

# bionews

Vol. 1, No. 1  
Spring 2006

Keeping in touch with Alumni, Students, Friends and Faculty of the Biology Program at Iowa State University

## Cleaning up the Skunk

At some point on the Friday night before another scheduled journey of the Skunk River Navy, Jim Colbert asks himself why he's doing this.

Why for eight straight years has he traveled several miles on foot, dragging a canoe laden with trash of indescribable filth? Down local streams that seem to alternate between the high seas and a barren desert. Through extreme weather with high and low temperatures and driving rainstorms.

Colbert is not the only person who wonders why he would want to devote a Saturday to cleaning an Ames area waterway.

"Frankly I was not too enthusiastic about getting dirty, cold and wet," said Lisa Wasko, a junior biology major.

Colbert can relate but...

"By the end of the day I usually know the answer (to his question)," said Colbert, coordinator of the biology program and the self-proclaimed "admiral" of the Skunk River Navy. "We're doing this because it's the right thing to do and it energizes the students."

It's also fun according to the students who go on the excursion.

"There have been times when the day has been more strenuous than others," Wasko, who has participated on several occasions, "but the fun and sense of accomplishment more than outweighs anything bad."

Four times each fall, the Skunk River Navy performs a variety of community services down a local Ames stream including picking up trash that has accumulated in the waterways. They also conduct water quality assessment for IOWATER.

A majority of the student volunteers come from the BEST (Biology Education Success Teams) learning community coordinated by Skunk River Navy co-leader Jim Holtz. The rest of the Navy is made up of other Iowa State faculty, staff and graduate students, friends of Colbert and Holtz, returning Navy veterans, and other biological sciences learning community students.

Most of the students in the learning communities are freshmen and Colbert says an excursion of the Skunk River Navy is a learning experience for the students.

"This is an opportunity to see that we're (the faculty)



people just like them," he said. "It's also an opportunity to get to know other students in their classes.

"But more than anything, I think many of our Iowa State students, even the biology majors, are relatively unfamiliar with our local biological environment. By the end of the day they will have experienced a portion of that environment first-hand."

Other groups adopt a highway and pick up trash along side the road. Colbert will have none of that.

"Roadways are dull," he said. "Rivers are cool."

Colbert says Iowa's natural environment is the most "human impaired" state in the nation. Over the past 150 years, most of the natural landscape of the state has been removed for agricultural production and urban areas.

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# A time of change

The one “constant” in life is that it’s always changing. Earth used to have trilobites, now it has whales. The past few years have been a time of rapid change in the organization of the life sciences on the ISU campus. I want to take a few minutes to help you understand some of those changes and what they mean to our undergraduate students.

Back in 1969 a new opportunity became available to ISU students interested in basic life sciences - the opportunity to major in Biology. I’m not sure who the very first Biology major was, but the program has grown a great deal since 1969 - we now have over 450 students in the major! Prior to that time students were limited to more narrowly-focused majors such as Botany or Zoology. The fundamental idea of the Biology major, from its inception up to the present time, has been to provide students with a broad foundation of knowledge in biological science and then allow them the flexibility to pursue their specific interests in upper-level coursework. As one of the relatively “early” ISU Biology graduates (1978), I experienced this program first hand and found it prepared me well for my career goals.

As part of the reorganization that led to the formation of the Department of Ecology, Evolution, and Organismal Biology (EEOB), and the Department of Genetics, Development, and Cell Biology

(GDCB), the decision was made to discontinue the Botany and Zoology majors. Given the long histories of these majors, this was a decision made with some sadness, but also with the hope of providing our students with improved opportunities to pursue their academic and career goals in the Biology major. In our current organization, the Biology major is jointly administered by the EEOB and GDCB departments. We hope that alumni who graduated in Botany or Zoology will consider Biology to be their new “home” at ISU. In addition, we always welcome any of our alumni to stop by and visit us at our “new home”, 103 Bessey Hall.

Not everything has changed, of course. The Biology Program continues to offer excellent learning opportunities in our classes through the efforts of dedicated staff, teaching assistants, and instructors. Students who wish can focus their coursework on plant biology or animal biology, just as they did in the Botany and Zoology majors. We also continue to offer exceptional beyond the classroom experiences such the BEST Learning Community, the Skunk River Navy (we hauled out 5 tons of trash in fall 2005!), and field trip courses to destinations such Australia, Honduras, and the Boundary Waters Canoe Area. The Biological Sciences Club continues to provide a venue for students to make presentations about their research/



Jim Colbert  
Coordinator, Biology Program

internship experiences, as well as have fun taking a variety of local field trips.

