



# the prairie falcon

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## JANUARY PROGRAM:

**CARBON SEQUESTRATION IN SOIL**  
**Charles Rice**

NORTHERN FLINT HILLS AUDUBON SOCIETY, P.O. Box 1932, MANHATTAN, KS 66505-1932

### CARBON SEQUESTRATION IN SOILS

Charles W. Rice, Professor Soil Microbiology  
Kansas State University

Concern has been mounting about the considerable buildup of carbon dioxide (CO<sub>2</sub>) in the atmosphere. At present, the amount of CO<sub>2</sub> in the air is increasing exponentially, by over 3 billion tons of carbon per year. Crops and other plants remove carbon dioxide from the atmosphere and, as they are harvested, their residue and roots are deposited into the soil where portions can remain for long periods.

It has been estimated that 20-40% of targeted emission reductions can be met by agricultural soil carbon sequestration. Economic analysis suggest that soil carbon sequestration is among the most beneficial and cost effective options available for reducing greenhouse gases, particularly over the next 30 years until alternative energy sources are developed and become economic feasible. Recent estimates of the potential for U.S. agriculture, using existing technologies, are on the order of 75-200 MMT C per year.

Charles (Chuck) Rice is a Professor in the Department of Agronomy at Kansas State University. He earned his degrees from Northern Illinois University and the University of Kentucky. Dr. Rice teaches courses in soil microbiology and conducts research on soil carbon and nitrogen transformations in agricultural and grassland ecosystems and microbial ecology. He is currently advising or has advised 12 M.S. students, 14 Ph.D. students, and 6 post-doctorates. He has over 90 publications.

Dr. Rice currently serves as Director of the Kansas EPA-EPSCoR (Experimental Program to Stimulate Competitive Research) program and the Consortium for Agricultural Soils Mitigation of Greenhouse Gases. This consortium is a 10 institution organization to conduct research on the potential of agricultural soil to sequester carbon dioxide while providing benefits to producers.

*Before each program, we invite our speakers to join us for an informal dinner and discussion. Feel free to join us this month at Hunan Chinese Restaurant at 5:45 PM. The program begins at 7:30 PM. Refreshments are served after every meeting. All meetings are open to the public.*

### Field Trips

#### BEGINNING BIRDWATCHING WALK

Join us Saturday, Jan. 11<sup>th</sup> and every second Saturday at 8 AM in the Ackert/Durland parking lot on the KSU campus. We will carpool to a local birding hotspot and should return by about 11 AM. Birders of every age and interest level are welcomed. Children are especially encouraged to attend. Call Dave Rintoul, 532-6663 or e-mail him at [drintoul@ksu.edu](mailto:drintoul@ksu.edu) for more information.

### INSIDE

- 2 PANTHERS?
- 3 LEGACY OF SOIL
- 4 SKYLIGHT
- 4 CERULEAN WARBLERS
- 5 FAIR TRADE COFFEE
- 5 108TH CONGRESS

### CONTRIBUTORS:

DRU CLARKE  
PETE COHEN  
JAN GARTON  
SAM LACY  
THOMAS MORGAN

### UPCOMING DATES:

- Jan 4 EAGLE DAY - Meet 9:00AM  
Tuttle Creek Corps of Engineers Office
- Jan 8 NFHAS BOARD MEETING
- Jan 11 BEGINNING BIRDWATCHING  
8:00 AM  
Ackert Hall Parking Lot
- Jan 15 CARBON SEQUESTRATION  
Dinner 5:45 -Program 7:30  
1014 Throckmorton, KSU  
Corner of Claflin & Dennison
- Feb 2 GROUND HOG DAY  
Bird Feeder Tour  
(Patricia Yeager 776-9593)

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MANHATTAN, KS



It was Sunday, September 6, 1998 around one in the afternoon, warm - maybe hot, yes, hot - and I wanted a break from the early onus of grading early efforts of teenagers who weren't "done" (maturing) yet. I hauled our three shepherd mixes (the basset doesn't go anymore - he can't jump into the bed of the pickup and I can't lift his 65 lbs. vertically into it) to the farm to go for a swim. Suki, the little runt, rode with me in the cab while Kaya and Bosun paced wildly in the camper behind me.

