DR. KNOX RECEIVES A GRANT

Dr. Cheryl Knox, CSB/SJU Biology Department, has received a grant from the Natural Science Foundation (NSF). The grant is an IU grant which means it is used for instrumentation and laboratory improvement. The grant will be used to purchase an ultracentrifuge. This equipment will allow students and faculty to separate macromolecules such as DNA from RNA from protein, which is Dr. Knox’s main use. The ultracentrifuge will allow students to see different cell organelles, separate from the cell, without the organelles being damaged. It will be a good learning tool and a useful addition to the department.

CONGRATULATIONS DR. KNOX!

CHASING AFTER CHICKADEES

Jessica Sutherland and Dr. Marcus Webster, CSB/SJU Biology Dept., assisted by Julie Mitzek will initiate studies of black-capped chickadees in the SJU woods this summer. Their research will focus on patterns of behavior, energy requirements and weather effects on the annual cycles of chickadees. With stopwatch and clipboard in hand the researchers will record the activities of chickadees throughout the summer and into next fall and winter. In addition, they will monitor weather conditions in chickadee habitat and near chickadee nests using equipment obtained from a SJU Faculty Development Grant. The goal of the project is to estimate the changes in daily energy requirements that accompany chickadee reproduction, molt and cycles of seasonal change.

SPACED OUT SUMMER

Ms. LeAnn Ricke, CSB Junior Biology major, will spend six weeks this summer at Kennedy Space Center to learn about life science experiments that will be flown on the shuttle. LeAnn was accepted into the Space Life Sciences Training Program sponsored by Florida A & M University, Tallahassee. From 16 June - 29 July she will have the opportunity to speak with astronauts and scientists that work on shuttle flights and get a chance to work with experiments and have a project of their own. Of 532 applicants only 36 were accepted. Congratulations LeAnn, and have fun!

SECOND GRADE INVASION

The Science Center was recently invaded by the second grade classes of Kelly Engel and Jodie Kragness from St. Anthony Elementary, St. Cloud. Dr. Saupe and Ms. Katie Coldren gave the children a tour of the greenhouse, museum and gave them the opportunity to use the dissecting microscopes to analyze water samples. Reprinted below are a few of the unedited thank you letters they received:

...I really liked the yellow birds and painted turtles. I thought the microscopes were cool
Love from
Tammy

...Thank you for teaching me about life. I liked the desert the most because it has the birds in it.
Sincerely, Tiffany

...I might go to St. John's Univ. myself! From Greg

...I hope I can go to college there and meet nice people like you. Your friend, Jay

...Katie I love you Steve you are a nice teacher and you to Katie. Love Rochelle
EARTH DAY EVERY DAY
- Dr. S. G. Sauge, CSB/SJU Biology Dept.

I want to thank everyone that participated in Earth Week. According to the state office, Central Minnesota had the best Earth Week festivities outside of the Twin Cities metro area. This is not surprising considering the hard work of such dedicated volunteers as Katrina Akhoven, Kevin Anderson, OSB., CSB/SJU Bicycle Club, Margie Boatz, Katie Coldren, Jennifer Decker, Norma Dickau, Dr. Phil Dunke, Dr. Bernie Evans, Jill Eversman, Dr. Norm Ford, Karla Gangler, Dan Getschow, Patty Hackett, Steve Heymans, Arnold Jirk, OSB., Judy Karsch, Joel Kelly, OSB., Kyle Kisch, John Klassen, OSB., Monica Lindquist, Dr. Ozzie Mayers, Burdette Miller, Monica Medina, Steve Nelles, Nutrition Club, Professor Bela Peteho, Peer Resource Program, Phyllis Plantenberg, OSB., Jon Reissner, Marty Roers, Paul Schweitz, OSB., Dan Sitzman, Dr. Dan Steck, John Sullivan, Mamee Swing, John Stattlemann, OSB., Janine Tull, Paul Tomcz, Margaret VanKempen, OSB., Lisa Westgard, Anastasia Willette, Dan Weber, Dr. Marcus Webster, Dr. Elizabeth Wurda and Dr. Nick Zaczkowski (and many other individuals; I apologize if I forgotten anyone).

