

Kansas Association of Biology Teachers Newsletter

February 1994 Volume 35, No. 1

John Wachholz, Editor - Osprey Educational Productions

Your membership **expiration date** can be found on your mailing label. All dues are now payable on September 1st of each year. Please note that the Post Office will **not** accept staples. This is the reason for your newsletter being mailed in an envelope. This will also allow for machine stamping at a small savings which will help cover the cost of the mailing.

Please mail or phone meeting dates and other items of interest to biology teachers to John Wachholz, 2311 Applewood Lane, Salina, Kansas 67401, (913) 825-7742 (Home) 913 826-4751 (School).

So where was your last newsletter? It is all my fault! Some events and other things seemed to get in the way of the production of this thing. Please accept my apologies and if you have time - SEND SOME MATERIALS FOR THE NEXT ISSUE!!!! Time would be the best item to send but I know that is impossible. Thanks for your patience. **No frills** - just a newsletter!!!

From Your President

Dear KABT Members,

As my tenure as KABT president enters its last year, I find myself looking forward to some very exciting events. On January eighth at Kansas State University, KABT will sponsor a workshop on the use of spreadsheets in biology. This hands on workshop will teach novices as well as experts on different ways of using spreadsheets in biology classroom. This spring KABT will once again present "KABT's Favorite Labs" at KATS Kamp. So plan on attending. Our spring trip will be to Cheyenne Bottoms during the first weekend in May. Hopefully we'll catch many of the different bird migrations, from warblers to waterfowl. There is also the possibility of KABT making a trip up to Nebraska early in March to see the Sandhill Cranes on the Platte River. And finally, next year's KABT Fall Conference will be centered around plant, animal, and microbial physiology. Check the following newsletters for more details and information on each of the planned events. If you have never been to a KABT conference or field trip, make it a point to come. The camaraderie is great and

the sharing of ideas with some outstanding biologists always allows you to bring something back for your students. KABT is definitely providing a lot to look forward to this next year.

I also believe now is the time to look to the future of KABT as an organization, and for each member to increase their personal participation and involvement. Elections of officers and district directors are one year away. Your participation as a member of KABT is crucial for its continued growth and success. Please find time to get involved, whether it be running for an office, nominating someone else, or just voting. Your involvement will make a difference. At this time I am selecting a nominating committee. If you are interested in this or running for an office or district director, please contact me at 587-2100 (manhattan High School).

Place these upcoming events on your calendar! Keep the kids excited and have a good Christmas break.

Pat Lamb

KABT President

Sandhill Crane Trip To Nebraska

Saturday, March 12th - Sunday March 13th

**Rowe Sanctuary Reservations For First 15-20
Individuals. Cost is \$10 / Person. Reservations
made on first call basis!**

Reservations: (913) 825-7742 by Feb. 10th

I have arranged for a trip to observe the annual staging of the Sandhill Cranes in Nebraska. The plan is to leave together from Salina at 6:30 AM on Saturday, March 12th. We will travel to Grand Island and observe two Nebraska Wildlife Areas on the way. It is my hope that we can car pool or take vans. If individuals want to pool or have a van they can drive please let me know. Following is a schedule:

- Leave Salina 6:30 AM Central High School - March 12th

- Drive to Clay Center, NE and Hastings, NE to observe wildlife areas.
- Lunch in Hastings
- Drive the south side of the Platte River from Grand Island to Minden.
- Check in to Pioneer Village Motel - Minden - I have reserved ten rooms and will make final reservations as soon as I hear from you. Pioneer Village Motel is close to my favorite viewing areas and the Audubon Lillian Rowe Sanctuary. Kearney is booked for the week-end.
- Leave for the Rowe Sanctuary Crane Blind Field Trip to observe the Cranes coming in to roost for the evening. We must meet at TEXACO gas station on the North Side of I-80 Gibbon Exit, #285 at 4:45 PM. This is 13 miles from Minden.
- Travel to the Sanctuary and spend two hours in the blind as the Cranes come in. After that we will return to the Pizza Hut in Minden for food and then off to bed.
- Sunday we will leave for the cranes about 40 minutes before sunrise and watch them leave the river for the daily feeding and courting activities.
- Return to Minden for breakfast and check out of motel and home.

