About Bananas
Randy Korotev

Take a banana. Bananas are touted as a good source of potassium, and they are. According to <www.chiquita.com>, a medium banana (126 g) contains about 400 mg (milligrams) of potassium, which means that a banana is about 0.3% potassium by weight. Potassium is one of the 100-some chemical elements from which everything else is made. Potassium, which we geochemists like to call K, is one of the most common elements in the Earth's crust. All rocks and soils contain K, and estimates for the average K concentration of rocks making up the continents run between 1% and 2%. So, given a banana and a rock of the same weight, the rock typically contains several times more K than the banana. Some materials, like granite rock, salt substitutes, and fertilizer, contain a lot more potassium. Plants grow in soil, and soil is where plants get their K. Apricots, broccoli, orange juice, and potatoes are good food sources for potassium, but to keep it simple, this story is about bananas.

Any high school chemistry student ought to be able to tell you that with 400 mg of K, which has an atomic mass of 39 grams per mole, a medium banana contains ~0.01 moles of K, which means that it contains $6 \times 10^{21}$ atoms of potassium. That’s six thousand billion billion atoms, if you’re from the U.S. Here’s the part that high school students may not know, but they should. There are three kinds of K atoms, $^{39}$K, $^{40}$K, and $^{41}$K. In science lingo,

Continued on page 2

Dung Beetles of Ozarks 3/4
Thursday, March 4, 7:00 PM at the St. Louis County Library Headquarters in Frontenac, Alejandro Masis will present his preliminary results on the “Effects of Even-aged and Uneven-aged Forest Management on the Diversity and Abundance of Dung Beetles in the Missouri Ozarks.”

WGNSS Botany Walks
Jeannie Moe

Last fall Father Sullivan asked me if I would like to become the Botany Co-chairman, to represent the Botany Group at the board meetings. He was also looking for someone to lead Saturday Botany Walks. These walks will be the same as the Thursday walks where all are welcome from beginners to advanced. The first walk was on Saturday, December 13, at Rockwoods. The Thursday Botany Group went out with me the Thursday before to scout the area. The group included Father Sullivan, Jack Harris, and David Bruns who is the Education Consultant for Rockwoods.

Our primary mission was to identify winter tree buds. Winter is a good time to identify trees, because many trees are

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Dates for '04 Meetings

- Inclerent weather? Call St. Louis County Library Headquarters 314-994-3300 to ask if the meeting has been cancelled. For board meetings, call Powder Valley, 314-301-1500.
- All of these (except May) are 1st Thursday:
  - March 4 St. L. Co. Library -HQ 7:00 PM
  - April 1 - East Room St. L. Co. L-HQ 7:00 PM
  - May 13, Annual Spring Banquet at Eden Seminary in Webster
  - Sept. 2 St. L. Co. Library -HQ 7:00 PM
  - Oct. 7 St. L. Co. Library -HQ 7:00 PM
  - Nov. 4 St. L. Co. Library -HQ 7:00 PM

St. Louis Area Lists for 2003

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Bird of the Year—What He Said

Connie Alwood
I agree with Torrey—Pacific Loon was my bird of the year.

Officer’s Nomination

Pat McCormick

The nominating committee sought candidates for three WGNSS positions up for election this year: President, First Vice-President, and Second Vice-President. The committee spoke to many active members and now presents the following slate of candidates:

- President: Yvonne Homeyer
- First Vice-President: David Mendelson
- 2nd Vice-President: candidate being sought

The election takes place at the April 1, 2004, general meeting, 7 PM at the St. Louis County Library. Nominating committee members are Ann Earley, Jim Adams, and Pat McCormick.

The committee is also seeking a Membership Chair, someone interested in celebrating WGNSS successes and pursuing strategies to attract new members.

Last Minute Changes in WGNSS Events

Kent Lannert

Meeting times and places for events and bird walks are usually posted in Nature Notes. Occasionally circumstances require that the time and/or meeting place be changed or that the event itself be cancelled. Usually this occurs after the deadline for getting a revised notice into Nature Notes. Checking MOBirds for schedule changes is a good idea. Another place to double-check whether you should drive to Carlyle or Clarence Cannon is to call the Tyson Nature Line at 314-935-8432. Event coordinators or trip leaders should call Sherry McCowan at 314-664-2381 to report any changes from the posted schedule.

How To Create A Bird & Butterfly Garden 3/10 at Powder Valley

Yvonne Homeyer

WGNSS members are invited to attend “How to Create a Bird & Butterfly Garden,” sponsored by the St. Louis Chapters of NABA (North American Butterfly Association) and the Missouri Native Plant Society. Richard and Susan Day, backyard habitat specialists and a professional photography/writing team, will present on Wed., March 10, at 7:30 PM at Powder Valley Nature Center. They’ll talk about hummingbird and butterfly gardening, the use of water, and much more. Susan will also be available to autograph copies of her book, The Wildlife Gardener’s Guide to Hummingbirds and Songbirds from the Tropics. Please join us for this outstanding program.

Botany Walks continued from p. 1 easier to distinguish by their buds than by their leaves. We were also looking for various grasses and herbaceous plants that can be found in the winter. As an added bonus, we were looking for Dittany, Cunila origanoides. In the winter when the temperature drops below freezing, Dittany will make beautiful frost flowers. Frost flowers occur when the moisture in the stems freeze and is forced out in the form of delicate ribbons near the base of the plant. Rockwoods is a good place to find Dittany since it likes to grow in rocky, cherty soil,
and we picked a good day for frost flowers. They were everywhere!

The following Saturday came along with some wintry weather. Several inches of new snow covered the roads. The only other person to show up (besides my husband Jim and I) was Jack Harris. Jack had come to help lead the walk, but decided to go back home due to lack of attendance. Since we were already there, we decided to go on a winter hike by ourselves. It was pretty cold out but the frost flowers on the Dittany were spectacular.

The next Saturday botany walk will be on Saturday, March 20, at Robertsville State Park. The mission this time will be the Harbinger-of-Spring, _Erigenia bulbosa_, which is in the Apiaceae or carrot family. They are the first native plant to bloom, and they start blooming in February. By mid-March they should be in full bloom. The Harbinger-of-Spring is a perennial herb that has small white flowers with black anthers that give them their common name, the Salt and Pepper Plant. Early in the spring they are very short and low to the ground, but later they can grow as tall as 0.15 m. They have small carrot-like leaves.

Saturday, April 10, I plan to lead a walk at the Shaw Nature Reserve in Grey Summit, Mo. Early spring wildflowers will be coming into bloom.

On Wednesday, April 28 at 7:30 PM I will be presenting my masters thesis at the joint WGNSS, Missouri Native Plant Society meeting at Powder Valley. I earned my masters degree in biology at SIUE in the spring of 2003. My thesis was “A Baseline Floral Survey of the Watershed Nature Center in Edwardsville, Illinois.” The next walk after that will be the following Saturday, May 1, at the Watershed Nature Center. We will be looking for spring wildflowers plus a tour of the grounds. The Watershed has a colorful history with former land use including a sewage lagoon, railroad yard and railroad tracks. The land has been restored to two lakes, two prairies, woods, and hiking trails.