John DeGrood, Patty Wagner and Mr. Thom Woodward (SJU Alumni Director) deserve special recognition for their outstanding contributions to the Earth Day effort. Without them, there probably would not have been a celebration on our campuses. In addition, several groups should be thanked for providing funds for activities. We are also grateful to the Independent, Record and other campus publications for publicity. And above all, thanks to everyone who supported the cause!

In 20 years, on the next anniversary of Earth Day, we will be able to remember the importance of Earth Week 1990 in helping to educate the world about the importance of global stewardship. Speaking for our children and grandchildren, I say “thank you”.

EASTERN HEMLOCK SEMINAR

Ms. Catherine Zabinski, CSB 1983, recently presented a seminar entitled, “Population History and Genetics of Eastern Hemlock”. Cathy is currently completing her doctoral degree in the Department of Ecology, Evolution and Behavior at the University of Minnesota. Cathy’s presentation described her dissertation research which has focused on the degree of genetic diversity in the Eastern hemlock. Using starch gel electrophoresis, Cathy found that this conifer (which is not related to the hemlock that killed Socrates) has a surprisingly low rate of genetic diversity.

GATHERING AT GOOSEBERRY
by Dr. M. Webster, CSB/SJU Biology Dept.

The Biology club (not the Math Club), ably led by President Katie Coldren and financed by Pat Troy the Treasurer, traveled last weekend to Gooseberry Falls State Park on the north shore of Lake Superior. A semi-annual event, this expedition continues a tradition of Kamikaze Kamping trips the Biology Club has sponsored over the years. Prof. I. Stiller, J. Sutherland, and M. Webster accompanied the students — Elizabeth Conrad, Monica Lindquist, Michelle Illies, Julie Matzek, Pat Troy, and Katie Coldren.

Guitar accompaniment for campfire singing was provided by Dr. Karen Erickson (Modern & Classical Languages Dept.) and by Jessica (on her brand-new steel-stringed baby). Highlights included “Wild Thing” (theme song of the trip), “A Soprano Sings the Blues” by Karen and a rousing rendition of “I Got You, Babe” with Monica singing lead. We ate well — superior spaghetti and banana boats topped the culinary charts.

We hiked all around the park, from the Superior shore to the Fifth Falls of Gooseberry (rarely seen by casual visitors because of the torrential streams that must be forded to get there). And there was wildlife to observe too: Red-breasted and Common Mergansers, Pied-billed Grebe, an Osprey, Blue-winged Teal, Greater Yellowlegs, and a variety of songbirds were observed along with the usual Red Squirrels and White-tailed Deer. The scent were running upriver to spawn, but populations are down this year according to reports from the Heller Smelters, a group out to catch the migrating fish.

The weather was cool and threatened rain, but we were dry and warm by the fireside. We had a very successful and rewarding trip. All who attended came back relaxed and thoroughly enjoyed the camaraderie of gathering for this camping weekend. Next time, maybe you could join us! Look for notices of a FALL CAMPING TRIP when you return in September.

TUBULIN GENES SEMINAR

Before one of our largest seminar audiences of the year, Dr. D. Peter Snustad, from the Department of Genetics and Cell Biology, University of Minnesota, presented a seminar entitled, “Structure and Function of Arabidopsis Tubulin Genes”. Dr. Snustad, who was Dr. Rodell’s first graduate school professor, indicated that Arabidopsis is an interesting plant because it has 14 different tubulin genes — more than most species. Tubulin is the protein that makes up microtubules. His lab has obtained evidence for the expression of just one of the 14 tubulin genes in pollen.
KARYOTYPING THE ROTIFER, Asplanchna hericki
by Dan Albright; SJU Senior Biology Major
Asplanchna hericki, a transparent, microscopic rotifer, inhabits the campus lakes and waterways of St. John's University. These rotifers possess a two-stage life cycle. Amictic females produce identical female progeny through diploid parthenogenesis; mitotic females produce haploid eggs that develop into males in the absence of fertilization or into diploid resting eggs if fertilization occurs. It has been shown (Gilbert & Thompson 1968) that dietary Vitamin E can trigger mixis. The goal of this study is to establish a laboratory culture of the rotifer A. hericki, prepare a karyotype and observe changes in gene activity under conditions that induce mixis. Rotifers were collected from Stumpf Lake, Collegeville, MN. Their abundance was correlated with DO, pH, temperature, phytoplankton and other zooplankton. A viable laboratory culture was set up using an unidentified species of Philodina as a prey organism. For the karyotype analysis, squashed embryos were stained using the Feulgen method. The next step in research is to directly study the change in gene activity by isolating mRNA and using a cDNA library.

