



Nature Notes

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President's Corner

Rich Thoma

In February, WGNSS will hold its annual joint meeting with the St. Louis Audubon Society. **David Peters** from the Eastern Missouri Paleontological Society (EMPS) will be speaking about “The Early Evolution of Birds”. In recent years, new feathered dinosaurs are frequently being unearthed and with each find a greater understanding of how birds evolved from their theropod ancestors is gained. Dave’s presentation will encompass the entire Mesozoic era, from the first dinosaurs to when birds took to the air. In the talk, we can expect discussion about the evolution of the feather in the earliest non-flying theropods. Dave will also talk about whether birds evolved from ground or tree dwelling theropods. Did flight begin with an animal that rapidly ran across the ground or leaped off a branch? In addition, Dave will discuss the ecological competition birds had from that other Cretaceous animal using the sky, the pterosaur. Since this is an evolutionary talk, we have extended an invitation to the EMPS to also come to this meeting. This meeting will bring together members from three of St. Louis’ natural history organizations. This joint meeting will take place at the Grand Glaze Branch of the St. Louis County Library. More information can be found later in this issue of *Nature Notes* [Ed. note—see page 18].

If you haven’t done so all ready, now would be a good time to start thinking of ways where you can make a difference in 2012. WGNSS has many opportunities where we could use your help and would like you to get involved. If you like to work with children and young adults, the WGNSS Outreach Program may be just for you. Teachers often recognize that they may be missing a particular skill and are always looking other people that can help in that area. The Outreach Program is looking for more people that are willing to teach our youth about the wonders of the outdoors. The birding natural history group is looking for someone that would be willing to attend WGNSS board meetings. It is vital that the lines of communication between each natural history group and rest of WGNSS remain strong. One of the best ways this can be accomplished is to have a representative who will present the birders views to the board and to pass WGNSS information back. One of the best ways to gain new WGNSS members is to advertise our organization at St. Louis community events. WGNSS typically has a display table at St. Louis Zoo, Botanical Garden, Earth Day and other events drawing the area’s natural history organizations. Each event requires at least two people to answer questions from visitors interested in learning about WGNSS. If you have a few hours free, WGNSS could use your help, manning a WGNSS table at one of these community events. Do you have artistic abilities? If so, WGNSS could use your help designing signs, stickers, t-shirts and other ways to advertise our

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organization. The Conservation Natural History group is looking for a volunteer to lead an environmental improvement project. So much needs to be done in the St. Louis area to improve our community. All it takes is someone to step forward to lead an event. We are also looking for someone that will keep track of environmental issues in the St. Louis area and pass that information on to everyone in WGNSS. Don't forget about *Nature Notes*. WGNSS is always looking for people to contribute natural history articles. These are just some ideas where you can immediately get involved. There are probably many others that I have not thought of. If you think you have a good idea or see a need, be sure to discuss it with others in WGNSS. There is a good chance others will think it is a good idea too. Please remember, this is your organization and we all want to contribute to make WGNSS great!



November Bird Report

David Becher

November was an average month weather wise. Numbers of ducks were high early in the month,

but appeared lower as the month went on. There were good numbers of some of the moderately rare species. The biggest sensation was, of course, the Common Ground Dove at Weldon Springs CA. It was an area bird for nearly everyone and a state bird for most observers. Despite the large numbers of people both birders, hunters, and others in the area it was remarkably tame.

The first small group of Trumpeter Swans was reported by the staff at RMBS and John Solodar on the 4th. Their numbers then continued to rise through the month. Pat Leuders reported 86 on the 18th. The first Tundra Swans were reported by Josh Uffman on the 21st along Riverlands Way. Swan numbers were hard to determine accurately as often scattered widely to feed.

Pat Leuders reported a fly over of 46 White-fronted Geese in Wildwood on the 2nd and occasional groups were seen thereafter. John Solodar reported a sighting on a single Cackling Goose in a flock of Canada Geese on the Illinois side of Alton Dam. Frank Holmes reported finding 80 Ross' Geese in a flock of 500 Snow Geese at Riverlands on the 21st. Other observers also reported numerous Snow and Ross' Geese at Riverlands that day.

On the 3rd there was a huge movement of ducks into the area. The lakes at Busch Wildlife had thousands of ducks and there were reports of higher than usual numbers from around the area. Most of the common duck species were reported including Canvasback, Redhead, and Lesser Scaup. The first Red-breasted Mergansers of the season were apparently seen by Bryan Prather on Creve Coeur Lake on the 4th. Josh Uffman reported 148 Bufflehead at RMBS on the 21st, a very high number for this species in the area.

Bill Rudden photographed four White-winged Scoters at Riverlands on the 2nd, but they were not refound the next day. Connie Alwood reported another White-winged Scoter in Ellis Bay on the 20th.

Al Smith found a Black Scoter at Lincoln Shields at RBMS on the 4th. The next day the Saturday group found three more for a total for four. These birds remained in the area for several weeks and were observed by many. Bryan Prather also had a Black Scoter on Creve Coeur Lake on the 17th.

David Becher reported a single Surf Scoter on the 8th in Ellis Bay at Riverlands, but it apparently did not stay long. Chrissy McClarren found four more Surf Scoters and a Long-tailed Duck on the 23rd that stayed in Ellis Bay through the end of the month.

This has been a good year for Common Loon observations in the Saint Louis area. They were present at RMBS off and on all month. At least one and possibly more Commons were seen by Charlene Malone at RBMS on the 3rd. Bryan Prather reported a remarkable 23 Common Loons on Creve Coeur Lake on the 4th, along with 25 Horned Grebes. The loons, however, did not stay for long. On the 21st, he reported 55 Horned Grebes there. Josh Uffman had another 89 plus 13 Common Loons at Riverlands the same day. A single Common Loon was seen repeatedly in Teal Pond area at the end of the month.

Andy Reago and Chrissy McClarren spotted two Cattle Egrets in the marsh east of Heron Pond on the 20th. At least one of them apparently remained in the area to the end of the month. From Horseshoe Lake, Frank Holmes reported 8 Great Egrets on the 13th and 7 Black-crowned Night Heron on the 20th.

Al Smith found and videoed a very late Common Gallinule at Hampton Lake at Busch on the 2nd and it remained until at least the 4th. The bird was apparently a youngster as it did not appear to have a fully developed frontal shield. Al Smith also photographed a Sandhill Crane with one of the Cattle Egrets at at RMBS on the 23rd. It was seen by a number of others lucky enough to get there that day.

There were still fair numbers of late shorebirds early in the month. Charlene Malone reported 35 Dunlin, 7 Black-bellied Plovers, 7 Least Sandpipers, 4-5 Dowitcher (species) and one fly-over Greater Yellowlegs at Heron Pond and 11 more Greater Yellowlegs at the pond near the dam on the 3rd.