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**Journey of the Cranes—Kearney, Nebraska**

David Rabenau

The Sandhill Cranes started arriving here in February and today, March 17th, they are near their peak. I drove 10 hours yesterday to see them, and I’m not disappointed. These 4-foot tall, red-capped, gray birds are everywhere in the thousands.

What I also find is what others, including Peter Mathiessen in his book _The Birds of Heaven_, say is true: we humans have a surprising connection to cranes. As if the cranes call us in from states and provinces all over North America (and sometimes from across the world), we come to gaze at them through binoculars, spotting scopes and cameras. We arrive and discover a celebration of natural grandeur, movement, and life.

This is a stopover for the cranes, not a destination as it is for me. Here the cranes seed by day and rest at night—all in preparation for the balance of their journeys to Alaska and Canada, or to Siberia and other points north where they sometimes stay.

Cranes, including the rare and endangered Whooping Crane, specifically choose this Platte River country in central Nebraska. For safety at night, they can roost in the river’s shallow flow. Then, during the day, they use the abundant agricultural land which stretches along both sides of the Platte River, and which provides them with an ample and reliable food source of grains, invertebrates and insects.

The cranes aren’t alone. With them are Snow Geese, like so much salt and pepper thrown into the bracing Nebraska wind; White-fronted Geese, called speckled-bellies by hunters; and the ubiquitous Canada Geese, found here in all its many subspecies. A million or more geese—and counting—there are also the combined thousands upon thousands of Pintail Duck, Ring-necked Duck, Mallard, Green-winged Teal, and—right now—the occasional Blue-winged Teal, Redhead Duck, and Cinnamon Teal. Each day their numbers shift, as new waves of birds arrive and others depart. All told, it is an awesome spectacle. Especially in the morning, the sky fills with stream after stream of duck, goose and crane, all in groups of their own. Sometimes the groups...
overlap and intertwine as they fly. Their graceful, fluid lines form and reform. As the sun rises, they fly away from the Platte River to the surrounding fields. At sunset, some return to the river or to the dark mirrored lakes and ponds of the nearby Rainwater Basin. Some, of course, do not return that evening, until eventually all their staggered V’s drift north and their calls grow faint. It’s hard to imagine it now, but spring ends quietly on these Nebraska plains.

Meanwhile, geese and Sandhill Crane call all through the day. So much so, I quickly learn each species and need not look up to identify them visually. The Sandhill Crane has a warbling, raspy chuckle that travels long distances. Some say the Sandhill’s call carries more than a mile. Now and again I hear the plaintive call of a Sandhill Crane and search the candy blue sky for their dark-gray silhouettes. Sometimes I locate them, riding thermals thousands of feet above the plains. Other times I can’t find them at all.

This afternoon I come upon a hundred or so cranes standing in a field alongside Kilgore Road, just south of Interstate 80. I pull over and, using my truck as a blind, sit for two hours watching them feed. During this time, more cranes constantly drop in and join the gathering. Like parachutists, their gangly legs stretch out below them as they descend. Their wings remain cocked and stationary, and they float down, waviering and tilting this way and that, until about a yard above the ground, they flap their wings, position themselves precisely, and finally touch down. It is in that soft moment I sense that they also drop, as it were, into my heart. That so large a bird is elegant and graceful is the beginning of their appeal and beauty.

Cranes also dance. They aren’t supposed to be dancing—that is, courting—this early in the season, but some of these are. I’m told they often dance in order to relieve tension when they are made nervous by humans pulling up in cars, pickups and buses to gawk. But how could I be making them nervous? I have been here so long, sitting quietly inside my vehicle that the cranes soon seem to forget about me. They no longer look my direction and go about scavenging for food, their heads down and focus intent. Only later do a couple of them begin dancing, which they accomplish by jumping up in the air and lifting their wings out and back. At the same time, their heads swoop forward and up. Upon this basic form of their dance, I’ve seen cranes build three variations—

One, a crane picks up a stick or cornstalk in its bill and tosses it over its head and back,
Two, a crane picks up a stick or cornstalk with its legs and tosses it over its head and back, and
Three, a crane throws a stick or cornstalk up with its legs and then catches it in its bill—all the while prancing and jumping, and flapping its wings. Other Sandhill Cranes watch and voice approval.

Is my presence the cause of all this rowdiness? If these early dances truly aren’t courting behavior, then perhaps the cranes are getting nervous, not about me, but about soon having to find a partner. I’ve also been told that cranes mate for life.

A biologist at the University of Nebraska said he saw a crane one spring on the same corner of a farmer’s field as he drove each day to and from work. Eventually, all of the other cranes around Kearney left and continued their migration north, but this one crane stayed. It remained in the same spot, day after day, standing alone. At first the biologist thought the crane was probably injured and couldn’t fly, so one day he stopped his car and walked up to the bird. Upon approach, the crane rose up in the air and flew off. So much for that idea, he thought. Yet, that afternoon on his way back home, the perplexed biologist again saw the crane standing on the same corner of the same field. The crane remained in Kearney through a searing summer and into fall. I: puzzled the worried biologist as he drove by the crane at least twice a day. Finally, on one harsh winter morning, the biologist found the thin crane lying frozen in the field.

The biologist casually shared this story with those he met, and often whenever he spoke in front of an audience or class. It haunted him. He hadn’t known what to make of the lone crane’s behavior, or the private loss he felt. One weekend at the end of a seminar, a Nebraska Game and Parks agent in attendance came up and told the biologist that he had removed a dead crane in mid-March from that same corner of the farmer’s field. The two
cranes were probably mates, the agent ventured, and the biologist had witnessed a lone crane stand vigil at the last place the crane had seen its mate. The crane probably didn't know his mate had died, and so waited for her return, and waited... until his own death came by winter.

Sitting here alone and watching cranes dance with one another, I think about that solitary crane. I can't help but hope that perhaps he finally found his mate. Maybe he heard her call and parachuted down one last time, somewhere, to dance with her by a river whose rills and ripples no longer flow through Nebraska.

Thus, I discover my own bond with cranes. They've become like family, so that I, too, talk about them with whomever I meet.

I worry about their safety. Driving the farm roads here, I now wince every time I see a power or telephone line. When you find an injured crane, look up and you'll most likely see the utility line that injured it. These lines kill more cranes than any other happenstance or predator, anywhere. Utility lines—in addition to putting electricity and telephones in our homes and businesses—break wings, legs, bills and necks. Cranes strike them in flight, whether taking off or landing, as you or I might walk into a clear plate glass door. Neither of us sees it coming and we meet the obstacle full force.

