

# PIBBS NOTES

UNIVERSITY OF NEW MEXICO / 505.277.9337



ASSOCIATE PROFESSOR  
FELISA SMITH

## FROM THE DESK OF THE CO-DIRECTOR

WELCOME TO THE SECOND YEAR OF THE PROGRAM IN INTERDISCIPLINARY BIOLOGICAL AND BIOMEDICAL SCIENCE (PIBBS). WE ARE PLEASED TO WELCOME BACK OUR NEW AND RETURNING FELLOWS AS WELL AS THE LARGE CONTINGENT OF GRADUATE STUDENTS FROM THE VARIOUS PARTICIPATING DEPARTMENTS. OUR PROGRAM WOULD NOT BE SUCCESSFUL IF IT WERE NOT FOR YOUR INTEREST, IDEAS AND ENTHUSIASM AND WE ARE VERY PLEASED YOU ARE PART OF OUR PIBBS COMMUNITY.

FOR THOSE OF YOU UNFAMILIAR WITH THE ONTOGENY -- PIBBS IS A COLLABORATION BETWEEN THE DEPARTMENTS OF BIOLOGY, ANTHROPOLOGY, COMPUTER SCIENCE, ELECTRICAL ENGINEERING,

PHYSICS, AND MATH AND STATISTICS AT UNM, THE LOS ALAMOS NATIONAL LABORATORY, AND THE SANTA FE INSTITUTE. FUNDING IS PROVIDED BY A GRANT FROM THE HOWARD HUGHES MEDICAL INSTITUTE (HHMI). THE MOTIVATION FOR THE DEVELOPMENT OF THE PROGRAM WAS A GROWING SENSE THAT PROGRESS TOWARDS SOLVING FUNDAMENTAL PROBLEMS IN BIOLOGY NEEDED THE INPUT OF NEW IDEAS, METHODOLOGIES, AND INVESTIGATIVE STRATEGIES FROM OTHER DISCIPLINES, PARTICULARLY THE PHYSICAL SCIENCES, ENGINEERING, COMPUTER SCIENCE AND MATHEMATICS.

FROM THE DESK OF – CONTINUED ON PAGE 4



ASSISTANT PROFESSOR SHERRY NELSON

## SPOTLIGHT ON PARTICIPATING FACULTY PROFESSOR SHERRY NELSON - ANTHROPOLOGY

I AM A NEW ASSISTANT PROFESSOR AND PALEONTOLOGIST IN THE ANTHROPOLOGY DEPARTMENT. I MOVED FROM BOSTON, WHERE I WAS AN ASSISTANT PROFESSOR AT BOSTON UNIVERSITY AND A GRADUATE STUDENT AT HARVARD. AS A NORTH CAROLINA NATIVE, I AM THRILLED TO BE LIVING IN A WARM SUNNY CLIMATE AGAIN!

MY RESEARCH FOCUSES ON THE INTERACTION OF CLIMATIC, VEGETATION, AND FAUNAL CHANGES IN THE FOSSIL RECORD, PARTICULARLY THE ROLES THAT CHANGING HABITAT AND CLIMATE PLAYED IN THE EXTINCTION OF *SIVAPITHECUS*, A MIOCENE APE, IN PAKISTAN.

PAKISTAN OFFERS A RARE TWENTY

MILLION YEAR RECORD OF FAUNAL AND ENVIRONMENTAL CHANGE DOCUMENTING AN APE CLADE THROUGHOUT ITS EXISTENCE.

MY RESEARCH INCORPORATES DENTAL MICROWEAR AND ISOTOPIC ANALYSES TO RECONSTRUCT AND COMPARE PALEOHABITATS, CLIMATES, AND DIETARY ADAPTATIONS JUST BEFORE AND JUST AFTER THE EXTINCTION OF *SIVAPITHECUS*. THIS INVESTIGATION HAS PROVIDED DETAILED RECONSTRUCTION OF FOREST TYPE, VEGETATION MOSAIC, FRUIT AVAILABILITY, AND ANNUAL SEASONALITY OF PRECIPITATION.

