Letter from the Editor

By now you have had a chance to peruse the premier issue of the newsletter. From the comments we have received, you appear to like it—thanks to Faye Farmer’s superb editing and the graphics and layout genius of Jacob Sahertian in the Visualization Laboratory. Our target audience is you—the SOLS staff, faculty, alumni, and graduate level student body. Now we want your feedback! We want to know which type of articles you find the most interesting and if other audiences need to be addressed.

Our purpose is to both inform and interest our readers. To accomplish our goal we have come up with a series of standard features that include faculty and course profiles, updates on emeriti, articles on successful alumni, reviews of faculty publications, and timely announcements of interest. Are there any other categories of information that interest you? If so, drop a line to our new Managing Editor, Peggy Coulombe. Her contact information can be found at the end of this newsletter.

We are also soliciting articles on the above topics by graduate students, staff and former faculty who have a literary bent. If you qualify and are interested, please send your suggestion to Faye or me in the form of a short query outlining the subject to be covered and a brief proposal describing the work involved and a projected time line. Articles should contain 500 words or less, and describe a favorite professor, course, or activity within the School of Life Sciences. We are looking forward to hearing from you!

David E. Brown, Editor
Letter from the Director

Looking at SOLS in 2005

July 1, 2003, the School of Life Sciences was formed by the consolidation of three academic departments, Biology, Plant Biology and Microbiology, with the objective of generating a core structure that would facilitate interdisciplinary interactions within Life Sciences for teaching, research and outreach. This construct would actively recognize Life Sciences’ increasing complexity and recognize the importance of education, while making significant contributions to research. In order to inform the public in an effective and responsible manner, we need to work in coordinating collaborative research teams. This is being done!

Since 2003, we have greatly expanded faculty and entered into breakthrough areas of research. We continue to hire the most qualified candidates and expect several more hires in the future. As a school within the New American University, we have integrated ourselves across-campus into Centers and Institutes, such as The Biodesign Institute; The Center for Metabolic Biology; The Consortium for Science, Policy and Society; The Global Institute of Sustainability; The Center for the Study of Early Events in Photosynthesis; the Center for Biology and Society; and the Center for Insect Science (in coordination with the University of Arizona). SOLS has also worked on building relationships with the community at large through our affiliations with governmental organizations, museums, hospitals, clinics, and biotech industries in the valley.

Our primary objectives, supporting our faculty, staff and students and their research and education, will bring more challenges and growth to SOLS. Innovation and creativity mark our future course.

You can be sure that amazing people and incredible science will be coming out of the School of Life Sciences in 2006!

Robert Page, Jr.

Alumni News

A Blast from the Past

By Dave Brown

Cornered in the hall, and with no escape hatch, I could only comply with Ron Rutowski’s request, “Would you mind talking to a former student who had graduated in 1964? He is here for the Homecoming Game and wants to talk to someone in the wildlife program.”

I naturally responded in the affirmative. Isn’t “catching up” what homecoming is all about?

A moment later and I was talking to Leon Rhodes and his wife Jan. A delightful couple with southern accents, Leon was graduated from ASU in 1964 with a B. S. degree in Wildlife Biology. His major professor had been Dr. Ronald Clothier, a name that few remember today. I had met Dr. Clothier once, years ago, and knew that he had taught mammalogy in addition to overseeing the mammal collection at ASU.

Now retired from the U. S. Fish and Wildlife Service, Leon and Jan are working a 43-acre farm in the Appalachian Mountains, five miles west of the North Carolina border. Leon had been a biologist and refuge manager for 33 years, all of them spent in the Southeast. What was more, he appeared satisfied with his time of service. A successful career in ones chosen profession is always worth talking about, and we arranged a follow-up interview.

In our telephone discussion, I learned that Dr. Clothier had taught mammalogy, and wildlife biology, ornithology, and even herpetology. Leon thought that his professor and ASU had provided a good general wildlife background, but that he could have used more training in law enforcement and administration. Such current wildlife management procedures as determining GPS locations of radio-collared animals were virtually unknown in the 1960s. Moreover, Leon was a member of America’s “lucky generation,” having been born in 1942 and a demographically rara avis. As such, he would have had little difficulty in finding a job in wildlife biology within a year of his graduation.

Leon’s career was also unique by today’s standards in that he ended in the same agency as he began—the U. S. Fish and Wildlife Service.
He told me that he owed his first job to Rachael Carlson’s *Silent Spring*, the book that had alerted the Service to the dangers that DDT and other pesticides were posing to the environment. Leon was told to report to Pautuxent Wildlife Research Center in Maryland, where he worked on the effects of DDT residues on quail eggs and other animal reproductive organs. Outside the laboratory, he evaluated a mark and recapture study investigating the longevity and home ranges of box turtles in bottomland hardwood forests. These studies resulted in a long-time interest in pesticides and reptiles, and Leon would later work on the reproductive performance of alligators. On some nights, he would catch up to 100 “gators,” some as large as 12 feet. Although he worked with a lot of waterfowl during his career, especially wood ducks, his favorite animal would remain the gopher tortoise due to his early exposure to this group of animals.

The following year, Leon was assigned to the first of what would be a series of National Wildlife Refuges (NWR) — the 5000 acre Blackbeard National Wildlife Refuge in Georgia. An 18-mile boat trip in the Gulf of Mexico from the Georgia mainland, this assignment would prove to be his test by fire. Although the refuge was home to a great variety of wildlife, many of the species present were less than agreeable. More than once he thought about quitting, not so much because of the alligators and cottonmouths, but because of the clouds of attendant mosquitoes.

Relief came in 1968 when Leon went to the 80,000-acre Blackwater NWR in Maryland. Leon was now not only more involved with migratory birds than mosquitoes, he also married his lifetime partner that year. And although Canada geese were the refuge’s principal responsibility, more than 150,000 ducks wintered on Blackwater. Waterfowl, especially wood ducks, were also the species of primary concern during his next refuge assignment in 1971, the 50,000-acre, Tennessee NWR.

Progressing up the federal ladder, Leon attained the dream of all refuge personnel in 1984 when he became Refuge Manager for the 22,000-acre Lake Woodruff NWR in Florida. He was now able to implement his own management program, and Lake Woodruff had a plethora of wildlife to supervise — wading birds, deer, turkey and eagles, not to mention his familiar friend the alligator. Here he remained until retiring in late 1997 to take up farming in his wife’s home state of Tennessee.

Leon has no regrets for spending his entire career with the U.S. Fish and Wildlife Service. He was able to fulfill his goal of being a refuge manager in Florida. Another satisfactory accomplishment was having seen and contributed to the abatement of the wildlife pesticide crisis that launched his career. Such a record was indeed one worthy of coming home to, and now ASU can claim him for its legacy.

**Alumni News**

**Pushing Fledgling Biotech in the Phoenix Metropolitan Area out of the Nest**

*By Faye Farmer*

Michelle Hanna learned early in life, that it does not help to waste time listening to people who say that something cannot be done, simply because it has not been done before. She was one of only a few women who graduated with a Bachelor Degree in Chemistry at ASU in 1978. She continued her education at University of California at Davis, receiving her Ph.D. in Chemistry in 1983. After an American Cancer Society postdoctoral fellowship at Berkeley, she received several job offers, including one from ASU. Hanna wanted to work in the emerging field of molecular genetics, which did not exist at ASU at that time. Instead, she accepted a faculty position in the College of Medicine at the University of California at Irvine. After moving with her family to Oklahoma in 1991, she accepted a faculty position at the University of Oklahoma, which began traditionally enough, as a professor of Chemistry. Always looking for the challenge of something new, she developed one of the first bioscience focused labs in Oklahoma, was awarded two patents and was an essential part of creating the first Molecular Biology curricula at the university.