Sometimes power lines electrocute. The crane's 7-foot wingspan bridges two of the lines and completes a circuit. At least death by electrocution is quick and merciful, better than standing in a field with a broken wing, unable to move or find food. The mates of these injured cranes—those that have mates—often stay close by their partners, taking leave only to forage for their own food. When the injured birds finally starve, their mates continue north alone.

I wonder if it would cost too much to bury all of the utility lines from Grand Island to North Platte in a five-mile swath along the Platte River. Depends on whom and when you ask, I guess. Days ago, back in St. Louis, I would have paled. "Probably." Tonight, my answer comes more slowly. I start my truck and go to the Rowe Sanctuary run by the Nebraska Audubon Society, and spend three cold hours in a wind-blown, rickety wood blind on their property. Across what deepens into a dark red, western twilight, I see cranes dropping down to roost for the night along the Platte. I can also see the black strands of utility lines that stretch across the river upstream. The evening switches dark and soon only the slightest sliver moon is visible. I can no longer see the cranes, or the wires. Stars begin to sparkle in the faint purple dome above, and the North finally relents its last cold breath. The wind dead, the sanctuary seems stilled by an unknown hand, but not silenced. I listen to the cranes call as they continue to fly over me, unseen. Soon, this night becomes one of many nights, and reaches back through time. In it Sandhill Crane make these same calls on these same journeys for longer than we know, for longer than humans have stood along the Platte watching them. I stand and listen across the many years, and feel as though I fall back through them.

It seems abrupt when a sanctuary volunteer arrives and whispers to me that it's time to go. I hesitate to leave, but then reluctantly start the stiff walk back to my truck and think of the long drive home ahead of me tomorrow. Still vainly searching overhead for cranes flying through the dark, I see a meteor shoot across Orion into Taurus. I stop. Listening to the cranes calling me, I answer and make a wish. I wish them safely home.

Editor's Note: David's article was first published last year in the Journal of the Audubon Society of Missouri, The Bluebird.

2004 Rivers and Wildlife Celebration is Friday, March 19 thru Sunday, March 21, this year. For more information, people can contact Audubon Nebraska at 402-468-5282 or nebraska@audubon.org. Their website is: <www.Nebraska.audubon.org>

About Bananas cont. from p. 1

K has three isotopes. Each has 19 protons, which is what makes them potassium atoms. If an atom has 18 protons, it's an argon (Ar) atom or if it has 20, it's calcium (Ca). The number of neutrons in the three kinds of potassium atoms varies: 20, 21, and 22 in $^{39}$K, $^{40}$K, and $^{41}$K, respectively. On average, for every million K atoms -- whether they are contained in a gran-
ite rock, a bag of fertilizer, or a banana – 932,581 are $^{39}\text{K}$, 117 are $^{40}\text{K}$, and 67,302 are the $^{41}\text{K}$ variety.

Protons and neutrons prefer to occur in pairs. That’s an anthropomorphic way of saying that atoms with an even number of protons or neutrons are more stable than those with odd numbers. All atoms with even numbers of both protons and neutrons are stable. Many atoms with an odd number of protons but an even number of neutrons (like $^{39}\text{K}$ and $^{41}\text{K}$), or vice versa, are stable, but some are not. However, having an odd number of both protons and neutrons almost always makes for an unstable atom. Of the 266 known stable isotopes, only 4 have an odd number of both protons and neutrons (T, $^{7}\text{Li}$, $^{10}\text{B}$, and $^{14}\text{N}$). All the other odd-odds are unstable, including $^{40}\text{K}$.

Like a car with a loose fan belt, “unstable” means that, sooner or later, something is going to happen that leads to a more stable configuration. For atoms, that “something” is what is usually called “radioactive decay.” This is a misleading term. Odd-odd atoms “decay” by spontaneously transforming to a more stable atom, usually one with an even number of protons or neutrons. We might more accurately say that $^{40}\text{K}$ “had a makeover” than to say that it “decayed.” Also, the process also has nothing to do with radios, although the “active” part refers to the spontaneity. There is no way to know when an unstable atom will decay. We do know, however, that if there are a large number of unstable atoms of a given kind in a material, like $^{40}\text{K}$ in a banana, a certain fraction will decay in a certain amount of time, and that fraction is constant for all materials.

A $^{40}\text{K}$ atom decays in one of two ways. Some $^{40}\text{K}$ atoms (11%) do so by a process called electron capture, which means (in essence) that a proton in the nucleus grabs an orbital electron (the other main ingredient in atoms, besides protons and neutrons) to become a neutron. This process results in an atom with one more neutron and one less proton, making an even number of both. With 18 protons, the new atom isn’t potassium any more, it is a stable atom of argon ($^{40}\text{Ar}$), a biologically inert gas. The electron capture scenario also results in the emission of electromagnetic radiation in the form of high-energy gamma rays and X-rays. Most (89%) $^{40}\text{K}$ atoms decay by a different mechanism, one in which (again, in essence) a neutron transforms into a proton and an electron. This process is called beta decay. The net result is an atom with one less neutron and one more proton, that is, a stable atom of calcium ($^{40}\text{Ca}$, even-even). The electron (beta particle) is ejected from the atom at an exceedingly high velocity. Although the analogy is not perfect, beta decay is like shooting high-speed ping-pong balls in random directions. If the ball hits something that is close and fragile, it will do some damage. If it hits something that is hard, no damage will occur. After a few ricochets the ball has slowed down so much that it can’t do any more damage. If a $^{40}\text{K}$ atom inside your body decays by emission of a beta particle, the beta particle is likely to break some chemical bonds as it slows down. Similarly, gamma rays emitted during electron-capture decay may also break some chemical bonds in your body. That’s not as bad as it seems because in a living organism chemical bonds are broken and reformed in different ways all the time; that’s why we need to eat food like bananas in the first place. Electromagnetic radiation (e.g., ultraviolet, gamma, and X radiation), beta particles, and some chemical compounds can cause chemical bonds to break in unpredictable ways, however. The human body has an amazing ability to self-repair such damage, but sometimes the repairs are not made correctly and the consequences can be harmful to the organism, particularly if there is a lot of damage.

Getting back to bananas, 117 of every million $\text{K}$ atoms in a medium banana are unstable. Multiply 117 atoms of $^{40}\text{K}$ for every million atoms of $\text{K}$ by the $6 \times 10^{21}$ K atoms in a banana and that’s $7 \times 10^{17}$ tiny time bombs in a banana, just short of a billion billion. That’s the bad news. The good news is that although $^{40}\text{K}$ is unstable, your house is a lot more unstable. The half-life – the time it takes half of any number of $^{40}\text{K}$ atoms to decay – is 1.28 billion years. That means three things: (1) 1.28 billion years from now there will be only half as many $^{40}\text{K}$ atoms in the world as there are now, (2) 1.28 billion years ago (sometime in the Proterozoic era when one-celled organisms dominated), there were twice as many radioactive $^{40}\text{K}$ atoms in the environment as now, and (3)
the probability is very low that any specific $^{40}\text{K}$ atom is going to decay while it is part of any specific banana. Because there are a lot of $^{40}\text{K}$ atoms in a banana, however, about 740 of them decay every minute. In the time it takes you (me, at least) to eat a banana, the number of potassium atoms in the banana decreases by 1000 to 2000. In the process, Ar and Ca atoms are created and beta particles, gamma rays, and X rays are emitted.