I headed down Eliza's Road which runs perpendicular to Hopkins Creek Rd (where our farm is). The day was clear and nearly cloudless, with good visibility. As I neared the intersection I saw just beyond, as the road rose toward the west, a black shape nosing some object in the roadbed. My mind whirred and I saw the same image from *Wild Animals of the World*, a book my dad had given me when I was kid - yup, there it was, right there, alive and moving, on Eliza's Road. "I'll be damned," I uttered, and Suki gave me a look. The animal seemed to have investigated whatever it was in the road, then moved into the cover on the south side of the road. That was it, over, in a matter of seconds. But I know what I saw.

No, it was not a cougar or mountain lion, nor was it a bobcat or anything else. It was, however, definitely a cat, a cat called a jaguarundi. It was that painting come alive from my childhood and I knew exactly what it was when I saw it. I had seen one in a zoo, probably the Philadelphia Zoo when I was a kid, and later on at the Albuquerque Zoo or the Sonora Desert Museum, but I had seen it before several times and had seen it move. Not only was it here, in front of me, but I remembered it as

an endangered (or at least threatened) species. Here, in the Flint Hills of Kansas.

It is unlike any other cat you might be familiar with, another reason I knew what I saw. It moved like a marionette puppet, sort of strung together with stringy, loose tendons and ligaments - long gaited but not really long-limbed - but very long tailed (the tail was like a thin rope): it was slim and sinuous, almost gangly. The color was black - not grey or mottled or sandy - just black. Melanistic, probably. Its head was diminutive, as cat's are in relation to their bodies, and there was no way it could be any other sort of mammal. Cougars' heads are more prominent, decisive, and ...well, cougar-like. This was no cougar.

Stories began to flood my head: Cecil Bammes, a local farmer murdered by an itinerant farm laborer, used to stop for old copies of Grass and Grain and we'd swap stories. He told of a black "cougar" who used to move down his row of grapevines, stopping occasionally to pick off some of the ripe grapes. His place was east and south of ours. Other locals told of seeing black "panthers" on the river road near St. George and up near Olsburg. Our place lies between all of these sightings.

Many describe what they think is a cougar cub, an immature version of the larger cat, but I think they were seeing a jaguarundi. In checking *The Audubon Mammal Field Guide*, it describes three color phases: one of the colors is black. It describes them as being active during daylight hours and eating fruit as well as a smorgasbord of other foods, like small mammals, birds, amphibians and even fish. Just south of where this cat disappeared is a small pond. There are no houses south of there for more

than a mile. North of the road there are no houses for another mile, until you come to our farmhouse. We don't live there yet. Domestic cats are much smaller than this wiry feline. I felt unusually elated and even special: serendipity had struck, was alive and well. Yet, jaguarundis are not supposed to be here. Their range is Central America, Mexico, and parts of the southwest U.S. Couldn't be, right? Field guides are biblical in rightness, right? Nah, they are guides, no more. Field guides are compilations of field observations. This was mine, as an amateur field biologist. But it wasn't the first time this had happened.

We (my students and I) corrected a range map for an amphibian species once. And after all, armadillos are supposed to be in Texas but dead ones have been found as road kills in Missouri and they've been sighted in southern Kansas. Years ago, we had a Mexican freetailed bat roosting under the eaves of Manhattan High School until someone squirted it (and about twenty dozen more of a different species) with polyurethane foam to "remove" them from human habitation (never mind their habitation and respect for it). All died, but the one sent to KU Museum of Natural History identified it as a Mexican freetailed. One more victim of unreasoned fear. One more step toward extinction (the Mexican freetailed is endangered).

