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President's Corner

Rich Thoma

In October, WGNSS welcomed back **Travis Wood**, a 2010 Mickey Scudder Scholarship recipient as the featured speaker. Travis has recently completed his Masters degree from Southern Illinois University-Edwardsville. The funds he received from the Mickey Scudder Scholarship went to purchase vitally needed supplies to complete his research project. At the October meeting, Travis spoke about his research with a talk titled, "Effects of Prescribed Burning on Grassland Avifauna at Riverlands Migratory Bird Sanctuary". We learned that Riverlands is at the northern end of the American Bottom Ecoregion. American Bottom Ecoregion habitat consists primarily of grassland located in the Mississippi River floodplain. Most of the habitat has disappeared and was either converted to farmland or urban development. In 1989 the Army Corp of Engineers obtained Riverlands and began the conversion of the land from farmland back to grassland. Today the Army Corps of Engineers has made significant efforts to create a diverse array of grassland habitats through controlled burns and mowing. For his research Travis made field observations of birds living in grasslands where controlled burns have occurred in the past year, 2-4 years and greater than 5 years. He found that several species preferred one habitat over the others. He found that Sedge Wrens, Common Yellowthroat and Dickcissels preferred the new growth after a recent burn. Orchard Orioles and Bells Vireos preferred areas where a burn has not occurred in 2 to 4 years. Willow Flycatchers and Bobwhite liked sites where a burn has not occurred for at least 5 years. During his study, Travis found a total of 31 bird species. Interestingly, the song sparrow was the only species of sparrow commonly seen during his study. Data from the study were provided to the Army Corps of Engineers and will be incorporated into the overall management plans for Riverlands.

The WGNSS board would like to announce the formation of a **Bo Koster Endowment**. The money for this endowment will be used in three areas. First, the money from the endowment will go to support local teachers who bring natural history to the classroom. One of the first items WGNSS has designated for purchase is a set of 20 binoculars that teachers may borrow for use on outdoor field trips. Second, WGNSS will now be able to offer a third scholarship. Details for this scholarship are still being worked out at this time. Third, a portion of the funds will be set aside to attract special outside speakers to speak at WGNSS general meetings. We are extremely grateful to Bo Koster for including WGNSS in his estate. To find out more information about Bo Koster's involvement in WGNSS, please see the article written by **Anne McCormack**, "Bo Koster's Lasting Legacy" in the September 2012 issue of *Nature Notes*.

In This Issue

When you are exploring many of Missouri's great outdoor wonders, do you take photos of what you have seen? In today's digital age, it no longer requires expensive camera equipment to take great photos. These days, anyone can be a great photographer. Are you one? If you think that you might have some photography skills, then the WGNSS photo contest is for you. In this issue of *Nature Notes*, WGNSS announces a **Photo Contest** for April 2013. The contest is free to all WGNSS members. Winning photographers will receive some fantastic prizes including having their photo matted, framed and put on display at Powder Valley Nature Center in June 2013. General information about categories and prizes may be found with the announcement. For those considering entering one or more photos, detailed rules may be found on the WGNSS website (www.wgnss.org).

The November general meeting features **Paul McKenzie** from the U.S. Fish and Wildlife Service speaking about the white-nosed syndrome disease attacking bats. Living in the Cave State, this disease affects all Missourians. Bats are a vital component of cave communities, depositing guano piles which become the primary energy source for all other organisms in a cave. Bats are also a vital component in all of Missouri's above ground natural communities, consuming vast amounts of insects. All of Missouri's natural communities will be changed if bats were to disappear due to white-nosed syndrome. More information about the November general meeting may be found in this issue of *Nature Notes*.

November General Meeting

George Yatskievych

Bats in the eastern half of the United States are facing a precipitous decline following the introduction of a pathogenic fungus. Our November speaker, **Dr. Paul McKenzie** of the U.S. Fish & Wildlife Service in Columbia, MO, will present a program entitled, "Implications of the Continued Spread of White-Nose Syndrome on Missouri Bats." Join us on **Wednesday, November 7 at 7:30 p.m.** to learn more about the emerging impacts of this detrimental fungus on Missouri's flying mammals. Meetings this fall are at the Grand Glaize Branch of the St. Louis County Library System, just north of Big Bend Road at 1010 Meramec Station Road (immediately east of Highway 141), in Manchester. As in other recent months, those who wish to join us for supper before the meeting should plan to meet at the library parking lot at 5:30 p.m.

August Bird Report

David Becher

The summer continued to be hot and dry although not as extreme as earlier in the season. The area was only saved from a record drought by several inches of rain from the remains of Hurricane Isaac at the very end of the month. Despite this bird reports appeared fairly normal and unlike the very poor spring migration the fall season began with normal to good numbers of birds being found.

Dave Haenni found a Tricolored Heron, always a good bird, at Lake 33 at Busch Wildlife area on the third. It stayed for at least 10 days and was seen by many people.

Keith McMullen found an immature White Ibis at the Hawn Access at Carlyle Lake on the fourth. It

remained until the small pond it was visiting dried out about a week later.

Conditions at Heron Pond were ideal for shorebirds and rails. Soras were remarkably numerous often out on the mud in the open. Counts of 30 or more were routine and Bill Duncan reported counting 62 on the 25th, early in the morning. There was also at least one Virginia Rail, first reported by Al Smith on the 20th that was seen off and on. Pat Leuders had two on the 26th. John Solodar reported a King Rail in the same area on the 29th.

Josh Uffman found two Sandhill Cranes at the Kings Lake unit of BK Leach CA, Kings Lake unit on the fifth. There appear to have been more than the usual number of Sandhill Crane reports this year.

There were not many reports of plovers other than Killdeer or Semipalmated, but Dave Rogles did have Golden Plover at Heron Pond at RMBS on the thirty first.

Josh Uffman also found four Black-necked Stilts at BK Leach CA on the fifth. Pat Leuders reported three Avocets at Heron Pond on the 26th.

Dan Kassebaum reported a Marbled Godwit and a Ruddy Turnstone at the parking lot 3 access area of Carlyle Lake on the fourth. Josh Uffman reported that there were still two Upland Sandpipers at Clarence Cannon in the area where they were found in August on the 5th, but the lengthening grass made observations difficult. Also on the fifth the Johnsons reported two Ruddy Turnstones from Two Rivers NWR in Calhoun County, Illinois. Bryan Prather reported another Ruddy Turnstone from Lake 33 at Busch on the 31st working along the riprap. The only Sanderling report was one found at Heron Pond by Dave Rogles on the 31st.

Four Red-necked Phalaropes were reported at Tamalco Access at Carlyle Lake on the 11th. At least two were present on the thirteenth.

