



Nature Notes

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President's Corner

Rich Thoma

In 1987, a 2nd grade class of children from Sweden was learning about rainforests. As part of this learning module, the kids decided to raise funds to buy rainforest land. With the help of their school and families, they put on bake sales, had raffles, and asked for donations, in the hope they could raise enough money to buy a few acres of land in Costa Rica. A local TV station heard about the class's efforts and the story made the evening news. The story quickly went national as other TV stations in Sweden picked up the story. From there, the story did a 1987 version of going viral and traveled to over 40 countries. Lots of people from around the world got involved. What originally started out as a small effort to acquire a few acres of rainforest has exploded to a 55,000 acre rainforest preserve known as the Children's Eternal Rainforest (CERF), near Monteverde, Costa Rica. **Kate Danna** a board member from the U.S. Monteverde Conservation League—Friends of the Children's Eternal Rainforest was our guest speaker at the April WGNSS general meeting. She spent the evening talking about the CERF and some of her favorite natural history observations. From a biodiversity stand point, few places can compare to what is found at CERF. CERF is located in the mountainous section of Costa Rica. CERF contains 12 life zones. As a comparison, few preserves in the U.S. can boast at

having 3 to 4 life zones. Rainfall varies from less than a meter per year on the eastern mountain slopes to over 27 meters per year on the western side. Five percent of all birds in the world can be found at CERF. Huge numbers of migratory birds over-winter or pass through CERF each year. Other notable indications of CERF's biodiversity include 2.5% of all mammals, 1% of all frogs and at least 1 million insect species. We learned from Kate that the showy Three-wattled Bellbird and the Resplendent Quetzal are favorites for visitors to see at CERF. Studies at CERF have shown that both birds are being adversely affected by climate change. As the climate has warmed, both species have steadily moved to higher elevations. The danger is that the mountains are only so high and the necessary habitat for these two birds could disappear. Rainforest habitat restoration is an ongoing effort at CERF. We learned from Kate that unlike other rainforests, because of the volcanic soils, degraded land quickly regenerates at CERF. More land acquisition is a primary goal at CERF. In addition, there is a big outreach effort at CERF to grow native trees to be given away to local Costa Rican communities. Through all these efforts, there are indications, after a 28 year absence that endangered Jaguar may be returning to the Monteverde region of Costa Rica.

Also at the April General Meeting, annual elections for WGNSS board members were held. Board member positions on the 2012 ballot included President, 1st Vice President and 2nd Vice President (Publicity). At the meeting, WGNSS

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members re-elected **George Yatskievych** (1st vice-president), **Anne McCormack** (2nd vice-president in charge of publicity) and myself (President). We would like to thank all in WGNSS for your support and pledge to do our best to keep WGNSS one of St. Louis' premier natural history organizations.

May Berenbaum, will be the featured speaker for the 2012 WGNSS Spring Banquet on May 10. Dr. Berenbaum is a respected researcher, teacher and chairperson within the Entomology Department at the University of Illinois at Urbana-Champaign. She has 30 + years of research on the chemical interactions between herbivorous insects and their hostplants, and the implications of such interactions on the organization of natural communities and the evolution of species. Dr. Berenbaum is very well known for her work showing that colony collapse disorder was not the only thing causing population decline in honeybees and other pollinators. In addition to her teaching, she is also very outspoken about bringing scientific literacy to everyone. For those outside the

university system, Dr. Berenbaum may be best known as the author of more than a dozen natural history books including "Bugs in the System: Insects and Their Impact On Human Affairs" and "Honey, I'm Homemade: Sweet Treats from the Beehive across the Centuries and around the World". At the banquet, Dr. Berenbaum will be speaking about "**The Secret Life of Parsnips**".

Also at the banquet, WGNSS will honor **Rose Ann Bodman** with the 2012 Lifetime Achievement Award. Details about Rose Ann's service in WGNSS can be found in an article written by **Jackie Chain** in this issue of *Nature Notes*. WGNSS is extremely grateful for the many years Rose Ann has given to our organization. In addition, **Alice Tipton** from the University of Missouri – Columbia and **Steven Callen** from St. Louis University will receive the Menke and Mickey Scudder scholarship respectively at the banquet. Look for the article written by **Emily Christensen** in this issue of *Nature Notes* for more details about this year's scholarship winners. Congratulations to both for their great research projects. For more details about the banquet, a reservation form can be found in this issue of *Nature Notes*.



February Bird Report

David Becher

February continued the trend of unusually warm weather this winter. The spring waterfowl migration was on schedule or a little early this year. Several of the unusual birds reported earlier this year remained in the area this month. The biggest excitement was caused by Shawn Chubb finding a Northern Shrike in Saint Charles County.

