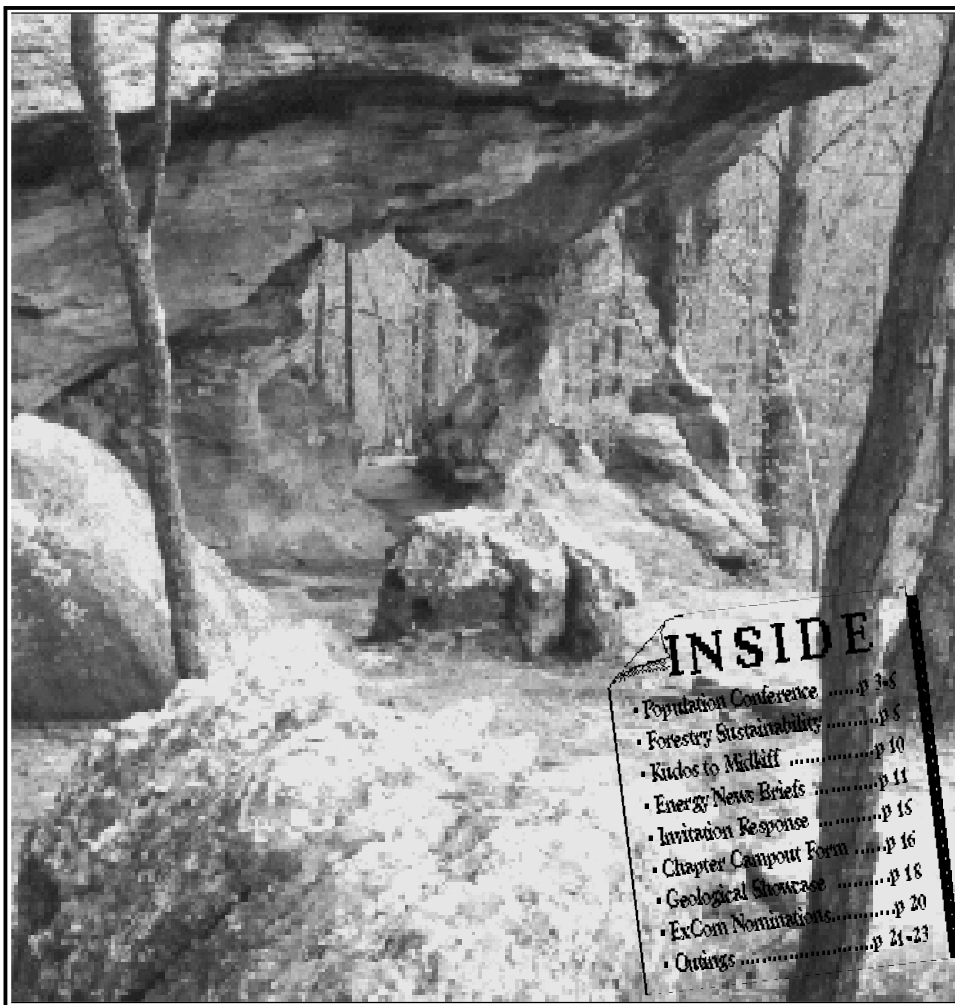


OZARK ONE EARTH ONE CHANCE SIERRAN

VOLUME 31 • NUMBER 4

JULY / AUGUST 1999



*One of several rock formations at Pickle Creek Natural Area
photo by Marsha Armentrout*

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The *Ozark Sierran* is published six times a year by the Ozark Chapter of the Sierra Club. Annual dues of Sierra Club members pay for subscription to this publication. Non-members may subscribe for \$15 per year.

Items for publication: Contact **Bob Sherrick** via E-mail at bjsherrick@aol.com or phone (816) 779-6708, **PRIOR TO SENDING**, for information on how to submit articles.

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The *OZARK SIERRAN* is produced on a Macintosh computer so we strongly prefer to receive material electronically (E-mail), or on a Mac or PC disk (3.5"), **WITH A HARD COPY OF THE TEXT.** Typed articles are also OK (must be received a few days before the deadline). All submissions must include name, address, and phone number of the author. If you want your submission returned (including your disk), please include a SASE.

Hard-working, All-volunteer Editorial and Production Staff: Bob Sherrick, Editor; Keet Kopecky, and Claus Wawrzinek

TO THE NETHERLANDS: THE HAGUE FORUM

by Joan Jones Holtz, member
Global Population Stabilization
Committee
Sierra Club

The plane flew low over the Dutch countryside as it neared the Amsterdam airport. I gazed down on the early morning pastoral scene half expecting to see the famous windmills. My book, Walking Tours of Holland lay in my lap. But, I had not traveled nearly half way around the world for sightseeing.

The United Nations International Conference on Population and Development had invited representatives from 180 nations to meet in The Hague. This meeting, dubbed the ICDP+5, was to evaluate progress made by those nations toward meeting the goals of the historic 1994 "Cairo Consensus." I was to represent the Sierra Club.

From the airport, a 1/2 hour train ride and a 10 minute tram ride deposited me onto a cobble street. Battling high winds and intermittent rain, I wheeled my cumbersome luggage down the street looking for my hotel.

Delegates from 189 countries had convened in Cairo in 1994 to formulate a "Plan of Action." All were alarmed that the rapid rise in global population would impede economic and social development, perpetuate poverty and famine, and displace millions of people from their

homelands as they struggled to survive. Natural resources were rapidly disappearing; devastating forests, wetlands, and vital habitats. Animals were facing extinction in unprecedented numbers. Fish were disappearing, entire ecological systems scraped from the oceans' floors. Clean water and air were becoming scarce, and the world was moving ever closer to a future scarred by global warming due to the "greenhouse effect."

Five years later, none of these problems had been solved. What's more, the world's population continues upward. In 1999 world population is scheduled to eclipse the six billion mark— double the number in 1960 and an increase of one billion in just 12 years.

Of grave concern is the widening gap between the world's fortunate and less fortunate. The richest 20% of the world's population consume 86% of all goods and services, while the poorest 20% consume only 1.3%. In fact, global spending on advertising, which stimulates unnecessary consumption, multiplied sevenfold between 1950 and 1990— \$48 for each person on the planet. It has since doubled again triggering an even greater demand on the world's resources as those from the wealthier nations, inspired by the advertising, strive to acquire more material goods.

My small hotel, The Atlanta Zee, was perched close to the shore of a stormy North Sea. Although the weather that week was stormy with strong winds and wet snow, I found my room was warm and cozy. A shelf snapped up to make work space for my papers and computer, and the window looked out at a distinctively European setting.

I was delighted to be so close to the sea, and often left my work to walk over and watch the waves—in the rain or in the howling wind.