I don't want to put you off bananas. Chemically, potassium is essential for human life because it maintains blood pressure (fluid and electrolyte balance) and transmits the electrochemical impulses for muscle contraction (e.g., heart muscles). Until it decays and becomes Ca or Ar, an unstable $^{40}\text{K}$ atom is just as effective as a stable $^{39}\text{K}$ or $^{41}\text{K}$ atom in its chemical duties. (In fact, it is because all three K isotopes behave virtually identically that it would be impossible to remove just the $^{40}\text{K}$ atoms from a potassium-bearing material.) Potassium is not stored in the body, so it must be continuously consumed. A healthy 150-lb person contains about 130 grams of potassium (4-5 ounces), more than 300 times that of a banana. That's about 4000 decays of $^{40}\text{K}$ per second in a human body. Eleven percent of those decays are by electron capture, which means that 400-500 gamma rays are emitted from the potassium in your body every second from the decay of $^{40}\text{K}$. Because the $^{40}\text{K}$ gamma ray is so energetic (penetrating), more than half of the gamma rays actually leave your body and are emitted into the environment. In that sense, we humans (and everything else) are all "radioactive."

This essay was provoked by a disparaging and not-so-accurate statement about radioactivity that a well-meaning but not-well-informed person made in my presence at the WGNSS - St. Louis Audubon Society holiday party in December.

(Randy Korotev is research associate professor in the Department of Earth and Planetary Sciences at Washington University. He calls himself a lunar geochemist, but he studies the distribution of the chemical elements in terrestrial rocks, and occasionally fruits, too. He is first or sole author on more than 30 scientific papers, including one entitled "Concentrations of radioactive elements in lunar materials," published in the *Journal of Geophysical Research* in 1998. For more than 30 years he has used an analytical technique—neutron activation analysis—in which he first exposes samples of rocks, minerals, or other materials to neutrons in the core of a nuclear reactor and then measures the induced radioactivity for the purpose of determining the chemical composition of the sample. Sometimes his math isn't too good, so someone ought to check the numbers above. He has been eating bananas in moderation for more than 50 years.)

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**News from the Missouri Bird Records Committee**

**Bill Rowe**

**Membership:** The Missouri Bird Records Committee held its annual meeting on September 26, 2003, at Lake of the Ozarks State Park, in conjunction with the fall meeting of the ASM. There was one position open for election; this was filled by the reelection of Bill Rowe, of St. Louis. No new nominations for this position were submitted. Bill Eddleman and Bill Rowe were reelected as Chairman and Secretary, respectively, for another two-year term each.

**Top Ten for 2002:** As one of its more enjoyable duties, the Committee is charged with choosing and rank-ordering the top ten bird records in the state each year. See the separate article in the December issue of *The Bluebird* for the "year 2002" list. This list can also be found at <www.mobirds.org>.

**New checklist and documentation tips:** As a reminder to all birders, certain kinds of observations need to be documented in writing, and the documentation sent to the MBRC for review. These include any species on the state review list—viewable at <www.mobirds.org>—and any species that is listed as casual or accidental for a given season or section of Missouri on the new annotated checklist of Missouri birds—or is not listed at all. The 2003 edition of the checklist was just published; it is for sale by the treasurer of the ASM in handy field-card format, and is also viewable on line at <www.mobirds.org>. Per the recent checklist article in the *Bluebird*, we have changed the status of many birds on the new list. Please consult it frequently to see if documentation is
in order. If you are still unsure, please contact the Secretary, Bill Rowe, at <rowe@tjs.org>.

More reminders for birders who submit documentation: (1) Write up details carefully. The Committee can only review what is written and cannot make assumptions about what the observer probably saw. It is important to be sure you have described the bird as fully and accurately as possible. Preferably, you will be taking notes during the observation or immediately afterward, so as to include as many reliable details as possible. The committee has to turn down some reports simply because the observer neglected to write an actual description, or put it in such vague terms that the bird can’t be identified from the words used. If your identification is based on voice, please include a clear description of what it sounded like. A statement such as “I am very familiar with the song” is not helpful if you don’t describe the song. (2) Write up your observation within a day or two, so that your memory of the bird (and of what your notes mean) is fresh. The reports we sometimes see that were written weeks or even months after the observation naturally raise suspicions as to how well the details were recalled. (3) Be careful to include only what you really did see; don’t let yourself be persuaded by a field guide that you “must have seen” a certain feature. On the other hand, do include everything you saw even if you aren’t sure it’s important. Sometimes those extra details may be the clinchers.

**Seasonal reports and MObirds:** The Committee discussed the difficulty that seasonal editors have had in the past few years as more and more birds are reported on our state listserve, <mobirds.org>. Some birders may have the misconception that making reports on MObirds is enough to get them into the permanent record. That is far from the case. There is a huge volume of these reports, and the seasonal editors can’t be expected to sift through a whole season of them to find the ones that are worth including in their summaries. So here are some guidelines for Missouri birders: (1) **Please take the trouble to submit your records of anything you found that was noteworthy each season**, including the rarer species, unusual numbers (large or small, unusual arrival or departure dates, etc. **Please send seasonal reports to the editors in addition to posting on MObirds** (if you do that). (2) **Please make decisions yourself as to what is significant** and explain that significance, rather than make the editor decide. As a corollary, please do not just submit lists of all birds seen on field trips! The editor then has to guess which species and numbers are truly noteworthy for your area. It’s much better if you do the culling and explaining, and include only the records that you think are worth mentioning. (3) **Reports can be in any sensible format**, listed by date or by species. They can be submitted by regular mail or by e-mail. (4) **It is a good idea to include some descriptive details** if you are reporting a species that is rare, but not rare enough to require full documentation (see above), and in particular if identification could be an issue (examples: Pacific Loon, juvenile Northern Goshawk, female Black-throated Blue Warbler). Even brief notes on the field marks you observed will reassure the seasonal editor about the identification; he can then feel confident in reporting it to *North American Birds*.

All birders are reminded that their seasonal reports are due to the editor by the 10th of the month just after the season is ended: December 10 for fall, March 10 for winter, June 10 for spring, and August 10 for summer. Names and addresses of the editors are printed in the front of *The Bluebird*.

