



Nature Notes

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President's Corner

Rich Thoma

The 91st Webster Groves Nature Study Society banquet was held May 4, 2011. A majority of the WGNSS members gathered for an evening of fellowship and to celebrate all that has happened in our organization over the past year. Special thanks must be given to **Jane Deschu** for making all the arrangements and ensuring that the banquet was a success. We also want to thank **George Yatskievych** for arranging for this year's keynote speaker, **Dr. Peter H. Raven**. Congratulations go to our Menke and Mickey Scudder scholarship winners, **Megan Murphy** (University of Missouri-Columbia), **Oyomoare Osazuwa-Peters** (University of Missouri-St. Louis), and **Travis Wood** (Southern Illinois University-Edwardsville). Each student did a great job presenting their research goals for the next year. Very special congratulations go to **Vivian** and **Walter Liddell**, this year's WGNSS Lifetime Achievement Award winners. Both have been members of WGNSS for over 40 years and put in countless hours helping to make our organization great.

The banquet featured President Emeritus from the Missouri Botanical Garden, **Dr. Peter H. Raven**, as the guest of honor and this year's speaker. On the eve of his retirement, Dr. Raven spoke about "**How to Conserve Species in a Changing World**". Peter used his life experiences to illustrate how the world's view of nature and conservation

has changed through time. When he was a young man collecting insects, knowledge about each species he caught was very limited and hard to acquire. Though there were notable conservationists such as John Muir and J. N. Ding Darling, who worked very diligently at preserving nature's beauty, the vast majority viewed nature as something to be used, consumed and controlled. The average person thought nothing of throwing trash out of the car windows along the highway. We know today that this trash hasn't gone away. Quoting Dr. Raven, "You can't throw anything away because there isn't any away". The conservation movement in its modern form didn't really start until the 1960's. When Dr. Raven became the director of the Missouri Botanical Gardens (MOBOT), he saw a need to research the tropics before they were all gone. Rather than collecting one of everything (like a postage stamp collection), as was typical for the naturalists of the time, Peter felt it was important to learn as much as possible about selected highly diverse habitats. This became the mission of MOBOT for the almost 40 years Peter has been the garden's director. Peter finished his discussion talking about the challenges mankind faces. The major problem we face is human population growth. When Peter was born, the world's population was 2.5 billion. Today, there are three times as many people on earth (7.5 billion). By the year 2100, there are predicted to be 10.5 billion people. Each night there are 200,000 more people on earth that weren't there the day before. Compounding these

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numbers is that we are consuming resources at an unsustainable rate. In Peter's opinion, we cannot rely on governments to fix the world's problems. The solution, in Peter Raven's words, is that "any change in the world has to come from us."

As a reminder, this is the last issue of *Nature Notes* for the 2010-2011 year. Your next *Nature Notes* issue should arrive on or before Sept. 1. Even without *Nature Notes*, there are many WGNS activities throughout the summer. Botany and Birding Group field trips will continue, as will the Natural History Book Club monthly meetings, and the Entomology Group has several insect survey studies planned at LaBarque Creek Natural Area. Updates for these events can be found online at www.WGNS.org or through each of the Natural History Group Chairs.

From all on the WGNS board, have a great summer and enjoy the wonders of nature, wherever you go.

WGNS May Banquet Report

Rex and Martha Hill¹



Dr. Peter Raven entertains.

On Wednesday evening, May 4, while people in other parts of the world were celebrating Greenery Day (not to be confused with Monte Python's Shrubbery Day), the Webster Groves Nature Study Society held its annual banquet at Orlando Gardens in Webster Groves. This year marks the 91st anniversary of the founding of the Society and many were on hand for an evening of celebration, fellowship, and exchange of ideas and observations from the past year. The speaker this year was Dr. Peter Raven, President Emeritus of the Missouri Botanical Garden. For almost 40 years Dr. Raven has lead the Garden to a position of international prominence in fields of botanical species cataloging around the world and education and



President Rich Thoma gets the evening started.

¹ Photos by Steve Turner.



Megan Murphy, Menke Scholarship recipient.



Travis Wood, Mickey Scudder Scholarship co-recipient.



Oyomoare Osazuwaa-Peters, Mickey Scudder Scholarship co-recipient.



Vivian and Walter Liddell, WGNSS Lifetime Achievement Award winners (why does his name tag say Gary Larsen?!).

conservation efforts on many continents. He, himself, has developed an international reputation as a leader in subjects ranging from co-evolution of species to the threats to biodiversity of species on the planet, and has served as an ever-present vocal conscience to people, governments, and organizations around the world. In keeping with the relaxed atmosphere of the evening he delivered an informal talk on the roots of his interests in natural history that took place in his native state of California. He also amplified some of his thoughts and concerns for the threats to continued human prosperity on the planet Earth, a somewhat sobering reminder of our future as a species.

This year's scholarship recipients were introduced, and they included Megan Murphy of the University of Missouri at Columbia, who was awarded the Menke Scholarship, and will be studying the suitability of cone-headed katydids as

predictors of wetland quality in Missouri, Oyomoare Osazuma-Peters from the University of Missouri at St. Louis who will be contrasting old-growth and secondary forests in Okomu National Park in Nigeria, and Travis Wood of Southern Illinois University in Edwardsville who will be studying the effects of prescribed burns on grassland bird populations at Riverlands Migratory Bird Sanctuary. Because of some very tight competition, both Ms. Osazuma-Peters and Mr. Wood were dual recipients of the Mickey Scudder scholarship. A lifetime achievement award was presented by Dick Coles to Vivian and Walter Liddell, longtime active members of WGNSS, and President Rich Thoma singled out members of the board and acknowledged their numerous and valuable contributions over the past year. Special thanks go again to Jane Deschu for her efforts in organizing this year's banquet.



March Botany Report

Compiled by George Van Brunt

March 7, 2011—Shaw Nature Reserve, Franklin County, MO (contributed by Nels Holmberg).