The 1994 Cairo conference had led

Dates You Need to Know

- 7/17** Chapter ConsCom meeting: Columbia, MD contact Caroline Pufalt (814) 878-3165
- 7/18** Chapter ExCom meeting: Columbia, MD contact Keet Kopecky (816) 966-9544
- Sep/Oct** Ozark Sierran Deadline contact Bob Sherrick (816) 779-6708

continued on page 4... **The Hague Forum**

The Hague Forum continued from page 3 to an unanimous consensus. The “population control” theory had failed. The new plan sought to achieve smaller families and slower population growth—not through “control,” but through free choice. Studies clearly document that fertility rates drop in countries that provide family planning services and that most women, given the choice, will have fewer children than their mothers.

However, most women in the world don’t have choices—not to adequate education, not to economic independence, not to health and reproductive services, and certainly not to the right of planning and spacing the number of children in their families.

Governments had to be convinced to adapt to the evidence. The new Plan of Action called for equality, for the empowerment of women, and for meeting unmet needs for reproductive and sexual health services and information worldwide. Women needed support—for more education, for greater roles in government and in the private sector, and for greater economic opportunity.

The lobby of the Congress Centre was crowded with lines of people waiting to register. Muslim women with covered heads, Indian women wearing graceful saris, and Africans in tunics and brightly colored prints all mingled. I stood in the line marked “U.S. and North America—NGO’s.”—non-government organizations.

NGO representatives would meet first to assess the progress of the Cairo Plan. Later, official representatives from 189 countries would go to the podium, one by one, to report on the progress their country had made implementing programs and passing laws to help meet health and reproductive needs and to provide women with a broader range of options.

The IDPD+5 was sponsored by the United Nations Population Fund, or UNFPA. UNFPA has helped many impoverished countries adopt and strengthen their family planning programs. It is funded by the voluntary contributions of as many as 95 countries. A few wealthy countries, Denmark, Japan, and the Netherlands, provide the major funding. In

past years the U.S. has shown strong support for UNFPA but such funding has become a political football. This year, the United States will contribute no money to UNFPA. Those in Congress who oppose family planning programs successfully removed UNFPA funding from the ‘99 Foreign Appropriations.

Demographers estimate that the U.S. decision to abandon UNFPA will deprive 870,000 women of effective contraception; 520,000 will have no contraceptive method at all. This will result in 12,000 maternal deaths and 22,500 infants deaths. There will be approximately 500,000 unintended pregnancies resulting in 234,000 unwanted births and 200,000 abortions.

The Congress Centre began filling up for the opening session. I picked up my earphones and found a seat. Translations, given in English, Spanish, or French, were almost instantaneous. The translators could be seen in little cubbyholes high above the hall. I marveled at their skill.

Two American congresswomen, Carolyn Maloney of New York and Cynthia McKinney of Georgia delivered their support for UNFPA, the rights of women, and family planning programs. Rep. Maloney is prepared to introduce a new bill in Congress to recommit the U.S. to UNFPA funding.

At a Saturday luncheon both Carolyn Maloney and Cynthia McKinney spoke before a group of Americans. Afterwards, I introduced myself to Cynthia McKinney. I told her how grateful Sierra Club members are for her leadership in sponsoring the National Forest Protection and Restoration Act. This bill calls for an end to logging in our national forests and was spearheaded by Sierra Club activists. She seemed very pleased and posed for a picture.

If there was displeasure about the U.S. abandonment of UNFPA, it certainly did not detract from the wild applause and standing ovations that greeted Hillary Clinton. She spoke twice to The Forum—first to address the NGO forum and again to give the keynote address. She underscored the need to invest in human resources and give equal access to reproductive health services to women

everywhere.

Salina, from Zimbabwe, became an important friend. We shared the same hotel and, as we walked through this beach community on our way to the Congress Centre, I would learn much about the problems facing that struggling nation. Salina's organization is Women's Action Group, or WAG. Its mission is to promote, advocate, and defend women's legal, economic, and health rights. Providing access to information and services to the many Zimbabwe women who live away from population centers is a major challenge for WAG. Salina and WAG have also launched a campaign that will grant women plots of land on which they may raise crops and thereby establish some economic independence. This privilege is now denied them.

I learned how poverty, unemployment and disease wrack Zimbabwe. A staggering national debt prevents the funding of essential services.

One by one, representatives of 180 nations walked to the podium to reaffirm their commitment to the Cairo Plan. Some urged sensitivity in the implementations of programs that conflicted with religious and cultural traditions. Some nations were making considerable progress.

But, as I listened to each presenter one by one, I began to see those fine speeches and good intentions are not enough to make the Cairo Plan work. Money is needed, and many countries had

backed away from financial commitments.

One last time I walked back to my hotel, again following the shore of the North Sea, now calm and sprinkled with seagulls. I thought about what had happened in The Hague that week. More than 1,000 people had come together, representing diverse traditions—some from nations experiencing crushing social and economic problems. All recognized an impending global calamity and sought common remedies.

Now, more than ever, I felt myself part of a universal community, each part of which must recognize the difficulties and dilemmas facing the others. Less fortunate nations will need help if they are to stabilize birth rates. Wealthy nations must understand how their consumptive patterns are further threatening global resources. Surely, overpopulation, disease, and famine in one part of the world will soon affect us all. Less fortunate nations are already reeling from the depletion of their own natural resources—not only to address their own immediate needs, but used as well to satisfy the ever increasing consumptive appetites of the world's most wealthy 20%.

Global fertility rates have declined since Cairo. But, one billion young people, aged 15–24, are now entering their reproductive years—the largest such group ever known. Will the world respond in time?

SUSTAINABLE MANAGEMENT OF NATURAL RESOURCES: A REASONABLE GOAL FOR FORESTRY IN THE NEXT MILLENNIUM!

by Alan R. P. Journet and Christine E. Logan

This is the first of a three-part series dealing with the principles of ecological sustainability (with an emphasis on forests), and the management implications. This section deals with the importance of biodiversity, Part II will deal further with principles, while Part III will focus on the management implications.

INTRODUCING ECOLOGICAL SUSTAINABILITY

The food and fiber from which we obtain much of our health and wealth come from the planet's natural resources. Polls suggest that most Americans place value on providing future generations with a planet that is as enjoyable and rewarding to inhabit as we

continued on page 6... **SUSTAINABILITY**

SUSTAINABILITY continued from page 5 find it. To achieve such an objective, we need to assure that our resources can sustain themselves for the decades and centuries (in perpetuity) to come.

It is out of such considerations that the move towards 'ecological sustainability' in the management of natural resources developed. This approach to the management of forests, fisheries, and grasslands has been given a number of titles, with minor differences. Chief among these is the concept of ecosystem management that was articulated as the basis for Bureau of Land Management and National Forest Service stewardship in the early 1990s — though we might question how effectively and universally this has been put into practice. Even before that, the World Commission on Environment and Development (1987) promoted the concept of Sustainable Development. Though this has been termed an oxymoron since it seemed to argue paradoxically in favor of continued economic growth while it acknowledged that the mind set of eternal growth is a major cause of the problem.

Nevertheless, during the last decade, acceptance has increased among resource managers that ecological sustainability will be the cornerstone of future resource management.

