

**Kansas Association
of
Biology Teachers**

Volume 38 Number 3 - October 1997

Calendar & Activities

Please mail, e-mail or phone meeting dates and other items of interest to biology teachers to John Wachholz, 2311 Applewood Lane, Salina, Kansas 67401-

Date	Event
April 16-19, 1998.....	NSTA National Convention - Las Vegas
April 24-26, 1998.....	KATS KAMP 1998 - Rock Springs Ranch
May 9, 1998 Tentative.....	Spring Meeting & Field Trip - Kanopolis Reservoir Area
Summer 1998 Tentative.....	Picket Wire Canyon Trip - SE Colorado
September 19, 1998 Tentative.....	KABT Fall Meeting - Wichita
October 9-11, 1998.....	KOS Fall Meeting - Lawrence.
November 4-7, 1998.....	NABT National Convention - Reno, Nevada
October 27-30, 1999.....	NABT National Convention - Fort Worth, Texas
March 25-28, 1999.....	NSTA National Convention - Boston



Brad Williamson who teaches at Olathe East High School is our regional representative to NABT. Contact Brad via Fax at (913) 780-7137.

Your membership **expiration date** can be found on your mailing label. All dues are now payable on September 1st of each year. If an envelope was enclosed with your newsletter your membership has expired. Please use the envelope to mail your dues and the other information

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Send comments to:
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NABT Web Site
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From The President

Sorry, no article available.

Publishing Dates For Newsletter

The newsletter is published during the months of September, November, February and April. Manuscripts must reach the editor by the 15th day of the previous month. The KABT Newsletter includes abbreviated minutes of the official meetings, announcements of future activities, brief news notes, and other brief items of interest to biology teachers. Send your contributions to John Wachholz, Editor, 2311 Applewood Lane, Salina, KS 67401 (913) 825-7742. You may send you information for the newsletter to jwachholz@midkan.com.

Newsletter & Journal Information Needed

Articles are needed for the newsletter. Please help with the newsletter. The most helpful occurrence would be for all individuals to send information to the newsletter. Send it via internet to jwachholz@midkan.com or on a disk. If you send it on a disk, any format is acceptable. Your help is appreciated. (PC, Mac, Apple - just send it!) Articles for the Kansas Biology Teacher should be sent to John Richard Schrock, editor KBT, Division of Biology, Box 50, Emporia State University, Emporia, KS 66801-5087. Keep your dues up to date so you will continue to receive the Kansas Biology Teacher.

Outstanding Biology Student Certificates

These are available for students who you feel have completed a biology course under you and have shown outstanding achievement. Send your name and address to KABT Student Certificates, 2311 Applewood Lane, Salina, KS 67401-3707.

Please use these certificates as valuable awards for outstanding students.

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John Wachholz

KABT Spring Field Trip '97

Brad Williamson

May 9,10,11, Belvidere, KS, Leader: Stan Roth

Below is a personal account of the 1997 KABT spring field trip--not an official account .

Pre-field trip:

Two years ago, several KABT officers met at Olathe East High and established long term plans for meetings and field trips. Stan was at that meeting and agreed to lead a trip to the Gyp Hills and surrounding area. I personally was ecstatic. Stan's work with bats (chiroptera), caves, and general field work in this particular part of the state is legendary. TMHe has contributed a great deal to the general knowledge of Kansas flora and fauna with his extensive work. For Stan to share something so dear to him he did have a condition. That is that we would agree not to go back to these sites with our students or on our own. These sites are very sensitive, biologically and on private land. Stan has worked years establishing good landowner relationships and didn't want to see that jeopardized. Any one who has obtained permission to a great fishing spot knows just how Stan feels. We agreed. For this reason there will not be specific references to the actual sites that we visited--just general references.

As we worked out details, we decided that it would be a camping trip and Stan suggested that we stay and headquarter at Belvidere in a free campground.

