

## SPECIAL POINTS OF INTEREST:

- **Join the Biology club!**
- **What have you done this summer?**  
Find out what students and faculty have been doing at CSB/SJU.
- **Need an advisor or some advise?** In here is a comprehensive list of faculty and what they can do to help.

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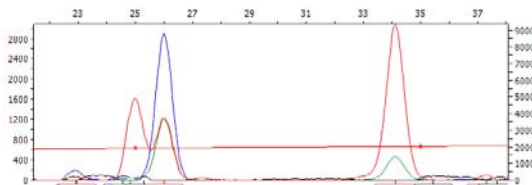
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## Welcome to a new year!

We wish to give a warm welcome from the biology department to those students returning and those just beginning their educational careers here at CSB/SJU. In the Biology department, we produce 2-3 of these newsletters each year to inform stu-

dents, alumni, and faculty of any news. This can include new research news (any hot topics), what faculty are doing this year, or who students should talk to if they are interested in plant physiology. We hope to keep you aware of any major events and

provide you with additional helpful information. We look forward to a wonderful year together! If you have anything you would like to share in the newsletter please contact professors May, Mitchell, or Timmerman.



## Biology Club News and Information

### What is the Biology Club?

The Biology Club here at CSB/SJU has been an active part of campus. Last year, the Mentoring Program was started which allowed first-year students and sophomores pair up with upper-classmen. This gave students a chance to get to know someone who was interested in studying the same area/pre-professional field, and ask any questions they may have. The Biology Club also planned a very successful trip to the Science Museum to allow students to see the "Body Worlds" exhibit at the end of November, 2006. The Club also began the "Lunch with a Prof" program, which allows to students to eat lunch with a different faculty member once a month. It gives students an opportunity to get to know their

professors in a setting outside the classroom.

### What is the club doing this year?

This year the club is looking forward to bringing back those successful programs, as well as becoming more involved volunteering within the community. The club plans to help out within the Arboretum, such as helping with the prescribed burns and maple-syrup collecting. In the works are plans for a club website, and for club members to work with the faculty in organizing the "Welcome to the Major" party and to get students excited about it. The Biology Club t-shirts have also been a huge success in past years, and the club looks forward to designing a new shirt as well as another possible item.

The "Exec. Board" of the Biology Club includes Seniors Kevin Boegel and Sara Murphy, and Junior Matthew Haas. They are excited at the number of students already signed up from Involvement in the HCC. They have already had their first meeting, but are always looking for new members!

# What did you do this summer?



From left: Shaina Crotteau, Guo Xiaoyuan, and Kirsta Karstens presented their research at the summer banquet.

Highlighted below are several CSB/SJU students that spent the summer here conducting research with the Biology faculty. Two of these students, Chris Welle and Krista Karstens, participated in the summer research exchange program with Southwest University in China. They spent six weeks in China conducting research and started a related project here for the last six weeks of their program. The other biology students spent 10 weeks of their summer involved in a variety of interesting and diverse projects! There were other students at CSB/SJU that conducted research this summer off campus at places like Mayo in Rochester, MN, Clemson University,.....

CSB/SJU student	Advisor	Project
Elise Degen	J Lust	Invertebrate survey of St. John's aquatic habitats.
Zachary Shaheen	M Reagan	The effect of DNA damage on transcription.
Catherine Bouska	M Reagan	The effect of DNA damage on transcription.
Shaina Crotteau	B May	SNP identification in <i>Mycobacterium tuberculosis</i>
Mitch VanBruggen	M Campos/A Olson	Effect of hydration status on maximal oxygen uptake (VO <sub>2</sub> max) and lactate threshold during exercise.
Danielle Claypool	M Campos/A Olson	Effect of hydration status on maximal oxygen uptake (VO <sub>2</sub> max) and lactate threshold during exercise.
Charlotte Rogers	DG Brown	Seed dispersal in Eastern Leatherwood.
Katherine Ward	D Mitchell	Characterization of lactate dehydrogenase.
Chris Welle	W Lamberts	The effect of exposure to <i>Chaoborus</i> kairomones on <i>Daphnia</i> .
Krista Karstens	B May	SNP identification in <i>Mycobacterium tuberculosis</i>