Probably because of the warm weather many waterfowl that are usually rare in winter remained in the area. The Saint Louis Audubon group visited the Riverlands and Columbia Bottom areas on the 4th. They reported nineteen species of waterfowl. Their sightings included 40 Trumpeter and 1 Tundra Swan, over 1000 White-fronted Geese, all three Merganser species and four Cackling Geese. Reports of Cackling Geese were limited this year. Perhaps the warm weather caused

this far northern species to mostly winter further north. There were the usual smattering of Ross' Goose reports from Carlyle and Baldwin Lake. On the 19th Bryan Prather found three at Creve Coeur Lake.

The Black Scoter and Long-tailed Duck reported in previous months continued to be seen at Riverlands. On the 18th, the Malones found both Surf and White-winged Scoters at Riverlands. There were at least two Surf Scoters in different plumages present in the area. All three were still present the next day. One Surf Scoter and the White-winged Scoter were males in adult plumage, which is uncommon in Saint Louis. The two Surf Scoters were still present on the 25th.

Frank Holmes reported that he found a Common Loon at Horseshoe Lake on the 5th. Tim Dever reported a Red-necked Grebe at Peabody River King Conservation area in St. Clair County, Illinois on the 13th.

Large numbers of American White Pelicans began to return to the area at the end of the month adding to the small number that had spent the winter at RMBS. Frank Holmes reported two immature Black-crowned Night Herons at Horseshoe Lake on the 1st and another was reported a Lock and Dam 26 by the SLAS birding group on the 4th. This species is rare in Saint Louis in winter and seems to have declined somewhat in the area overall.

Kent Lannert reported a Merlin at Cahokia Mounds on the 4th and the Saint Louis Audubon group had one at Columbia Bottom the same day. Another was reported in Tower Grove Park on the 24th by David Reago. On the 25th Charlene Malone reported two Peregrine Falcons sitting on the Clark Bridge in Alton where they sometimes roost.

Woodcock began to be heard at the end of the month, but one in David Scheu's backyard on the 23rd was a bit unusual. Reports of gulls other than Ring-billed Gull were rare with only limited numbers of Herring Gulls present. The adult Little Gull was still present at Carlyle Lake, however, on the 7th when it was filmed by Tim Barksdale and Bonaparte's Gulls continued to be unusually common there.

Another Snowy Owl for the area was found near Red Bud in Illinois. It was apparently found in late

January and continued until about the 21st. Unfortunately, some very badly behaved birders antagonized the owner of the land by trespassing and disturbing the bird. I do not know if it was seen again after that incident. An Eastern Screech Owl was heard by the Saint Louis Audubon group on the 4th, but not found. On the 11th Pat Lueders reported that the SLAS group saw three Short-eared Owls at dusk at Peabody Conservation Area near New Athens, Illinois. The next day Josh Uffman saw one flying around the Audubon Center at RMBS in the early morning. There were further reports of this species nearby along Wise Road during the month. On the 18th the Saturday group found a Long-eared Owl at Columbia Bottom CA in the area of dense tangles just beyond the slough overlook. At the slough overlook itself they also found a Great Horned Owl. Reports of Great Horned Owls nests were unusually common this year with nests at Lake at Busch, the Chesterfield Valley, Tower Grove and Forest Parks among other places.

An Eastern Phoebe was reported at Busch Wildlife at the shorebird area by Michael Betz on the 8th. Two were present there on the 26th according to Josh Uffman and Mark Paradise.

A Northern Shrike was reported on the second from a roadside near Washington, Missouri by Don Hays. It does not appear that it was refound. On the 26th Shawn Chubb reported another from Broemmelsiek County Park, which is a relatively new park a few miles from the Busch Wildlife area. This first stayed into March and was seen by many observers.

Mike Brady reported the first Fish Crows arriving at Castlewood on the 22nd. There were a few reports of Golden-crowned Kinglet including one seen by the SLAS group at Baldwin Lake on the 11th. The Mountain Bluebird continued to be seen along Bischoff Road. The last report appears to be that by David Marjamaa on the 23rd. On the 27th Mark Wright reported a single American Pipit at Columbia Bottom CA.

Dick Coles had a very early Pine Warbler at his feeder in House Springs on the 1st. Pat Lueders reported another on the 28th at the Fallen Oak Nature Trail at the Busch Wildlife Area. Josh Uffman reported that two of the LeConte's Sparrows that wintered near the Blue Grosbeak

Trail were still present on the 26th along with a number of American Woodcock.