For some reason gull and tern numbers were very low in the immediate Saint Louis area with only small numbers seen at RMBS and Horseshoe Lake. Carlyle Lake on the contrary hosted large numbers of Ring-billed Gulls and Caspian and Forster's Terns throughout the month. There were also reports of Franklin's and Laughing Gull and Black Tern. Although gulls and terns were not numerous at RMBS, there was a flock of at least 25 Black Terns seen by the Saturday group on the 25th and Mike Thelan reported about 50 the next day.

Tricolored Heron at Busch Wildlife Area. Photo by David Becher.

Bank Swallow. Photo by David Becher.

Sedge Wren at Two Rivers NWR. Photo by David Becher.

There were few migrant thrushes in Tower Grove Park, but there was at least one very nice Veery that remained in the Gaddy Garden for some time.

About the middle of the month the warbler migration began to pick up. Unlike the spring migration, which was one of the poorest in memory, the fall migration seemed to be better than average. All of the usual species were seen and several such as Golden-winged and Bay-breasted that were difficult in the spring seemed to be relatively common. Canada Warblers another species which is often uncommon were also reported in good numbers. Mourning Warblers were rare, on the other hand, with one reported on the 17th by Chrissy McClarren.

Bobolink reports remained limited, but Josh Uffman had two fly over at Clarence Cannon on the fifth.

June Botany Report

Compiled by George Van Brunt

June 4, 2012—Marais Temps Clair Conservation Area, St. Charles County, MO (contributed by Steve Turner).
Time: 9:30 a.m.–11:30 p.m..
Conditions: Sunny, 80–90 ºF
Participants: Jerry Castillon, Wayne Clark, Nancy Clark, Jack Harris, Pat Harris, Louise Langbein, Michele Lee, Rose Schulte, Fr. Sullivan, Steve Turner, Kathy Thiele, George Van Brunt (12 attendees).

The day's assembly area was the main Conservation Area parking lot immediately to the east of Island Road. Botanizing began in a fallow agricultural border adjacent to the south end of the parking lot, where weedy plants typical of highly disturbed and crop areas were found. These included *Thlaspi arvense* (penny cress), *Solanum carolinense* (horse nettle), *Lepidium virginicum* (poor man's pepper grass), *Chenopodium* sp. (pigweed), and *Allium* sp. (onion family). The leaves of the last were withered, and since these are required for keying, the specific identity of the plant could not be determined with certainty. In appearance the plants were similar to *A. vineale* (field garlic), with dark green flowering scapes standing at least a meter high. The terminal reproductive structures were masses of bulblets rather than flowers, a characteristic known for the *compactum* form of the species. Aside from being a Eurasian import and common agricultural weed, the plant is troublesome in pasturage because it imparts an onion flavor to the milk of cows which graze upon it.

As the group moved from the parking area into the Conservation Area proper, additional species were found, including flowering specimens of *Conium maculatum* (poison hemlock), *Sonchus asper* (prickly sow thistle), *Erigeron annuus* (annual fleabane), *Torilis arvensis* (hedge parsley), *Bromus tectorum* (downy chess), *Apocynum cannabinum* (dogbane), *Anemone canadensis* (white anemone), *Phyla lanceolata* (northern fog fruit), and *Melilotus officinale* (yellow sweet clover). Plants which were not flowering but identified through their vegetative characteristics included *Ambrosia artemisiifolia* (common ragweed), which has highly divided, lacy leaves; *Ambrosia trifida* (tall ragweed), with distinctly trilobate leaves; and *Lactuca saligna* (willow-leafed lettuce), with very narrow leaves on a stem similar in general appearance to other members of the *Lactuca* genus.

As we continued along a levee and into Pool 6 (which, at the time of our visit, was quite dry), additional species common to wet areas were found. Numerous *Sagittaria* (arrowhead) leaves were observed, though these could not be identified specifically due to lack of flowers. *Rosa setigera* (prairie rose) and *Ludwigia peploides* (floating primrose willow) were also found flowering, and numerous large shrubs or small trees of *Salix exigua* (sandbar willow) formed a natural border within the pool. This species of *Salix* can be identified by its narrow leaves with widely spaced teeth, and also frequently by the presence of insect galls, resembling small gymnosperm cones, which are peculiar to this species. Another wetland plant identified through its leaves was *Sium suave* (swamp parsnip), whose pinnately compound leaves bear leaflets which are regularly toothed. An additional identifying characteristic of this species is the presence of a second leaf morphology, much more highly dissected, shown by those leaves which developed underwater.

***Oxyloma retusa*. Photo by Jack Harris.**

The most unusual find of the day was a sizeable population of *Sparganium eurycarpum* (giant bur-reed). This reedlike plant, which grows 1 m or more high, has straplike leaves which at a glance can appear to be longitudinally folded, but which are actually keeled (mostly near the base), so that they have a broadly triangular cross section. The striking and unusual inflorescence consist of multiple spikes distributed along a main terminal axis. Each spike bears a globose pistillate head, which is approximately 2 cm in diameter and which strongly clasps, and almost envelopes the stalk. When the head is at anthesis, bifurcated styles project outward in all directions, whereas later, at the fruiting stage, the head adopts a shiny and macelike appearance. At this mature stage the heads are balls densely packed on the surface with achenes, each of which is wedge-shaped, toughened in texture, and buoyant enough to float on water, which may aid in dispersal.

Above the pistillate head are several smaller staminate heads, which at anthesis resemble roughly spherical tufts of numerous stamens. The stalks on which these inflorescence heads are borne bends or kinks at each point of attachment, thereby assuming a strongly zigzag aspect. This is particularly conspicuous after the stamens have dropped off of the upper portion of the stalk. The presence of separate staminate and pistillate flowers on the same individual define this species as monoecious.

Sparganium eurycarpum probably derives its generic name from the Greek *sparganon* ("swaddling-band," alluding to the ribbonlike leaves), with the specific epithet meaning "broad-fruited." The species is

***Sparganium eurycarpum* inflorescence showing staminate heads (toward left) and pistillate heads (with protruding white styles). Photo by Steve Turner.**

***Sparganium eurycarpum*, mature infructescence and achenes. Photo by Steve Turner.**

native to North America, extending through most of the U.S. except the deep South, and well into Canada. The achenes are eaten by waterfowl, and the entire plant (including the thickened rhizome) is consumed by muskrats. Whitetail deer also browse on the foliage.

June 11, 2012—Little Lost Creek Conservation Area, Warren County, Missouri (contributed by Wayne Clark, with additional contributions by Jack Harris and Richard Abbott).