During a spring break trip to the Valley in 1999, where she grew up, Hanna realized that she wanted to bring the business of bioscience back home to Phoenix. Hanna formed Ribomed Biotechnologies, Inc. (formerly Designer Genes, Inc.) She would again, be one of the first as she made her mark in Phoenix. The long and tortuous story of the search for appropriate space to house such an unknown adventure in Phoenix begins and ends with Hanna’s family.
With little to no bioscience activity in the Phoenix area and a technology sector focused on microchip production, finding funding and additional space was a challenge for Hanna. Hanna’s brother had some extra space in his garlic packaging warehouse, and this is where she set up her first wet lab. Her research focused on development of a novel molecular detection technology. Working with the National Institute of Allergy and Infectious Disease and the Department of Defense (DoD), Hanna expanded her business into a medical building, converting exam rooms to wet labs. Upon receipt of a larger contract from the DoD, Hanna moved once again, to a laboratory that this time had fume hoods!

Another successful funding cycle allowed Hanna to expand into a former microchip laboratory. The “clean” space supported her development of technologies for first responders to bioterrorist agents. In 2004, Hanna sold her home. With the proceeds, she and her mother bought a prime piece of real estate at the corner of Seventh Street and Van Buren Street in central Phoenix which contained a vacant 30,000 square foot building. She gutted the building and converted it into biotechnology laboratories, creating the nonprofit Phoenix Biotechnology Accelerator (P-Bio). P-Bio now houses Hanna’s company, Ribomed Biotechnologies (www.ribomed.com), and three other biotechnology start-up companies. P-Bio is immediately across from the Phoenix Biosciences Center and the future medical school campus. She is now at the vortex of the bustling biotech energy in Downtown Phoenix.

Hanna is also one of the few people in the valley who has consistently and actively worked to bring sustainable biotechnology based industry to the area. As a business owner and member of the Board of Directors of the Arizona Technology Council (www.aztechcouncil.org), she continues to be integral in the development of bioscience in Phoenix.

In addition to the large business and non-profit development activity, Hanna leases laboratory space, once non-existent in Phoenix, to start up biotech ventures. The use of the facilities and equipment is negotiated along with the space a company can lease, which varies from a single lab bench to an entire room. The current renters are 2 and 3 person companies. She wants to give others the opportunity she never got as a start up. She also has continued her affiliation with ASU through guest lectures in business and advanced life science classes on campus and as an adjunct professor in the Department of Chemistry.

Obviously, it has never occurred to Hanna to stop or slow down just because something has not been done before. For the future of Arizona, we hope that she continues to break new ground, promote the burgeoning biotech sector, and encourage students at ASU with her stories of success.

Alumni News

Contributing to Great Academics in Memphis

By Faye Farmer

Stephan J. Schoech is quick to mention the faculty members who were influential in his scientific development at ASU; Walsberg, Alcock, Rutowski, Matt and Moore. When Schoech, now a professor at University of Memphis in Tennessee, reflects upon what these faculty members contributed to his career, it is something he tells his current students, “Not only did my undergraduate research experience at ASU yield concrete results that to this day are a part of my curriculum vitae, but my research experiences (as an undergraduate) opened further doors that played a large role in meeting my career goals.”

Schoech attended ASU while his wife finished her residency at a local hospital. He completed his Bachelor’s degree in 1988. Based on his positive experience as an undergraduate with an independent project under the supervision of Kathleen Matt, professor in the Department of Kinesiology, and Michael Moore, professor in the School of Life Sciences, Schoech continued with post-graduate education. Matt and Moore served as co-chairs on Schoech’s Master of Science degree committee. As a graduate student, Schoech took full advantage of his two mentors, an experience he now integrates into his own mentoring at Memphis.

Schoech received his Ph.D. from the University of Washington in 1995, working with John Wingfield. He then completed a postdoctoral fellowship under Ellen Ketterson concurrent with his first three years as an assistant professor at Indiana University. Schoech joined the faculty of University of Memphis in 2000. He is currently working on a project that he started as a Masters’ student in Matt and Moore’s labs, although
asking slightly different research questions. The project was actually driven in part by a visit by guest lecturer Uli Reyer, to John Alcock’s class on animal behavior, one of Schoech’s pivotal class enrollments. Alcock is a Regent’s professor within SOLS. Reyer spoke about cooperatively breeding avian species. Schoech works on the Florida Scrub-Jay, “perhaps one of the world’s best studied cooperative breeder”.

These connections are common for Schoech. His work on the endocrine mechanisms that underlie cooperative breeding in Florida Scrub-Jays was so well received that an article from the American Scientist was selected to appear in Exploring Animal Behavior: Readings from American Scientist, with Alcock as an editor. Schoech credits some of his great publication record on being encouraged as an undergraduate to take part in primary research, cultivating his own project questions, and being able to present findings to colleagues at professional meetings. In fact, sixteen years after first presenting as an undergraduate researcher at the Society for Integrative and Comparative Biology annual meeting, Schoech returned this year with four graduate students and one undergraduate student presenting their own novel research from his research group.

While Schoech does miss the desert and the mountains of Arizona, he is excited about the impact he is making at Memphis and continues to use the lessons he learned from his experience at ASU. As a mentor of both graduate and undergraduates, Schoech has an “open door policy, encouraging students to come and talk with me and other faculty not just when they have a problem, but to use us as a resource. I know first hand that this is a policy that many, if not most, faculty members at ASU practice.”

Current Research

Cryptozoology – Studying Animals Lost and Found

By Dave Brown

On March 7, 1996, a remarkable event occurred. Rancher Warner Glenn was hunting mountain lions just east of his ranch north of the Mexican border in New Mexico’s Peloncillo Mountains when his dogs jumped a full grown, male jaguar. Snapping photographs with his right hand, and pulling off dogs with his left, Glen waded into the fray. Miraculously, neither dogs, jaguar, nor man were hurt in the melee that followed.

Repercussions resulting from Glenn’s encounter abounded, however. His photographs and accompanying book, Eyes of Fire, captured the imagination of outdoors lovers from El Paso to Los Angeles, and generated a widespread interest in borderland jaguars. Later that same summer, when Jack Childs and another party of houndsmen photographed a male jaguar in Arizona’s Baboquavari Mountains, the event was almost an anticlimax. Where had these jaguars come from? Were they long lost residents of the borderland, or had they come from somewhere else? People wanted to know.

To solve this riddle, Carlos López González and I submitted a grant proposal from ASU to the Turner Foundation, Inc. (#98-305). Of the nearly 60 jaguars that had been taken in Arizona and New Mexico since 1900, only four were females, the last of which was in 1964. We hypothesized that the source of these animals was south of the border—somewhere in the state of Sonora, Mexico. Pin-pointing the northernmost breeding population in such a vast area would not be easy, however.
Jaguars are secretive, and past experience had shown people’s observations to be demonstrably unreliable. Camera sets were impractical due to the vast area to be covered, and only a handful of experts could distinguish jaguar tracks from mountain lion. Specimens were needed to document the animal’s presence, and we decided to use the tigra’s penchant for killing livestock to verify a breeding population. Mexico’s laws are ambiguous in that even though jaguars are nominally protected by law, ranchers and vaqueros may take any animals killing their livestock. Much prestige comes with taking a jaguar, and the beauty of their pelts insures the preservation of the evidence. The trick would be to locate these “voucher” specimens and plot the closest population to the Arizona containing breeding females.

As you might imagine, rural people who killed a jaguar don’t do much advertising. Using a technique originally devised by Roy McBride to locate the last wild wolves in Mexico, we visited the livestock sanitary office or asociación ganadera that coordinates ranching activities in each of Sonora’s 72 municipios having jaguar habitat. Incidence of jaguar predation would be common knowledge to these officials, and they would know which ranches were having problems. Hopefully, after winning their trust, we would be introduced to the local rancher, vaquero, or hunter, who would then show us the skulls and hides of any cats killed.

