

# BIOFEEDBACK

Newsletter of the Biology Department and BioClub of Saint John's University and the College of Saint Benedict

## Roers Presents Seminar on Zebra Mussels

In January, SJU senior biology major, Marty Roers, presented the results of his Honors Research project. The title of Marty's presentation was, "The effect of environmental calcium concentrations on Zebra Mussel (*Dreissena polymorpha*) shell formation". Among other things, Marty found that mussel shells from Lake Superior had less calcium than those from other Great Lakes and that the calcium content was correlated with environmental calcium levels. The abstract from Marty's Honors thesis is reproduced elsewhere in this issue.

## Biology Club News

by Tom Dudley,  
SJU Senior Biology Major

As the semester progresses and the sun continues to melt away the winter snow, the Biology Club is anticipating a full spring of activities and events. At the club's February meeting, approximately twelve members gathered to discuss the many events the club would like to sponsor this spring. Among the activities discussed included a variety of nature walks and studies of the CSB and SJU woods and wetlands. Interest was expressed in bird watching, plant walks, and guided wetland tours led by professors of the Biology department.

A second item which was addressed at the February meeting was the acquisition of a public speaker sponsored by the Biology Club. Members of the club were interested in inviting a speaker to talk on current environmental issues and/or concerns such as forest preservation, endangered species, water conservation, etc. The Biology Club is open to any suggestions from students or faculty; the event will be open to all students from both campuses. If anyone has any comments or ideas, please contact Tom Dudley at 363-7384.

This spring, the Biology Club will be sponsoring a program designed to help biology students who have questions regarding the course requirements or admission processes of graduate school,

medical school, dental school, etc. It was suggested by various upper-classpersons that additional information or assistance in these areas during the freshman or sophomore years would be beneficial. As a result, a program will be designed in which various student and faculty will be made available to answer any undergraduate questions concerning post-graduate opportunities. Any professors or students interested in such an event should contact Jon Krook at 2881 or Terry Panvica at 2948.

As the snow continues to melt and the days and nights become warmer, planning for the annual spring camping trip is underway. The event is tentatively scheduled for the final weekend in April and possible sites include Ely or the North Shore. Information regarding the camping trip will be discussed during the club's meeting in March. Students or faculty interested in this event are encouraged to attend.

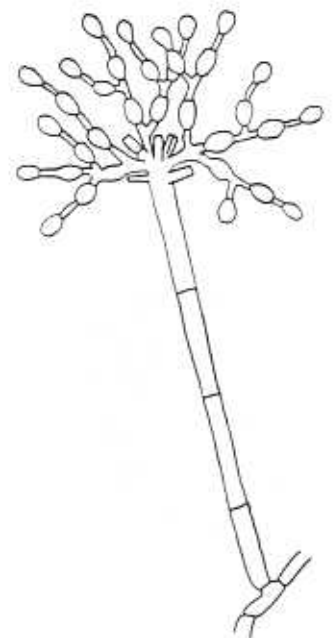
## Bioherbicides

by Tim Haeg,  
SJU Junior Biology Major

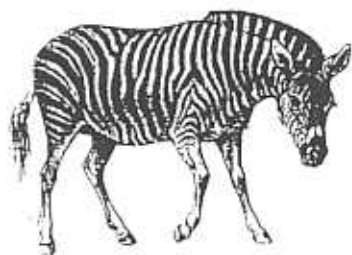
On February 24th, Dr. Stephanie Digby from St. Cloud State University, St. Cloud, MN, visited the Biology Department to present a seminar. Her presentation dealt with bioherbicides, which are indigenous parasites that can be used to control weedy plants in agricultural fields. These parasites are commercially produced and applied as chemicals. Dr. Digby's work was mostly involved with the use of fungi as bioherbicides for treating weeds in Arkansas rice fields.

The advantage of using bioherbicides is that they are host specific, environmentally safe and have a relatively low cost. Current research is focused on the development of new bioherbicides, the safety of using bioherbicides (i.e., will they attack crop plants?) and the genetic improvement of strains of bioherbicides.

Dr. Digby also discussed the biological, environmental and economic limitations



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of bioherbicides. For example, one concern is that if the bioherbicides are not genetically stable they may revert back to a non-pathogenic form. The best part of Dr. Digby's presentation was that she exposed many of us to a growing area of biology.