Bryan Prather flushed a Woodcock near Creve Coeur lake area on the 4th. Numbers dwindled rapidly and by the middle month only a few straggling Least Sandpipers, Wilson's Snipe, and Killdeer and the occasional Dunlin were being reported.



Dunlin, 11/21. Photo by Bill Rudden.

Gulls were not plentiful this fall and the rarer species were not much reported. Charlene reported eight Bonaparte's Gulls on Teal Pond on the 3rd and Pat Leuders had six at Creve Coeur Lake the next day. On the 5th Charlene reported two Franklin's Gulls (rare this year) and six Bonaparte's Gulls in the evening roost along with a few Herring Gulls and hordes of Ring-bills at RBMS. The best gull of the month was undoubtedly the juvenile Black-legged Kittiwake that Charlene Malone found in Ellis Bay on the 20th. It could not be refound the next day, but Josh Uffman did report an adult Lesser Black-backed Gull and 25 or more Bonaparte's Gulls.

On the 24th Mike Brady found a Common Ground Dove on the Blue Grosbeak Trail at Weldon Springs. This is apparently the second Saint Louis area record as there is a record for Monroe County, Illinois, but this is the first for the Missouri side of the river. This species is considered casual in Missouri with a few records in the western part of the state. The bird has proved quite easy to observe for those with enough patience despite the presence of various hunters and walkers. It often feeds in the middle of the trail and can be approached quite closely without flushing.

Anne McCormack had a late male Ruby-throated Hummingbird at her feeder in the middle of the month that remained until at least the 25th. This is remarkably late date for this species and particularly for a male bird as they tend to migrate earlier in the season than the females and immature.

On the 26th Tom Bormann found an adult male Harris Sparrow on the Blue Grosbeak Trail at

Weldon Springs. Later that day Connie Alwood had a juvenile closer to the parking lot and David Becher had another near where Tom had reported the adult the next day. Unfortunately none of these birds appeared to be easily reproducible in the following days.

This has not been a very good year for blackbirds. While there have been some reports of good numbers of both Brewer's and Rusty Blackbirds the overall numbers appear to be lower than usual this year. Mike Thelan reported a mixed flock of 80 Rusty and 90 Brewer's Blackbirds on Red School Road in near Riverlands on the 5th. Bryan Prather reported a few Rusty's near Creve Coeur Lake on the 18th. Josh Uffman reported 25 on Red School Road on the 21st. The Great-tailed Grackles returned again this year to Bryan Island Stables in Saint Louis County on the 16th and were reported by Andrew Reago. However, the flock that has been seen in Saint Charles County the last few years failed to appear at its usual location.

On the 25th Mike Flieg found a Dickcissel at this bird feeder. This bird should have been in South America by then. Dan Kassebaum reported a Snow Bunting at Carlyle Lake at South Shore Park on the 6th. Bryan Prather reported 100 Lapland Longspurs along the Confluence Road near Riverlands on the 18th.



September Botany Report

Compiled by George Van Brunt

September 5, 2011—Onondaga Cave State Park, Crawford County, MO (contributed by Steve Turner).

Time: 9:30 a.m.–12:30 p.m.

Conditions: Sunny, 60–mid 70s° F.

Participants: Nancy Clark, Wayne Clark, Jack Harris, Pat Harris, Louise Langbein, Larry Morrison, Burt Noll, John Oliver, Fr. Sullivan, Ruth TenBrink, Steve Turner, George Van Brunt.

The day's group of an even dozen botanists assembled at the Visitor's Center on a morning which was clear and remarkably cool, a welcome contrast from the sometimes oppressive heat of the preceding summer days. Over the next three

hours, the group explored a narrow oblong tract, proceeding southwest along a trail approximately 0.4 miles from the parking area and returning via a parallel road which ran just to the south. Much of the interior of this loop consisted of a spring-fed pond with lush borders of highly diverse flora.

Species well-represented along much of the loop included the ever-present *Ambrosia trifida* (giant ragweed), *Verbesina alternifolia* (yellow ironweed), *Hibiscus lasiocarpus* (hairy rose mallow), and *Vernonia gigantea* (tall ironweed). The common name of the last is well-chosen, since specimens up to at least 7 feet in height were seen. The identity of this species was secured through the observation of appressed involucre bracts, leaf undersides which were only sparsely hairy with minute hairs, most of which were along the veins, and relatively few florets (<30) within the head.

At one point a spur of the trail led into a hollow alongside the spring which sources much of the surface water in the area. In this area were found numerous individuals of *Broussonetia papyrifera* (paper mulberry), easily recognized by its large, velvety leaves, many of which are extravagantly trilobate. Also observed in this area was a nicely flowering specimen of *Verbascum thapsus* (flannel plant). These two species were extensively photographed and then vouchered in support of a project, recently initiated within the WGNSS botany section, which seeks to add voucher-verified photographic documentation to the TROPICOS database.

Additional species of interest were encountered as we continued along the wooded pond bank. Many ripe pods of *Staphylea trifolia* (bladdernut) were observed hanging from their parent trees; each of these contains several shiny brown seeds about the size and shape of popcorn kernels. Two members of the Menispermaceae (moonseed) family were found. The first was *Menispermum canadense* (moonseed) itself. Second came the large, characteristically lobed leaves of *Calyocarpum lyonii* (cupseed), and before long we discovered one of these vines loaded with fruits. The infructescences resemble long clusters of green olives, and each fruit contains a bowl-shaped seed with a sharply fringed rim. This plant became our third TROPICOS project specimen. Along this leg of the walk, additional species observed in flower included *Verbesina virginica* (white crownbeard),

Phlox paniculata (perennial phlox), *Lactuca floridana* (Florida lettuce), *Rudbeckia triloba* (brown-eyed Susan), *Heliopsis helianthoides* (oxeye), *Solidago ulmifolia* (elm-leaved goldenrod), *Commelina erecta* (dayflower), *Agastache nepetoides* (yellow giant hyssop), and *Silphium perfoliatum* (cup plant). Nearer the water edge, or in the mud of the pond, were found *Sagittaria latifolia* (duck potato), *Iresine rhizomatosa* (ghost plant), and *Persicaria virginiana* (Virginia knotweed).

Rounding the far end of our loop, we came upon a swale containing a number of additional plants adapted to wet areas. Most conspicuous was *Lobelia cardinalis* (cardinal flower), of which there were at least a couple dozen stems bearing the characteristic showy, bright red blooms. Also well-represented were *Lysimachia nummularia* (moneywort), *Eclipta prostrata* (yerba de tajo), and *Persicaria punctata* (water smartweed), and isolated specimens of *Penthorum sedoides* (ditch stonecrop, in fruit) and *Mimulus alatus* (winged monkeyflower) were also found.