Our success exceeded all expectations. In our summary publication, Borderland Jaguars (University of Utah Press, 2001), we were able to document the fate of nearly 50 jaguars in Sonora since Glenn’s 1996 encounter. Included in this total were more than a dozen females with cubs, most of which came from a 50 mile radius of where the Aros and Yaqui rivers come together near the village of Sahuaripa. This site is only 140 miles south of Warner Glenn’s ranch and is almost certainly the source of the borderland jaguars. Unfortunately, jaguars continue to be killed in this area and a conservation plan is needed if jaguar incursions into Arizona are to continue. Here’s hoping that current efforts in that direction will be as successful as this project was in finding tigres.

The National Science Foundation (NSF) is an independent federal agency that supports fundamental research and education across all fields of science and engineering, with an annual budget of nearly $5.58 billion. NSF funds reach all 50 states through grants to nearly 2,000 universities and institutions. Each year, NSF receives about 40,000 competitive requests for funding, and makes about 11,000 new funding awards. The NSF also awards over $200 million in professional and service contracts yearly. Grants are peer reviewed.

The National Institutes of Health (NIH) is made up of 27 Institutes and Centers. NIH invests over $27 billion annually in medical research and receives roughly 80,000 submissions yearly. Eighty percent of the funding is awarded through almost 50,000 competitive grants to more than 212,000 researchers at over 2,800 universities, medical schools, and other research institutions around the world. NIH grant proposal evaluation and review operates through the Center for Scientific Review (CSR). CSR organizes peer review groups or study sections. Their mission is to “generate fair, independent, expert and timely reviews.” They pull from a pool of 15,000 experts, who review the specifics of each grant application.
Giving Birth to that ‘Million Dollar Baby’: Creating Award Winning Research Grants

By Peggy Coulombe

We can easily trace the evolution of an athlete from a fledgling boxer, for example, to a prize winning fighter. There’s a public record of wins and losses, based on skill and strength. There are judges and referees to make the decisions and determine the winner.

But what about the intellectual process? What constitutes the winning upper cut or the KO? One tangible aspect of success easily understood by the public, and institutions, is the acquisition of research grant money.

How much do research grants contribute at ASU?

Awards for sponsored projects were reported by ASU to be $166 million in 2005. In addition, ASU and the ASU Foundation raised $99 million in donations. And this year, donations are off to an impressive start, with a gift from the Virginia G. Piper Charitable Trust, which has pledged $50 million toward the creation of endowed chairs to attract leading scientists.

However, it is important to understand that research grants play substantial roles at institutions beyond funding innovative research on birds, bees, ethics, and vaccines. These same grants also support staff, student, and faculty salaries; libraries; renovations; facilities; equipment; and pay the electric bill. Thereby creating a delicate substructure that is supported by successful proposals for funding.

How is it all tracked and distributed?

The College of Liberal Arts and Sciences (CLAS), Director of Research Administration, Terrie Ekin, took me on a whirlwind tour of grants, accounts, and databases. What looks like simple dollars and cents is hardly that. An enormous amount of tracking and tabulating is involved to resolve accurate and equitable funding for Departments, Schools, Colleges, Centers and Institutes or “über” centers, like the BioDesign Institute. Some of the most successful research grants in recent years have been collaborations. This process has required a data warehouse, the development of the Executive Information System (EIS), and talents like Ekin to tease out where each piece of the research money pie goes - and ultimately, what percentage lights up ASU offices.

Who brings in the grant money?

According to Ekins, CLAS attracts the most research grants at ASU, with the School of Engineering a close second. In 2005, the two largest sponsors, National Institutes of Health (NIH) and National Science Foundation (NSF), awarded CLAS 137 and 466 grants, respectively. Within CLAS, the School of Life Science (SOLS) generated most of those grants.

Jim Elser, Associate Director of School of Life Sciences Research and Training Initiatives (RTI), said that SOLS received roughly $14 million in grant awards in 2005. But total submissions represented “…close to 30-40% of total submittals in the college.”

How do ASU and SOLS increase the odds for SOLS scientists?

NIH reports that the institution receives 80,000 proposals, and NSF, 40,000 submissions, yearly. NIH will go on to fund about two-thirds. NSF will only fund about a quarter of all submissions. On the surface, these seem like good odds, but Elser notes that, “particular programs can be more competitive, funding less than 10% of submittals.”

To help scientists, ASU provides training to staff and faculty through workshops and other resources. Tutorials in writing and preparing grants, links to granting agencies and resources, for example, http://grants.gov, and support for proposal preparation and awards administration can be found through the Office of the Vice President Research and Economic Affairs (OVPREA) http://ovprea.asu.edu and the Office for Research and Sponsored Projects Administration (ORSPA) http://researchadmin@asu.edu. SOLS established the Office of Research and Training Initiatives as their contribution to swing the odds in scientists’ favor.
"One of the main goals of the RTI office is to take away the administrative burden associated with the proposal submission process. Our office is here to assist with the completion/routing of internal forms, development of CVs and budgets, gathering of information for current and pending support, completion of forms and anything else that comes up that takes away time from working on the scientific aspects of the proposal," Elser explains.

Another SOLS innovation? Hiring biology savvy individuals with robust writing skills to interface with investigators and provide support with editing proposals and building collaborations. RTI will also pilot an internal peer review project, so that new young faculty can get immediate feedback from more senior investigators in SOLS regarding the scientific aspects of their proposals, as well as support in the process of writing them.

But in many senses, the SOLS pathway to grant proposal success leads to Marci Welton, Grant Contract Coordinator. All grants from SOLS must pass through her hands. In 2005, that $14 million dollars in SOLS grants came from a subset of the 330 proposals that passed across her desk. She prepares budgets and maintains compliance. She knows all the guidelines for each sponsor, ORSPA, and ASU, and tracks program announcements, funding opportunities and helps faculty and students build their submissions.

Welton’s suggestion for limiting granting headaches and increasing success? Give yourself lots of lead time. “The biggest mistake that investigators make is that they don’t allow enough time for development,” Welton says.

The thinking is simple: the better the quality of the proposal and the faster that proposal process is, the more time that researchers have to generate data to develop novel research. More innovations = more funding = a knock-out!

Something to think about next time you flip on the lights at ASU.

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Focus on Faculty

For the Love of Ants

By Tate Holbrook

Some biologists never grow old; they are able to channel their childhood passions throughout their professional careers. This is especially true of Foundation Professor of Life Sciences Bert Hölldobler, whose enthusiasm for ants has been bubbling over since age seven.

It was then on an early summer stroll through the German woods with his father that Hölldobler discovered a large colony of carpenter ants underneath a rock. “It was a wonderful experience,” he remembers, “The ants were busy caring for their young … the whole society was revealed to me.”

Hölldobler later collected ant queens and kept live colonies at home for observation. Fortunately, his mother was tolerant and agreed not to vacuum when his pets were on the loose.

As an undergraduate at the University of Würzburg, Hölldobler found his calling by studying the behavior of ants, and he developed an exceptional knack for empirical detail. Directed by his childhood experience, he published his first scientific paper on the social organization of a carpenter ant species in which multiple queens coexist and reproduce in separate nest chambers, but fight when they come into contact. Thus began Hölldobler’s career as one of the world’s leading experts on ant sociobiology.

Hölldobler has proceeded to contribute hundreds of scientific articles and hold prominent positions at Harvard University’s Museum of Comparative Zoology, the Theodor Boveri Institute at the University of Würzburg, and now SOLS! In the meantime, he has earned induction into the National Academy of Science, the American Academy of Arts and Sciences, and the American Philosophical Society and has won the Alexander von Humboldt Foundation U.S. Senior Scientist Prize and the Gottfried Wilhelm Leibniz Prize.
Focus on Faculty

An Infectious Love of Science

By Faye Farmer

Roy Curtiss, III recently joined the faculty of the School of Life Sciences and is the co-director of the Center for Infectious Disease and Vaccinology located in the Biodesign Institute. Curtiss is an overwhelmingly friendly and accessible scientist whether in front of an auditorium or as an individual interview. I, like many audience members listening to Curtiss speak, oscillate between envy, admiration, and incredulousness. Curtiss has led the life many scientists only hope to dream about. More than that, Curtiss is boldly honest about his upbringing, the importance of mentors, the varied path of his scientific interests, and his unique ability to be in the “right place at the right time.”