I know you are skeptical - as you should be. That's good and proper scientific etiquette. But there are sometimes personal experiences that are undeniable in their palpability and their clarity, and I know that at least one jaguarundi lives and "works" along Eliza's Road and I have had the wonderful opportunity to have glimpsed it in its world - despite what the field guides say. © 1998 Dru Clarke submitted Jan. 2003



“I crouched by the ancient hearth. It was as though the fire had only just died down, and I did not need to close my eyes to conjure up the woman of the house bending over to spark its embers into flame as she prepared the meal for her family. My family.”

From Moshe Dayan’s autobiography  
(Moshe Dayan: Story of My Life, 1976, William Morrow and Company, New York)

Like Moshe Dayan, I am fascinated by archaeology and by our family’s ability to increase the land’s productivity. *Terra preta do indio* (Indian black earth) consists of organic remnants of ancient agriculture and villages. In the language of the Siriono, *Ibibate* is the name of a mound which is usually a forested mound surrounded by savanna in the Amazon Basin. The mound’s black soil contains fragments of earthenware pottery. A tribe may have begun to create the mound to have a field above the floodwater. It could have taken two millennia for a tribe of more than 500 people to create an *Ibibate*. The mound grew by the accumulation of their garbage and by the collapse of their wattle-and-daub houses. Some of the productive mounds are used for agriculture today.

The mounds represents the legacies of generations of farmers. In the journal, *Science* (287:786-789), Charles Mann reports that “... according to William Balee, an anthropologist at Tulane University in New Orleans, the lush tropical forests interspersed with the savanna are in considerable measure anthropogenic, or created by human beings - a notion with dramatic implications for

conservation.” And Mann also reports that Clark Erickson “... says, they permanently transformed regional ecosystems, creating ‘a richly patterned and humanized landscape’ that is ‘one of the most remarkable human achievements on the continent.’” Erickson suggests that the farmers probably grew manioc, beans, squash, and sweet potatoes, and planted fruit, nut, and palm trees, and constructed earthen walls more than a mile long that functioned as fish weirs. Some of the walls still enclose ponds which contain fish during the dry season.

In the Amazon Basin, farmers have tilled in wood ash which reduced the soil acidity and thereby reduced the activity of aluminum ions which are often present in excessive amounts in the soils of that region. And in some areas, the fertile earth with its fragments of earthen pottery shows that ancient practices improved productivity even on the timescale of millennia.

In the Great Plains of our own country, prairies have formed rich soil. Fungi which live in association with many plants increase the carbon content of the soil. As the plants obtain moisture and phosphorus and

other ions that have been absorbed by fungal filaments, the plants give carbon to the micorrhizal fungi. The fungi synthesize glomalin, a component of soil which was discovered in 1996. This component can possess one fourth of the soil carbon. It may provide the rigidity that the fungal filaments need to bridge gaps between soil particles. As new filaments follow the roots, the old filaments become part of the soil.

According to a long-term study (*Science* 296:1694-1697), organic crops had 40% more of their root surfaces colonized by micorrhizal fungi. Compared to soils on conventional farms, soils on organic farms may have faster movement of phosphorus through the microbes in the soil despite the fact that soluble phosphorus is present in lower concentrations in these soils. The addition of less phosphorus fertilizer could conceivably increase the amount of glomalin. The glomalin gives soil a tilth that you have sensed after picking up a handful of soil and allowing it to flow through your fingers. That represents a legacy to leave for future generations.

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### Bluebird nesting Success for 2002

John Wesley

Hoogey Hooghem -	Ogden Trail:	From two nesting boxes - five Bluebirds fledged.
Edgar Bagley -	Stagg Hill:	From 30 boxes - 82 Bluebirds fledged.
Sam Lacy -	Yacht Club:	From nine boxes - two Bluebirds fledged & two Tree Swallows fledged.
Evelyn Holly -	Meadowlark Hills:	From six houses - four Bluebirds fledged.
Jane Bonser -	Marlatt Area:	From 3 boxes - 10 Bluebirds fledged.
Jean Wesley -	Blue River Hills:	From 31 boxes - 90 Bluebirds, 33 Tree Swallows & five Bewicks Wrens fledged.