Call if you have questions.

PUBLISHING DATES FOR NEWSLETTER

The newsletter is published on or near the first week 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.

Newsletter & Journal Information Needed

Articles are needed for the newsletter. Please help with the newsletter. The most helpful occurrence would be for all individuals sending information to the newsletter to send it via PSINet-KEMNET or on a disk. If you send it on a disk, any format is acceptable. ASCII text is easy for me to work with. Your help is appreciated. (MSDos, 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.

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.

Kansas Biology Teacher

If your dues are not up to date you will no longer receive the Kansas Biology Teacher.

Send your article(s) to John Richard Schrock, editor KBT, Division of Biology, Box 50, Emporia State University, Emporia, KS 66801-5087.

Kansas Environmental Monitoring Network -

The primary objective of the Kansas Environmental Monitoring Network, KEMNET, is to develop a curriculum that engages students in meaningful scientific research. The KEMNET model changes the way science is presented to students and it results in a dramatic change in the way students learn science. Instead of emulating and recreating historical experiments, students are working on research that adds to our knowledge of the natural world. Students become active researchers, using the skills of scientific inquiry in environmental research. The very nature of environmental research requires that large quantities of data before patterns to begin to emerge. Environmental data is often spatially and temporally disperse which requires large numbers of students to work together to collect the data. The scale of the research allows students to function as participants in the project without having to be solely responsible for all aspects of the work. Students begin with data collection on a project. Some of the students quickly move to processing the collected data because they want the data to have meaning. They want answers to the questions that have been raised. As the students work with the data and become comfortable with scientific process, they often begin developing new questions and pursue new directions. Other students collect data on a variety of projects and do not move beyond this point of participation in a particular project. All students are exposed to the ongoing research process and are active participants in the process. Students are able to experience the growth of a research project and learn the nature of science from it.

Students throughout the KEMNET project are connected to one another by the common desire to gain new information. The student can be in the same class during the same hour or in a different school hundreds of miles away. Data collected by students is shared by all students over an existing computer network and during project wide meetings.

The best way for students to learn science is to do science. Whether a student continues in science or not, they need to understand and appreciate the process of science because, at issue is, students need to understand where knowledge comes from. In addition, all students can benefit from understanding the thinking and problem solving skills involved in research. It is difficult

to introduce science to students when they feel solely responsible for the research project because the task can seem so large. They feel they have to be creative problem solvers, with little experience at it. The KEMNET model allows students to grow into the process without the students experiencing the full burden of the project. Many of the original research ideas come from the professional scientists, who are well practiced at developing answerable questions. The students are able to generate questions more easily from their work once they have direction.

The following are examples of projects that have developed implementing the KEMNET model. These are ongoing projects in KEMNET classrooms:

- Monarch Project. A researcher from the University of Kansas, Dr. Orelly Taylor, began a project of tagging and monitoring migrating monarch butterflies. It is part of an effort to better understand the Monarchs changing populations. KEMNET students have helped collect and tag thousands of migrating monarchs over the past two years.

- Cottonwood Leaf Stomatal Densities. This project is establishing baseline data of stomatal densities on the leaves of cottonwood (*Populus deltoides*) trees. Stomatal densities can change in response to varying climatic conditions. These densities may become a valuable bioindicator of environmental change.

- Water Quality Monitoring Network. In cooperation with Kansas Department of Health and Environment, KDHE, a water quality network has been established. KDHE received a grant to develop a network of high school teachers and students to monitor water quality of Kansas Waterways. The students and teachers in this project use the existing KEMNET structure to collect data on streams targeted by KDHE. This data will be added to existing data that KDHE maintains. The data will be used by the students to help develop management plans for the watersheds.

- Carrion Beetle Project. This project will attempt to establish range and distribution of the endemic carrion beetle populations in the state. One beetle, the American Burying beetle, is an endangered species. Little is currently known of local populations.

~~and the University of Kansas, and Global~~

Project Proposal

I would like to propose the following project to see if there is any interest in this project???