On the 12th Josh Uffman reported a 8 Great-tailed Grackles, 40+ Rusty Blackbirds, and three Brewer's Blackbirds (including two females) at Church and Dwyer in Saint Charles County. On the 26th, Josh Uffman and Mark Paradise reported a small flock of Western Meadowlarks at the Weldon Springs Katy Trail access. Later visits, however, were unable to find any Meadowlarks, so they were presumably just passing through. The habitat in that area was mostly sparse corn stubble this year and not very productive of anything.

The two female Common Redpolls continued at the feeders at RMBS. The last reported sighting was a single bird on the 21st by Lane Richter.

Correction. Frank Holmes indicates that the report for December at Horseshoe Lake should have been 111 Bufflehead and not 111 Hooded Mergansers. This is still a notable sighting.



Winter Botany Report

Compiled by George Van Brunt

We have been publishing an increasing number of photographs in recent issues of *Nature Notes*. The amount of space these photographs occupy has made it more difficult to find room to publish 12 monthly botany reports in 10 issues of *Nature Notes*. Therefore, we are publishing one botany report for the months of December-February, to be known as the Winter Botany Report. We will continue to publish monthly reports for the months of March-November. Thus, we will now have 10 botany reports per year. There is less plant (and human) activity during the winter months and less to report on and we feel that one report for the winter months will be sufficient.

Our plan is not to have one person write a weekly report for the winter Botany Report as we do for the other months, but to have more of a "free for all" in which members submit photos and descriptions of interesting winter botany items.

Winter 2011-2012 Summary. There were 13 Mondays this winter, the 4th warmest on record.

- December 5—Missouri Botanical Garden, St. Louis, Missouri
- December 12—Faust Park, St. Louis County, Missouri
- December 19—field trip cancelled
- December 26—Packwood County Park, Al Foster Trail, St. Louis County, Missouri
- January 2—Missouri Botanical Garden, St. Louis, Missouri
- January 9—Salt Lick Point Land & Water Reserve, Monroe County, Illinois
- January 16—field trip cancelled
- January 23—Shaw Nature Reserve, Franklin County, Missouri
- January 30—Babler State Park, St. Louis County, Missouri
- February 6—Pea Ridge Conservation Area, Washington County, Missouri
- February 13—field trip cancelled
- February 20—Robertsville State Park, Franklin County, Missouri
- February 27—St. Francois State Park, St. Francois County, Missouri

December 5, 2011—Missouri Botanical Garden, St. Louis, Missouri (contributed by George Van Brunt).

On December 5, 2011, the botany group visited the Missouri Botanical Garden to view the GardenLand Express show and other attractions. A plant of great interest to me on display in the Gardenland Express show was a 15-20 foot tall specimen of *Wollemia nobilis* (Wollemi pine). This species was discovered in 1994 growing in a deep, narrow, sandstone gorge in Wollemi National Park, about 150 miles northwest of Sydney, Australia. Its discoverer was David Noble, a park ranger; his discovery has been hailed in the botanical world as "the find of the century", a find equivalent to that of *Ginkgo biloba* (ginkgo) and *Metasequoia glyptostroboides* (dawn redwood). The genus name reflects the park in which it was discovered and the species name honors its discoverer. Despite its common name, it is not a true pine but a gymnosperm in the family – Araucariaceae, the same family as the Norfolk Island pine, *Araucaria heterophylla*.

Fossils of species resembling and likely related to *Wollemia nobilis* are widespread in Antarctica, Australia, and New Zealand, parts of the former



Wollemia nobilis (top) and leaves (bottom). Photos by George Van Brunt.

supercontinent Gondwanaland. Some of these fossils are as old as 200 million years but none are younger than 2 million years so it was a huge surprise when living specimens were found. Thus far, three remnant populations, all located in a 60-square mile area of Wollemi National Park and all in deep, narrow, sandstone gorges, have been discovered. The total population is about 80 mature trees and 300 seedlings and juvenile trees. The Australian government has distributed seeds



Wollemia nobilis trunk (top) and female cone (bottom). Photos by George Van Brunt.

and plants grown from cuttings to gardens around the world to help protect the natural populations from collectors and unauthorized visitors. Mature trees reach a height of 80 to 130 feet. A unique branching pattern characterizes the species; branches very rarely bear side branches. Each simple branch persists for several years and then produces a male or a female cone at its tip. The branch later dies. New branches develop from dormant buds on the trunk. This can be seen in