PLANT UTILIZATION SPECTRA AND CONSERVATION OF BUTTERFLIES (LEPIDOPTERA: PAPILIONOIDEA)
by Jaret Daniels, SJU Senior Biology Major
In order to recommend conservation plans for butterfly species native to Minnesota and Wisconsin, it is necessary to increase our knowledge of food plant utilization. Larval host plant utilization and adult nectarizing behavior were surveyed for sixteen species of Lepidoptera common to Wisconsin and Minnesota in order to determine the nature of individual species feeding spectra. During the summer of 1989 sites in seven counties, widely distributed over the southern two-thirds of Wisconsin, were observed, and a determination was made of wildflower occurrence and utilization and larval food plant utilization. The average adult feeding spectrum was found to be relatively broad, allowing for a fair degree of flexibility in the exploitation of available nectar sources. However, the host plant utilization exhibited by the larval stages is, on the average, much narrower, and little flexibility is possible. If conservation efforts aimed at maintaining native butterfly species diversity are ultimately to be effective and productive, both aspects of plant utilization need to be examined carefully.

SELECTION AND RECOMBINATION IN Drosophila melanogaster
by Margaret Rocheford, CSB, Senior Biology Major
A base population of Drosophila melanogaster was formed by hybridizing four laboratory strains (Oregon-R, Canton, Urbana, and Samarckand). From this base, subpopulations were established and selected for increased, decreased, or median sternopleural bristle number. After fourteen generations of selection, recombination rate analysis was done for each of the major chromosomes in all populations. These values are compared to the unselected, base population. Theory predicts that alleles for higher recombination rates can "hitch-hike" with genes undergoing directional selection (increased or decreased bristle numbers), whereas stabilizing selection (median bristle number) should favor reduced recombination (Maynard Smith, J., 1977. Nature 268: 693). These results have bearing on the paradox of why genetic recombination and, hence, sexual reproduction are so prevalent in nature.
DON'T SING "KUM BA YAH" WHEN MARCUS IS AROUND
by J.E. Sutherland, CSB/SJU Biology Dept.
The CSB/SJU Bio club embarked on a journey on May fourth. That took them to Gooseberry Falls State Park way up north. Their mission was to camp, explore, and enjoy the great outdoors.

While parking out on Grandpa, Gorp, Banana Boats and Smores. We had parked our gear and were ready to set out. When I was appointed "Trail Boss" since I knew the route. It was a big responsibility, but I thought I could do it right.

In fact, I led our group for five whole miles before losing them at a light. So onward we drove, periodically checking our rearview mirror. Earnestly waiting for our convoy to reappear. But soon we gave up and instead observed flattened fauna and flora.

When we spotted our companions on the road ahead of us on Mora. After a stop at Toubles in Hinckley for food and baked goods.

We continued driving the freeway, intent on reaching the northwoods. The northshore sights were many but probably none were stranger.

Then the road sign directing us to "Castle Danger." When we at last reached Gooseberry Park, The sun had set and the skies were dark.

But thanks to our Pacific Northwest vets, We did not have to worry. Darkness did not deter them from setting up camp a hurry.

We lit the requisite campfire and gathered in a ring. For there were S'mores to make and lots of songs to sing.

Karen and I with our guitars gamely strummed along. As our young biologists raised their voices in song. And to my ears, it soon became painfully clear. That talent wise, the Music Department had nothing to fear.