I would like to propose a project to interested schools. I would like to see each school plant an area of two square meters of alfalfa somewhere in their school community. This could be on their school grounds or in their study plot. Then again it could be in the teachers backyard. I will provide the seed so that the source and variety of seed is the same at all sites in the project.

Alfalfa is a perennial and will grow year after year. It also has worldwide distribution. This two square meter plot could be useful for a number of joint studies between our schools. We could look at stomatal densities and have the same plant for direct comparison. Leaf yeast could be another option. Alfalfa is also very good at bringing up materials from the soil, so the plant could be ashed and checked for metals. We could also look at primary production or overall biomass production in the area.

A large number of studies could be generated by this plot. The projects above are only a few random ideas. I am sure we could get excited and come up with many more. The plot of alfalfa would give us a standard plant for direct comparison between our schools sites. Perhaps then the variation we observe between our sites would be due to the varying environmental conditions between our schools.

We would have to plant the seed this spring (North America) and get our plot established so that we could begin joint projects next fall. Steve Case

The Prairie Center

Education programs are an important part of life at the Prairie Center. One of the important features of the Prairie Center is its accessibility for education. As important as the habitat preservation is, so is the educational programming. The prairie can be extremely difficult to appreciate. It is hot in the summer with lots of bugs and cold in the winter, and yet with a little education, it can be appreciated as one of the most biologically diverse and interesting ecosystems.

Several education events occur at the Center on a regular basis. The spring Prairie Festival is an opportunity to educate the public on the important role of fire to the prairie ecosystem. In addition it is a time to get people to the center to have a good time. This festival has drawn up to 1000 people to the Center on the third weekend in April.

Walk for Wildlife is an event sponsored by Wildlife and Parks. People are invited to the Center to observe native wildlife brought in by area wildlife rehabilitation groups and to enjoy the Center's trails.

Summer Natural History Workshops are sponsored by the Outdoor Education Laboratory. These workshops draw area students to the Center for week long environmental workshops. These workshops not only emphasize the unique features of the Prairie Center but introduce young people to the outdoors.

Campfire talks occur at the lake in May and June. These are family talks that range from natural history topics to storytellers.

Teacher training workshops are offered each May in conjunction with the Olathe School district. These workshops introduce teachers to activities they could

use while visiting the Center as well as suggestion for environmental education. In addition, the Prairie Center has been very active with Project Wild. Project WILD is an interdisciplinary environmental curriculum for teachers and outdoor leaders. Curriculum training sessions are held regularly at the Center.

The Center is also available to a variety of school and community groups. Each of these group's activities are consistent with the our operating philosophy and the Center provides them with an education resource to help meet their goals.

If you would like to join us for an outdoor experience, we will be participating in the area winter bird count this month. In addition to adding to the area list, we are developing resource list for the Prairie Center. This annual count will help us monitor the health and vitality of the center. Please call for information on the date of this years count. We will meet at the Prairie Center Barn at 8:00 a.m. and begin with instructions from there. You do not need to be an experienced birder to participate. We will match you up with others who really "know" the birds. Come join us and have some fun bringing in the new year. Steve Case

Birds Causing Cancer?

From: American Family Physician (47:1276) 1993

In some countries, even though fewer people smoke, the incidence of lung cancer continues to rise. Exposure to birds has been proposed as an additional cause. In England it was found that keeping a pet bird increases one's chances of lung cancer at least 3-fold, but the increase varied in other countries. These differences seem to depend upon the type of birds kept, and pigeons seem to be the ones most to blame. Minute parasites in the dust from pigeons get into the lungs of people who are in frequent close contact with the birds, irritating the lining of respiratory passages in the lungs and possibly triggering malignant disease.

This gave a lot of the cancer researchers I know a big laugh, almost as much as the article published a few years ago on how multiple sclerosis was caused by eating dirt in a town in Saskatchewan.

Neoplasia (what we know as cancer) occurs spontaneously or as a result of contact with a known agent capable of affecting DNA (chemical or viral) and the turning on of "tumor genes". Sucking down the parasites likely does nothing; sucking the dust will probably increase your chances of lung cancer by a couple of percentage points. Birds are known to be carriers of flu and whooping cough however.