Friday night:

I left Olathe at 7:00 PM for the 300 mile drive to Belvidere. I was really looking forward to camping in the cool spring night after having several late night work sessions. Of course, leaving at 7:00 meant that I was getting to Belvidere about 12:00 midnight. I traveled down I-35 and the turnpike through the heart of the Flint hills just at sundown. People who complain about the boring Kansas landscape simply haven't been in the Flint Hills in the spring, after the burning, when the new growth is coming on. Can there be a more intense experience of green than these hills. Coupled with the intense blue and clarity of the atmosphere due to a high pressure center, the experience almost overwhelms the senses. I always say to folks that as I drive west in Kansas I feel my blood pressure and heart rate go down as I mellow. Ernie Brown would explain it as a result of being in "God's country." I think it has to do with space.

I arrived in Belvidere at midnight and found the campground without disturbing too many people. In fact, I don't think anyone woke up. The night turned out to be exceptionally cool for May, 29 degrees F, according to Stan. By the way when I woke up the next morning my heart rate was 46 beats/ minute. The previous two weeks it had been in the upper 50's. (It wasn't all Belvidere. I'd recently raised my running mileage and it takes a while for things to stabilize. But I prefer to think it was Belvidere)

Saturday Morning:

Stan brought us all together about 8:30 and introduced us to Ken Brunson from KS Parks and Wildlife. We established the morning plans and took off north of town to Thompson Creek valley. Thompson creek is fed by springs from the Great Bend aquifer that emerge from Cretaceous aged formations and flows south to join the Medicine river near Belvidere. The creek valley is highlighted by outcrops of Cheyenne Sandstone and for the most part is treeless in the lower valley with some riparian trees

in the upper valley. Our purpose was to locate Arkansas River Darters, (*Etheostoma cragini*). These fish inhabit streams like Thompson creek. The breeding males have a bright orange ventral surface. The males we found were in excellent breeding color. We found most of our darters in shallow water with some algae and also in some of the riffles. This small stream also had red-bellied dace. (*Phoxinus erythrogaster*) This seemed strange to me and I asked Ken Brunson if this wasn't about the westernmost record for this fish in Kansas. It turns out that according to Cross and Collins (1975) that there were no records west of the northern Flint hills.

Ken wanted to conduct some survey work for herps and birds. Some of the birds sighted at this site included: Mississippi Kites, Red Headed woodpeckers, Lark sparrows, Ruby-throat hummingbird, house wrens and mostly typical resident birds.

From Thompson Creek we traveled south to outcrops of Cheyenne sandstone to search for herps for Ken's survey. Not many herps were recovered but collared lizards, horned lizards, and one milk snake were collected, recorded and released.

Ate lunch back in Belvidere and then went west of Belvidere to investigate shale outcrops for fossils. Found a bull snake along the creek and spent some time at a prairie dog town looking for Prairie rattlesnakes--no luck. One the way back into town we spotted a couple of blue grosbeaks.

From this site we went south of Belvidere to observe an outcrop of Cheyenne sandstone on top of a hill, known locally as Camel's Hump. Near here in a box canyon the group encountered a porcupine. This canyon was truly a box canyon and the porcupine was in the bottom. As we were looking for a way down Stan said I have to get my porcupine gloves on....I thought he was joking--he wasn't. When we hit the bottom of the canyon that was covered with junipers Stan just took off through the trees. He is like a dog on trail and relentless. He actually captured the porcupine and carried it up to the top of the canyon for others to see. It was a lactating female.

From this site we went to Triple Arch Cave, south of Sun City. This is typical Gypsum Hills cave with two areas that have collapsed (hence the name) and open. In the cave a few bats (*Pipistrelles*) were observed.

After the cave we met at Buster's in Sun City to eat. It was late when we got back to Belvidere and turned in.

Chicken Manure To Cattle!

From ProMed - Excerpted from FSNET:

According to this story, the true extent of the Hudson hamburger contamination will remain a mystery until inspectors know exactly which plants supplied the beef. From there, they will have to investigate further to determine if Hudson's suppliers also sent bad meat to other food companies. The story then says that what is indisputable, however, is that the problems at Hudson represent only one of many threats to the nation's meat supply.