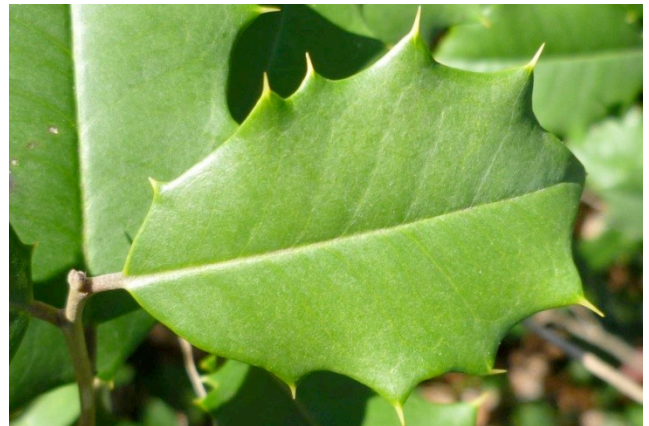


Wollemia nobilis, male cone. Photo by George Van Brunt.

the accompanying photos. I asked a number of people where this tree would be displayed after the Gardenland Express show and no one seemed to know. St. Louis is a little too cold for the species to survive outdoors so it will have to be somewhere inside.

December 5, 2011—Missouri Botanical Garden, St. Louis, Missouri (contributed by Wayne Clark).

At Cycad Ridge in the Climatron, *Encephalartos ferox* (holly-leaved cycad) is growing a large ovoid, red-orange female cone on the top of the stem (photo above right, top). It is surrounded by the thirteen leaves growing in the space left by the two cones that grew there in the months around December 2008. The largest cone was 41 cm (16 inches) long. The female cone of *E. ferox* is the most colorful of the cycad cones. The shiny dark green leaves are 1-2m (3.3-6.6ft) long. The leaflets are stiff and spiny (photo above right, middle) like a holly leaf (photo above right, bottom).



Encephalartos ferox (holly-leaved cycad) female cone (top) and holly-like leaflet (middle), and *Ilex opaca* (American holly) leaf (bottom). Photos by Wayne Clark.

December 26, 2011—Packwood County Park, Al Foster Trail, St. Louis County, Missouri (contributed by Wayne and Nancy Clark)..

The temperature was in the thirties, the trail was frozen, and the clouds were increasing. As the morning progressed, with rain and snow in the forecast for the afternoon, Nancy Clark found frost flowers at the base of a cluster of *Verbesina virginica* (white crown beard). *V. virginica* is one of about four plant species that produce frost flowers.



Verbesina virginica and frost flowers. Photos by Wayne Clark.

January 30, 2012—Dr. Edmund A. Babler Memorial State Park, St. Louis County, Missouri (contributed by John Oliver).

Time: 9:30–11:30 am

The WGNSS walkers made a winter visit to Babler State Park for at least two reasons. First, we wanted to meet the new naturalist assigned to the park, Kendra Swee, and second to observe the effects of a swarm of at least three tornadoes which swept in interconnected paths across the property on February 27, 2011. After a nice chat

with Kendra, we set off to some areas she had suggested as likely to display some of the tornado damage. Soon after entering one of these wooded areas, we were surrounded by dozens of downed mature trees of several species. The only reparations that have been done are to the trail system itself – removal of portions of trees blocking the paths and overhanging damaged limbs that might pose a hazard to hikers. On the day of our hike, there was a crew cutting and removing a large tree directly in our path. This kind of situation is rather frequent in our state parks, and poses the dilemma of what, if any, action should be taken. We intend to visit several more times during the growing season to assess the progress of maintenance and the progression of nature’s natural repair processes. One possible threat to the impacted areas will be invasion by opportunistic species such as *Lonicera maackii* (Amur honeysuckle), *Rosa multiflora* (multiflora rose), and *Euonymus fortunei* var. *radicans* (winter creeper). We’ll keep an eye on that too.

As we headed back to the cars, we observed another type of natural damage to trees which may be found in this park and throughout our area. 2011 saw the return of Brood XIX (“The Great Southern Brood”), the largest and most widely distributed brood of the 13-year Cicadas. This super-brood contains four species of cicadas, three of which are usually present in any given area. A frequently encountered species in our area turns out to be a new one, discovered in 2000, *Magicicada neotredecim*. Cicadas don’t cause damage to trees by chewing leaves like some other insects do. Instead, the damage is caused because they lay their eggs in grooves in the branches of trees. Cicadas are acting as parasites of the trees, and because they need the trees to survive throughout their entire life cycle, killing them is not in the cicada’s best interest. The weakest limbs of a tree are often temporarily damaged or killed off, the result of which is called “flagging,” as the leaves of the branch will turn brown and stand out prominently on affected trees. An alternate view would be that they are doing the trees a favor by pruning these weakest branches. Young trees, ornamental trees and cultivated fruit trees will be more prone to damage as they are typically smaller and weaker than older native hardwood trees. Look for damaged twigs at the end of branches as you walk in the woods



WGNSS hikers enter a tornado-damaged area in Babler State Park, January 30, 2012. Photo by John Oliver.