THE SUSTAINABILITY PARADOX

It is important to identify exactly what it is that ecological sustainability hopes to sustain. Many resource management professionals have argued that sustainability has been exactly their management goal for decades. Many maintain this even while recognizing that both global, national, and local biodiversity suffer ever increasing threats.

The explanation for this paradox may be as follows: Ecological sustainability refers to sustaining the structure and function of ecosystems, including the diversity of species and habitats they contain. It considers issues on a landscape or regional scale. Diversity is valued not only intrinsically for its own sake, but also because the ability of natural systems to resist or recover from

environmental perturbations is dependent on biodiversity. Additionally, the ability of species to respond when subjected to permanent environmental modification (e.g. global climate change), is tied to the genetic variation present within and among natural populations.

Resource managers, meanwhile, focus their attention on productivity of whatever crop they are husbanding. The focus is less upon the diversity of attributes important to the ecologist, than on the yield of the commodity to be harvested. Thus we have sustainability in yield (of some component of the system) becoming confused with ecological sustainability of the entire system.

The focus for this discussion will be on managing for ecological sustainability rather than sustained yield management, with a focus on forest systems.

ECOLOGICAL SUSTAINABILITY

Review of the literature has led us to develop the following summary statement of what ecological sustainability should mean for the management of public or private natural resources.

“Sustainable management will — provide to current and future generations (in perpetuity) — a wide array of goods and services in addition to wood products, — while protecting biodiversity, — maintaining ecological processes and the ability of ecosystems to respond to disturbance and accommodate change, — recognizing the ecological limits imposed by a planet with finite resources, promoting forest health and productivity, preventing industrial pollution and waste, and promoting resource use efficiency (reducing consumption).

Sustainable management will assure social justice by allowing equitable access to and consumption of natural resources.

While the principles of sustainability do not prescribe management techniques, employed strategies and techniques will be socially responsible, and will promote management of complete ecosystems.

Finally, ecologically sustainable management will acknowledge the intrinsic value of the natural world.”

TIME AND PROVISIONS

The two most frequently cited requirements in definitions of ecological sustainability are that it should assure the provision from our forest ecosystems for both present and future generations, a wide array of goods and services over and above timber products.

BIODIVERSITY

All definitions of ecological sustainability encountered include the stipulation that a primary goal of such management would be the conservation of biodiversity.

Three concepts exist within this umbrella term: the most familiar and understood of these is the concept of species richness, but biodiversity also includes genetic variability, and habitat, community, or ecosystem variability.

Species Richness: This concept is usually divided into the three components of species richness: alpha, beta and gamma diversity.

alpha (a) Point or habitat diversity is the number of species present in a specific point, location, or habitat, e.g., one slope of a valley, or the ridge

beta (b) The turnover in species from habitat to habitat, — e.g., the difference in species composition between the slope and ridge.

gamma (g) Regional or landscape diversity — a consequence of a and b diversities over a large landscape or regional area incorporating all habitats — e.g., the slopes, ridges, riparian strips, and valley bottoms of a broad geographic area.

Genetic Diversity: This refers to the patterns of genetic difference that occur among individuals and from a conservation point of view, particularly among different populations of the same species over the geographic range occupied. Genetic diversity occurs because different populations of a species become adapted to the different or unique local environmental conditions. It is the genetic variability within and among populations of species which allows them to resist or recover from short term disturbances (resilience), and respond to long term environmental change.

Without considerable genetic

variation, species tend to become locked into local and specific conditions, and unable to survive serious environmental disturbances or changes; the result of limited genetic variation when such disturbances occur may be local or global extinction.

Also, the process of evolution (in which the futures of species are vested) depends on the presence of genetic variability. If we wish to protect the evolutionary potential of species, we need to maintain genetic variation. This requires maintaining more than a few representatives to sustain captive breeding colonies, it requires maintenance of large numbers of organisms (the exact minimum number varying with biological and genetic characteristics of the species). For species such as grizzly bears, for example, that are intrinsically rare because they utilize large home ranges, maintaining a viable population could require thousands of acres.

Habitat Diversity: Extending out from the individual, population, or species, we find the third component of biodiversity, namely spatial (geographic) environmental variability resulting in different patterns in the geographic distribution of species. This can be thought of as anything from habitat diversity through community to ecosystem or biome diversity.

Also integrally involved in the concept of biodiversity are functional or process diversity, and particularly for forest systems, structural diversity. The former deals with diversity in the patterns of water and nutrient cycles, energy pathways, and predator-prey interactions. The latter, meanwhile, deals with the structural layers (such as emergent, canopy, sub-canopy, understory, shrub, and herb) typical of forest systems, which vary both in relation to spatial and temporal forest patterns.

Issues

Natural Rarity: Before exploring issues pertaining to species rareness and vulnerability, we should note that, for many species, rareness is an inherent characteristic. A summary of key

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SUSTAINABILITY continued from page 7 attributes that determine the abundance of a species reveals that the majority of the combinations produce rare species. In terms of geographic range, species may exhibit large or small (endemic) distributions. In terms of habitat specificity, they may exhibit broad or restricted ranges. Finally, in terms of natural population size, they may have a large population somewhere, or small populations everywhere. Reflection on this set of combinations will reveal that only species that exhibit a large geographic range, with broad habitat specificity and a large population at least somewhere, will be 'common.' All other combinations will be defined as naturally 'rare.'

Whether populations are small because of their natural attributes, or because of human activities, one consequence of small population size is an increased probability of chance extinction. When considering the impact of management on biodiversity in a given region, it is important to consider to what extent the species in question are inherently rare regardless of human activity. We should then determine the extent to which rarity may be a consequence of species existing at the edge of their normal range and environmental tolerance limits, when they might be relatively common elsewhere.

Succession: As natural communities recover from a severe disturbance, they generally pass through a succession series of stages during which changes occur in species composition and many components of community structure and function. An inspection of biomass accumulation during succession reveals that to maximize rate of yield (whether food — e.g. fish populations, or fiber — e.g. timber), the resource manager often should keep the system young, where biomass accumulation (= growth) is highest.

Unfortunately, when we consider species richness in ecosystems during succession we often find that this is also exactly where the system supports its lowest species richness (i.e. less biodiversity). Mature and Old Growth forests, for example, support greater

biodiversity. The loss of older components in forest systems is a cause for biodiversity threats throughout the world.

The successful sustainable yield forester, for example, is unlikely to provide an ecosystem that promotes regional ecosystem biodiversity. Timber yield sustainability and ecological sustainability appear not to be equivalent.

In Missouri, earlier successional forest habitats that tend to be favored by conventional forestry practices are home to a number of our state species of conservation concern. However, those habitats that are reduced by conventional forestry are home to a much larger number of our listed species.