The story cites agriculture experts as saying a slew of new and questionable methods of fattening cattle are being employed by farmers. To trim costs, the story says, many farmers add a variety of waste substances to their livestock and poultry feed -- and no one is making sure they are doing so safely. Chicken manure in particular, which costs from \$15 to \$45 a ton in comparison with up to \$125 a ton for alfalfa, is increasingly

used as feed by cattle farmers despite possible health risks to consumers. In regions with large poultry operations, such as California, the South, and the mid-Atlantic, more and more farmers are turning to chicken manure as a cheaper alternative to grains and hay.

Lamar Carter, a cattle farmer near Dardanelle, Ark., is cited as saying that he recently purchased 745 tons of litter scooped from the floors of local chicken houses, stacking it 12 feet high on his farm. After allowing the protein-rich excrement to heat up for seven to 10 days, Carter mixes it with smaller amounts of soybean bran, and feeds this fecal slumgullion to his 800 head of cattle. Carter is quoted as saying, "My cows are fat as butterballs. If I didn't have chicken litter, I'd have to sell half my herd. Other feeds are too expensive."

The story then says that chicken manure often contains *Campylobacter* and *Salmonella* bacteria, which can cause disease in humans, as well as intestinal parasites, veterinary drug residues, and toxic heavy metals such as arsenic, lead, cadmium, and mercury. The story then says that Dr. Neal Barnard, head of the Washington, D.C.-based health lobby Physicians Committee for Responsible Medicine, has a paper due to be published this fall in the journal *Preventive Medicine* that points to the potential dangers of recycling chicken waste to cattle.

The story cites the U.S. Centers for Disease Control and Prevention in Atlanta as saying there may be as many as 80 million incidences of food-borne illness each year in the United States, and about 9,000 deaths.

Salmonella accounts for 4 million cases, of which 500 to 1,000 are fatal. *Campylobacter*, which causes acute gastroenteritis, afflicts between 4 million and 6 million people annually, killing about 100. *E. coli*, the bacteria that was found in the tainted Hudson Foods beef, causes up to 250 fatalities and triggers serious illness in up to 20,000 people annually. At least 17 people have fallen ill from eating contaminated Hudson beef.

The story says that agricultural refuse such as corncobs, rice hulls, fruit and vegetable peelings, along with grain byproducts from retail production of baked goods, cereals, and beer, have long been used to fatten cattle. In addition, some 40 billion pounds a year of slaughterhouse wastes like blood, bone, and viscera, as well as the remains of millions of euthanized cats and dogs passed along by veterinarians and animal shelters, are rendered annually into livestock feed -- in the process turning cattle and hogs, which are natural herbivores, into unwitting carnivores.

Daniel McChesney, head of animal-feed safety for the U.S. Food and Drug Administration, is cited as saying that new feed additives are being introduced so fast that the government cannot keep pace with new regulations to cover them.

The story says that chicken and turkey droppings can be fed safely if handled properly. This involves correctly stacking the manure for four to eight weeks while the naturally generated heat raises temperatures to 160 to 170 degrees Fahrenheit [71-77C], high enough to destroy bacteria and toxins. The authors of the *Preventive Medicine* report are cited as saying that studies of manure-feed safety have been conducted largely in controlled environments, not in the casual, unregulated conditions on most farms. Few studies address public health aspects, they argue, and there is an overall dearth of published information.

The story also notes that the contents of animal feed are

attracting more attention as a result of the BSE outbreak in Great Britain and concern that similar problems could occur here.

[Since meat and bone meal from cattle is fed back to poultry, this poultry manure issue illustrates an indirect but complete feedback loop for some types of problems. In the UK, any farm animal to farm animal feedback is now forbidden, due to the protein-based disease.(Mad Cow Disease)

Robert A. LaBudde, PhD, PAS, Dpl. ACAFS

The Frog & Scientist

A scientist conducted a test with a frog. First he removed one of the frog's legs, then said, "Frog, jump!" It did. So he wrote in his journal: "One leg removed--frog jumps." Then he removed a second leg and told the frog to jump. It had some difficulty, but managed to jump. The scientist wrote: "Two legs removed--frog jumps." Once again the scientist removed a leg and told the frog to jump. The frog really struggled this time, but finally jumped. The scientist scribbled in his journal: "Three legs removed--frog jumps." Then the scientist took off the fourth leg and said again, "Frog, jump!" The frog just sat there. The scientist wrote: "Four legs removed--frog loses hearing."