If you listen closely, Curtiss’ inflection leaves a subtle hint of his formative years raising prize winning vegetables, flowers, chickens and ducks on an upstate New York farm. As he describes his personal journey in scientific inquiry, themes begin to emerge. Curtiss has a knack for identifying and utilizing mentors inside and outside of his field of interest. It is difficult to not be completely engaged by Curtiss as he rattles off the list of Nobel Prize winners he has had the opportunity to study under and work with. He also regularly allows his instincts to dictate his direction of research. Curtiss has worked with bacteria, bacteriophage, and virus research; spending decades in each discipline, then effortlessly changing fields.

Navigating the years as Curtiss describes them is a lesson in the history of molecular biology advances. He insists that at each juncture of his career, he has relied on the level of challenge and intrigue each decision has offered him. First and foremost however, Curtiss enjoys what he is doing, whether he is in the lab working on ground breaking research, on the soccer field as a coach, on the city council, or spending time with his wife of twenty nine years, Josephine Clark-Curtiss, also a professor in the School of Life Sciences and an accomplished scientist in her own right.

Curtiss recently was awarded a grant of $14.8 million from the Grand Challenges in Global Health initiative, a consortium of private and governmental organizations united in funding research that specifically deals with the treatment, prevention and eventual cure of diseases that effect populations in the developing world. With the help of a variety of other prestigious financial awards, Curtiss hopes to elucidate a system of vaccine delivery that would allow even the youngest children to be protected from disease.

Curtiss knew he would move to Arizona the moment he stepped off the plane at Sky Harbor International Airport. With a facility full of eager scientists and the resources available through SOLS, hopefully, Curtiss will find out yet again that the move to ASU this past year places him in the “right place at the right time.”

But Hölldobler’s most difficult and gratifying accomplishment was The Ants, a 732-page magnum opus he coauthored with fellow myrmecophile E. O. Wilson, who will be visiting ASU in April. The Ants remains the only wholly scientific work to have been awarded the Pulitzer Prize, which Hölldobler considers “an honor to the efforts of two scientists who present the animal they study and love in an aesthetic way.”

So what attracted Hölldobler to SOLS?
“Several factors,” he says, “On a personal side, I spent a great deal of time doing fieldwork in Arizona and fell in love with the state and its people.”

“Secondly, ASU is commencing to become a top research institution rivaling the Ivy League. I was drawn here by the university’s enormous drive to develop interdisciplinary centers of excellence … and its willingness to make social complexity studies a focus, with social insects playing a key role.”

“Other universities are paying attention,” Hölldobler continues, “My colleagues around the world are envious of our critical mass of social insect biologists.”

Hölldobler’s current scholarly activities include writing, interacting with students, and directing a research program in behavioral physiology and the evolution of social complexity. Last semester, he co-taught a graduate seminar on the sociobiology of ants, which of course he “enjoyed very much.” Look for Hölldobler and Wilson’s next book, The Superorganism, to bring “a fresh wind to sociobiological theory” by probing fundamental questions such as “how important is kinship in evolving altruistic behavior?”

Beyond the measures of academia, however, Hölldobler retains above all his childhood fascination with ants. Even now, when discussing his favorite study subjects, his eyes light up just like that day when he first became enlightened by a colony of carpenter ants.
Focus on Faculty

Moving and Shaking at Polytechnic

By Karyn Hanson

Do you remember 1968? The Apollo launched, Martin Luther King marched and Milton Sommerfeld landed in Arizona. At that time, ASU boasted 22,500 students and Sommerfeld took a position as assistant professor of Botany. He remembers it as a glorious time when he had a parking spot right next to the building.

Times have changed. Sommerfeld’s parking space (like those of so many other beleaguered academicians) is now a 10–15 minute walk from his lab in the Life Sciences tower. As ASU’s campus has expanded, Sommerfeld has lent his voice to the university’s structural and philosophical growth – especially in his former role as Associate Dean. A strong proponent of enhancing life sciences research facilities, Sommerfeld is proud to have been involved in the development of the Life Sciences “E” wing and the Goldwater Building, as well as the Lattie Coor Building.

While Sommerfeld’s specialty has always been the study of algae, he forayed into the administrative realm where, for many years, he served as Department Chair of Botany and as Associate Dean of Research and Facilities with the College of Liberal Arts and Sciences. He found these positions to be a way to serve his peers within the university and was encouraged by ASU’s progressive attitude. When working on committees to improve science facilities at ASU, Sommerfeld reflects, “I never heard ‘no’; I always heard ‘convince me’.”

Now, Sommerfeld is working with the ASU Polytechnic Campus to transform the school into a leader in applied sciences. He was drawn to the school’s emphasis on society’s environmental challenges and in applying new technologies to meet those challenges. Sommerfeld’s own algal research fits into the ASU Polytechnic vision of the community-embedded university.

A recent partnership between his research group and the city of Chandler resulted in improved operation of the city’s water treatment facilities. The city’s drinking water source is supplied by algae-lined canals, which can contribute to taste and odor in tap water. By tracing earthy and musty-smelling compounds produced by algae, Sommerfeld and graduate student, Tom Dempster have been able to recommend new operating procedures to the city. Treatment operators at the city benefited from algal population data and real-time analyses of the water because it allowed them to minimize treatment by activated carbon (a costly and waste-producing treatment). Now the city has incorporated algal information into facility management. This community-based project resulted in cost savings to the city and improved water quality.

Starting in the spring semester of 2006, Sommerfeld’s lab takes up residence in Polytechnic’s Interdisciplinary Science and Technology Building 3. The move comes at a good time for Sommerfeld and collaborator, Qiang Hu, assistant professor in Applied Biological Sciences at Polytechnic. Lately, their research has tended toward scaled-up projects on bioremediation and algal products—a type of investigation requiring lots of outdoor space. Polytechnic’s sprawling campus has enough room for these activities and, like the parking spot of yesteryear, the outdoor working space is located close to the lab and offices.

Sommerfeld says he will miss seeing his ASU Tempe colleagues on a daily basis, but he doesn’t plan to disappear from the campus anytime soon. He hopes to help bridge the two schools’ research objectives and continue to serve on students’ committees on both campuses.
Focus on Faculty

A Long Way from the Ocean

By Philip Tarrant

It is not every day that you find an oceanographer working in the desert, but then Susanne Neuer is not an every day kind of person. Neuer grew up far from the ocean in southern Germany. Her teenage introduction to the sea was on summer visits with her parents to the Balearic island of Ibiza. On these trips the Neuer family would snorkel in the warm sub-tropical waters of the Mediterranean where young Neuer would discover a seascape of fish, crustaceans, and other organisms. Back in Germany she became fascinated by freshwater plankton, which she already understood was an integral part of the food web. As her interest in these tiny organisms grew she worked part-time to earn enough for a microscope, and by the age of sixteen she had published an article on microscopy.

When it came to choosing a university Neuer looked for someplace where she could expand her study of the aquatic world. She eventually picked Kiel University on the Baltic Sea coast. Graduating in 1986 she continued her studies abroad, and because America is one of the major players in oceanographic research, Neuer headed for the west coast of the U.S. Meeting her future husband Ferran Garcia-Pichel, professor in the School of Life Sciences and microbial ecologist, almost as soon as she arrived did not distract her from earning a Masters degree from the University of Washington in 1988 and then a Ph.D. from Oregon State University in 1992. It was during that final year of study that she gave birth to their daughter Marlene.

Neuer came to ASU in 2000 when Garcia-Pichel joined the Department of Microbiology, now part of SOLS. She became a tenure-track professor in biogeochemistry within SOLS in 2004 and continues to work in the area of carbon flux in the sub-tropical Atlantic Ocean. With her team she explores the relationships between organic carbon, nutrients, and phytoplankton productivity. She still gets the chance to go to sea occasionally, most recently in the spring of 2005, just one of more than twenty cruises she has taken, including five as chief scientist.