A group of 9 gathered at Shaw Nature Reserve to pay our annual homage to the harbinger of spring, *Erigenia bulbosa*. Because John Oliver had scouted the area, we found abundant numbers of the plant in full flower along the lower slope of hills along the Meramec River bottomland forest. "Full flower" means a small cluster of white flowers with bulging maroon anthers sticking up through the leaf litter. We also noted that most of the plants were located below the markers for the high water line of the December 5, 1982 flood.

On our hike down to the area, we noted swelling buds on many under story trees: *Viburnum rufidulum* (rusty black haw), *Ostrya virginiana* (eastern hop hornbeam), *Cercis canadensis* (redbud), *Lindera benzoin* (spice bush), and *Asimina triloba* (pawpaw). Along the Wildflower Trail, we noted the emerging leaves of several spring flowers; *Blephilia ciliata* (Ohio horse mint), *Claytonia virginica* (spring beauty), *Woodsia obtusa* (common woodsia, not technically a flower), *Stylophorum diphyllum*, (Celandine poppy), and the soon to be open buds of *Anemone acutiloba* (sharp-lobed hepatica). As we inspected several patches of the dried leaves of *Iris cristata* (crested iris), Edgar Denison was remembered as being responsible for some (and perhaps much) of the diversity of wildflowers along this trail.

In the bottomland wood, now a state Natural Area, we saw green leaves of *Euonymus hederaceus* (winter creeper), *Equisetum hyemale* (scouring rush), *Sambucus canadensis* (elderberry), *Aplectrum hyemale* (Adam & Eve orchid), plus last year's fruit of *Perilla frutescens* (beefsteak plant). The group stopped to admire the largest tree on Shaw Nature Reserve, a *Platanus occidentalis* (sycamore). The group hugged the tree, holding hands with outstretched arms, and found it to be 4.5 botanists in circumference.



Erigenia bulbosa (harbinger of spring). Photo by John Oliver.



Woodsia obtusa (common woodsia fern). Photo by Jack Harris.

Hiking back up the hill along the edge of Crescent Glade the group admired the winter beauty of the orange stems of *Schizachyrium scoparium* (little bluestem) and the black heads of *Rudbeckia missouriensis* (Missouri black-eyed Susan). And here we found the surprise of the trip, one small blue flower of *Viola sororia* (woolly blue violet).



"Scientifically" measuring the circumference of a *Platanus occidentalis* (sycamore). L-R: Jeanne Clauson, George Van Brunt, John Oliver, Kathy Thiele. Photo by Burt Noll.

During the hike the subject of how to get the latest information on the many botanical name changes came up. There were two recommendations:

- TROPICOS from the Missouri Botanical Garden: <http://www.tropicos.org>
- NRCS site for the USDA: <http://plants.usda.gov/java>

The MBG site also has information on the literature references about each species, usually a photo of a herbarium specimen, and a list of some of the specimens in their collections. The USDA site has information on a plant's native or non-native status, its wetland classification, several photos, and a national map with connections to state maps.

There are many web sites to look up plant photos. Two recommendations:

- Dan Tenaglia: Missouri Plants: <http://www.missouriplants.com>
- Kay Yatskievych: Flower Finder: <http://www.mobot.org/MOBOT/Research/curators/kay.shtml>

For interesting blogs, mostly about plants, these are recommended:

- Ozark Highlands of Missouri, by Allison Vaughn: <http://allisonjvaughn.blogspot.com>
- The Vasculum, by Justin Thomas: <http://thevasculum.blogspot.com>

March 14, 2011

An unexpected, late-winter snowstorm forced cancellation of our planned field trip.

March 21, 2011—Katy Trail State Park, Research Park Access, St. Charles County, MO (contributed by Wayne Clark).

The weather was unusually pleasant on this day, considering how the weather has been to this date this year. It was partly cloudy and in the low 70's by the end of the trip. Fourteen botanists, Fr. Sullivan, Wayne Clark, Nancy Clark, Jack Harris, George Van Brunt, Kathy Thiele, Burt Noll, Sue Schoening, Larry Morrison, Jeanne Clauson, Steve Turner, John Oliver, John Schaefer, and Bridget Schaefer, came to enjoy the fine day.

Access to the Katy Trail is by way of the Missouri Research Park Trail. The trailhead is in the front of the Duckett Creek Sanitary District Main Plant #2. There is a new brick and concrete parking lot there but it was not open for use. We parked along the roadside in a designated temporary area. The trail is a wide paved pedestrian and bicycle trail. On the right side of the trail is a stream whose origin is the clear discharge water from the treatment plant. The waste water is treated by Membrane BioReactor (MBR) Technology. It is claimed to make the water 10 times cleaner than conventional treatment. Refer to <http://www.duckettcreek.com/docs/mbr.html> for more information. The left side of the trail has a retaining wall that places plants at a convenient height for examining. The wall gradually tapers down to the trail surface level. We spend more of our field trip time on this wooded three quarter mile long trail than we do on the Katy Trail. (It is botanically more interesting).

Although we were there to see the signs of spring, there was plenty of last years growth, old dead plants that survived the ravages of winter well enough be identified. Some examples were: *Perilla frutescens* (beefsteak plant), *Verbascum thapsus* (mullein), *Monarda sp.*, *Chasmanthium latifolium* (river oats), and *Danthonia spicata* (poverty grass). *Aplectrum hymale* (puttyroot, Adam and Eve orchid) were still sporting their winter leaves. One of the signs that spring is here, *Claytonia virginica* (spring beauty), was in bloom. *Lindera benzoin* (spice bush) was in bud, and *Rhus aromatica* (fragrant sumac) was in flower. There were a couple of *Sanguinaria canadensis* (bloodroot) in bloom. *S. canadensis* blooms for only one day. Leaves appear after blooming. The early leaves are a light green, then darken as they mature. Other plants noted were



Lindera benzoin (spice bush) in bloom. Photo by Wayne Clark.



Sanguinaria canadensis (bloodroot) with leaf wrapped around stem. Photo by Wayne Clark.



