Ribbon-Cutting for the New Building Addition

The Biology Department held a ribbon-cutting ceremony on March 9, 2010, to commemorate the opening of a new research wing in Castetter Hall. The building has been designated LEED Gold status by the U.S. Green Building Council in recognition of its environmentally conscious design. This new construction, comprising 16,000-square-feet of net new space, was supported by funds from the student bond, legislative support and funds provided by the UNM President’s Office, for a total cost of approximately $9.9 million.

The addition is the first on campus to adhere to the former Governor Richardson’s order requiring new buildings acquire a minimum of silver certification under the Leadership in Energy and Environmental Design (LEED®) Green Rating System established by the U.S. Green Building Council (USGBC). SMPC Architect’s design surpassed this silver-level requirement with the building receiving a gold-level certification.

The UNM Biology Department now offers high-caliber training for students not easily fulfilled elsewhere in the state, while enabling UNM to maintain its competitiveness in seeking funding through organizations, including the National Institutes of Health and the National Science Foundation. The research laboratories will provide opportunities for students and faculty to work on health-related problems affecting the world, while also allowing researchers to contribute to critical issues in New Mexico, such as water quantity and quality.

Two of the programs to be housed in this new space are the Program in Interdisciplinary Biological and Biomedical Sciences (PIBBS), developed by Biology Distinguished Professor James Brown, Professor Felisa Smith and a number of UNM faculty, to provide novel training opportunities for graduate students at the intersection of traditionally separated disciplines.

Additionally, the Center for Evolutionary and Theoretical Immunology (CETI), spearheaded by Biology Regents’ Professor Sam Loker, seeks to use interdisciplinary approaches to understand how organisms protect themselves from pathogens. Both of these programs are funded through the National Institutes of Health, and provide state-of-the-art facilities and training opportunities for UNM researchers and students.

The ceremony featured short presentations by Professors Brown and Loker and UNM President David Schmidly. Additionally, in recognition of the role of the student bond funds in initiating this project, a raffle was held awarding Lobo gift cards to students who were present at the ceremony.

Left to right: Chairman Richard Cripps, President David Schmidly, Provost Suzanne Ortega and A&S Dean Brenda Claiborne

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Chair’s Message

Greetings once again to our friends and supporters. Since I last wrote to you more than a year ago, we have experienced tremendous challenges in the department, while at the same time undergoing exceptional successes.

The economic climate has begun to bite deeply into our normal activities, with challenging funding climates for research, shortfalls in staff positions being filled, and the need to contract some of our classes. These challenges are exacerbated by yet another increase in our student enrollments due to continuing interest in the subject of biology and all of its applications.

Nevertheless, we have met these problems head on. With the assistance of faculty, staff and students, we are meeting our financial cuts, and already have means in place so that we can operate as normally as possible despite dwindling resources. In addition, our instructors have been accommodating the rise in student enrollments by increasing their course caps. The academic achievements of our students continues to impress, with all four Goldwater Scholarship finalists this year being Biology majors. Plus, we are thrilled that more than 1,700 students at UNM consider Biology their major department—the largest for any single department on campus.

Moreover, our research operation has seen great success. In these pages you will see summaries of some of the most striking research findings of the last year, including discussions of how mammoths may have contributed to global climate change in the past, and how global minerals cycle in nature. Our undergraduate students also have made great achievements. Later in the newsletter, you will read one of many examples of how donor-supported scholarships have underwritten an important undergraduate publication in a top research journal.

Our sponsored research was particularly successful last year, with almost $23 million of new awards generated, thanks in part to Recovery Act money, but also reflecting the ability of biologists to secure funding from a bewildering array of local, national, and international sources.

Once again, I cannot thank enough the faculty, staff, and students of our department, for their unstinting efforts in maintaining and exceeding our instructional goals, attaining new research milestones, and keeping our operation moving forward.

—Richard M. Cripps

69th Annual Meeting of the Society for Developmental Biology

Last summer saw another major international conference come to Albuquerque in the form of the 69th Annual Meeting of the Society for Developmental Biology. Jointly held with the Japanese Society for Developmental Biology, this meeting brought more than 800 scientists to town to discuss the latest research in this field. Developmental biology investigates how organisms grow and form from a single fertilized egg or ovum. The discipline has a strong biomedical context, since when development goes awry, it can result in congenital diseases, diseases of aging, and cancer.