Being an oceanographer in the desert does have drawbacks. The west coast is too far for a quick field trip, so Neuer focuses on analysis of time series data collected in the Atlantic as well as experimenting on phytoplankton cultures and developing new experimental methods for future deployment at sea. It is suggested, however, that the area between the Pacific Ocean and ASU was covered by a shallow sea some 250 million years ago and if global warming leads to a significant rise in sea level we could once again have coastline in Arizona. With that in mind, working as an oceanographer in Tempe may turn out to be the ideal location after all. ■
We are slipping into September, but this is still Arizona and reflected heat laps around my ankles as I amble across the parking lot for my first BIO 410 field trip. We are heading into the relative wilderness of the Tonto National Forest to spend a hot afternoon and a sultry evening in the hills practicing bat netting. I feel lucky to be in this class because there are only twelve slots, all limited to conservation biology seniors. I am doubly blessed because I will learn my “Techniques in Wildlife Conservation” from Dave Brown, a veteran instructor with a wealth of experience in wildlife management. Under his guidance we will spend numerous weekends in the field learning how to catch, handle, and release mammals, birds, reptiles and fish. This is an intensely practical class and our classroom will be the dramatic desert and mountains of Arizona, which is wonderful except that our classroom is currently too hot!

Today’s expedition will be the first trapping experience for most of us. The anticipation shows on people’s faces, and I can feel the same innocent expectation in my own expression as I climb into the van. Even as I take my seat the vehicle feels stuffy and crowded, and when we pull out of the lot a few minutes later, I sit squashed in the back seat convinced that this will be a very long journey.

Tumbling out into the desert an hour later, the hot breeze blowing gently across the sparse Sonoran landscape comes almost as a relief. We wander through the brush peering at an array of different plants and trees. Yucca, prickly-pear, cane cholla, velvet mesquite, turpentine bush, paloverde… The names begin to blur and so does my view of the desert, but then I realize the haze I see is just sweat in my eyes. I suddenly find the thought of that cramped, air-conditioned van appealing, and it is with little regret that I climb back aboard for the run up to the netting site.

We ascend steadily into the foothills, our full-size van sliding and bumping up a forest road built with other vehicles in mind. We make another stop; this time at one of Arizona’s ever more scarce riparian galleries. Here we meet the “Big Five”; not a basketball team as you might expect, but the five common tree species found in these habitats. We scramble through this new list of flora: the willow, cottonwood, walnut, sycamore and ash, each one providing welcome shade on this hot afternoon. On arrival at the stream we find two tree frogs sitting on a rock, their camouflage so effective that when I later review my photos I will find only one. This colorful landscape, squeezed between rugged canyon walls, urges me to stay, but we have to move on.

Our field site, Mud Springs, is true to its name; there is indeed mud and even a small spring. The area is cool and moist, shaded by overhanging trees that form natural flight corridors over the water. I am forced to brush away only two or three insects before the penny “drops” and there is no doubt that this serene waterhole is an ideal place to set up our nets and wait for the darkness to bring us bats.
We drive tall aluminum poles into the surprisingly hard soil on either side of the spring and then gently pull the finest net I have ever seen from the sanctuary of a tattered plastic bag. We carefully tease out tangles and stretch the net between its supports until we have a baggy tennis net ready to catch any bat cruising on auto-pilot between the trees. Our final task before the netting starts is to stand on the hillside and watch a dramatic sunset from our vantage point high above the Valley of the Sun. As we ooh and aah at the shifting shades of blood and fire, there is a hint of lightning in the sky; not too close, but close enough to punctuate each change of hue. Eventually, the fall of night brings us back to our net, to sit among the trees, by the water, and fish for bats.

The first catch comes shortly after seven-thirty, a female western pipistrel. More sighs and murmurs escape as we examine her closely. She waits patiently as we measure her vital statistics and ponder her finer features, and when there is no more to be said, she is free to go and leaves without a word. For the next two hours there is a steady flow of these agile creatures into our net; a pallid male, a little brown female, and then another western pipistrel. A big brown bat, caught just before we begin packing up at nine-thirty, means we have examined seven bats of four different species - not a bad haul for a team of novices. As we dismantle our net, taking care to place it gently in its bag, we all agree that it has been a marvelous trip. It doesn’t get much better than this, surely!

We wind our way down the forest service road, a more stressful task in darkness than in daylight, only to be surprised by a Gila monster crossing the trail. It is not clear if this elusive legend of the desert is heading for dinner, bed, or is just out for a constitutional, but no one really cares as we all stumble out of the van and gather around him. If he is indignant about being weighed, measured, and prodded, he doesn’t show it, and there is no hint of a change in his expression as he is released to head in his original direction.

Now that tops off a perfect day, doesn’t it? Only if you ignore the western diamondback waiting around the next bend in the road. Get on the bus, get off the bus. This has been the pattern all day, it seems, and yet there is no burden in alighting this last time to look at one of the region’s most famous inhabitants. Needless to say this intimidating reptile is not weighed and measured, but is admired from a safe distance before we lose it in the darkness. Back in the van again, we traverse the last mile of dirt road before rejoining the highway.

We finally pull back into the parking lot around midnight, weary and satisfied, and probably a little grubby and smelly too. But this is all superfluous detail compared to the wealth of nature we have seen. Today’s bounty convinces me that wildlife biology is for me; there is no tedious, repetitive, lab work in my future. All I need to do now is write up my field notes, catalog my samples, clean my gear, clean myself, pack everything away, and plan to do it all again.
Book Review

Hunting Orchids

By Dave Brown

Orchids are special flowers, and orchid hunters a special breed. I once knew a South African who had two passions in life—conducting commando raids in Angola, and finding and raising rare orchids. In An Enthusiasm for Orchids: Sex and Deception in Plant Evolution, the latest book offering by Regents Professor and Animal Behaviorist John Alcock, we go on an orchid-hunting safari to Australia.

A highly attractive book in a compact 6 x 9 inch format, An Enthusiasm for Orchids has just been published by Oxford University Press. The cover, a beautiful color photo of four clown orchids, is by the author as are almost all of the more than 50 color plates scattered throughout. Easy to digest, and largely jargon-free, the 276 page text is condensed into 8 chapters dealing with topics from the joy of finding orchids to the need to conserve them. The index is large and useful, while the numerous references are conveniently arranged by chapter. There are also some very nice line drawings.

As the title suggests, the book has two audiences in mind—orchid lovers and those interested in evolutionary adaptations. Not only does the reader share in the discovery of such intriguing sounding prey as the Pingaring spider orchid, but learns in a series of “just so” stories of how this ancient group of plants has evolved a plethora of special, often bizarre, relationships with their pollinators. No wonder then that these plants have attracted the interest of evolutionary theorists ranging from Charles Darwin to Stephen Jay Gould and Ernst Mayr.

The cast of characters comes with a host of delightful and intriguing names. We are introduced to the warty hammer orchid, zebra spider orchid, and donkey orchid, not to mention flying duck orchids, dragon orchids, and lady slipper orchids. Moreover, most come with complex life histories involving such titillating strategies as sex pheromones, plant parts that simulate female wasps, attempted abductions, and copulation deceptions involving “fooled” male insects. Not the least fascinating of these ruses is that employed by the warty hammer orchid, which has a lip petal possessing a flexible, hinged rod supporting a decoy female wasp. When an amorous wasp attempts to copulate with the fake, the flexible rod hurls him upside down into a bed of sticky pollen.

Given that there are 30,000 species of orchids and that this group constitutes 10% of the world’s plants, it is probably wise that the author restricted most of his discoveries to “Down Under.” Nonetheless, I was so caught up in the hunt on reading this book that I wanted to find orchids for myself. Nor will I have to go to Australia to do so. According to Kearny and Peebles’s Flora of Arizona, 22 species of orchids inhabit Arizona, mostly in damp, shaded locations in the southeastern quadrant of the state.

