

OZARK SIERRAN

One Earth One Chance

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Lions and Tigers and Bears. Oh, My!



by Ken Midkiff

In a surprise move—a surprise except to a few fearful residents in northeast Missouri—the Missouri Conservation Commission acted to place the eastern cougar, or eastern mountain lion, into the category of “extirpated” (meaning that it is no longer here). Adding insult to injury, the Commission also declared that recovery and repopulation of the mountain lion was “undesirable.”

This came as a surprise to everyone who has seen a mountain lion and came as a complete sur-

prise to all who value the presence of a major predator in Missouri woodlands. That the mountain lion is present in Missouri is not at all in doubt. The Conservation Commission, acting upon finding and recommendations, said there was no “breeding population” in this state. MDC staffers have stated that there is no indication that there are breeding pairs, and that indeed all of the mountain lions in Missouri are male.

While there is some doubt about the presence of breeding pairs (mountain lions are notably and understandably secretive about birthing and rearing spots for their young), it is telling that what MDC staff did is no indication at all of anything. Just because they didn’t actually see young mountain lions is no indication that they’re not here. There is a strong indication that MDC didn’t see any—but to take the next step and state that, therefore, they’re not there fails the



Florida panther.

Photos from U.S. Fish & Wildlife Service

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Springfield Voters Approve Funding for New Coal Plant



**Fight not over—appeal of
air permit still pending**

by Jill Miller, Sierra Club organizer

Despite an intense, hard-fought campaign involving local Sierra Club members and other citizen groups, on Tuesday June 6, City Utilities of Springfield managed to overturn the 2004 voter rejection of their plan to build an unnecessary coal-fired power plant. We made a strong showing against incredibly long odds, and the fight is not over.

Refusing to accept “NO” from the voters, City Utilities and Springfield City Council made sure the bond vote was scheduled as a single-issue ballot during summer vacation time when such elections typically have low voter turn-out. Only 18 percent of Springfield voters cast ballots. CU and its supporters spent tens of thousands of dollars

on a cynically orchestrated media campaign to scare voters into believing coal was Springfield’s only option. The final result was 59 percent to 41

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Dates You Need to Know

April 4 Conservation Lobby Day:
Jefferson City

May 28 Submission deadline:
July-September Ozark Sierran

June 3 Chapter ComCom meeting:
Kansas City; contact Ken Midkiff;
kmidkiff@mchsi.com

June 4 Chapter ExCom meeting:
Kansas City; contact Keet Kopecky;
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OZARK SIERRAN

The published deadline is the real, honest-to-goodness, drop-dead deadline—not a couple of days or a week later!

Submissions received after the deadline are

subject to the possibility they won't appear in the issue: you will feel bad and we will feel bad. Call us nasty, but we are determined this newsletter will come out on time!

The **OZARK SIERRAN** is produced on a Macintosh computer, so we strongly prefer to receive material electronically (E-mail), or on a CD, **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 CD), please include a SASE.

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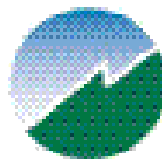
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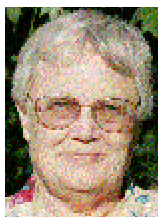
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Causes of the Taum Sauk Reservoir Breach



From FERC's Independent Panel Report

by Becky Denney

On December 14, 2005, the Taum Sauk Upper Reservoir on top of Proffit Mountain near Lesterville, Missouri ruptured sending 1.5 billion

gallons of water down Proffit Mountain severely damaging Johnson's Shut-Ins State Park.

The water washed away the home of Park Superintendent Toops, his wife and three children sending them across the road into a field. The children were hospitalized but have recovered. Had campers been in the campground they too would have been washed away. The Taum Sauk Reservoir was a pumped-storage hydroelectric plant which employed twelve people.

Some natural features of the park will not recover in our lifetime. The Shut-Ins themselves do not appear to have suffered great damage. Although the public can tour the park, swimming is still not allowed after more than six months because of danger from debris.

The Federal Energy Regulatory Commission's (FERC) Director of Dam Safety, Contantine Tjoumas, formed the Independent Panel of Consultants (IPOC) composed of three engineers during the week of December 26, 2005. IPOC member Dr. Alfred J. Hendron was asked by FERC to visit the Taum Sauk project before the panel was formed. He inspected the breach and remaining embankment on December 15 with FERC staff from Washington and Chicago. The other two members visited the site on December 28, 2005.

"...there was almost no visual monitoring or "ground-proofing" of the Upper Reservoir water levels But managers had every indication that they should be physically checking the water levels."

The IPOC was asked to write an independent assessment of the technical causes of the failure of the Upper Taum Sauk Reservoir. The **results of the report will be used to review other pumped storage projects certified by FERC which have no spillway.** With the release of the report, the IPOC has completed three of the four tasks they contracted to do. The uncompleted task is to assist the FERC staff in remedial measures to re-establish the upper reservoir.

The construction of the Taum Sauk Project #P-2277 was completed in 1962 and the reservoir first began filling in July 1963. Commercial operation began on December 20, 1963. However, the project license was not issued until August 26, 1965. (I see no mention of this in the IPOC report

The IPOC presents a measured analysis that shows the procedures for safe operation were so inadequate they range from ignorance to criminal.

but Union Electric Company built and operated the plant in 1963 without a federal license, arguing that it would not affect commerce on a navigable stream. The U.S. Supreme Court in May 3, 1965 held that a federal license was required.)

Project Description

The reservoir consists of a continuous hilltop dike which is a *concrete-faced dumped rockfill dam (CFRD)* from the foundation to elevation 1570 feet. Between Elevations 1570 and 1589 the construction is *rolled rockfill*. The crest at 1589 is twelve feet wide. A ten feet high, one foot thick reinforced concrete parapet wall extended the crest to elevation 1599 feet as it was originally constructed. But since 1963, *the rockfill embankment* at various points has settled between one and two feet. On November 6, 2004 the low point on the top of the reservoir was at elevation 1596.99 feet at Panel 72.

The over-pumping protection systems were changed in November, 2004 when the geomembrane liner was installed to reduce reservoir leakage. The old reservoir control systems were anchored to the concrete face prior to 2004.

"The new system was not anchored to the concrete face because it was decided that the new geomembrane liner should not be penetrated by anchor bolt holes. The HDPE pipe housing the pressure instruments was not positively anchored to the concrete face slab." (Page 8)

There was also an emergency water level protection backup system for the reservoir.

Design Features

The design and construction of the CFRD for Taum Sauk Upper Reservoir was similar to several older CFRDs such as Strawberry Dam and Salt Springs Dam constructed in California. These dams have parapet walls for reflecting waves at normal maximum water storage level but the maximum water levels are always *approximately one to two feet below the crest of the rockfill*.

"The design decision made for Taum Sauk Upper Reservoir Dam to routinely store water 6 to 8 feet high on a 10 feet high parapet wall during daily operations made the Taum Sauk dumped rockfill CFRD 'Unprecedented' as compared to the previous CFRDs, as summarized by Cooke, 1988 . . ." (Page 10).

Nearly 100 percent of CFRDs prior to 1963 were dumped and many had cracked face slabs and high leakage. This is why no CFRDs were build between 1940 and 1950. Taum Sauk Reservoir was

the last newly constructed dumped rockfill CFRD in the U.S.A. Another CFRD Cabin Creek Upper Reservoir Dam, Colorado was designed at the same time, but it was designed as a compacted rockfill.

The maximum operating level of Cabin Creek CFRD is six feet below the rockfill crest. And, this means the *maximum operating level is nine feet below the top of a three feet high parapet wall that is on the crest of the dam*.

"The differences in the Taum Sauk and Cabin Creek CFRD designs represent differences in risk tolerances for different engineering firms and individual consultants during the same time frame taking into account the state of the art for CFRD design in the middle 1960's. It should also be noted that Cabin Creek Dam was overtopped by pumping, but did not fail." (Page 10).

Standard Operating Procedure

Taum Sauk Project #2277 is called a peaking and emergency reserve facility. In the summer it might generate in the morning, pump from the lower reservoir in the afternoon, generate in the evening and pump again in the early morning. In fall, winter, and spring it would pump less, maybe pumping at night and generating during the day.

Generation, pump-start and duration was determined by system needs and controlled from AmerenUE's Osage Plant by a microwave system. This was under the direction of a load dispatcher in St. Louis. This type of system is very responsive and can be put on full load in a few minutes.

When the geomembrane liner was installed in 2004 with a new water level monitoring and control system, one pump was set to stop pumping at Elevation 1594 and another at Elevation 1596. But by October 7, 2005 movements of the HDPE pipes housing the pressure transducers in the reservoir had been observed by AmerenUE employees. After October 7 the shutdown elevations were set at Elevation 1592 and Elevation 1594 respectively. An automatic shutdown for both was set at 1594.2 if they weren't shutdown already.

Primary Causes of Failure of Taum Sauk Dam

The primary root causes are those which caused the overtopping to occur. Any one of five factors might have prevented the overtopping on that particular date, December 14, 2005.

1) Water Level Readings Inaccurate

From August, 2005, water level plots show erratic behavior that increased until December 14, 2005. The evidence suggests that the pump discharge pattern created substantial forces acting on the protective pipes or the support cables—especially at lower water levels. The cables "as found" after the reservoir collapse show mis-alignment.

On December 14, 2005, Pump Unit #2 was

continued on page 17.... Taum Sauk Reservoir

Controversy Over Paseo Bridge May Change How MoDOT Thinks About Highways



by Ron McLinden

You wouldn't expect an elegant but modest 52-year-old suspension bridge over the Missouri River at Kansas City to set the stage for a major realignment of how Missouri Department of Transportation (MoDOT) thinks about highways, but it just might happen.

At issue is a draft environmental impact statement (DEIS) for rebuilding a three-mile segment of I-29 and I-35 (including the Paseo Bridge) between Kansas City's downtown highway loop and Armour Road in North Kansas City, just across the river. The comment period for the DEIS ended May 22.

Normally a comment period is a formality. State and federal resource agencies point out how the DEIS does or does not meet the requirements of this or that law, and a few environmental and neighborhood groups have their say. Normally MoDOT tweaks the document and then the Federal Highway Administration (FHWA) approves it in a "record of decision" (ROD), which thereafter serves as evidence that MoDOT has done due diligence with respect to protecting endangered critters and steering clear of contaminated sites.

Not so this time around. For a variety of reasons, this DEIS has attracted the attention of many public officials and major civic constituencies. The final outcome could be highly significant.

The Paseo Bridge, part of the "North Midtown Expressway," was constructed in 1954 as a toll facility, part of a regional highway network envisioned by Kansas City in a plan published in the late 1940's. Following Congressional authorization of the interstate highway system in 1956, the bridge was designated to carry I-29 and I-35 across the Missouri River.

A half century of development in Clay and Platte Counties—Kansas City's "Northland"—resulted in the roadway carrying a heavy load of commuter and other vehicular traffic. Moreover, time (and changing highway design standards) led to a perceived need to either rebuild or replace the bridge. That need was underscored in 2003 when a structural failure forced MoDOT to close the bridge for several weeks for emergency repairs. MoDOT subsequently did a substantial rehab of the bridge in 2005, resulting in a fifteen-year extension of the bridge's useful life.

Meanwhile, local civic support has been building for a replacement bridge that would be unique in character—a so-called "signature" or "iconic" bridge. Kansas City leaders have looked with envy on the distinctive new Mississippi River bridges at West Alton and Cape Girardeau, and at renderings for a new I-70 bridge at St. Louis, noting that MoDOT has built only the plainest of bridges in the Kansas City area.

Civic interest (and boosterism) laid the ground-



work for the "Northland-Downtown Major Investment Study" (MIS) that explored transportation options between 1998 and 2002. That study was multi-modal in nature, and the Sierra Club participated in its stakeholder meetings. The MIS identified a route for light rail to serve the Northland, and concluded that additional vehicular capacity should be added in the Paseo Bridge corridor. After an overly ambitious light rail plan was defeated by Kansas City voters in 2003, MoDOT proceeded with plans to widen the highway.