**Red-necked Stint review:** The Committee discussed several records about which there was some question, notably the two reports of Red-necked Stint from summer 2002. We sent the records to five outside experts in succession; this consumed a great deal of time, so that the whole process took most of a year. The reviewers were Americans Paul Lehman, Richard Veit, and Dennis Paulson, plus Swedish ornithologists Urban Olsson and Lars Jonsson (it was Veit and Larsson who wrote the general summary article on the identification of the world’s seven species of stint, *for American Birds*, Vol. 38, #5, 1984). The reviewers focused primarily on the various photographs of the Lake Contrary bird, and, as it turned out, there was no clear consensus among them: some of them thought it was a Red-necked Stint, others a Little Stint. One difficulty was that because no photographer had been able to get really close to the bird, the pictures were not as clear and
revealing as one might hope, and were open to differing interpretations. Another was that the photographs and the written documentation (by several observers) did not tally completely. A third was that the bird itself may or may not have been in a faded or transitional plumage rather than full alternate plumage (opinions differed). And finally, the separation of Red-necked and Little Stints, even in alternate plumage, is simply a tougher problem than most of us had realized. Here are some of the main features, and how opinions on them lined up:

**Shape and structure:** Some reviewers (like Veit) thought the pictures showed a long-legged, long-billed bird, like Little Stint; others thought it was within the range of Red-necked on both counts, while Paulson thought the differences between the species were too slight to be clear from the photographs. Larsson mentioned an interesting character for Red-necked, a "steep and bulging forehead," that he thought was not apparent in this individual.

**Color of head and neck:** Most seemed to agree that the overall color was rather orangey for Red-necked; some thought it definitely favored Little. The throat was rather pale, either whitish or pale orange, depending on the photo.

Larsson offered the most detailed analysis of the color, with sketches to illustrate what he meant; he pointed out that Red-necked ought to have the most intense color in the center of the throat, whereas photos and one observer’s notes indicated the strongest color to be at the sides of the neck, as it would be on Little. He also thought that the rest of the bird’s plumage showed no sign of having started prebasic molt, and that it should thus be assumed to be in full alternate plumage (raising more doubts about the color).

**Breast and side streaking:** The bird was simply not close enough for this key feature to be seen unambiguously in any photo. Veit thought it was "exactly right for Little" because he saw "blackish speckling intruding into the [rufous] breastband," while Lehman saw "a full band of dark streaking across the breast below the reddish color," as it should be on Red-necked. Observers themselves disagreed on what they were seeing in this respect, with one reporting "darker streaks below the rusty breast" but another "dark brown streaking in amongst the side breast coloration." A close, sharp picture might have cleared this up.

**Wing coverts and tertials:** Another key feature. Most reviewers (even Larsson) interpreted the photos as favoring Red-necked in this respect, since they showed the wing coverts and the tertials as all drab gray or gray-brown, contrasting with brightly patterned scapulars—a standard pattern for alternate Red-necked. Lehman asserted that a Little Stint in alternate plumage, still showing the bright scapulars, could not show such dull coverts and tertials, while Veit claimed to have seen late-summer Littles that closely matched this bird.

**White "braces" on back:** These are generally pronounced on Little, weak or absent on Red-necked. The photos tend to support Red-necked in this regard.

**Dark auricular patch:** Observers’ descriptions and sketches, as well as some photos, show such a patch on this bird. Jonsson says it is uncharacteristic of Red-necked.

**Overall assessment:** Lehman, Paulson, and Olsson came down on the side of Red-necked Stint. Veit was certain of Little Stint. Larsson, whose paintings of the two species illustrate the aforementioned article as well as his *Birds of Europe*, said he could not be sure and definitely would not endorse Red-necked; in fact, he was not willing to rule out a hybrid, although hybrids in the genus *Calidris* are rare. All reviewers were more tentative about the report from Ten Mile Pond C.A. the same month, which contained a description suggesting Red-necked but no photos.

Obviously, with this kind of disagreement among experts, the Committee could not accept either bird as a first state record of either species, no matter what our private opinions may have been. Such a record has to be established beyond reasonable doubt, and in this case there was more than enough doubt to go around.

We have certainly gained a better appreciation of how complex and subtle this identification can sometimes be. Some individuals are hard! Nonetheless, we believe that a well-marked Red-necked Stint or Little Stint in alternate plumage, supported by clear, close photographs that show the key characters without ambiguity, would be fully identifiable and acceptable as a first state record.
January 2004 Bird Report
Jim Ziebol & Yvonne Homeyer

BCA = Busch Wildlife Area
CL = Carlyle Lake
CSP = Castlewood State Park
FP = Forest Park
HL = Horseshoe Lake
LVT = Lost Valley Trail
MTC = Marsin Temps Clair
RED = Riverlands Environmental Demonstration Area
SNR = Shaw Nature Reserve (Arboretum)
TGP = Tower Grove Park

Introduction: January was a very interesting month, with 3 weeks of moderate weather and one week of frigid temperatures. The Rufous Hummingbird seen in the City on Odell from 11/18/03 finally succumbed to three days of single digit temperatures on 1/30/04. There were also reports of several Redpolls, an Inca Dove, a Baltimore Oriole, a Cape May Warbler, a possible Green-tailed Towhee, and the Merlin at an Alton cemetery.

Sightings: On 1/8, Margie Richardson found a Common Loon at REDA, along with Green-winged Teal, Ring-necked Ducks, Shovelers, and Pintails (Th. Group). On 1/24, 2 Mute Swans were present at HL (FH, CA) and 3 were seen that day at Baldwin Lake (CA, T Bo). As many as 60 Trumpeter Swans were observed in the REDA area in January (CA, J Moe). Rose Ann Bodman and Jackie Chain found a Greater White-fronted Goose at REDA on 1/6 and 25 were present there on 1/21 (FH). The only Ross’s Goose was reported from Baldwin Lake on 1/17 (JCh, Th. Group). The first Wood Duck reported for 2004 was at Alton Dam on 1/25 (FH). Scott Schuette reported 15 Black Ducks at Winfield Dam on 1/29. A flock of 26 Pintails flew over HL on 1/11 (FH, JZ). On 1/6, Dan Kassebaum observed 4 Oldsquaws at the Carlyle Sewage Lagoon. Two White-winged Scoters were seen at REDA on 1/26 (CM) and one was still present on 1/29 (G&TB). A small flock of Greater Scaup was observed at REDA on 1/10, along with the Common Loon, a few Pelicans, and a dozen Cormorants (DB, Sat. Group).