If you would like to start your own trail or need some advice, please contact John or Jean Wesley, 9022 Blue Ridge Rd., Manhattan, KS 66503-9101 or call 785-485-2856.



Considering all the publicity again this past fall, it might be worthwhile again to compare notes regarding the Leonid meteor night. For us, afternoon clouds slid away like a proscenium curtain lifting, and there was the full Moon already low on stage, though looking a little pallid with stage fright; he soon got a firmer voice and launched into a sturdy steady monologue. Last year he didn't appear at all and at midnight in western Kansas two exuberant fireballs shot across the sky, one sizzling directly overhead. This November the witching hour in the Flint Hills had other entertainment as the first of three evenly-spaced coyote choruses performed, not with just the common collection of yipping, but including melodious howls a little more soprano than wolves, a little too throaty to be loons at their hauntingest. If thousands of predicted meteors joined in they spoke in whispers we couldn't discern, though a handful of excited ones did get their flashes in edgewise.

Then the "star" of the production entered: Venus suddenly appeared as a startlingly clear sparkle on the horizon's edge. After which came the coyote finale and the house lights began to come up in the east, Moon quieted down in the west, and another cloud curtain slid across the scene to the applause of full daylight.

From that flight of memory zoom ahead. Yellowish Saturn will be up by nightfall, still just past Taurus' lower horn tip, with rings fully exposed to scopes, visited by the Moon Jan. 15<sup>th</sup>. Mercury appears underneath after Jan. 20<sup>th</sup>, at its more modest brightness Feb. 1-15. Jupiter, rising about 8 PM will be an unmistakably bright beacon in empty-seeming Cancer, between Leo's big sickle and the Gemini twins, visited by Moon Feb. 18-19. Mirror, mirror on the wall says Venus will be the brightest "star" of all, floating through the early morning hours. She will become the central diamond in a necklace

featuring Mercury, a sapphire to lower right in Sagittarius, and Mars a dim ruby in *Ophiuchus*, upper left.

If *Ophiuchus* were listed on the stock exchange every investor would surely buy at least one share just to have such a name in the portfolio. *Ophiuchus*, the Snakeholder, is a very satisfying constellation, because though dim, it's large and distinctive and almost sure to reward every cloudless search by materializing out of the random glitter. Look up left from Scorpio for a wide, tall, blunt-ended erect pentagon, his head and chest. From east to west along his (southern) waistline the body of the snake lies. Comfortably spaced to either side, the snake's head and tail curve sharply upward in graceful Ss. You could also picture a Viking ship, with low hull, steep bow and stern, and the sail drawn to appear parallel to the hull. I wonder if any Viking, educated in classical Greek, ever named his ship *Ophiuchus*? Full Moon Jan. 17<sup>th</sup>, new Jan 31<sup>st</sup>.

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#### COMMENT PERIOD OPENS ON CERULEAN WARBLERS

Public Has 90 Days to Weigh-In on Including the Species on Endangered List

The U.S. Fish & Wildlife Service (USFWS) has opened a 90-day comment period to allow the general public to provide information on listing the cerulean warbler as "threatened" on the Endangered Species List. This is a positive step towards getting this songbird the protections it needs to survive! The comment period will close on January 21, 2003.

The cerulean warbler - a small woodland songbird known for its bright blue plumage and distinctive song - was once common in eastern forests. But over the last 30 years, the species has declined more than 70%, and 80% in the core of its range! Cerulean warblers range across eastern North America, from the Great Plains, north to Minnesota, east to Massachusetts, and south to Louisiana. It breeds primarily in the Ohio and Mississippi River basins - and spends winter months in the Andes Mountains of South America. Unfortunately, due to habitat destruction in both its breeding and wintering ranges, primarily because of development, logging, roadbuilding and, more recently, mountaintop removal mining, the cerulean warbler has become one of the fastest disappearing birds in the United States!