Several parts of the conference were supported by UNM Biology, including a New Faculty Boot Camp, held in the department on August 4–5, 2010. At the boot camp, new faculty hires from around the world were informed about topics such as personnel management, how to manage start-up costs in a new position, and how to juggle the many challenges of faculty life. Sixteen recruits, pictured here with their coiffed drill sergeants in the Biology courtyard, successfully negotiated the training, and are now applying what they learned to their new careers.
In Memoriam: Clifford S. Crawford

Crawford: Biologist Co-Founded Program

by John Fleck, Staff Writer
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Wednesday, September 8, 2010

http://www.abqjournal.com/obits/profiles/0822
10279008obitsprofiles09-08-10.htm
Global Nutrient Cycling


Each year plants and algae remove about 100 billion tons of carbon from the atmosphere and use it to make organic molecules for their own growth. Each year, fungi and bacteria complete the global carbon cycle by releasing about the same amount of carbon back into the atmosphere as they decompose dead organic matter. Because of their small size, fungi and bacteria must release enzymes into the environment to break down big molecules into small soluble units that they can consume. By measuring the activity of these enzymes, we can study how microorganisms decompose organic matter and how this process is affected by changes in environmental conditions. In this paper, and a series of papers that follow it, we combine enzyme activity data from many studies to show that communities of decomposer microorganisms operate within constraints that can be related to fundamental theories of biological organization such as the metabolic theory of ecology developed by Dr. James Brown (UNM Biology) and colleagues. These theories are based on the operation of enzyme complexes within the cell that control respiration, protein synthesis and other cellular functions. By connecting the activity of enzymes produced to decompose organic matter outside the cell to these theories, we create new ways to understand and model the decomposition side of the global carbon cycle.
MUCH OF THE BREADTH AND QUALITY of research and teaching that characterize today’s Department of Biology are linked to Loren Potter’s 27 years of service on the Biology faculty. Loren’s many contributions to the Department of Biology have been rooted in the broad perspective and solid academic foundation that he had developed long before joining the Department.

Loren was born on June 23, 1918 in Fargo, North Dakota, where he spent most of his youth until graduating in 1940 from North Dakota State University (NDSU) with a B.S. in Botany. Following defense-related research with Goodyear Tire and Rubber Company during World War II, Loren received an M.A. from Oberlin College in 1946 for his work on “Post-glacial Forests of Northern Ohio” under the direction of the famous plant ecologist Paul B. Sears. Two years later, he was awarded a Ph.D. in Plant Ecology from the University of Minnesota. During that same year, Loren joined the Botany faculty at NDSU, where he progressed from Assistant to Full Professor in just 10 years. Loren’s research in plant ecology while at NDSU took him from western North Dakota and Hudson Bay to the San Augustin Plains of New Mexico, where he conducted research on “pollen rain” while on sabbatical leave at UNM in 1955–56.

Loren was hired as Chairman of the Department of Biology in 1958, a post he held for 14 years. As Chairman, Loren’s primary missions were to broaden and improve the quality of teaching and research in the department and to renovate and increase the size of the Biology Building. Loren immediately set up a system for training Graduate Teaching Assistants to be more effective instructors, and he encouraged Biology faculty to seek outside funding for their research. Leading by example, Loren was awarded more than 40 grants during his 40 years of research in plant ecology. One of his grants, a multidisciplinary, multi-university research project focused on Lake Powell, was the second largest research grant in the U.S. at the time of its funding in 1971–77. In addition, Loren published numerous research papers, was the co-author of four books, and held offices in a number of scientific societies, including President of the Southwest Division of the American Association for the Advancement of Science (AAAS). One of the major physical legacies of Loren’s time as chairman was the building of a new wing of Castetter Hall. For this project, Loren drew detailed floor plans for the addition, led the planning for doubling the size of the Biology faculty, and wrote the proposal that resulted in matching federal and state funding for construction of a new wing and renovation of the old wing of Castetter Hall. The addition was dedicated as the “Potter Wing,” with Loren’s retirement in 1985.

Loren also made major contributions to graduate and undergraduate teaching throughout his career at UNM. He taught nine different courses in botany and plant ecology, including his two favorite courses: Ecology of North American Forests and Tundra, and Ecology of North American Deserts and Grasslands. The capstone of these two courses was a 21-day field trip across western North America during which students were introduced to all the major vegetation types and climatic zones in the region. At 84 years of age, Loren reprised those two courses during the 2002–03 academic year.