Returning toward the parking area along the south side of the pond, we continued to find additional plants. These included *Eupatorium purpureum* (Joe-pye weed), *Eupatorium serotinum* (late boneset), *Conoclinium coelestinum* (mist flower), *Oenothera filiformis* (gaura), *Helianthus tuberosus* (Jerusalem artichoke), *Persicaria pensylvanica* (Pennsylvania smartweed), *Helenium flexuosum* (purple-headed sneezeweed), *Asclepias incarnata* (swamp milkweed), *Solidago gigantea* (giant goldenrod), *Bidens tripartita* (beggar ticks), and others.

Plants that were photographed and vouchered for the TROPICOS project on this outing:

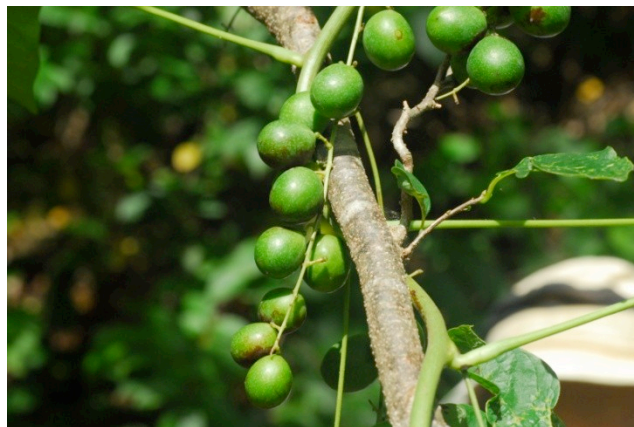
- *Broussonetia papyrifera* (paper mulberry)
- *Verbascum thapsus* (flannel plant)
- *Calycocarpum lyonii* (cupseed)
- *Vernonia gigantea* (tall ironweed)
- *Lobelia cardinalis* (cardinal flower)

September 12, 2011—Lower Meramec County Park, St. Louis County, MO (contributed by Jack Harris).

Time: 9:30 a.m.–12:30 p.m. (+/-).

Conditions: Sunny, 70–85° F, calm.

Participants: Wayne Clark, Nancy Clark, Jack Harris, Pat Harris, Louise Langbein, Dave Alspaugh, Larry Morrison, Dave Tylka, Barb Shaw, and John Oliver.



Calycocarpum lyonii fruits (top) and seed (bottom). Photos by Steve Turner (top) and George Van Brunt (bottom).

Ecologists classify the area that includes the Lower Meramec County Park¹ as the “Lower Meramec Highlands Alluvial Plain,” a “Landtype Association” element within the “Outer Ozark Border Subsection.”² The terrain is typical level floodplain and was historically bottomland forest subject to occasional flooding either as backwater from the nearby Mississippi River or from the Meramec River.

Vegetatively the area is still recovering from the impact of what was once a small community of modest residences and “club houses” and some agriculture. Traces of that period are apparent with occasional remnant species of exotic ornamental garden plants observed. Presently the area is mostly forested with tree species adapted to the

¹ A Lower Meramec Park map is not listed as a Park at <http://www.stlouisco.com/ParksandRecreation/ParkPages>. The map is listed under “Maps & Facts,” “Trail Maps” on that same page.

² *Atlas of Missouri Ecoregions*, by Timothy A. Nigh & Walter Schroeder, 2002. This document may be downloaded (221 mb) at: http://newmdcgis.mdc.mo.gov/ecoregions/images/atlas_of_missouri_ecoregions.htm



Agalinis tenuifolia (slender gerardia) (top) and *Junonia coenia* (common buckeye butterfly) larvae on slender gerardia (bottom). Photos by Jack Harris.

lowlands. The trails and riverside result in canopy openings, which permit sunlight to reach the forest floor and, hence, opportunity for recolonization of various grasses and forbs.

In the past couple years, there has been added a 2-mile paved riverside trail, a new public trailhead, and a 15-acre Mesic Prairie restoration. Several other unpaved footpaths branch off from this route. This day's field trip mostly followed the



Arisaema triphyllum ssp. *triphyllum* (Jack-in-the-pulpit) fruits. Photo by Jack Harris.

river side trail with occasional short off-trail excursions. Early on a robust blooming aster near the trail caught the attention of the group. Fortunately John Oliver had brought his copy of the recently published keys to the Missouri members of the *Symphyotrichum* genus. After a thorough wending through the options it was concluded that the plant was *Symphyotrichum lateriflorum* (white woodland aster).

Farther along the trail, we were reminded of the approaching fall season by the brilliant red, clustered fruits of *Arisaema triphyllum* ssp. *triphyllum* (Jack-in-the-pulpit). This fruiting arrangement is derived from the tiny pistillate flowers that are attached to the columnar spadix (the Jack). Interestingly, as the plant ages (in years) the flowers may change from all staminate early on, and hence no red fruits, to all pistillate. Notwithstanding the curious flower structure and colorful fruit, the plant contains calcium oxalate crystals and is considered toxic if consumed.

Another bright spot of the day was a small population of *Agalinis tenuifolia* (slender gerardia). Historically this genus has been included in the *Scrophulariaceae* (figwort family). Recent molecular studies have shown it to be more closely related to members of the *Orobanchaceae* (broomrape family). The many bright pink flowers prompted busy exercise of several camera shutters. And while examining the inside of the five lobed, campanulate tube flowers revealed markings of several spots and lines, an added feature was discovered. The plant was playing host to the colorful caterpillar *Junonia coenia* (common buckeye butterfly). This critter is noted in the caterpillar literature for the metallic, blue-black reflections

emanating from the base of the dorsal spines when in bright light. This characteristic can be captured and observed in enlargement of digital photos.

In some spots the trail passes close to the banks of the Meramec River. Here a few of the more agile botanists John Oliver, Louise Langbein, and Pat Harris made a short off trail excursion down the short, steep river bank to examine *Hibiscus laevis* (rose mallow) and *Cynanchum laeve* (angle-pod).