SPOTLIGHT – CONTINUED ON PAGE 3

## PIBBSLINKS

### PIBBS COURSES

SIBBS

TIBBS

CIT: HUMAN ECOLOGY

### OF INTEREST

HHMI

### POSSIBLE SUPPORT

SFI FUNDING/FELLOWSHIP

OPPORTUNITIES

### GET INVOLVED

"ASK A SCIENTIST"



CASTETTER HALL,  
UNM BIOLOGY

## HHMI INTERFACES SCHOLARS AT UNM PIBBS

### PAUL HOOPER, ANTHROPOLOGY

THE PAST FEW MONTHS HAVE BEEN BUSY ONES FOR THE PIBBS FELLOWS, ADDING SIGNIFICANT MILEAGE TO OUR SNEAKERS AND FREQUENT-FLYER ACCOUNTS ALIKE.

IN MAY, I RETURNED FROM FIVE MONTHS OF ANTHROPOLOGY FIELD RESEARCH WITH THE TSIMANE, AN INDIGENOUS GROUP LIVING IN THE FORESTS OF LOWLAND BOLIVIA. PIBBS SUPPORTED MY WORK THERE, COLLECTING DATA ON THE COOPERATIVE NETWORKS THAT ARISE AS FAMILIES SHARE FOOD WITH EACH OTHER, HELP EACH OTHER IN THE FIELDS, AND HOST PARTIES TO DRINK 'CHICHA', A FERMENTED MANIOC DRINK THAT'S COMMON ACROSS SOUTH AMERICA.

I'M INTERESTED IN BRINGING TOGETHER THEORETICAL WORK IN BIOLOGY AND ECONOMICS IN EXPLORING FACTORS THAT HELP OR HURT THE EMERGENCE OF COOPERATION IN ANIMAL SOCIETIES WITH A DETAILED PICTURE OF COOPERATION (AND FREE-LOADING!) ON THE REAL-WORLD NETWORKS OF A FEW SMALL, SELF-SUFFICIENT VILLAGES. I'M HOPING MY WORK WILL HELP US TO UNDERSTAND THE WAYS THAT REPUTATION BUILDING, -

BEING ABLE TO CHOOSE YOUR PARTNERS, AND LEADERSHIP ROLES OFTEN ALLOW COOPERATION TO GET OFF THE GROUND IN OUR SPECIES.

WHEN YOU START TO IMAGINE THE AMOUNT OF COORDINATION BETWEEN STUDENTS, STAFF, AND FACULTY THAT'S REQUIRED TO MAKE SOMETHING LIKE PIBBS RUN (LET ALONE, A VILLAGE, CITY, OR NATION), YOU REALIZE THAT THERE'S INDEED SOMETHING REMARKABLE TO EXPLAIN!

IN JUNE, FELLOW PIBBS SCHOLAR *WENYUN ZUO (BIOLOGY)* AND I ATTENDED THE SANTA FE INSTITUTE (SFI) COMPLEX SYSTEMS SUMMER SCHOOL HERE IN NEW MEXICO, WHERE WE PICKED UP NEW SKILLS IN MODELING THE BIOLOGICAL SYSTEMS THAT WE STUDY. THEN IN JULY, *JORDAN OKIE (BIOLOGY)* AND *ZIYA KALAY (PHYSICS)* SHIPPED OFF TO BEIJING FOR THE EASTERN-HEMISPHERE VERSION OF THE SAME SCHOOL.

**HHMI INTERFACES SCHOLARS**

**-CONTINUED ON PAGE 4**

## UPCOMING PIBBS RELATED EVENTS IN SEPTEMBER

- @ BIOLOGY THURSDAY, SEPT. 21<sup>ST</sup> 3:30-4:30 CASTETTER 100 DR. GREG EBEL, DEPT OF PATHOLOGY UNM SOM "QUASISPECIES DYNAMICS IN WEST NILE VIRUS".
- @ HHMI - 2007 MEETING OF PREDOCTORAL FELLOWS SUSHMITA ROY WILL PRESENT HER POSTER "INTEGRATIVE CONSTRUCTION AND ANALYSIS OF CONDITION-SPECIFIC BIOLOGICAL NETWORKS."

## SPOTLIGHT ON FACULTY CONTINUED FROM PAGE 1

I ALSO WORK WITH MODERN FAUNAS, INCLUDING A CHIMPANZEE SITE IN UGANDA AND FORAGERS IN TANZANIA. MY GOAL IS TO HAVE A DIRECT COMPARISON BETWEEN FOSSIL AND MODERN DATA TO BETTER INTERPRET FOSSIL APE AS WELL AS EARLIEST HOMINID HABITAT REQUIREMENTS.