Loren continues to attend major Biology Department functions and attempts to keep up with developments in the department and university through his friends and colleagues in Biology and through the media. Loren is immensely proud of the progress that the department has made since he joined as its chairman more than 52 years ago. He is always available for anyone wanting a historical perspective on the department and may be coaxed to provide sage advice regarding its future.

Biology Department: Childhood to Maturity
by Loren Potter, Ph.D.

Excerpts from “The Potter Years,” a talk given on October 28, 1999, at the awarding of the Loren Potter Chair of Plant Ecology to Dr. Manuel Molles, Jr.

In 1955, I came from North Dakota State University on an NSF grant to study the vegetation and pollen rain into the San Augustin Plains, where colleague and major professor Paul Sears of Oberlin had a deep core for pollen analysis to reconstruct climate and vegetation of the post-Pliocene. During this first stay at UNM, I had a temporary office at a table in the basement among some of Dr. Jim Findley’s supplies and barrels of dermestid beetles, which were busy cleaning mammal carcasses.
In 1956-57, Dr. Castetter, who ruled the department with a tight fist and easily said “no,” was promoted to Academic Vice President. UNM appointed an Acting Chairman of Biology, while searching for a new Chairman. I was interviewed, favorably, but was considered “too young” for the position. In 1957-58, another Acting Chairman was appointed and the search continued. At the culmination of this search, I was called by Dean Wynn and asked to accept the position of Chairman. Before accepting I said, “My goodness, I must have aged a lot in one year!”

The first Ph.D. was granted in 1952.

I arrived at the University of New Mexico in the summer of 1958. That’s the year the infamous cowboy politician Bruce King started his state career in the legislature. There was a faculty of nine: Dr. William Martin replaced Art Jackson in Plant Taxonomy and Dr. Gene Rypka replaced Dr. Johnson in Bacteriology. When I arrived, I found General Biology labs being taught by Graduate Assistants with little or no instruction, preparation, or assistance to do their job. I quickly obtained permission for the appointment of Head Teaching Assistants who had experience and teaching talent, people like Clyde Jones and Gene Fleharty, to train new G.A.s, provide guidance, organize lab supplies, equipment, etc.

Early 1960s Research

There was an interest in the possible relation of oxygen tension to altitudinal distribution of tree species. Bacteriologist Eugene Rypka knew Warburg respirometry. I chuckle with pleasure at getting a lab scientist to go with me in winter to the top of the old chairlift at the Santa Fe Ski Area, then with snowshoes on feet and skis on back to climb through snow to 12,000 feet, where we switched to skis and sampled tree species on the way down through the timber.

In the late 1950s and through the ‘60s, Dr. Martin Fleck’s interest in radiation biology led to one of the initial NSF AEC Radiation Biology Institutes for both high school and college teachers and eventually to both summer and academic-year programs. I became the Director to relieve Dr. Fleck of administration. There were field trips to Los Alamos via old C-47 transport planes and some trips to White Sands. Some of the participating teachers returned for advanced degrees. Dr. William Martin and I also had an NSF Summer Institute in Plant Taxonomy and Ecology at Lawrence Ranch near Taos.

We cooperated with Fred Wendorf (School of American Research, Santa Fe) in arranging for Mr. Rounds (millionaire owner of Pot Creek Logging Mill), who wanted to make a contribution to New Mexico science and learning, to fund restoration of the ruins of the Civil War fort at Ft. Burgwin (southwest of Taos) as a center for research, seminars, and education. Dr. Martin and I planned natural landscaping and I participated in some of the seminars.

With the support of the U.S. Forest Service Regional Office, I continued my interest in Range Management and reevaluated a large number of 25-year-old Range Exclosure Study Plots to measure the effect of protection versus grazing on a large variety of southwestern vegetation types.

In the early ‘60s, large enrollments meant using every available general lab in Castetter Hall every day and evening including Saturday morning, but not Friday evening. The need for Graduate Assistants increased the graduate advisement load on graduate faculty. The number of M.S. degrees reached an all-time high in 1969.