Three Turkey Vultures were seen in East Alton on Jan. 2 (FH). The only N. Goshawk was found at REDA on 1/28 (T Be). Dick Coles reported 3 Red-shouldered Hawk sightings near Eureka. Rough-legged Hawks were observed on 1/8 on Portage Road (G&TB), on 1/14 in St. Charles County (CM), on 1/26 at REDA (T Be), and on 1/31 at REDA (DC). On Jan. 2, Jim Ziebol and Yvonne Homeyer videotaped the female Merlin, which winters in Lakewood Park Cemetery, eating a Chickadee. A Merlin was sighted near the St. Charles County Airport on 1/22 (DC, JC, Th. Group). On 1/24, 4 Least Sandpipers were found at Winfield Dam (CM). An apparent Franklin’s Gull was reported from REDA on Jan. 2 (CM). Frank Holmes found Lesser Black-backed Gull at HL on 1/8 and 1/15 and up to 3 were present at REDA on 1/31 (DC, m. ob.). A first-winter Great Black-backed Gull was found at the Borrow Pit, HL, on 1/31 (T Bo, CA). On 1/29, 2 first-winter Glaucous Gulls were observed at REDA (FH) and by 1/31, 3 were present (DB, Sat. group). On 1/30 and 1/31, first-winter Thayer’s Gulls were seen at REDA (DB, FH, CA). An apparent Iceland Gull was reported on 1/29 at REDA (DC, JC, Th. Group). An Inca Dove was found in St. Charles County on 1/1 on South Shore Drive near Seeburger Road in St. Charles County - in the Orchard Farm Count Circle (CA, DB, T Bo). On Jan. 2, Ian Hunt found a Baltimore Oriole at a suet feeder in the same yard on South Shore Drive in St. Charles County where the Inca Dove was originally found; the bird was re-found on 1/6 (CA). On 1/24, 2 Short-eared Owls were observed hunting at Peabody Coal (CA, T Bo). Mike Brady found Long-eared Owls on the Chubb Trail, Lone Elk Park, on 1/28. An immature male Rufous Hummingbird arrived at the home of Chip & Suze Tynan on Odell on 11/18/03, making a total of 4 Rufous Hummingbirds present in the St. Louis area at that time. This individual was banded and identified by Lanny Chambers on 11/30. It was found dead on 1/30. Two Yellow-bellied SapSuckers, a Winter Wren, a Ruby-crowned Kinglet, 2 Hermit Thrush, and a Brown Thrasher were seen at Forest 44 and Buder Park on 1/10 (MT). On 1/20 Sherry McCowan found a Hairy Woodpecker in Forest Park. An E. Phoebe was found at Whitecliff Park on Jan. 2 (BM) and one was seen in House Springs on 1/21 (DC). On 1/8, a Red-breasted Nuthatch was sighted in FP (SM). An American Pipit was reported from Cuivre River SP on 1/29 (SS). A Loggerhead Shrike—always a good find in the St. Louis
area—was located by the Barkers on 1/3 in St. Charles County.

A Cape May Warbler was seen in Elsah, IL from 1/20 to 1/22 (Rachel Holser, Heidi Trudell, photo). (The most typical migrant warblers that might be seen in the winter in the St. Louis area are Common Yellowthroat and Orange-crowned Warbler). Or: 1/8 Sherry McCowan found a Vesper Sparrow in FP and on 1/18 she counted 36 White-throated Sparrows and about 100 Juncos at TGP. Lapland Longspur sightings included 2 at REDA on 1/26 (staff), 50 near HL on 1/28 (FH), and a few on Hwy. B on 1/29 (JC, Th. Group). Mark Mittleman found 1 Snow Bunting in a flock of Horned Larks along Hwy. 94 in St. Charles County on 1/31. On Jan. 2, 200+ Rusty Blackbirds were observed near South Shore Drive in St. Charles Co. (JZ) and on 1/24, 50+ were seen near Baldwin Lake (CA). On 1/3, the Barkers reported Brewer’s Blackbirds in the same area where the Rusties were found. On 1/29 Dick Coles re-found the Inca Dove with a Brewer’s Blackbird along Hwy. B in St. Charles Co. From Jan. 2 to the middle of the month, many birders had an opportunity to view Common Redpolls at the home of Joe and Trish Friedel in East Alton, thanks to their hospitality. The Friedels found 3 Redpolls at their feeders on Christmas Day. On 1/25, Jeanne Giebe saw a Common Redpoll at her City home.

A typical day on 1/15 for the WGNSS Thursday Group included Great-tailed Grackles near Earth City, Common Redpoll and Turkey Vulture in East Alton, 48 Trumpeter Swans, Green-winged Teal, and Black Ducks at REDA, a few Turkeys at Alton Barge, and the immature Rufous Hummingbird on Odell.

Comments: Jack Harris reported a marked increase in Eurasian Tree Sparrows at his home for Nov. and Dec. 2003, compared with 2002. A leucistic Cowbird was seen in the Harbor Grove/South Shore Drive area (m. ob.; video, JZ). Three White-crowned Sparrows have been regular visitors at Jurek Makas’s feeders in Alton. A Ruby-crowned Kinglet visited a peanut feeder at Rose Ann Bodman’s Brentwood home on 1/31. Connie Alwood reported 2 Golden-crowned Kinglets on 1/12 and a Screech Owl on 1/27 at his Ferguson home. Jeannie Moe reported Red-shouldered Hawks nested last year in Whitmire Garden, SNR. A possible Green-tailed Towhee was seen coming to a feeder at the home of Kevin Conway in late Dec. On 1/27, Dennis Bozzay watched a Sharp-shinned Hawk pluck and eat a Eurasian Tree Sparrow, until a Gray Squirrel scared it off. A Hairy Woodpecker was a good backyard bird at the Barker’s home on 1/16. Margie Richardson saw a Yellow-rumped Warbler in her yard 1/30-31.

Contributors: Connie Alwood, George & Terry Barker, David Becher, Torrey Berger, Rose Ann Bodman, Tom Budnau, Dennis Bozzay, Jackie Chain, Dick Coles, Frank Holmes, Yvonne Homeyer, Dan Kassebaum, Sherry McCowan, Jim & Charlene Malone, Alex Meilleur, Brien Meilleur, Mark Mittleman, Jeannie Moe, Scott Schuette, Jim Ziebol. An asterisk means "documented." Please submit sightings by the last day of the month to Jim Ziebol (314-781-7372) or Yvonne Homeyer <homeyer@earthlink.net>.

March 2004 Conservation Report

Yvonne Homeyer

Proposed Cement Plant: Here is an update on the status of the mining, wetlands and air permits sought by Holcim. Mining permit: WGNSS and three other organizations have appealed the issuance of a mining permit by the Mo. Dept. of Natural Resources, Land Reclamation Commission. The permit was upheld by the state court judge and we are now appealing to the Missouri Supreme Court because the constitutionality of a statute is at issue. Wetlands permit: Our appeal of the Corps of Engineer’s 404 permit is pending in federal court in the U. S. District Court of Eastern Missouri. Our appeal will not involve a trial but will be disposed of by motions and legal briefs. A decision is expected by late spring.

Air: The Mo. Department of Natural Resources, Air Pollution Division, has issued a draft permit to Holcim to emit air pollution without requiring Holcim to add any air pollution technology to the proposed plant. Our attorneys at Washington U. Environmental Law Clinic are putting together written objections to the draft permit and requesting DNR to require Holcim to install SCR technology.
**Historian's Corner**  
Jim Adams

My WGNSS author list now contains 47 published books. Thanks for the contributions received to date, and I hope that you will continue sending information to me about other books by WGNSS authors. I am especially interested in books published during the early days of WGNSS that may be missing from the list.