Complexity: In terms of ecological theory, a troubling concept is the relationship between ecosystem stability over time, and species diversity. One concern in discussions about the generality of the complexity/stability equation deals with the varied meanings for stability. Among these meanings, the most important from the sustainable management perspective, are probably those of resistance and resilience in the face of environmental change and disturbance.

There appears to be a relationship between these components of stability and connectedness, or the number or proportion of connections that exist among species in a community. Since an increased number of species allows increases in connections, and thus permits redundancy in crucial ecosystem processes, it is reasonable that diversity of species should be valued in a community that is exposed to disturbances and suffers perturbations as a consequence. Furthermore, few would challenge the argument that an impoverished system (cattle pasture, tree farm, or cornfield) is intrinsically more unstable than a natural wilderness, since it cannot be maintained without a vast expenditure of cultural energy.

Fragmentation: The division of habitat into ever smaller and more separated patches has become an increasing concern to conservationists from the development over thirty years ago of the Theory of Island Biogeography, followed by its application to conservation

planning. Because of the pattern in the distribution of individuals among species in homogeneous natural habitats, we find that species richness increases as area sampled increases. When applied to oceanic islands, MacArthur and Wilson argued that as a consequence of the balancing rates of immigration from colonizing sources, and the chance extinction of established resident populations, an equilibrium in species richness would develop over time. This equilibrium is dependent on island size and distance from colonizing sources. Data have frequently supported the theory, whether they were collected from oceanic islands or continental islands where islands of favorable habitat exist in a sea of unfavorable habitat.

Additionally, data suggest that these relationships are more than purely a sample size effect, since comparisons of species richness from islands over a range of areas with species richness on equivalent mainland areas reveal that from the same maximum value, the line is steeper on islands. This indicates that islands support fewer species than mainland areas of equivalent size. The overall consequence of this pattern is the general rule that a 90% reduction in habitat patch (fragment) size will cause a 50% reduction in number of species supported by that patch. This is the reason that fragmentation poses such a threat to biodiversity. Additionally, fragments more distant from a colonizing source are greater threats to species richness than those closer since recolonization is less likely.

The lesson for conservation has been quite clear for many years. On a global basis, habitat fragmentation is one of the most conspicuous consequences of management practices that we have employed to date.

Compounding fragmentation is the problem of edge effects. As a large habitat patch becomes dissected, more and more of the habitat lies adjacent to neighboring and different habitats. The habitat core is thus reduced. Flora and fauna have their own habitat requirements; thus, where forest and grassland abut, we can find a combination of grassland species, forest species, and edge specialists. As a result,

edge habitats may exhibit high species richness, but this will be purely local alpha diversity.

While this may superficially suggest that we should promote edge, conversion of forest to edge will reduce populations of core or forest interior species. This will reduce beta diversity throughout the forest and thus regional gamma diversity will drop ultimately to alpha diversity. As a result, biodiversity at the regional or landscape level suffers, even as alpha diversity may have been enhanced.

Additionally, edge effects may be felt at great distance into a forest, far beyond the point where humans might sense them. To be successful as habitat, then, fragments must be large enough that edge effects do not consume all, or even a high proportion of the habitat core.

This illustrates a serious concern (and illusion) in the discussion of diversity: increasing local (alpha) diversity in one habitat does not necessarily enhance gamma diversity. If we are to manage ecosystems for biodiversity, we must manage on the broad landscape level of gamma diversity, not the narrow habitat or stand level of alpha diversity.

Importance of Biodiversity: The following set of reasons for maintaining biodiversity in forest systems can be applied generally to the management of natural resources:

- The complex and poorly understood interactions among species drive the essential natural cycles upon which system productivity depends.
- While soil fertility and productivity influence biodiversity, the reverse also seems to be the case.
- The raw materials of agriculture, forestry, pharmacology, and biotechnology are components of natural biodiversity.
- The roles played by species in natural communities may not be substitutable — our knowledge about system processes is insufficient.
- With over 100,000 described species, the U.S. is home to more species than most tropical countries.
- Forests, specifically, may be home to half of this nation's biodiversity, and thus many of the species of

continued on page 14... SUSTAINABILITY

Kudos to Ken Midkiff

Comments made by Paula Carrell at the Sierra Club Awards dinner, April 21, 1999

This afternoon, I had the very pleasant task of introducing Ken Midkiff to the assembled national Sierra Club office staff as the winner of this year's staff Special Achievement Award. Ken was nominated by the volunteer leaders of the his chapter — the Ozark Chapter (Missouri).

From the award ceremony agenda:

Special Achievement Award

The Special Achievement Award is given to acknowledge an employee's special achievement which has changed, benefited, and/or streamlined the work of the Club, or enhanced its public image. This year the award goes to Ken Midkiff who is the Ozark Chapter Director in Columbia, Missouri, and has worked for the Club for five years.

Ken is receiving this award in recognition of his dedication and effectiveness as a true environmental activist who has helped to elevate the Ozark Sierra Club Chapter to the most successful environmental organization in the state. Ken lead the effort to halt the possibility of lead mining along Missouri's scenic Eleven Point River. Ken's leadership and vision contribute to the Club's ability to make things happen at the local and state level.

I made the following points in my comments:

- Ken Midkiff is a gifted organizer and lobbyist.
- His calls are returned by division heads in the DC EPA office.
- Missouri farmers and Idaho ranchers invite him to eat pie at their kitchen tables (and agree to help on endangered species issues).
- His chapter executive committee listens to him — and trusts him.

- By invitation, he writes a regular environmental column for a state capitol newspaper. A timid columnist, here's a sample leading sentence: "I hate to interrupt this little love fest — but, gentlemen, you are just flat wrong."
- Missouri Sierra Club press conferences, when they choose to hold them, are well attended by TV cameras and print reporters.
- The Missouri DNR Director calls Ken to find out what's wrong inside his agency.
- His state-level colleagues across the country like him — a lot — in part because Ken is one of a core group who always makes the time to respond to colleagues' questions and requests for advice and information.
- U.S. Senator Kit Bond knows who Ken is — and wishes he didn't.
- Lead mining is not happening along Missouri's Eleven Point River, in large part due to Ken's efforts.
- Factory poultry and hog corporations are on the run in Missouri and around the country, due in part to Ken's leadership.

And the truly damning fact in all this is that Ken makes it all look as easy as breathing. Now don't get me wrong: I swear Ken never saw an environmental issue he didn't like, and he works hard, and he works long hours. I just suspect him of not really considering it, you know, work — it's just what he does with his life, and he does it very well.

And he does it with humor and a reassuring lack of reverence for The Powers That Be.

Energy News Briefs

by Wallace McMullen

Air Quality Takes a Hit – NOX Rules Delayed

On May 27, 1999, a three judge panel of the US Court of Appeals for the District of Columbia ordered the EPA to suspend implementation of its rule that attempts to control air-borne nitrous oxide (NOX) emissions.

The appeals court decided to delay the implementation of the EPA rule so that it can consider a legal challenge that is being brought by industry groups and the states that would be affected.