Voter approval of Amendment 3 in 2003 gave MoDOT enough money to finance a number of major projects using bonds. The Paseo Bridge came out on top in a statewide priority-setting process and was allocated \$195 million. Senator Kit Bond subsequently got a Congressional earmark for an additional \$50 million.

The DEIS, it's alleged, reflects a bias that favors higher-speed highway travel, rather than a more holistic approach to transportation that includes better land use planning and consideration of future natural resource constraints including peak oil.

Long story short, MoDOT now has \$245 million to build a project, and has promised to complete it by October 31, 2011. To accomplish that feat, they've decided to use a procedure still new to Missouri, "design-build." (MoDOT has initiated one previous design-build project—a twelve-mile stretch of U.S. 40/I-64 in St. Louis—at a cost of \$535 million. That project is off to a slow start, in part due to questions about whether the highway will be closed entirely during reconstruction.)

Normally, MoDOT would design a project and then ask contractors to bid on it. Under design-build, MoDOT develops the project concept and invites contractor teams to bid on doing both the final design work and the construction. Theoretically, the project gets done faster since construction can begin before all design details are worked out. What's more, the project could end up being better since the design-build team presumably knows better how to design projects to be cost-effective.

The Paseo Bridge project would be MoDOT's

second experience with design-build. But the complexity of the project and range of unresolved issues is causing MoDOT no end of problems. In fact, MoDOT has probably already lost some of the good will it has enjoyed in Kansas City, and could lose a good deal of credibility statewide in the process.

But back to the DEIS. In order to provide maximum flexibility for a design-build team to perform its cost-effective magic, MoDOT's DEIS was written to cover the biggest project they could envision: an eight-lane highway with a ten-lane bridge.

Trouble is, that left too many details unanswered. MoDOT promised to form a Community Advisory Group to help resolve the details, but that has raised concerns that the group will have little say.

Enter some usually silent governmental and civic entities.

Mid-America Regional Council filed comments outlining concerns that the DEIS doesn't address the full range of transportation needs and options, and that it gives too little consideration to important aspects of the region's adopted long-range transportation plan.

The Kansas City Bicycle Federation, concerned that the DEIS is vague about the where-when-how of the region's first safe river crossing for cyclists and pedestrians, has been vocal in the process. They want any new Paseo Bridge to accommodate bikes and pedestrians—and they'd like accommodations for bikes and pedestrians added to the existing Heart of America Bridge as well.

The Columbus Park neighborhood, a traditionally Italian community just north of downtown that has more recently welcomed immigrants from many nations and is undergoing strong revitalization, has been especially vocal. Neighborhoods had little say back in the 1950's, but the community is making up for it this time around. Legal action is a possibility.

An informal alliance of downtown and transit interests—the Downtown Council, Regional Transit Alliance, Kansas City Design Center, and the local chapter of the American Institute of Architects—also filed extensive comments. Drawing on an analysis by a Florida transportation consulting firm, they point out the failure of the DEIS to adequately consider all possible transportation alternatives, the heavy bias in the language of the DEIS in favor of expanded highway

continued on page 18... Paseo Bridge

Why invest in Missouri's Future?



by *Melissa Blakley, Chapter Development Associate*

The environmental challenges we face in Missouri have grown in number and scope in recent years. To meet these challenges Missouri Sierra Club leaders implemented an ambitious long-range strategic plan, beginning in 2005, that is intended to fully fund the Club's operations and conservation priorities.

The plan actually expands our reach and effectiveness in Missouri so that we can continue our work to safeguard Missouri's natural heritage for generations to come. It identifies aggressive conservation priorities and legislative goals, and provides for a new long-range sustainable fundraising plan that will enable us to achieve our expanded vision. The plan builds on the strengths of the Missouri Sierra Club—a small staff multiplied by an active and engaged member base.

Our newly focused conservation initiatives combined with our new fundraising plan will help us to leverage our strengths at a time when the environmental progress we have achieved and come to take for granted is under an aggressive and sustained attack. Those who are in charge of public policy—nationally and here in Missouri—are rolling back environmental protections that Americans have come to count on for more than a generation: Our clean air and clean water laws are being rolled back or reinterpreted in the polluters favor; basic principles embodied in the Endangered Species Act are being threatened; agencies like the Environmental Protection Agency and the Missouri Department of Natural Resources that are charged with enforcing the laws and holding polluters accountable have been de-funded and/or staffed at the highest levels with industry insiders; public participation is being denied and sound science is either being ignored or obfuscated. On top of all that, we are challenged with the consequences of global warming and redirecting our

and Energy Campaign seeks to influence and change public policy to achieve wide-ranging, long-term results. We believe this important campaign could influence energy policy throughout Missouri and the entire Midwest (see "Stopping the Coal Rush in Missouri"). We have budgeted an additional \$20,000 to fund this campaign in 2006. Those funds must be raised from among our Missouri members.

The Club has a history of operating efficiently due to the fact that the work of our small staff is multiplied by an active and engaged member base.

energy future.

Missouri Chapter leaders developed a new strategic vision with these challenges in mind combined with a growing financial necessity. Since 9/11/2001 Chapter income declined while basic expenses increased slightly. When, by 2004, income didn't increase and savings were about to run out, Chapter leaders knew they had to act boldly or cut what was already a bare-bones budget—providing for a Chapter Director/Lobbyist, a small office in Columbia and an Office Coordinator.

Missouri Sierra Club's volunteer leaders created a new vision for the Club that actually expands our reach and effectiveness in Missouri. They believe that our members and friends will fully support the Club's effective work in Missouri if we do three things—communicate more effectively regarding our efforts and accomplishments in Missouri, let you know what we need to get the job done, and ask for your help. So far, they have been proven right. Financial contributions were up significantly in 2005! And the goal for 2006 is equally ambitious. (See chart and graph)

In addition to the basic Chapter operations budget, we must fund all state conservation initiatives we take on. The more you contribute, the more your Missouri Sierra Club can accomplish. As you probably know, since we are a volunteer organization, our work isn't limited to our presence at the Missouri legislature and our four conservation priorities; however, those priorities guide us in our funding decisions. Currently we are heavily engaged in our Clean Air and Energy Campaign—promoting clean energy solutions while opposing more dirty coal-burning power plants. Since coal-burning power plants are a major source of global warming gases, our efforts have taken on added urgency recently.

Like other Sierra Club initiatives, our Clean Air

Our newly focused conservation initiatives combined with our new fundraising plan will help us to leverage our strengths at a time when the environmental progress we have achieved and come to take for granted is under an aggressive and sustained attack.

Your support makes a difference!

To reach our long-range goals and fully fund the Chapter's conservation priorities we need increased support from all our members. If you haven't made your 2006 donation please do so today! We are counting on you! Send a generous donation TODAY to Ozark Chapter Sierra Club, 1007 N. College, Ste 3, Columbia, MO 65201. *

* Please make your check payable to "**Ozark Chapter Sierra Club.**" Contributions and gifts to the Ozark Chapter Sierra Club are not tax deductible; they support our effective citizen-based advocacy and lobbying efforts. This type of gift provides maximum flexibility for the Club. If you prefer to make a tax deductible gift, please make your contribution payable to "**Sierra Club Foundation, Ozark Chapter.**" Contributions and gifts to The Sierra Club Foundation are tax-deductible as charitable contributions as they support grants for public education, research and public interest litigation necessary to further the Sierra Club's conservation goals.

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Only non-tax deductible donations are available on-line. ☺

Where does the money come from?

One common misconception is that Missouri Sierra Club receives adequate funding from Sierra Club at the national level. While we do receive a small portion of your annual membership dues (\$5/ member) and other revenue sharing from the national Sierra Club, it isn't nearly enough to fund even a bare-bones budget—providing for a Chapter Director/Lobbyist, a small office in Columbia and an Office Coordinator. This is why we count on YOU to support our work in Missouri.

Invest in Missouri's Future

May 30, 2006

	2004	2005	2006 (Goal)	2006 (Actual)
March Member Appeal + other donations	\$20,385	\$29,296	\$29,000	\$13,063
Priority Campaigns Clean Air & Energy		\$14,823	\$20,000	\$4,365
Major Donors (operations)		\$5,950	\$32,000	\$12,000
Total	\$20,385	\$50,069	\$81,000	\$29,428
Number of donors	425	460	506	218

The Burden of Decisions



by Alan Journet, Conservation Chair,
Trail of Tears Group

Every decision we make is fraught with the possibility of error. When we take the car for service because the engine warning light is on thinking the warning light indicates danger rather than thinking it is just a gauge malfunction, we could be wrong. If we conclude there is no danger and continue driving, we could also be wrong. Such mistakes have been codified in Decision Theory. If we take the car in when we really did not need to, we have made a Type I Error. On the other hand, if we keep driving when we should have heeded the warning, we have made a Type II Error. Every time we make a decision, the possibility of error looms before us.

The Judicial Burden:

We are all familiar with the legal principle that an individual charged by the state with a crime is presumed innocent until proven guilty. Again, a decision has to be made. But unlike the example above, here a persuasive case has to be made before a decision is reached. That the burden of persuasion should fall on the prosecution to convince a judge or jury that the accused is guilty beyond a reasonable doubt seems entirely consistent with our individual freedoms, liberties, and societal mores. Most of us agree that innocent individuals should not be convicted of crimes. Maybe we feel this because we would like such a requirement to be imposed on the state if we were charged with a crime we did not commit. Maybe we just do not think the state should risk imposing sentences (the death sentence for example) on innocent citizens.

As a result of these reasonable concerns, we generally agree that the burden of proof should fall on the prosecution to make the case for conviction rather than falling on the defense to make the case for acquittal. However, since both juries and judges are human, we must acknowledge again that when decisions are finally rendered mistakes can be made. Convicting an innocent person is a Type I Error while acquitting a guilty person is a Type II error.

By placing the burden of proof on the prosecution the judicial system strives to avoid making the Type I Error of convicting an innocent person. In so doing it favors the Type II Error of allowing a guilty person freedom. Unfortunately, as the likelihood of making one error decreases, the likelihood of making the other inevitably increases. Every time we make decisions we are forced to choose between these errors; we cannot simply check in our chips and get out of the game.

The Scientific Burden:

In science, the burden of proof follows that of the legal system. In this discipline, we collect and analyze data to test hypotheses. The null hypothesis is the judgment of no pattern, regularity or rela-

tionship, while the alternative hypothesis is that a pattern, regularity or relationship exists. When we are evaluating, for example, the relationship between nicotine and cancer, or the occurrence of global climate change we establish a null hypothesis for data analysis that would state either no relationship between nicotine and cancer or no pattern of climate change. Against this, we would then establish the alternative hypothesis that there is a nicotine-cancer relationship or that there is global warming. In science we desperately wish to avoid making the Type I Error of stating there is a connection between nicotine and cancer, or that there is evidence of global warming, when such does not exist. Scientists are desperately concerned that their credibility will be lost if they incorrectly conclude patterns, regularities and relationships exist when they do not. As a result, they will only reject the null hypothesis if the chance that the null hypothesis is correct is less than 5 percent.

As a consequence, before the scientific community suggests patterns, regularities or relationships exist, there is a greater than 95 percent probability that they do exist. Sometimes this requirement is even more stringent, being set at the 1 percent or 0.1 percent and 99 percent or 99.9 percent level respectively. Again, the consequence of reducing the probability of making the Type I Error of concluding patterns, regularities or relationships exist (when they do not) is that we increase the probability of making the Type II Error of concluding no pattern, regularity or relationship exists (when such actually exists). Whenever we make decisions, in life, the courts, or science, we cannot get out of the game.

Should The Burden of Proof Always Be The Same?