There is one other change that I should mention. After 25 years of outstanding service as the Biology Program Coordinator, Dr. Warren Dolphin went on transitional retirement July 1, 2005. Dr. Dolphin was instrumental in the growth and ever-increasing quality of the Biology major, and all of us associated with the program; students, teaching assistants, and faculty alike, owe him a deep debt of gratitude for his many efforts. I am very pleased to have the opportunity to serve as the “new” Biology Program Coordinator. I fully intend to follow Dr. Dolphin’s example and continually strive to improve the learning opportunities for students in the Biology major. Change will certainly continue to occur, but we’ll do our best to be sure that it’s always change for the better.

## bionews

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*bionews* is published once a year for the alumni, friends, and faculty of the Biology Program, an academic program co-administered by the Department of Ecology, Evolution & Organismal Biology and the Department of Genetics, Development & Cell Biology at Iowa State University, academic departments in the College of Liberal Arts & Sciences and the College of Agriculture.  
[www.biology.iastate.edu](http://www.biology.iastate.edu)

*Not just for doctors and vets*

## New agriculture biology major established

by Alicia Clancy

Mark Goering has always had a fascination with vaccines and helping people but the white lab coat he wants to wear probably won't say "M.D." Goering is a freshman majoring in biology in the College of Agriculture.

Raised on an acreage near Agency, his career path is set for agriculture research. "By taking agriculture biology, I may be creating hybrid plants or vaccines for plants or animals. I am actually considering getting a Ph.D.," he said.

Biology is the newest major offered by the College of Agriculture. With the long-time biology program in the College of Liberal Arts and Sciences, the addition of the College of Agriculture program brings the total to more than 400 students. The College of Agriculture major has 36 students, including Goering, in its first semester. The new major is one result of a reorganization of biological science programs at Iowa State.

"For students, the agriculture biology major can open up lots of career opportunities as well as graduate school options," said David Acker, associate dean for academic and global programs. "Agriculture, as we know it today, is not one discipline. It is composed of a wide variety of disciplines all of which work together to improve the lives and livelihoods of our people and communities."

"When students examine the biology major from the outside, we want them to see a single, seamless program supported by two colleges and guided by one highly competent team of instructors and advisers," Acker said. "The College of Agriculture's strength is that we are composed of over 20 majors that deal

with everything from the life sciences to production agriculture and many areas in between."

Biology program coordinator Jim Colbert said the new academic major benefits students because those previously interested in College of Agriculture scholarships or careers didn't have the option of majoring in biology.

"This is going to provide some wonderful opportunities and is hopefully a way to increase the total number of biology majors," Colbert said. He added that five of the hottest jobs today for biology majors include biological journalists, biodiversity specialists, ethno-botanists, biomedical engineers and bioinformatics specialists.

Kelsi Jurik, a freshman from Ames, is one of the new biology recruits to join the College of Agriculture. Jurik is interested in agronomy as a second major.

"I really enjoyed my agriculture classes in high school," she said. Before enrolling at Iowa State she looked forward to a research career at a large agriculture company, but now she's leaning toward organic crop research. Jurik is a member of the Biological Sciences Club, a cross-college organization.

Kate Wiegert is a junior from Iowa City in the College of Liberal Arts and Sciences (LAS) biology major, but her career may lead her down the path to agriculture.

"I decided I'd like to work on the human side of things when I realized how much of a need there is for international medical help," Wiegert said. She is earning a Spanish minor in hopes of working with Spanish-speaking migrant farm workers.

The only academic difference between ag majors like Jurik and Goering and LAS majors like Wiegert



is the general education requirements they must meet to graduate.

Agriculture majors are required to take an ethics course and LAS students need to take a foreign language. "The biology courses, supporting courses and the number of required upper level courses are the same," Colbert said.

Jessica Wood of Geneva, a biology major in the College of Agriculture who recently transferred from Ellsworth Community College, plans to attend veterinary school.

"Biology gives me a large variety of classes to choose from. The entire biological world fascinates me. The biology major enables me to get the diversity I was looking for in my classes," Wood said. ▲

Alicia Clancy is a student intern in the College of Agriculture's Communication Service.