I haven't read the article cited in the original post so I can't comment on its quality. It's certainly the case that many statistical associations can be found in epidemiology studies which, although valid associations,

do prove a cause-and-effect relationship. Confounding variables are often ultimately found to be the cause of the original association. Nevertheless, unless a convincing confounder candidate has been already been identified for this association, I wouldn't dismiss it out of hat simply because it seems improbable. Can a plausible biological mechanism for this association be envisioned? Maybe the parasite idea, as described in the original post, seems unlikely because of no direct interaction with DNA. Actually, there are chemical carcinogens which are not geno-toxic (i.e., mutagenic) yet induce neoplasms through chronic cell killing and resultant tissue regeneration. The rapid cell growth allows cells with pre-existing mutations (initiated cells) to expand in number and possibly form a neoplasm. I have no idea if this mechanism is operating in the pet bird-lung cancer association but the general mechanism is plausible.

Another plausible idea occurred to me. Birds, particularly pigeons, often harbor fungi of the genus Aspergillus. Many species of these fungi excrete mycotoxins known collectively as aflatoxins. Aflatoxins are among the most potent animal carcinogens known. They are also thought to be responsible, along with endemic hepatitis B, for the high incidence of liver cancer in parts of Africa and Asia. Although aflatoxin exposure is mainly associated with liver cancer in humans and experimental animals due to exposure in food, lung tumors have been seen in mice. I think the toxins can be carried by airborne Aspergillus spores as well as being excreted by vegetative cells, so inhalation exposure potential exists. It's, at least, a hypothetical possibility.

Even if the association were real (i.e., causal), it's another question whether the increased cancer risk from having a cage bird would be of any significance compared to the overall background cancer rate.

Gregg Recer -- NYS Dept. of Health - Bureau of Toxic Substance Assessment - 518-458-6373 FAX #: 518-458-6434 - email: gmr05@albnydh2.bitnet

The Red Buffalo

The tallgrass prairie is an ecosystem in conflict. Differing forces of nature pull this community in dissimilar directions. From the East, the forest invades the tallgrasses. Supported by rainfall, and on floodplains, the woodlands snake out into the prairies. Regular cycles of drought and our strong south winds push the woodlands back. The primary force keeping the tallgrass prairie intact is fire. Without fire, the tallgrass prairie community would have a difficult job competing against the invasions of the woodlands

People have strange and conflicting views of fire, as they do about all of the outdoors. Many people see fire as the great destroyer with animals fleeing in it path (thanks a lot, Bambi). Quite the opposite is true. Fire is

the savior of the tallgrasses prairie and the animals are adapted to it's presence.

Researchers at the KONZA prairie, near Manhattan Kansas, estimate that any given grassland burned on it own once every five years. These fires were started by lightening strikes on the dry grasses. Over the last 10,000 years that prairie has occurred in Kansas, the plant and animal communities have become dependent on this regular burning cycle for their survival.

The true life force of prairie, about 66%, occurs below ground. The towering grasses of the tallgrass prairie are the only part visible to people but the majority of the biomass and life force of the prairie is below ground. The face the tallgrasses show us changes each year as the above ground material dies back. The thick tangle of roots retain the life force of the prairie each year. When trees invade, the prairie will retreat from the shade and hide below ground, waiting. When these areas are cleared, a "surprise" prairie will return to reclaim the area from below.

Fire moving through a prairie area has several beneficial effects. Woody plants invading the area have most of their energy stored above ground. When the fire comes through, it kills these plants. It will take several years for them to regrow. The prairie, on the other hand, will spring back from it's roots and grow to its normal height that year. All of the plant material that is above ground is locked up in the dead plants. Burning releases this material and the ash acts as fertilizer to the root system. Soil pests and plant disease also can be removed by burning.

The truth of fire is that it allows this diverse and complex community to exist. When to burn is the final question. Prairie researchers feel that burning when the cool season grasses are active and the native warm season grasses are not yet growing, gives the best competitive advantage to the native community. At the Prairie Center we feel this best occurs in the third week in April.