Who said you can’t judge a book by its cover?
Society for Conservation Biology

By Philip Tarrant

If you are interested in wildlife, landscapes, and conservation, then the Central Arizona Chapter of the Society for Conservation Biology (CACSCB) has something for you. This local chapter of the society aims to give students the opportunity to find out what's going on in the world of conservation biology. Meetings, held on alternate Tuesdays at 5 p.m. throughout the semester, are open to anyone and include presentations from guest speakers on conservation issues, career information and advice, and even the occasional movie night. In addition to interesting meetings, the chapter provides volunteer opportunities that give members the practical experience of field work plus the chance to network with working biologists.

The local chapter does not charge membership fees, partly because they prefer to encourage people to join the parent organization, an international body of conservationists from many backgrounds, dedicated to promoting the scientific study of the phenomena that affect biological diversity. If you plan to be a conservation biologist then you should find membership beneficial.

Local chapter members can opt to be included on the CACSCB listserv, which provides information about meetings, service projects, and job opportunities. If you want to know more about the Central Arizona Chapter of the Society for Conservation Biology check out their web page at: http://sols.asu.edu/conservbio/students.php, or e-mail them at: cacscb@yahoo.com.

Graduate Partners in Science Education

By Kate Ihle

Each Tuesday afternoon, eight School of Life Sciences graduate students pack nets and tanks, field guides and forceps and head out to meet a busload of seventh and eighth grade students from the Phoenix Preparatory Academy. Phoenix Prep is a new public school in the heart of downtown Phoenix focused on providing the often-disadvantaged students of the area with high quality preparation for high school.

Led by Jon Davis and Nathan Morehouse, both graduate students in the School of Life Sciences, the graduate students are the first cohort of mentors in Arizona State University’s Graduate Partners in Science Education (GPSE). GPSE was conceived as a way to make science both accessible and fun for kids who may not have had much, if any, exposure to science outside of a textbook.

Each graduate student works with a group of five or six middle school students to design, implement and present a scientific experiment. GPSE works in concert with the Science Investigators Club at Phoenix Prep, an afterschool club for kids excited about science.

The students in the Science Investigators Club make up the last period honors science classes at Phoenix Prep. Teachers Karen Griff and Keith Brazier work with Davis and Morehouse to incorporate concepts that the students are using in their projects into that week’s lesson plan.

Alternating between weeks in the labs at Phoenix Prep and at Papago Park, the mentors spend time with students in both laboratory and field settings. Papago, with its hills, lakes, and trails, provides a huge variety of areas for the students to explore. After initial explorations in the park, students identify questions that they are excited to learn more about.

Mentors work closely with their students to help them shape their questions into testable hypotheses and to frame the whole process in the scientific method. Topics range from identifying the species of dragonflies at the lake, to understanding what formed the unique landscape of the park, to understanding how areas of high usage differ from those left relatively undisturbed.

At mid-year, the students are well into their projects. Kids who started out thinking that the algae in the ponds was gross and that plants were boring can now be found excitedly scooping up handfuls of mud from the bottom of the lakes and collecting twigs, leaves, and flowers to study under their microscopes in the lab. As a culmination event to recognize the students’ efforts, GPSE will be having a Commencement Poster Session at Phoenix Preparatory Academy on April 4th.

On a recent trip to Arizona State, the students toured labs, viewed the snake collection on the first floor of Life Science A-Wing, visited the natural history collections, and learned what they can be doing now to prepare themselves for college. In working with their students, the GPSE mentors are hoping to do more than show the kids that science can be fun. They want to instill a love of learning and the self-confidence that will allow the students to expand their horizons and achieve their goals.
Honey Bee Research Facility Debuts

By Tate Holbrook

The School of Life Sciences’ Honey Bee Research Laboratory at the ASU Polytechnic campus officially opened in December 2005. The 7,000 square-foot facility is one of the nation’s premier bee research facilities and will serve as a field station for the SOLS’ Social Insect Research Group. The laboratory and nearby apiaries currently house 80 colonies of bees. These hives will be used to conduct research on bee genetics, neurobiology, physiology, behavior, and ecology. In addition, researchers teach classes to both hobby and professional bee keepers.

Open House at the Center for Innovations in Medicine

By Faye Farmer

As I walked from room to room during a recent tour of the Biodesign Institute Building B during the Center for Innovations in Medicine (CIM) open house, I heard what can only be described as a vague respiration. I knew rationally that it was the machines making the noise. Irrespective of the plentiful centrifuges, refrigerators, and freezers, images of Darth Vader leapt to mind. That is where the resemblance to a super villain ends. This breathing building has a heart.

The laboratories at Biodesign are wide open spaces, full of air and light. Across the center atrium are the administrative offices, just as open and airy as the laboratories, if not more with a solid wall of windows covering the entire eastern side of both buildings. Our guide, Katheryn Sykes, assistant professor in SOLS and member of CIM, walked our group through each room, describing the pieces of equipment along the way and the philosophy behind the collaboratory design. In addition to increasing interaction among researchers, it allows sharing of resources for greater, more efficient output of research.

The Center for Innovations in Medicine has moved into 10,000 square feet of research space in building B, which opened January 2006. Building B is now the official entrance to the Institute. The Center was previously in temporary space divided between several locations within the Institute and elsewhere on campus. With buildings A and B complete, the Institute now houses 10 of its 13 centers under one roof. Three of its centers have lab space elsewhere on the Tempe campus. George Poste, the Del E. Webb Distinguished Professor of Biology and Regent’s Professor in SOLS, is director of the Biodesign Institute and the individual Centers are staffed by faculty researchers who have tenure in various academic units across ASU’s campus. Several faculty members at the Institute, including the director, have SOLS as their tenure home.

The two now completed Institute buildings comprise roughly 350,000 square feet of research space. Two more planned Institute buildings, located just to the east of building A, will create almost 800,000 square feet of additional research space on ASU’s main campus.

A cumulative effort between academic, private and non-profit partnerships is exemplified by the construction of the Biodesign Institute. The presence of this building and the heart of hope it holds at ASU’s main campus will certainly ensure the future of biotechnology in the Phoenix metro area. For more information on the Biodesign Institute, visit www.biodesign.org.
Student Aspirations: Minority Access to Research Careers

By Faye Farmer

The Minority Access to Research Careers (MARC) is funding by the National Institutes of Health (NIH) and began thirteen years ago. The current program director is Jennifer Fewell, associate professor in SOLS. The program addresses the concern that scientific research conducted by people with a single type of background is not addressing the needs of a diverse community. MARC deals with this discrepancy by encouraging students with varied backgrounds and experiences to study science and participate in research across scientific disciplines. Students who are chosen to participate in the program complete a rigorous application process. Students who are accepted into the program tend to be pioneers in their families, often times they are the first generation attending university or working full time while raising a family.

MARC students commit to twenty hours of research on top of a full course load, including a weekly seminar with their peers, as well as the usual requirements for graduation, all while maintaining a minimum grade point average of 3.0. Their appointment to the MARC program is for a full year. MARC students receive a stipend that facilitates their study, their time in the lab, and travel to and participation in conferences and specialized training programs around the world. The program is geared towards continuing education and is succeeding; 100% of MARC students graduate from ASU and over three quarters of those students continue on to graduate school.

The Pre-MARC program was initiated in 1998 to facilitate the transition into the MARC program. More than half of the students who participate in the Pre-MARC program continue with participation in the MARC program.

The MARC and Pre-MARC program cultivate exceptional research scientists by exposing them to the great resources in SOLS. Utilizing the time and talent of the exceptional mentors within SOLS, this program has created undergraduates and alumni to be proud of.

MARC and Pre-MARC students are like the typical students who are involved in undergraduate research, over-achievers. However, these students also show a remarkable degree of practicality with respect to their goals. The overwhelming theme? Stay on top of your studies, actively participate, and do what you find interesting. Good advice regardless of what degree of experience you have.

