and Oklahoma. Briefly, PBG divides a prairie into three parts. During spring of the first year, 1/3 of the prairie is burned. Cattle (a close mimic of the bison) are then allowed to graze on the whole prairie. Preferring new growth, the cattle spend the majority of their time feeding in the freshly burned section of the prairie. During year two, another 1/3 of the prairie is burned and cattle are once again allowed to graze during the summer months. The last third is burned in year three. The prairie is then left undisturbed (no fire, no grazing) for 2 to 5 years. The goal is create a mosaic of prairie microhabitats that will create the greatest diversity of prairie endemic plants and animals. MDC's additional goal is to create suitable habitat for the Greater Prairie Chicken restoration efforts. Bonnie Chasteen and Malissa Underwood each wrote articles about PBG in the Missouri Conservationist and Missouri Prairie Journal respectively. A detailed description of the PBG policy by Mike Leahy, Natural Areas Coordinator of the MDC can be found at the WGNSS website. Navigate to the "Upcoming Events" page. On the left of the "Upcoming Events" page, select "Hot Topic: Missouri Prairies". Mike Leahy's report is found at the bottom of the page.

In November 2010, Don Kurz retired Natural History Lands Specialist for MDC wrote a report

strongly criticizing the PBG policy of the MDC. A copy of his report can also be found in the same location as Mike Leahy's report on the WGNSS website. In this report, Don Kurz states that MDC has embarked on a potentially damaging prairie management policy. Specifically, he criticizes MDC for using data from Kansas and Oklahoma which has had strong grazing pressure and is more degraded and not the same as Missouri prairies. Cattle, he states do not mimic bison. Bison specifically eat grass, whereas cattle eat a mixture of grass and forbs. Instead of using more degraded lands, MDC has chosen some of its flagship prairies in which to implement the PBG policy. These remnant prairies are considered priceless and should be handled with extreme care. Finally, Don Kurz' report indicates that before implementing the PBG policy, not enough information was acquired about a whole host of non-game animals and plants and that the wrong data is being acquired to assess the success or failure of the PBG policy.

Presented in this article are two very different opinions about how best to preserve Missouri's prairies. Who is correct, MDC or Don Kurz? Everyone's goal is to see that our few remaining prairies are preserved in as natural a state as possible. The real issue is how best to do this? Decisions must be made with incomplete historical and scientific information. Unfortunately there is so little prairie left that small mistakes have major impacts. When preserving Missouri prairies, there is little room for error!

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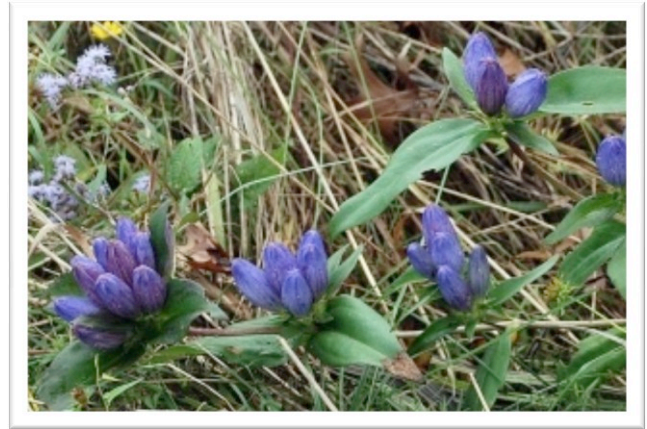
Promiscuous Plants

James Trager¹

Naturalists have long been aware of the greater tendency for plants than for animals to create viable interspecies hybrids. This is attributable **not only** (as some might expect) to a higher likelihood of passive plants whose mating is mediated by pollen-hungry insects, or the wind, to hybridize more often, but rather to a greater ability of plants, with the simpler design of their anatomies, successfully to build a functioning organism with a *Gemisch* of genes from parents of different species. Such hybrids occur naturally, and are often reported in regional floras. Further, the advent of modern techniques for characterizing DNA has revealed that hybridizations of yore have given rise to numerous species, and higher lineages, in plants, in fungi, and to a lesser extent in animals.

My recent wanderings in quest of fall flora photos at Shaw Nature Reserve really brought this phenomenon of admixture of species to mind as I was examining populations of the three *Gentiana* species that live at the reserve. All three are fairly recent introductions at SNR, added to the flora in several locations in our [prairie and wetland habitat reconstruction program](#). Hybridization among these gentian populations was first brought home in my observation over the last three years of increasing numbers of purplish and bluish and outright blue individuals in a population that was originally pure white gentian – *Gentiana alba*. This population was sowed in the mid-1990s as part of a mesic prairie reconstruction in the watershed of our wetland complex.