I have also asked for contributions to a list of journal articles published by WGNSS members and have gotten responses from several. A partial list of contributions received to date follows:

**Yvonne Homeyer**
Yvonne is presently President of WGNSS and Conservation Committee Chair. She is also co-author, with Jim Ziebol, of the monthly Bird Report published in *Nature Notes*. In additions, she wrote "A Fading Song; The Decline of the Cerulean Warbler," *ESA Today*, Fall 2001. *ESA Today* is the news magazine of the Endangered Species Coalition.

**James P Jackson**
Jim has received academic trained in biology, forestry, and ecology, and his work experience includes teaching biology and public relations for the Mo. Conservation Dept., plus 23 years of free-lance writing in the fields noted above. He was one of the veteran speakers at Heritage Night in April 2003. His writings in the field include nearly 100 features and essays on natural history, ecology, travels, and outdoor adventures, published in *National Wildlife*, *American Forests*, *Audubon*, *Backpacker*, *Ford Times*, *American West*, and other natural interest magazines. In addition, he has written some three dozen features in the *Missouri Conservationist*. In the *St. Louis Globe-Democrat*, for several years Jim wrote a column titled "Nature and Ecology." He authored occasional op-ed pieces and photo features in the *St. Louis Post-Dispatch*.

A work-in-progress is a description of pre-settlement natural history, frontier settlement, and agricultural development of a hypothetical Great Plains location in west central Kansas—working title: *High Plains Chronicles*. Another book is planned about personal and family experiences of the thirty-year stewardship of what had been a Mo. farmer's "back forty," proposed title: *Views from a Back Forty*.

**Clarence A. Zacher**
Clarence, a life-long resident of St. Louis and long-time WGNSS member, received a Bachelor's degree from St. Louis University in 1955 and an MS from SLU in 1969. He became a member of the Academy of Science in 1973, and is a co-founder of its atmospheric science section. In 1979, he formed the Atmospheric Electrical Research organization (AERO) and continues to be active in this organization. He has served as a consultant for NASA's Goddard Space Flight Center and the Northern Forest Fire Laboratory. He has published more than 50 papers, proposals, etc. over the years, including several published in *Nature Notes* starting in 1969.

1975 Review of NASA (Goddard) on lightning and electro static hazard covered in NASA Space Vehicle Design Criteria, consulting on new or inaccurate portions with advice.

1975 Review of Goddard Space Flight Center in interrelated processes and formation of natural electromagnetic interference from charted impacting materials; mechanisms of precipitation impact charting as a cause for signal degradation and/or electrostatic hazard.

1976 A proposal (accepted) for the Universities Space Research Association (USRA): zero-g electrification experiment to fly on an Atmospheric Cloud Physics laboratory (ACPL) mission aboard the space shuttle.

1976 Computer excerpts forwarded to USRA Program manager and the director of the ACPL expansion chamber project at University of Missouri-Rolla.

1985 Letter, with Dr. G. V. Rao of application (approval granted) for initiating an Atmospheric Sciences Section of the Missouri Academy of Science, Senior Division.

**Call the Nature Line!**
Call 314-935-8432 for a summary of the latest bird sightings in the St. Louis area and dates & times of WGNSS events. Please report any unusual birds to Sherry McCowan, 314-664-2381 and press "3" or wait for the prompt. You can also leave a message at the end of the Nature Line recording.

**Next Deadline: March 5**

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**Webster Groves Nature Study Society**
**Nature Notes** publishes 10 issues a year, each mailed on the third Monday of the month. To allow time for layout, printing, etc., the deadline is always on 10 days prior to the third Mon. March begins on a Monday, so next month we have the **earliest possible deadline** of March 5.

Submissions—handwritten or typed, email, IBM or Mac to: Anne McCormack, 587 Andrews, St. Louis MO 63122-5722 or <amccormack@stjosephacad.org>

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### Nature Notes Deadlines & Mailings

We meet at the Oak Bend Library, 842 S. Holmes, Kirkwood or at Missy Chateau’s to attach mailing labels. We could use your help! Call Margie Richardson 314-965-8974.

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### Nature Classes at Community College

**HORT: 720: 600** Missouri Native Plants Fri., April 30, 9 AM–1. Held at Meramec CC. Fee $12.


**Biol: 709: 601** Identification of Spring Birds by Sight and Sound Tues., 7-9 PM April 13 & 20, & Sat., 5/1, field trip. Held at Meramec CC. Fee $35.

Many others... Visit <www.stlcc.edu>.
Register by calling Continuing Education: Florissant Valley CC, 314-513-4444, or Meramec, 314-984-7960.

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### Key to WGNSS Calendar

**Birding field trip**

each Thurs. 8 AM (8:30 starting Oct.) — call Jackie Chain 314-664-5998

most Sat. 8 AM: call David Becher 314-576-1146

most Sundays: call Kent Lannert 618-624-4464

**Summary of the latest bird sightings**

Call Tyson Nature Line: 314-935-8432

**To report a bird sighting**

To include a sighting on the “Nature Line” phone message, call Sherry McCowan, 314-664-2381.

To submit a report to the Nature Notes bird column, call Jim Ziebol at 314-781-7372 or email Yvonne at homeyer@earthlink.net by the last day of the month.

**Board meeting**

1st Wed. 7 PM Sept.–May at Powder Valley: Yvonne Homeyer 314-963-7750

**Botany field trip**

each Thurs: call Fr. Sullivan 314-291-7885

some Saturdays: call Jeannie Moe 636-946-9802

**Entomology meeting**

last Sun: call Marshall Magner 314-961-4588

**General meeting**

Meetings are usually on the first Thursday of the month, at St. Louis County Library Headquarters, at 7:00 PM. Call Mike Fliegel 314-645-3356 for more information.

**Mailing party for Nature Notes**

3rd Mon. (not June/July) 10 AM: call Margie Richardson 314-965-8974

**Nature Notes deadlines**

10 days prior to 3rd Mon: call Anne McCormack 314-965-8091
amccormack@stjosephacad.org

**Big Day birding competition**

May 8
Spring Banquet
May 13, 2004 at Eden Seminary, Webster
Membership expires/renewal due
Aug. 31

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Webster Groves Nature Study Society
The objectives of the society are: To stimulate
interest in nature study on the part of adults
and children to cooperate with other organiza-
tions in nature study to encourage amateur re-
search in the natural sciences to promote
conservation of wildlife and natural beauty.
Open to all with an interest in nature 🍃

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St. Louis, MO 63130-2158
314-862-6642

Take your 🎤 to www.wgnss.org

Webster Groves Nature Study Society
**Webster Groves Nature Study Society**

**Meetings**

**Wednesday March 3**
7 PM Board meeting at Powder Valley Nature Center. All members are welcome. No board meeting in December. Inclement weather? For board meetings, call Powder Valley, 314-301-1500.