It was a cloudy day with intermittent rain. The temperature at the beginning of the trip was 74 degrees F and 67ºF at the end. Seven botanists participated: Fr. Jim Sullivan, Richard Abbott, Jeanne Clausen, Jack Harris, Louise Langbein, Wayne and Nancy Clark.

The meeting place was the middle parking lot off Route EE in the southern part of the conservation

***Hypericum prolificum* (shrubby St. John's wort). Photo by Wayne Clark.**

Little Lost Creek stream bed. Photo by Wayne Clark.

area. Most of the trail was a service road(s) on the ridge top. Where the road, descending toward the Lost Creek Valley, got too steep it turned into a trail. Most of the group stayed on the valley rim but Fr. Sullivan and this writer descended to the valley floor. Where we crossed Little Lost Creek, the stream channel was filled to the top with rock. The area is rich in plant diversity. Over 200 species were positively or tentatively identified. Most were not in flower or bud. Richard Abbott identified 188, the rest of us less so.

We walked on the service road from the parking lot. From there we saw *Parthenium integrifolium* (American feverfew), *Vernonia baldwinii* (western ironweed), *Dianthus armeria* (Deptford pink), *Leucanthemum vulgare* (ox-eye daisy), *Erigeron strigosus* (daisy fleabane), and *Hypericum prolificum* (shrubby St John's-wort). *H. prolificum* looked like a small shrub, as the common name suggests. Continuing on toward the creek there was *Lobelia spicata* (spiked lobelia), *Stylosanthes biflora* (pencil biflora), *Taenidia integerrima* (yellow pimpernel) in fruit, *Melilotus officinale* (yellow sweet clover), *Arnoglossum reniforme* (great Indian plantain), *Blephilia hirsuta* (wood mint), and *Scutellaria ovata* (heart-leaved skullcap) were in abundance. There were several days of e-mail discussion of whether *S. ovata* was *S. elliptica*. Steyermark (1964) does not show *S. elliptica* occurring north of the Missouri River. A consensus was reached that it was *S. ovata*. *Podophyllum peltatum* (mayapple) leaves were turning yellow. *Medicago lupulina* (black medic) was abundant along the edge of a field. Several unusually long inflorescences of *Phleum pratense* (Timothy) were measured. The longest was 23.5 cm (9.25 in.) long. The normal range in length is from 3-15 cm (1.2-6 in.). *Daucus carota* (wild carrot, Queen Anne's lace), *Trifolium pratense* (red clover), and *Plantago lanceolata* (English plantain, buckhorn) were noted. Mosses identified were *Leucobryum albidum* (pin cushion moss) and *Thuidium delicatulum* (fern moss). *L. albidum* is a county record.

June 18, 2012—Missouri Research Park Access Trail to the Katy Trail, St. Charles County, MO (contributed by George Van Brunt).
Time: 9:30 a.m.–12:00 p.m..
Conditions: Sunny, upper 80ºs to lower 90ºs F; afternoon high was 95 ºF.
Participants: Fr. Sullivan, George Van Brunt, Jack Harris, Pat Harris, Jerry Castillon, Steve Turner, Phil Koenig, Louise Langbein, Kathy Thiele, Kera Thiele, Jeannie Moe, Larry Morrison.

The Missouri Research Park Access Trail to the Katy Trail is a three quarters of a mile long, paved trail that follows Duckett Creek through Missouri River bottomland. Duckett Creek is a natural creek, but its flow is greatly increased by the effluent of the Duckett Creek Sanitary District sewage treatment plant. Although there is an unpleasant odor and although we have explored this trail a number of times in the past, it is always an interesting walk.

We started botanizing in a small field adjacent to the parking lot. Species that we observed blooming there included *Monarda citriodora* (lemon mint), *Coreopsis tinctoria* (golden tickseed), *Rudbeckia hirta* (black-eyed Susan), *Ratibida columnifera* (Mexican hat), *Ratibida pinnata* (gray-headed coneflower), *Monarda fistulosa* (wild bergamot), *Erigeron annuus* (daisy fleabane), *Torilis arvensis* (hedge parsley),

***Monarda citriodora* (lemon mint). Photo by George Van Brunt.**

***Teucrium canadense* (American germander). Photo by Jack Harris.**

Daucus carota (Queen Anne's lace), and *Melilotus albus* (white sweet clover). Unfortunately, quite a few *Lespedeza cuneata* (sericea lespedeza), the introduced invasive *Lespedeza*, were present also. *Monarda citriodora* is called lemon mint not because of its color, but because of its odor. We found the odor to be strong but not particularly lemon-like. The presence of lemon mint and Mexican hat indicated that the field was probably seeded as these species are not normally found in this part of the state.

Next, we walked the shaded Access Trail, a good choice for today's sunny, hot weather. Plants in bloom included *Echinacea purpurea* (purple coneflower), *Monarda fistulosa* (wild bergamot), *Verbesina helianthoides* (yellow crownbeard), *Silene stellata* (starry campion), *Dalea purpurea* (purple prairie clover), *Desmodium glutinosum* (pointed tick trefoil), *Rudbeckia hirta* (black-eyed Susan), *Impatiens capensis* (jewelweed), *Penstemon digitalis* (beard-tongue), *Circaea canadensis* subsp. *canadensis* (enchanter's nightshade), *Samolus parviflorus* (brookweed), *Blephilia ciliata* (Ohio horsemint), *Verbena urticifolia* (white vervain), *Ageratina altissima* (white snakeroot), *Lactuca serriola* (prickly lettuce), *Cryptotaenia canadensis* (honewort), *Impatiens pallida* (pale touch-me-not), *Geum canadense* (white avens), and *Teucrium canadense* (American germander). We also noted a large number of *Silphium perfoliatum* (cup-plant) plants that had been heavily browsed by deer; apparently the deer like this species. Another noteworthy plant that was in bud was *Eupatorium perfoliatum* (perfoliate boneset), a species that prefers wet areas.

One interesting species, noted above, was enchanter's nightshade. There have been some changes to the scientific name of this native North American species. In Steyermark's *Flora of Missouri*, published in 1963, the name of this species was *Circaea quadrisulcata* var. *canadensis*, while in Mohlenbrock's *Vascular Flora of Illinois* (2002) the species was named *Circaea lutetiana* subsp.

