

NEWSLETTER

Southwestern Research Station

Center for Biodiversity & Conservation
American Museum of Natural History
New York, New York

P.O. Box 16553, Portal, Arizona 85632

Number 19

Year 2004

DIRECTOR'S COMMENTS

August 2004 marked the end of my first year as Director of the SWRS. I have to say it was an exciting and challenging year for me. My husband, David Kuntz, (and our animals) joined me in January and we spent the later part of winter making the Station our new home.

Much of my first year was spent learning the ins and outs of Station operations that would not have been possible without the SWRS staff. I started the season off with two great cooks. Kate Schilling began her second year as seasonal cook, and because of her background as a pastry chef satisfied many palates with her homemade breads and desserts. Jacqueline Clark began her first season as the year-round cook and turned out many great dishes including some remarkably tasty vegetarian entrees. In the front office, Diane Smith began her third year with a promotion to Office Manager. Her promotion brought with it added responsibilities which have been instrumental in making my first year run with as few bumps as possible. Mike Stoenher continued into his fifth year with a promotion to Senior Maintenance. He is truly a jack of all trades and has kept the Station in good working order. David began his first year as Operations Manager. His responsibilities include new Station projects, computer technology, and helping out in all other areas where needed. One of his new projects was to start a composting system at the Station which he hopes to expand next year.

Concurrent with me taking over as the new director, the American Museum of Natural History placed the Station under the direction of the Center for Biodiversity and Conservation (CBC) at the museum. Dr. Eleanor Sterling is the Director of the CBC. Our first joint task was to develop a five-year strategic plan for the Station. Eleanor visited the Station last fall and again in early spring. Although still a work in

progress, we developed a five-year plan which includes the following goals:

- **Goal 1:** Continue to attract researchers and their research assistants and foster science that focuses on the high biodiversity of the area.
- **Goal 2:** Increase opportunities for science education at the SWRS.
- **Goal 3:** Advance and support educational and research activities by enhancing the technology infrastructure at the SWRS.
- **Goal 4:** Reduce dependency on outside energy sources and become a "green" model for the surrounding community and other research stations.

I am proud to say that we have made some progress towards these goals.

- The AMNH provided funding to upgrade the heating system at the SWRS so that all rooms will have new, economical heaters for those chilly months.
- SWRS in conjunction with the CBC developed a new workshop on "Practical Remote Sensing Methods for Conservation Biologists." This workshop is taught by remote sensing staff of the CBC, Ned Horning and Kevin Koy.
- The AMNH, using NASA funding, provided the Station with seven new DELL computers for course activities. We also have three additional computers in the computer room for email access.
- Thanks to the initial efforts of Emily Sherbrooke, the SWRS replaced its dial-up internet with DSL high speed internet. Users of the Station have access to hardwired DSL in the computer room and labs and wireless internet throughout most of the Station.

Dawn S. Wilson

A LITTLE MORE ABOUT THE CBC!

Because of growing concern among its scientists over rapid species loss and increasing environmental degradation around the world, the American Museum of Natural History created the interdisciplinary Center for Biodiversity and Conservation in 1993.

The CBC's activities integrate scientific research, education, and outreach so that people—themselves an important cause of the rapid loss of biodiversity—will become participants in its conservation. One of the CBC's strengths is its study of the crucial role that non-vertebrate animals (insects, soil fauna, mollusks, and others) play in maintaining healthy, functioning ecosystems. The CBC also strives to study and protect other lesser-known organisms such as small mammals, reptiles and amphibians, and organisms found in freshwater and forest canopy environments.

The SWRS is pleased to work side by side with the CBC so that together we can face the challenges of the future by promoting knowledge and understanding of our ever changing world and by evolving to meet the current needs of individuals and groups that strive to conserve the world's biodiversity. To learn more about the CBS and its mission please visit their web site: <http://cbc.amnh.org>

EDUCATION

Once again, the Station hosted many classes and workshops continuing in our role as an outdoor laboratory that enhances both research and education. Some field ecology classes included Cornell (Harry Greene), University of Denver (Michael Kerwin), Cal Poly (David Moriarty), and University of Arizona (Michael Nachman). Three Earthwatch classes came to the station studying lizards, caterpillars, and ants. Workshops this past season included the Bee Course, Arizona Native Plant Society, and ABA Owls and Trogons.