Karen, our non-biologist, Had the only voice that did not our ears abuse. Although she was a soprano and not meant to sing the blues.

After lots of turns had passed, It became time to retire. Since we had nearly exhausted our supply of wood for the fire.

A few of our more adventurous souls were not ready to call it a night. And bravely explored the "Gitche Gumme" trail, Lit only by a dying flashlight.

About our evening in the tent, I must admit the truth. It gets damp cold in the land up north of Duluth.

Our thermoregulatory capacities proved to be inferior. In overcoming the bitter chill cast by Lake Superior.

The next morning we went birding with Marcus as our guide. We saw ducks, geese, a solitary loon, And some fishermen who lied.

In the afternoon while some napped, Others decided to hike some more.

Afterall, there were five waterfalls and we'd soon only four. The going was tough and the trail was very long. Each time we thought we were almost there. A trail marker proved us wrong.

But I am glad that as explorers we remained dutiful. As the fifth falls, by far, was the most beautiful. It rained shortly after our return. So there was only one thing to do. We took shelter in our tent and had songfest number two. Our songs rocked more than the previous right. But it was still poor as "I Got You, Baby" was our highlight.

Our dinner that evening was something that our chef Pat got ready. We parked out on vegetables, garlic bread, and spaghetti.

It was once again time to gather round the fire and sing. Most appropriately, our final chorus was a loud "Wild Thing." Since we substituted volume for melody in our rowdy chorus, We wondered if our neighboring campers Found it hard to ignore us.

We calmed things down a bit and sat at Marcus' knee, While he read to us the tale of the "Cremation of Sam McGee." This and the Banana Boats helped us to chill-out, And things would have us remain low key. Of this I have no doubt. But I wanted to act upon a strange yearning that I felt. And return to the river mouth to watch the catching of the smelt. So off we went into the darkness until we reached the river. The temperature made us quiver: The excitement made us guiver.

We spotted night smelters faithfully dipping their nets to and fro. But something was terribly amiss as the fish forgot to show. That, in fact, was the only disappointment of the trip for me. But this was minor, as I know. That in my life, there will be more smelt to see.

One thought was recurrent as we drove along our homeward path. We were grateful we were Bio Club and not one from Math!

BIOFEEDBACK

Biofeedback is a publication of the Biology Club and Biology Department of St. John's University and the College of St. Benedict. Send contributions for publication to one of the editors.

Student Editor: LeAnn Ricke
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BioClub Officers: Katie Coldren (5562) Definda Miller (5566) Pat Try (2459) Elizabeth Conrad (5840) Noriel Grimbene (5973)
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This special issue of BioFeedback summarizes some of the many activities planned for Earth Week (16-22 April, 1990) on our two campuses. There will most likely be other activities on campus that weren't available when we printed this. In addition, we have not included many activities in the greater St. Cloud area. Check the St. Cloud Times and posters for more information.

SAINT JOHN'S/SAIN T BENEDICT'S EARTH DAYS SCHEDULE OF EVENTS

MONDAY, APRIL 16

9 p.m. A Bedtime Story for the Ecologically Concerned; a reading of Dr. Seuss's 'The Lorax' by Norma Dickau; CSB Clemens Library Fireside Lounge.

TUESDAY, APRIL 17 ... Focus on air-quality; Teach-in

ALL WEEK Displays in campus bookstores, libraries; Ernie Diedrich, coordinator

ALL DAY Teach-in; all disciplines asked to concentrate on how their field relates to environmental issues; alumni participation

'Wear Green' to 'show your colors' in support of Earth Day

Elementary school field trips to SJU to tour greenhouse, natural history museum; Katie Coldren, coordinator

Student teacher lessons on the environment; Paul van Moorlehem, coordinator

Information booths/handouts/video tapes; SJU Mary Caf, CSB Mary Commons; Paul Tomczak and John Sullivan, coordinators, with assistance of Burdette Miller

Pod play; Aaron van Moorlehem, coordinator.