***Circaea canadensis* subsp. *canadensis* (enchanter's nightshade): leaves (top); flowers and fruits (bottom). Photos by George Van Brunt.**

canadensis. The name *Circaea lutetiana* (no subspecies) has also been used. The Flora of Missouri section of TROPICOS, the Missouri Botanical Garden website, currently uses the name *Circaea canadensis* subsp. *canadensis*. According to a Wikipedia article, *Circaea lutetiana* is a native of Eurasia and is not the species found in Missouri. The genus name, *Circaea*, comes from Circe, the minor Greek goddess portrayed in Homer's *Odyssey*. Circe, known for her extensive knowledge of herbs, supposedly used plants of this genus in her magic spells with which she changed her enemies into animals. Despite the common name enchanter's "nightshade", this species is not a part of the nightshade family, Solanaceae, which includes tomatoes and potatoes, as well as the deadly nightshades. Rather, enchanter's nightshade is a member on the Onagraceae, a family that also includes the evening primroses and fuchias. The genus *Circaea* consists of about 9 Northern hemisphere temperate woodland species, found in both the new and old worlds.

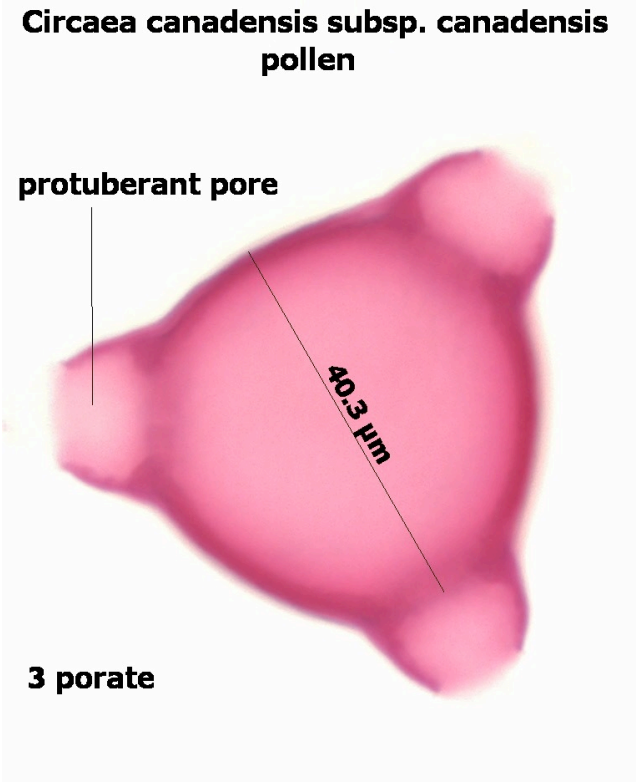


Photo by George Van Brunt.

Species in the family Onagraceae characteristically produce pollen with 3 pores, each pore located at the end of a short tube protruding from the pollen body. These protuberant pores make the pollen from this family easily recognizable under a microscope. The pores are the openings through which pollen tubes grow. When a pollen grain reaches the stigma of a flower of its species, a pollen tube grows out of one of the pores and down through the style to the ovary where fertilization takes place. The view of the *Circaea canadensis* subsp. *canadensis* pollen grain shown in this report is an equatorial optical section. This view is produced by focusing at the pollen grain's equator. Imagine that you are looking down at the north pole of a globe of the earth. Remove the northern hemisphere and the remaining view is a section of the earth at the equator; this view is called an equatorial section. In the view of the pollen grain seen here, the "northern hemisphere" has been removed optically; the focal plane is at the equator and the camera does not "see" the upper hemisphere.

The line in the photo marked "40.3 µm" (micrometers) is the equatorial diameter of the pollen grain excluding the protuberant pore. 40.3

***Impatiens capensis* (left) and *Impatiens pallida* (right). Photos by George Van Brunt.**

µm is 40.3 millionths of a meter or 40.3 thousandths of a millimeter.

Two species in the family Balsaminaceae, *Impatiens capensis* (jewelweed) and *Impatiens pallida* (pale touch-me-not), both native Missouri plants, can be found in bloom throughout the summer months. They are easily distinguished when in bloom by the color of their flowers; *I. capensis* has orange flowers, while *I. pallida* has yellow flowers. Justin Thomas, a Missouri botanist, has found a way to distinguish the species when no blooms are present. Simply count the teeth on the margin of one side of a leaf. If there are 9 or fewer teeth the specimen is *I. capensis* and if there are more than 9 teeth, it is *I. pallida*. The WGNSS botany group has been testing this hypothesis at every opportunity and, thusfar, it has proven to be a reliable indicator for these two species.

June 25, 2012—Katy Trail State Park, Augusta Trailhead, St. Charles County, MO (contributed by George Van Brunt).
Time: 9:30 a.m.–11:45 a.m..
Conditions: Sunny, lower 80º's to 90º F.
Participants: Fr. Sullivan, George Van Brunt, Jeannie Moe, Wayne Clark, Nancy Clark, Louise Langbein, Steve Turner, Jack Harris, Burt Noll.

On a sunny, warm, first Monday of summer, we botanized a mile of the Katy Trail west of the Augusta trailhead. Species in bloom included *Phytolacca americana* (pokeweed), *Tradescantia ohiensis* (Ohio spiderwort), *Convolvulus arvensis* (bindweed), *Rorippa sylvatica* (creeping yellow cress), *Euphorbia maculata* (prostrate spurge), *Geranium dissectum*

***Consolida regalis* (royal knight's-spur): inflorescence (top) and stem and leaves (bottom). Photos by George Van Brunt.**

(purple cranesbill), *Campsis radicans* (trumpet creeper), *Torilis arvensis* (hedge parsley), *Commelina erecta* (dayflower), *Consolida regalis* (royal knight's-spur), *Lonicera japonica* (Japanese honeysuckle), *Campanula americana* (tall bellflower), *Securigera varia* (crown vetch), *Solanum carolinense* (horse nettle), *Ageratina altissima* (white snakeroot), *Sambucus canadensis* (elderberry), *Stachys tenuifolia* (smooth hedgenettle), and *Euphorbia dentata* (toothed spurge). We found many specimens of the large herbaceous species, *Conium maculatum* (poison hemlock), introduced from Europe. These 6 foot tall plants were senescing, whithering and drying, not because of lack of rainfall, but as a normal part of their biennial life cycle. We also found that Japanese beetles prefer grape leaves. Many leaves of *Ampelopsis cordata* (raccoon grape) were skeletonized by the beetles' actions; only the vein structures remained after they had eaten all the soft tissue in between the veins. We observed very little damage to other species.