KINO HIGH SCHOOL FINDS A POT OF HONEY



In May, instructors, Ed Davis and Ceal Smith from Kino High School in Tucson, Arizona brought 13 students to the SWRS to get a taste of field ecology. They went on hikes, studied local reptiles, and observed birds. But, their

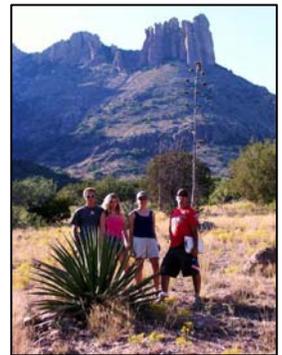


big project was to excavate a honey-pot ant nest and retrieve the honey-pot ants, workers, and their queen. With the help of a local ant expert, Ray Mendez, they started their excavation. After two days of hard labor, they were successful in finding the queen ant – which is very important, because without the queen the colony would not survive in their new home. Their colony was transported to the Mendez facility and will later become part of a biodiversity display as a live exhibit at the Houston Zoo.

GEOLOGY AND ECOLOGY OF THE SOUTHWEST

Michael Kerwin (geology professor at the University of Denver) spent five days at the SWRS in September with 13 undergraduates as part of a field-based class called *The Geology and Ecology of the Southwest*. The unique setting of the Chiricahua Mountains at the intersection of the Chihuahuan, Sonoran, and Sierra Madrean ecosystems enabled the class to focus on a wide variety of biogeographic issues.

First, the entire class was introduced to the concept of sky island ecosystems by describing the vegetation from Rodeo, NM to Rustlers Park near the top of the Chiricahua Mountains. Later in the week, the students worked in groups of three to determine if easily identifiable plant traits could be used to differentiate five bioclimatic zones along a south-facing transect above Cave Creek. Preliminary results suggest that individual leaf traits (including thickness, hardness, and presence or absence of thorns/spines) can differentiate the hot and dry low elevation life zones from the more temperate high elevations zones, but are less useful for identifying subtle changes among neighboring zones.



Each evening the class gathered after dinner to hear presentations from students ranging from a geology lesson on the uplifted block of folded and faulted volcanic rocks that make up the Chiricahua Mountains

KERWIN'S CLASS, CONTINUED

to a summary of the most common birds in the area to a discussion on the habitat of the Arizona Mountain Kingsnake. Two of the highlights of the class this year were a guided birding trip with Bob Chapman and a close encounter with a nine-inch long giant centipede that took an affinity to one of the students during a short break in the upper Sonoran scrubland. This is the second consecutive year that Michael Kerwin has brought his class to the SWRS and he is currently applying for funding to continue the class next year and into the future.



NEW SWRS COURSE!

The Southwestern Research Station is pleased to announce a new course entitled "Practical Remote Sensing Methods for Conservation Biologists." Our new partner, the CBC at the AMNH, worked with the Station to develop this course that focuses on the practical aspects of remote sensing with the goal of providing sufficient information so participants will be able to download and display satellite imagery for their area of interest, learn to interpret the imagery by making the connection between abstract image information and the landscape, and use this information to support a range of conservation objectives. Two courses were offered this year, one in the spring and one in the fall.



Check out our web site for information on the NEW course in Remote Sensing and other courses offered at the SWRS!!
<http://research.amnh.org/swrs>

RESEARCH

What a great year for research! The Station recorded twice as much rain during the monsoon season as last year. Many of the researchers seemed happy about the rain, especially the researchers working on spadefoot

toads. Too many to list them all -- but just to give you an idea of what is happening research-wise at the Station, we have listed some of this season's research:

Proximate determinates of body size in spadefoot tadpoles. Jeff Arendt, University of California, Riverside.