Now the general public has until January 21, 2003 to provide additional information to the USFWS as to why the cerulean warbler should be included as "threatened" on the Endangered Species List. Comments and any supporting materials should be directed to: Field Supervisor, Ecological Services Field Office, U.S. Fish & Wildlife Service, 608 East Cherry Street, Room 200 Columbia, MO 65201 or FAX: 314-876-1914 For more information on the process, log onto the USFWS website at: [http://midwest.fws.gov/Endangered/birds/cerw\\_find.html](http://midwest.fws.gov/Endangered/birds/cerw_find.html)



**DRINK FAIR TRADE COFFEE  
HELP OUR MIGRATORY SONGBIRDS**

Certified organic coffees are shade grown, a traditional farming method which benefits the farmer and the local environment. A typical shade grown farm is made up of coffee trees grown alongside other food crops under a canopy of taller trees. These taller trees provide fruit, wood and other valuable products to the farmer while offering protection and nutrients to the coffee plants and preventing erosion of the soil."

Shade grown farms also provide vital wildlife habitat. Each fall millions of migratory birds make the journey from the temperate climates of North America, where they breed, to the more tropical climate of Central America. Warblers, tanagers, orioles, and thrushes, as well as indigenous tropical birds and animals, make shade grown coffee farms their homes. By drinking fair traded coffee, you can help support small-scale farmers, enabling them to farm sustainably, preserving crucial wildlife habitats otherwise lost where coffee is grown after the forest is cleared.

**FAIR TRADE COFFEE AVAILABLE IN MANHATTAN**

- Manhattan Friends Society** - contact Torry Dickinson at 539-4028 Coffee is available by the case at a very low price. They are non-profit and donate any income to the local Crisis Center and the local Tutoring Program at the Douglas Ctr.
- Radina's** (formerly Espresso Royale) - 616 N. Manhattan, has switched all coffee to Fair Trade except the House Blend. They also sell beans in bulk, have many varieties and carry about ten at any one time, both regular and decaf.
- Java Espresso** - 1219 Moro, uses Fair Trade for their Sumatra Coffee, both regular and decaf.
- Mercado Gourmet Grocery** - 1222 Moro, carry Sumatra and Guatemala Fair Trade Coffee in bulk. Can order others.
- Peoples Grocery Cooperative** - 517 S. 17th, have several varieties. All are organic and shade grown. I am a lifelong coffee lover and have found their coffee, both regular and decaf, delicious and reasonably priced. Many stores use the same supplier and their coffee should be of equal quality.

*Sam Lacy*

**FIELD TRIP**

**Groundhog Day Bird Feeder Tour** is Feb.2, 2003. If you would like to share your bird feeder view with the field trip group, please contact Patricia Yeager at 776-9593 or [pyky@flinthills.com](mailto:pyky@flinthills.com). The plan is to stay about a 1/2 hour at 3 to 4 houses. We will meet in the K-Mart /Hastings parking lot off 24E near Dara's Fast Lane. Anyone is welcome to join the field trip group. We will carpool from the parking lot at 8:30 AM.

**Reminder!**  
NFHAS monthly  
Board Mtg. is  
JAN8th

**Looking Ahead to the 108th Congress**

*Jan Garton*

In many ways, the greatest impacts of the November elections on environmental legislation will result from the changes in leadership of key Senate committees that shape environmental policy. In many instances, true environmental champions who chaired Senate committees in the 107th Congress will hand over the gavel to those who are either less supportive of strong environmental legislation or downright hostile to natural resources protection. The following is a summary of key environmental leadership positions in the Senate.

**Energy and Natural Resources Committee:** Sen. Bingaman (D-NM) (with a 64 percent out of 100 percent positive voting record on environmental issues from the League of Conservation Voters) will likely relinquish control to Sen. Domenici (R-NM), who has an 8 percent LCV rating, and who favors increasing domestic energy production from fossil fuels and nuclear power, and opposes incentives to improve energy efficiency and develop cleaner, renewable energy alternatives.