An eclectic sample list will provide a flavor of the variety of plants that can be found in the Park: *Acalypha rhomboidea* (rhombic copperleaf), *Ampelopsis arborea* (pepper vine), *Asimina triloba* (pawpaw), *Bidens aristosa* (tickseed sunflower), *Cephalanthus occidentalis* (buttonbush), *Chasmanthium latifolium* (river oats), *Commelina virginica* (dayflower), *Cornus drummondii* (rough-leaved dogwood), *Ilex decidua* (deciduous holly, possum haw), *Ipomoea lacunosa* (small white morning glory), *Kummerowia stipulacea*¹ (Korean clover), *Lespedeza cuneata** (sericea lespedeza), *Lonicera japonica** (Japanese honeysuckle), *Penthorum sedoides* (ditch stonecrop), *Phyla lanceolata* (northern fog fruit), *Pyrrhopappus carolinianus* (false dandelion), *Quercus palustris* (pin oak), *Rudbeckia laciniata* (wild goldenglow), *Polygnum uedalia* (bearsfoot), *Solanum ptycanthum* (black nightshade), *Spermacoce glabra* (smooth buttonweed), *Toxicodendron radicans* (poison ivy), *Vitis riparia* (riverbank grape), and *Wisteria frutescens* (wisteria).

September 19, 2011 – Victoria Glade Reserve, Jefferson County, MO (Contributed by George Van Brunt)

Eleven botanists met in the Victoria Glade parking lot on a mild, cloudy, somewhat sprinkly, end of summer day. The 239 acre west side of Victoria Glade belongs to the Missouri Department of Conservation while the 101 acre east side belongs to The Nature Conservancy. Fr. Sullivan, accompanied by Steve Turner, Wayne Clark, Nancy Clark, Bill Knight, Jack Harris, Pat Harris, Larry Morrison, Louise Langbein, Burt Noll, and George Van Brunt, botanized The Nature Conservancy part of this glade system.

Victoria glade is situated on Jefferson City-Cotter dolomite of early Ordovician age (about 490 million years old). The glade, always dry, was

showing the effects of the very hot and dry summer. The predominant color of the day was brown, but when we looked closely, many plants were in bloom. We saw the tiny white flowers of *Euphorbia corollata* (flowering spurge), *Hedyotis longifolia* (long-leaved bluets), and *Heliotropium tenellum* (slender heliotrope) as well as the larger white flowers of *Eupatorium altissimum* (tall boneset). The flowers of *Silphium terebinthinaceum* (prairie dock), *Rudbeckia missouriensis* (Missouri coneflower), *Solidago nemoralis* (gray goldenrod), *Solidago gattingeri* (Gattinger's goldenrod), *Helenium autumnale* (yellow sneezeweed), and *Solidago rigida* (stiff goldenrod) added yellow color to the glade. Flowers of various other colors were provided by *Allium stellatum* (cliff onion), *Liatris cylindracea* (cylindrical blazing star), *Trichostema brachiatum* (fluxweed), *Croton capitatus* (woolly croton), *Prenanthes aspera* (rattlesnake root), *Agalinis tenuifolia* (narrow-leaved false foxglove), and *Symphyotricum patens* (spreading aster). Grasses we identified included *Muhlenbergia glaberrima* (inland muhly), *Sporobolus heterolepis* (prairie dropseed), *Sorghastrum nutans* (Indian grass), *Andropogon gerardii* (big bluestem), *Panicum virgatum* (switch grass), and *Bouteloua curtipendula* (side-oats grama). *Hypericum sphaerocarpum* (round-fruited St. John's wort), *Rhamnus caroliniana* (Carolina buckthorn), *Vernonia arkansana* (Ozark ironweed), and *Manfreda virginica* (American agave) were in fruit.

Helenium autumnale (yellow sneezeweed) is a common native North American species that ranges over the entire continental United States and most of Canada. Carl Linnaeus named this species applying the ancient Greek name, Ἑλενιον (Helenion) as its genus name. Helenion was the name for calaminth, *Calamintha incana*, a species named for Helen of Troy. It was a common practice for Linnaeus to employ a classical name for a plant species as part of the scientific binomial of an unrelated species. The species epithet, *autumnale*, refers to its fall flowering. Despite the common name of this species, it is not a fall allergen like the ragweeds. Ragweeds are wind pollinated, while sneezeweed is insect pollinated (bees and lepidopterans) and its pollen is not found in the air. Rather, its common name comes from the Native American practice of making a powder from the dried flower heads to be used as a snuff. When sniffed up the nose, it

¹ Asterisks (*) indicate alien/exotic species.



Helenium autumnale inflorescences (top), involucres (middle) and upper surface of leaf (bottom). Photos by George Van Brunt.

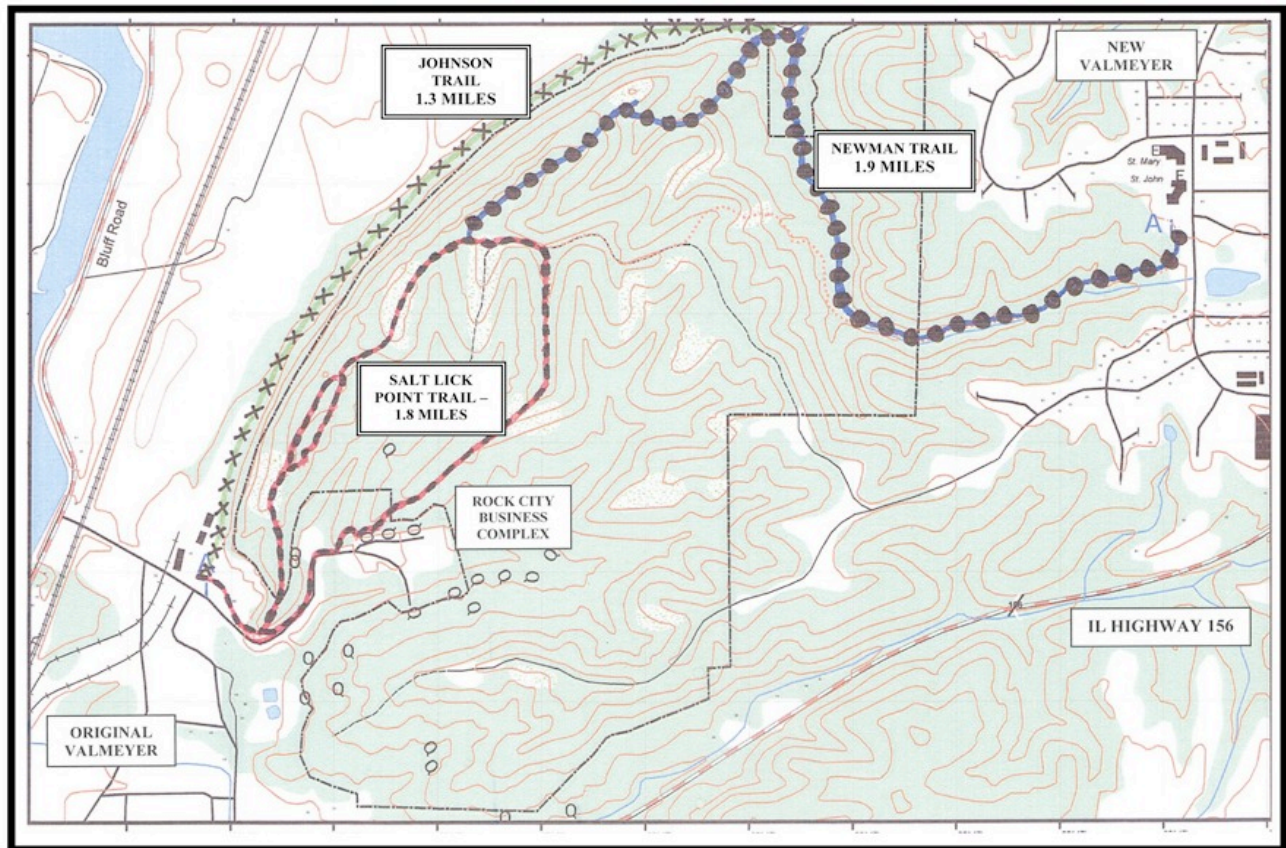
induces sneezing and was used by native peoples to treat upper respiratory illnesses. Yellow sneezeweed produces a sesquiterpene lactone called helenalin. Helenalin is an insecticide but is also toxic to other species especially grazing animals like cattle which usually avoid the plants unless there is nothing else to eat. All parts of these plants are toxic and, if eaten in sufficient quantity, cause diarrhea, vomiting, and death.