## Skunk River Navy: The Real Story

by Allison R. Spitz

It was 8:50 a.m. when I arrived at Bessey, out of breath and out of time. The morning chill crept past the layers of cotton as I navigated the building in search of the meeting room. Within this small lab, a few students and mentors had already gathered at a table and were trading various stories about past outings. I recognized Dr. Colbert immediately, despite his unusual outdoor getup and serious fashion faux pas, rummaging around his office across the hall. After introductions and safety instructions, we piled into vans and headed north.

I sat between two others; a sophomore on her second trip with the Skunk River Navy, and Lynette, from IOWATER. Lynette spoke of strange experiences on her first trip, which I found rather unnerving and hoped all were isolated events. At that point, I was thoroughly convinced that it would be a long day. Thankfully, the ride was short and took us to the southern most point of our journey on the Skunk River.

Across the street lay Ada Hayden's calm waters and just down the hill was the river. The crisp, fall air stung my face as I exited the vehicle following the swarm of students. Sunlight peaked through the tree tops and offered a mild warmth while we made our way to the bank where we split into five groups.

Our first task was to determine the water quality and temperature. Nitrates, phosphates, and dissolved oxygen were among the testable compounds. The water temperature was recorded as a comfortable 48 degrees. This I would have guessed, since my feet were already numb. A long day, indeed.

With the water quality carefully analyzed and various species discovered under rocks and in the current, we returned to the trailer to unload the canoes. Each of the middle canoes (eight in all) received a leash, trash bag, and makeshift trashcan - in which smaller items could be collected. Larger objects would be set along the bank for the return trip.

The first hour was cold. My body slowly adapted to the initial shock of 50 degree water, most easily by numbing my limbs. A number of soda cans hugged the bank, caked in sand and mud. For the most part, the first half of the day was slow. Until Dr. Colbert and another student pulled an old-fashioned washing machine from the water.

The machine stood about three and a half feet tall and weighed approximately 50 pounds—a significant find for the size of this river. A few feet from where the washing machine was located, an unidentified box was partially buried in sand and underwater. Using a chain and multiple students, we were able to drag the object to shore where it was determined to be an air conditioning unit. It weighed more than the washing machine!

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Skunk River Navy Admiral Jim Colbert discusses the IOWATER project during an outing this past fall.

## Cleaning up the Skunk

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“We’ve highly modified over 95% of the land area of Iowa,” he said. “We have very little here that is natural. Our rivers and streams are about all the natural areas we have left.

“Part of my job as a teacher is to help students realize that the current condition of our rivers isn’t the way the natural environment should look. The Skunk River Navy gives them an experience where they can encounter this human-impacted natural environment first hand.”

It also is an opportunity to clean up man’s propensity to dump. Items the Skunk River Navy has pulled from the streams over the years have included several water heaters, a six-cylinder engine block, a cattle feeder, portions of automobiles, port-a-potties, a cast iron bathtub and just this year a shopping cart full of mud.

Nicole Teitsworth, a senior biology major, recalled when her group pulled seven bikes out of the stream.

“The first time I ever went there was a ‘car graveyard’ and we were told to leave them, since we couldn’t haul whole cars in the canoes with us,” she said.

Colbert says most of the dumping occurs because of human carelessness.

“We don’t value streams,” he said. “Instead we look at them like wet garbage cans. We try to help our students understand that these streams have high value and we need to take better care of them.

“My guess is that there are very few alumni of the Skunk River Navy that have thrown anything, even something as small as a beer can, into a stream after going on one of our excursions.” ▲

Article and photos by Dave Gieseke, public relations officer in the College of Liberal Arts and Sciences.

## Ode to Skunk River Navy

By Clair Keene

A fine fall day,  
What better way to pass

than slogging through water  
with canoes full of trash?

The high invertebrate count is surely a sign  
That the creek we wade in is a fine place to dine  
if only we were birds  
if only we were fish.

Adventure lies under every stone and upon every log  
in every bryophyte, fungus, and frog.

As the perfume of anaerobic respiration found without  
warning

Fills every crevice of this fine fall morning,

I stop to listen to the Admiral's call  
for help as another trophy is found  
will it be a bicycle; wheels and all  
some long-abandoned treasure in the ground?

Get a shovel!

Get a chain!

When we work together  
Our strength will not wane.

Another day and a few more tons,  
Congratulations, Skunk River Navy, today's work is  
done!

# Love in the mud for SRN couple

**M**att and Sarah Derry didn't meet on the Skunk River Navy (SRN). Those experiences however brought them even closer together.