Effects of ambient light on mating signal evolution in hummingbirds. Julia Barfield, San Francisco State University.

Fitness consequences of extrapair fertilizations in Mexican Jays. Jerram Brown and John Eimes, SUNY, Albany.

Mating systems and population genetics of desert anurans. Lauren Chan, Cornell University.

*Growth regulation and sexual size dimorphism in *Sceloporus lizards*.* Robert Cox, Rutgers University.

Variability of male and female painted redbstart song; Foraging in painted redbstarts. Piotr Jablonski, Pawel Cygan, Ewa Sergiej, Marta Borowiec, Polish Academy of Sciences.

Plant-herbivore interactions along an environmental gradient. Josh Donlan, Cornell University.

Linking pollination to population and community dynamics. Susan Elliot, University of Georgia.

How competition and parasitism control diversity in ant communities; Roles of habitat complexity and host ant dominance level in ant species coexistence. Don Feener, Elliot Wilkinson, University of Utah.

Costs and benefits of leg autotomy in wolf spiders. Dan Formanowicz, University of Texas, Arlington.

Ecological relations of small owls. Fred and Nancy Gelbach, Baylor University.

Behavioral ecology of harvester ants. Debra Gordon, Stanford University.

Role of structural complexity in harvester ant hydrocarbon-based recognition cues. Michael Greene, University of Colorado, Denver.

*Evolutionary ecology of male killing *Wolbachia*.* John Jaenike, University of Rochester.

Fate of interspecific hybrids in an ant hybrid zone. Glennis Julian, University of Texas, Austin.

*Evolutionary mechanisms in flower pollination of *Polemoniaceae*.* Marilyn Loveless, College of Wooster.

Evolution in flash flooding streams. David Lytle, Mike Bogan, Sabrina Helm, Oregon State University.

*Behavioral ecology of a host-parasite interaction: *Sceloporus jarrovi* and *Eutrombicula belkani*.* George Middendorf, Howard University.

Spadefoot toads: Ecological speciation; Testing the effect of kin competition and developmental plasticity; Mate choice and speciation; Phylogeographic investigation of character divergence. David Pfennig, Karin Pfennig, Ryan Martin, Amber Rice, University of North Carolina.

Alternate reproductive tactics in the ant genus *Hypoponera*. Markus Rueger, Susanne Foitzik, University of Munich, Germany.

Hormones and sexual behavior in whiptails. Nicholas Sanderson, University of Texas, Austin.

Fitness of interspecific hybrids in harvester ants. Tanja Schwander, Universite de Lausanne, Switzerland.

How do local selective pressures in divergent habitats influence the evolution of learning ability in a model spider system? Ana Skemp, University of Arizona.

Effect of ant nests on plant nutrition and selection for extrafloral nectarines. Diane Wagner, University of Alaska.

Differences in behavioral foraging strategies between juvenile and adult *Sceloporus jarrovi*. Jessa Watters, University of New Hampshire.

Color development of female striped plateau lizards. Stacey Weiss, Arizona State University.

ONSITE STATION RESEARCH

Dawn Wilson: Before I came to the Station, I was involved in several research projects with three graduate students at Chico State University which included 1) *The effects of nest site placement on sex determination in desert tortoises*, 2) *Microhabitat use and phenotypic plasticity of western pond turtles*, and 3) *Movements and habitat use of western pond turtles in disturbed systems*.



Actinemys marmorata



Gopherus agassizii

I plan to begin new research projects next year. My main interests lie in reproductive ecology of turtles. I will use the desert box turtle, *Terrapene ornata luteola*, at study sites in the San Simon Valley to continue with this work.

David Kuntz: My background is in rangeland ecology and I plan to pursue local/regional projects that combine biodiversity with practical rangeland uses.