The Building Addition

In 1964-65, the faculty were crowded in Castetter Hall. We needed a plan for a new facility, we needed to convince NSF and HEW of the need and the promise of the department’s teaching and research programs. We planned for doubling from 12 to 24 faculty in 10 years. There was no university architect at that time. We had to get faculty agreement on fields of teaching and research for each of 12 new hires, as required for part of the NSF proposal. It was up to the Chairman to draft a floor plan, to scale, for the addition. We were required to have a schematic down to linear feet of base and wall cabinets for the entire building and the renovation of Castetter Hall, and major-equipment lists and built-in-temperature chambers. Can you imagine the disagreements on fields of study? Can you imagine the variation in requests for equipment? Some individual requests would have used up the entire budget. Several young faculty (William Martin and William Johnson) helped the Chairman with hundreds of hours of detailed tabulations required for the proposal.

Departmental faculty varied in their reactions to the proposal: “We’ve tried it before; it won’t work.” “It’s too big, too grandiose.” “You’ll never get that much money.” On the other hand: “Why can’t I have more?” My answer was always, “We won’t know unless we try.” I was especially thankful to the younger faculty who supported the effort.

When the process was complete, I carried hand-drawn plans mounted on cardboard to Washington D.C. for presentation. In 1965, we did not succeed. Some older doubting faculty had a chance to say, “I told you so.” Not used to defeat, I went to President Tom Popejoy (almost expecting to be fired). He said, “No problem, just try again.” In 1965-66, I resubmitted and received a matching grant from HEW and NSF, supplemented by state land sales and bonds, for a total of 2.5 million dollars.

Why no (or few) windows? Between 1945 and 1955, we had a serious drought, frequent spring winds, and severe dust storms. The campus was not landscaped, and most of the grounds were barren sand. Windows were a major source of dust and a problem for temperature control and lab cleanliness. The university appointed the architectural firm of Flatow, Moore and Bryan. Mr. Flatow was a pilot, so we flew around the Southwest to get ideas. Arizona State University had built a Biology building with no departmental input. They were just given a building, with a dark interior, colored pipes down to lab tables, etc. At ASU we learned ninety-five percent of what not to do. Colorado College had an excellent idea, which we copied, of a chase space with utilities between the inner load-bearing walls and the outer slab, non-bearing walls. Our walls were pre-cast with styrofoam insulation on the inside of the slab and color in the poured cement to prevent peeling, which is common
to plastered, cement block walls. The slabs were 9’ x 32’ and, at eight tons, were slightly warped, so they did not fit at the corners. In July, the contractor spot-welded at the bottom and top of the corner panels and drove wooden wedges at the level of the ceiling of the first floor to straighten uncured slabs. With summer afternoon showers, the wooden pegs imbibed moisture and swelled. The welds broke at the top with enough pressure to blow one slab out of the southwest corner, which crashed to the ground at 4:30 p.m., shaking the ground and even the old building at the opposite northeast corner; the falling eight ton slab just missed the construction shack and workmen. “Never underestimate the power of a lever, of imbibition, or a woman.”

The advantage of our natural resources was used to attract good field scientists.

Flatow’s major contribution was including the two-story greenhouse as part of the building, so some biology was apparent within the halls. We double waterproofed the floor, and used scoria (volcanic ash) to reduce the weight load. When I told Flatow that I wanted a pool and circulating water in the display area, he shook his head, assigned a mason and said, “Go ahead.” We used lengths of ceramic water lines for a scalloped border. The plants were mostly potted, so they could be removed for fumigation or insecticide spraying. We installed chairs in labs—secretarial-types with Naugahyde seats and backs and casters—to replace the hard, wooden chairs that caused a roar of noise as they were pushed across the cement floor when classes were over. We insisted on a covered walkway connecting Biology and Geology—symbolic of their important interactions.

The equipment budget included the number but not the cost of items to be purchased from NSF funds. So, when I found we could buy Herbarium cases cheaper by the boxcar load and, considering we would need more down the road, I wanted to place an order. When I discovered that the number in a boxcar exceeded that approved by NSF, I went to University of New Mexico President Tom Popejoy and presented my case. When I finished, he reached into a lower drawer of his desk, pulled out a requisition and signed it!!!

Imagine today, the committees and administration time required to get approval for a request like that! Increased space and facilities allowed for Biology Department growth, expanded teaching program, extensive research efforts with increasing cooperation with many agencies and institutions—federal, state, Medical School, and Sandia Corporation, for example. The addition, which was planned for 24 faculty by 1977, was filled with 24 by 1972 and the overflow of new faculty moved into the Biology Annex, previously the School of Pharmacy. The activity and reputation of the Department was increased by hosting some national meetings, e.g., Directors of Radiation Biology, Nuclear Technical Institutes, the Southwest Division of the American Association for the Advancement of Science (AAAS), American Society of Mammalogy, and a Symposium on Physiological Systems in Semi-Arid Environments.