WITH RESPECT TO HOMINIDS, I WISH TO UNDERSTAND WHAT KIND OF HABITAT COULD DRIVE THE CHANGES WE SEE FROM APE TO HOMINID BUT ALSO SUPPORT AN ANIMAL WHOSE ANCESTORS REQUIRED RAINFOREST AND A YEAR-ROUND SUPPLY OF FRUIT. I HAVE WORKED WITH THE HADZA, MODERN FORAGERS IN TANZANIA, WITH A VIEW TO BETTER UNDERSTANDING THE SIGNIFICANCE OF MEAT AND THE POTENTIAL FOR COOKING AMONG HOMINID SPECIES.

I AM TEACHING A NUMBER OF PALEOANTHROPOLOGY COURSES FOCUSING ON PALEOECOLOGICAL AND BEHAVIORAL RECONSTRUCTIONS, METHODOLOGY AND THEORY. I AM ALSO EXCITED TO OFFER STUDENTS OPPORTUNITIES IN THE LAB AS WELL AS IN THE FIELD.

DURING MY INITIAL VISIT TO UNM, I WAS ESPECIALLY IMPRESSED WITH THE OPPORTUNITIES **PIBBS** PROVIDES FOR STUDENTS. IN AN INCREASINGLY CROWDED ACADEMIC COMMUNITY, IT IS VITAL FOR STUDENTS TO FIND THEIR OWN VOICE, AND THIS INVOLVES COMBINING DIFFERENT FIELDS IN NOVEL WAYS. I WELCOME THE OPPORTUNITY TO JOIN YOUR COMMUNITY.

I AM LOCATED IN THE PATIO BUILDING OF THE ANTHROPOLOGY DEPARTMENT, OFFICE ROOM 102. YOU CAN REACH ME AT [SVNELSON@UNM.EDU](mailto:SVNELSON@UNM.EDU) OR 277-0264.



IMAGE COURTESY OF DR. NELSON'S WEBSITE

## PIBBS LAUNCHES "FOCUS GROUPS" OPPORTUNITY

PIBBS "FOCUS GROUPS" ARE STUDENT INSTIGATED ONE TIME WORKSHOPS OR SHORT-TERM WORKING GROUPS THAT EXPLORE A PARTICULAR TOPIC OF INTEREST IN DEPTH. EXAMPLES? A PRIMER ON THE C PROGRAMMING LANGUAGE OR MATHEMATICAL SCALING RELATIONSHIPS, DISEASE VECTOR DYNAMICS, POLICY OR HUMAN HEALTH IMPLICATIONS OF GLOBAL CLIMATE CHANGE, NUTRITIONAL ECOLOGY, OR MECHANISMS OF DISPERSAL IN ORGANISMS, ETC. PIBBS PLANS TO SUPPORT 1-3 FOCUS GROUPS PER SEMESTER DEPENDING ON INTEREST AND FUND AVAILABILITY. EXAMPLES OF THINGS PIBBS COULD PROVIDE TO CONDUCT YOUR FOCUS GROUP:

- ORGANIZATIONAL SUPPORT: LOCATION SCHEDULING, ELIST MAILING, COPYING SUPPORT, MODEST INSTRUCTIONAL BUDGET, ETC....
- PIZZA AND/OR LIGHT REFRESHMENTS
- SUPPORT FOR AN OUTSIDE SPEAKER IF EXPERTISE IS NOT REPRESENTED AT UNM

WANT TO APPLY? SEND A ONE-PAGE PROPOSAL TO [SHANNON@UNM.EDU](mailto:SHANNON@UNM.EDU) WHICH INCLUDES 1- 3 PARAGRAPHS THAT DESCRIBE (1) THE PROPOSED ACTIVITY, (2) LIKELY OUTCOMES, AND (3) JUSTIFICATION FOR PIBBS SUPPORT (E.G., HOW THE FOCUS GROUP IS LIKELY TO INCREASE THE ABILITY OF PARTICIPANTS TO CONDUCT INTERDISCIPLINARY RESEARCH). ADDITIONALLY PLEASE INCLUDE:

- AN INITIAL LIST OF IDENTIFIED INTERESTED PARTICIPANTS
- PLAN FOR SOLICITING ADDITIONAL PARTICIPANTS
- PROPOSED FACULTY OR POST-DOC MENTOR
- A TIMELINE AND BUDGET

PIBBS IS LOOKING FORWARD TO SEEING WHAT KINDS OF IN-DEPTH WORKSHOPS THAT OUR STUDENTS ARE INTERESTED IN PUTTING TOGETHER. WE HOPE YOU APPLY FOR THIS NEW SUPPORT OPPORTUNITY SOON, AND OFTEN!