Lithobates sphenoccephalus (southern leopard frog). Photo by Wayne Clark.

Corydalis flavula (pale corydalis), *Glechoma hederacea* (gill-over-the-ground), *Lamium amplexicaule*

(henbit), and *Stellaria media* (common chickweed). Someone spotted a *Rana sphenophala* (southern leopard frog). It was either too cool for him to move or he was basking in the attention of being looked at and photographed. We arrived at the Katy Trail and headed east. There we saw *Lamium purpureum* (dead nettle) and *Microblaspi perfoliatum* (penny cress). Several *Trillium sp* (trillium) plants were growing on the south bank of the trail were in bud. They were not developed enough for us to determine the species. Many of the plants seen were also seen on the Research Trail. Most of the plants seen on both trails were more mature on the sunnier Katy Trail. There were two sightings of *Thamnophis sirtalis* (eastern garter snake).

March 28, 2010—Emmenegger Nature Park and Possum Woods Conservation Area, St. Louis County, MO (contributed by George Van Brunt).

Two weeks ago, we cancelled our field trip due to a late winter snowstorm. Last Monday, on our field trip, the temperature was in the 80°Fs. This past Saturday, an early spring snowstorm dumped 5 inches on St. Louis. Although spring was slowed down, it was not to be denied. Almost all of Saturday's snow melted on Sunday and only a few small patches remained as 14 botanists assembled in the parking lot of Emmenegger Nature Park in Kirkwood. The temperature was in the 30°Fs as Fr. Sullivan, Emily Horton, Jack Harris, Wayne Clark, Nancy Clark, Steve Turner, Ruth TenBrink, Larry Morrison, Burt Noll, Jeannie Moe, John Oliver, Paul Corley, and Gwyn Wahlmann set off on our walk. We circled the park, starting off in the Meramec River floodplain, ascending to the bluffs above the river, and descending once again into the lowland forest.

Woody plants in bloom included *Acer saccharum* (sugar maple), *Cercis canadensis* (redbud), *Lindera benzoin* (spicebush), *Rhus aromatica* (aromatic sumac), *Amelanchier arborea* (serviceberry), and a species of *Prunus*, probably *P. americana* (wild plum) or *P. serotina* (wild black cherry). Both *Amelanchier arborea* and *Prunus* ssp. have white flowers that are easy to distinguish; *Amelanchier arborea* flowers have long strap-like petals, while the *Prunus* ssp. flower petals are much more rounded in shape. *Cornus florida* (flowering dogwood) and *Asimina triloba* (pawpaw) had large flower buds.



Amelanchier arborea flowers. Photo by Larry Morrison.



Prunus sp. flowers. Photo by Larry Morrison.

Herbaceous plants in bloom were *Cardamine concatenata* (toothwort), *Enemion biternatum* (lowland rue anemone), *Claytonia virginica* (spring beauty), *Thalictrum thalictroides* (rue anemone), and *Dicentra cucullaria* (Dutchman's breeches). *Dicentra cucullaria*, long classified in the fumitory family, Fumariaceae, has been reclassified in the Papaveraceae, the poppy family. Other herbaceous plants bearing flower buds included *Boechnera laevigata* (smooth rockcress), *Sanguinaria canadensis* (bloodroot), and



Anemone coronaria (poppy anemone). Photo used by permission: http://en.wikipedia.org/wiki/Anemone_coronaria

Trillium sp., probably *T. recurvatum* (purple trillium). We also found many *Uvularia grandiflora* (bellwort), though no blooms or flower buds were seen. Both *Trillium* and *Uvularia* have been reclassified from the lily family (Liliaceae), *Trillium* to the Melanthiaceae (bunch flower family) and *Uvularia* to the Colchiaceae (crocus family).

We found several very large patches of *Erythronium albidum* (white trout lily), each tens of feet across. *Erythronium albidum*, like most other trout lilies, forms stolons, horizontal stems which form new plants at each node. This is the means by which these very large patches of plants are formed. Only a few of the plants in these large patches will flower each year. We saw many leaves but no flowers.

The classification and naming of rue anemone, a member of the Ranunculaceae (buttercup family), has an interesting history. The species was originally named *Anemone thalictroides* by Linnaeus in 1753. Anemone (ἀνεμώνη) is the ancient Greek name for *Anemone coronaria* (poppy anemone). The name *Anemone* probably originated from ancient mythology. Tammuz was the Summerian god of food and vegetation. His Phoenician name was Nea'man. Nea'man was incorporated into Greek mythology as Adonis.



Ruta graveolens (common rue). Photo used credit by permission: <http://www.backyardnature.net/q/rue.htm>

Anemone, a Greek corruption of Nea'man, refers to the lament for Adonis, killed by a wild boar while hunting. Blood from Adonis' wounds fell on the ground producing the blood-red *Anemone coronaria* (poppy anemone).

Ruta graveolens, known commonly as rue, is a member of the family Rutaceae (citrus family). The Greek word rhute (ρυτη), from which the name rue and ruta are both derived, is the ancient name of this plant. The lacy foliage of rue resembles that of another, unrelated plant, *Thalictrum minus*, a member of the family Ranunculaceae (buttercup family). This resemblance accounts for part of the common name of *T. minus*, meadow "rue". Rue anemone's three-lobed, dark green leaves resemble the leaves of meadow rue and explains the name "rue" being applied once again. This association of rue anemone with both anemones and meadow rue gave it its common name. The resemblance of rue anemone and meadow rue leaves also explains why Linnaeus gave the species epithet *thalictroides* to the rue anemone. *Thalictrum* (θαλικτρον) is the Greek name for meadow rue. *Thalictroides* means "resembling thalictrum".

In 1839, Edouard Spach placed rue anemone in its own genus, *Anemonella*, meaning small anemone. In



Thalictrum minus 'Adiantifolium', Missouri Botanical Garden. Photo by George Van Brunt.



Thalictrum thalictroides (rue anemone). Photo by George Van Brunt (2006).