Damage caused by *Magicicada* sp. oviposition on a young *Cercis canadensis* (redbud) branch. Photo by John Oliver.

around St. Louis. Once you have the search image, you will see it frequently.



March Entomology Group Meeting: *The Many Senses of Insects*

Jane Walker

John Christensen spoke to the Entomology Group Monday evening, March 16 at the Butterfly House. His topic was on the many ways insects use sensory perception. John began with the male Luna moth and its feathery antennae. These large antennae have increased surface area to detect the pheromones released by the female Luna moth. In this way the male can locate females for reproduction. Male polyphemus moths also have these feathery antennae and can detect females a mile away. Honey bees also have a wide range of pheromones they use. One interesting pheromone is released when a stinging honeybee stings a potential threat. The pheromone attracts other bees to the area to “defend the hive”.

Other ways insects use scent include ants which lay scent trails which allow other ants from the same colony to find their way to a potential food source and find their way back to the colony. Members of the Lepidoptera (butterflies and moths) and the Diptera (true flies) have chemoreceptors in their feet to detect scent. This along with vision allows them to find the right food source.

Vision is also an important sense used by many insects, some more than others. Termites that live underground, or in the dark, do not have much need for vision, however, female lightning bugs use light flashes to signal males to come thither for a while. Different species use different flash intervals. A predatory lightning bug uses other lightning but signals to attract unsuspecting males, which it promptly eats. Dragonflies and flies have the best vision in the insect world. A single dragonfly eye has 32,000 ommatidia, or facets, in order to see its prey while on the wing. Butterflies and bees are able to see ultraviolet light and many flowers have ultraviolet patches to attract potential pollinators.

Crickets, grasshoppers, and katydids use sound to attract mates. By using a series of scrapers, rasps, or drums, they are able to produce a wide array of specie specific sounds to attract mates. This

obviously implies that they are able to hear the sound as well. Some moths are able to detect the ultrasonic sound of bat signals and dive to the ground just before the bat swoops in for the kill.

Some of the more bizarre abilities if not senses of insects include termite teleportation and radioactive butterfly wings. I suggest you contact John to explain these strange senses of insects.



WGSS Lifetime Achievement Award: Rose Ann Bodman

Jacquelyn Chain

Rose Ann Bodman has been selected for the 2012 Webster Groves Nature Study Society (WGSS) Lifetime Achievement Award which will be presented to her at the WGSS banquet on Thursday, May 10th.

Rose Ann joined WGSS in 1970 and served as President in 1974 and 1975. Upon the sudden death of Earl Comfort, she completed his last bird report from his notes and continued as chronicler of the very active St Louis area bird sightings reports from 1977 to 1998, more than 20 years, bringing some of her journalism training into focus. Depending on her work schedule, she came on many of the Thursday or Saturday trips she described and found she enjoyed them. She was hooked.

In the meantime Rose Ann and her husband Milt raised their three children Nedra, Tucker and Tommy. When the kids were old enough, Rose Ann supplemented the family income by becoming Administrative Assistant to the Psych Medical Director at Barnes. She began there in 1980 where she worked until a late retirement in 2001. I kid her that she does things in two-decade segments.

An early memory of Rose Ann was when she noted the incessant "question and answer" call of a Red-eyed Vireo as a tool to identify the bird before catching sight of it. We were on a WGSS birding trip to Busch Wildlife Area as it was known in the 70's. Gradually she encouraged me and other new birders to keep not just a life list but a year list of the birds we saw for the first

time so that every January began a fresh birding adventure. She has daily records of her day to day birding life in the St Louis area, in Missouri and from birding trips in the U.S, and Canada, the Caribbean, Europe. Her favorite was a trip to Finland for which the dates coincided with a cancelled trip to the British Isles. They saw many of her wishlist birds plus interesting mammals including Santa's four-legged helpers (no red noses, however). Many of the birds she saw again when the Britain trip was rescheduled. Rose Ann never regretted any of her travels and certainly she has never regretted becoming a WGSS member 42 years ago. It was a mutually beneficial step for all of us who know her.