Missouri is one of the states covered by the EPA rule. The electric utilities in our state are the major source of NOX emissions, relying on burning coal for their power generation. Missouri's Department of Natural Resources has done considerable work on preparing a State Implementation Plan (SIP) for reducing NOX emissions.

The rule affected is the "NOX SIP call," which was intended to reduce NOX emissions that can be transported to other states, contributing to ozone problems. Twenty-two states were required to submit plans of how they were going to reduce their emissions by September, although the cuts were not scheduled to take place until 2003 or 2005.

EPA said that the ruling reflects a delay, not a defeat. An EPA statement said, "In the fall, EPA and a number of states will argue before the court the need to move forward with these important health protections."

Iowa: Cedar Falls Wind Power

The municipal utility serving Cedar Falls, IA, found in a survey that 60% of their customers wanted wind power to generate the electricity they used. In response, the utility bought three 750 kilowatt wind machines, and began offering to provide the renewable energy to their customers for a \$2.50 per month

surcharge. Six weeks after the program was initiated, 600 households had signed up for the option.

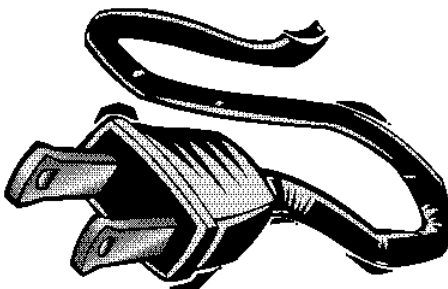
Minnesota: Nukes Operator Ordered to Generate with Wind

The Minnesota Public Utilities Commission has now ordered Northern States Power Co. (NSP) to provide 825 megawatts of wind generation capacity as part of its electricity power mix that it supplies to customers in Minnesota and northern Wisconsin.

In 1994 the Minnesota legislature decided to allow the two nuclear reactors operated by NSP at Prairie Island, MN, to continue to generate radioactive waste for as much as ten years, even though no long term storage facilities are available for this waste. In return, the utility was required to aggressively expand Minnesota's use of renewable electricity. The legislature specifically ordered NSP to purchase 425 megawatts of wind electricity as part of the deal, and an additional 400 megawatts if it were deemed in the public interest to do so.

The MN Public Utilities Commission has now ordered NSP to acquire that additional 400 megawatts of wind generation.

Additional information is available on this story from the American Wind Energy Assoc. at <http://www.awea.org/news/medadv012299.html>.



A PASSIVE SOLAR, ENERGY-EFFICIENT HOME IN SOUTHEAST MISSOURI

by Alan Journet and Kathy Conway, Trail of Tears Group

Dateline: Los Inocentes del Norte, Cape Girardeau, May 1999

Innocent as we are about the ways of the world, the name of the wildlife sanctuary upon which we have constructed our home is not designed to advertise this. Rather it is taken from the field site in Guanacaste, northwestern Costa Rica where we are researching tropical conservation ecology. We are currently focusing on a tropical moist forest restoration project there. That site, a naturalists lodge, is known as Lodge Los Inocentes, El Centro de Conservacion. To honor our hosts, and through lack of our own imagination, we simply stole their name.

Energy Efficient Home Construction 1998-99

In 1994, when we purchased the 37 acre forested tract behind our old homestead, our plan was to build on the ridge top. We also planned to make our best effort at producing a home that could serve as something of a model for how an environmentally sensitive and energy efficient home could be constructed in Cape County, southeast Missouri. Thus we embarked upon a long search for information and assistance. After scouring the region, likely state agencies, and the Internet for any local expertise in the area of energy efficiency and energy efficient construction, we finally located an architectural company in western Arkansas that offers energy efficient plans and energy efficient designs based on customer ideas. We elected the latter route. While we certainly do not claim this to be a perfect example of environmentally sensitive and energy efficient design — some compromise was

unavoidable — we made every effort to make and insist upon reasonable choices whenever possible.

The design we chose features 'Blue Max' blocks for the initial foundations (a polystyrene sandwich around a poured concrete center), a concrete slab (no basement), and walls and roof composed of Structural Insulated Panels, which are a sandwich of oriented strand board panels around an 80% recycled polystyrene insulation core. Local builder Tim Estes of Jackson was responsible for the construction and sub-contracting.

Our major regret is that at the time of organizing the construction, we were not aware of a source of certified sustainably produced lumber ('Green' Wood). We now are. Sources of this can be found at www.woodwise.org for example.

The entire construction follows passive solar design, the basic principle of which is to orient the house with windows facing south, but largely absent on the north and west. We chose to have a double story cathedral-style 'Great Room' as the living area, with a vaulted ceiling, and large windows. The south-facing wall also has a roof overhang and a sun-control walkway to allow low angle winter sun into the house, but keep high angle summer rays out. Additionally, the main living area has a tile floor over concrete that will serve as a heat sink in the winter to trap solar radiant energy during the day and slowly release it at night.

The entire construction and finishing process produces a home that is tightly built and sealed with caulk to eliminate most of the little gaps and cracks that make many conventionally built, so-called 'stick' homes, leak like sieves. Where a tightly constructed 'stick-home' might reach a two-star energy efficiency status, ours should earn five stars.

The primary source of heat is the

sun. The first back-up heating system is a state-of-the-art wood stove from Vermont Castings that, so it is claimed, will provide all the heat necessary to keep the home warm in winter. Annual utility bills in such homes supposedly are equivalent to the sum of March and October bills (the two lowest of the year) multiplied by six. The second back-up heating system is the conventional forced air style that, owners of these homes tell us, is almost never needed. We shall see! We also have conventional ducted air conditioning, though the arrangement of windows should be such that natural ventilation with fans will serve generally to cool the living area! The always present humidity of Missouri's late summers will be a problem — the home has no special way of escaping this except for a two-speed air conditioning system. On the low speed cooling occurs more slowly using less energy, while dehumidification can occur more effectively.

Inside/outside living is enhanced in the 2,000 square foot home on the south by a deck off the bedroom, and on the east, by a screened porch which has a roof that serves as the deck for the upstairs study on the east side of the house. The porch also has removable glass windows.

Our landscaping plans include a patio and a decorative lined goldfish/koi pond adjacent to the house on the south

side.

The interior carpet is constructed from recycled soda bottles, while the outside deck, etc., is constructed from Trex — made of a recycled plastic bag/sawdust combination. The outside of the house is finished with a concrete molding that simulate wooden boards. Wherever possible, we are using energy efficient fluorescent lighting.

One element of active solar power has been incorporated — a solar panel that drives the water heating system. This can be augmented by conventional heat when necessary, particularly to serve our one major luxuriant lapse: a whirlpool in the master bathroom.

Please visit <http://cstl.semo.edu/journet>, click on 'What's New', and go to Los Inocentes del Norte for more photos and information.