The last mentioned meeting coincided with a Danforth Foundation Review of the Biology Department’s teaching and research programs. The review team recognized the need for teaching within the department to be as modern and thorough as possible but, because of limited state funding, suggested that the Biology Department would be unable to excel in all specialties at the graduate level. They recommended that the principal expertise at the graduate level should maximize the unique environmental advantages of New Mexico. The sharp increase in ecological faculty, research programs, and M.S. and Ph.D. degrees in the late ‘60s and throughout the ‘70s, especially during Dr. Cliff Crawford’s chairmanship, followed this guidance.

The advantage of our natural resources was used to attract good field scientists. For example, I remember well taking Dr. James Gosz to Sandia Crest and pointing out all of the advantages for a forest ecologist here in New Mexico.

I am certainly proud of the Biology Department—of its diverse growth, its expanded horizons and extensive cooperative research efforts in the service of many, for example, Drs. Jim Gosz, Terry Yates and Cliff Dahm, at the Washington D.C. office of NSF providing invaluable contacts and increased reputation for UNM Biology, and the intra- and extra-departmental cooperation of the varied faculty in genetics, physiology, etc. These are true signs of maturity.

For further details, I recommend that you read Dr. [Donald] Duszynski’s History of the Department [found online].

Dr. Manuel Molles’ teaching, research, attitudes, and writing surely meet my high expectations, and I am most proud and most pleased that he will occupy the Potter Chair of Plant Ecology.

[The full article of Dr. Potter’s history can be found online.]

**UNM’s New Science & Mathematics Learning Center**

McCarthy, one of the nation’s leading education facility builders, broke ground in June, 2009 on a $14 million Science and Math Learning Center at the University of New Mexico (UNM) Main Campus in Albuquerque. The 60,127-sq. ft. building was completed in the fall of 2010.

The Science and Mathematics Learning Center, which includes a 200-seat auditorium, visualization lab, classrooms, science labs, department and faculty offices, and study areas, and is designed to promote freshmen-level integration among four departments, including Mathematics, Chemistry, Biology, and Earth & Planetary Sciences. Additionally, the project was designed with long-distance learning capabilities. The building consists of four floors, with three floors above grade and one below.

The Science and Mathematics Learning Center was constructed to meet the sustainability requirements of the U.S. Green Building Council’s Leadership in Energy and Environmental Design’s (LEED) Silver Certification. The project also includes specialized laboratory mechanical systems, structural steel framing, laboratory casework and equipment, acoustical lay-in ceilings, HVAC, and special systems work; site-work improvements to pedestrian circulation; and site-work infrastructure, including major relocations of sewer, telecommunications and electrical services.

“The team at McCarthy really set themselves apart with their complete management plan encompassing the whole project displaying clear direction and responsibilities. Their plan also addressed the numerous site utility challenges and specialized teaching environment infrastructure supports that will be required,” said a UNM representative. “We are very pleased and looking forward to working with their team as offered for this project.”

“This is the first of what we hope to be many projects for the University of New Mexico,” said Jeff Clarkson for McCarthy. “The construction of the Science and Mathematics Learning Center will incorporate a number of sustainable design and construction initiatives, and allow us to exercise our knowledge of and experience with LEED prerequisites. This project will complement the campus and become an asset for students and faculty for generations to come.”

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**LECTURER PROFILE**

**Cara Lea Council** is a Las Cruces, New Mexico native. Growing up, her parents taught her (1) to always ask why, (2) that she could do or be anything she wanted to, and (3) that science and math were lots of fun. Every outing was an adventure, whether she was learning to make change (math) while at the grocery store with her mother, or looking at earth striations (science) with her father during a camping trip. Her natural curiosity and several incredibly gifted grade-school science teachers helped to somewhat focus her interest towards biology.

Cara Lea decided to pursue a B.S. in biology at New Mexico State University, where she discovered her passion for genetics—all due to a Fly DNA extraction!! She completed an undergraduate honors thesis focusing on AFLPs in Cotton and graduated in the top 10% of her class.

In 1998, Cara Lea continued her studies in the Interdepartmental Program at Iowa State University, this time focusing on tetraploid alfalfa genetics under the guidance of Dr. Charles E. Brummer. It was during her graduate program that she discovered her love of teaching, and, upon completion of her M.S., was hired as a part-time instructor for the Department of Biology at ISU, where she taught and prepped introductory and genetics lab courses for biology majors.