WE'RE ON THE WEB!

[PIBBS.UNM.EDU](http://PIBBS.UNM.EDU)

WEBMASTER  
JUSTIN STEWART

## HHMI INTERFACES SCHOLARS AT UNM PIBBS CONT. FROM PAGE 2

AS I WRITE, FELLOW ANTHROPOLOGY STUDENT *HELEN DAVIS* IS IN SOUTH AFRICA. WHILE HELEN HAS A 'DAY JOB' DOING RESEARCH ON CHILD HEALTH AND DEVELOPMENT ALONGSIDE ME IN BOLIVIA, SHE IS SPENDING THE MONTH OF SEPTEMBER IMPLEMENTING AND EVALUATING INTERVENTIONS TO REDUCE FETAL ALCOHOL SYNDROME WITH PUBLIC HEALTH RESEARCHERS FROM THE UNIVERSITY OF CAPE TOWN.

WE HAVE ALSO WELCOMED TWO NEW MEMBERS TO THE PROGRAM, *LAI XU* (*ELECTRICAL AND COMPUTER ENGINEERING*) AND *GEORGE BEZERRA* (*COMPUTER SCIENCE*), WHOM WE'VE ENJOYED GETTING TO KNOW THROUGH THIS FALL'S 'TOPICS' SEMINAR.

*ERIK ERHARDT* (*MATH AND STATS*) ROLLED OUT OF LAST YEAR'S SEMINAR WITH A NEW DISSERTATION TOPIC, DEVELOPING STATISTICAL METHODS TO INFER THE SOURCE OF BIOLOGICAL MATERIAL FROM STABLE CARBON ISOTOPE DATA, WHICH HE HAS PURSUED WITH PIBBS FACULTY BLAIR WOLF AND ED BEDRICK.

ALL-IN-ALL THE NEW SEMESTER IS GETTING OFF TO A GREAT START AND WE CAN'T WAIT TO SEE WHAT THE REST OF THE YEAR WILL BRING.

- PAUL HOOPER,  
SEPTEMBER 13, 2007

## FROM THE DESK OF THE CO-DIRECTOR CONTINUED FROM PAGE 1

TOWARDS THAT END, WE AIM TO PROVIDE NOVEL TRAINING OPPORTUNITIES FOR PH.D. STUDENTS TO ENHANCE THE SKILLS AND KNOWLEDGE THEY NEED TO CONDUCT LEADING EDGE INTERDISCIPLINARY RESEARCH. ULTIMATELY WE HOPE OUR EFFORTS WILL LEAD TO A CONCENTRATION OR DEGREE IN INTEGRATIVE BIOLOGY; DETAILS ON HOW THIS MIGHT BE IMPLEMENTED ARE STILL BEING WORKED OUT.

THIS YEAR WE ARE TRYING SEVERAL NEW ACTIVITIES. OSKAR BURGER, BILL BURNSIDE AND JORDAN OKIE HAVE TEAMED UP TO OFFER AN INTERDISCIPLINARY COURSE IN HUMAN ECOLOGY, WHICH IS BEING SPONSORED BY PIBBS. THE COURSE HAS DRAWN UNDERGRADUATE AND GRADUATE STUDENTS FROM A WIDE VARIETY OF DEPARTMENTS INTO A HIGHLY INTERACTIVE ENVIRONMENT.

WE ARE ALSO IMPLEMENTING THE CONCEPT OF "FOCUS GROUPS" AS A WAY OF IN-DEPTH EXPLORATION OF IDEAS, TOPICS OR METHODOLOGIES (MORE ON THIS ON PAGE 3). AND, OF COURSE, WE INTEND TO CONTINUE OFFERING PIZZA PARTIES AND STUDENT ENRICHMENT OPPORTUNITIES (SEO'S).

PLEASE CONTINUE TO PROVIDE FEEDBACK AND COMMENTS; WE APPRECIATE THE LIVELY INPUT WE RECEIVE FROM BOTH STUDENTS AND FACULTY AND TAILOR OUR ACTIVITIES ACCORDINGLY.  
HAVE A GREAT SEMESTER!