2012 Mickey Scudder and Menke Scholarship Winners

Emily Christensen

Congratulations to the following students who have been chosen by the WGSS Scholarship Committee as this year's recipients of the Menke and Mickey Scudder scholarships:

2012 Menke Scholarship recipient: Alice Tipton, University of Missouri, Columbia.

Title: *Restoration at the roots: Rudbeckia missouriensis and its effect on mycorrhizal interactions and dolomite glade restoration.*

Alice is studying dolomite glades, prairie-like hillside openings in the woodlands of Missouri's Ozark Highlands that house some of the rarest and most endemic plants and animals in our state. She states that "While the plant community that defines glade habitat has been characterized and researched, much less is known about interactions of glade plants with mycorrhizal fungi, which supply plants with nutrients and water that are not otherwise available in exchange for some of a plant's sugar resources." Her proposal is to use a common glade endemic forb, *Rudbeckia missouriensis*, as an arbuscular mycorrhizal fungi (AMF) "farm" to "jump start" the establishment of such fungal mats during early glade restoration. She will be planting *R. missouriensis* into three newly restored glade sites in Missouri.

Alice is hoping to improve the efficiency of the extensive restoration efforts currently underway by the Missouri Departments of Conservation and Natural Resources and private landowners.

2012 Mickey Scudder Scholarship recipient: Steven Callen, Ph.D. Candidate, St. Louis University.

Title: *Population ecology of the invasive species Pueraria montana (kudzu) over a latitudinal gradient.*

Steven's goal is to identify patterns of life-history trait variation in kudzu populations. The objectives of his study are:

- Examine sexual reproduction and pollinator interactions over a latitudinal gradient.
- Quantify variation in growth and predation rates over a latitudinal gradient.
- Identify factors associated with these life-history traits over the latitudinal gradient.

For his first objective, three kudzu populations will serve as study sites in each of the following four cities located across the gradient: Imperial and Cape Girardeau, Missouri, Helena, Arkansas, and Vicksburg, Mississippi. To assess sexual reproduction, the following measures will be recorded from field work: fruit counts, seed set and seed bank quantification, number of flowering and fruiting days, number of flowers per raceme, and number and identity of pollinators.

For the second objective, during visits to each field site throughout the year, measurements (internode lengths, patch size, leaf area, and amount of above-ground biomass) will be taken to assess growth and survival characteristics.

For the third objective, to test the hypothesis that changes in life-history traits are associated with variation in key environmental factors, (e.g., precipitation, temperature, and day length) across the gradient, climate data (e.g., temperature and precipitation) from field localities will be extracted from the WorldClim database (Hijmans *et al.* 2005) at 30 arc-seconds (~1 km) resolution.

The members of the scholarship committee for 2012 were: John and Emily Christensen, co-chairs, Anne McCormack, Mark Paradise and Ed Schmidt.



Swift Tiger Beetle: Species on the Brink

Ted C. MacRae¹

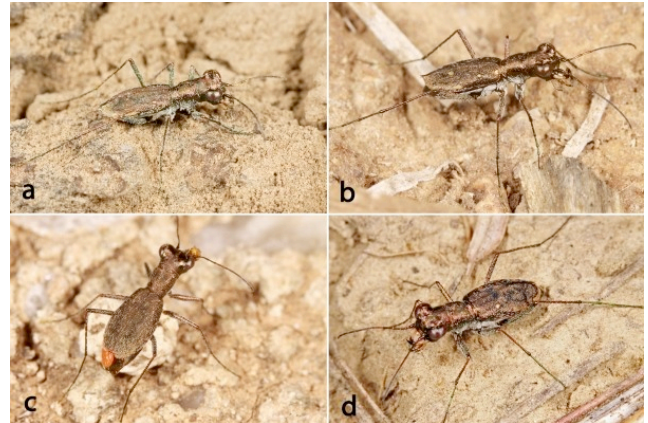


Figure 1. *Cylindera celeripes* (LeConte) adults at: a) Hitchcock Nature Center, Pottawattamie Co., Iowa (13.vii.2008); b) Alabaster Caverns State Park, Woodward Co., Oklahoma (10.vi.2009); c) same locality as “b”, note parasitic (possibly Hymenoptera: Dryinidae [Ed note—this is likely a parasitic mite]) protruding from abdomen and ant head attached to right antenna; d) Brickyard Hill Natural Area, Atchison Co., Missouri (27.vi.2009). Photos by C.R.Brown (a) and T.C.MacRae (b-d).