1957, JRB Boivin moved the species into the genus *Thalictrum*. Modern DNA evidence confirms the placement of rue anemone in the genus *Thalictrum*, and *Thalictrum thalictroides* is now the commonly accepted scientific name of rue anemone.

An excellent photo of *Thalictrum minus* leaves can be seen at <http://ichn.iec.cat/bages/roureda/Imatges%20grans/cThalictrum%20minus.htm>

(Note: I was unable to obtain permission to use this photo in *Nature Notes*. They never answered my request.)



March Entomology Report: Update on the Swamp Metalmark (*Calephelis muticum*)

Jane Walker



Swamp Metalmark Butterfly (*Calephelis muticum*). Photo by Phillip E. Koenig.

On March 21 the Entomology Group met at the Butterfly House where Phil Koenig updated the group on his searches for the Swamp Metalmark (*Calephelis muticum*). Not many retirees get hired to do a dream job the first day of their retirement, but Phil was lucky. The day he retired, the U.S. Fish & Wildlife office in Minnesota called and asked him if he would conduct searches for the Swamp Metalmark butterfly, both historical sites and currently known sites, and assess the status of the butterfly in Missouri. Concern over disappearing populations of the Swamp Metalmark in Wisconsin and Ohio has led the Fish & Wildlife Service to consider listing the butterfly, but they needed more information. Missouri has the most known populations of this uncommon butterfly, mostly in the Ozarks.

The Swamp Metalmark is a small butterfly, brown on the dorsal side and bright orange-tan on the ventral side. Unlike most butterflies, this butterfly sits with its wings open when at rest. It also rests on the underside of the leaves of its host plant, making it difficult to find. The northern populations of Swamp Metalmark have one brood per year and feed on swamp thistle (*Cirsium muticum*). In Missouri, the butterfly has two broods



Swamp thistle (*Cirsium muticum*). Photo by Jane Walker.

and feeds on swamp thistle and tall thistle (*C. altissimum*). Two adult emergences in a year gave Phil the opportunity to extend his search time, in June and again in August.

Phil visited several sites over the summer. Some of the sites were ones that he had discovered or already knew. Others were historical sites listed in the records. Finding these historical sites was difficult, as the record often does not give detailed location information. For example, one record stated that a butterfly had been collected near Willard, Missouri, but not where near Willard. Of the 6 historical sites Phil visited, 2 sites were positive and 4 were negative for Swamp Metalmark. In addition to the known sites, 6 new sites were added to Phil's list. Kevin Firth and Steve Craig discovered 4 sites around Springfield, Missouri, including some near Willard. Phil, Joe Smentowski and I also discovered a new site for Swamp Metalmark around Salem, Missouri where we had found the Sphagnum Sprite Damselfly earlier this past summer. Phil plans on conducting more searches this summer.



Update on MDC Patch-Burn Grazing Policy

Richard Thoma

Recently, the Missouri Department of Conservation (MDC) invited stakeholders to an input meeting on the issue of Patch-Burn Grazing (PBG) with cattle on Missouri's prairies. Jack Harris and I attended this meeting representing WGNSS concerns (see the March 2011 issue of *Nature Notes* for a copy of the letter of concern sent to MDC by WGNSS). Other groups that attended the meeting included the Missouri Prairie Foundation, Missouri Audubon Society, Missouri Native Plant Society and several outdoor sportsmen organizations. The purpose of the meeting was to gain stakeholder input in identification of the highest priority research needs to determine the ecological impacts and/or benefits of PBG with cattle management on prairie ecosystems. The desired outcome of this meeting was to come away with:

- A description of the desired future conditions for prairies and grasslands managed by MDC.
- A summary list of "unknown's" with respect to the effects of PBG with cattle on prairie ecosystems.
- Recommendation of three, practical, high priority research and monitoring needs related to the use of PBG with cattle as a prairie management tool.

Interestingly, the first goal was probably the most difficult to achieve. Part of the problem is that most people have a picture in their minds of what a prairie should look like but have difficulty creating a written description. Terms that were put together included: a mixture of grasses and forbs; high numbers of prairie endemic species; a dynamic ecosystem that changes through time; fire adapted organisms and conditions similar to pre-settlement times. Future goals include no net loss of prairie endemic species and reintroduction of lost species. Most people felt that cattle should not be considered a natural part of any future prairie ecosystem.

At the meeting we learned that MDC considers PBG a management tool, no different than other prairie improvement tools like controlled burns alone, haying and various reseeding efforts. However, for now, MDC has listened to all those concerned about PBG as a management tool and has scaled back PBG to just Taberville, Pawnee and Osage Prairie Natural Areas. PBG itself is not being researched by MDC; however, research efforts are being considered to understand the dynamic impact of cattle on the Missouri prairie ecosystem.

A long list of "unknowns" was created by the participants at the stakeholder meeting. Most people felt that baseline data was essential before beginning any management effort. This is typically not how MDC works. MDC looks at the habitat as a whole and makes management decisions based on desired outcomes. For example, if a prairie is deemed to have too much grass and not enough forbs, a manager could decide to burn portions of the habitat. PBG is just another tool for the manager to use to achieve the desired outcome. MDC also pointed out that the amount of time it would take and the lack of experts on many groups, primarily insects, makes gathering baseline data impractical.

In the end, the three highest-priority monitoring needs were determined by a group vote. Prairie vegetation overwhelmingly received the highest number of votes. This was followed by invertebrates. Grassland birds and cattle/prairie impacts were then tied for third. In reality, the vote was very close (one changed vote could have changed the outcome) for all categories.

The stakeholder meeting was a learning experience for all participants and MDC. In many ways the outcome of this meeting was very predictable. The areas considered high priority are extremely broad. This meeting was meant to give a high level view of what people outside MDC think is important to preserving Missouri prairies and that was accomplished. We learned that MDC plans to have more meetings in the future, using knowledge gained from this stakeholders meeting to focus on more specific areas. We in WGNSS look forward to future discussions with ultimate goal of preserving Missouri's few remaining prairies for all to enjoy.