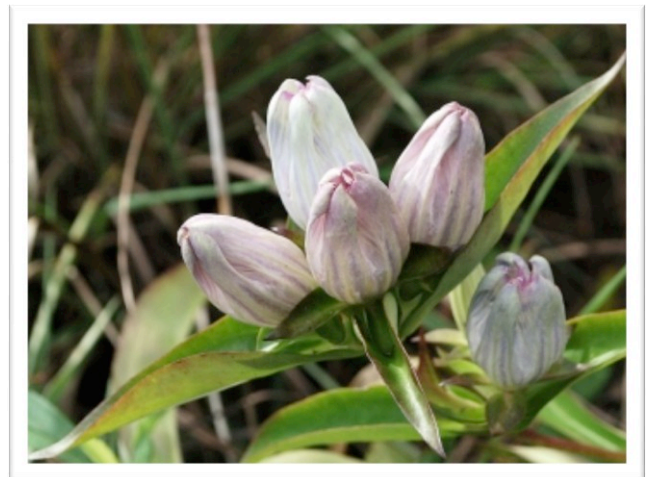
A few years later, 50 or so meters distant, separated by a dense row of trees and shrubs, and in a much wetter habitat in which water pools after every rain and seeps subsurface much of the year, blue bottle gentian – *G. andrewsii* — was sowed into a wet prairie / sedge meadow reconstruction.



The rich blue flowers of the blue bottle gentian, *Gentiana andrewsii*.



Pale or white bottle gentian, *Gentiana alba* in "pure" form.

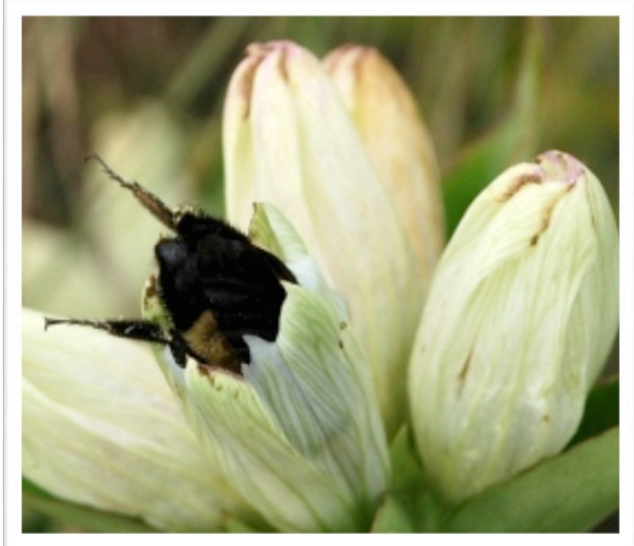
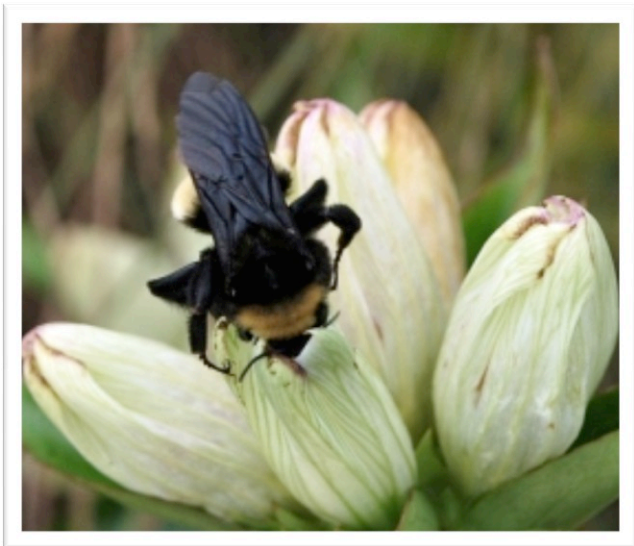


The result of pollen transport among pale and blue bottle gentians, a hybrid of intermediate characteristics.

¹ Reprinted from an article posted September 28, 2010 at <http://beetlesinthebush.wordpress.com>. All photos by the author.



Gentiana alba, *G. andrewsii* and their lavender tinted hybrid growing side by side at Shaw Nature Reserve.