In July 2008, Chris Brown and I made a spur-of-the-moment trip to Hitchcock Preserve near Council Bluffs, Iowa, where only a week earlier *Cylindera celeripes* (Swift Tiger Beetle), one of North America's most enigmatic tiger beetles, had just been discovered. Reportedly once common in the blufftop prairies of western Iowa and further west in eastern Nebraska and Kansas, this tiny (6–8 mm in length), flightless beetle has suffered severe population declines over the past 100 years. Only small numbers of individuals have been encountered outside of the type locality (Fort Riley, Kansas) in recent years, and in Nebraska the species is now considered extirpated (Spomer *et al.* 2008). Our reasons for going to Iowa had to do with our as yet unsuccessful effort to find the species in northwestern Missouri as part of our broader studies of the state's tiger beetle fauna. Although it had never been recorded from Missouri, we felt there was some chance it might be found in the tiny loess hilltop prairie remnants

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

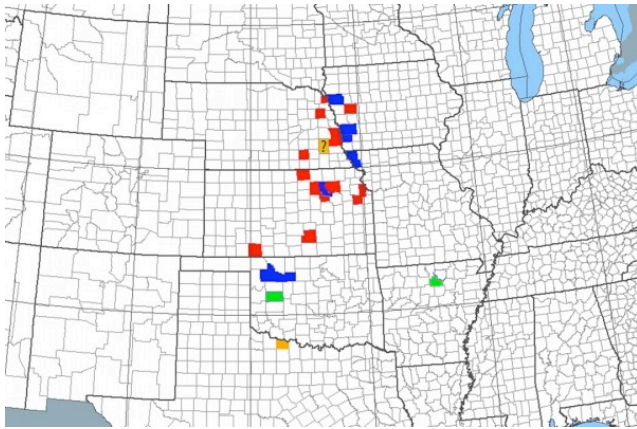


Figure 8. Historical and currently known geographical occurrence of *Cylindera celeripes* by county. Red = last record prior to 1920; orange = last record 1941–1960 (“?” = questionable record); green = last record 1991–1996; blue = last record 2005–2011.

still remaining in the state at the southern terminus of the Loess Hills landform. We reasoned our failure to find the species might be related to its very small size and rapid running capabilities (giving them more the appearance of small ants or spiders than tiger beetles), limited temporal occurrence, and tendency to hide amongst the bases of grass clumps (Pearson et al. 2006). If we could find the species at a locality where they were known to occur, perhaps an improved search image and better understanding of their precise microhabitat preferences would help us locate the species in Missouri.

We didn't realize it at the time, but that trip marked the beginning of a two-year study that would not only see us succeed in finding *C. celeripes* in [Iowa](#) but also discover new populations in [Missouri](#) and northwestern [Oklahoma](#) (Figs. 1a–d). With so much new information about the species and the long-standing concerns by many contemporary cicindelid workers about its status, it seemed appropriate to conduct a comprehensive review of the historical occurrence of this species to establish context for its contemporary occurrence and clarify implications for its long term protection and conservation. This was accomplished through compilation of label data from nearly 1,000 specimens residing in the collections of contemporary tiger beetle workers, all of the major public insect museums in the states of Iowa, Kansas, Missouri, Nebraska, Oklahoma, and Texas, and the collections at the U.S. National Museum and Florida State Collection of Arthropods. Collectively, this material is

presumed to represent the bulk of material that exists for the species, representing nearly all localities recorded for the species and time periods in which it has been collected.

Label data confirmed the historical abundance of this species, especially in the vicinity of Manhattan and Fort Riley, Kansas; Lincoln and Omaha, Nebraska; and Council Bluffs, Iowa. Hundreds of specimens were routinely collected in the native grassland habitats around these areas during the late 1800s and early 1900s; their abundance documented by entomologists in both journal articles and private letters. One of the most interesting examples of the latter was by Nebraska collector F. H. Shoemaker, who wrote the following in a 1905 letter to R. H. Wolcott:

There is another trip, down the river to the big spring by the railroad track near Albright, then across the river (the heronry route) where we collect hirticollis, repanda, vulgaris [= tranquebarica], cuprascens, and – vat you call ‘im? – celeripes! I took 147 of the latter in an hour and a half Sunday, and the supply was undiminished.

Although the recent collections of *C. celeripes* from near Council Bluffs and through the years near Fort Riley show that the species has managed to persist in these areas, there is little question that it is far less abundant and widespread now than it was in the early 20th century (Fig. 8). Not only are the areas in which present day populations are known to occur limited, but the numbers of individuals seen in them are very low. In Missouri, the species was listed immediately after its discovery in the state as a species of conservation concern with a status of S1 (= “critically imperiled”) due to the highly restricted occurrence of [suitable habitat](#) (loess hill prairie) in the state and [small populations](#) observed within them. The situation is even worse in Nebraska, where the species has not been seen for nearly 100 years despite dedicated searches by expert contemporary tiger beetle workers such as Matt Brust and Steve Spomer. Considering the near-complete elimination of suitable native grassland habitats by conversion to agriculture and degradation of the few existing remnants due to encroachment by woody vegetation and invasive exotics, the

likelihood of finding extant populations of *C. celeripes* in Nebraska seems remote. Only in the Red Hills of northwestern Oklahoma does the species appear to be secure due to the extensiveness of suitable areas of habitat and robust numbers of individuals observed within them at the present time. An enigmatic record exists from Arkansas, based on a single individual collected near Calico Rock in 1996. This individual represents a significant extension of the known geographical range of the species, but repeated attempts to find the species at that locality during the past year were not successful.