11 a.m. Birds of Central Minnesota Nature Walk Saint John's woodlands; leave from SJU Science Center Room 323; Norm Ford, coordinator

12:30 p.m. Prayers for the Earth - Opening Mass; Saint John's Abbey/University Church Assumption Chapel; Fr. Joel Kelly, presider; coordinated by Campus Ministry

1 p.m. - 4 p.m. "The Greenhouse Fights the Greenhouse Effect"; free cutting or plant from the CSB/SJU Biology Department plus display of a variety of plants and horticultural tips; SJU Mary Caf

7 p.m. Public address by Mike Robertson, director Minnesota Office of Waste Management; SJU Quadrangle 264; Thom Woodward, Alumni Office

7:30 p.m. "Planting in the Dust" one-act play; CSB Gathering Place; CSB Campus Ministry and the Convent of Saint Benedict
WEDNESDAY, APRIL 18 . . . FOCUS ON ENERGY

All day Info booths/handouts/video tapes; SJU Mary Caf, CSB Mary Commons; Paul Tomczik and John Sullivan, coordinators

9:40 a.m., 11:20 a.m., 1 p.m., 2:40 p.m. The Good, the Bad, the Ugly multi-media presentation featuring the Earth; SJU Science Center Auditorium; hourly door prizes; admission fee: one used battery or two aluminum cans; S. Phyllis Plantenberg, Dr. Nick Zaczkowski and Dr. Elizabeth Wurdak, coordinators

10:30 a.m., 1 p.m., 2:30 p.m. Tours of SJU Power Plant; (limited to first 15 participants; pre-registration recommended by calling 363-2782 or 363-3151); Steve Saupe, coordinator

11 a.m. - 2 p.m. Solar energy displays; CSB Mary Hall Commons Patio; Phil Durkee, coordinator

Noon - 5 p.m. Political action/letter-writing campaign to elected officials on environmental issues (tables with information and stationary available); CSB Mary Hall Commons and SJU Mary Caf; sponsored by SONAR Club; Phil Durkee, coordinator

1 p.m. The Greenhouse Fights the Greenhouse Effect; free cutting or plant from the CSB/SJU Biology Department plus display of a variety of plants and horticultural tips; CSB Mary Commons

4 p.m. Environmentally Responsible Lifestyles presentation by CSB/SJU biology professor Jessica Sutherland; CSB HAB 119

THURSDAY, APRIL 19 . . . FOCUS ON SOIL

10 a.m. - 3 p.m. Fast Food Containers and the Environment; CSB Mary Hall Commons; sponsored by the CSB/SJU Nutrition Club, Jennifer Hall, president

5 p.m. - 6 p.m. Bike maintenance workshop; Warner Palaestra classroom; John Krawczyk and members of the Bike Club

1 p.m. - 5 p.m. Presentation of papers on the environment by CSB and SJU students; S. Margaret Van Kempen and Phil Durkee, coordinators

7 p.m. Toxic Prevention Versus Pollution Control by Guy Wolf of the Minnesota Clean Water; HAB 128; Jenny Decker, coordinator

8 p.m. Panel discussion on sustainable agriculture with Bill Coell, Fr. John Klassen, Bernie Evans, Carmen Fernholz; Alumni Lounge; Jeff Vos, coordinator

FRIDAY, APRIL 20 . . . FOCUS ON WATER

8 a.m. Nature Walk/Winter Tree Identification (identify trees by bud and bark); meet at the CSB Horsebarn; Steve Saupe, coordinator

8:30 a.m. Nature Walk; meet in front of SJU Science Building; Dr. Tommy Stiller, coordinator

9:40 a.m., 11:20 a.m., 1 p.m. The Good, the Bad, the Ugly multi-media presentation featuring the Earth; SJU Science Center Auditorium; hourly door prizes; admission fee: one used battery or two aluminum cans; S. Phyllis Plantenberg, Dr. Nick Zaczkowski and Dr. Elizabeth Wurdak, coordinators

2:30 p.m. Tour of SJU Waste Water Treatment Facility; pre-registration required by calling 363-2782; Steve Saupe, coordinator

3 p.m. Walking tour of SJU Abbey Wetlands; meet at Wetlands entry lane off County Road 159; Br. John-Ambrose Stattelman, coordinator
SATURDAY, APRIL 21 ... CLEAN-UP