Dr. Thomas is visiting a vole colony with Dr. Wan

## Dr. Thomas visited China this summer

For Dr. Thomas, the purposes for this trip were to contribute to and forward the scientific endeavors of faculty and students at the Institute of Zoology (IOZ), Chinese Academy of Sciences (CAS), and to develop personal liaisons for future research collaboration. As a member of a four-person delegation from the

United States, Dr. Thomas's specific role was three-fold: to (1) participate in a 'mini workshop' on research and design methods ; (2) take part in collecting preliminary data to determine the social organization of the Brandt's vole (*Lasiopodomys [=Microtus] brandtii*); and (3) explore opportunities for continued

collaborative research projects investigating the social and mating system of the Brandt's vole with researchers and students from the IOZ. Dr. Thomas had a wonderful trip and is looking forward to future collaborations with her colleagues in China.

# Need some advice? Look no further:

How and when do I find an academic advisor? In the spring of a student's first year, the registrar sends each student a card on which they need to obtain the signature of the faculty member whom they would like as their advisor. It is best to select an advisor who has knowledge in the area in which you are interested. This is a list of the recommended advisors for various areas of interest.

**Faculty can be a wonderful source of information! Take advantage of it!**

Animal physiology:	Dr. Marcus Webster
Aquatic ecology:	Dr. Bill Lamberts
Biochemistry:	Dr. Dave Mitchell, Dr. Mike Reagan
Behaviour:	Dr. Shawn Thomas
Botany:	Dr. Steve Saupe, Dr. Cheryl Knox
Cell Biology:	Dr. Mike Reagan, Dr. Elizabeth Wurdak
Conservation biology:	Dr. Gordon Brown
Cytology:	Dr. Elizabeth Wurdak
Dental School:	Dr. Mani Campos, Dr. Dave Mitchell
Developmental biology:	Dr. Jeanne Marie Lust
Ecology:	Dr. Gordon Brown, Dr. Jim Poff
Electron microscopy:	Dr. Elizabeth Wurdak
Entomology:	Dr. Jim Poff
Environmental Studies:	Dr. Bill Lamberts
Evolutionary Biology:	Dr. Phil Chu, Dr. Chuck Rodell
Field Biology:	Dr. Jim Poff
Forensic Science:	Dr. Mike Reagan
Forestry:	Dr. Steve Saupe
Genetic counseling:	Dr. Mike Reagan
Genetics:	Dr. Chuck Rodell
Geology:	Dr. Larry Davis
Graduate school:	Dr. Gordon Brown, Dr. Bill Lamberts, Dr. Jim Poff, Dr. Chuck Rodell, Dr. Cheryl Knox, Dr. Shawn Thomas, Dr. Barbara May,
Human physiology:	Dr. Mani Campos, Dr. Marcus Webster
Histology:	Dr. Elizabeth Wurdak
Immunology:	Dr. Barbara May, Dr. Ellen Jensen
Medical School:	Dr. Mani Campos, Dr. Dave Mitchell
Microbiology:	Dr. Barbara May, Dr. Ellen Jensen
Molecular biology:	Dr. Mike Reagan, Dr. Cheryl Knox, Dr. Barbara May
Mycology:	Dr. Steve Saupe
Occupational therapy:	Dr. Mani Campos
Optometry:	Dr. Mani Campos, Dr. Dave Mitchell
Organismal biology:	Dr. Phil Chu
Paleontology:	Dr. Larry Davis
Physician's Assistant:	Dr. Barbara May
Physiology:	Dr. Mani Campos, Dr. Marcus Webster
Phytochemistry:	Dr. Steve Saupe
Plant Physiology:	Dr. Steve Saupe, Dr. Cheryl Knox
Pre-Health Careers:	Dr. Mani Campos, Dr. Ron Henry, Dr. Dave Mitchell, Dr. Mike Reagan
Veterinary medicine:	Dr. Barbara May
Virology:	Dr. Ellen Jensen
Wildlife management:	Dr. Gordon Brown



Kristina and Ramsey, fellow researcher, by an eaten puya.

Travel to South America in this article to learn about the Andean bear and their relationship with the puya plant.