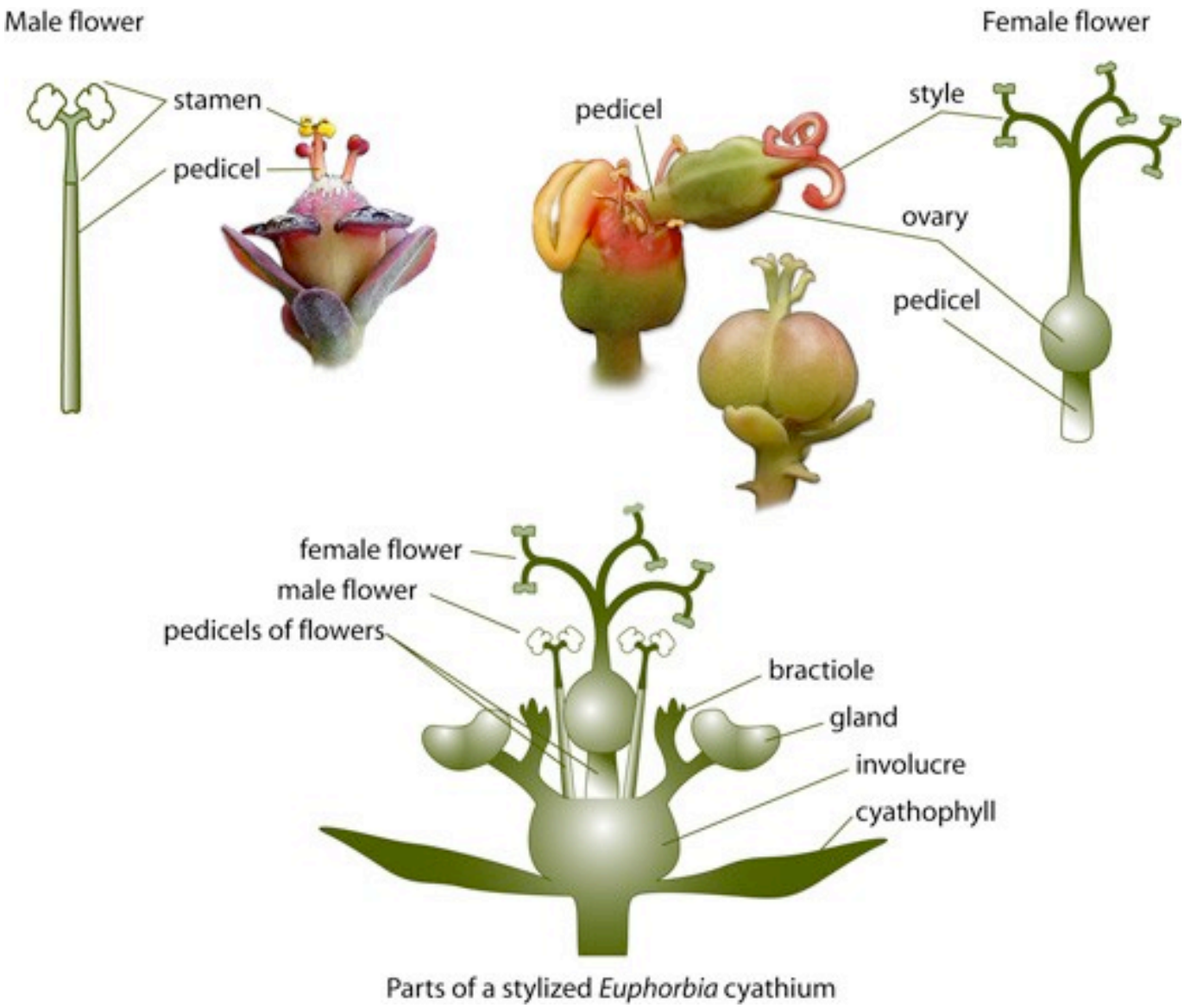
Consolida regalis (royal knight's-spur), a Eurasian native that is planted in gardens in the United

Euphorbia dentata **(toothed spurge): whole plant (top), upper plant (middle), and cyathia (bottom). Photos by George Van Brunt.**

States, occasionally escapes cultivation and becomes established in the wild. Royal knight's-spur is a member of the buttercup family (Ranunculaceae) and a close relative of the native *Delphinium tricorne* (dwarf larkspur). One feature of both species' flowers is the spur, an elongated tube that points toward the back of the flower. Nectar, a sugary solution, is produced in the tip of the spur. The spur is an adaptation to long-tongued pollinators such as hummingbirds, sphinx moths, and bumblebees. By making the nectar more difficult to reach, the plant forces the pollinator to move in close and touch the pollen bearing anthers. Studies have shown that when there is a switch to longer-tongued pollinators, plant species respond by evolving longer spurs. Species in at least 15 families of plants have evolved nectar spurs from either the sepal whorl or the petal whorl or a combination of the two as in *Consolida regalis* and *Delphinium tricorne*. Missouri species with nectar spurs include *Aquilegia canadensis* (columbine), *Impatiens capensis* (jewelweed), *Impatiens pallida* (pale touch-me-not), *Corydalis flavula* (pale corydalis), *Corydalis aurea* (golden corydalis), *Dicentra cucullaria* (Dutchman's breeches), *Dicentra canadensis* (squirrel corn), and *Utricularia gibba* (humped bladderwort). Some orchids produce nectar spurs, though none of the Missouri species do so. The most famous spurred orchid is *Angraecum sesquipedale* (Darwin's orchid, Christmas orchid), a Madagascar endemic, which was studied by Charles Darwin. *Angraecum sesquipedale* sports a 12 inch long spur which prompted Darwin to predict that its pollinator was a moth with a 12 inch long proboscis. This moth was unknown at the time of Darwin's prediction and some scientists said that such a moth could not exist, but the moth, *Xanthopan morgani* (Morgan's Sphinx), was discovered in Madagascar in 1903, 21 years after Darwin's death.

Euphorbia dentata (toothed spurge) is a widely distributed Missouri native that ranges across much of the southern two thirds of the United States. If the photos of *Euphorbia dentata* remind you of poinsettia, that is because poinsettia is a closely related species, *Euphorbia pulcherrima.*

Species of the genus *Euphorbia* have a very interesting inflorescence. These plants are monecious, having separate male (staminate) and



Parts of a stylized *Euphorbia* cyathium

Riina, R. and Berry, P.E. (coordinators). 2012. Euphorbia Planetary Biodiversity Inventory Project. Available at www.euphorbiaceae.org (reprinted by permission).

female (pistillate) flowers on the same plant, but appear upon casual inspection to have bisexual or perfect flowers, both male and female parts in the same flower. The basic unit of the *Euphorbia* inflorescence is the cyathium (Greek, κυαθος (cyathos) = a ladle used for wine), a cup-like structure containing extremely reduced male and female flowers.