Observe in the sequence of images above how a bumblebee gyne (a potential queen of one of next year's annual bumblebee colonies) pries open a bottle gentian flower and dives in for a long drink of nectar at the base of the large vessel. Apparently the nectar is copious, because bumblebees may remain in a single gentian flower for up to a minute.



Unlike the two previously mentioned species and their hybrids, the downy gentian's petals open wide at anthesis, admitting entry to small bees and even to spindly-legged potential pollinators such as syrphid flies.

At first the two populations grew independently and remained separate, but what I surmise was a combination of water borne seed transport (along the shore of a pond whose edge both populations are near), and bumblebee borne pollen transport, conspired to bring gametes of the two species together, creating what population geneticists call a hybrid swarm, and what taxonomists call a — well, I can't write it in polite company such as my readers.

While there are other populations of both species on the reserve (one hopes, out of bumblebee range from each other) that may retain their genetic integrity, the rampantness of the admixture at this site does give me pause.

And it gets worse! — On drier ground up the slope, among a dense planting dominated by prairie dropseed and little bluestem grasses, a third gentian known as downy or prairie gentian — *Gentiana puberulenta* — was established from a seed mix sowed 10 years ago to convert the watershed of the reserve's wetlands to prairie vegetation.

And now those perverse bumblebees have gone and defied the laws of speciesness and created what appear to be hybrids of this third gentian



The gentian in the upper photo appears to be the offspring of a cross between white and downy gentian parents, while the one in the lower photo appears to be the result of a cross between blue bottle and downy gentian.

species with the other two. Honestly, I don't know whether to feel that I have done some sort of wrong by creating the situation that allowed this to happen ... or simply to be intrigued by this unforeseen outcome of my work, and to wonder what will come of it after I'm gone?



Waxwing Party at the Pond

Anne McCormack¹

¹ Reprinted from an article posted December 6, 2010 at <http://gardeningwithbinoculars.blogspot.com/>. All photos by the author.



The Cedar Waxwing is a lovely bird with silky smooth feathers, a jaunty crest, and a mask that makes him look like [Zorro the Avenger](#). They are expectable in winter, but unpredictable and easy to miss when you're out birding. So when a flock of Cedar Waxwings dropped by my yard some days ago to visit my little swimmin' hole, I grabbed my point-and-shoot camera and got a few shots.

I never really noticed the striking white lines on the back that show in this photo, but then I don't often have a view looking *down* on Cedar Waxwings. The white edge is formed by wing feathers close to the body (the tertials). Usually I see them high in the sky, calling to each other in the flock with a high-pitched "Seeeee!"

Joined by a few Dark-eyed Juncos and a small group of Pine Siskins, the waxwings bathed the way they do everything; enthusiastically, and with friends. *The Birder's Handbook; A Field Guide to the Natural History of North American Birds*, by Ehrlich, Dobkin, and Wheye, describes the exact behavior we see in this photo. They use their wings to splash water onto the back, while holding the



tail up and head back to “form a cup” (*Birder’s Handbook*, 1988, 429).

Cedar waxwings are very fond of the blue “berries” of Eastern Red Cedar (*Juniperus virginiana*). Although they are round and appear as berries, they are really the female cones of this evergreen tree. According to [Dave Tylka, in *Native Landscaping for Wildlife and People*](#), the cones are low-fat and low-sugar, which means that birds will ignore them until late winter when all the high-fat dogwood, sassafras, and [black gum](#) berries have disappeared into the crops of fall-migrating birds. Cedar berries are a reliable reserve food--sort of like oatmeal. If you can’t get a Belgian waffle, you take what you can get.

Waxwings have been found to [digest cedar berries in 12 minutes flat! Research shows](#) that seeds that take the short outing through a waxwing’s digestive tract triple their chances of germination. Of course, within 12 minutes the bird may travel, depositing the seed many yards away from the shade of the parent plant.

The fondness for cedar berries accounts for the first part of the English name, but what about that strange surname? Waxwings are named for the waxy material on tips of the secondary wing feathers of adults (*The Sibley Guide to Bird Life and Behavior*, Elphick, Dunning, and Sibley, ed. 2001, 484). Only adult birds have this, and it’s very hard to spot, in spite of the fact that the Wikipedia article on Cedar Waxwing calls it “[the bird’s most prominent feature](#).” Birds were named during the era when devotees of birds carried shotguns, not binoculars. Those early “birders” named birds for features that stood out as unique while holding the bird in hand, not for field marks as we think of them today. Sibley says that this material feels “more like plastic,” so I’m guessing he’s handled a few waxwings in hand too. This red “wax” is visible in my first photo.