SWRS SCIENTIFIC ADVISORY BOARD

The scientific advisory council (SAC) of the SWRS met from 24-25 July in the director's office at the Station. Members of the SAC present at the meeting included Jay Cole, Pam Golden, Ray Mendez, George Middendorf, Karin Pfennig, Howard Topoff, and a graduate student representative, Amber Rice. Several topics were discussed at this meeting and a report was compiled (by Cole) for the SWRS and the AMNH.

➤ The first part of the meeting focused on two major changes that affect the SWRS: a change in the director and the AMNH transferring administration of the Station to the Center for Biodiversity and Conservation, under the leadership of Dr. Eleanor Sterling. In less than a year, Dr. Sterling made two site visits to the SWRS and made it clear that she recognizes its past contributions to science and education and its future potential. Drs. Sterling and Wilson envision improved incorporation of the SWRS into the activities of the AMNH in scientific research, education, conservation, and in granting research funds to young scientists.

➤ Sterling and Wilson prepared the Station's first Five-Year Strategic Plan, including a vision statement, major goals, fundraising and budget needs, and staffing and space needs. The plan focuses on improving current activities while developing new ones, especially in hosting educational courses and providing the necessary technology for them. The SAC strongly encourages the development of additional courses to be taught at the SWRS and is excited about the new course in Remote Sensing.

➤ Another topic discussed at the meeting was the development of a Visiting Scientist Program. The scientist would benefit by receiving housing and lab space to conduct their own personal research, and in exchange, the Station would benefit by receiving work from the scientists centered round their area of expertise. SWRS plans to implement this program in 2006.

➤ Other topics discussed included plans for a 50th anniversary celebration, fund raising, and a future symposium on long-term research activities and data sharing by Station researchers. Updates on these and other Station goals will follow in subsequent news letters.

ANNOUNCEMENTS

SWRS 1st Annual Horseshoe Competition!

This summer, the volunteers and staff participated in the First Annual Horseshoe Competition. For two days, shoes were tossed for both doubles and singles competitions.



**Winner Singles: Dawn S. Wilson
(and no, I did not win just because I happen to be the Director!)**



Winners Doubles: Ben Morrill and Rich Reeves

WINTER RESERVATIONS

SWRS is now accepting reservations for winter. Workshops, groups, scientists, and naturalists are welcome. The kitchen is closed but a few kitchenettes are available. Call for details 520-558-2396 or email swrs@amnh.org



Come to the SWRS and see our new birding area and expanded gift shop!

2004 VOLUNTEERS

The SWRS could not provide accommodations for scientists and naturalists that visit the station each year without the help of the volunteers. Volunteers come to the Station for various reasons but while here impart an atmosphere of diversity and vitality. We sincerely thank this year's volunteers:

Cristina Ariani (Brazil), Heidi Camp (Colorado), Paul Catullo (Oregon), Magda Chudzinska (Poland), Robert Cox (New Jersey), Pawel Cygan



(Poland), Amanda Dickson (Minnesota), Adam Dusen (Pennsylvania), Alyson Gould (Colorado), Sloane Gray (Colorado), Robin Greene (Montana), Cedric Hall (Indiana), Sebrina Helm (Alabama), Brian Hockaday (Texas), Rebecca Kittel (Germany), Kelly Lasater (New Mexico), Gail and Harold Lindebo (Wisconsin), Charlie Liu (Massachusetts), Rachelle Macapagal (UK), Susan McLean (Vermont), Benson Morrill (Utah), Patrick Oakes (Colorado), Arthur Pelegrin (Oregon), Katie Pettyjohn (Iowa), Richard Reeves (Utah), Courtney Rudd (Oregon), Ewa Sergiej (Poland), Andrea Simon-Topoff (Arizona), Sally Stevens (Massachusetts), Brian Storz (Florida), Josh Teslaa (Iowa), Lukasz Ulbrych (Poland), Adrian Uren (UK), Alan Uren (UK), Jessa Watters (New Hampshire), John Yerger (Pennsylvania)

SWRS LOGO CONTEST!!