TROPICOS®: The Missouri Botanical Garden Plant Database

Marshall Crosby and George Van Brunt

Names are important, very important. It is with a name that we identify and find information about a subject. Modern scientific naming of species began with Carl Linnaeus, 1707-1778. Since that time, for various reasons, a plant species may have been given more than one published name. TROPICOS® is the world's largest database of information about plant names, useful to many plant scientists but especially taxonomists, those who study the naming and classification of plants. TROPICOS contains about 1,249,322 scientific names of plants, an average of about 3 names per species. It does not provide a standard answer to the question, "What is the correct name of this plant?" Rather, TROPICOS provides the correct name of the plant according to a particular source. The source may be a published work or a project from the Garden's research programs. Each scientific name is backed up by a literature reference, currently about 120,496 references in 47,402 scientific journals and books. The database, however, is much more than published scientific names and their references. Associated with the scientific names, TROPICOS contains records of 3,937,248 plant specimens, mostly in the Missouri Botanical Garden herbarium, 50,396 common names, and 161,185 images of plants, both living and herbarium specimens. For the current numbers, go to www.tropicos.org and click on Stats.

This article started when I asked Dr. George Yatskievych, Curator, Flora of Missouri Project, "Where did the web site, TROPICOS, get its name?" He replied that he had "no idea about the origin of the name TROPICOS.... I suspect that this was something that Marshall Crosby thought up." I mentioned my question and Dr. Yatskievych's response to Nels Holmberg. Nels, in turn, emailed Marshall Crosby and asked him the question. Dr. Crosby responded not only with the answer to the question, but much more.

Dr. Marshall Crosby, a bryologist (one who studies mosses, liverworts, and hornworts), is a Senior

Curator at the Missouri Botanical Garden. He began working at the Garden in the late 1960s and in 2000, the Garden named the bryophyte herbarium after him. The following text is adapted from remembrances written by Dr. Marshall Crosby. This account will strike a chord with those readers who began using computers in the late 1970's and early 1980's.

TROPICOS began with Dr. Crosby's agreement with the Dutch bryologist and bibliographer, Dr. Willem Margadant, to collaborate on supplements to *Index Muscorum*. *Index Muscorum* treats names for genera, species, and infraspecies published for mosses through the calendar year 1962. They planned to bring the Index up-to-date and add supplemental information. The collaboration was never realized, and Dr. Crosby decided to begin compiling the supplemental material from 1963 forward, relying heavily on the Recent Literature series (which appears in *The Bryologist*), reprints, and the Garden's library.

Dr. Crosby began compiling two year supplements, which he called *Index Muscorum Supplementum*, publishing them in the journal *Taxon*. Before the appearance of the first *Index Muscorum Supplementum*, Dr. Crosby had begun using electronic data processing to store and manipulate the simple data that were involved in the citations. He imagined that the data could be stored, sorted, compiled, and output directly to a printer. Dr. Crosby obtained a small National Science Foundation grant for the project with which he bought a card punch machine. This machine was the size of a large desk and occupied a large part of his office. He made arrangements with the computer center at Washington University to read the punch cards, store the data on magnetic tape, sort it, and produce printouts, however, Washington University was unable to produce the kinds of sorts he needed.

Dr. Crosby, in conjunction with Dr. Bob Magill, then a postdoctoral fellow at the Garden (now Senior Vice President, Science and Conservation), developed a system of data cards to collect information for the *Index Muscorum Supplementum*. Their system consisted of 3 different types of cards, one for new taxa, one for new combinations of names, and one for new names, each with 20 to 30 data fields. Each field of each card required a separate punch card; if a mistake was made, one

had to punch a new card. Dr. Crosby soon soon abandoned keypunching but continued recording the information for the *Index Muscorum Supplementum* on the data cards.

After his Garden postdoc, Dr. Magill went to South Africa, to the Botanical Research Institute in Pretoria, to undertake the writing of the moss treatments for the Flora of Southern Africa project. There Dr. Magill worked with an electronic data processing system called PRECIS.

At that time, in the mid to late 1970s, microcomputers were beginning to appear. They were mostly assembled from several components and programmed by the assembler. Adam Osborne developed and marketed an all-in-one computer housed in a suitcase-like box with a handle on it, making the system, which weighed about 30 pounds, "portable." The computer, the Osborne 01, was supplied with software: an operating system, CPM; a version of BASIC; a word processor, WordStar; a spreadsheet, SuperCalc; and a database management system, dBase II.

Dr. Crosby accepted an offer to write a number of articles on plants for *Funk and Wagnalls Encyclopedia* for about 10 cents a word. He sat up each night writing the articles and with the earnings from these articles, he bought an Osborne 01. The closest computer store that carried the Osborne 01 was in Kansas City. He drove there twice, once to look at the machine and again to pick up the specially ordered unit. Price: \$1,795.

In early 1982, Dr. Magill returned to the Garden from South Africa. One day, Dr. Magill stopped by Dr. Crosby's house after work to look at the Osborne 01. Dr. Crosby asked if he thought dBase II could be made to do the kinds of data sorts that were needed for *Index Muscorum Supplementum*. Dr. Magill said yes, and after a few days he had the 01 doing what they needed.

Not much development of the database system took place on the Osborne 01, because, just at that time, the Garden acquired its first on-campus computer, an ADDS Mentor minicomputer, which was housed in the old vault room of the Controller's Office and which was used for bookkeeping and for maintaining members' records by the Membership Office. Research got a little space on the machine, which ran the PICK

operating system. PICK was ideally suited for managing the kinds of data that the scientists were accumulating for the *Index Muscorum Supplementum* project. A second ADDS computer was installed in 1984, devoted to botanical information. The Garden's field botanists were now recording their notes on Kaypro II portable computers and returning them to the Garden on 5 ¼ inch floppy disks, where they were fed into the larger computer.