September 26, 2011—Salt Lick Point Land & Water Reserve (Johnson Trail), Valmeyer, IL (contributed by John Oliver).

Time: 9:30–11:30 a.m.

Participants: Fr. Sullivan, George Van Brunt, Jack Harris, Pat Harris, Wayne Clark, Nancy Clark, John Oliver, Burt Noll, Louise Langbein, Steve Turner, Larry Morrison, and Richard Abbott.

The village of Valmeyer, Illinois has never been larger than it is today. Its population is 1200 and growing as a result of the combination of a natural disaster and determined rebuilding with the aid of federal funding through the Federal Emergency Management Agency (FEMA). The name means “valley of the Meyers,” because it was originally settled in the mid 19th century, by the Meyers family, whose descendents live in the area to this day. The only other settlers in the western portion of Monroe County were a few isolated farm families and some scattered businesses catering to the barges and packet boats that passed along the Mississippi River. During the 1890’s, the construction of the railroad between St. Louis and Chester brought additional development to several small communities along its route. By 1909, the population had grown to the point where Valmeyer was incorporated as a Village under the laws of the State of Illinois. The rich floodplain around Valmeyer, is part of a larger region of Illinois floodplain extending from Alton to the Kaskaskia River, commonly referred to as the American Bottoms. Deforestation of the river banks in the 19th century to fuel steamboats had dramatic environmental effects in this region, leading to the Mississippi River between St. Louis and the confluence with the Ohio River becoming more wide and shallow, as unstable banks collapsed into the water. This resulted in more severe flooding and further lateral changes of the major channel, causing the destruction of several French colonial towns, such as Kaskaskia, Cahokia, and St. Philippe, Illinois. Levees constructed by railroad interests offered some protection in the industrial area that sprang up across from St. Louis, but the southern portion of the American Bottoms was then, as it is now, primarily agricultural, and subject to periodic flooding. The town of Valmeyer was flooded in 1910, 1943, 1944, and 1947. In the 1940s and 1950s, the Army Corps of Engineers constructed a



Salt Lick Point *Land & Water Reserve*

Trail Map of the property (Copyright © 2010 Village of Valmeyer).

levee system to protect the village and surrounding area. This levee system successfully protected the area from flooding for almost 50 years, even as floods occurred upstream from Valmeyer, the most significant threat having come in 1973. Residential and business growth continued in the area, and by 1990 Valmeyer’s population stood at 900. But Valmeyer’s protective levee system was to be severely challenged by the high Mississippi River levels of 1993. On August 1, those levees were overtopped, and flood waters flowed through the village with water depths up to sixteen feet. 90 percent of Valmeyer’s buildings were damaged beyond repair, and the water continued to flow through the middle of town a full two months later.

By the early fall of 1993, it was evident that Valmeyer in its existing setting and in its current condition could not continue to function as a village, because of the damage caused by the flood

waters. Local officials and village residents made the decision to move the town center to higher ground – atop a 400 foot bluff adjacent to the former village site.

In the “old town” area, prior to the incorporation of the village of Valmeyer, the area that developed near the bluffs was called “Rock City.” Around 1900 the St. Louis Valley Railroad opened a quarry in the bluffs to provide rock for their roadbed as the railroad was built through the Monroe County bottoms. After the railroad had enough rock for their needs the quarry was closed. Around 1918, the quarry was reopened as the Columbia Quarry Company. This company continued limestone quarrying operations at the facility until the early 1990’s. For many years the mined out area of the quarry was used for growing mushrooms. The first mushroom farm was started in Valmeyer in 1930 under the name of Valmeyer Farms. In 1950 the mushroom farming operation was taken over by

the Knaust family of New York. Knaust marketed fresh mushrooms throughout the greater St. Louis area, and shipped canned mushrooms around the world. In 1974, the plant was sold to the Castle and Cooke Company of California, and the facility was eventually closed in 1981.

During the height of the Cold War in the late 1950's and early 1960's, part of the abandoned underground was set up as a Civil Defense shelter, completely stocked with supplies to accommodate thousands of people in the case of a nuclear attack. As a result of the relocation of Valmeyer following the 1993 flood, the village of Valmeyer took over ownership of the quarry property in 1995. In 2000, the village entered into a marketing agreement to develop the abandoned quarry into an underground business complex. More than 6 million square feet of space is available for development. The facility now includes more than 200,000 square feet of refrigerated warehouse space, and development is underway on 400,000 square feet of space for the National Archives and Records Administration for storage of military personnel records. But the westernmost portion of the bluff and quarry, extending north of Rock City to the "new town," was saved for another purpose.

The village of Valmeyer has entered into an easement agreement with the Illinois Department of Natural Resources and the Illinois Nature Preserves Commission to designate a large parcel of blufftop acreage as the Salt Lick Point Land and Water Reserve. Also participating in this project is the Illinois Clean Energy Foundation and the Illinois Audubon Society. Designation of this site occurred because of the existence of hill prairies and glades, along with the existence of several state endangered and threatened species. Parts of the glades and hill prairies are suffering from encroachment by shrubs and exotic species, and restoration work is underway under the supervision of a local stewardship committee. The Valmeyer Boy Scout Troop has also done extensive restoration work on the site. Village officials are committed to the long-term protection of this Illinois Natural Area Inventory Site.