An involucre is composed of bracts, leaf-like structures, that subtend an inflorescence; in *Euphorbia* the 5 bracts of the involucre are fused to form a cup-shaped structure (see diagram, Parts of a stylized *Euphorbia* cyathium). Inside the involucre is a single female flower. The female flower consists only of an ovary, style, and stigma attached to a stalk or pedicel. The female flower is surrounded by male flowers, each consisting of a single stamen. Each male flower is on its own pedicel. The fact that each pistil and stamen has its own pedicel indicates that each is a greatly reduced flower rather than a floral organ of a larger flower. Petals and sepals are absent from both female and male flowers. Nectar glands, to attract pollinators, are located around the rim of the involucre. Also, since flower parts are lacking colorful pollinator attracting tepals (sepals and petals), many *Euphorbia* species produce brightly colored cyathophylls and/or ordinary leaves subtending the cyathia to attract pollinators. The aggregation

of flowers into cyathia is unique to the genus *Euphorbia*. For a more detailed explanation of *Euphorbia* flower morphology, copy this URL into the address box of your browser. http://www.euphorbiaceae.org/pages/about_euphorbia.html

Other species of note were *Aristolochia tomentosa* (Dutchman's pipevine), *Lactuca floridana* (woodland lettuce), *Parthenocissus quinquefolia* (Virginia creeper)(in fruit), and *Polygonatum biflorum* (Solomon's seal)(in fruit). The Dutchman's pipevine that we observed was a wall of vines growing from the ground to the top of a tree. We searched for flowers and/or fruits, but these would normally be located near the top of the vines in the sunlight and it was difficult to determine with certainty whether any were present. We think we spotted some flowers, but binoculars were needed to be sure. We often see *Parthenocissus quinquefolia*, a member of the grape family, but not very often in bloom or in fruit. Louise found a vine with some very young fruits.

Entomology "Show and Tell" 2012

Jane Walker

A small group of bug lovers gathered at the Butterfly House for our annual 'Show and Tell' on September 15. After a few announcements, I started off the sharing of the past year's efforts with a few pictures of the caterpillar of *Synchlora aerata* (wavy-lined emerald). This caterpillar adorns its body with pieces of flower petals as a camouflage strategy. This year I captured pictures of the caterpillar on a *Coreopsis* sp. and a *Rudbeckia* sp. In previous years I have found this caterpillar dressed up in mint flower petals and *Veronica* sp. petals. The adult moth is a small delicate pale green with white wavy line.

Rich Thoma shared pictures of his trips to Arizona, Arkansas, and Missouri. Unfortunately, the heat that dogged us all summer also contributed to the scarcity of insects to photograph in Arizona. Rich was able to capture a few pictures of butterflies, but that was all. Later, Rich and Phil Koenig joined up to travel to Arkansas in search of the Diana Fritillary (*Speyeria diana*). According to *The Butterflies and Moths of Missouri* by J. Richard and Joan E. Heitzman, a few records are know from the southern and eastern Ozarks, but breeding colonies of Diana are yet not known from Missouri. Just south of the border, the Diana is well known it can be locally common. Unfortunately, Rich and Phil did not see any Dianas, even when they visited Magazine Mountain State Park, which is known for its Diana populations.

***Synchlora aerata* (wavy-lined emerald). Photo by Ted C. MacRae.**

After visiting Arkansas, Rich and Phil returned to Missouri and traveled to Schwartz Prairie and participated in the annual Bioblitz held by the Missouri Prairie Foundation. Phil led butterfly walks and Rich helped collect and identify the many bountiful insects that occur on prairies. Rich and Phil did observe large numbers of *Speyeria idalia*, the Regal Fritillary, a Missouri Species of Conservation Concern. The Regal Fritillary is a strict prairie obligate, and according to Phil, it will not even cross the road to forage in adjacent pasture with abundant nectar sources.

After showing pictures of his Arkansas and Schwartz Prairie pictures, Rich showed us the insects he had collected on his journeys. One of the most impressive specimens in Rich's collection was a Mydas fly. Mydas flies are the largest species of the Order *Diptera* or true flies. This specimen was almost 2 inches, all black, with an orange red band around its abdomen. It almost appeared like a giant wasp. The larvae of this fly live in decaying wood and prey on beetle grubs.

Ryan and Abby Fairbanks traveled to California this summer and came back with a small collection of insects. The jewel of Ryan's collection was his

snakefly specimen. Snakeflies are members of the Order *Neuroptera*, known for their wings with net-like patterns. Other members of this Order include Lacewings, Antlions, Owlflies, and Dobsonflies. Snakeflies are in the suborder *Raphidoptera* get their name from their elongated prothorax which appears like a long, snaky neck. Both the larva adult are predaceous on other insects and invertebrates. Snakeflies are western insects and not found in Missouri.

Finally, Laura Chisholm, our hostess from the Butterfly House, introduced a project in the planning stages at the Butterfly House. The Butterfly House is interested in initiating a 'Citizen Scientist' project which will monitor insects in some to be determined format. At this time the project is in the brainstorming stage, but may take the form of layed out trails at determined sites, where citizen scientists can visit and identify, enumerate, and or photograph insects. So far it may take the form of a butterfly or a pollinator count. The plan is to do these counts in urban settings. Laura was asking the WGNSS Entomology Group if they would be interested in acting as insect identifiers for the project, and also if they would be interested in joining any public education events as 'experts'. Our group agreed to help and gave Laura many suggestions of places for the 'trails' as well as questions to be answered in planning the project.

Beetle Botanists

Ted C. MacRae[1]

While *Dicerca pugionata* (family Buprestidae) is, for me, the most exciting beetle species that I've found in Missouri associated with ninebark (*Physocarpus opulifolius*). it is not the only one. The beetles in these photographs represent *Calligrapha spiraeae*, the ninebark leaf beetle (family Chrysomelidae). Unlike *D. pugionata*, however, I almost never fail to find *C. spiraeae* on ninebark, no matter when or where I look, and whereas *D. pugionata* has been recorded in the literature

***Calligrapha spiraeae* on *Physocarpus opulifolius*. Jefferson Co., Missouri.**

associated with a few other host plants like alder (*Alnus* spp.) and witch-hazel (*Hamamelis virginiana*), *C. spiraeae* is not known to utilize any other plant besides ninebark as its host.