We invite everyone to submit a drawing for our logo contest. The following restrictions apply:

1. SWRS must appear in the logo design
2. The logo must fit into some type of border such as a square, circle, triangle...
3. The logo should depict the atmosphere of the Station.
4. All rights to the design are the property of the SWRS and the SWRS has the right to modify any logo selected as the winner.

The winner will receive three nights free lodging for two individuals (space permitting), a t-shirt of their choice from our gift shop, and acknowledgement for their contribution. Submit entries to SWRS, P.O. Box 16553, Portal, AZ 85632 or email drawing (jpeg) to dwilson@amnh.org

POSITIONS AVAILABLE AT THE SWRS

❖ VOLUNTEER POSITIONS

Approximately 30 positions are available for the 2004 season. Two types of volunteer programs are available at the SWRS:

1. RESEARCH SEASON -- Individuals interested in conducting research:

This volunteer program offers students in biological sciences outstanding opportunities to observe and become involved with scientists conducting field research. Food and lodging are provided to volunteers in exchange for 24 hours per week of routine chores, with the remaining time available for research activities. This program is open from March through October to both undergraduate and graduate students; the latter may pursue their own research projects. Time commitments to the program range from 6-8 weeks.

2. NATURALIST SEASON -- Individuals interested in birding, hiking, and other nature adventures:

This volunteer program offers individuals the opportunity to enjoy all the wonders of the Chiricahua Mountains. Just a few minutes walk from the Station are hiking trails, creeks, and birding areas matched nowhere else in the United States. Food and lodging are provided to volunteers in exchange for 24 hours per week of routine chores, with the remaining time available for personal activities. This program is open from September through May each year. Very few researchers are at the Station this time of year, but the Station hosts many birding groups and classes. Time commitments to the program range from 4-8 weeks. Longer time periods may be arranged.

NEW Volunteer Project!

This research project begins March 2004 and will be part of a long-term field study to record hummingbird migrations into the Chiricahua Mountains. For more information email Dawn S. Wilson, dwilson@amnh.org.



To download Volunteer Applications go to our web site and click on Volunteer on the left side of the home page or write: Dr. Dawn S. Wilson, Director, Southwestern Research Station, P.O. Box 16553, Portal, AZ 85632 USA

❖ SEASONAL COOK

The SWRS has an opening for a full-time, seasonal cook to work annually from 1 March to 31 October. This position is a unique opportunity to cook in a place with beautiful surroundings and a very interesting assortment of people.

The kitchen is fully stocked and the Station serves from 30-75 users at any one time during the season. The seasonal cook is required to work 4 days each week, cook three meals each day, plan all menus, and keep their work area clean. Your days off are yours to hike the numerous trails, go birding, or visit some of the natural wonders of the area. The position includes housing, meals, benefits, and salary. Please mail or FAX a resume and cover letter to Southwestern Research Station, P.O. Box 16553, Portal, AZ 85632; or email swrs@amnh.org



FUNDING OPPORTUNITIES

The American Museum of Natural History and the SWRS Student Support Fund has funds available for graduate students and post-doctoral students conducting projects in the SW U.S.

➤ **Bird Research:** Go to the AMNH web page <http://research.amnh.org/grants> and download the Chapman grant form. Fill out and send it back to the AMNH. Applications are **due 15 November** of each year. If you missed the deadline, send your application directly to the SWRS.

➤ **Invertebrates or Vertebrates (not birds) Research:** Go to the AMNH web page <http://research.amnh.org/grants> and download the Theodore Roosevelt Memorial Fund grant form. Fill out and send it back to the AMNH. Applications are **due February 15** of each year.

➤ **Plant Research:** Use the Theodore Roosevelt grant form (see above) and send it directly to the SWRS, not the AMNH. The AMNH does not have an application for plant research projects. Applications are **due February 15** of each year.