THUMBNAIL: Dr. Alan Journet is Conservation Chair of the Southeast Missouri Trail of Tears Sierra Group, and a professor of biology at Southeast Missouri State University, with interests in ecology and conservation biology. Dr. Kathy Conway is Membership Chair of the same group, and an assistant professor of Elementary, Early, and Special Education at the same University with interests in mathematics education.



The screened porch is sheltered on the east side of the house

SUSTAINABILITY continued from page 9
conservation concern.

- Though trite, it is true: extinction, and the loss of genetic information, is forever.

While our knowledge is still poor, enough is known that we can conclude as E. O. Wilson has suggested, “biodiversity is vital to healthy forests, while proper forest management is vital to the maintenance of biodiversity.”

Conservation pioneer Aldo Leopold argued long ago that the wise tinker protects and conserves all the parts.

Evidence for Biodiversity Loss: In terms of our forests, biodiversity at all levels (ecosystems, species, genetic) is declining while old growth has virtually disappeared outside Alaska. Meanwhile, and not surprisingly, some 50 percent of the rare and endangered species of the U.S. are forest dwellers.

On the list of the top ten U.S. regions with the most endangered species, four are forested areas. A Nature Conservancy study of 20,500 species (most of which live in or near forested habitats) suggested that 2.5 % are extinct or haven't been seen for decades, one third are at risk, and nearly half have been reduced to fewer than 20 populations. The causes are not only logging but also development. In the last 100 years we have documented the extinction of 100 species, and suspect that another 450 have similarly suffered.

This pattern is continued into Missouri where we find that over 25% of the animal species of conservation concern are forest dwellers. This suggests that forestry management practices in Missouri are less than a benign pressure on Missouri wildlife.

Causes for Biodiversity Losses: Leading causes of loss of species are habitat destruction, over-harvesting, introduced species, disease, and poorly enforced conservation/resource management laws. While our knowledge of biodiversity and the role of various species in most systems is minimal, we do know that plantations (whether of trees or agricultural crops) are not natural systems, since they are less diverse in all respects than natural systems of any age.

Promoting Biodiversity: Our

success at promoting populations of game species such as wild turkey and white-tailed deer, and some predator species such as coyotes, timber wolves, and bald eagles, suggests that we are capable of promoting the interests of wildlife if land managers see a value in doing so.

A number of techniques for promoting diversity in forest have been suggested, including: longer harvest rotations, less intensive harvesting and site preparation, and retention of mature trees and snags during and following harvest. As has been noted, the conservation of diversity requires maintaining a variety of successional stages mimicking in abundance and distribution the natural pattern — with an increase in mature and late stage forest. Abundant small forest patches may appear diverse, but mature and old growth fragments must be large enough to support viable populations of species. The spatial and structural complexity of ‘Old Growth’ Forests are essential aspects of a strategy to maintain global diversity at risk. Plantations, meanwhile, pose a threat because among other things, they lack the multi-layered canopy, tree size diversity, and abundant snags present in Old Growth Forests.

Furthermore, since the ability of a forest to respond to disturbances is vested in its genetic diversity, forest techniques that tend to eliminate or promote certain genotypes in a system at the expense of genetic variability are a threat.

In planning for biodiversity maintenance, it is important to remember that the presence of a species in a habitat does not indicate population viability in that habitat. Some species exhibit a meta-population structure with an array of populations of different sizes scattered across a broad geographic area. In such a landscape, some occupied habitats will actually support successful viable breeding populations while other habitats may only support the reproductive excess of the successful source populations, and thus act as non-viable population sinks. It is clearly important to identify and protect the source habitats. *To be continued.*

Alan Journet is a professor of biology at Southeast Missouri State University. Christine Logan is a second-year graduate student in the Department of Biology at Southeast.

Open Letter to Representative Don Young

by Ken Midkiff

April 27, 1999
US Representative Don Young
Chair, US House of Representatives
Committee on Resources
1324 Longworth House Office Building
Washington, DC 20515

Chairman Young,

Thank you for the invitation to testify before the Resource Committee's legislative hearing on H.R. 883 at the University of Missouri-Rolla, this coming Saturday, May 1, 1999.

After some consideration, I wish to inform you that I respectfully decline to appear.

There are several factors in this decision:

1. Only the majority members and majority staff of the Committee will be present in Rolla.
2. It appears as if the majority members present are also sponsors or co-sponsors of H.R. 883 — and it would seem obvious that anything that I would say would fall on non-receptive ears.
3. US Representative JoAnn Emerson of the Missouri 8th District, also a co-sponsor, is hosting a "rally and cookout" for proponents of the legislation. The People for the USA, Missouri Eagle Forum, Citizens for Private Property Rights, and the Missouri Cattlemen's Association are co-hosts.
4. From all I can ascertain, I would be the ONLY representative of the environmental or conservationist community. The groups listed as co-hosts of the rally and cookout described in #3 have raised much ire in Missouri against environmental and conservation groups.



Quite frankly, I fear for my safety, as there have been incidents of violence directed at members of the Sierra Club in Missouri.

For your information, the Ozark Chapter of the Sierra Club has no position on H.R. 883, although I must frankly admit that I consider it to be a bit of showboating for anti-UN/anti-government constituencies. When the various state and federal agencies were considering nominating the Ozark National Scenic Riverways and some surrounding state- and federally-owned lands for designation as

a "biosphere reserve" or "heritage site," there were a number of public hearings, in the Ozarks and indeed across the state. Due to the animosity and concerns expressed at these hearings, the agencies did NOT proceed with the nominations. This would seem to be the way things are supposed to work. Secondly, we do not believe that your bill is necessary nor appropriate — there has been no evidence or

documentation whatsoever that such designations present any threat to sovereignty of American lands. To the contrary, it is clear that these designations are a simple recognition that there are special places on this earth — places that are already afforded at least minimal status by public ownership. There are a plenitude of protections in our Constitution and body of laws to prevent any voluntary or foreign governmental entity — United Nations, whatever — from exerting any authority over lands of the United States.

Our concerns have been directed toward keeping out other international entities that in fact DO have much control over national lands, and represent much more of a threat to local and regional

continued on page 16... **Open Letter**

Open Letter continued from page 15 economies and to national sovereignty. I refer specifically to major extractive corporations that assert "private property rights" over federal lands. When the subsidies to these international corporations are added to the mix, the concerns are heightened: Private corporations using the public lands for extractive purposes aided and abetted by the US government.

We would respectfully suggest if you and the co-sponsors of H.R. 883 are

truly concerned about invasions of sovereignty, that an objective look be taken at the acquiescence of our government to these international corporations.

When and if a bill is introduced to address these concerns, I would be pleased to accept an invitation to testify.

Sincerely,
Ken Midkiff

cc: US Representative JoAnn Emerson

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Registration Form for '99 CampOut

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- ◆ We must receive your reservation by September 3rd
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- ◆ We will mail you an information packet containing map in advance of the Camp-Out date.