During the summer of 2002, Cara Lea got married, applied for and was offered the position of Lecturer II/Lab Coordinator for the UNM Department of Biology, moved back to New Mexico, and helped her NM-native husband, David, complete his Master’s in Electrical Engineering.

When Cara Lea was hired by UNM, she had responsibility for four lab classes—the two introductory biology core labs for biology majors, the introductory biology lab course for pre-health students, and the introductory biology lab course for non-biology students (approximately 32 lab sections/week). Under skillful direction, the introductory biology lab program has grown successfully to six different, high-volume lab classes—four majors lab classes, one pre-health lab class, and one non-majors class (approximately 66 lab sections/week). Her current assistant is **Jack Miles**.

Cara Lea regularly collaborates with other faculty to ensure labs enhance lecture topics and that students are learning the most up-to-date information through the best possible laboratory means. In addition to assisting ~1,700 undergraduate students and ~30 graduate teaching assistants each semester, Cara Lea is an Undergraduate Student Advisor and an important contributor to the Castetter Hall basement remodel (where her current program is located) and the Biology area in the new Science and Math Learning Center (SMLC). This past Spring 2011, Cara Lea began running labs in two separate buildings when one-third of her program moves to the SMLC.

In her spare time, Cara Lea focuses her time on her 3-year-old daughter, Elena, and husband, David.
Jack Miles’ diverse range of skills, interests and experiences makes him particularly well-suited to be the lab technician for the Introductory Biology lab program. Jack’s lifelong fascination with the natural sciences was largely influenced by his father’s career as a microbiologist, who relocated his family to a different state nearly every other year. Exploring local natural areas in each new community inevitably led to adventures in map interpretation and cartography, biological surveys of local creeks and forests, and investigations of local fossils and geological features. Jack’s parents encouraged his passion with their frequent hiking, canoeing and camping trips, their permissive attitude towards collecting various critters for observation and study, and their afternoons together counting bacteria in his father’s lab.

Jack’s foolhardy subterranean explorations of Tennessee caves as a teenager proved pivotal in his decision to pursue a career in hydrogeology. After earning his B.S. in Geology from the University of Wisconsin at Parkside in 1998, he moved to California. After a few years of uninspiring jobs, Jack returned to school to pursue his master’s degree at California State University at Northridge. He supplemented his Geology Department T.A. wages by running tutoring sessions, teaching outdoor recreation classes such as rockclimbing, winter mountaineering, wilderness survival, and caving, supervising a ropes course for the City of Los Angeles, training and coordinating volunteer water quality monitors, and breeding chameleons for sale to reptile enthusiasts. While tagging along on herpetology field trips, he realized that biologists were having more fun than geologists, and this was how he met his eventual sweetheart, Diana Andres. Jack earned his M.S. degree in 2006 with his thesis, “Water Quality and Land Use in Western San Fernando Valley Canyons and Tributary Streams.”

Jack followed Diana to Albuquerque to seek employment as an environmental geologist. Recognizing a good opportunity, he sidestepped into his current Biology staff position at UNM. Beyond his basic job description, Jack has set up many live animal terraria to enrich the labs and has creatively exploited his innate sense of frugality to save our program many thousands of dollars, while concurrently enhancing the students’ learning experience. For instance: his three-year-old cockroach colony survives exclusively on leftovers and cheap dog food, while serving as testes donors for observing meiosis in the Biol. 202 lab, dissection organisms for the Biol. 203 lab, physiology subjects for the Biol. 204 lab, feeders for our various display organisms, not to mention being used to seed additional colonies to subsidize the research ambitions of several graduate students.

Jack absolutely loves New Mexico. Whenever asked how many states he’d lived in, for years his reply was always amended with the words “so far,” until he arrived in Albuquerque: where cycling to work is a breeze, thick adobe walls muffle the noise of his music, and the expansive wilderness simply begs for exploration. Jack lives in the far North Valley with his partner, Diana Andres, and their one-year-old son Rio, along with his dog, cat, goats, chickens, frogs, turtles . . . and probably a few more critters by the time you’ve completed this paragraph.

New Books

**Geomicrobiology: Molecular and Environmental Perspective**
An interdisciplinary review of recent developments in topics of origin of life, microbial–mineral interactions, and microbial processes functioning in marine and terrestrial environments.