The native americans called fire the Stampede of the Red Buffalo. If you would like to observe this increasingly rare natural phenomenon, join us at the Prairie Center on April 18th. Weather permitting, we will give a talk on how and why to burn at 7:00 p.m. followed by a demonstration burn at 7:30 p.m. This event occurs as a part of our spring Prairie Festival. This festival will also include a Walk for Wildlife, nature walks, and a Earth Expo. Join us for the day and in the evening watch the rebirth of the prairie.

Bird song tapes for the visually handicapped—

While I agree with the previous posts that CDs are better than tapes, and that Birding by Ear is good, I think you might want to consider the following:

A Birdsong Tutor for Visually Handicapped Individuals - a narrated introduction to the sounds made by common birds, frogs, insects, and mammals of the eastern United States and Canada. I believe this was produced for the National Library of the Blind (name?). It is a set of two cassettes and is available for \$14.95 from the Crow's Nest (Cornell Laboratory of Ornithology) - 607-254-2400.

Also in the Birding by Ear series is Backyard Bird Songs. This tape concentrates on the 28 common species.

CD Extinction Alert

A friend just tried to buy a portable CD player for, among other things, using in the field with bird recordings. Much to our dismay, it appears that portable players with the features most useful to (at least many) birders are no longer in production. The features of particular interest are:

1. Indexing---this allows the user to go to exactly the beginning of a given bird's recording. CD's are arranged in a hierarchical fashion, with numbered "tracks" at the highest level (the only level for many pop music CD's) and tracks divided into numbered "indexes" (used mainly in classical music and odd things like bird sound recordings). In the Petersen CD's, each bird gets an index number (e.g. Track 3, Index 7).

2. A-B Repeat---this feature allows a CD to be set to repeat indefinitely whatever lies between any two points on the recording (e.g. the call or song of a bird or--- handy for practice---two adjacent, perhaps related species).

A number of portables have indexing (though certainly not all). Sony was, I believe, the only manufacturer making portables with A-B Repeat. They no longer are! No models currently in production or apparently anticipated have that feature. I suspect that the problem is that the main users---musicians etc. wanting to study/practice a given passage---mainly use home machines for that purpose.

Anyway, if anyone is serious about getting a portable CD with these features, the only recent machines with A-B repeat are Sony models D-35, D-66, DT-66, D-303, D-555. I'm not *sure* about which have indexing, though I know the 303 & 555 have it. You might want to try local places as well as mail order. Most mail order places (as my friend discovered) are all out of these discontinued modesl. Any place that has them probably will sell them at an attractive price.

Larry Gorbet <lgorbet@TRITON.UNM.EDU
University of New Mexico
Albuquerque, NM 87131-1086

Condors

I don't know if this made the national press or not, but I thought I'd pass it along. Apparently another of

the released California Condors has dies, by flying into a power line. Of the eight originally released, then, 4 have now died, one from drinking anti-freeze, and three from power line collisions. Those in charge of the release program are trying to capture the remaining four birds and move them to another location, in Santa Barbara County, with perhaps fewer hazards. That is the location where more Condors will be released soon as well (next spring, I think). As an editorial comment, if the birds have this much difficulty with power lines, it's hard to see them becoming established in any reasonable sense.

Sandy Koonce koonce@ultrix.uor.edu

Cowbird Parasitism

The Birds of North America has published an article on Brown Cowbirds by Peter E. Lowther. It states that over 220 host species have been reported as being parasitized by BC's and 144 species actually raised Cowbird young. The most common hosts by number of parasitism records (over 100 each) were: Yellow Warbler; Song Sparrow; Red-eyed Vireo; Chipping Sparrow; Eastern Phoebe; Rufous-sided Towhee; Ovenbird; Common Yellowthroat; American Redstart; Indigo Bunting; Yellow-breasted Chat; Red-winged Blackbird; Kentucky Warbler; Willow Flycatcher; Bell's Vireo; Yellow-throated Vireo and Field Sparrow.

The article also reported a controlled experiment on the nest preferences of Cowbirds. The birds preferred nests with eggs of smaller volume than their own, active nests with 2 host eggs (active means an egg added each day), large (>7.6 cm diameter) closed nests and small (<5.1 cm diameter) open or closed nests rather than large open nests. Information from nest cards in Ontario indicate frequent and heavily parasitized hosts have nests with an inside diameter of 3.8 to 7.6 cm. Of 2,393 nests, 1,925 were not on the ground (963 of these from 0.9 to 2.1 m); 963 in deciduous trees or shrubs and 561 in coniferous trees or shrubs. There is an extensive bibliography at the end of the article.