It soon became clear that data in *Index Muscorum* were not consistent, e.g. abbreviations of journal and book titles, abbreviations of authors' names. The scientists developed accessory files that contained standard abbreviations, and these could be used as sources for the appropriate fields in the file of names and their citations. The system was soon being used for repetitive tasks like making herbarium labels, which had long been a bottle neck in the Garden's herbarium development. Thus, "the computer" made 77,000 herbarium labels of 90,500 produced in 1983. The geographical information from labels could be used to plot distributions and to compile checklists for particular areas. The Recent Literature on Mosses information was also accumulated on the ADDS computer. Having files of names and references meant that synonymous names could be linked and the source of the synonymy linked to a reference in the Recent Literature file.

Early in the development of the system, Dr. Crosby and Dr. Magill began searching for already computerized information to add to the database. There was not much, but they did acquire a file of all generic names and associated data from the *Index Nominum Genericorum* project based at the Smithsonian.

Jim Zarucchi was hired at the Garden in early 1984 to work on New World legumes as part of an international legumes database, called ILDIS (International Legume Database & Information Service). All New World legume names were added to the system, from *Index Kewensis* and the Gray Cards.

Although Dr. Crosby has thought for years that Jim Zarucchi made up the name TROPICOS from the initial letters of several Spanish words, Dr. Zarucchi says that he did not make it up. Bob Magill recalls that he simply asked Jim what was

the Spanish word for tropics, and Jim replied, "TROPICOS." (Editorial Note: the Spanish word "tropic" also means "hardships, difficulties". Perhaps TROPICOS is an apt name, appreciated by those who worked with computers in the "early days".)

Dr. Crosby states that he does not think TROPICOS began as an idea, per se. Rather it was developed by Bob Magill and him to meet a need, i.e. making lists of names of mosses. From this base, new ways of using and linking the data logically followed, and Dr. Magill developed the programs needed to make them work.



Everybody Loves Vultures!

John Christensen¹



The Turkey Buzzard, commonly called the Turkey Vulture.

Family Remembrances (FR): When my son Alex was 13 months old he was able to identify all of the birds in the Golden Guide to the Birds of

North America when Emily and I took him to California to introduce him to his Californian relatives. One day he picked the book up from the coffee table, opened it to a random page and started identifying them, "Bir, bir, bir, bir, bir."

FR: The next summer we were driving to Shenandoah National Park and saw a turkey vulture circling over the road ahead of us. I pointed it out to Alex and told him "Turkey vulture up there." Later while changing his diaper outside the Visitor Center at the Blue Ridge Parkway, he looked over my shoulder and said "Turkey vulture up there!" And he was right.

Aren't turkey vultures amazing? They have a head that is the color of Dorothy's ruby slippers. They have a wingspan of six feet, and they can soar for six hours without flapping their wings by using thermal updrafts. They hold their outstretched wings at a slight upward angle, called a dihedral, which gives them extra stability. They also may be the only species of bird that has a strong sense of smell which they use with their strong eyesight to find their meals.

FR: One Friday several autumns ago my wife Emily and I were driving south along the Bluff Road in Illinois to visit our daughter Lois at SIU Carbondale. We drove along a stretch of the road where we saw groups of turkey vultures every 200 yards or so. They were eating the remains of road kill juvenile raccoons. Their mothers, in preparation for starting new families forced the juveniles out of their dens to find their own territories. Many of them are not trained well enough in how to avoid cars while crossing roads.

We appreciate the vulture's ability to clean up the carcasses scattered around the landscape. Unlike the Old World Vultures that are closely related to raptors and possess strong talons, the New World Vultures are related to cranes and have very weak talons so that they only scavenge well-aged dead animals. Their beaks are also weak so they cannot tear off fresh flesh but must wait till it starts to rot. Their featherless head is an adaptation to keep the head feathers from getting matted and covered with bacteria. Not having feathers also allows the skin to be exposed to UV rays from the sun, which kills any bacteria present. Their stomach acid is so strong that virtually no bacteria survive the trip through the digestive system.

¹ Photos by the author.

If they have the opportunity to eat their fill, they may be unable to take off immediately. So if they are attacked by a predator they will disgorge part of the stomach contents into the face of the attacker, which gives them a chance to fly away. Several of the workers at the World Bird Sanctuary have said that the mixture is so acidic that it can eat holes in their clothing if it is not washed out quickly.

One of the adaptations to flight that almost all birds have is the absence of a bladder. The water in the urine is reabsorbed so that very little is eliminated. The white coating on bird droppings is composed of urea, which is the concentrated urine. Turkey vultures are able to cool themselves evaporatively by urinating on their legs. I have not found any record of any other species of bird cooling itself that way.

Turkey vultures did not overwinter in Missouri in 1985. Now they do. Bruce Schutte, the Naturalist at Cuivre River State Park called the Birding Hot Line to report a sighting several years ago of a Turkey Vulture on New Years Day. He was told that it was no longer unusual enough to record the sighting. I saw a report on-line about black vultures starting to overwinter in New England. The researchers concluded that it was partially caused by climate change. The birds require carcasses that are not frozen solid, since like turkey vultures they do not have strong enough talons to rip apart a frozen body. Presently it does not get cold enough to do so. Also the fragmentation of the forests and construction of roads with the expansion of suburbs create more opportunities to find carcasses. Unlike the turkey vulture, they cannot hunt for food in the forests.

FR: We were visiting the Everglades in Florida. We visited the Sawgrass Recreation Park went on an airboat ride, then were taken to see their other attractions which included a wildlife exhibit run by an animal rescue organization. Beyond the fence was a stream with a beach. There were several black vultures standing on the beach. Suddenly there was a loud splash, and my daughter-in-law Becca yelled, "an alligator grabbed a vulture!" Hurrying over I saw the gator half-out of the water with a clump of black feathers sticking out of its mouth.



The California condor and John Muir on the reverse of the California State Quarter.



Andean Condor - National symbol of Chile and slightly larger than the California Condor.

The third and final vulture in the USA is the California condor, which has the largest wingspan, up to 10 feet wide. In 1985 there were only 9 individuals living in the wild. They were all captured to become involved in a captive breeding program. Their descendants have been successfully released in California and elsewhere.

