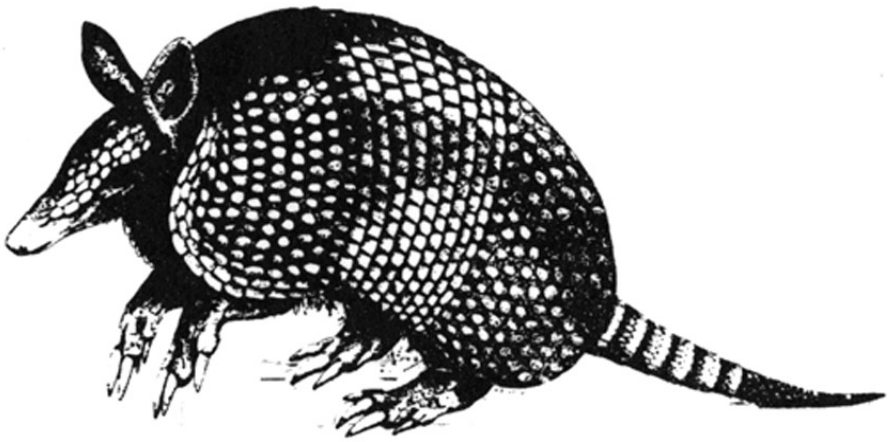
TEXAS SOCIETY OF MAMMALOGISTS



NEWSLETTER

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CALL FOR PAPERS FOR 18th ANNUAL MEETING

2000

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ANNOUNCEMENTS

Call for Papers for the 18th Annual Meeting, 18-20 February 2000

Please note that the Call for Papers and Registration Information for the 18th Annual Meeting can be found at the end of this newsletter. Please photocopy this as needed.

Notes and Acknowledgments from Newsletter Editor, David Ribble

I would like to thank Sharon Smith and Sylvia Stewart of the Biology Department, Trinity University, for doing the majority of the work on this year's newsletter. Ann Maxwell was also helpful in getting me organized and in preparing the mailing labels. Rollin Baker was especially gracious this year with his contributions. I was unable to print all of his contributions due to lack of space, but we will have more to look forward to in future newsletters!

Please feel free to contact me should you have any information you would like included in future newsletters (dribble@trinity.edu).

Patronage of the Texas Society of Mammalogists

Please consider becoming a member of the first class of Patrons of our society. Cost is $100. Contact the Secretary/Treasurer (Ann Maxwell) for details.

COMMENTS/ARTICLES

WALTER P. TAYLOR, TEXAS RENAISSANCE MAMMALOGIST

Comments by Rollin H. Baker

Texas and other "formerly unlettered and unwashed" parts of the American Southwest certainly got the shaft when binomial nomenclature became widely used for mammals in the late 18th and early 19th-centuries. Check the record if you will. There is no full species of a state-residing mammal named in honor of Texas. Instead, Texans have had to put up with four mammalian species named for Mexico; three for Florida, two each for California, Canada, Carolina, Florida, and Virginia; and even one for far-off Brazil.

This is because the first sure-enough mammalogist, Vernon Bailey, did not study Texas mammals until the turn of the 19th century. This was after the time when many of the specific names of Texas mammals were in place but named elsewhere. However, Bailey's activity did help stimulate the assigning of names in honor of Texas to 17 currently recognized subspecies, eight names of which, your scribe must admit, predated Bailey's time (one at least 50 years earlier, in 1848) and formerly held full specific status

After the time of Bailey and his collection-promoting mentor and brother-in-law C. Hart Merriam, field studies of Texas mammalogy slowed to a near stop. For about 30 years the major contributions were by Longhorns H. H. Newman (nine-banded armadillo) and Carl Hartman (Virginia opossum), Baylorite William K. Strecker (several species) and Aggie P. F. English (pocket gopher).

The latter's 1932 J.M. paper is presumably the first published about the "ecology" of a Texas mammal. However, it was not until the appearance of a 1938 J.M. article that a couple of Johnny's-come-lately co-authors named Dan Lay and Rollin Baker first used that fascinating word "ecology" in the title of a paper about a Texas mammal - a woodrat.

Texas mammalian studies were suddenly given an impetus surprisingly enough in the depths of the depression. This was at the time of the tremendous national urge to conserve natural resources. One important spin-off was in 1935 when the U. S. Bureau of Biological Survey established the famed Cooperative Wildlife Research Unit Program.

Alertly, officials at Texas A&M, especially Agriculture Dean E. J. Kyle, with backing from the political clout of forward-thinking Executive Secretary W. J. Tucker of the Texas Game, Fish & Oyster Commission obtained one of the first nine Cooperative Research Units. This academic Unit, financed by a mixture of federal, state, and institutional funds, was designed to promote degree programs in wildlife research and game management.

As Unit Leader not just any Washington-office-based, pencil-pushing, federal wildlife administrator was dispatched to College Station. Instead and indeed fortunate for Texas, the powers-that-be sent in a field-savvy Senior Biologist from Arizona named Walter P. Taylor, a research-oriented mammalogist. He possessed a doctorate from UC-Berkeley and an outstanding record of publishing both systematic and ecological treatises mostly about smaller mammals.

Walter P., holding a dual role as a Survey Biologist and a TA&M Professor, immediately set out: (a) to staff his newly-formed department, first called Department of Fish and Game, with scholarly, productive and field-oriented academics; (b) to attract a progressively-larger group of beginning and advanced student majors; (c) to assist the Texas Extension Service in developing a wildlife management specialist agenda; (d) to diplomatically gain acceptance for this newly-established and mostly unproven science by a skeptical and often suspicious game-warden-oriented Texas Game, Fish & Oyster Commission (now Texas Parks and Wildlife); (e) to help establish the first statewide sportsman's program then called the Texas Wildlife Federation; and (f) to speak publicly far and wide to service clubs, chambers-of-commerce banquets, sportsmen, garden clubs, agribusiness associations, outdoor nature groups, etc., about the necessity of conducting scientific studies in order to effectively understand, preserve, restore, and manage the state's valued wildlife resources.