Jean Bickal - Lawrenceville, New Jersey -
bickal@pilot.njin.net

Birdsong Recordings

I recommend CDs rather than tapes. Cornell Lab of Ornithology produces the Peterson EASTERN/CENTRAL bird song CD. It has 250+ birds of the EASTERN US. They also produce a WESTERN CD with 500+ bird songs. The quality of the recordings is excellent.

The CD is widely available but if you can't find it in your area let me know; I can give you Cornell's address and/or phone number. Or for additional info e-mail me at the address below.

I also recommend the tapes "Birding by Ear". It sells for under \$50 and is good because it points out what to listen for (points out the similarities and differences in songs). It is a beginner level but can be worthwhile.

cats, Adlai Stevenson

To the Honorable, the Members of the Senate of the
Sixty- sixth General Assembly:

I herewith return, without my approval, Senate Bill No. 93 entitled "An Act to Provide Protection to Insectivorous Birds by Restraining Cats." This is the so-called "Cat Bill." I veto and withhold my approval from thisbill for the following reasons:

It would impose fines on owners or keepers who permitted their cats to run at large off their premises. It would permit any person to capture, or call upon the police to pick up and imprison, cats at large. It would permit the use of traps. The bill would have statewide application--on farms, in villages, and in metropolitan centers.

This legislation has been introduced in the past several sessions of the Legislature, and it has, over the years, been the source of much comment--not all of which has been in a serious vein. It may be that the General Assembly has now seen fit to refer it to one who can view it with a fresh outlook. Whatever the reasons for passage at this session, I cannot believe there is a widespread public demand for this law or that it could, as a practical matter, be enforced.

Furthermore, I cannot agree that it should be the declared public policy of Illinois that a cat visiting a neighbor's yard or crossing the highway is a public nuisance. It is in the nature of cats to do a certain amount of unescorted roaming. Many live with their owners in apartments or other restricted premises, and I doubt I doubt if we want to make their every brief foray an opportunity for a small game hunt by zealous citizens--with traps or otherwise. I am afraid this bill could only create discord, recrimination and enmity. Also consider the owner's dilemma: To escort a cat abroad on a leash is against the nature of the cat, and to permit it to venture forth for exercise unattended into a night of new dangers is against the nature of the owner. Moreover, cats perform useful service, particularly in rural areas, in combatting rodents--work they necessarily perform alone and without regard for property lines.

We are all interested in protecting certain varieties of birds. That cats destroy some birds, I well know, but I believe this legislation would further but little the worthy cause to which its proponents give such unselfish effort. The problem of the cat versus bird is as old as time. If we attempt to resolve it by legislation who knows but what we may be called upon to take sides as well in the age-old problems of dog versus cat, bird versus bird, or even bird versus worm. In my opinion,

the State of Illinois and its local governing bodies already have enough to do without trying to control feline delinquency.

For these reasons, and not because I love birds the less or cats themore, I veto and withhold my approval from Senate Bill No. 93.

Respectfully,

Adlai E. Stevenson, Governor

From:"Nina Mollett FTNDM@ALASKA.BITNET"

Night-vision goggles

The buisness section of the Washington Post yesterday had a short piece on the availability of Russian Army surplus night-vision goggles through a bird feeding supply store in the DC area. The owner of the American Wild Bird Co. in Rockville, Maryland (301 279-8999) saw them advertised in a hunting magazine, and after trying them out is carrying them. They run from \$599 to \$899, depending on the level of illumination and magnification. These sound like the type that gather the available light and magnify it, asopposed to sending out a beam of electromagnetic radiation beyond our visible perception to "illuminate" an object, and converting this radiation to a range visible to humans.

I tried a pair of US Army surplus night-vision goggles once, and found them to be pretty neat. I took them out one spring night to a woodcock display area. After seeing a male land nearby, I approached a little closer, until I could see him standing. As he started his "peenting", I answered him to see his response, and was startled to see him immediately face me, raise his wings above his back, and begin approaching, while continuing to peent. Eventually he broke off his approach.