The question then arises as to whether all human decisions should follow the judicial and scientific principle of favoring a Type II Error over a Type I Error. Let us consider medical health questions for a moment. Suppose that a Physician has suggested that you may be suffering from a serious disease—and thus proposes a painful and costly treatment that has a good probability of curing the condition if it exists. You now have a choice: you could reject the medical advice and the treatment and risk assuming you are not ill when actually you are (i.e. make the Type II error of accepting the false null hypothesis that you are ok and have no medical condition when you actually do). Alternatively, you could accept the medical advice and the treatment and thus infer you are indeed ill and could benefit from treatment when actually you are quite well (i.e. make the Type I error of rejecting the true null hypothesis thereby accepting treatment when actually you do not need it). Given such a choice, and after seeking a second, third, and maybe specialist opinion, you are likely to conclude that it is better to make a Type I Error than a Type II Error: it is probably better to accept treatment (unless the treatment itself is hazardous) even when you actually may not need it than risk rejecting treatment when you actually do need it. This

approach is consistent with the view that 'it's better to be safe than sorry.' Those familiar with the Precautionary Principle (which states that in the absence of certainty, it is better to be prudent and take the course of action that will lead to reducing risk or hazard, than follow the course that increases the risk or hazard) will note that the decision to favor a Type I over Type II error is entirely consistent with that principle.

In this case we have not placed the burden of proof on the prosecution (the Physician) to demonstrate beyond any doubt that we are sick. Rather we are likely to accept the expert's professional judgment, acknowledge the potential cost of inaction in relation to the potential benefits of action and submit to treatment even though it may be uncomfortable or expensive.

Deciding where the Burden of Proof should lie in decision-making has significant implications for the outcome of those decisions. Who should be assigned the burden of proof depends upon the nature of the issues and our philosophical and ethical approach to them, specifically our weighing the relative costs of Type I and Type II errors.

Burden of Proof and Business

When we adopt the current legal principle of 'innocent until proven guilty' in evaluating industrial activities or development proposals that have potential environmental costs, the consequence is a tremendous advantage to industry and developers. This is because the burden of proof falls upon opponents of industry or development to demonstrate that the environmental or health costs outweigh the benefits before an activity can be halted. By adopting the philosophical position that we would rather assume an activity is harmless and allow it to go forward when it actually is harmful (Type I Error) than halt an activity because of potential harm when it actually is benign (Type II Error), we promote potentially hazardous activities, inadvertent though this consequence may be.

An alternative to this approach is to adopt the Precautionary Principle. In this case, the burden of proof is switched 180 degrees and falls upon project developers to demonstrate the safety of their project before permits are granted.

Burden of Proof and Health Issues:

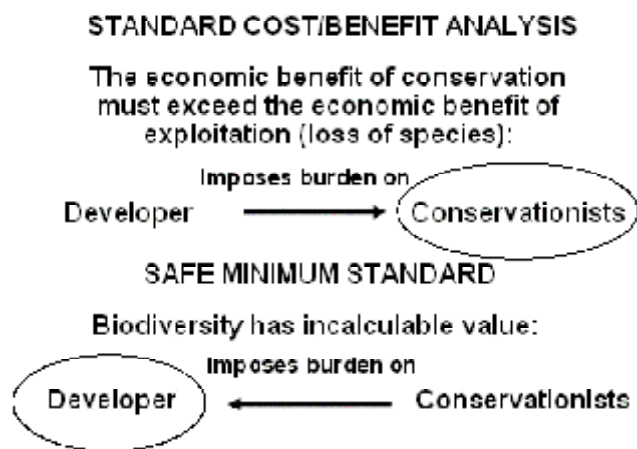
Unfortunately, as with the environmental example above, when standard cost-benefit analysis is applied to health, decisions, it usually favors short-term economic gain and the risky choice rather than the more conservative or prudent choice promoting health. When industries propose releasing toxic chemicals into our air and water the burden of proof falls upon health agencies to demonstrate the human health costs of potential pollution. It seems that we would rather make the Type II Error of assuming safety when there is danger than make the Type I error of suspecting hazard when none exists. In such analyses, each human sickness and life is necessarily assigned a value. This value falls generally in the \$1 million to \$10 million range per life, though it focuses in the \$2—\$3 million area. Of course, this value may fall well below what

continued on page 7.... Burden of Decisions

Burden of Decisions....continued from page 6
 many of us think human lives are worth, especially when it is our own life. When the probability that a toxin may cause death or sickness is calculated to be very small for each exposed individual, even though statistically sickness and death at a low frequency may be inevitable, the overall cost-benefit calculations tend to favor pollution rather than protection of human health.

On the other hand, if we were to adopt the view either that industries should demonstrate they pose no threat and meet a stringent safe minimum standard before being permitted to conduct business, with the burden of proof falling upon them to demonstrate their activities are safe, the balance would favor Type I Errors and a healthy environment rather than Type II Errors and a polluted environment (see Figure 1)

Figure 1. Cost-benefit Analysis and the Burden of Proof



Burden of Proof and Conservation

When the question concerns protecting our natural resources and biodiversity, deciding where the burden of proof should be assigned becomes critical. One of the essential problems that conservationists have is in demonstrating the value of conserving species since biodiversity is generally valued only in terms of its anthropocentric or utilitarian value, i.e. its direct economic or recreational value to humans. In conventional cost-benefit analyses, the economic benefits of projects are weighed against the economic costs or potential costs of damage to other species. The burden of

proof thus falls upon the conservationist to demonstrate the costs of loss of species. Regrettably, for many species this is a very difficult task indeed.

There are, however, two alternative views that shift the burden of proof:

- i) One approach is to consider the value of the life support system upon which we depend and estimate the value of each of its component species. While this is a difficult task, one measure is to consider the cost of the Biosphere II 'experiment' conducted in Arizona from 1987–1989. In that adventure, a closed supposedly self-sustaining microcosm was established to support eight intrepid human biosphere inhabitants for two years. Interestingly it failed because the system was not self-sustaining; the residents had to be supported by input from the outside. This adventure was called Biosphere II to distinguish it from the rest of the planet which supports us (Biosphere I). The project cost for construction and maintenance was \$200 million for eight individuals over two years. Thus, the cost per person per year was \$12.5 million. Now, if we extrapolate this to the (conservative estimate of) six billion humans on the planet, we find the planetary ecosystem to be valued at $\$7.5 \times 10^{15}$ (in 1987 currency).

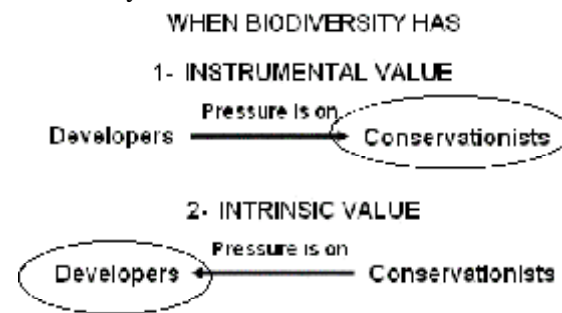
Now, we do not know exactly how many species there are on the planet, but if we take the largest estimate of 10 million, we can compute the average value to our ecosystem of each species as \$750 thousand per annum. Now, it is clear that some species are more important than others, but the problem is that we do not understand our planetary ecosystem well enough to know which is which. As population biologist Paul Ehrlich once noted, we sit on the planet as a passenger might sit on an aircraft watching mechanics taking rivets out of the wings and fuselage. We know there is much redundancy in the system, but we do not know exactly which rivet will be removed and cause the collapse of the entire system. Prudence therefore, demands that we value all species equally, and we value them very highly. Some might argue that this would be the conservative approach, and might further note that the term conservation is derived from the same root as the root of conservation.

- ii) According the second approach, rather than considering only the anthropocentric value of

other species, we might adopt a biocentric world view. According to this world view, we extend our sense of the intrinsic value of life beyond the limits of ourselves, our family, our community, our nation and even our species, to encompass all other life forms on the planet. If we do this, then all species have intrinsic value.

The interesting consequence of both these approaches is that the value of biodiversity is seen as vast; it may not be infinite, but it is certainly incalculably large. With such a perspective, the cost-benefit analyses discussed above change dramatically as the value of conserving species reaches a level somewhere between vast and infinite. Similarly, while each specific industrial activity or development project might not in itself pose the threat of species extinction, the potential contribution that each might have towards this result must be assessed (see Figure 2).

Figure 2 Burden of Proof and the Value of Biodiversity



Conclusion:

While it is inevitable that every decision we make confronts us with Type I and Type II errors, and many decisions we make confront us with health and survival risks, when it comes to making political decisions regarding public health, environmental protection, or conservation, we should also be aware that where the burden of proof lies will influence the frequency at which Type I and Type II errors are made. Consequently, where we as a society decide the burden of proof should fall will influence the extent to which we and our environment are protected from the threatening activities of industries, developers, and those who would exploit our natural resource for short term benefits. 🙏

“Fifty Degrees Below”



Book Review by Jim Turner

There’s a worrying reduced volume of flow in the Gulf Stream—truth or fiction?

Apparently that hasn’t been detected yet, but a study by British scientists

in *Nature* has warned that “The system of circulating water currents that moderates northern Europe’s weather is 30 percent slower than it was nearly 50 years ago.”¹ So it’s questionable how much we can count on the Gulf Stream in the future—a problem for the next generation of Americans? Kim Stanley Robinson has built a novel on an emerging truth: the climate can turn on a dime, and it’s a problem for ourselves! As Liz Else wrote in the *New Scientist*, “In the case of the Younger Dryas event about 10,000 years ago, the ice age lasted about 3000 years but took as few as three to set in.”²

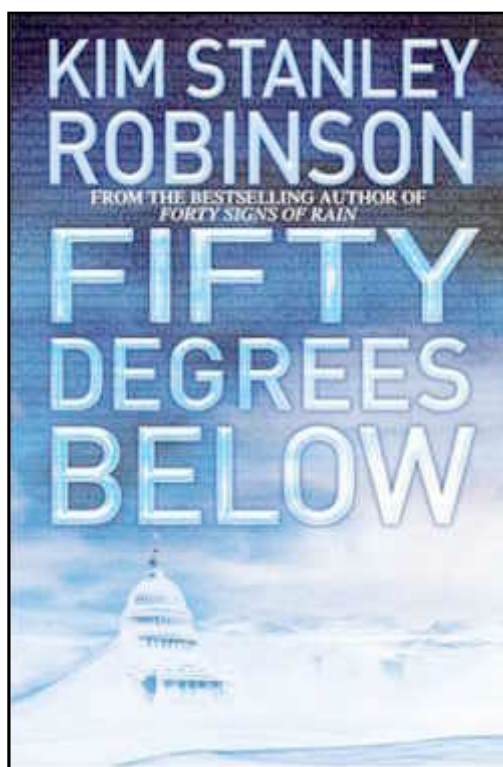
The novel “*Fifty Degrees Below*” begins with a terribly destructive winter that quickly overwhelms Washington D.C. along with most of North America and Europe, once the Gulf Stream falters. The novel gives much attention to the ecological impacts, but its main focus is on government and the National Science Foundation (NSF). It’s not implausible that even after such a heavy climate shift, government would still be obstructed by entrenched economic interests. Robinson himself has won an NSF grant and has served on a selection panel for its writers program, so he’s well placed for imagining how progressives at NSF would confront this crisis. His treatment of science is reliable because he calls upon scientists to edit pages of his rough drafts that relate to their specialties.

This novel is fact filled, but it’s not slow going for those aware of global warming. It can flesh out our anticipations of what’s to come if present trends continue. The story has a broad reach—it includes characters from some other nations, giving a vivid view of how rising ocean levels may affect

Fifty Degrees Below, can supply an invigorating sense that the worm has turned, and the good guys are on the way to winning!

their homelands. Robinson has put a lot of effort into creating characters quirky enough to engage our attention, but I’d say that he deserves no more than a B for characterization and dialogue. The human interaction in this novel was not gripping enough to recur in my mind.³ Still, this is an optimum novel. Robinson needed to get it out the door soon enough to timely address our global warming debate.

Who can enjoy reading “*Fifty Degrees Below*”? Book reviewers have recommended it for academic



libraries, public libraries, and school libraries. You should read it so that you can discuss it and recommend it to neighbors and friends who know about global warming but are not yet impressed enough to change their habits. Give a copy to a student to read during summer break—nerdy is “in” this year, and the level of scientific information in this book deserves anyone’s respect.