Cedars are an important wildlife plant in our area. Tylka calls it the number-one winter roost for birds. Besides providing winter dining for fruit-eating birds, the cones/berries are used to flavor gin, of all things. [Wikipedia records that the oldest red cedar](#) was found in Missouri. It was 795 years old. Cedars are a “pioneer” species, meaning that they thrive in open, disturbed areas. [They have invaded the open glade habitats found on west and](#)

[south-facing slopes throughout the Ozarks](#), shading out rare glade plants. In the past, wildfire would have controlled the advance of cedars. Between habitat loss to roads and parking lots and the suppression of fire, glade species have declined while cedars increased. For more discussion on the complex issue of fire management of natural areas, see [Flaming the Debate](#) on Ted MacRae’s [Beetles in the Bush](#).

[The Wikipedia article](#) on cedar also mentions their use as Christmas trees in the Ozarks, a fact confirmed by my brother-in-law. He grew up in Rolla, Missouri, in the heart of the Ozarks. They would cut a cedar on Grandma’s farm, then cut the top out. The lower portion of the tree is too scraggly to use as a decoration. The house filled with scent of the fresh cut cedar heartwood.



Eye of the Turtle

Ted C. MacRae¹



Adult male three-toed box turtle (*Terrapene carolina triunguis*). Photo by the author.

Is there anything more lovable than the humble turtle? As old as the dinosaurs, they stumbled onto a body plan that works and dropped out of the evolutionary arms race. Slow, plodding, and seemingly oblivious, turtles have steadfastly clung to their quite, unhurried lives – much as they have done for more than 200 million years now – as the rest of the earth’s diversity of life races on. They are survivors.

¹ Reprinted from an article posted December 10, 2010 at <http://beetlesinthebush.wordpress.com>.

My friend Rich and I encountered this three-toed box turtle (*Terrapene carolina triunguis*) during our hike of the lower [North Fork Section](#) of the [Ozark Trail](#) in extreme southern Missouri. Three-toed box turtles are one of four U.S. subspecies of the eastern box turtle, occupying the area west of the Mississippi River from Missouri and Kansas south to Texas and distinguished by their largely unpatterned shell and – yes, three toes on the hind legs rather than four. I walked right by this guy the first time without noticing him, and only when I turned around to go back and look at something else did I see him sitting there – neck fully extended. Box turtles exhibit considerable variability in color and patterns on the head and neck, and this particular individual is one of the more conspicuously colored that I've seen.

And the eye – as red an eye as I've ever seen! Almost surely a male, as females may have some red in the eye but rarely to such a spectacular degree. Also likely full-grown based on his rather large size, though probably not too advanced in age yet since the growth rings were still easily visible (in older turtles the growth rings gradually wear smooth). I estimated it at about 12 years based on ring counts – still a far cry from the 30-50 years that are not uncommonly documented. He kept a watchful eye on me as I studied him, and I wondered about what his future held. As an adult, he has settled into a small home range from which he rarely ventures – likely visible to me in its entirety from where I stood. For the next several decades, he will amble across this single hillside on an endless quest for earthworms, strawberries, and mushrooms. Save for a possible run-in or two with a destined-to-be-frustrated coyote, fox, or racoon, it will be a largely uneventful life. He is a survivor.



St. Louis Zoo Lecture Series

The St. Louis Zoo presents two lecture series, *Science Seminar Series* and *Conservation Conversations*, co-sponsored by the Academy of Science – St. Louis. Programs are held in the Living World, with free parking available in the North parking lot. These lectures are **FREE** and open to the general public, no reservations required. Visit

www.stlzoo.org or call (314) 646-4544 for more information.

SCIENCE SEMINAR SERIES

No program in January.

Wednesday, February 2, 7:30 – 9:00 p.m.

“Left Out in the Cold: The Story of the Barrow Global Climate Change Research Lab in Barrow, Alaska” – Janet Baum, AIA, Trustee, Academy of Science – St. Louis, retired founding partner of Health, Education + Research Associates, Inc.; lead programmer and planner, Barrow Global Climate Change Research Lab.

CONSERVATION CONVERSATIONS

Tuesday, January 18, 7:30 – 9:00 p.m.

“Aiding Armenian Vipers” – Jeff Ettling, Curator of Herps/Aquatics; Project Manager, Armenian Viper Conservation Center.