From: "The Goldbug Variations"

by Richard Powers

"Dozing in and out of sleep to talk radio, I hear a recent poll claiming that a bare 9 percent of Americans accept evolution. Yet this debate--amazingly still raging--about the origin of wealth beyond conception is irrelevant. It doesn't matter anymore whether a fraction of the race splits off, chooses to return to a child's Eden. It doesn't matter if 91 percent of my countrymen continue to insist that species were created by father, so long as the entire planet instantly unites in acknowledging that they are, right now, being destroyed by child. Conservatively: several thousand species extinct a year. Instant, universal acknowledgment is impossible. In the hundred acres of rain forest destroyed each minute I write this, the earth loses species not yet even described in the catalog."

FRUIT FLY OBSERVATION PROJECT

By Sandy Collins

West Junior High School, 2700 Harvard, Lawrence, KS 66049

BACKGROUND

Some time ago I was describing to a colleague, Brad Williamson, a project that I did with my freshmen biology students. It was a laboratory investigation in which the students proposed and tested original hypotheses. Brad's succinct comment was essentially, fine, but hadn't I had asked my students to propose hypotheses without allowing them sufficient time to make the initial observations necessary to ask interesting questions. Could he be right again?! Subsequently it also became clear to me that in failing to provide my students with sufficient time to make careful observations, I had denied them the opportunity to begin developing a skill that enhances many experiences - not just those in the science classroom. In an effort to enhance my students' skills in making detailed observations, I now start the year with a Fruit Fly Observation Project. I describe the project in this paper.

My project is a modification of an activity written by M. Nissani, entitled "Dancing Flies". The article appeared in the March 1996, issue of *The American Biology Teacher*. In the original activity, students work through a series of projects in which they observe the behavior of fruit flies and propose and test hypotheses based on their observations. The author summarizes the project as follows: "It fleshes out abstract lectures about life cycles, insect morphology, patterns and causes of animal behavior, and, above all, the nature of science." My objective in this abbreviated version of the original activity is to offer my students the opportunity to improve their observational skills over an extended period of time by observing a culture of *Drosophila melanogaster*.

PROJECT

On the second day of class I distribute a vial containing 8-10 fruit flies (with media) to each of my freshman biology students. Working in small groups, students are asked to record a minimum of 15 observations about their flies. Each group then shares and discusses their observations with the entire class. Usually the groups make fairly general observations and focus primarily on the physical characteristics of the fruit flies. A few of their observations describe behaviors. Next, I ask the class what they would need to do if they were required to make 15 additional observations. They realize that to do this will require more time spent in observing, more thinking about what they see, and more detailed and systematic observations. If the class does not bring it up, I suggest that it may also be helpful to think about the flies as individuals and as part of a dynamic, interacting population. At the end of the class discussion I officially introduce their first Biology Project - "The Fruit Fly Observation Project".

For this project, the students are asked to take home their fruit flies and continue making observations for a period of two weeks. Each day they are to record as many new observations as possible. Drawings of what they have observed are also encouraged. To get everyone off to a successful start, the observations they have made in class can be used as their Day-one observations. At the end of two weeks, they turn in a log of their observations and a paragraph summarizing what they learned from completing the activity.

In order to properly care for the animals at home, the students will need some information that I include in a Student Instruction sheet. Students need to know that the temperature and humidity of their homes affects the health of the flies. If the food becomes too dry, the animals starve. They need to watch for "cracked" and dry food and/or lifeless larvae. If this occurs, adding one or two drops of water will moisten the food and should solve the problem. On the other hand, the environment can

become too humid and the food too moist. In this case the food will become contaminated with fungi, which is also detrimental to the flies. Finally, caution students not to leave the flies in direct sunlight or other extreme environmental conditions.