One more reason to read Robinson’s book: he’s optimistic! “*Fifty Degrees Below*” is volume two in a three-novel series. Here’s what Robinson says about volume three which he’s still working on:

I’m a utopian writer and I like happy endings. I think that is what science fiction is for, ultimately. So I’m going to postulate a US president who acts like a modern Franklin D. Roosevelt with his “bold and persistent experimentation” approach to solving big problems. And it will work—as it would in the real world.⁴

I have not read “*Forty Signs of Rain*”—the first volume, but I found “*Fifty Degrees Below*” to be a good read anyway. (Here’s hoping that volume three can be titled “*Sixty Ways to Thwart the Profiteers!*”) But even this present novel, “*Fifty Degrees Below*,” can supply an invigorating sense that the worm has turned, and the good guys are on the way to winning! To immerse yourself in the triumphs in volume three to come, you need to invest your attention in the suspenseful days of “*Fifty Degrees Below*.”

¹ Juliet Eilperin, “Deep-Water Currents Slowing, Report Says” *Washington Post*, Dec. 1, 2005, p. A16.

² Liz Else, “Down to the last chilling detail”, *New Scientist*, October 8, 2005, p. 56.

³ (In contrast, my A grade would go to Patrick O’Brian for his Stephen Maturin, the naturalist/physician/spy character in his novels of the Royal Navy in the Napoleonic Wars.)

⁴ Else, at p. 56.

Missouri Sierra Club Blocks Anti-Environmental Bills



by Roy C. Hengerson

The 2006 Session of the Missouri General Assembly ended on May 12 in a flurry of bills being enacted in the last hour or so. For much of the Session controversy reigned, between Democrats

and Republicans and even between Republicans, who are the majority party in both state houses. The bitterest divisions did not center on the environment, however the controversies affected the pace of legislation and also the outcome in many cases

Still, the environment did not fare too badly this year. Although we were able to pass only a small part of our legislative agenda, we were able to block almost all of the anti-environmental bills and any language having a deleterious impact on

the environment.

They probably passed more bills in the House in the last hour of the Session than in the entire last week. The fight over election administrative procedures took hours of debate the last day. Then with about an hour to go (the Session must end at 6 p.m. on the second Friday of May) the Republican leadership in the House turned up the heat by ramming bill after bill that still had a chance of passage through, by using a parliamentary tactic called “moving the previous question”, which cut off debate and made it impossible to amend any of the bills under consideration.

The Sierra Club continues to be a significant force in the State Capitol, working to protect our natural resources and our health.

I was sitting in the House gallery as the final minutes wound down. I realized that not one bill that we had opposed had passed to that point. Then with about ten minutes left, they brought up HB1149 from the House bills with Senate amendments calendar. Most of HB1149 is a perfectly fine bill dealing with water bonds and fees for the water pollution program and the drinking water program and other Missouri Department of Natural Resources (MDNR) matters. However, the Senate had added one sentence to the definition of “point source,” which we strongly opposed because it weakened MDNR’s regulatory authority. That sentence read: Point source does not include agricultural storm water discharges and return flows from irrigated agriculture. It meant that big agribusinesses would be exempt from having to apply for a discharge permit, even though they are clearly

continued on page 15..2006 Legislative Session

The Summer of Our Discontent



by Tom Kruzen

Now that we are beginning the summer swelter, several issues have persisted and some have even festered.

Doe Run is up to their old tricks again. The Peruvian government just granted Doe Run another three years to clean up. Government bends to the corporate will. That also means **three more generations of children having to live with lead**. Poisoning people in Herculaneum or in La Oroya, Peru is just **not** acceptable. Lead and other heavy metals that Doe Run processes in these places are toxic to people, period! Doe Run had promised to clean up in 1997 when it purchased the Peruvian smelter. Nine years later, the people of La Oroya enjoy almost a total lead-poisoned population and an ambient lead level 25 times higher than allowed in the US.

I'm aware of the ambivalence of the Peruvians



Herculaneum smelter belching out fugitive emissions from a leaky machine.



A high school student on the smelter waste pile (slag). All residents of smelter towns suffer from contaminants and diseases that affect the heart, lungs, brain, kidneys and other human systems. Smelters and people are bad mixes whether in Kellogg, Idaho; Glover and Herculaneum, Missouri; or LaOroya, Peru. A Peruvian news crew is currently doing a piece on Herculaneum and LaOroya, where Doe Run operate lead smelters. Both places are contaminated and the people have suffered from all sorts of heavy metal-related diseases. After all the brouhaha over the 300,000 ppm lead on the streets of Herculaneum from 2001–2004, a 160 home buyout and millions spent on clean-up, the smelter has recently once again failed to be in compliance with the Clean Air Act.

All photos by Tom Kruzen

because, Doe Run does bring jobs and income to a poor country. The same arguments are made in Missouri. The real illness, however, is an affliction that infests much of corporate America: Greed and putting profits before people. It will be our downfall. No human being should live in such places as Herculaneum or La Oroya.

History has shown us that smelters and people are bad mixes. Glover, Missouri is a ghost town today because of lead smelting. Other smelter towns such as Kellogg, Idaho, East Helena, Montana and Port Piri, Australia have all suffered from lead smelting. Doe Run would gain in public relations and the people would all benefit, if they provided housing miles from these fire-breathing beasts of poison and build cleaner machines from the start instead of rube-golddberging these dinosaurs from another age. Doe Run once again is allowed to play and not pay.

Next and smelling worse each day is the bulldozing of the South Prong of the Jacks Fork River, which occurred in 2004 at a little known place in Texas County known as Dixon Crossing. The pierce Township (of Texas County) Road Crew hired a bulldozer to redirect (change the course) the main channel of river from south of an island to the north. Two large and straight channels were cut across the island and tons of gravel piled on both sides at sharp angles, killing much of the stabilizing bank side vegetation. Approximately 600 yards of riverbed were dozed and another 600 yards of nearby tributary Little Pine Creek. No permits were requested by the township to change the course of the river.

After much phone-screaming from this Sierran, the Missouri Department of Natural Resources, the Missouri Department of Conservation, the National Park Service, the Army Corps of Engineers and the Region VII EPA all showed up, some the next day and some within a week. They photographed, measured and took samples and discussed amongst themselves who would take the county to task for violating the Clean Water Act and damaging a National Scenic River. It was decided that the EPA would take the "lead". Months went by. I periodically called Region VII and tried to pry some updates from them. A year went by. Nothing. Not an iota of enforcement or sanction. We are now coming upon the two-year anniversary of this travesty. I called the EPA last week and one of their lawyers told me they were working on it. When I mentioned that they had had almost two years to work on it, a strange silence befell lawyer, Howard Bunch. Bunch told me, "that EPA has already begun efforts to **negotiate** a resolution of these matters with the parties responsible for the in stream activities that you have described." **Negotiate!** What's to negotiate? They broke the law. Force them to cease and desist such behavior and force them to pay for a restoration. I reminded Mr. Bunch that this river enjoyed some sort of **FEDERAL PROTECTION**. He reminded me that he could comment no further as this was an "ongoing enforcement action". The next time you get a speeding ticket, try to "negotiate"



*These are pictures of the the South Prong of the Jacks Fork National Scenic River. This beautiful scene was created by Pierce Township of Texas County bulldozers in 2004. Tom Kruzen and others called all state and federal agencies about this 600 yard alteration and as of yet (2006) no agency has acted to protect this river. The official message seems to be : "Come one, come all, dig up the river and its tributaries!" The dozing work changed the main channel of the river by cutting two straight channels across an island and by piling huge banks of gravel on each bank, thus destabilizing the vegetated gravel bars. They also reamed out about 600 yard of nearby Little Pine Creek. They did this without asking permission of the landowner, who was upset they did it at all. So much for private property rights! So much for protected rivers. When you come to the Jacks Fork to play, don't bring you toy shovels and sand buckets. Bring a bulldozer and have some **real** fun!*

All pics courtesy of Tom Kruzen

your penalty! So please call Region VII at 800-223-0425 and ask for Howard Bunch. Ask him to enforce the federal law.

Last but not nearly least, the good citizens of Springfield ignored the Sierra Club's arguments concerning City Utilities proposed \$700 million "clean coal" power plant! The vote was 59 percent in favor, 41 percent against. A vote two years ago rejected the idea. Sierrans in Springfield continued to educate the people about alternative clean and renewable ways to generate electricity. They were countered with a well-financed CU campaign to promote coal. CU commissioned a study, which projected dubious costs if a coal plant weren't constructed. CU also got the local news media on board early and the Club found it difficult to get printed or get its message out on TV or in the paper. We did counter that an aggressive conservation campaign and new sources of wind-generated electricity would offset the need for a new plant. That message apparently succumbed to well-financed falsehoods.

Meanwhile in West Plains, closer to home, the city council is looking to produce "cheap" electricity by burning tires, wood and garbage from Fort Leonard Wood. Many in the area met recently to oppose this cockamamie idea. Such a waste to energy incinerator would produce air-borne dioxin, furans, and heavy metals such as lead and mercury. The good citizens in opposition to this wrong-

continued on page 12.... Summer of Discontent



Cool Things to Do to Stop Global Warming



by Craig Volland, Chair of the Air Quality Committee of the Kansas Chapter

Global Warming is real

The urgency of the global warming problem can no longer be denied. It could be a matter of life and death for our children and grandchildren. We can do something about it before it's too late. The quickest and least costly way to address the problem is to reduce our use of energy. This article attacks the most expensive and environmentally damaging use of elec-



tricity.

While it would seem to defy logic, electric utility companies in Missouri and Kansas and across the United States are embarked on a program to build more than a hundred new coal-fired power plants that spew carbon dioxide gas that causes global warming. Their excuse is the need to meet growing summer peak loads, and they assume that Americans will continue to demand ever more power. We can prove them wrong, and hardly break out in a sweat!

The Main Culprit

The most expensive and environmentally damaging use of electricity by the general public is, surprise... Air Conditioning in the Summer. Air conditioning is very costly because peak demand is caused

by home and office cooling needs during summer heat waves. Electric utility companies must install equipment that can be ramped up quickly to meet surges during peak load times.

As a rule this need is served by combustion turbines fueled with expensive natural gas. Even if natural gas were cheap, the cost would still be high because the equipment sits idle all but a few weeks of the year. The electric utility industry wants to substitute burning coal for burning natural gas. We'd like to substitute energy efficiency, wind power and common sense.

But how can we get people to use less air conditioning? After all, we live in Sauna City! Well here's the secret.... don't make your air conditioner work so hard, and just dare to be different.

continued on page 13..Cool Things To Do

The electric utility industry wants to substitute burning coal for burning natural gas. We'd like to substitute energy efficiency, wind power and common sense.

Waste heat makes your air conditioner work harder.

Main sources in your house:

- ⚡ **incandescent lights**
- ⚡ **refrigerator and freezer**
- ⚡ **heat generating devices**
- ⚡ **gas stoves**
- ⚡ **electronics**

Sierra Club Confronts Peabody on Several Levels

by John Blair and Wallace McMullen

In early May, the Sierra Club, Valley Watch of Indiana and the American Bottom Conservancy joined forces in St. Louis to challenge Peabody Energy at the corporation's annual shareholder meeting at the Ritz-Carlton Hotel. Representatives from Missouri, Illinois, Kentucky, Indiana and West Virginia gathered to demand accountability from the world's largest coal company, particularly concerning the giant Prairie State coal plant that Peabody wants to build in southern Illinois.

When the [Peabody's] CEO was questioned about the impact public distress about global warming might have on the company's profits, he characterized that concern as obstructionism.

Our multi-part strategy included a public forum of "stakeholders" (everybody who is affected by Peabody's corporate practices, from pollution to property rights to workers' rights), a rally alongside Mineworkers and other labor representatives, and questioning Peabody's Board of Directors and CEO

inside the corporate shareholder meeting itself, where some formally presented a shareholder resolution.