Tuesday, February 22, 7:30 – 9:00 p.m.

“Congo’s Curious Chimps”



Group Activity/Walk Schedules

BOTANY GROUP

Chair – George Van Brunt

Monday Botany Walks (Leader – Fr. James Sullivan; now in his 44th year as Botany Walk Leader!). The WGNSS Botany Group visits many of the same locations as the Bird group: Busch Conservation Area, Shaw Nature Preserve, the Missouri Botanical Garden, Babler State Park and Cuivre River State Park. Learning plants will help you learn butterfly host plants. Sign up for WGNSS Botany Group emails from Jack Harris by contacting him at jahar@mac.com or (314) 368-0655 and receive an email no later than Sunday about the following Monday’s trip.

ENTOMOLOGY GROUP

Co-Chairs – Phil Koenig and Jane Walker

Monday, January 17, 7:00 – 9:00 p.m.

James Trager will present “Fire and Natural Area

Arthropods - A Review.” The meeting will be held at the Butterfly House, Faust Park, 15193 Olive Blvd., Chesterfield. For directions call (636) 530-0076 or visit <http://www.butterflyhouse.org>.

NATURE BOOK CLUB

Chair – Pat Diener

The Nature Book Club is a group of naturalists who meet once a month to discuss a book chosen for its general interest from botany to zoology. The group meets at members’ homes on the second Tuesday of the month from 1:30 – 3:00 p.m. For meeting locations and directions contact Pat Brock Diener at (314) 962-8665 or Lisa Nansteel at (636) 391-4898. All are welcome – especially newcomers!

Tuesday, January 11, 1:30 – 3:00 p.m.

Green Metropolis, by David Owen.

Tuesday, February 8, 1:30 – 3:00 p.m.

The Dangerous World of Butterflies, by Peter Laufer.

ORNITHOLOGY GROUP

Chair – David Becher

Saturday Bird Walks (Leader – David Becher). Walks are at Des Peres Park in January (5, 22), February (5, 19), and March (5, 19, 26). All trips begin at **8:00 a.m.** and normally go through early afternoon, so bring lunch if you wish to stay out. Everyone is welcome. The leader reserves the right to change the schedule if necessary. If you have questions, contact David at (314) 576-1146 or DavidBecher@msn.com.

Thursday Bird Walks (Leader – Jackie Chain). Walks are at Des Peres Park – meet in parking lot (east side of Ballas Rd. just north of Manchester Rd.) at **8:30 a.m.**, return is usually by 3:30 p.m. (you may leave at your convenience). Bring lunch, beverage, binoculars and if you have one a scope/tripod. If you have questions, contact Jackie at (314) 644-5998 or chainjac@sbcglobal.net.

For general information about WGNSS activities, contact Membership Chairman Paul Brockland at pbrockland@sbcglobal.net or (314) 961-4661.



Editor's Corner

Ted C. MacRae

NATURE NOTES BY EMAIL

Nature Notes is available not only by regular post, but also by email. Not only does this save paper and reduce mailing costs, it allows viewing of the newsletter and the included photos **in full color**. Embedded hyperlinks also allow instant navigation to email addresses and websites. Of course, you can always print your electronic copy of *Nature Notes* if you wish (if you do, please be sure to use both sides of the paper ☺). The electronic newsletter is sent as a PDF, which can be opened using Adobe Reader (free download available at <http://get.adobe.com/reader/>). Send your name and email address to the Assistant Treasurer at whittex@aol.com to receive *Nature Notes* by email.

CALL FOR SUBMISSIONS

We welcome all announcements of WGNSS or other nature related events in the St. Louis area, notices of published articles – especially those authored by members, and original nature oriented articles. Suggested topics include accounts of field trips you have taken, information about local natural areas, interesting nature sightings, or reviews of nature related books. Reprinting of articles from other sources requires permission from the copyright holder. Previous *Nature Notes* issues are a good source of ideas – copies of recent issues can be provided upon request.

Please direct all submissions by email to the Editor at ted.c.macrae@monsanto.com. Limit text formatting to bold for emphasis and italics for scientific names. Additional formatting (e.g., use of tabs and extra spaces, multiple hard returns, underlining, etc.) should be avoided, since it must be removed by the Editor during final formatting. Photographs are encouraged and will be published on a space-available basis. Contributions are welcome from all but especially encouraged from members – remember; this is your newsletter!