FR: In 1997 our family was camping at Grand Canyon National Park. We went to the evening ranger talk and learned that they were attempting to create a separate population of California condors and had just released the first individuals several days before. The ranger told the audience where the best observation area was so the next day we drove there. Unfortunately we did not see any. Several days later we read that the released condors were having difficulty adjusting to being free and had to be recaptured and giving more training in how to survive. Since then they have

been successfully reintroduced and are spreading to create a stable population.

If you want to be with other people who love vultures you should attend one or more of the vulture festivals scheduled each year. This list is from The Turkey Vulture Society's web site.

- Branson, MO – Vulture Venture (February)
- Makanda, IL – Vulture Festival (October)
- Hinkley, OH – Buzzard Sunday (March)
- Wenonah, NJ – East Coast Vulture Festival (March)
- Superior, AZ – Bye Bye Buzzards (September)
- Kern, CA – Turkey Vulture Festival (September)

FR: Alex was shopping at Target with his wife and daughter Caroline, then 3. While Becca was looking at the clothes, Alex was watching Caroline, who was circling around the aisle with her arms (wings?) spread. A elderly lady walked past her and asked her “Are you an airplane?” With a distressed look she said to the lady, “No, I am a turkey vulture!” And then the lady had a distressed look.



Old World Vulture from the Fischer-Price zoo.



Creve Couer Park Spring BioBlitz

Phillip E. Koenig¹

I was the leader of the butterfly and moth group for a BioBlitz at Creve Coeur Park in the suburbs of St. Louis on May 16th, which was sponsored by the St. Louis Academy of Science. This event was preceded by several days of warm weather including a few with high temperatures above 80 degrees and the early spring butterflies were doing their best to insure that there will be an abundance of butterflies in the future.

As often happens in the spring, when winter does not want to give up, a cold front moved in the evening before the BioBlitz. The high for the day was predicted to be 55 degrees, which occurs around 4 PM. Butterflies are creatures of the sun. They start to fly around 9 a.m. on warm, sunny days. The BioBlitz was from 6 a.m. to noon so I knew there wouldn't be any self-respecting butterflies on the wing. I took my winter jacket and two glass top drawers filled with butterflies found in the St. Louis area to show the 17 people who had signed up for the walk.

My first walk was scheduled for 9:30 so I arrived at 9 a.m. and found a tent with tarps on the windward side to reduce the gusts. I put the drawers on a picnic table, introduced myself to the organizers and other leaders and poured a hot cup of coffee to keep warm. I took a few sips, put it down and the wind promptly blew it away. The St. Louis Audubon Society gave me a cap, which I much appreciate, especially since I forgot to bring one. It too blew off of my head and landed in the only puddle in the area.

The butterfly aficionados who had signed up for the butterfly and moth walk realized that they would not be seeing any butterflies on a day like this so they prudently did not come. At 9:30, the participants arrived for the numerous activities but only two of them had registered for the butterfly and moth walk. Since there was no point in walking around looking for live butterflies, they

¹ Co-Chair, WGNSS Entomology Group, Missouri coordinator for Butterflies and Moths of North America, Contractor for U.S. Fish and Wildlife Service.

listened to the beginning of my talk and then decided to join the birders.

My next scheduled walk was at 11:00 a.m. and a gentleman and his two children arrived. I started to tell them about the wonders of the contents of the two drawers but the little boy got cold and the dad went to the car to get a blanket. He told me to just keep talking and he would be right back. I continued talking to the young girl who seemed to be somewhat interested but it was apparent that the father and boy were more interested in staying warm and I couldn't blame them. After the boy was wrapped in the blanket, the father asked where I got the boxes. I explained that they were hand made and given to me by a friend but they could be purchased preassembled or in kit form. He then asked, "Where do you get the butterflies?" I replied, "You have to catch them." "With a net?" "Yes." He smiled, gathered his children and left without a word. I do not know what was going through his mind. Perhaps he wanted to keep his children from getting hypothermia but I suspect he wanted to protect them from the influence of a perceived psychopathic killer of innocent little butterflies. By this time I was so cold I was shaking so I picked up the collection and left too.

I already volunteered to be the butterfly and moth leader for another BioBlitz. If my luck continues, I will be standing alone in the middle of a prairie wearing my new cap and holding my aerial net / lightning rod watching a major squall line roll in; hoping that someone will arrive so I can talk about the wonders of innocent little butterflies.



TNC Spring 2011 Conservation Speaker Series

The Nature Conservancy has announced their **Spring 2011 Conservation Speaker Series**. Mark your calendars – all talks are free & open to the public and are held at Schlafly Bottleworks in Maplewood.

Tuesday, May 24; 7 p.m.

Natural History, Human Culture, and Conservation in Missouri – Doug Ladd, Director of Conservation Science, The Nature Conservancy in Missouri.



WGNSS Membership Dues

Richard Thoma

It's time to renew your Webster Groves Nature Study Society membership. For the 2011–2012 year, two membership categories are being offered:

- Individual (or household)—*Nature Notes* delivered 1st class mail—\$25.00
- Environmentally Friendly—*Nature Notes* sent via email—\$15.00

The difference in cost between the two membership categories is based on the expense of printing and the postage required to mail the *Nature Notes* newsletter. These expenses are not incurred when *Nature Notes* is sent electronically. WGNSS would like all members to consider the Environmentally Friendly category for renewal. In addition to being better for the environment (fewer trees cut down for paper production and less gas used for delivery), there is a substantial cost savings. Also, the newsletter arrives much quicker and pictures in the emailed copy of *Nature Notes* are in full color. The lifetime membership category is no longer offered by WGNSS, though those that opted for the lifetime membership in the past will continue to receive *Nature Notes* at no additional charge. WGNSS requests that those people with lifetime memberships consider receiving *Nature Notes* by email to help the organization cut down on costs and to better preserve the environment. Contact the Assistant Treasurer (whittex@aol.com) to switch to *Nature Notes* by email.