I also saw a great horned owl fly across a meadow, but found visibility more limited in a thick woods where light levels were lower. Moonlight, starlight, reflection of light off snowcover, etc would all increase the goggles' effectiveness.

I had borrowed the goggles from a wildlife unit at a university, and I know of another zoology department that had a pair. I can imagine they would come in handy for alot of wildlife studies; for instance banding and studying owl movements at migation points such as Cape May, NJ and Whitefish Point, Michigan. Not to mention the fun someone could have just observing bats, flying squirrels, raccoons, and other nocturnal life that is normally difficult to see.

I don't know any details about the type of battery needed to power such goggles, or how difficult it would be to get them serviced.

Gene Sattler - Washington, D.C.- sattler@onyx.si.edu -
From: Gene Sattler <sattler@ONYX.SI.EDU>

Remember:

Reduce - Reuse

Recycle - Refuse

RETHINK!

Be a part of the cycle and buy recycled products.

Great Plain Bread Company Closes!

Due to the problem of hiring a full time baker it is no longer possible to purchase Great Plain Bread in Salina. Thom Leonard who started the baker with assistance from four other parties has left to travel the country on request and act as a consultant for individuals or groups

who which to start a bakery of this nature. It is sad that these small businesses are unable to have success.

OBTA: Recognizing Excellence In Biology Teaching

N O M I N A T I O N - - - - F O R M

NABT OUTSTANDING BIOLOGY TEACHER AWARD

I nominate

Teacher name

School name

School Phone

School Address

as an OBTA candidate

Signature

Title/Connection with nominee

Send to your State OBTA Director:

Barry L. Schartz, Sc. Dept.
Goddard High School
301 South Main
Goddard, KS 67052

NABT Nomination Letter

Audubon Society Page 1 Rowe Sanctuary

Audubon Society Page 1 Rowe Sanctuary

Biotechnology Careers NABT1

Monograph Critical Thinking NABT

Monograph - Importance of Taxonomy NABT

Favorite Labs - NABT

Order and Diversity - NABT

Teaching Critical Thinking Skills - NABT

School For Deaf #1

School For Deaf #2

K. A. B. T. Calendar of Events

Date	Event
September 18, 1993, Saturday	Fall Meeting - Main Topic Ecology - Salina, Kansas
March 12-13, 1994	Field Trip To Sandhill Cranes - Kearney, NE
Reservations Required - Phone (913) 825-7742 by February 10th.	
March 30 - April 2, 1994	NSTA National Convention - Anaheim, California
April 23-25 , 1994, Friday-Sunday.....	KATS Kamp - Rock Springs 4H Ranch
April 23, 1994 5:10 PM.....	KATS KATOBLISM Fun Run/Walk - Check KATS Newsletter
Reservations Required - See Enclosed Form In Newsletter	
May 6-7-8, 1994, Fri-Sat-Sun	Spring Field Trip - Meeting - Cheyenne Bottoms - Camp Aldrich

Please Send Dates and Information to:

John Wachholz, 2311 Applewood Land, Salina, KS 67401

KABT Membership Application - Renewal - Form

Name: _____

(Mr.-Mrs.-Ms.-Dr.-Miss)

First Name

Last Name

Mailing Address: _____

City: _____ State: ____ Zip: _____

School/Institution: _____

Position: _____

City: _____ State: __ Zip: _____

Phone: Work (____) ____ - _____ Home: (____) ____ - _____

Enclosed Dues For KABT \$10.00 / Year _____

Life Membership Available For \$200

Yearly Due Date is September 1st.

Make Check Payable To KABT -- Tax ID #: 48-0945206

Date Sent: _____ Check #: _____ Date Received: _____

Remit total to:

Kansas Association of Biology Teachers

John Wachholz, Treasurer

2311 Applewood Lane

Name: _____

Address: _____

City: _____ State: ___ Zip: _____

Enclose \$10 Registration Fee - Check #: _____ Date: __/__/1994

Deadline For Registration is April 23rd so we can work on possible group transportation.