Explain the most significant challenge you’ve encountered as it relates to your undergraduate study.

Morrow: I have always had to work over twenty hours a week while at university. The Pre-MARC program has alleviated an enormous amount of stress I usually feel because of dividing my time between studies, research, and employment. I can now work in my field, schedule hours around my availability, and have adequate time to study. I am able to perform at my peak ability because I am a part of this program.

Slinkey: The most significant challenge that I had to face when I entered the undergraduate environment was time management. I have found that I must schedule and plan almost everything I do.
**Harris**: As a non-traditional student (I turned 40 this year!), it is often difficult to juggle all the responsibilities of being a husband, father, and son and still maintain a solid academic foundation. Also, your energy level is difficult to maintain at my age, so you have to really work to stay motivated.

**Altamirano**: I believe the most significant challenge that I’ve encountered during my undergraduate study here at ASU has been time management. For myself, and for most people, sometimes there aren’t enough hours in a day. At times I find myself utilizing the entire 24 hours just to accomplish my goals, though the rewards are really worth it.

**Describe your greatest success while at ASU.**

**Morrow**: My greatest success since I began my studies at ASU has been being accepted to a national undergraduate research program at the National Institutes of Health (NIH). Acceptance in this program is very competitive, and I am proud to say that I am one of only about twenty students across the country selected to participate. The application procedure required a great deal of collaboration between me, my mentor, and my professors. In addition, the director of the Pre-MARC program was instrumental in assisting me with my application materials. I believe that if I was at another undergraduate institution, I would not have been provided with the same degree of involvement from the faculty. My participation in this program demonstrates that ASU is one of the best places in the country for undergraduates to study science and technology.

**Harris**: I had the opportunity to win a position in the very competitive Arizona Cancer Center’s Summer Research Fellowship. In that program I had a chance to work in a “real world” setting; supporting hospital-based research functions with a team of world-renowned scientists. Also, I was able to present my work at the international level at the Society for the Study of Reproduction Conference, Quebec City, Canada, 2005. I had a chance to meet researchers from almost every country and begin establishing a network that hopefully will be vital to the pursuit of my research goals.

**Altamirano**: My greatest success while attending ASU, has been working in a fungal biology lab (under School of Life Sciences Professor Robert Roberson) for two years. I have learned so much while working with him, and have been given the chance to apply my knowledge elsewhere. For example, I worked on cancer morphology during a summer internship at University of Massachusetts at Worcester. It has been a great accomplishment for me to master the art of microscopy (both light and electron), which has yielded fantastic images of these microorganisms.

**What advice would you give someone just starting to attend ASU?**

**Morrow**: My advice for a freshman would be very simple: Go to class! I have met many extremely intelligent people at ASU who never had to study in high school and thought that they could get by at university doing the same.

**Slinkey**: I would advise them to get involved in the numerous activities that occur here on campus. I would encourage them to get all they can out of their college experience. And the most important advice that I would give them is to study!

**Njoroge**: Get to know your resources! Programs like MARC are great programs, so as soon as you start attending school get to know the department that you belong to and your advisors. Everyone will help you identify programs, scholarships and opportunities that may not be posted in plain sight.

**Garrett**: It is not important that you know what your major is right away, although it helps, but take your classes seriously and try to get to know some of your professors. Make sure that you get involved in some way with a club or organization on campus. Being active helps you build a network of people that you can go to if you ever need assistance with anything.

**Harris**: Often students transitioning into college assume that there will be someone or something to ease the transition...wrong! While there is an extensive support network of staff and faculty, it is incumbent upon students to find out who the key people are in the department, to cultivate relationships with them, and to ask for their assistance. College is as much about finishing what you start as it is about acquiring skills/knowledge. Lastly, take ownership for your own educational experience, everyone has walked the path you are now on, but no one will ever walk in your foot steps or take from the experience what you will gain. This endeavor is truly a unique undertaking, and it is yours alone.
Describe where you see yourself in 10 years.

**Morrow:** I plan on obtaining my Ph.D. or M.D. and traveling around the world helping to combat highly infectious diseases in developing countries through on-site epidemiological and pathological studies.

**Slinkey:** I see myself completing a medical internship; in my last years of medical school.

**Njoroge:** In ten years, I see myself at the peak of my career in the public health sector anywhere in the world.

**Garrett:** I see myself with a Master’s or Doctorate degree and in a career that is involved with public health or health in general.

**Harris:** In 10 years, I’ll be hard at work, trying to address some relevant but thorny research question while on a postdoctoral fellowship at a research institution. My ultimate goal is to establish my own laboratory services consultancy and help independent bio-tech labs model robust and sound processes that can then be benchmarked to add value to lab activities.

**Altamirano:** I hope to have at least have finished a Ph.D. program working in the field of Immunology & Virology.

Explain the motivation for choosing the field of study you follow now or plan to follow.

**Morrow:** I have wanted to work with infectious disease ever since I was a little girl. As I grew older, I became aware of the disproportionate amount of disease in other countries and how some of those diseases could devastate entire villages. In addition, countries are so integrally connected to one another these days, that the health of one country impacts the health of several other countries. I want to help eradicate diseases that are dangers not only to small populations, but our own population as well.

**Slinkey:** I come from a long line of medicine people that are encouraging me to carry on the tradition. At the same time, I believe that learning western medical strategies concurrently would help me combine the two approaches to health.

**Njoroge:** I want to decrease the negative impact of disease on communities and examine how communities use multiple methods, such as cultural practices, to keep themselves healthy.

**Garrett:** I have always liked working with people and I also enjoy science. I believe that I can combine these facets.

**Harris:** I chose bio-sciences as a field of study because it fosters creativity, critical inquiry, and looks at healthcare issues that affect society, especially those people who are socio-economically marginalized. Basically, I want to make a difference both as a researcher and as a role model.

**Altamirano:** I have always been intrigued by microbiology. There are always new questions, waiting to be answered and new techniques to be developed. I want to be a part of that discovery.

Do you have additional comments about your education, SOLS or ASU?

**Morrow:** I attended the University of Arizona for my first two years of study. Naturally, I heard a lot of terrible things about the academic reputation of ASU. However, I have found that the research facilities, professors, and undergraduate opportunities at ASU are far superior to U of A. I am very thankful and proud that I am a part of this wonderful institution.

**Njoroge:** Programs like MARC and Pre-MARC are so beneficial to students, giving them an extra edge and confidence during and after attending university. I have more than just a degree from ASU, I have grown as a scientist and a person.

**Harris:** I have had the distinct pleasure of working with some of the most intriguing, bright, and interesting people in the field of bio-medical science. Having said that, if I can be a conduit, or offer any information on scholarship, fellowships, labs, faculty, or just act as sounding board about your ideas or questions; feel free to contact me!
Social Insects Invade Library

By Tate Holbrook

Social insects have invaded the Noble Science and Engineering Library! Five transparent colonies of live ants are part of a SOLS exhibit entitled 'The Triumph of Sociobiology,” which celebrates E. O. Wilson’s April 13 lecture at 7:30pm at the Galvin Playhouse and highlights sociobiological research conducted at ASU. Also on display are aesthetic posters featuring the SOLS Social Insect Research Group (SIRG), representative publications and tools of the trade, and a comparison of European and Africanized honeybees. Go check it out – it’s generating a lot of buzz!