Four days after the project is started, students will release all the adult flies outdoors so that only eggs and immature stages remain in the vials. Two weeks after taking the vial home they can release all the remaining flies. Remind them to thoroughly wash the vial and the plug ("stopper") and bring both back to school.

Through this activity I was able to give my students the opportunity to practice making detailed observations, a skill that is a hallmark of a good scientist. Making careful observations is a skill that they will continue to use throughout the year as we investigate biology and a skill I hope they will continue to improve upon throughout their lives. Fortuitously, several additional "bonuses" accrued by initiating the year with this Fruit Fly Observation Project. None of my students were intimidated by the task and so everyone approached it enthusiastically. Everyone was able to take part in the daily discussions we had as the students asked questions about observations they had made. Since the students had to keep their flies at home, parents had the opportunity to take an interest in what their children were studying in biology. Finally, because I try to use fruit flies to teach genetics later in the year, this project allowed my students to become familiar with the life stages of fruit flies and how to maintain fly cultures before undertaking our genetics study.

TEACHER PREPARATION

Teacher preparation for this project is minimal. Each student needs a vial containing 8-10 adult flies. Ideally, each vial would contain mostly virgin females with a few males. This would enable the students to more easily observe and learn about the life cycle of the flies. The time required to rear and separate the required number of virgin female flies for 110 biology students seemed daunting. Therefore, the vials I provide for my students contain adult flies of various ages and sex ratios. This mixture of flies does not significantly diminish the value of the activity and makes the preparation much easier.

Fruit flies can be obtained from a biological supply company (as Carolina Biological Supply). However, purchasing enough flies to get started can be expensive. Also, in order to have a sufficient number of flies, you will need to begin to rear the animals several weeks in advance. The exact number of weeks required will depend on the number of flies initially purchased and the total number required for starting the project. An easier alternative is to have the flies "donated". I was able to obtain flies "donated" by Dr. William Bell in the Department of Entomology at the University of Kansas. Depending on your location, you may try contacting the biology department of a nearby university or college or a USDA facility.

Additional supplies required are media, plastic vials and sponge plugs or stoppers. All of these supplies can be purchased through a biological supply company or borrowed from someone who works with fruit flies. The commercial media is easily prepared (just add water) and instructions include how much media is required per vial.

Transferring the flies to the vials is not difficult or time consuming. It takes me about 3 hours to transfer the required number of flies to 115 vials. Since an exact number of flies per vial is not critical, I find that if I work quickly the flies do not need to be anesthetized. Simply tap on the container with the flies so that they are knocked to the bottom of the container. Quickly remove the plug from the container and invert it over an empty vial, letting 8-10 flies "escape" into the empty vial. Quickly replace the plug on the original container and place a plug in the vial that now has the desired number of flies.

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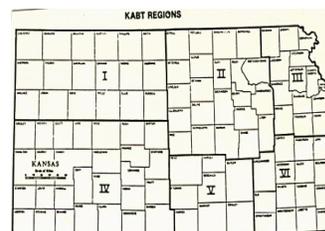
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"A wise man
should consider
that health is the
greatest of human

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John Wachholz, Treasurer

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Salina, KS 67401 - 3707

**I slept and dreamt that
life was joy;**

**I awoke and saw that
life was service;**

**I acted, and behold,
service was joy.**

Rabindranath Tagore

"Until we extend the
circle of our
compassion to all
living things, we will
not ourselves find
peace."

Dr. Albert Schweitzer

Change is
inevitable,
except
from a
change
machine.

Unknow

Men dig their graves with their own teeth and die more by those fatal instruments than the weapons of their enemies.

—Thomas Moffett, "Health's Improvement," 1600

The amount spent on weapons every minute could feed two thousand malnourished children for a year, while the price of one military tank could provide classrooms for thirty thousand students.

Data From Oxfam America, Boston, MA

"You have just dined, and however scrupulously the slaughterhouse is concealed in the graceful distance of miles, there is