The night before the corporate shareholder meeting, the groups presented a "Stakeholders' Report" to regional environmentalists and the St. Louis media. Illinois farm families who live near the Prairie State site, the wife of an injured West Virginia coal miner, and advocates from Indiana, Kentucky and Missouri all presented compelling testimony about how Peabody is a bad corporate neighbor:

- Kathy Andria of the American Bottom Conservancy, based in East St. Louis, coordinated the Stakeholders' event. She, along with Verena Owen, clean air committee chair for the Illinois Sierra Club Chapter, described the numerous air, water, combustion waste and other permit battles that have taken place over the past few years concerning the Prairie State proposal.
- Mike and Sharon Sabo, who have a farm just a couple of miles from the proposed Prairie State site near Marissa, Illinois, described their worries for the health of their four children from pollution and impacts on their way of life.
- John Blair of Valley Watch spoke about the dubious financial picture that the various municipal utilities may face if they go through with their

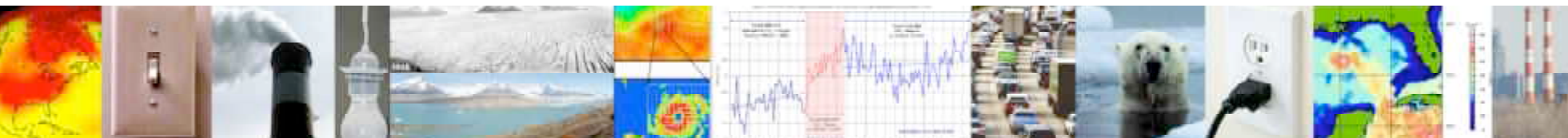


Photo ©2006 John Blair

purchase of portions of the power plant. Peabody has persuaded municipal utilities in several states, including Columbia Missouri, to invest in 47 percent of the Prairie State project.

- Patty Sebok, the wife of a coal miner who was injured on the job in West Virginia, fought tears describing how Peabody has refused to pay her husband's medical bills and workers' compensation, leaving him in pain and unable to work.
- Joan Lindop, a Sierra Club leader from Kentucky, described their long, drawn-out battle to prevent the building Peabody's Thoroughbred coal plant. The 1500 Megawatt proposal is a sister project of the Prairie State proposal in Illinois.

continued on page 13..Peabody



Stopping the Coal Rush in Missouri

Setting the stage for a Clean Energy Future

by Melissa Blakley



At a time of rapidly changing energy policy, United States power companies are rushing to build up to 120 coal-fired power plants partly because they want to get the permitting process started before planned and potential regulations kick in for mercury and greenhouse gases. These facilities, if built, will lock their regions into dirty energy for the lifetime of a coal plant or 30–50 years. Once built, they will effectively shut out the development of cheaper and cleaner renewable energy alternatives. And, since there is currently no way to retrofit coal-burning power plants to capture carbon dioxide (CO₂), each plant will add more global warming gasses to our atmosphere.

Here in Missouri four coal-burning power plants are being planned, with two of those well along in their permitting process—City Utilities in Springfield and Kansas City Power & Light

“The science behind global warming is conclusive and well-documented.”
(see “The Hard Facts of Global Warming” at www.sierraclub.org/globalwarming/overview/)

in Kansas City. The Missouri Sierra Club is actively opposing the Springfield and Kansas City power plants because we believe there are cheaper and safer solutions for meeting the future energy demands of these regions. Sierra Club is also engaged in the campaign to stop Peabody from building a huge coal facility in Illinois just outside of St. Louis. And we are monitoring the plans of several other energy companies operating in Missouri.

Missouri Sierra Club’s Clean Air & Energy Campaign is engaged in energy issues throughout the state to influence and change energy

continued on page 12... Coal Rush

No MO Coal

by Henry Robertson, Chapter ExCom



The United States gets 52 percent of its electricity from coal; here in Missouri it’s 83 percent. There’s been a lull in building new coal-fired power plants for the last couple of decades, but suddenly a

whole new generation of the old smokers is in the works—over 130 proposed in the United States—just when we’re trying to break in clean, renewable technologies.

And that isn’t the half of it. China already burns twice as much coal as the United States and is planning to add 550 coal-fired generating stations by 2030. If there’s any truth at all to the predictions of global warming theory, we can’t survive this onslaught.

In Missouri there are three coal plants on the way and a fourth possibly to be announced later. The Ozark Chapter has taken on the role of opposing them. The utilities have shown mixed reactions to us, courteous but sometimes hostile, and increasing recognition that we are a player in this game.

Utility lingo speaks of supply side and demand side. Supply is generation, whether with coal, nuclear or renewables. The utilities know coal; they consider wind, the leading renewable technology in the Midwest, costly and unreliable.

Demand side management (DSM) refers to vol-

untary incentive programs with which utilities can induce their customers to use less electricity, or use it at different times so that peak demand is lower. Utilities don’t like subsidizing high-efficiency lighting and appliances, energy audits and building retrofits, programmable thermostats and the like. They can make money at DSM, but like any business they want to sell more of their product—electricity—not less. Legislation will probably be necessary to change their incentives before utilities will do enough DSM to stem the growth in demand and avoid the need to build expensive new power plants.

This year the utilities are seeking a wave of rate increases even before they start building new generating plants that can cost a billion dollars apiece. Ratepayers may soon start howling.

Here’s a look at how we’re dealing with the new Coal Rush in Missouri.

Springfield

In a June 6th election City Utilities’ second attempt to get local voters to approve a \$650,000,000 bond issue to finance a 275 megawatt (MW) unit wins with 59 percent to 41 percent. Sierra Club activists have led the opposition all the way.

KCPL

Kansas City Power & Light’s Iatan 2 plant north of Kansas City is the biggest of the new wave at 850

Ozark Renewable Energy and Sustainable Living Expo

The Expo will include educational workshops conducted by experts in the field and hands-on exhibits of renewable energy equipment. The Expo site is a beautiful hilltop setting near Hermann, Missouri, an hour and a half west of St. Louis.

For more information, visit www.ozarkre.org.



Co-sponsored by
Missouri
Sierra Club

Missouri Dept of
Natural Resources

Wind Capital Group

Missouri Coalition for
the Environment

Missouri Valley

Renewable Energy

The Healthy Planet
Magazine

List of Workshops:

- Solar Domestic Hot Water** by David Sawchek.
- Wind Energy In Missouri** by Rick Anderson Energy Specialist at Mo. Dept of Natural Resources.
- Photovoltaic 101** by Jennifer Elam Technical Designer from Durango, Co.
- Green Building Leed Certification and Eco Village Development** by Nick Peckham AIA, Peckham and Wright from Columbia Mo.
- Solar Water pumping for Agriculture** by Henry Rentz, Missouri Valley Renewable Energy.
- Solar Space Heating and Radiant Floor Heating with Flat Plate Collectors** by David Sawchek.
- Small Wind Systems in Missouri** by Travis Creswell, Ozark Energy Services.

Saturday, July 29th

9 a.m. to 5 p.m. vendors open

7 p.m. Entertainment follows until 11pm

Sunday, July 30th

9 a.m. to 3 p.m. vendors open

MW. Construction could start before the end of the year.

But first they had to get an air pollution permit from the Department of Natural Resources assuring that they will comply with the federal Clean Air Act. The Chapter, represented by the Washington University Interdisciplinary Environmental Law Clinic, is now challenging this before an administrative hearing officer, also alleging that KCPL illegally modified the old Iatan 1 unit. It’s likely to be a long, drawn-out proceeding extending at least into autumn.

The Chapter is also appealing the Public Service Commission (PSC) order that authorized KCPL to

continued on page 15...No MO Coal

Coal Rush.....continued from page 11

policy in order to achieve wide-ranging, long-term results. What we accomplish here could impact permit requirements, public policy and overall public expectations for future energy projects in Missouri and the entire Midwest:

Missouri's Ozark Chapter Clean Air & Energy Campaign

- ❶ Promote clean energy options in Missouri—primarily efficiency and wind—as a cleaner, cheaper and safer solution to each region's long-term energy needs.
- ❷ Prevent the construction of any new coal-burning power plant in Missouri.
- ❸ Reduce emissions from existing coal-burning power plants.
- ❹ Promote a balanced energy portfolio for all utilities in Missouri.

The coal industry is planning for the

Once built, they [coal-burning power plants] will effectively shut out the development of cheaper and cleaner renewable energy alternatives.

past

Until now, the coal and oil industries have successfully discouraged investments in innovation and new energy sources. But Americans know we won't build a 21st century energy system on 19th century fuel sources. The plans of City Utilities in Springfield and Kansas City Power & Light in Kansas City will lock these regions and ratepayers into a 30–50 year investments with obsolete technology.

The price of burning coal is increasing

Beyond the enormous external health and environmental costs attributed to mining, transporting and burning coal, future cost increases are expect-

ed that will be passed directly on to ratepayers. Spot prices for Wyoming Powder River Basin coal have tripled from \$7 to \$22 per ton over the last year and are expected to continue to rise with higher demand and strains on the transportation system. And the future cost of regulating global warming gasses and mercury emissions will be passed on to rate-payers.

A Better Energy Solution for Missouri

Hundreds of communities around the U.S. are decreasing their over-dependence on coal and building a clean energy future through increased efficiency, new technology and clean energy sources. Missouri can do the same with honest, balanced energy plans that don't build expensive excess capacity—We can all benefit from plans that provide for clean, safe and reliable energy solutions.

Support Missouri Sierra Club's Clean Air & Energy Campaign—Help Stop the Coal Rush in Missouri and do something about Global Warming!

Together, we can Stop the Coal Rush and do something about GLOBAL WARMING!

By financially supporting Missouri Sierra Club's Clean Air & Energy Campaign you are helping to stop more coal-burning power plants (or clean up existing plants) so that Missouri can choose a clean energy future.

Missouri's Ozark Chapter must raise a minimum of \$20,000 (see fundraising update) in 2006 for continuing litigation regarding the first two proposed coal-burning power plants in Missouri. Like other Sierra Club initiatives, the CA&EC is working to influence and change public policy to achieve wide-ranging, long-term results. We believe that this campaign could change energy policy throughout Missouri and the entire Midwest.

To financially support Missouri's **Clean Air & Energy Campaign**, send your contribution to Missouri's Ozark Chapter Sierra Club, 1007 N. College, Ste 3, Columbia, MO 65201.*

* Please make your contribution payable to "**Sierra Club Foundation, Ozark Chapter Clean Air & Energy Campaign.**" Contributions and gifts to The Sierra Club Foundation are **tax-deductible** as charitable contributions as they support grants for public education, research and public interest litigation necessary to further the Sierra Club's conservation goals.

On-line donations: <http://missouri.sierraclub.org/>. Only **non-tax deductible** donations are available on-line.

For questions contact Melissa Blakley, Chapter Development Associate, Melissa.blakley@sierraclub.org, (573) 999-7388.

Please Consider Joining the Chapter Executive Committee in 2007

Missouri's Ozark Chapter is seeking persons to run for the 2007 Executive Committee (Excom) for a two year term. The Excom manages the Chapter finances and budget; takes care of Chapter business having to do with office, staff, and correspondence; endorses political candidates after recommendations from the Chapter Political Committee; ensures that the Chapter committees have leadership; and sets the tone of the Sierra Club in Missouri. The Excom meets once every two months in cities across Missouri. Excom members strongly support the Sierra Club mission to "Explore, enjoy, and protect the planet."

Contact the Nominating Committee to let them know your interest in serving on the 2007 Excom by July 31. Contact: Chair, Keet Kopecky: (816) 966-9544 or kkopecky@kc.rr.com.

Missouri's Ozark Chapter Executive Committee Election Calendar

July 31 – Last date for Nominating Committee to accept submissions of Excom candidates.

August 13 – Nominating Committee informs standing Chapter Excom of candidate list.

August 27 – Petition candidate deadline for submitting their candidacy to Excom.

October 15 – Ozark Chapter members receive Excom election ballots in the mail.

November 30 – Ballots due (closing date of Excom election).

December 7 – Counting of ballots and reporting of results.

Oppose Waste Heat!

Many uses of electricity in homes and businesses give off waste heat that forces your air conditioner to work longer and harder while using extremely costly power. The five main sources of waste heat in your house are:

- a. incandescent lights.** Perhaps the most energy inefficient device ever invented, these ordinary light bulbs are a major drain on the grid. They work on a principle of creating so much resistance to the flow of electricity that the internal element becomes white hot. With a surface temperature up to 300 degrees F, these bulbs give off heat into your house. In contrast, fluorescent lights use 65 to 75 percent less energy and give off little heat.
- b. your refrigerator and freezer.** Compressors are also a relatively inefficient device. Waste heat is given off when a small fan blows across cooling coils underneath your fridge.
- c. heat generating devices.** Like incandescent bulbs, they work by creating resistance to the flow of electricity. Examples are electric stoves, ovens, counter top ovens and heating plates, coffee makers, toasters and electric clothes dryers.
- d. gas stoves.** Gas stoves put most of the energy into your rooms not your food.
- e. electronics.** All electronic devices like computers, monitors and TVs contain resistors and capacitors that give off heat. Many of these devices are unnecessarily left on while unused.