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A Geological Showcase near Farmington, Missouri

by Marsha Armentrout

If you are seeking a weekend or more of pleasure in Missouri State Parks, consider traveling to Farmington, Missouri 70 miles south of St. Louis where you can choose to stay in a motel, or camp nearby in a state park. Some of Missouri's most beautiful scenery is within easy driving distance, featuring an amazing showcase of geology that can be viewed while walking along varied nature trails at the parks.

Hawn State Park, located between Ste. Genevieve and Farmington off County Road 32, provides a peaceful picnic area among the beautiful native pines and hardwoods for those who wish to relax and contemplate nature. Hikers can choose to walk along Pickle Creek enjoying the refreshing sound of rushing water while viewing rock formations by the picturesque creek, or take six or ten miles of the back-pack Whispering Pine Trail. Hawn is especially beautiful in spring when redbud, dogwood, and wild azaleas bloom, and in autumn when the leaves turn.

About five miles from Hawn State Park on route AA off 32 is Pickle Springs

Natural Area. Cool off as you hike the two-mile moderately difficult trail through this unique area of canyons and rock formations and enjoy viewing lush ferns, small waterfalls, and the trickling stream. Geology features along the trail include Cauliflower Rocks, The Keyhole and Rockpile Canyon. Climb up from the canyons to Dome Rock Overlook where you can see for miles in the clean clear air.

For the "big rock show," visit Elephant Rocks State Park on Highway 21 at the northwest edge of Graniteville. This delightful park features a paved trail that winds among the rocks. The rocks gradually increase in size as you ascend, topped off by the gigantic 680 ton Elephant Rock estimated to be 1.2 billion years old. It stands 27 feet tall, 35 feet long, and 17 feet wide. The one-mile Elephant Rocks Braille Trail, a national recreational trail, describes the park's natural features. Shaded picnic grounds at the foot of the rocks provide a relaxing gathering place.

Nearby, Johnson Shut-Ins State Park offers a panorama of jutting rocks that have been carved into canyon-like creations by the rushing waters of the



Water cascades over the rocks in Pickle Creek at Hawn State Park

photo by Marsha Armentrout



Forces of nature at Johnson Shut-Ins State Park

Photo by Marsha Armentrout



The Elephant Rock's Braille Trail

photo by Marsha Armentrout

Black River through millions of years. Artists enjoy drawing, painting, and taking photographs of the shut-ins as well as the more than 900 species of plants and wildflowers in the park. The boardwalk to the shut-ins area provides comfortable walking while protecting the fragile landscape. Johnson Shut-Ins, a major trail head for the 500-mile-long Ozark Trail, has picnic areas and campgrounds. The park is located in Reynolds County at the junction of County Roads N and MM.

Visiting these four masterpieces of nature, and others nearby, will bring a sense of renewal to those who like to explore, protect and enjoy the wild places of the earth!

Missouri River Float

Join the fellowship of voyagers who would reclaim the Missouri River for recreational uses!

In July, 1999, one or several canoes will float the Missouri River from the northwestern corner of the state down to Saint Charles, camping beside the river each night. Sierra Club members of both the Eastern Missouri Group and the Thomas Hart Benton Group are invited to participate in segments of the trip, if unable to do the whole trip.

A schedule of arrivals at Missouri River access points recognized by the Army Corps of Engineers will be sent to all persons expressing an interest in taking part. Stops will not be made at every access. Each rendezvous at an access point should be prearranged so that efforts may be made for some of the floating party to arrive or pass at a certain time. Contact Mac Dillon to express interest or ask questions by calling (314)862-6239 or e-mailing pmdillon@postnet.com.

Since there are no canoe liveryies on the Missouri River, all participants will need to arrange for their own canoe or kayak hauling to and from access points. They will provide food, water, and camping gear appropriate to the duration of their trips for themselves. They will be responsible for bringing suitable floating craft, spare and working paddles, and flotation jackets. to keep themselves safe.

This should be a great occasion for club members and others who like to float rivers to become better acquainted and enjoy a memorable outdoor experience together.



Call for Chapter Executive Committee Nominations

Wanted: People committed to fighting for Missouri's environment by leading the Sierra Club's activities in the state.

Must plan on devoting several hours per week to the cause.

Involves frequent communication by e-mail or phone to stay on top of current issues. Demands preparation for and participation in Sunday meetings held once every other month in January, March, May, July, September, and November. Can include taking an officer or committee chair position.

You decide Chapter direction and priorities by approving volunteer and staff activities, Chapter policies, membership activities, and monetary fundraising and expenditures.

Contact Brian Alworth at btalworth@aol.com or (573) 334-7978 any day prior to 8 p.m. to nominate yourself or others.

The Ozark Chapter Executive Committee and Missouri's environment thank you. 🐾

OZARK CHAPTER SIERRA CLUB OUTINGS

*Be sure to check
your GROUP
newsletter
for more or current
outings!*

Eastern Missouri Group

July 3-5 (Sat-Mon) Fair St. Louis. This is our most important fundraiser of the year. It's fun and a great opportunity to make new friends in the Sierra Club. Join us for a few hours making and selling fresh lemonade and pretzels and see the Fair, the air shows, or the fireworks. We have several booths that are open all day and need a very large number of volunteers. We also need help on Friday, July 2, to set up the booths, and on Tuesday, July 6, for the take down party. New members are invited. If you can help, call Jim Young, (314)664-9392, or the Sierra Club office, (314)909-0890.

July 10 (Sat) Highway Cleanup. Young raccoons are leaving their dens. We wouldn't want them to see all of that Independence Day trash, would we? Diane DuBois, (314)721-0594.

July 17 (Sat) Clifty Creek Natural Area near Rolla. See scenic natural bridge with a span of forty feet. This is a creek walk and you will get your feet wet! Kathy Wodell, (636)240-0675.

July 17 (Sat) Water quality testing at Fox Creek near Greensfelder Park.

Discover creatures you've never encountered before. Newcomers and trainees welcome. Leslie Lihou, (314)726-2140, or Jim

Rhodes, (314)821-7758.

July 18 (Sun) Beginner canoe clinic on the Big River. One hour from St. Louis. Canoeing is more enjoyable when you can navigate the river safely.

Learn the basics of tandem canoeing from experienced instructors. Solo instruction is a possibility. Diane Albright, (314)966-3645 or George Behrens, (314)821-0247 (after 6 p.m. only).

July 22-24 (Thu-Sat) Yee Hah! Annual Sam A. Baker Bluegrass

Festival(all or a portion) just two hours south of St. Louis. Camp, cool off in the creek, listen to some great bluegrass bands. Suzanne Smith, (618)281-4762 (after 6 p.m., weekdays only).

Aug 1 (Sun) Castor River/Amidon sampler.

Relax in the cool water of the Castor River Shut-ins, do some water quality testing and discover the numerous cedar skeletons awaiting burning. Camping available. Elmer McNulty, (314)965-3181.

Aug 7 (Sat) Day trip to Onondaga State Park to visit a cool cave in the heat of the summer. Bring swim suit, inner tubes, etc., for afterwards. Kevin Hunter, (314)544-5157.