Leaf bases eaten by the Andean bear



Greetings CSBSJU colleagues! This is my first semester teaching at Saint John's and I am very excited to be here. I have been teaching college-level biology, in one form or another, since 1996. Prior to embarking on a teaching career I worked as a wildlife biologist. I have continued research on carnivore species with the most recent investigation involving the Andean bear. I thought I would use this opportunity to share a bit about my own research on Andean bears.

Of the eight bear species found world-wide, the Andean bear (*Tremarctos ornatus*) is the only representative of the ursid family in South America. . More commonly referred to as the "spectacled" bear due to their lighter markings encircling the eyes, these bears are the only living representatives of the Tremarctinae subfamily; this subfamily included the now-extinct giant short-faced bear (which may have weighed in at 2000 lbs). The Andean bear is considered to be an intermediate-sized bear relative to other extant species. This species exhibits pronounced size dimorphism; males are significantly larger than females and can weigh 300 lbs while females tend to be about 100-150 lbs. They reside in a variety of habitats but are found pri-

## Newsletter highlight:

### Meet a faculty member: Kristina Timmerman

marily along the Andean cordillera. Their geographic range covers five political entities; Venezuela, Colombia, Ecuador, Peru and Bolivia.

In Ecuador, Andean bears, utilize resources in high-altitude grasslands (locally referred to as the páramo) but they reside almost exclusively in the montane cloud forest where they feed on fruits, bromeliad hearts, insects, other vegetation and probably anything else they can get their omnivorous paws around! My study site is in the southern Ecuador, about 25 miles from the Spanish-influenced city of Cuenca. The distance from Cuenca may seem short but my last trip out from Rumiloma (the field camp) took 7 hours due to rain, mudslides, and road conditions! The Rumiloma site is located at the páramo/cloud forest ecotone on the western edge of the Mazar Wildlife Reserve. Research on Andean bears was implemented in 2004. Initially, I worked with several semester-abroad students (Round River Student Conservation Program) in setting up bear-sign indices transects. In the process of collected bear sign data, I noticed that bears frequently venture into the grasslands above the forest to consume the giant puya (*Puya clava-herculis*), a large ground bromeliad related to the pineapple. They tend to eat the leaf bases much

as we eat artichokes (though they have no butter for dipping!) and sometimes they will eat the inner "heart" of the plant. Bears utilize this resource through much of their range (*Puya* sp.) but little research has been done on the importance of this plant in their diet.

Local anecdotal stories piqued my curiosity about how bears utilize the puya resource. Residents in villages surrounding the Mazar Wildlife Reserve uniformly report that bears only consume puya that are in the reproductive or post-reproductive phase. Since this fact has not been documented in the literature, I established permanent plots to determine if bears were, in fact, selecting only reproductive plants. In addition, I could use this data to track seasonal patterns of consumption. In September, 2006, eleven plot boundaries were flagged (for ease in finding at later dates) and UTM data points were collected. On each plot, available plants were marked and mapped. This puya species blooms only once in its lifetime – an "all-or-nothing" reproductive strategy.

Thus far, I have collected data across five sessions (September 2006 – May 2007); this represents about 11 months of sampling. All consumed plants were members of the 2006 reproductive pool. The local perception of bears

## Kristina Timmerman cont...



consuming only reproductive or post-reproductive

plants was supported. I also searched the MWR for additional consumed puya (referred to as "off-plot" plants). Fifty-three off-plot plants were found and all were members of the 2006 reproductive pool – further supporting the local perception that bears in this area

are selecting reproductive or post-reproductive plants for consumption.

Comparison of the number of plants consumed per month across the five sessions suggested that bears are utilizing the resource in a seasonal pattern. The number of plants consumed during the September, October and December sessions were significantly lower than the number of plants consumed during the January or May (2007) sampling sessions. It is possible that the puya acts as a food resource that is available year-round (once flowering

is initiated). Puya may act as a reliable food resource when forest food resources, which tend to be ephemeral and patchily distributed, are in short-supply.

I have already begun data collection on the 2007 availability plant pool. In August, 2007, a few of the 2007 plants were eaten. My next foray to the study site will be this January. I plan to conduct a Biology Seminar this next semester, so make sure you attend for any updates!