8:30 a.m. - 10:30 a.m. Highway Clean Up; Interstate 94/Highway 75 between campuses; Fr. Hilary Thimmesh, Sr. Colman O'Connell, et al; leaving from the Warner Palaestra lobby; John DeGrood, coordinator

12 p.m. Sola: Homes Open House; CSB/SJU faculty with significant energy conservation or solar energy features will open their homes for viewing and explanation; Phil Durkee, coordinator (363-5784)

5:30 p.m. - 1 a.m. Earth Eve Celebration in the Saint John’s woods (hiking, discussions, Mass in the Stella Maris Chapel); open to CSB/SJU students, faculty, staff who pre-register in Quad 154; pre-registered only — April 20 deadline; sponsored by Peer Resource Program Outdoor Group

SUNDAY, APRIL 22 ... EARTH DAY

11:30 a.m. Buses available to attend Saint Cloud Earth Day Festival noon - 6 p.m.; Riverside Park; Steve Saupe, coordinator (buses leaving from CSB Mary Commons at 11:30 a.m., noon, 12:30 p.m., 1 and returning 1:30 p.m., 4, 4:30 p.m. and 5

3 p.m. “A Song for the Earth” environmental puppet show for children and adults produced by the Land Stewardship Project; Saint John’s Episcopal Church, 390 4th Ave. S., St. Cloud; Mary Molitor, coordinator (685-8761)

6 p.m. Earth Day Mass; CSB Chapel; Fr. Kevin Anderson and Phil Durkee, coordinators

SAINT CLOUD AREA ACTIVITIES

Events at Saint Cloud State April 16-22 including wildlife symposium, area Earth Days Festival at Riverside Park (April 22).

Area clean-up project week of April 23-28 sponsored by Chamber of Commerce, municipal governments and various other agencies and businesses.

Wednesday, April 18: 7:30 p.m. Birds of the Tropics presentation; Heritage Nature Center, St. Cloud; sponsored by the Cent. Minn. Audubon Society.

Saturday, April 21: all day. Environmental Expo; Westgate Shopping Center.

Sunday, April 22: noon - 6 p.m. Earth Days Festival; Riverside Park.

TRADE (Today’s Recycling Assures a Desirable Environment) fund-raising/recycling program through Python’s to support area environmental/beautification projects.

For more information on Saint Cloud area activities, contact Gail Yaeger at the Chamber of Commerce.
FEATURED GUESTS AT SAINT JOHN'S UNIVERSITY DURING EARTH DAYS

APRIL 17 - TEACH-IN

Mike Robertson '72, director Minnesota Office of Waste Management--appointed by Governor Perpich. He formerly served with the Minnesota Pollution Control Authority and the Minnesota Waste Management Commission.

Tom Dellenbach '74, environmental health specialist, Washington County Public Health 779-5445

Tim Nolan '77, market development specialist, Minnesota Office of Waste Management 649-5766

Ron Klinker '85, environmental scientist, Envirascience Inc., 932-9757

Dan Orr '71, biologist, NSP Sherburne County Plant 261-4005

Roger Martin '59, manager (environmental mgr.), Unisys (also serves as chair of state Hazardous Waste Planning Council and St. Paul Environmental Task Force) 456-4654

APRIL 19 - PANEL

Carmen Fernholz '65 of Madison, Minn. A farmer and agriculture consultant, he is state president of the OrganicGrowers and Buyers Association and serves on the Agriculture Energy Task Commission of the Minnesota Department of Agriculture.

Bernie Evans '65, a professor at Saint John's University School of Theology in the Virgil Michel Chair of Rural Ministry. He has conducted conferences on the theology of land to discuss an appropriate ethic for land ownership and land use in the U.S.

Bill Cofell '49 of Collegeville, an educator who is a charter member of the Minnesota Board of Water and Soil Resources--appointed in 1987 by Governor Perpich.

For more information about Earth Days projects on the Saint John's campus contact Thom Woodward in the SJU Alumni Office at 363-2591.

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