Approximately 750 acres of contiguous, undeveloped forested land are now owned by the Village of Valmeyer. A 1991 Illinois Department of Natural Resources study found only 40 sites of greater than 500 acres of contiguous forest in

Illinois. Many forest birds need several hundred acres of contiguous habitat for successful breeding, and accordingly, this site is home to many bird species.

There are three maintained trails in the Reserve, totaling five miles in length, and these access very different types of terrain. The hill prairies and bluff glades can be reached by using the 1.8-mile Salt Lick Point trail, and the 1.9-mile Newman trail extends to the "new town" of Valmeyer. On this, our first visit, we opted for the Johnson trail, which extends for 1.3 miles along the base of the bluff through rich, mesic bottomland forest and intersects with the Newman trail on the north end. We were pleasantly surprised at the number and variety of plant species we encountered, recording over 90 different species in our short walk. Plants that attracted particular attention included *Cardiospermum halicacabum* (balloon vine) – an introduced member of the Sapindaceae family with a very interesting growth habit, considered a noxious weed in some southern states, but which we rarely see, *Salix myricoides* (bayberry willow) – an attractive willow which does not occur in Missouri, *Smilax uvealium* (bearsfoot) – a yellow-flowered leaf cup with a distribution that is scattered enough to make it a treat to find, and *Symphoricarpos oolentangiense* (azure aster) – a pretty blue aster which usually elicits the story that its name represents what George Yatskievych calls "a noncorrectable misspelling of the place where the species was first discovered, the Olentangy River in Ohio." (The story is further complicated by the fact that the name Olentangy was misapplied by the Ohio legislature to the river, which had actually been called *keenbongshbeconsepung* by the Delaware tribe, but using that for a species name would make this report even longer.) Returning to the cars, we agreed that the weather and the unexpected variety of species observed had made for a delightful outing and decided to return the following week to explore the ridge-top trail.

The complete list of plant species observed on this trip: *Acalypha rhomboidea* (common threeseed mercury), *Acer negundo* (boxelder), *Acer saccharinum* (silver maple), *Agalinis pauperula* (smallflower false foxglove), *Agastache nepetoides* (yellow giant hyssop), *Ageratina altissima* (white snakeroot), *Ampelopsis cordata* (raccoon grape), *Anemone virginiana* (tall thimbleweed), *Asarum canadense* (Canadian wild



Helianthus tuberosus (Jerusalem artichoke). Photo by Pat Harris.

ginger), *Asclepias syriaca* (common milkweed), *Asimina triloba* (pawpaw), *Bidens frondosa* (devil's beggarticks), *Boehmeria cylindrica* (smallspike false nettle), *Boltonia asteroides* (white doll's daisy), *Campanula americana* (tall bellflower), *Campsis radicans* (trumpet creeper), *Cardiospermum halicacabum* (balloon vine), *Celastrus scandens* (American bittersweet), *Cercis canadensis* (eastern redbud), *Chamaecrista fasciculata* (showy partridge pea), *Chamaesyce nutans* (nodding spurge), *Cichorium intybus* (common chicory), *Cinna arundinacea* (sweet woodreed), *Conoclinium coelestinum* (blue mistflower), *Coryza canadensis* (Canadian horseweed), *Cornus drummondii* (rough-leaved dogwood), *Desmanthus illinoensis* (Illinois bundleflower), *Diospyros virginiana* (common persimmon), *Eclipta prostrata* (yerba de tajo), *Equisetum hyemale* (scouringrush horsetail), *Erechtites hieracifolia* (fireweed), *Eupatorium altissimum* (tall thoroughwort), *Fallopia scandens* (climbing false buckwheat), *Fraxinus pennsylvanicus* (green ash), *Fraxinus quadrangulata* (blue ash), *Gleditsia triacanthos* (honey locust), *Gymnocladus dioica* (Kentucky coffeetree), *Helianthus tuberosus* (Jerusalem artichoke), *Hibiscus lasiocarpus* (rosemallow), *Humulus japonicus* (Japanese hops), *Hydrangea arborescens* (wild hydrangea), *Impatiens capensis* (orange jewelweed), *Impatiens pallida* (pale jewelweed), *Ipomoea lacunosa* (small white morning glory), *Lactuca floridana* (Florida lettuce), *Laportea canadensis* (Canadian wood nettle), *Leersia lenticularis* (catchfly grass), *Leersia virginica* (whitegrass), *Lonicera maackii* (Amur honeysuckle), *Lycopus americanus* (American bugleweed), *Lythrum alatum* (winged loosestrife), *Mentha arvensis* (field mint), *Morus alba* (white mulberry), *Oenothera biennis*



Agalinis paupercula (smallflower false foxglove). Photo by Larry Morrison.

(common evening primrose), *Penthorum sedoides* (ditch stonecrop), *Perilla frutescens* (beefsteak plant), *Persicaria longisetum* (bristly lady's-thumb), *Phryma leptostachya* (American lopseed), *Phyla lanceolata* (lanceleaf fogfruit), *Pilea pumila* (clearweed), *Platanus occidentalis* (sycamore), *Polygonum amphibium* (water knotweed), *Polygonum virginianum* (Virginia knotweed), *Polymnia canadensis* (whiteflower leafcup), *Quercus macrocarpa* (bur oak), *Rubus occidentalis* (black raspberry), *Rudbeckia laciniata* (golden glow), *Rudbeckia triloba* (brown-eyed susan), *Salix myricoides* (bayberry willow), *Scrophularia marilandica* (figwort), *Setaria viridis* (green foxtail), *Sium suave* (water parsnip), *Smilax hispida* (bristly greenbriar), *Solidago altissima* (tall goldenrod), *Solidago gigantea* (late goldenrod), *Solidago ulmifolia* (elm-leaved goldenrod), *Strophostyles helvola* (wild bean), *Stylophorum diphyllum* (celandine poppy), *Symphotrichum lanceolatum* (white panicle aster), *Symphotrichum oolentangiense* (azure aster), *Symphotrichum pilosum* (hairy white oldfield aster),



Lycopus americanus (American bugleweed). Photo by Pat Harris.



Quercus macrocarpa (bur oak) leaves and fruit. Photo by Pat Harris.

Toxicodendron radicans (poison ivy), *Ulmus americana* (American elm), *Ulmus rubra* (slippery elm), *Verbena stricta* (hoary vervain), *Verbena urticifolia* (white vervain), *Verbesina alternifolia* (wingstem), *Vitis aestivalis* (summer grape), *Vitis riparia* (river grape), *Xanthium strumarium* (rough cocklebur).