While it would seem to defy logic, electric utility companies in Missouri and Kansas and across the United States are embarked on a program to build more than a hundred new coal-fired power plants that spew carbon dioxide gas that causes global warming.

So the obvious solution to fighting global warming and being cool is to reduce waste heat. Here's how:

- Replace incandescent lights with fluorescent lights.** Fluorescent lights now come in all shapes and sizes at low cost. It pays to replace any incandescent light that operates more than a few minutes each day. The easiest way is to simply screw into your existing fixtures compact fluorescent lights (CFLs) available at any hardware or big box store. If you have recessed lighting fixtures of the open-end kind, you can now buy flood-type CFLs to fit,

or you can coat the insides of the fixture with aluminum paint to increase reflection from a less expensive, standard CFL.

Unplug that old refrigerator or freezer. Our grandchildren can't afford for us to use the old fridge to keep our beer cold. Throw out or use up old food so you can consolidate into one refrigerator. You can keep the old fridge for emergencies. (You would be surprised at how much you are paying per year in energy cost to cool beer and soda in that old secondary fridge.)

Wash your clothes in cold water.

Use your microwave to cook and heat food. It uses 1/3 the energy of electric ovens. Better yet, eat cool foods on hot days. Forget the toast.

Turn your electronics completely off when not in continual use. If you aren't planning to use your computer in the next hour or so, turn it completely off. That goes for your TV, too. Make sure your computer is on a power strip/surge protector which you can use to easily disconnect the system.

In early a.m. use your whole house fan to draw in outside air. Then shut the house up during the day. This helps during all but the hottest days and blows out waste heat. When the house is closed up, use ceiling fans to circulate the air.

Defy the Peak! Don't just run with the herd—be counter-cyclical! Peak summer electricity demand occurs between noon and 8 p.m. It's coolest from 6 to 7 a.m. in the morning. On hot days, do your chores, take your shower and run your appliances late in the evening or first thing in the morning. This way the appliances don't draw power and give off heat while air conditioning everywhere is going full blast and straining the grid. Cook meals to eat later.

Other tips: dry those highly water absorbing items like towels and jeans on a clothesline. Turn outdoor security lights off during the day. Cool only the rooms you need by closing cooling vents and doors of unused rooms.

Make Changes at Work. The next time you are freezing cold in your office while it's 95 degrees outside, talk to the boss about bumping up the thermostat to save money and about the benefits of being a company with a green reputation.

Longer Term Steps. OK, you've come this far and you haven't even broken a sweat. Your grandchildren can breath a little easier. But there's more you can do. Buy new, high efficiency home appliances, like a front-loading clothes washer. Add insulation. Install a whole house fan. Do an energy audit, and install a programmable thermostat.

Saving energy is like giving an inheritance to your children and grandchildren... now, while it'll do the most good... and they can't blow it on a Hummer or a boat.

For more info, consult:

www.energystar.gov (Guide to energy efficient

appliances & certification of compact fluorescents -CFLs)

www.eere.energy.gov/consumer/ (DOE Office of Energy Efficiency and Renewable Energy)

www.ase.org and www.powerisinyourhands.org (Comprehensive energy savings info)

Craig Volland is Chair of the Air Quality Committee of the Kansas Chapter, Sierra Club. The Kansas Chapter has developed a three-fold brochure entitled the No Sweat Guide to Stop Global Warming. If you would like free copies to distribute to friends and family email Craig at hartwood2@mindspring.com.



Peabody...continued from page 10

On Friday May 5, before the corporate shareholder meeting at the Ritz, citizens and environmental groups joined the UMWA and the AFL-CIO in a rally against Peabody and their policies against the environment and workers.

After the rally, several a handful of Sierra Club representatives attended the Peabody annual shareholder meeting. Although the group collectively held proxies for more than 100,000 shares, Peabody allowed just one person to represent individual stockholders.

The Sierra Club resolution pertaining to the company's abuse of clean water in Illinois and Arizona was defeated, but received 10 percent of the shareholder votes cast, a strong showing for a first-time effort. Sierra Club representatives questioned the Corporation's CEO about its policies affecting global warming, mercury emissions, and its cash-laden lobbying for weaker regulations during the meeting.

If Peabody builds and operates all the coal burning power plants they have proposed, they can be expected to emit over 80 million tons a year of CO₂, a greenhouse gas. When the CEO was questioned about the impact public distress about global warming might have on the company's profits, he characterized that concern as obstructionism.



... environmental groups joined the UMWA and the AFL-CIO in a rally against Peabody and their policies against the environment and workers.

The Sierra Club's New Interim Energy Policy



by Henry Robertson, Chapter Energy Chair

The reality of global warming is becoming more obvious by the day. Ice caps and glaciers are melting faster; now comes the horrifying news of rapid coral die-off in the Caribbean, caused in part by the same high ocean surface temperatures that fed Hurricane Katrina. Another bad hurricane season is forecast while inland we experience fierce thunderstorms and tornadoes.

Some of this is climate change and some of it is weather. Some changes seem benign, like the earlier blooming of flowers and trees, but may herald the disruption of ecosystems. The dinosaurs who insist that we cannot live without fossil fuels are reduced to putting positive spin on the undeniable truth. The Competitive Enterprise Institute runs TV ads with the slogan, "Carbon dioxide. They call it pollution. We call it life." Yes, CO₂ is life—if you're a plant.

Last September at the Summit in San Francisco the Sierra Club made a Clean Energy Future its top conservation priority. Now the national Club is putting the final touches on an energy policy framed by global warming.

The Club first circulated a survey to gauge members' preferences for energy technologies; there were 485 responses from leaders. Then came a flurry of drafts that only the most dedicated could keep up with.

I've compared Draft 7 (May 3) with the Final Draft and accompanying Statement by the Global Warming and Energy Committee (May 16) to get a sense of the change as well as continuity in the development of the clean energy policy. It won't satisfy everyone; it doesn't fully satisfy me.

Between May 3 and 16, the Club softened its position on nuclear fusion, allowing that it has some promise, and on "cleaner coal" technologies; these "may be necessary to promote a 'harm reduction' strategy for coal." This depends on successful development of carbon sequestration—storing CO₂ underground or under the ocean—an uncertain proposition at best.

The Interim Policy takes a pragmatic approach that may offend members with a more traditional or sensitive conservation ethic. On forest biomass, the Club "supports efforts to reduce small diame-

"Nothing threatens our planet's future, our security, or the health of our air, water, and wildlands more than the way we produce and consume energy." Sierra Club's "Solutions for a New Century" factsheet.

ter hazardous fuels around forested communities where the natural fire cycle has been suppressed." The Club does not oppose the continued exploitation of existing oil and natural gas wells, and sees liquefied natural gas as a possible transitional fuel despite its hazards. It encourages biofuels like ethanol and biodiesel produced without fossil fuel inputs; corn ethanol is to be avoided.

"Decisions to oppose specific facilities must be based on a documented finding of undue environmental harm." We must get energy while drastically cutting fossil fuel use. Would you rather see a wind farm or a coal-burning power plant?

The Club's first priority energy resource is efficiency: "Efficiency can reduce energy use by 30 percent to 75 percent or more in all energy sectors, at a cost half or less than equivalent supply; minimizing environmental effects and greenhouse gas emissions; and offering very large numbers of jobs in every community that will make use of existing skills."

The Policy also discusses the importance of conservation and the difference between efficiency and conservation. Conservation means using less of a resource; efficiency means doing more with a given amount of the resource. Unfortunately,

"Carbon dioxide. They call it pollution. We call it life."—Recent ad run by the Competitive Enterprise Institute

exponential economic growth could overwhelm the initial savings from efficiency.

If Americans tried to drive as much as they do now using only ethanol and biodiesel, we'd soon have to choose between driving and eating. By committing to renewable energy, we commit to living within our current solar budget. According to a calculation cited in Tim Flannery's *"The Weather Makers,"* in 1997 the world burned the equivalent of 422 years worth of prehistoric sunshine fossilized as coal, oil and natural gas. We no longer have that option.

The Club has made "efficiency" its top energy priority when that should really only be the first step. We should ask Americans to conserve as well.

Sierra Club Board expects to adopt a final policy no later than September 16, 2006. ☞

"New Sierra Club Energy Policy Participation Timeline"

The timeline for participating leaders in New Energy Policy is as follows:

June 1—Interim policy is posted for 60-day comment period

June 12 and 13—Conference calls open to leaders

July 31—End of comment period.

August 1—Staff and GWE committee summarize results and recommendations for the Board and CGC.

August 10—CGC begins its 10 day review period.

August 20—CGC concludes its review and makes recommendation to Board.

Final Adoption: The Board expects to adopt a final policy no later than September 16, 2006.

Summer of Discontent..continued from page 17

headed plan will offer concrete ways for the city and its citizens to conserve electricity and produce it from solar and wind sources. Smart building practices alone could save the need to build new power plants.

Last year in California and other places in the west, we observed huge wind farms, producing clean and totally renewable electricity. These wind generators are in a mountain pass between Riverside and Palm Springs, California and represent part of the solution of the current energy/global warming crisis. If it can happen there, why can't it happen here? ☞

INVEST IN MISSOURI'S FUTURE

Now you can donate on-line:

<http://missouri.sierraclub.org>

Only non-tax deductible donations are available on-line.

No MO Coal...continued from page 11

build Iatan 2. KCPL negotiated what it called an “experimental regulatory plan” with state regulators, large industrial customers and other utilities that will share in the output of Iatan 2. This is as close to self-regulation as KCPL could get, and a little too close for us. I filed the appeal in state court as a lawyer for Great Rivers Environmental Law Center.

KCPL is also waiting for a dredging permit from the Corps of Engineers and a landfill permit from DNR for its ash.

AmerenUE

Formerly Union Electric, AmerenUE is Missouri’s largest utility. In December it filed a report called an Integrated Resource Plan (IRP) required by PSC regulations. But it filed the whole thing as “highly confidential” and “proprietary.” We have been only partly successful in asking the PSC to make Ameren reveal it.

Ameren dislikes the results it’s getting from its DSM programs and has tried to punt the issue to the state, proposing that the governor and PSC convene a “collaborative stakeholder process” to decide what to do about energy efficiency. Ameren has bought some natural gas peaking plants that give it enough generating capacity to last until 2015. Well before that date, however, they plan to

settle on a new base load power plant. It could be coal, at Rush Island on the Mississippi in Jefferson County, or it could be a Callaway 2 nuclear plant if Congress passes carbon taxes making coal more expensive.

And what will they do now that the Taum Sauk reservoir has burst? Will they try to rebuild it and/or add a new “pumped storage” facility at nearby Church Mountain? Sorry, I’m not at liberty to tell you.

AECI

American Electric Cooperative, Inc., of Springfield is a multi-state electric generating coop that has applied to DNR to build a 660 MW coal plant in a sparsely populated part of Carroll County between Kansas City and Columbia. AECI management has shown an encouraging interest in alternatives to coal. They will buy the whole output of Missouri’s first wind farm, a 50 MW facility being built this year at King City in Gentry County, northwestern Missouri, by Wind Capital Group of St. Louis and John Deere Wind Energy. They have been less dismissive of DSM than Ameren and KCPL.

We hope to convince AECI that they don’t need coal. ☞

2006 Legislative Session...continued from page 8

point sources under the Clean Water Act.

We worked to remove that sentence. Representatives Belinda Harris and Wes Shoemyer tried to get an amendment to the bill on the House floor in those last few minutes. However they were not able to do so because the Speaker recognized the Majority Floor Leader for a “previous question motion” which ended all debate and any chance for an amendment. HB1149 passed easily. So, our perfect opposition record was marred by that one sentence. We will have to work with the Attorney General’s office and next year’s legislature to correct this problem.