The persistence of populations, albeit small, in multiple areas, along with the occurrence of robust populations in northwestern Oklahoma, makes it unlikely that *C. celeripes* qualifies for listing as a threatened or endangered species at the federal level. Nevertheless, the limited availability of suitable habitat in many areas and low population numbers found within them clearly suggest that conservation measures are warranted at the state level, especially in Iowa, Kansas and Missouri, to prevent its extirpation from these states. In these states, land management practices should be implemented at sites known to support populations of the beetle in an effort to maintain and expand the native grassland habitats upon which they rely. These include various disturbance factors such as mechanical removal of woody vegetation, judicious use of prescribed burning, and selective grazing (taking care to do so in a manner that minimizes impacts to beetle populations).

REFERENCES:

[MacRae, T. C. and C. R. Brown. 2011.](#) Historical and contemporary occurrence of *Cylindera* (s. str.) *celeripes* (LeConte) (Coleoptera: Carabidae: Cicindelinae) and implications for its conservation. *The Coleopterists Bulletin* 65(3):230–241 DOI: [10.1649/072.065.0304](https://doi.org/10.1649/072.065.0304)

[Pearson, D. L., C. B. Knisley and C. J. Kazilek. 2006.](#) *A Field Guide to the Tiger Beetles of the United States and Canada*. Oxford University Press, New York, 227 pp.

[Spomer, S. M., M. L. Brust, D. C. Backlund and S. Weins. 2008.](#) *Tiger Beetles of South Dakota & Nebraska*. University of Nebraska, Department of Entomology, Lincoln, 60 pp.



"Inspired by Nature" Art Exhibit at the St. Louis Zoo

George Yatskievych

The St. Louis Zoo has announced an upcoming exhibit of more than 50 paintings by the renowned nature artist, Robert Bateman. Bateman is widely considered the top North American painter of wildlife and is among the most acclaimed such artists worldwide. Through his stunning paintings and his strong interest in the natural world, he has also been influential in conservation and his "Get to Know" program has connected many young persons with their local plants and animals. The exhibit will open on 11 May in Peabody Hall (an the Zoo's Historic Hill and run through 2014.



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, April 16, 7:00 p.m.** Dr. Bob Marquis will be our speaker. The title of his talk will be "Caterpillars as Engineers: Build It and They Will Come. Dr. Marquis is a professor of biology at the University of Missouri – St. Louis

and has studied oak herbivory as part of the Missouri Ozark Forest Ecology Project. We will also discuss our upcoming field trip to property owned by Jennifer Picker's mother in southeastern Missouri (see below). Butterfly House (Faust Park), 15193 Olive Blvd., Chesterfield.

- **Saturday, May 19, 8:00 a.m.–3:00 p.m.** We will be taking a collecting trip to property owned by Jennifer Picker's mother in southeastern Missouri. The property has a glade and a creek and includes part of Crowley's ridge. Except for climbing the ridge, most of the terrain requires moderate hiking. The site is primitive as far as facilities are concerned: no shelter, no water, and no toilets. We will have maps and directions at our April meeting. To let us know if you are coming or need more information, contact Jane Walker (314) 965-6522 or pterisWalk9@gmail.com.

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, May 8.** *Ant Hill* by E. O. Wilson.

ORNITHOLOGY GROUP

Chair—David Becher

- **Saturday Bird Walks**, Leader—David Becher. All walks are at Des Peres Park except May 5, 12, and 19 (Tower Grove 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. Contact David at (314) 576-1146 or DavidBecher@msn.com if you have questions.
- **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. 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!



May Berenbaum, Ph.D.
to speak about
“The Secret Life of Parsnips”

WGNSS Annual
Spring Banquet
Thursday, May 10

at Orlando Gardens, 8352 Watson Rd., in General
Grant shopping center, Webster Groves

The social hour will begin at 5:30 pm. Mingle with other members and meet featured speaker Dr. May Berenbaum, Department of Entomology Chair from the Univ. of Illinois-Champaign/Urbana. At the banquet, the 2012 Lifetime Achievement Award will be announced and we will be honoring this year’s WGNSS Scholarship winners.

Reservation Deadline: April 26, 2012. Send payment to:

Jane Deschu
1431 Tahoe Valley Court
Ballwin, MO 63021

Spring Banquet Reservations for _____ persons @ \$29 per person _____

Name _____

Address _____

Phone _____ e-mail (optional) _____