Beetles in the genus *Calligrapha* are among the most host-specific of all phytophagous beetles, with most of the 38 species in this largely northeastern North American genus relying upon a single plant genus as hosts (Gómez-Zurita 2005). The genus as a whole is fairly recognizable by its dome-like shape and black and white or red coloration, with the black markings on the elytra varying from coalesced to completely broken into small spots. The species, however, are another matter, with several groups of species that are quite difficult to distinguish morphologically. Fortunately most of them can be easily distinguished by their host plant (although such information is rarely recorded on labels attached to museum specimens). *Calligrapha spiraeae*, for example, with its reddish coloration and small black spots, looks very much like two other species in the genus—*C. rhoda* and *C. rowena*. Those latter species, however, are restricted to hazel (*Corylus*

[1] Originally posted June 1, 2012 at *Beetles in the Bush* http://beetlesinthebush.wordpress.com. Photos by the author.

spp.) and dogwood (*Cornus* spp.); as long as the host is known, the species can be readily identified in the field.

At this point you may be wondering why the species name refers to the plant genus *Spiraea* rather than *Physocarpus*. In fact, ninebark was already known as the host plant when Say (1826) described the species, but the name *spiraeae* was given because at the time ninebark was included in the genus *Spiraea* (Wheeler & Hoebeke 1979).

REFERENCES:

Gómez-Zurita, J. 2005. New distribution records and biogeography of *Calligrapha* species (leaf beetles), in North America (Coleoptera: Chrysomelidae, Chrysomelinae). *Canadian Field-Naturalist* 119(1): 88–100.

Say, T. 1826. Descriptions of new species of coleopterous insects of North America. *Journal of the Academy of Natural Sciences of Philadelphia* 5:293–304.

Wheeler, A. G., & E. R. Hoebeke. 1979. Biology and seasonal history of *Calligrapha spiraeae* (Say) (Coleoptera: Chrysomelidae), with descriptions of the immature stages. *The* Coleopterists *Bulletin* 33:257–267.

A Classic Fall 'Bycid

Ted C. MacRae[2]

In eastern North America, autumn is the beginning of the end for most insect groups. Preparations for winter are either complete or well underway—eggs have been laid, nests have been provisioned, and larvae (hopefully) have eaten well enough to endure the long, cold months that lie ahead. But for a few insects, fall is just a beginning. Triggered by cooler temperatures, shortened daylength, and invigorating rains, adults of these insects burst forth under crisp, blue skies to feed amongst a plethora of fall flowers or prey upon other late season insects before the advancing cold, finally, forces a close to the season. As a beetle man, my favorite fall insects must be the "fall tigers" (i.e., tiger beetles) that come out in force and zip across barren sand dunes or bask on exposed rocks of dolomite glades. My fall insect

***Megacyllene decora* (amorpha borer). Mississippi Co., Missouri.**

collecting focuses almost exclusively on these insects, since my other favorite groups (jewel beetles and longhorned beetles) are, for the most part, restricted in their adult activity to the spring and summer months and long gone by the time fall rolls around. There are, however, a few longhorned beetles that buck the normal spring/summer rule for the family, namely species in the genus *Megacyllene*. The most commonly encountered of these is *Megacyllene robiniae* (locust borer), and anyone who has examined goldenrod (genus *Solidago*) and its profuse blooms during the fall has likely encountered this familiar beetle with its narrow, alternating, zig-zag bands of black and yellow.[3] I have seen this species many times and in many places; however, I still always enjoy seeing it anew in the field each fall—perhaps as some sort of confirmation that the fall season truly has arrived.

Another species in the genus that is far less commonly encountered, however, is *Megacyllene decora* (amorpha borer). I have encountered this stunningly beautiful species in only a handful of locations in Missouri (MacRae 1994)—all where stands of its larval host plant, *Amorpha fruticosa* (false indigo), grow in association with goldenrod and snakeroot (genus *Eupatorium*). These sites are primarily in the big river valleys of the state (Missouri and Mississippi Rivers), although I have found at least one site in the prairies of west central Missouri. Earlier this summer while traveling through the southeastern lowlands of

[2] Originally posted September 12, 2012 at *Beetles in the Bush* [http://beetlesinthebush.wordpress.com]. Photos by the author.

[3] If you see a "locust borer" in the spring, it is actually the closely related *Megacyllene caryae* (hickory borer), while further west in the Great Plains during fall you might find *Megacyllene comanche*.

The species is distinguished from related species in the eastern U.S. by its wide black and yellow bands.

"Blue sky" settings: ISO160–200, 1/200 sec, f/14–16, camera pointed near (not at) the sun.

Missouri, I noticed a stand of native *Hibiscus* growing within a wet ditch along the edge of a small city park and stopped by to look for the even rarer *Hibiscus*-associated jewel beetle, *Agrilus concinnus* (MacRae & Nelson 2003, MacRae 2006). While I did not find that species, I did notice fairly good numbers of *A. fruticosa* plants along the edge of the ditch as well and young goldenrod plants that had not yet reached flowering stage. At that moment I knew I had a good potential site to look for *M. decora* and made a mental note to stop at the site again later in the season when goldenrod began to bloom.

Last week I returned to the site to find not only goldenrod in its earliest stages of bloom, but an even greater number of *Eupatorium serotinum* plants already in bloom. I wanted to photograph the beetle, of course, but what I was really hoping for was to find and photograph the beetle on the stems of its *Amorpha* host plant (I have only seen this once before—all other sightings of the beetle have been on flowers of goldenrod and snakeroot). I approached each *Amorpha* clump cautiously and searched the stems carefully, also keeping an eye on the goldenrod and snakeroot blooms as I moved from one clump to the next. After searching a number of clumps, I finally found the adult shown in these photos. Fortunately, I knew from previous experience in collecting these beetles that they are not a particularly wary species (few aposematically- or mimetically-colored beetle are), so I was able to get a number of good photographs before I (stupidly) bumped the beetle with the diffuser over my flash heads and disturbed it.

Normal "normal" full-flash settings: ISO100, 1/250 sec, f/16.

It would be another half hour before I would find a second beetle, and in total on the day I saw only three (all on *Eupatorium*). This and the very early stage of the goldenrod blooms suggests to me that the beetles were just beginning to emerge—over the next few weeks I am sure they will become more numerous at the site, so I may yet have an opportunity to photograph one on its larval host plant when I pass by the area in a couple of weeks.

REFERENCES:

MacRae, T. C. 1994. Annotated checklist of the longhorned beetles (Coleoptera: Cerambycidae and Disteniidae) known to occur in Missouri. *Insecta Mundi* 7(4) (1993):223–252.

MacRae, T. C. 2006. Distributional and biological notes on North American Buprestidae (Coleoptera), with comments on variation in *Anthaxia* (*Haplanthaxia*) *viridicornis* (Say) and *A.* (*H.*) *viridfrons* Gory. *The Pan-Pacific Entomologist* 82(2):166–199.