Aug 8 (Sun) Easy one-day float close to St. Louis on the Meramec River from Robertsville State Park to Pacific Palisades. Float past bluffs and the Shaw Arboretum. See endangered farmland threatened by sprawl. Some experience desirable. Limit 15 people. Call Jim Rhodes at (314)821-7758 or e-mail to earthman@stlnet.com.

Aug 14 (Sat) Highway Cleanup. The Perseid meteor shower has just peaked. Help pick up spent meteors and other jetsam. Diane DuBois, (314)721-0594.

Aug 14-15 (Sat-Sun) Annual Perseid Meteor Shower camp out within two hours of St. Louis. Council Bluff N.F.S. campground. Great beach, boat rentals, hiking, gourmet cooking. Suzanne Smith, (618)281-4762

continued on next page

Outings Continued

(after 6 p.m., weekdays only).

Aug 20-22 (Fri-Sun) Festival of the Little Hills.

Join us for a few hours and a great time making real lemonade with other Sierrans at a charming fair in the historic area of St. Charles near the riverfront. New members are always welcome. Jim Young, (314)664-9392, or the Sierra Club office, (314)909-0890.

Aug 21 (Sat) Early morning walk in Forest Park. Paul Stupperich, (314)429-4352.

Aug 27 (Fri) Fourth Annual Rain or Shine Hike. Easy three-mile evening walk on Jefferson Barracks paved hiking trail. We will take time to look for deer before hiking and watch the Sun set and

moon rise as we hike. Marsha Armentrout, (314)892-4279.

Aug 28 (Sat) Operation Clean Stream. Have a great day on the river figuring out creative ways to get more trash into your boat. Ed Schmidt, (314)647-1608.

Aug 29 (Sun) The Al Foster Trail will connect Castlewood to Route 66 State Park. We will cover eight miles of this flat, easy walking trail. Wayne Miller, (314)569-0094.

Sept 3-6 (Fri-Mon) St. Louis County Fair and Air Show. The lemonade crew

returns for the last fund raiser of the



summer. We would love to have each of you join us for a few hours making and selling lemonade. New members are most welcome as this is a great way to meet fellow Sierrans and contribute in a practical way to meeting the club's environmental goals. Jim Young, (314)664-9392, or the Sierra Club office, (314)909-0890.

Osage Group

June 18 (Fri) Evening hike in the Hinkson Valley Tract recently acquired for protection by Greenbelt Coalition. Call Dee for 6 p.m. meeting place. (573)442-4224.

June 19 (Sat) Ride your bike to breakfast at Dotties



Aug 21-22 (Sat-Sun) 6th Annual Lazy River Float. An easy, relaxing two-day canoe trip on the Big Piney (Slabtown to Ross). We'll camp on a gravel bar, swim, fish, & potluck supper (optional). Ken or Julie Midkiff, (573)442-5570, or be at the Slabtown access by 8:30 a.m. Saturday.

in Hartzburg. Joint outing with Jeff City. Daryl in Jeff City, (573)395-4267, or Tom, (573)442-6955.

June 28 (Mon) Full Moon hike, Bear Creek Nature Trail. Call Dee for 8 p.m. meeting place, (573)442-4224.

July 10 (Sat evening) Splash wade and hike at Three Creeks. Call Tom for 6:30 p.m. meeting place, (573)636-8205.

July 17-18 (Sat-Sun) Niangua River Float. Short two-day float. Relax on a nice Ozark stream, cool beverage, and good company. Daryl, (573)395-4267.

July 28 (Wed) Full Moon Hike on University Greenbelt Trail. Dee, (573)442-4224.

Aug 14 (Sat) Outing to the Caveman Restaurant in Mid-Mo. Tom, (573)442-6955.

Sept ? Help with honeysuckle eradication project in Bear Creek Nature Area. Dee, (573)442-4224.

Outings Continued

Thomas Hart Benton Group

July 9-10 (Fri-Sat) Heart of America Shakespeare Festival at Southmoreland Park east of the Plaza, Kansas City, MO. A group of Sierra Club members will attend the performances of "Macbeth" and "Much Ado About Nothing." Claus Wawrzinek, (816)561-7863.

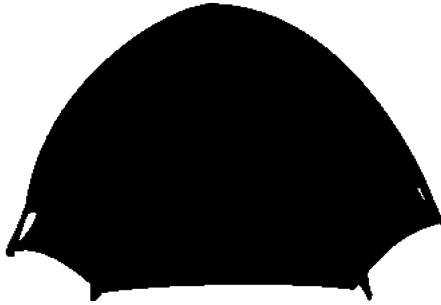
July 17 (Sat) Canoeing on the Kaw, De Soto, KS. We'll put in at Cedar Creek for a one-day trip down to the Mill Creek area.



Please call by July 3 so we can arrange for canoe rental. Mike Calwell, (913)677-2088

July 24 (Sat) Barstow School Organic Market, Kansas City, MO. Shop with us at the organic farmers' market at Barstow School, 115th & State Line. Dan & Donna Clark Fuller, (816)779-7284.

July 31 (Sat 6:30 p.m.) Sierra Night with the Kansas City Wizards at Arrowhead Stadium. Catch Major League Soccer at Arrowhead as the Wizards take on the San Jose Clash. The game starts at 7:30, and tickets are \$16 for adults, \$10 for children. Steve Hassler, (913)599-6028.



July 31-Aug 1 (Sat-Sun) Kansas Canoe



Association: "Kaw Moonlight Series," Topeka to Lawrence, KS. This two day trip is conducted by individuals affiliated with the Kansas Canoe Association and is not sponsored by the Sierra Club. Marty Burke, (785)749-2357.

Aug 7 (Sat) Organic Farm Tour, Troque Farms, Buckner, MO. We will tour Troque Farms in the morning and eat lunch afterward at a nearby restaurant. Children are welcome for this great opportunity to learn about food production. Bob & Doris Sherrick, (816)779-6708.

Aug 7 (Sat 8 p.m.) Star Party at the Powell Observatory, Louisburg, KS. Join us on our annual visit to one of the monthly programs put

on by the Kansas City Astronomical Society. Dan & Donna Clark Fuller, (816)779-7284

Aug 21 (Sat) AMTRAK trip to Hermann, MO. We'll take the early train to Hermann, visit the town and the winery, and return on the evening train. Lee Ann Googe, (816)453-8558.

Aug 23 (Mon 6:30 p.m.) Sierra Night at Kaufmann Stadium. Watch the scrappy Royals battle the Baltimore Orioles. Dan & Donna Clark Fuller, (816)779-7284.

Aug 28-29 (Sat-Sun) Kansas Canoe Association: "Kaw Moonlight Series," Lawrence to De Soto, KS. This two day trip is conducted by individuals affiliated with the Kansas Canoe Association and is not sponsored by the Sierra Club. R. J. Stephenson, (785)845-2359.

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