The Sierra Club supported two bills which set standards for renewable energy...

On other anti-environmental bills and language we were more successful. It was a bit difficult to step into Carla Klein’s shoes the final three weeks of the 2006 Session. However she had laid the groundwork for a successful outcome by her work in building a coalition of groups who shared our environmental concerns and goals. The Sierra Club continues to be a significant force in the State Capitol, working to protect our natural resources and our health.

Environmental (self) audit privilege (or dirty secrets) is a bad bill that industrial interests have been pushing for years. It would let major polluters off the hook by allowing them to escape any penalties if they self-audit, and would further

keep this information secret from the public even if the pollution or spill caused harm. This year’s version was HB1147 introduced by Representative Walter Bivins. It bogged down on the House perfection calendar and never made it over to the Senate. However there were several attempts to add HB1147’s language to other bills. They all failed. When they tried to amend this language to SB925 in the House Energy & Environment Committee Representative Jeanette Mott Oxford led the effort to block this.

The Sierra Club supported two bills which set **standards for renewable energy** that power plants would have to meet: HB1384 introduced by Representative Jenee Lowe and SB843 introduced by Senator Chuck Graham. Both bills went nowhere. However, another bill that would have set optional targets for renewable energy (SB915) made more progress. We did not support or oppose SB915, but worked with the sponsor, Senator Chris Koster, to improve the bill’s language. Some bad language related to animal wastes from confined animal feeding operations was added to the bill; however SB915 died in conference committee on the last day of the Session.

HJR43 was a joint resolution we opposed that failed to pass the Senate after passing in the House. It would have required a **2/3’s vote on any ballot initiatives related to hunting, fishing, wildlife, and forest management**. This anti-democratic measure had been proposed in previous years. The Senate Agriculture & Conservation Committee had a hearing and voted it do pass. However the Chairman of the Committee (Senator Dan Clemens) never reported HJR43 to the Senate as promised and it died quietly.

Senator Chuck Graham sponsored a concurrent

resolution (SCR29) that would have expressed the Missouri State Legislature’s opposition to the proposal to sell off some national forest lands, including lands on the Mark Twain National Forest in Missouri. We supported this resolution which passed the Senate but did not quite make it through the House. However, the House did pass a similarly worded House resolution introduced by Representative Dennis Wood (HR2439).

Missouri Sierra Club is the only environmental organization with a fulltime lobbyist at the State Capitol. Our chapter lobbyist is your lone representative among hundreds of industry lobbyists peddling their influence to rollback laws that protect the health and safety of Missouri communities.

We followed the debate on **tax increment financing (TIF)** reform but only supported one of the many TIF reform bills in 2006 (HB1070 sponsored by Representative Robert Johnson). The TIF reform bill that made it through the furthest was SB832 sponsored by Senator John Griesheimer. This bill had some favorable language and some less than favorable language, but it died in conference on the last day.

To subscribe to the Missouri Chapter legislative listserv email your name and email address to: Ozark.Chapter@sierraclub.org or call our office tollfree (800) 628 5333. ☞

Lions....continued from page 1

Philosophy 101 test.

Two things are clear: The U.S. Fish and Wildlife Service—the agency mandated to implement and enforce the Endangered Species Act—relies on the Missouri Department of Conservation to protect, preserve, and restore endangered species in this state. MDC takes its orders from the Missouri Conservation Commission. If the Conservation Commission has declared that it would be undesirable to restore a population of mountain lions in this state, the USFWS is left with nothing. It is also clear that the Conservation Commission—and MDC staff—acted on the basis of the fears, emotions, and passions of a few misinformed individuals, and ignored facts and scientific studies.

Belatedly, the Conservation Commission decided to open up a portion of this matter for public comment. In Ozark terms, they shut the gate after the horse got out. Public comment will be accepted on the designation of “extirpated,” but not on the decision that a mountain lion population is

“undesirable.” If you have an interest in this, write to:

Missouri Department of Conservation
PO Box 180
Jefferson City, MO 65102



Springfield Coal Plant...continued from page 1

percent in favor of this costly coal plant proposal.

Local volunteers poured their hearts and souls into this campaign, working tirelessly to contact voters in our targeted precincts across the north side of the city. We made phone calls nearly every night, knocked on thousands of doors, handed out informational flyers, staged media events, sent mailings, placed ads in newspapers and a local movie theatre, recorded radio spots, and distributed 500 yard signs. On Election Day, right down to the wire, we continued to make reminder calls,

CU and its supporters spent tens of thousands of dollars on a cynically orchestrated media campaign to scare voters into believing coal was Springfield's only option.

fielded questions about precinct locations, and took people to the polls.

The people who will be most affected by another coal plant are largely poor. Over and over, the residents we spoke to told us they couldn't afford to pay for another coal plant, they didn't want the pollution, and they knew there were better choices available. They were angry and frustrated that CU had ignored the will of the voters just because they didn't like the results. They were absolutely right, and their comments inspired us to dig deep and work hard every day.

Our efforts succeeded in the precincts where we did the most work—by and large they voted “NO” on June 6, as they had in 2004. In the end, however, we were simply out-matched by our opponents' deep pockets as well as a heavily biased local news



media.

CU's win on June 6 is likely to be a pyrrhic victory, for the costs of committing itself to outdated dirty coal deep into the 21st century will be far greater than CU has led the public to believe. The coal plant bond alone will cost ratepayers more than \$1.2 billion by the time it's paid off.

Meanwhile, the cost of rail delivery of coal spirals up with the price of diesel fuel. Nationally, electric utilities are anticipating substantial taxes on heat-trapping global warming emissions produced by coal plants within a few years. The true cost to the people of Springfield won't be fully disclosed for years to come. But we do know that the ratepayers will bear the financial costs of shortsighted planning – that's the only thing guaranteed in the bond language.

The battle is not over, however. We have an air permit appeal pending in state court in Greene County. The case will be heard in early July. If we win, the air pollution permit will be remanded and the plant will be set back for many months, perhaps years.

Furthermore, we have a terrific group of people in Springfield who are dedicated to working on renewable energy and energy efficiency. The Sierra Student Coalition (SSC) has been an important part of the coal plant fight for the past several years, and the new leaders are interested in pursuing “green campus” initiatives at MSU and Drury.

I am incredibly honored to have worked with such amazing, brave people—volunteers who were there every day and those who devoted whatever time they had in any way they could. We became friends and made important connections. The residents of Springfield that I talked to on front porches and on the phone will continue to inspire me for years. 🙏

...the costs of committing itself to outdated dirty coal deep into the 21st century will be far greater than CU has led the public to believe.



Local volunteers like Simon Mahan (Sierra Club Student Coalition) poured their hearts and souls into this campaign.

photo by Jill Miller

shut down automatically at 4:39 a.m. at a reading of upper reservoir water level of Elevation 1591.6. At 5:15 a.m. Pump Unit #1 was shut down manually from the Bagnell Dam Center just shy of its automatic shutdown. When Unit # 1, the 2nd pump, was shut down the pressure transducer read a reservoir water level of Elevation 1593.7. Since the reservoir did overtop and the lowest elevation of the parapet wall is 1597, the pressure transducer signals were wrong. There is evidence from comparison to the Penstock transducer (used for static measurement in the plant) on December 13 that the pressure transducer might have read as much as 4.2 feet too low.

2) Emergency Backup

The emergency backup level probes were set at an elevation above the lowest points along the parapet wall. The Hi-Hi Warrick Probe was set at Elevation 1597.7 at Panel 58 where the top of the parapet wall was 1598.0.

“It did not apparently occur to those setting this probe that there were 33 wall panels with their tops lower than the Hi-Hi probe with the lowest one (Panel 72) having a top at Elev. 1597.0.” (Page 35).

So the back-up system was set where there would be a number of panels overtopped before it kicked in. And it didn't kick in on December 14.

3) Storage of Water on Parapet Wall

The third factor is that normal operation called for water levels to be as high as one foot below the top of the parapet wall. This required accuracy from the water monitoring system installed in 2004 that was unrealistic.

“The adoption of this 1 foot free board was totally inconsistent with having personnel making key design and installation decisions

who were not even aware of the lowest elevation of the parapet wall within the nearest 1 foot.” (Page 36).

The IPOC believes that storing water against a parapet wall on a dumped rockfill dam increases the number of potential modes of failure. For instance, overtopping of a ten feet high parapet wall can cause high velocity of water on the dam crest and increase the erosion to the point that the parapet panel tips over.

4) No Visual Monitoring

The IPOC states that there was almost no visual monitoring or “ground-proofing” of the Upper Reservoir water levels to verify where the water levels reached on the parapet wall. But managers had every indication that they should be physically checking the water levels. So, during the liner installation that was completed on November 15, 2005 “new visual level indications were painted on the liner reflecting true elevations.”

E-mails indicate the plant manager and workers knew there were problems and did lower the max operating water levels. Between September 25, 2005 and November 23, 2005, workers who witnessed overtopping reported that the gage piping support system failed and was bent. A new tie-down system was ordered and received, and it is noted that a diver may not be available to install it until the end of the year.

The IPOC presents a measured analysis that shows the procedures for safe operation were so inadequate they range from ignorance to criminal.

5) Omission of Spillway

The IPOC believes that the omission of a spillway from the design was a “most important root cause.” ***Had there been a spillway with the capacity of the two pumps, there would not have been an overtopping.***

Secondary Root Causes

The secondary root causes contributed to making the embankment more vulnerable to overtopping. Overtopping is one of the most frequent causes of embankment dam failure. Certain characteristics cause rockfill dams to be sensitive to failure from overtopping. These are steepness of the downstream slope, compactness of the rockfill, and the percentages of fines and sand. The Cabin Creek Dam in Colorado was built about a year after Taum Sauk with a somewhat flatter slope and well compacted clean granite rockfill. It was overtopped by over pumping but did not fail. The “dirty” rockfill at Taum Sauk had as much as 45 percent sand and was not free-draining for flows imposed by overtopping.

The failure of the Gouhou Concrete Face Sand and Gravel Dam in China occurred as long ago as August, 1993. It was constructed of well compacted gravel but contained about 40 percent sand. The Gouhou dam, like Taum Sauk Upper Reservoir, had “dirty” rockfill. Its failure was due to leakage through a concrete face and parapet wall-face joint into an embankment fill that was not free-draining. This may have also happened at Taum Sauk.

Taum Sauk Upper Reservoir had a long history of settlement and leakage with many periods of concern and repair, but the embankment and parapet wall successfully held water for 42 years. The IPOC believes the geomembrane liner installed in 2004 made the dam more stable than it had been. But the steep rockfill embankment was just “marginally stable” because of the dirty, dumped rockfill and the seepage that had occurred. There was no margin for the erosion caused by overtopping and the pore pressures that happened on December 14, 2005.

The report can be found at <http://www.ferc.gov>.



Church Mountain — No Pumped Storage Reservoir



by Ken Midkiff

The flood resulting from the AmerenUE owned and managed reservoir atop Profitt Mountain has been well-documented. There are photos of the devastation on the websites of Missouri State Parks and the *St. Louis Post-Dispatch*.

Johnson's Shut-Ins State Park suffered severe damage, including devastation of the public campground, re-channeling of the East Fork of the Black River, heavy siltation of the fens, a boulder and re-bar strewn valley, and the park superintendent's residence was swept away (along with the park superintendent and his family). The State Park was closed for several months so that hazards could be removed and is now open on a limited basis. The Shut-Ins – the main attraction of the State Park – are closed to public access.

That's all bad enough. But now, AmerenUE is deliberating over whether or not to reconstruct the pumped storage facility atop Profitt Mountain. It has been learned that one of the key points of consideration is economics. There is little doubt that it will be very costly to re-construct what was there. The reservoir has a gaping hole in one side; the pipes leading to the turbines were destroyed; the pumps that took water up to the reservoir will need to be replaced; and the turbines were heavily dam-

aged. There is also little doubt that the Upper Taum Sauk Reservoir and the pumped storage technology was quite profitable (this was mostly a variation of the "buy low, sell high" scheme—during the day when peak demand resulted in high electricity prices, the water stored in the reservoir

Missouri's Ozark Chapter remains opposed to any desecration of Church Mountain!

turned the turbines, at night when demand and prices were low, huge pumps refilled the reservoir).