MacRae, T. C., and G. H. Nelson. 2003. Distributional and biological notes on Buprestidae (Coleoptera) in North and Central America and the West Indies, with validation of one species. *The Coleopterists Bulletin* 57(1):57–70.

Seminars at St. Louis Zoo

Sandra Faneuff

The Academy of Science-St. Louis, in partnership with the Saint Louis Zoo, presents the 2012-2013 Science Seminar Series with Science Seminars and Conservation Conversations, underwritten by Cooper Bussmann. Adults, teachers, middle and high school students, and the general public are invited to attend these no-cost lectures on topical issues in science. Presentations are 7:30–9 p.m., The Zoo Living World Auditorium. No reservations required. For information on this event and other programs at the Academy of Science- St. Louis check their website: www.academyofsciencestl.org or call 314-533-8586.

CONSERVATION CONVERSATIONS

Tuesday, November 20 2012
The Unique Conservation Challenges of Saving the Vulnerable Desert Humboldt Penguin in Punta San Juan, Peru.

Michael Macek, Curator of Birds at the Saint Louis Zoo and Director of the Center for Conservation of the Humboldt Penguin in Punta San Juan, Peru.

Michael Macek has served as the Curator of Birds for the past 18 years. In addition to managing the zoo's collection of nearly 200 species of birds, Michael also oversees three long-term in-situ zoo sponsored conservation endeavors involving the threatened Humboldt penguin in Punta San Juan, Peru, the critically endangered horned guan in Chiapas, Mexico, and the critically endangered avifauna of the Mariana's islands.

Unlike their polar cousins, temperate species of penguins such as the Humboldt are presented with a unique set of conservation challenges. At the turn of the century the Humboldt penguin was thought to exist in numbers close to several hundreds of thousands. Today only 60,000 survive. Threats vary from over fishing of the birds main prey species of Anchovetta to the increased frequency of El Nino events. The Center for Conservation of the Humboldt Penguin in Punta San Juan, Peru has been working with a network of partners over the course of the last ten years to develop a multi-facetted conservation program. Through these partnerships real change has occurred and the future of the Humboldt penguin looks brighter.

Group Activity/Walk Schedules

BOTANY GROUP
Chair—George Van Brunt

- **Monday Botany Walks**, Leader—Fr. James Sullivan; now in his **45th year**! 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

Monthly meetings are held September through May and normally occur on the third Monday of the month.

- **Monday, October 15, 7:00 p.m.** This month the Entomology Group will gather to share a good laugh with Insect and Arthropod humor. Bring some of your favorite examples of insect and or arthropod humor. This can include cartoons, jokes, puns, or amusing pictures of insects. This should be a fun night. **Please note that October 15 is the correct date.** Butterfly House (Faust Park), 15193 Olive Blvd., Chesterfield.
- **Monday, November 19, 7:00 p.m**. Join the Entomology Group in welcoming **Kevin G. Smith**, our speaker for the evening. The title of Kevin's talk is "Dragonflies as links between aquatic and terrestrial ecosystems." Kevin is an Adjunct Professor at Washington University and Associate Director of Washington University Tyson Research Center. Butterfly

House (Faust Park), 15193 Olive Blvd., Chesterfield.

NATURE BOOK CLUB

Chair—Lisa Nansteel

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 the Evangelical United Church of Christ in Webster Groves on the second Tuesday of the month from 1:30-3:00 p.m. For more information and directions contact Lisa Nansteel at (636) 391-4898. All are welcome—especially newcomers!! Upcoming books:

- **November 13**—*Feathers* by Thor Hanson
- **December 11**—*The Longest Winter* by Meredith Hooper

ORNITHOLOGY GROUP

Chair—David Becher

- **Saturday Bird Walks**, Leader—David Becher. All trips through December 15th begin at 8:00 a.m. at Des Peres City Park parking lot (Ballas Road just north of Manchester Rd. and east of West County Mall) and continue through lunch. Everyone is welcome. The leader reserves the right to change the schedule if necessary. Contact David at (314) 576-1146 or DavidBecher@msn.com if you have questions.
- **Thursday Bird Walks**, Leader—Jackie Chain. All trips begin at 8:30 a.m. at Des Peres City Park. Contact Jackie at (314) 644-5998 or chainjac@sbcglobal.net if you have questions. If there is a change in meeting time or place, we will advise by posting on MOBIRDS.

For general information about WGNSS activities, contact Membership Chairman Joe Whittington at whittex@aol.com or (314) 645-3272.

Editor's Corner

Ted C. MacRae

***NATURE NOTES* BY EMAIL**

Nature Notes is available by regular post or email; however, there are significant advantages to receiving it by the latter method. These include elimination of printing and mailing costs (reducing not only the cost of your subscription, but also decreasing its environmental impact) and the ability to view *Nature Notes* **in full color**. Embedded hyperlinks allow instant navigation to email addresses and websites. Of course, you can always print your electronic copy of *Nature Notes* if you wish (please use recycled paper and print on both sides). *Nature Notes* by email is sent as a PDF, which can be opened using Adobe Reader (download free at http://get.adobe.com/reader/). Contact Joe Whittington, Assistant Treasurer, at whittex@aol.com to convert your subscription.

CALL FOR SUBMISSIONS

We welcome announcements of nature related events in the St. Louis area, notices of publications, and original nature oriented articles. Suggested topics include field trip accounts, information about local natural areas, interesting nature sightings, or reviews of nature related books. Articles reprinted from other sources must obtain permission from copyright holders.

Send submissions to ted.c.macrae@monsanto.com. Limit text formatting to bold for emphasis and italics for scientific names. Avoid tabs, extra spaces, multiple hard returns, underlining, etc. (these will be removed during final formatting). Photographs will be included on a space-available basis. Contributions are welcome from all—remember, this is your newsletter!

WGNSS 2013 Photo Contest

The Webster Groves Nature Study Society will be holding a **Photo Contest** at the April 2013 General Meeting. Entries will be accepted from November 1, 2012 to March 2, 2013 and is open to all WGNSS members at no cost. Members may enter 2 photos each in a maximum of 3 of the following 5 categories (maximum 6 photos):

a. Botany
b. Ornithology
c. Entomology
d. Natural History Book Club
e. Landscapes and scenery

Photos will be judged on quality, natural history uniqueness and overall naturalist appeal.

Prizes to be awarded are as follows: One Grand Prize ($300) will be awarded. In each category a 1st ($200), 2nd ($100) and 3rd ($50) place will also be awarded. All winning photos will be matted, framed and displayed at Powder Valley Nature Center during June 2013.

For more details on contest rules, photo requirements, and judging, go to the WGNSS website (www.wgnss.org).