Lecture

The Future of Life: Edward O. Wilson

7:00 pm April 13, 2006, ASU Galvin Playhouse

Named by Time Magazine as “one of the 25 most influential people in America” (1995), Harvard University Research Professor, Emeritus, E. O. Wilson is considered by many to be one of the most influential thinkers of the 20th century and the “father” of sociobiology and biodiversity. Two of his books have received Pulitzer Prizes, On Human Nature (1978) and The Ants (1990) - authored with ASU’s School of Life Sciences professor, Bert Hölldobler. Wilson’s seminal works in evolution of social behavior and commitment to conservation continue to shape the face of science, philosophy, ethics and activism. He will speak about the importance of global diversity and the concern of increasing rates of extinction due to human activity. He shares his cautious optimism about the future coupled with a call to action to avoid “an irreparable loss in wealth, environmental security, and spirit for the generations to come.” He is the recipient of innumerable honors, including the National Medal of Science, the gold medal of the World Wildlife Fund, and the Crafoord Prize, the Swedish equivalent to the Noble Peace Prize for ecology. He sits on the boards of the Nature Conservancy, Conservation International and the American Museum of Natural History.

This is a free event, but has limited seating. Please contact the School of Life Sciences (480)965-0803 for more information:

Bioethics, Policy and Law Program

Film Series for Spring 2006:
• January 16th - The Doctor
• March 9th - Dirty Pretty Things
• April 6th - The Sea Inside
• April 27th - Safe

It’s a Party!
By Faye Farmer

The SOLS Events Committee aims to improve the academic environment of SOLS through community outreach and social events, connecting the members of SOLS with each other and the community at large. The committee has been active since late 2003, with a core of active members of SOLS faculty and staff. There are several events planned for each semester. Recurring events include the first Friday of each semester being designated as a “SOLS Happy Hour” evening at a local pub. Several picnics at local parks have been family friendly events. Planned social activities for the coming year are “SOLS Super Bowling” in the Memorial Union’s Sparky’s Den and a “SOLS Take a Hike” with tours given by faculty or staff members, within their area of expertise.

Regular community outreach projects occur throughout the semester as well. This past holiday season, the committee organized a very successful fund raiser for the Tempe Pappas Regional Elementary School for homeless children. A previous service project included cleaning the kitchen at the Homeless Shelter, Ozamam Manor. Another of the committee’s event is working with Home Base Youth.

Everyone in SOLS is welcome to join the committee, whether you are staff, faculty or student. If you cannot find the time to join, but have an idea of a project or social outing, send it to one of the committee members. The current members of the committee are Barbara Hoffman, Jim Elser, Candan Soykan, Felicity Snyder, Janice Frangella, Marci Welton, Peggy Coulombe, and Susanne Neuer.

New Hires

Faculty: (not included in the Fall 2005 edition)
Yuseob Kim, Assistant Professor, Genomics, Evolution, & Bioinformatics
Yixin Shi, Assistant Professor, Cellular & Molecular Biosciences

Academic Advising & Student Services Office
Phillip Scharf, Academic Specialist

Business Office
Lori Hammes, Accountant
Rachel Hayes, Accounting Specialist

RTI Office
Margaret Coulombe, Research Proposal and Media Relations Coordinator

Visualization Lab
Michael Lindyn, Media Specialist, Sr.
Jacob Sahertian, Graphic Designer, Principal
Awards & Recognitions

Jon Harrison was recently elected Program Officer for the Comparative and Evolutionary Physiology Section of the American Physiological Society and was elected as a Fellow of the American Association for the Advancement of Science (AAAS). The prestigious international society elected a total 376 members as Fellows of AAAS in 2005.

Felicity Snyder, Program Coordinator in the Center for Biology and Society, has received the 2005 Staff Achievement Award, one of the Alumni Association Founders Day awards. The award is annually “Presented to an ASU staff member, classified, service professional, administrative, or academic professional whose outstanding contributions to Arizona State University has significantly enhanced the well-being and reputation of Arizona State University within the community at large”

Shade Shutters, Ph.D. student in Ann Kinzig’s research group, was awarded a 3 year Pre-doctoral Fellowship from the NSF.

James Collins has been elected a fellow of American Women in Science (AWIS) and will be recognized at the AAAS meeting in February. AWIS recognizes men and women for advancing women in science.

A Field Guide to Amphibians and Reptiles in Arizona by Tom Brennan and Andy Holycross will be published this April.

Kevin McGraw Received the 2005 Outstanding Young Investigator Awards from the Animal Behavior Society and the American Ornithologists’ Union. He also published a paper in Science that was featured on the cover and published two edited books on Bird Coloration, in which he wrote 3 of the chapters.

Nancy Grimm was elected to the Governing Board of the Council of Scientific Society Presidents (CSSP) as a ‘Member At Large’. Since 1973, CSSP has served as a strong national voice in fostering wise science policy, in support of science and science education, as the premier national science leadership development center, and as a forum for open, substantive exchanges on emerging scientific issues.

Several SOLS ecologists attended the Ecological Society of America’s first meeting to be held in Mexico, “Ecology in an era of globalization.” There were about 500 attendees from Canada, the USA, Mexico, and other Latin American countries. Themes of the conference were human migration, production systems, and invasive species. President Nancy Grimm opened the plenary session, at which former Arizona governor Bruce Babbitt was the speaker and the Governor of Yucatan was a guest. She also made closing remarks and co-organized a workshop, “The rise of cities: adaptive solutions for urbanization in desert, coastal, and tropic regions.” Ph.D. student in Ann Kinzig’s research group. Kristin Gade was one of the speakers at that workshop, discussing effects of urbanization on biodiversity. Stan Faeth, professor, and graduate students Jason Walker and Hoski Schaaufsta presented posters at the meeting. The program is available at http://www.esa.org/mexico/.

Gro Amdam and Robert Page collaborative research was featured on the January 5, 2006 cover of Nature. The paper describes the complex social behavior derived from maternal reproductive traits and includes Kim Fondrk, program manager in SOLS, as co-author.

Charles Arntzen, Regent’s professor, and Tsafrir Mor, assistant professor, were recently presented with the Innovator of the Year Award for Academia. The award was presented by Arizona Governor Janet Napolitano and the state’s technology leaders.

Jeffery Trent joined the faculty of SOLS. Trent is the President and Scientific Director of the Translational Genomics Research Institute (TGEN) located in Phoenix.

Appointments

Rajeev Misra, professor in the Cellular & Molecular Biosciences Faculty, accepted the position of Associate Director of Graduate Programs for the School of Life Sciences. He began his two year term during the fall of 2005.

Jim Elser, professor in the Ecology, Evolution, & Environmental Science Faculty, accepted the position of Associate Director of Research and Training Initiatives within the School of Life Sciences. He began his two year term during the fall of 2005.

Jon Harrison, professor in the Organismal, Integrative, & Systems Biology Faculty, accepted the position of Associate Director of Facilities within the School of Life Sciences. He began his two year term during the fall of 2005.

SOLS Activities!

- Annual Pre-health Professions Fair, Memorial Union - Arizona Ballroom 207, Wednesday, February 22, 2006, 10 am to 2 pm
- Undergraduate Research Poster Symposium, School of Life Sciences C & E wings, Friday, February 24, 2 pm to 5 pm
- Career Services-Job Fair, Wells Fargo Arena, Saturday, April 1, 2006, 9 am to 3 pm
- SOLS Award Recognition Ceremony, Old Main - Carson Ballroom, Thursday, May 11, 2006, 8 am to 9 am
- ASU Spring Commencement 2006, Wells Fargo Arena, Thursday, May 11, 2006, 10 am
- College Convocation Ceremony, Wells Fargo Arena, Friday, May 12, 2006, 8 am
- Freshman Orientation, August, 2006
- SOLS Career and Internship Fair, Wednesday, October 11, 2006, 10 am to 2 pm
Contact us!
If you have information to include in this newsletter, please contact us at sols@asu.edu. We are particularly interested in reconnecting with Alumni and Emeriti. Manuscripts should be less than 1000 words, photos should be high resolution, and all submissions should include all pertinent contact information. Submissions should be sent to David Brown, Editor, David.E.Brown@asu.edu or Faye Farmer, Managing Editor, Faye.Farmer@asu.edu, or Peggy Coulombe, Margaret.Coulombe@asu.edu, attention SOLS Newsletter, P.O. Box 874501, Tempe, Arizona, 85287-4501. We reserve the right to edit all submissions.

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