With either membership you will be able to participate in all of the meetings and field trips organized by WGNSS. In addition, a portion of your membership dues contributes to the many great programs offered by WGNSS including recent funding for a new and improved Jim Zoebol Butterfly Garden at Busch Wildlife Area and financial supplements to the Mickey Scudder and Menke scholarships.

The membership renewal deadline is September 1, 2011. Renewing your membership before the deadline will help WGNSS stay better organized and ensure uninterrupted delivery of *Nature Notes*.



Group Activity/Walk Schedules

BOTANY GROUP

Chair – George Van Brunt

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

ENTOMOLOGY GROUP

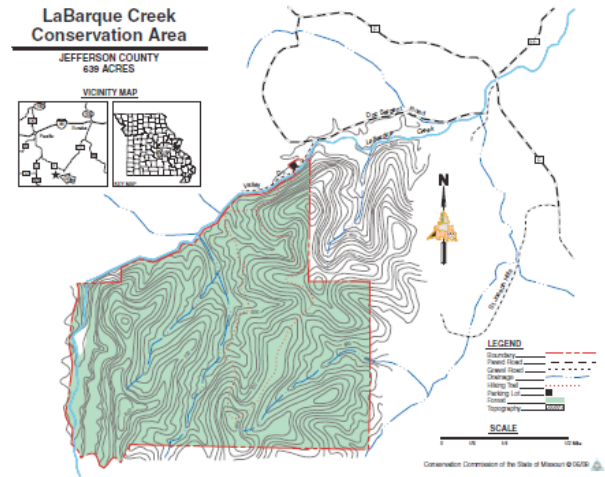
Co-Chairs – Phil Koenig and Jane Walker

Saturday, May 21; 8:30 a.m. – noon(ish?)

Our field trip to LaBarque Creek is May 21. We will meet at the LaBarque Creek Conservation Area parking lot at 8:30 a.m. and hit the trail about 8:45. At our April meeting, we decided to survey the sandstone glades and dolomite glade along the trail. (See natural communities' map) Ted MacRae will lead a more ambitious trip to the more remote sandstone glade on the east side of the property. We welcome all participants, but would like to know who is coming, if you have equipment, or if you will need a net. We will provide killing jars and other "buggy" tools. We also need to know the number of participants, so that we can divide up into smaller groups. Some of these sites are very small and cannot support a herd of enthusiastic elephants. If you feel you don't know enough or are intimidated by all the equipment, we could use secretarial recorders of GPS coordinates, temperature & light readings, and people to identify plants.

Plan on bringing water and a snack/lunch to carry with you. If we finish by noon, we will eat lunch in the parking lot. Sunscreen and/or a hat are a must. It may be hot. If rain/thunder/lightening are in the cards, the following Saturday will be our rain date.

Contact Rich Thoma thomarkas4@sbcglobal.net or 314-965-6744) or myself (314-965-6522, call before 8:00 p.m.) if you plan on coming. We would like to know by Thursday May 19 if possible so that we can bring enough extra equipment if necessary.



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 members' homes on the second Tuesday of the month from 1:30 – 3 p.m. For meeting locations and directions contact Pat Brock Diener at (314) 962-8665 or Lisa Nansteel at (636) 391-4898. All are welcome – especially newcomers! Upcoming books (note changes from list published in last month's *Nature Notes*):

- June – *Bringing Home Nature* by Douglas W. Tallamy
- July – *Eaarth, Making a Life on a Tough New Planet* by Bill McKibben

ORNITHOLOGY GROUP

Chair – David Becher

Saturday Bird Walks (Leader – David Becher). April and May walks begin at 8 a.m. and normally go through early afternoon, so bring lunch if you wish to stay out. Everyone is welcome. The leader reserves the right to change the schedule if necessary. If you have questions, contact David at (314) 576-1146 or DavidBecher@msn.com

- May 14 – Big Day or NAMC
- May 21 – Des Peres City Park, Ballas Rd. just north of Manchester Rd.
- May 28 – Des Peres City Park, Ballas Rd. just north of Manchester Rd.

Thursday Bird Walks (Leader – Jackie Chain). The WGNSS Birding Group will meet at 8 a.m. on May 12th and 19th at Tower Grove Park near the Gaddy Bird Garden in the northwest section of the park. There is parking on Magnolia Avenue as well as inside Tower Grove Park just north of the Garden for those dates. Beginning May 26th we will meet at 8 a.m. at Des Peres Park parking lot off Ballas Road just north of Manchester Rd. and east of West County Mall as before. If you have questions, please contact Jackie Chain at (314) 644-5998 or chainjac@sbcglobal.net

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



Editor's Corner

Ted C. MacRae

SUMMER BREAK

Nature Notes will take a short break for the summer and resume publication with the September issue. The submission due date for that issue is **August 5**—mark your calendar and send your group reports, articles, and activity schedules by that date to the Editor at ted.c.macrae@monsanto.com. Submission due dates and mailing dates for the year's remaining issues can be found on the "Administrative Information" page.

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* and its included photos **in full color**. Embedded hyperlinks also allow instant navigation to email addresses and websites. Of course, you can always print your electronic copy of *Nature Notes* if you wish (if you do, please be sure to use 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/>). Regular subscriptions can be converted to email by contacting Joe Whittington, Assistant Treasurer, at whittex@aol.com

CALL FOR SUBMISSIONS

We welcome all announcements of WGNSS or other nature related events in the St. Louis area, notices of published articles – especially those authored by members, and original nature oriented articles. Suggested topics include field trip accounts, information about local natural areas, interesting nature sightings, or reviews of nature related books. Articles may be reprinted from other sources only by permission of copyright holders.

Please direct all submissions by email to the Editor ted.c.macrae@monsanto.com. Please limit text formatting to bold for emphasis or italics for scientific names. Avoid tabs, extra spaces, multiple hard returns, underlining, etc. (these will be removed during final formatting). Photographs are encouraged and will be published on a space-available basis. Contributions are welcome from all – remember; this is your newsletter!