**Thursday March 4**
7:00 PM at St. Louis County Library HQ in Frontenac, Alejandro Masis will present his preliminary results on the “Effects of Even-aged and Uneven-aged Forest Management on the Diversity and Abundance of Dung Beetles in the Missouri Ozarks.”

**Thursday April 1**
7:00 PM at St. Louis County Library HQ in Frontenac, members meeting and election of officers. Program to be announced.

**Thursday May 13**
Annual Spring Banquet and plant sale at Eden Seminary, Webster.

**Entomology**

**Sunday February 29**
7 PM at Magners', 516 Bacon Ave., Webster, 314-961-4588. Rare Butterflies of Southeastern Missouri, presented by Phil Koenig.

**Wednesday March 10**
7:30 PM at Powder Valley Nature Center, Richard and Susan Day, backyard habitat specialists and a photography/writing team, present “How to Create a Bird & Butterfly Garden,” sponsored by the St. Louis Chapters of NABA (N. Am. Butterfly Association) and the Mo. Native Plant Society.

**Sunday March 28**
7 PM at Magners', 516 Bacon Ave., Webster, 314-961-4588. January 25 meeting has been rescheduled for this date: “The Status of the Appalachian Eyed-Brown Skipper in Missouri: A 2-Year Study,” by Rich Thoma.

**Botany**

**Thursday February-April**
Field trips usually meet 9:30 AM. Beginners welcome. Bring lunch, weather gear. Trip is usually 3–5 hr. plus travel time. Call Fr. Sullivan 291-7885 after 1 PM Wed. E-mail is sent every Wed. advising when and where the field trip is scheduled. To receive, send your e-mail address to Jack Harris <jahar@mac.com>.

**Saturday March 20**
10 AM Jeannie Moe will lead a walk at Roberts ville State Park to see the Harbinger of Spring in bloom.

**Saturday April 10**
10 AM Jeannie Moe will lead Shaw Nature Reserve in Grey Summit, Mo. Early spring wildflowers will in bloom.

**Wednesday April 28**

**Birding**

**Thursdays February–April**
8:30 AM at Des Peres Park on Dallas, one block n. of Manchester. Questions: call Jackie Chain, 314-644-5998.

**Saturday February 21**

**Sunday February 22**
8 AM WGNSS Busch Wildlife, St. Charles Co. Meet at HQ with Tom Parmeter.

**Sunday February 29**
8 AM WGNSS Meet at Winfield Dam with Bill Rowe. Trip will proceed to Clarence.
Cannon by 11 AM. Bring lunch. Back to Winfield by 3 PM.

**Saturday March 6**

**Saturday March 6**
4:00 PM St. L. Audubon at Busch - Woodcock/Owl Prowl with John Solodar.

**Sunday March 7**
8 AM Riverlands. Meet at Teal Pond, with Tom Parmeter.

**Saturday March 13**

**Sunday March 14**
8 AM Horseshoe Lk. with Kent Lannert. Meet at first parking lot on right as you enter from Rt. 111.

**Saturday March 20**

**Saturday March 20**
8 AM St. L. Audubon at Busch/Weldon Springs with Paul Bauer and Mike Grant.

**Saturday March 27**

**Saturday April 3**

**Saturday April 3**
8 AM St. L. Audubon at Horseshoe Lake with Torrey Berger and Mike Thelen.

**Saturday April 10**
8 AM WGNSS Busch Wildlife Area, St. Charles Co. Meet at Hampton Lk. David Becher 576-1146.

**Saturday April 17**

**Saturday April 17**
8 AM St. L. Audubon at Castlewood SP with Mike Brady.

**Sunday April 18**
8 AM Meet at Lost Valley (Busch) trailhead with Dale & Nancy Delaney.

**Fri.-Sun. April 23-25**
St. L. Audubon weekend at Mingo NWR. Reservations and trip fee required. Mike Grant and John Solodar.

**Saturday April 24**

**Sunday April 25**
8 AM Meet at Busch headquarters with Rad Widmar.

**Saturday May 1**

**Saturday May 1**
7:30 AM St. L. Audubon at Shaw Nature Reserve (Arboretum) & Robertsville SP with Jim Malone and Mike Thelen.

**Sunday May 2**
8 AM Meet at Gaddy Bird Garden in northwest corner of Tower Grove Park with Kent Lannert.

**Saturday May 8**
Big Day birding competition.

**Saturday May 8**
7:30 AM St. L. Audubon at Tower Grove/Indian Lake/Horseshoe Lake with John Solodar and Torrey Berger.

**Sunday May 9**
8 AM Meet at Kennedy Forest trailhead off Wells Dr. in Forest Pk with Randy Korotev.

**Saturday May 15**
8 AM WGNSS birding at Shaw Nature Reserve (Arboretum), Gray Summit. with David Becher. Small fee. Meet at entrance to Brush Creek Trail. Bring a lunch to carry. 7:30 AM St. L. Audubon at Forest Pk. with Joe Eades and Paul Bauer.

**Sunday May 16**
7:30 AM Meet at Gaddy Bird Garden in northwest corner of Tower Grove Park with Sherry McCowan. Note time change.
Saturday May 22
8 AM WGNSS “Where the Birds Are.”

Saturday May 22
7:30 AM St. L. Audubon at Columbia Bottoms with John Solodar & Mike Arcuser.

Sunday May 23
8 AM Meet at Hillsboro Rd. parking lot of Forest 44 Conservation Area with Sue Gustafson & David Rabenau.

Saturday May 29
8 AM WGNSS “Where the Birds Are.”

Sunday June 6
8 AM Meet at Busch headquarters with Anne McCormack.

Saturday June 12
7:30 AM St. L. Audubon at Lost Valley/Katy Trail Mike Grant Jim Malone.

Sunday June 13
8 AM Meet at Wildwood trailhead on Al Foster Trail along the Meramec River with Sue Gustafson & David Rabenau.

Join WGNSS
Send $20 to Randy Korotev, 800 Oakbrook Ln., St. Louis MO 63132

Nature Notes deadline March 5

Saturday May 15
WEBSTER GROVES
NATURE STUDY SOCIETY
PO Box 190065
St. Louis MO 63119

address service requested

exp 31-08-2004 [UR]

James F Adams
35 Tulip Dr
Saint Louis MO 63119-4660

WEBSTER GROVES
NATURE STUDY SOCIETY
Membership Application

Name ____________________________
Address ____________________________
City ______ State ______ Zip ____________
Phone (______ ) ______ e-mail ____________ fax (______ ) ____________

Call the Nature Line at 314-935-8432 for meetings and bird sightings. www.wgnss.org

Membership categories (circle one):
Individual or Household: $20
for 1st class mail: add $8
Student: $10

Please mail this form with check to:
Treasurer: Randy Korotev, 800 Oakbrook Ln., St. Louis MO 63132
Please make check payable to: Webster Groves Nature Study Society