### **Summer Research Programs**

Summer/Fall internship programs are available through The Student Conservation Association, Inc. Positions range from wildlife and fisheries research and rare and endangered species protection projects, to field archaeology, recreation management, environmental education, and historic interpretation. The brochure is available in Steve Saupe's office. For more information contact Lesley Sullivan at The Student Conservation Association, Inc. P.O. Box 550, Charlestown, New Hampshire 03603. Phone (603 543-1700) and FAX (603 543-1828).

The University of Wisconsin-Madison's McArdle Laboratory for Cancer Research offers a course of study and research leading to a Ph.D. degree in the field of Oncology. The curriculum provides the opportunity for the advanced study in cellular, developmental, and molecular biology. The necessary information is posted on the biology bulletin board.

### **Alumni News**

Katie Coldren, CSB '91, is a Peace Corp volunteer teaching in Swaziland. She recently spent her six-week vacation traveling through Swaziland, Zimbabwe and South Africa. She reports encounters with baboons, zebras and warthogs in Hwange National Park.

Mary K. Tefft, CSB '92, is working as a veterinary assistant in Omaha, NE. She writes about some interesting experiences including drive-by shootings in the all-night clinic. She is also a stage manager and general fill-in for a local dinner theater production written by her sister and brother. You can contact Mary K. at 4161 Cass Street, Omaha, NE 68131.

Tom Brodnicki, SJU '91, sent Dr. Cheryl Knox a belated holiday letter. For the past year and a half, Tom has been pursuing a Ph.D. in biochemistry at the University of Illinois at Champaign/Urbana. In his research he is using molecular biology and

biochemistry techniques to sequence a single chain T-cell receptor. In his letter, Tom expounds about how difficult, but great it is to be involved in an ongoing research project and about how much he misses SJU/CSB.

...Sometimes I miss the good life - the woods and lakes, four-hour labs that actually worked and free time. You never mentioned the long hours and frustrating set backs that occur during research. Oh Yea! There are some good results, too. I must say, overall, I am enjoying grad school. I still find myself adjusting to a school that has four times as many students than St. John's and St. Ben's. Sometimes I even feel old as I teach freshmen chemistry and get clobbered on the basketball court by guys five years younger than me...

[As an aside to all students, faculty just love to get newsy letters like these.]

### **Tree Fetish**

*by Chris Altman*

*SJU Sophomore, Biology Major*

*(note: we planned to include this in a Christmas edition, which never materialized. So, we decided to be really early for the '93 holidays, eds.)*

Since this is my first official column in Biofeedback, I decided that a nice easy assignment would help me get in the swing of things involved with writing articles, so I decide to do a little field work.

Christmas is coming, and many families will be putting up the good 'ole Christmas tree. Wouldn't be interesting to see what kind of tree, artificial or real, that Biology majors at SJU/CSB prefer? Why yes, very interesting! Full of extreme excitement, I asked a Biology Major from each class that question.

Karen Bentfield, a freshman Biology major, said she like artificial trees because "They're easier to clean up after, and you're not taking anything from the environment."

Sophomore Biology major Curry MacDonald was very thorough when explaining his preference: "The necessity of an organic tree as opposed to a synthetic one is merited by the fact that the frenetic activity associated with



Christmas time requires the oxygen produced by the aforementioned organic tree. A synthetic tree would, in contrast, produce the dreaded holiday doldrums." In plain English, Curry said that he prefers real trees over artificial ones.

Colleen Corrigan, a junior Biology major, said, "I like real Christmas trees because its always been a family tradition (in her house) to go out and chop down a tree. I also like the smell of freshly cut pine."

Senior Biology major Chris Ortmann also said he preferred real trees: "A natural tree is much better because of the scent it gives the room." Chris jokingly continued, "Who cares about cleaning it up. That's what sisters are for."

Well, that's how fellow students at St. John's and St. Ben's responded to my difficult question. How do I feel? Personally, I enjoy real trees because after Christmas is over, I like to cut of the branches and sleep on them like Harry did in *Harry and the Hendersons*. Also, tree sap tastes good with Johnnie bread.