## Meet a faculty member: What has Dr. Lambert's been up to?

The 2006-07 academic year began with the birth of our daughter, Clara, the Friday before classes began. This meant I had a lighter course load in the fall, teaching only Aquatic Ecology and its labs. During spring semester I was on sabbatical, doing research with *Daphnia* and taking Chinese. In May I spent two weeks in China, spending a few days in Beijing and then traveled on to

Southwest University (SWU) in Beibei, Chongqing province. I traveled with professors and students from CSB/SJU who were participating in the summer research exchange program. Later that summer, back in Collegeville, I oversaw research by Chris Welle from SJU and Luo Xue from SWU. In my spare time I built a fence around our backyard and took a couple of short camping trips with my

family. During the current academic year I teach Aquatic Ecology, Plant Diversity and Introductory Biology courses. Clara is happy and healthy, walking around the house and making our lives full.



## Potential career and internship opportunities...

We will highlight any recent internships and opportunities for students in the newsletter.

-the Minnesota Future Doctor's program is looking for applicants to begin this summer. This is a program for minority, immigrant, rural, and disadvantaged students for careers within the Minnesota medical community. This is a three year summer program to help students prepare for

medical school.

-There are potential biology internships available. The senior vice president of this company is a 1993 graduate of St. John's and would encourage CSB/SJU students to contact him. The company website is : [www.deltawaterfowl.org](http://www.deltawaterfowl.org).

-Stay tuned for potential research opportunities this summer here at

CSB/SJU. Announcements will be made in January.

-Other potential internship and research opportunities are posted on the biology website: <http://www.csbsju.edu/biology/employment/default.htm>



## Would you like to contribute to the newsletter??

We are looking for students who might be interested in contributing to the newsletter. We want this to be a resource for students that they want to use. If you have any ideas or would like to contribute, please contact Barbara May, Dave Mitchell, or Kristina Timmerman.

## A Column of Humor:

Have any fun jokes? Submit them to Barbara May at [bmay@csbsju.edu](mailto:bmay@csbsju.edu) to brighten someone's day in the Biology Newsletter.

1. What is a ghost's favorite fruit?
2. Can you guess what this is:  
The person who makes it doesn't need it.  
The person who needs it doesn't want it.  
The person who needs it doesn't know they have it. What is it??

Answers:

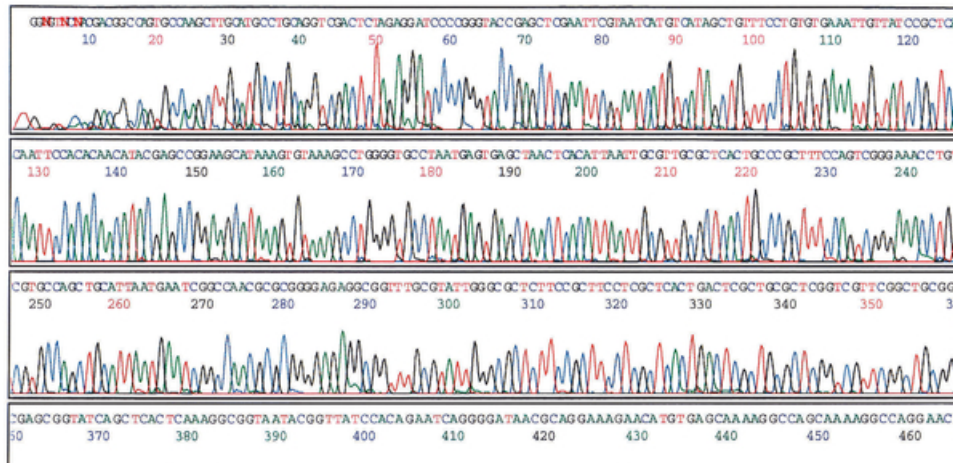
1. Booberries
2. A coffin

## Department news:

We are happy to announce the purchase and delivery of a CEQ8000 Genetic Analysis System.

This will allow faculty and students to perform sequence analysis, genotyping, among others here at CSB/SJU!

The machine is expected to be up and running by the end of November. Contact Barbara May for more information. ([bmay@csbsju.edu](mailto:bmay@csbsju.edu))



An example of a sequencing reaction