At the subcommittee level, the national parks chairmanship switches from Sen. Akaka (D-HI) (64 percent LCV) to Sen. Thomas (R-WY) (0 percent LCV). Sen. Wyden (D-OR) (80 percent LCV) turns over the public lands and forests subcommittee to Sen. Craig (R-ID) (4 percent LCV).

**Environment and Public Works Committee:** Sen. Jeffords (I-VT) (76 percent LCV), a stalwart champion of clean air and renewable energy alternatives, hands the reins over to Sen. Inhofe (R-OK) (0 percent LCV), a longtime ally of the oil industry.

At the subcommittee level, clean air, water and climate change responsibilities shift from Sen. Lieberman (D-CT) (88 percent LCV) to Sen. Voinovich (R-OH) (0 percent LCV). Sen. Graham (D-FL) (64 percent LCV) will likely turn over the fisheries, wildlife and water subcommittee to Sen. Crapo (R-ID) (4 percent LCV).

**Judiciary Committee:** One of the most diligent watchdogs keeping track of the Bush administration activities, Sen. Leahy (D-VT) (96 percent LCV), relinquishes control to Sen. Hatch (R-UT) (4 percent LCV).

**Appropriations Committee:** Sen. Nickles (R-OK) (0 percent LCV) and Sen. Stevens (R-AK) (8 percent LCV) will chair the Budget and Appropriations committees, respectively. Chief opponent of nuclear waste disposal in Yucca Mountain, Sen. Reid (D-NV) (92 percent LCV), will pass the chairmanship of the subcommittee on energy and water development appropriations to Sen. Domenici (R-NM), a longstanding supporter of the nuclear industry. Sen. Bond (R-MO) (8 percent LCV) will take over the appropriations subcommittee with jurisdiction over EPA appropriations from Sen. Mikulski (D-MD) (88 percent LCV).

While Republicans retained control in the House, a few key vacancies there, such as the heads of the Resources Committee and key energy and environmental appropriations subcommittees, will need to be filled in January.



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***Subscription Information:***

Introductory memberships - \$20 per year; then basic membership is \$35 annually. When you join the Northern Flint Hills Audubon Society, you automatically become a member of the National Audubon Society and receive the bimonthly Audubon magazine in addition to the **PRAIRIE FALCON**. New membership applications may be sent to NFHAS at the address below; make checks payable to the National Audubon Society. Membership Renewals are handled by the National Audubon Society and should not be sent to NFHAS. Questions about membership? Call toll-free, 1-800-274-4201, or email the National Audubon Society [join@audubon.org](mailto:join@audubon.org).

If you do not want to receive the national magazine, but still want to be involved in our local activities, you may subscribe to the **PRAIRIE FALCON** newsletter for \$15 per year. Make checks payable to the Northern Flint Hills Audubon Society, and mail to: **Treasurer, NFHAS, P.O. Box 1932, Manhattan KS 66505-1932.**

**RARE BIRD HOTLINE:** For information on Kansas Birds, subscribe to the Kansas Bird Listserve. Send this message **<subscribe KSBIRD-L>** to this address **<listserv@ksu.edu>** and join in the discussions!

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Governor Bill Graves: 2nd Floor, State Capitol Bldg., Topeka KS 66612. Kansas Senator or Representative \_\_\_\_\_: State Capitol Bldg., Topeka KS 66612, Ph.# (during session only) - Senate: 913-296-7300, House: 913-296-7500. Senator Roberts or Brownback: US Senate, Washington DC 20510. Representative \_\_\_\_\_: US House of Representatives, Washington DC 20515. U.S. Capitol Switchboard: 202-224-3121. President W. Bush, The White House, Washington DC 20500. Information about progress of a particular piece of legislation can be obtained by calling the following numbers: In Topeka - 800-432-3924; in Washington - 202-225-1772. Audubon Action Line - **800-659-2622**, or get the latest on WWW at <http://www.audubon.org/campaign/aa/>