### **Programs in Social Ecology**

The Institute for Social Ecology (PO Box 89, Dept B, Plainfield, VT 05667-0089; 802-45408493) has published a booklet of their 1993 Programs and Events. This organization focuses on the principles of social ecology which integrates the study of human and natural ecosystems through an understanding the of interrelationships of culture and nature. They advance a critical, holistic world view. Write or call them for more information or to obtain a copy of their programs.

### **Earth Work**

The February 1993 issue of *Earth Work*, a monthly publication of the Student Conservation Association, lists a variety of seasonal and permanent positions. If you want to see a copy, contact Dr. Saupe (SC 314; x2782). In addition, a catalog of internship opportunities through SCA is available in the CSB Career Resource Center.

### **Careers in Clinical Lab Work**

The Career Resource Centers recently sponsored an informational session concerning careers in clinical lab work. Four individuals presented information concerning their respective professions. Dr. Saupe attended the presentations as the representative from the Natural Science Division. Among the interesting things we learned is that cytotechnology (analyze smears for cancerous cells) is a field that has many more jobs that applicants. For information about this area, contact the Career Resource Centers.

### **Summer Programs at Lake Itasca**

The Lake Itasca Forestry and Biological Station located on the east shore of Lake Itasca in Itasca State Park is run by the University of Minnesota. This summer, as always, they are offering variety of month long courses for biologists. For more information contact Dr. Saupe (SC 314; 2782) or check for their poster in the hallway.

### **The effect of environmental calcium concentrations on Zebra Mussel (*Dreissena polymorpha*) shell formation**

by Marty D. Roers,  
Senior SJU Biology Major

*[note: this is the abstract from his Honors thesis research project]*

The calcium content of zebra mussel shells from eight different natural and experimental waters was analyzed. Large control Lake Superior shells have less calcium compared to large shells from the other Great Lakes. The shells' calcium content was dependent upon the environmental calcium level and the length of the growth period spent at each condition. An inverse relationship exists between the size and calcium content of zebra mussel shells. The calcium compounds ( $\text{CaCO}_3$  or  $\text{CaCl}_2$ ) in experimentally hardened water had no effect on shell composition.



## **BIOFEEDBACK**

*BIOFEEDBACK* is a monthly publication of the Biology Club and the Biology Department at Saint John's University and the College of Saint Benedict.

Send contributions for publication to one of the editors at:

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## **Science Day**

In November, the Biology Department participated in Science Day, which is a program designed to give prospective students an overview of science (including biology, chemistry, physics, mathematics and computer science) opportunities on campus. Visitors to the Biology Department were first shown a slide presentation summarizing departmental activities/opportunities. Then, our guests were invited to wander through the department to meet faculty (including Dr's. Jensen, Wurdak, Zaczkowski, Saupe, Rodell, Poff, Lust) and students (including Karla Gengler, Justin Wynn) and to check out various displays (Museum, Herbarium, Greenhouse, instrument room, scanning electron microscope, cell culture room, aquaria, etc.). Overall, it was a fun day and there seemed to be a lot of interest in departmental activities.

## **MN Zoo Internships**

The deadline for applications for internships at the Minnesota Zoo is April 1. If interested, contact the Internship Coordinator, Minnesota Zoo, 13000 Zoo Boulevard, Apple Valley, MN 55124.

## **Biology in the News**

The following is a partial listing of "discoveries" reported during the past year. They are adapted from *Science News* 142:433-434 (December 19 & 26, 1992).

- nickel is essential for plant growth and development.
- a naturally-occurring protein was found that causes mature nerve cells to grow and divide.
- a cluster of proteins responsible for initiating gene replication was discovered in yeast.
- a foreign gene was permanently transferred into wheat.
- children do not grow steadily, but in spurts.
- an appetite for fat may be determined by a brain protein, galanin.
- vitamins (antioxidants) may help plants withstand stress.
- human bone marrow cells were transplanted into a sheep fetus producing a chimera
- high levels of iron may be a more significant risk factor in coronary disease than high cholesterol.
- a diet rich in calcium may reduce the risk of high blood pressure
- prostate cancer is signaled by elevated levels of a particular blood protein
- nitric oxide apparently triggers the male erection
- the immune system plays a role in Alzheimer's disease.
- yew tree bark shows promise in treating breast cancer.

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