**Raptors of New Mexico**
A comprehensive treatment of all hawks, eagles, kites, vultures, falcons, and owls breeding or wintering in New Mexico, or simply migrating through the state. This landmark study is beautifully illustrated.

**Living in a Microbial World**
A general microbiology textbook for non-science majors providing a scientific framework through which students can understand critical issues about microorganisms and disease that they will encounter throughout their lives.
**Graduate Students**

The Biology Graduate Student Association (BGSA) kicked off the Fall 2010 semester with a courtyard luncheon to meet incoming graduate students. In attendance was a record number of master’s and doctoral students, as well Biology department staff, faculty and the new BGSA officers. Officers of the BGSA include co-Presidents Yadéeh Sawyer and Jolene Rearick, Treasurer Sierra Netz and Secretary Shawn (“Fred”) Whiteman, all of whom were excited to see so many new faces.

The purpose of the BGSA is to give graduate students a voice in departmental and university issues and to facilitate information exchange among the 100-plus graduate students currently in the Biology Department. Currently, the BGSA is focusing on fundraising for events, such as the new graduate student luncheon, maintaining on-campus resources (e.g., the biology graduate student computer pod), and various other projects, including maintaining the BGSA website and helping students pay for the high costs of publishing research. As part of fundraising, the BGSA sells t-shirts, sweatshirts and mugs. There was a contest for the new logo for our shirts, which is available at Biology Department events (e.g., Annual Research Day) and on our website.

To learn more about the BGSA, please visit [http://biology.unm.edu/bgsa/](http://biology.unm.edu/bgsa/) or our Facebook page UNM BGSA.

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**Undergraduate Profile**

Since May 2008, Hallie Rane has been working with Drs. Vaishali Katju and Ulfar Bergthorsson as an undergraduate research assistant in their evolutionary genetics laboratory working with the model species *Caenorhabditis elegans*. Since beginning research in the lab, she has completed her senior honor’s thesis and begun work on two more research projects.

Hallie is also a member of the Undergraduate Opportunities (UnO) Program at the UNM Museum of Southwestern Biology. With the support of this program, in June 2010, she presented her research at the Evolutionary Biology of *Caenorhabditis* and Other Nematodes Annual Meeting in Hinxton, Cambridge, England. For the past two years, Hallie has participated in the UNM Biology Department’s Annual Research Day. She also won Best Undergraduate Research Poster at 2009 UNM “Darwin’s Legacy” Symposium held on Darwin’s 200th birthday. During Spring 2010, she was awarded the Maurice Hughes Scholarship for Excellence in Research, and a Superior Undergraduate award from the UNM Chapter of the Sigma Xi Scientific Research Society.

Hallie’s senior honor’s thesis was a population genetic analysis investigating the role of gene conversion on the evolution of two paralogous genes in the nematode *C. elegans*, and in July 2010, this study’s results were published in *Molecular Biology and Evolution*—a wonderful example of how donor funding can support the careers and academic achievements of our young scientists.

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**Phase II of Castetter Hall**

The Department of Biology is the largest department in the UNM College of Arts and Sciences; indeed, Biology majors have increased 275% in the last 10 years. Currently, we serve 1,700 majors and a wide range of pre-professional students (pre-med, pre-pharm, pre-vet, and other health-related occupations), with 90% of our students coming from both metropolitan and rural New Mexico.

This final building phase of the newest addition to Castetter Hall will accommodate the anticipated 10% Biology Dept. enrollment growth through 2014 and enhance undergraduate education (and thus student retention) by providing opportunities for hands-on undergraduate research. Specifically, the project will finish the first- and third-floor space in this addition with research labs and offices. The project will provide replacement space for the programs currently housed in the (ancient) Biology Annex (which will then be demolished). This final increment of funding will allow the entire project to completed by July, 2014, with a total project cost of $13,179,000. Your donations can make this final stage a reality for our faculty, staff, and, most importantly, students; please see p. 11 for how you can donate to support research in the Biology Department.
We most sincerely thank our donors for your generous gifts in 2010. Your continued support of the Department of Biology allows us to provide resources needed to sustain students and faculty through scholarships, research funding, capital project improvements, and other general needs. Much of your donations and contributions of this past year supported our students’ research.

3M Foundation
The Biological Society of New Mexico
Elizabeth T. Cooper Rev. Trust
Employees of Sandia Laboratories
Envirolegal Services
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