Different Jaws for Different Jobs

Ted C. MacRae¹

If you're interested in wood boring beetles and live in the eastern U.S. like I do, you're sure to encounter sooner or later the region's sole "primitive weevil" (family Brentidae), the oak timberworm (*Arrhenodes minutus*)². This beetle

¹ Originally posted October 11, 2011 at *Beetles in the Bush*: <http://beetlesinthebush.wordpress.com> Photos by the author.

² Actually, there are three other species in eastern North America as well, but all are Neotropical species that occur no

develops as a larva in the wood of living trees exposed by wounding, creating numerous small "worm holes" that can occasionally degrade the value of wood grown for timber. Females are presumably attracted to volatiles given off by wounded wood for oviposition, thus they are also commonly attracted to the trunks and stumps of trees harvested for lumber or cut for some other reason. Cut trees are also highly attractive to wood boring beetles in the families Buprestidae and Cerambycidae—my primary taxa of interest, so I've seen more than a few oak timberworms over the years, including this male and female that I found on the cut stump of a large black oak (*Quercus velutina*) in Sam A. Baker State Park, Wayne Co., Missouri.

An interesting feature of oak timberworms and related species of primitive weevils is the rather extreme sexual dimorphism exhibited in the shape and function of the mandibles. Mandibular sexual dimorphism is actually quite common across many groups of beetles, but in most cases the males simply have proportionately larger mandibles than females due to their use in sexual combat (think stag beetles, for example). Oak timberworm males also have enlarged mandibles for combat with other males (males are territorial and guard females during oviposition). The females, however, rather than simply having smaller yet similarly shaped versions of the male mandibles, instead have tiny little mandibles at the end of a greatly narrowed and elongated rostrum (beak). This is because, unlike most other beetles in which the female mandibles lack a specific purpose, female oak timberworms use their mandibles to "drill" holes into the wood in which they will insert their eggs. Different forms for different functions!

I have seen reports of males assisting females in removing her beak if stuck in the wood while drilling an egg hole by "stationing himself at a right angle with her body and pressing his heavy prosternum ("chest") against the tip of her abdomen, her stout fore legs thus serving as a fulcrum and her long body as a lever" (Riley 1874, as quoted in Thomas 1996), making this a rare instance of tool use by insects. I have not observed

further north than the southern tip of Florida (Thomas 1996).



Arrhenodes minutus (oak timberworm), Wayne Co., Missouri. Male (top) and example of mate-guarding behavior (bottom).

this behavior myself, but it is common to find the males in various mate guarding positions over the female as pictured above.

REFERENCES:

Riley, C. V. 1874. The northern brentian—*Eupsalis minutus* (Drury). (Ord. Coleoptera; Fam. Brentidae). *Sixth Annual Report on the Noxious, Beneficial, and Other Insects, of the State of Missouri*. Began and Carter, Jefferson City, Missouri, 169 pp.

[Thomas, M. C. 1996.](#) *The primitive weevils of Florida* (Coleoptera: Brentidae: Brentinae). Florida Department of Agriculture & Consumer Services, Division of Plant Industry, Entomology Circular No. 375, 3 pp.

Lecture on Pollinators

Fran Glass

Wednesday, February 1, 7:00 p.m. Mike Arduser, Missouri Department of Conservation, will give a program on pollinators. Mike recently discovered two new species of native bees. The



The female (top) has the beak thin and elongate, while the male (bottom) has the beak short w/ robust mandibles.

lecture will be at [Powder Valley Nature Center](#) in Rooms C&D. Program sponsored by Wild Ones, Native Plants, Natural Landscapes, St. Louis Chapter. Wild Ones is a national educational and advocacy organization whose mission is to promote use of native plants in landscaping.

Nature Classes at St. Louis Community College—Spring 2012

Nels Holmberg

Attached is a list of nature classes offered by St. Louis Community College for Spring 2012.

Warblers [NATR 709 651]

March 27, 7:00–09:00 p.m., Meramec campus.

Learn about the colorful spring migrant birds known as the warblers. Which are year-round residents in our area? Which breed in our area? Which just are passing through in the spring and fall? Offered in cooperation with the St. Louis Audubon Society.

**Common Poisonous Mushrooms of Missouri
Lecture [NATR 723 M01]**

March 31, 12:00–2:00 p.m., Babler State Park.

Learn how to identify the most common poisonous mushrooms in Missouri. When you know what to avoid, it's a lot easier to figure out what you can eat! Class is a combination of lecture and field exploration, dress accordingly. Class held at Babler State Park Visitors Center. Provide own transportation. Bring sack lunch. Offered in cooperation with the Missouri Mycological Society.

**Thunderstorms, Tornadoes, and Floods:
Severe Weather Spotter [NATR 765 580]**

**April 14, 9:00 a.m.–12:00 p.m., Florissant Valley
Campus, Social Sciences Bldg 101.**

Are you interested in the weather and basic meteorology - like how storms form, how to find a tornado in a storm, what causes hail and much more? Would you like to join the local severe weather network and help officials identify severe weather in your area? Join Michael Redman, former Communications Coordinator for the St. Louis County Police Dept. and current Managing Director of the Traveling Weather Show as he shares his knowledge. Learn how to identify cloud formations and weather indicators that will make you an asset to the region in an emergency. You'll get your own spotter number to use when you call in your information, a training certificate, a CD of weather brochures and manuals, and handout material on severe weather.

**Thunderstorms, Tornadoes, and Floods:
Severe Weather Spotter [NATR 765 581]**

**April 14, 2012, 1:00–4:00 p.m., Flo Valley
Campus, Social Sci Bldg 101**

Improve the basic meteorological and severe weather skills you learned in the Level 1 class by taking the region's only Level 2 program. You'll discuss computer resources, convective outlooks, watch and warning messages, cloud definition, radar interpretation, severe weather safety, and more. You'll get lots of handouts and certification too. Prerequisite: Level 1 class.

Spring Butterflies Lecture [NATR 720 650]

April 17, 6:00–08:00 p.m., Meramec campus.

April 21, 10:00 a.m.–12:00 p.m., Location: TBA

Enjoy the beauty of butterflies both indoors and outdoors. In the classroom session, you will learn basic identification skills through a Power Point and video presentation. On the field trip, you will

experience the magic of butterflies in their natural habitat while spring wildflowers are in full bloom. Field trip date Saturday 4/21. Provide own transportation. Although not required, binoculars and the field guide "Butterflies through Binoculars: The East" by Jeffrey Glassberg would be useful tools for the field trip walk. Offered in cooperation with the North American Butterfly Association.