FELISA SMITH, PH.D.  
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BECAUSE PIBBS CARES



100% RECYCLED PAPER

## WHAT'S NEW @ PIBBS...

- PIBBS IS CURRENTLY ENJOYING A DYNAMIC GROWTH SPURT...ALTHOUGH WE'VE TEMPORARILY BEEN WITHOUT **PROFESSOR BROWN** WHILE HE IS ON A SEMESTER SABBATICAL WRITING A NEW BOOK...OVER THE SUMMER WE WERE LUCKY TO ADD ONE NEW ADVISORY COUNCIL MEMBER, **ASSOCIATE PROFESSOR VINCE CALHOUN, ECE, DIRECTOR OF IMAGE ANALYSIS AT THE MIND INSTITUTE** AND WELCOMED TWO NEW PARTICIPATING FACULTY MEMBERS **ASSISTANT PROFESSOR SHERRY NELSON, ANTHROPOLOGY** (SEE THIS MONTH'S SPOTLIGHT ARTICLE) & **ASSISTANT PROFESSOR HELEN WEARING, DUAL APPOINTMENT MATH/STATISTICS & BIOLOGY.**
- **JORDAN OKIE (BIOLOGY), BILL BURNSIDE (BIOLOGY) AND OSCAR BURGAR (ANTHROPOLOGY)** HAVE BEGUN TEACHING THEIR HUMAN ECOLOGY COURSE, A COURSE THEY ENVISIONED & HELPED DESIGN AND ONE THAT WILL SERVE AS THE MODEL THAT IS BEING INCORPORATED INTO PIBBS CORE COURSE CURRICULUM. WE HEAR THE COURSE IS EXTREMELY POPULAR ALREADY! CHECK OUT THEIR COOL BLOG PAGE.
- LAST WEEK'S EXCITING ADVISORY COUNCIL MEETING ENERGIZED US...WE'RE READY TO BEGIN THE PROCESS OF APPLYING FOR PHASE II FUNDING. SOON YOU MAY BE RECEIVING REQUESTS FOR INFORMATION. PLEASE ENDEAVOR TO SEND YOUR RESPONSES BACK QUICKLY AND COMPLETELY. WE WILL NEED EVERYONE'S HELP!
- TWO HHMI INTERFACES SCHOLARS AT UNM, PIBBS HAVE SUCCESSFULLY ADVANCED TO CANDIDACY THIS MONTH, **ZIYA KALAY, PHYSICS (ADVISOR, V.M. KENKRE)** AND **ERIK ERHARDT, STATISTICS (ADVISOR, ED BEDRICK).** CONGRATULATIONS ERIK AND ZIYA!
- PIBBS FIRST ALUMNA **SUSHMITA ROY (COMPUTER SCIENCE/BIOLOGY),** WILL BE REPRESENTING **PIBBS** AND PRESENTING HER POSTER AT THE HHMI CAMPUS NEXT WEEK. GOOD LUCK SUSHMITA!
- **GEORGE BEZZERA (COMPUTER SCIENCE)** HAS TAKEN OVER THE MANAGING OF OUR WIKI FROM SUSHMITA WHO HAS ACCEPTED THE ADDITIONAL RESPONSIBILITY OF SERVING AS COMPUTER SCIENCE BGSA PRESIDENT.
- UNIT 1 OF THE FALL TIBBS COURSE IS WRAPPING UP NICELY...DR. SMITH'S UNIT ON GLOBAL CLIMATE CHANGE ENJOYED GUEST LECTURES FROM MARCY LITVAK AND WILL POCKMAN, UNM BIOLOGY; SCOTT ELLIS, LANL, AND DAVE GUTZLER, UNM GEOLOGY. UP NEXT ? UNIT 2 TAUGHT BY HELEN WEARING, UNM MATH/BIOLOGY, FOLLOWED BY UNIT 3 TAUGHT BY VINCE CALHOUN, ECE, AND UNIT 4 TAUGHT BY DISTINGUISHED PROFESSOR OF PHYSICS AND ASTRONOMY, NITANT KENKRE. WE'LL KEEP YOU UP-TO-DATE ON HOW THIS EXCITING COURSE IS GOING.
- LASTLY, WE HOPE THAT YOU WILL ENJOY OUR NEWEST ENDEAVOR, **PIBBSNOTES.** PLEASE BEAR WITH US WHILE WE WORK OUT THE WRINKLES, AND FEEL FREE TO SEND COMMENTS, CONTRIBUTIONS AND IMAGES TO [SHANNON@UNM.EDU](mailto:SHANNON@UNM.EDU). **ENJOY!**