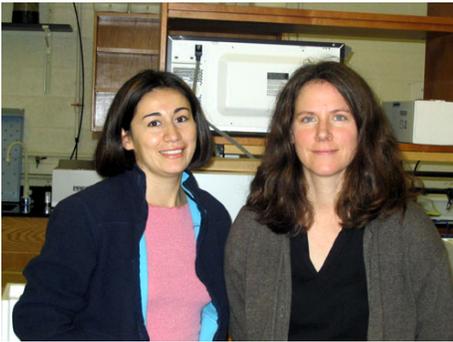
NOTE: You must write on the top of each application form that you will be working at the SWRS. Students receiving a SWRS Student Support Fund grant must reside at the station while conducting their research.

Student Support Fund

In 1989, Former SWRS Director Wade Sherbrooke developed the Student Support Fund (SSF) to support students conducting field research at the Station. Funds for the SSF come from researchers, students, former volunteers, local visitors, and members of our local community. All donated funds are targeted for use by students and all recipients use the funds to defray the costs of their research at the Station (Sherbrooke, Curator 45:2002). **Since its inception the SWRS has given out over \$41,000 to 78 students!**

Your generous donations have provided opportunities for these young investigators to work at a field research station located in one of the most biologically diverse areas of the United States. We hope that you will continue to support students in their quest to conduct research that ultimately contributes to our efforts to conserve the world's biodiversity. Generation after generation have benefited from the SSF. **Dr. Karin Pfennig is an example of a person that was awarded a SSF grant as a student and shares with us here how the SSF helped her in her career.**

➤ The SWRS student support fund provided critical financial support for me when I was a graduate student. My research was centered on evaluating how heterospecific interactions affected female mate choice in spadefoot toads. A grant from the student support fund helped support my stay at the SWRS while I was conducting research. My study involved several experiments in which I counted thousands of eggs to measure fertilization success and raised hundreds of tadpoles from different parents to compare their growth and survival. These experiments allowed me to show that heterospecifics detrimentally affect a female's ability to choose high-quality mates. Without a grant from the SWRS student support fund, I would not have been able to conduct the experiments that were critical to the completion of my Ph.D. I am now an assistant professor at the University of North Carolina at Chapel Hill. The data I collected that summer serve as a foundation for my current research. There is no doubt that these awards have long-term beneficial effects for researchers. Indeed, my graduate student, Tatiana Vasquez (left in picture), hopes to pursue her



own research projects in the spadefoot system and plans to begin her research at SWRS this summer. She too will be applying for support from the SWRS student support fund. I hope that the fund can continue to provide the kind of graduate student support that was there for me, because these funds go a long way to fostering the research careers of young scientists.

Sincerely, **Karin Pfennig**

If you would like to contribute to the career of a young scientist, please consider making a contribution to the SWRS Student Support fund. Please cut at dotted line and send to: **Student Support Fund, Southwestern Research Station, P.O. Box 16553, Portal, Arizona 85632**

Yes, I would like to contribute to the SWRS Student Support Fund. My tax-deductible contribution is enclosed.

_____ \$25 _____ \$50 _____ \$100* _____ \$200 _____ Other (please fill in amount)

Charge my Visa MasterCard Discover OR Make checks payable to SWRS

Card # _____ Expires _____

Name _____ Address _____

City _____ State _____ Zip Code _____

* If you contribute \$100 or more, you will receive a free "friends of the SWRS t-shirt".



*New kids at the SWRS
enjoying their new home*

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In 1955, the SWRS was established through the initial interest and financial support of David Rockefeller as a permanent, year-round field laboratory for the American Museum of Natural History in New York.

As a “sky island” located in one of the most biologically diverse regions of the United States, the station is proud to have served as a research and educational organization for 50 years.

We appreciate the support of all that have come to the station either as scientists studying the diverse flora and fauna or as naturalists enjoying the immense beauty of the Chiricahua Mountains.

We will be sending out announcements this winter and spring concerning our celebration of this event.