**Grass Identification Workshop NATR 723 600]
May 18 & 19, 9:00 a.m.–4:00 p.m. Meramec
campus.**

This class will cover grass identification and the appreciation of grass diversity from one of Missouri's experts on grass identification, Paul McKenzie of the U. S. Fish and Wildlife Service, and will include both classroom and field instruction. Offered in cooperation with Missouri Native Plant Society. Text book required: Steyermark's Flora of Missouri, Vol. 1; George Yatskievych author.

Registration is at the St. Louis Community College website <http://www.stlcc.cc.mo.us/conted>, phone (314) 984-7500 and ask for Continuing Education, or use St. Louis Community College Spring Course Booklet



Lectures at St. Louis Zoo

*Sandra Faneuff*¹

The Academy of Science-St. Louis, in partnership with the Saint Louis Zoo, presents the 2011–2012 Science Seminar Series with *Science Seminars* and *Conservation Conversations*. Adults, teachers, middle and high school students, and the general public are invited to attend these no-cost lectures on topical issues in science. Lectures are from 7:30–9:00 p.m.

SCIENCE SEMINAR SERIES

- **Tuesday, March 6.** *Polar Bear Population Projections: Reliability in the Face of Uncertainty*, by Steven C. Amstrup, PhD.

¹ Office Manager, Education Department, St. Louis Zoo.

- **Tuesday, March 13.** *Cheetah Conservation Botswana: Carnivore Conservation in the Kalahari*, by Rebecca Klein.
- **Tuesday, April 10.** *Reintroduction of the Island Fox*, by Cheryl Asa, PhD.

CONSERVATION CONVERSATIONS

- **Wednesday, February 1.** *Converting Photons to Electrons: Solar Photovoltaic Energy Around the World Today & Tomorrow*, by Greg Wilson, DSc.
- **Wednesday, March 7.** *Journey Through the Arctic*—lecture and book signing, by Debbie Miller. Special thanks to *Journey Through the Arctic* sponsor, the Alaska Wilderness League.
- **Tuesday, March 27.** *Bears of North America*—lecture and book signing, by James Halfpenny, PhD. Special thanks to *Bears of North America* sponsor & partner, University of Missouri-St. Louis.

For information on these and other events at the Academy of Science-St. Louis check their website www.academyofsciencestl.org or call (314) 533-8586.



Cougar Workshop and Public Classes

*Jim Jordan*¹

WGNSS members may be interested in know of special programs in March—in-depth cougar workshop and three free public lectures. Dr. Jim Halfpenny is teaming up with Jeff Beringer, Missouri Department of Conservation Cougar Task Force Biologist, to conduct a 2-day Cougar Workshop at Powder Valley Nature Center March 24–25. Dr. Halfpenny is a leading authority on Cougars and has been providing trainings throughout the US. He was the biologist that did the initial human cougar interaction research in Boulder CO sited in the book *The Beast in the Garden*. Dr. Halfpenny will also be doing three free public lectures during that same period [see below]. For more information call (314) 516-7250 or visit ce/umsl.edu/catalog.

¹ Senior Coordinator Continuing Education, University of Missouri-St. Louis.

There's Cougars in Missouri!

Friday, March 23, 7:00–8:30 p.m.

Powder Valley Nature Center

Secretive, elusive, the creature of myths and rumors, and capable of killing people, cougars stir our imagination, curiosity, and fear. Jim will cover cougar ecology, their lifestyle and past encounters with humans. Jim has investigated and analyzed over 300 interactions between people and cougars. Come learn about these amazing cats and how they have taken up residence in many states they were extirpated from in the past, including the Show Me State.

Yellowstone Wolves: Restoration, Science, Management, and the Future

Monday, March 26, 7:00–8:30 p.m.

Belleville East High School, Belleville, Illinois

Wolves are the top carnivore in the Greater Yellowstone Ecosystem. They have attracted millions of people to observe them in the wild or are loathed for the successful comeback they have made. Jim will share the wolves fascinating society, survival strategies, and how they bring balance to the ecosystem. You will hear how wolf research has revealed new understanding and Jim's personal encounters provide an intimate look into these fascinating creatures. Wolf management has changed over the years and the recent delisting has brought on new challenges. Don't miss this opportunity to learn more about this magnificent carnivore.

Bears of North America

Tuesday, March 27, 7:30–9:00 p.m.

Saint Louis Zoo

Bears have played a mythic role for centuries in North America and epitomize wildlands. Jim will share his years of experience studying the largest carnivores of our continent. Grizzly and black bears have made the headlines this past year as human encounters increased. Come learn about their lifestyles, ecology, management, and how humans can co-exist with bears, even though they are very controversial.

Cosponsored by UMSL Continuing Education, Academy of Science of St. Louis, MDC, NABT BioClub, OASIS, and St. Louis Zoo. Registration not required. For more information visit <http://academyofsciencestl.org/events> or UMSL web page.



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, January 23, 7:00 p.m. Ted MacRae will give a presentation titled, "Nine days, ten states, and 4,300 miles." While Ted's primary group of insect study is the metallic wood-boring beetles (Buprestidae), he and Chris Brown have become passionate about tiger beetles (Cicindelidae) over the past several years. Their studies began in Missouri, documenting and photographing these fast and elusive beetles. Ted has now taken this interest further afield and traveled to surrounding states to search for other tiger beetles common and rare. Butterfly House (Faust Park), 15193 Olive Blvd., Chesterfield. Please note: this meeting is being held on the fourth Monday of the month rather than the third.

Monday, February 20, 7:00 p.m. Our guest this month will be Rich Thoma. The title of his talk is "Camouflage." Rich will share with us many examples of how insects use camouflage as a defense from would be predators. 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:

- **Tuesday, February 14.** *Chasing Kangaroos*, by Tim Flannery.
- **Tuesday, March 13.** *Krakatoa*, by Simon Winchester.

ORNITHOLOGY GROUP

Chair—David Becher

Saturday Bird Walks, Leader—David Becher. All walks are at Des Peres Park. Walks 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

- February 4, 8 a.m.
- February 18, 8 a.m.
- March 3, 8 a.m.

Thursday Bird Walks, Leader—Jackie Chain. The WGNSS Birding Group meets at 8:30 a.m. at Des Peres Park parking lot off Ballas Road just north of Manchester Rd. and east of West County Mall. Please contact Jackie Chain 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. No trip is planned for Thanksgiving Day, November 24.

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!

Joint WGNSS-St. Louis Audubon Society Meeting
Tuesday, February 21, 2012 at 7:00

“The Early Evolution of Birds”
David Peters, Eastern Missouri Paleontological Society



Photo by H. Raab, source: <http://en.wikipedia.org/wiki/Archaeopteryx>

St. Louis County Library Grand Glaze Branch
Room 1
1010 Meramec Station Rd.
Manchester, MO 63021