One of the considerations is to build an entirely new facility atop Church Mountain, immediately to the east of Profitt Mountain. Church is a few feet taller than Profitt, so any reservoir and turbine system there would likely result in more kilowatt hours. However, Church Mountain is currently leased to the State of Missouri as a part of the Johnson Shut-Ins State Park and a portion of the Ozark Trail wanders through the area. Church Mountain is extremely attractive—harboring a plethora of Ozark flora and fauna—and is part of the Ste. Francois Mountains, an igneous outcropping of ancient rock. Taum Sauk Mountain, to the east of Church Mountain, is the most renowned feature of the Ste. Francois Mountain, as it is the highest point in the State of Missouri.

The position of Missouri's Ozark Chapter on this remains unchanged since AmerenUE proposed a pumped storage facility—with a lake on top of Church Mountain—in 2001. We remain opposed to any desecration of Church Mountain.

Photo from
<http://community.webshots.com/album>

Please contact:

Gary Rainwater, CEO
AmerenUE, One Ameren Plaza
1901 Chouteau Ave.
St. Louis, MO 64103
Or SolutionsCenter@ameren.com
Place "Attn: Gary Rainwater" in the subject line.

Let him know that Church Mountain is not the place to remove the top and replace it with a reservoir for a pumped storage facility. Instead, AmerenUE should permanently donate its holdings on Church Mountain to Missouri State Parks, in partial repayment for the damage done to Johnson Shut-Ins State Park.

Paseo Bridge.....continued from page 4

capacity, inadequate consideration of detrimental effects an expanded highway might have on a revitalizing downtown and other nearby communities, and the disproportionate benefit the project would give to more affluent and "lighter-skinned" people at the expense of less affluent and "darker-skinned" people. They also insist that transit and bike/ped improvements be included in the project.

A technical analysis attached to the alliance's comment (see link on the Thomas Hart Benton (THB) Group of the Sierra Club website, <http://missouri.sierraclub.org/thb>) is especially valuable for its exposition on the DEIS's use of biased language. The DEIS, it's alleged, reflects a bias that favors higher-speed highway travel, rather than a more holistic approach to transportation that includes better land use planning and consideration of future natural resource constraints including peak oil.

The analysis also touches on the sensitive issue of how a half century of urban highway construction has generally benefited whites over minorities. Such "environmental justice" issues weren't a consideration in the 1950's, but President Clinton's Executive Order 12898 of February, 1994, makes "EJ" an issue today.

(The Sierra Club also submitted comments on the DEIS—they can be found on the THB Group website. Because other organizations addressed local issues so well, we focused on broad issues like mode choice and regional growth patterns—pointing out indirectly that the Mid-America Regional Council (MARC, the metropolitan planning orga-

nization for the bi-state Kansas City region) has still not done an adequate job of articulating a long-range development vision for the region that considers long-term energy supply and cost.)

At this writing it's hard to predict the final outcome. Nevertheless, one can speculate:

Due to concerns about inadequate consideration of transit and bike/ped issues—as well as the extensive issues raised in the Columbus Park comment—it's likely that this DEIS will get a major overhaul.

Due to the attention focused on language bias, it's likely MoDOT will take care that future studies are more objective.

Due to uncertainty about the nature of the project to be built and the possibility of procedural challenges, MoDOT may have trouble getting qualified design-build teams to bid. And even if there are bidders, MoDOT could miss its promised 2011 delivery date.

If there's much additional controversy, MoDOT's credibility could take a major hit, jeopardizing the agency's hopes for taking a major tax increase to the voters in 2008 or 2009.

Of particular interest in the Kansas City area, an environmental study currently underway for a segment of I-70 between downtown and I-470, some 15 miles to the east, is likely to give significantly more attention to environmental justice issues. Nearby neighborhoods are likely to become more involved as they see what Columbus Park is able to accomplish.

Over and above MARC's demonstrated interest in the DEIS, several factors lay important groundwork for regional progress on sprawl. Technical comments that mention regional development patterns and resource factors in transportation planning reinforce our own comments, thereby serving to remind MARC that, even after 16 years of our prodding, it has still not done a "policy forecast" of regional development and travel demand.

Those factors, added to growing awareness of global warming and our over-reliance on oil, lead to the possibility that the region might finally have the "excuse" it needs to look at its future in a more holistic way.

Let's hope so. ☺

20th Annual Ozark Chapter Campout & Reunion

Join us October 6–7–8th for our Annual Ozark Chapter Campout and Reunion!

It's that time of year again. The leaves on the trees will soon be turning and Sierrans will be gathering for our annual campout and retreat. It will be held October 6–8 at that great spot, beautiful Lake of the Ozarks State Park! We will be housed at Camp Pin Oak.

Lake of the Ozarks State Park is one of the state's largest and most pleasant parks, nestled in the gentle Ozark Mountains. The karst geology and accompanying ecology makes it a good example of classic Central Missouri deciduous forest ecosystem. There is a restored prairie, an oak savannah, sinkholes, woodlands, and a clear, rock-bottomed stream. There

are many miles of well-marked, easy hiking trails suitable for every level of adventure.

As always, we'll have plenty of good food prepared by friendly fellow Sierrans. If you like to cook, feel free to volunteer to help. There will be special activities for kids, and indoor stuff to do in the event of less than perfect weather.

Send in the registration form with your check by September 1st and a packet will be sent to you with all the information you will need. Tent camping will be available on a first come first served basis. Hope to see you there!

- ❶ Make checks payable to "Ozark Chapter Sierra Club"
- ❷ Print and mail form and checks to: Keet Kopecky, 9211 Olmstead Road, Kansas City, MO 64131-4957.
- ❸ Any questions, contact: Keet Kopecky at (816) 966-9544, or e-mail kkopecy@kc.rr.com.
- ❹ We must receive your reservation by September 1st.
- ❺ Camping fees will be refunded for cancellations received prior to September 15th.
- ❻ We will mail you an information packet containing map in advance of the Campout date.

Name: all persons attending			
Address:			
City/State/Zip:			
Evening Phone:			
#'s		\$	\$ Total
	child 0–3 yrs.	Free	
	child 4–6 yrs.	\$8	\$
	child 7–12 yrs.	\$15	\$
	adult 13+ yrs.	\$30	\$
	adult partial weekend *	\$20	\$
	limited income	\$15	\$
	Saturday dinner only	\$10	\$
	total fee enclosed \$		

Maximum fee for a family \$80.

Fees include cabin camping and five meals (Saturday breakfast through Sunday lunch)

* partial weekend defined as less than three meals.



JOIN THE HAPPY HIKERS AT THE 2006 OZARK CHAPTER CAMPOUT

SIERRA CLUB OUTINGS OZARK CHAPTER

Eastern Missouri Group

<http://missouri.sierraclub.org/emg/outings.aspx>

Eastern Missouri Group outings cost one dollar and are open to the public. Leaders are unpaid volunteers who need your cooperation to make the trip safe, pleasant and rewarding. Please call the leader well in advance for details, approval, or if you plan to cancel. Outings start officially at the trail head or river access. Travel responsibility rests on each participant. Car pooling is encouraged but leaders can not be responsible for its organization. The Sierra Club does not provide insurance for transportation. Participants sign a liability release form and reimburse drivers for expenses. Be adequately equipped and prepared. No guns, pets, or radios are permitted on trips. Please leave the area cleaner than you find it. For general information about outings call Ann Eggebrecht, (314) 725-1560.

July 8 (Sat) Highway cleanup. We wouldn't want young raccoons fresh from the den to see the litter of society, would we? Diane DuBois, (314) 721-0594.

July 14 (Fri) Hike 6-8 miles at Rockwood Reservation. Suzanne Smith, (618) 281-4762.

July 21 (Fri) Over the "Bridges of Madison County" we'll go biking. About 20-25 miles. Suzanne Smith, (618) 281-4762.

July 22 (Sat) Afternoon and evening canoe trip in the Meramec basin. Participants must have their own canoe or kayak. Enjoy the river at a more quiet time in late afternoon and evening. Dinner on a gravel bar. Toni Armstrong & Richard Spener, (314) 434-2072.

July 28 (Fri) Our annual Hawn and Pickle Creek hike. Bring your water shoes. 6 mile loop and maybe 4 mile White Oak depending on temperature. Suzanne Smith, (618) 281-4762.

Aug 18-20 (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) 644-0890.

Aug 20 (Sun) All Day Kayak Clinic at Simpson Lake. Beginning/intermediate instructions. We will be teaching kayak strokes including forward strokes, sweeps, high and low braces and sculling. In addition we will teach rescue, wet exit and the proper way to enter and launch a kayak. There will also be discussions about kayaking on lakes, oceans and rivers. Kayaks and paddles will be furnished. The cost is \$41. Contact Richard Spener or Toni Armstrong at (314) 434-2072.

Aug 26 (Sat) 39th annual Operation Clean Stream. Enjoy

In order to participate on one of the Sierra Club's outings, you will need to sign a liability waiver. If you would like to read a copy of the waiver prior to the outing, please see <http://www.sierraclub.org/outings/chapter/forms/> or call (415) 977-5630.

In the interests of facilitating the logistics of some outings, it is customary that participants make carpooling arrangements. The Sierra Club does not have insurance for carpooling arrangements and assumes no liability for them. Carpooling, ride sharing or anything similar is strictly a private arrangement among the participants. Participants assume the risks associated with this travel.

a rewarding day on the Meramec River. We'll canoe an 8 mile stretch and pick up trash along the way. Great lunch provided. Katie Dickinson, (314) 307-0277.

Sept 2-4 (Sat-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 in Chesterfield. 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) 644-0890.

Sept 2-4 (Sat-Mon) Three day canoe trip on the Mississippi River. Details to be published later. George Behrens, (314) 821-0247, after 6 .p.m only.

Osage Group

July 1 (Sat) Bike Ride. We will start the ride at Cooper's Landing on the Katy Trail, ride out for several miles, and then return for dinner at the Thai restaurant. Contact Greg Leonard, (573) 443-8263, greg.leonard@missouri.sierraclub.org.

July 27 (Thu) Evening Hike. Join us for a hike along the Grindstone Nature Trail in Columbia followed by dinner at Nothing but Noodles. Contact Greg Leonard, (573) 443-8263, greg.leonard@missouri.sierraclub.org.

Thomas Hart Benton Group

<http://missouri.sierraclub.org/thb/outings>

July-Sept— Restoration, Hidden Valley Park KCMO. Get on our list if you are interested in being contacted to help lop the invasive honeysuckle at Hidden Valley in our ongoing efforts. Doris Sherrick (816) 779-6708 dsherrick@missouri.sierraclub.org

July-Sept— Canoeing, Kaw River KS All day canoe floats up above Lawrence on the Kaw River. For specific information check our web site, call your outings chair or contact Jim Fox canoeist3@msn.com

Aug 26 (Sat) Day hiking the Indian Creek Trail, Kansas City, MO. Come learn about water quality issues as we walk along the creek starting near 103rd & State Line. Lunch afterwards at Jasper's deli. \$5 donation requested. Contact: Bob Dennis, earthling@planetkc.com.

Sept 1-4 (Fri-Mon) THB Annual Lemonade Stand Fundraiser at Santa Caligon Days, Independence, MO. Volunteer to work on a crew and learn the fine art of lemon squeezin'. It's really a lot of fun! All proceeds go towards the THB group's annual operating budget. Contact: Eileen McManus, (816) 523-7823, eileenm@missouri.sierraclub.org

Sept 23 (Sat) Beginner Backpacking Class, Blue Springs, MO. Learn backpacking basics. We'll cover equipment, a section on low budget options, places to go and more \$5 donation requested. Contact: Paul or Melody

Gross, (816) 228-6563 paul.gross@missouri.sierraclub.org

Sept 30 (Sat-Sun) Beginner Backpacking Trip, Settle's Ford CA, MO. Easy beginner backpack trip. Hike Settles Ford Conservation Area near Butler Missouri and camp overnight on adjoining private property. \$5 donation requested. Contact: Bob Wilshire, rjwilshire@kc.rr.com

Trail of Tears Group

None submitted.

White River Group

None submitted.