"We were introduced by a mutual friend in Maple (Hall) our freshman year," said Sarah (White). "I can't remember if we were officially dating at the time of our first Skunk River Navy, but I'm sure we were spending a lot of time together.

"I will say, however, watching Matt on those trips I discovered many of the things about his character that make him a person I deeply love, admire and am proud of."

Matt Derry was in his element on the Skunk River Navy. The 2004 botany and animal ecology major went on almost every SRN trip his freshman year and returned to help out year after year. He's officially an SRN Captain to this day.

"I like to clean up the outdoors," he said, "but I participated not only for myself but Dr. (Jim) Colbert (associate professor who founded the SRN). He was not only my academic advisor but he is my mentor."

Sarah, who also graduated in May 2004, went on two SRN trips as a freshman. But as Matt recalls she wasn't nearly as enthusiastic about spending an entire Saturday clearing trash from the waterway.

"It seems to me I had to coerce Sarah into coming as much as I did the other students," he said. "But once I got her out there, we had a blast. By our senior year, I had her coming on her own accord, so much so that we would build our weekend schedules around when the Skunk River Navy was hosting outings."

Sarah says her future husband not only enjoyed his outings on the Skunk River Navy but he made it

enjoyable for others.

"He could make hard, hot, heavy work fun by making it a race or by cracking jokes about it," she says.

That was especially the case during a trip their senior year, when both Matt and Sarah were BEST (Biological Education Success Teams) learning community mentors. The river was particularly low and the group had to carry the canoes full of junk over long stretches of sand because there was no water to float them in.

Sarah recalls by the end of the day everyone was tired and morale was low. Students were getting frustrated or giving up.

That's when Matt stepped up.

"Instead of using his leadership to boss the others around, Matt just turned it up a notch," she said. "Seeing this, many got up and we finished the job. I remember stopping to watch him for a moment and thinking how lucky I was to have someone so respectable and determined in my life."

The couple, who married in December 2004, lives in Houston now where Sarah joined Teach for America and teaches science in an urban public high school. Matt works as a scuba instructor at the Houston Scuba Academy.

Their interest in helping the rivers and streams, formulated during this SRN days, is continuing to this day. They recently signed up for a Scientific Diver course through Southwest Texas State University and will be trained on how to preserve the San Marcos Springs.▲

Article by Dave Gieseke, College of Liberal Arts & Sciences

# Biology down under



**P**articipants on the study abroad trip to Australia this past summer each had their own reasons to attend.

One wanted to see Australia. Another needed advance credit in biology. A third said he enjoyed hiking and knew that this trip featured that activity. Yet another said it was always her dream to see sheep herded by a helicopter.

Regardless of their other dreams, there was one aspect of the International Biology Trip that interested each and every participant.

“Dr. (Warren) Dolphin (the trip’s faculty leader) is a legend in my department,” says Miranda Gormley. “I heard how wonderful this trip was from past students and it was an opportunity I couldn’t pass up.”

Dolphin has led the Australia biology study abroad trip for the past eight years. Even students who had never had the professor for a class wanted to travel to Australia with him.

“On the first day we were in Australia I knew I would learn so much more from him there than I could in a classroom,” said Julie Weaver. “It was the little things that he would talk about on our excursions.”

Weaver particularly remembers being fascinated by Dolphin’s description of a sand crab.

“The way he talked about them, about their habitat, it was a great lesson I would normally overlook,” she said.

It was Dolphin’s excitement about being in Australia again that inspired the students.

“Everyone should take this trip with Dr. Dolphin,” Gormley said. “He gets as excited about seeing bugs as we do.”

The International Biology Trip to Australia takes students from the Great Barrier Reef to Australia’s interior desert. For students like Joshua Stilley it was a wonderful experience, 24-7 – and for four weeks.

“Every single minute of every single day I think I learned something new,” he said. “I learned more about biology on this trip than I ever have. Biology came alive for me.”

“On our first day we were in the middle of a rain forest and we were all so excited,” Gormley said. “Dr. Dolphin said ‘that’s nothing, just wait.’

“Everyday after that was better than the day before. So much so that I can’t name a favorite moment.”

Prior to traveling to Australia, students spend the spring semester in a seminar learning about the country

they plan to visit. The seminar looks not only at the biology the students will see first-hand, but also the history, political and economic issues of the country.

The weekly seminars also give students an opportunity to meet each other prior to spending virtually every minute together for four weeks.

“That’s the most important thing about the seminar,” Stilley says. “Dr. Dolphin works very hard to get us to be friends before we leave.”

That was important to Weaver. As a animal science major, she didn’t know a single person on the trip.

“I was more than a little apprehensive,” she said. “But the seminar gave me a chance to know people. And once we got to Australia we bonded rather quickly.”

So much so that the group has developed a web page of photos from the trip. Many have remained friends long after they returned to Ames.

“I do things all the time with friends I made in Australia,” Weaver said. “We even schedule classes together.”▲

Article by Dave Gieseke, College of Liberal Arts and Sciences.

## Skunk River Navy: The Real Story

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Hours later at the most northern leg of our trip, we’d located the remains of two vehicles, one of which was not recovered. The other was minimally recovered but comprised the majority of the total weight retrieved. This piece, which contained both wheel drums, was too bulky for one canoe and therefore a ‘doublewide’ design was constructed. Two canoes were anchored together with rope, a board laid across the widest part of the canoes, and the metal straddled the board. This made for difficulties downstream in low water levels and narrow sections of the river.

Collectively, we were able to pull a large amount of trash from the Skunk River and hauled it to a dumpster in the parking lot. My legs were tired and I made a mental note to forgo wearing jeans in a river again. Despite the fatigue and cold, I had fun. Most of all, I felt good about my - and my peers’- contribution to the environment.

There is no doubt that the impact of Dr. Colbert, Jim Holtz, and the rest of the SRN crew, is a positive effect upon the environment - the very home of Iowa’s species. And even upon the participants themselves.▲

# Teacher prep

Life as a science teacher is a perfect fit for Kyla Stegmeir Burns.

“I really like science and I wanted to pass along my interest and passion to others,” said Burns, a 2005 graduate in biology. “I also like interacting with people so this is the perfect job for me.

“And lab work does not really interest me.”

So when Burns, as an Iowa State undergraduate, had the opportunity to more learn about the teaching profession she did. One of those opportunities came as a member of the Biology Education Teaching and Learning (BETAL) learning community.

The yearlong course provides life science majors seeking secondary education teaching certification and elementary education majors with a science endorsement with resources, mentoring and camaraderie.

Burns says she was in an education methods class when Jim Colbert, BETAL coordinator, came to the class to recruit new members. It was an easy decision to join.

“He sucked me right in,” she said.

Burns was familiar with Colbert from her days with the Skunk River Navy, the Biology Club and even worked in his lab. She said the structure of BETAL also impressed her.

The learning community however goes beyond what a traditional methods course does.

“You talk about being a science teacher and the tools you can use,” Burns said.

Throughout the yearlong course, BETAL members take field trips to a variety of biological sites in Iowa. Speakers come to class. Issues in science education are taught. These include how to teach evolution in the



Kyla Stegmeir Burns says her experience with the Biological Education Teaching and Learning learning community prepared her for initial science teaching job at Johnston High School.

public classroom and how to use animals in a classroom.

During Burns' year in BETAL, the students also attended the Iowa science teachers convention in Des Moines.

Burns says the hands-on activities gave her the background and experience she needed as a first-year teacher.

“The field trips, especially where we got to do hands-on science, were the most valuable aspects of the learning community,” she said. “I learned things that I could try out on my own classroom.”

Which she now does as a first-year biology and health teacher at Johnston High School in suburban Des Moines. But even with her degree and BETAL experiences, teaching high school biology is a lot more work than she imagined.

“I expected this to be a lot of work but it was much more than I expected,” she said. “I haven't taught health class before and just preparing for something that you're not that knowledgeable about is difficult.”

Burns says BETAL helped prepare

her to create activities that peak her student's interest in science.

“I tell students that I'm not going to make them a biologist but instead I want them to be scientifically literate,” she said. “I want my students to be able to pick up a newspaper and understand an article on a science issue.”▲

Article and photos by Dave Gieseke, public relations officer in the College of Liberal Arts and Sciences.



# bionews

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## HELP BIOLOGY GROW

To help continue the exciting growth of the Biology Program and its trajectory of excellence, the department has established two main funds (see below). Other funds associated with EEOB also exist. If you are interested in any of these opportunities, please contact **Jim Colbert** ([jtcolberiastate.edu](mailto:jtcolberiastate.edu); phone: 515-294-9330) for additional information or send your gift with the completed form below to: **ISU Foundation, 2505 Elwood Drive, Ames, Iowa 50010-8644.**

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