In short, he declared to all in hearing range that mere protection of breeding stock under the law with no habitat maintenance, restoration, or manipulation was not enough to contain and sustain these valued creatures.

He set the previously lethargic Texas mammalogical wheels in fast forward in 1937 by hiring William B. Davis, a Grinnell/Hall-trained mammalogist/ornithologist, fresh out of the celebrated graduate program at UC-Berkeley with his doctorate concerning the mammals of Idaho about to be published in book form. Thusly, the smooth-operating TA&M program, funneling many of its graduates into the newly-established Texas Pittman- Robertson Federal Aid to Wildlife Program held center stage up to and through the WWII years.

In 1938, for example, the Taylor/Davis combo directed the only field mammalogical team in Texas. Walter P. and Bill Davis began training a cadre of field workers, among the first being Dan Lay, your scribe, Phil Goodrum, Randolph Peterson, Ben Ludeman, and Henry Hahn, in field techniques and museum specimen preparation. These and others helped expand the celebrated Aggie research collections in mammalogy. Walter P. also launched student-participating biological survey projects in Walker and Colorado counties, He directed Val Lehmann in the first truly in-depth study of a Texas vertebrate, the Attwater prairie chicken. Bill Davis began his study of Texas pocket gophers, the forerunner of many more such investigations of area mammals.

With the post-war WW-II educational boom, happily most Texas institutions of higher learning began offering at least some field/museum/lab training in this subject, highlighted by Frank Blair's activities at UT-Austin and the vigorous development by the Packard/Jones/Baker/Jones combo at Texas Tech.

In addition, major studies of mammals were initiated at such outstanding research institutions as the Rob and Bessie Welder Wildlife Foundation and the Caesar Kleberg Wildlife Research Institute and by the non-game program of Texas Parks and Wildlife. Knowledge of these Texas creatures is now increasing by mammalian leaps and bounds. The Taylor-promoted beat goes on!

But let us take a closer look at Walter P., the sparkling catalyst who got this important work underway. He was born in Wisconsin on Halloween in 1888 and educated, as mentioned above, in California. He gained scientific fame with the U. S. Bureau of Biological Survey as a productive and scholarly field mammalogist/ornithologist in such western states as Washington and Arizona before coming to College Station to establish the Cooperative Wildlife Research Unit.

With the Texas program in place, he was sent to Oklahoma State in 1947 to start a Unit program there before retiring in 1951 to take on several visiting professorships in the late 1950's and ultimately died in California on 29 March 1972.

He was a soft-spoken, spectacled, balding, forever busy, and slightly built little guy with a wife taller than he was (as well as was his Unit secretary Mrs. DuBois). In all of your scribe's multi-year associations with Walter P., he never heard him use profanity, tell an off-color joke or take a drink. Even so, he was a regular fellow and always a member of the gang.

His good-natured ways, however, were often put to the test when his brash-talking friend, Aggie Wildlife Extension Specialist R. E. Callender, chided him occasionally about his less-than-earthy language in the field.

Walter P.'s ability to swing gamely with the punch showed effectively when he suddenly found himself unwillingly lured by mischievous associates into a near stage-side seat in a prominent Washington burlesque show. This was on the occasion of an evening on the town when a delegation from Texas was attending the March 1940 North American Wildlife Conference. Your scribe and Phil Goodrum were, I must confess, involved in his stunt.

Actually Walter P. resembled and acted much more like a small-town, store-keeping, suit-wearing Rotarian than some of his more colorful field associates who presented more rugged, muscular, unshaven, coarse-talking, and soiled levis-wearing appearances.

Yet he always held center-stage at national meetings, being highly respected by the likes of such contemporaries as Vernon Bailey, Stanley Young, Ira Gabrielson, Herbert Stoddard, Aldo Leopold, Lee Dice, Irwin T,

Bode, H. H. T. Jackson, "Ding" Darling, Harold Anthony, Seth Gordon, J. Stokley Ligon, famed plant ecologist Frederic Clements, etc.

In fact, during this scribe's graduate year at TA&M (1937-1938) and as a Unit field biologist (1938-1939), a parade of notables of this caliber came to College Station to visit Walter P. personally and/or to give seminars to the students. His scholarship and leadership were acknowledged when he was elected president of the American Society of Mammalogists (1940-41), Ecological Society of America (1935), The Wildlife Society (1943-44), and Texas Academy of Sciences (1944-45).

How lucky Texas scientists were to have modem leadership in mammalogy thrust upon them by this determined role model - a busy, practical, sincere, pace-setting, scholar/administrator/instructor/salesman. He was the right person, at the right time and, fortunately for us, at the right place.

CLASSIFICATION OF TEXAS MAMMALS

Comments by Rollin H. Baker

The Texas landscape, although picturesque and spectacular, is no Nepal, Peru, or even Utah in having variable climate and highly dissected and barrier-loaded topography to offer mammals an opportunity to "enjoy" exceptional possibilities of obtaining a high degree of environmentally triggered specific/subspecific diversity. Yet, Texas does have a modest amount of barrier-influenced speciation.

Rivers as barriers to poor swimmers in eastern Texas - Rivers in the flat to hilly eastern Texas mostly flow north to south except for the eastwest direction of the Red River. The channels of these rivers, probably deeper, narrower, and much less-silted in pre-settlement times, are characterized by meanders and poorly entrenched streambeds, with ox-bow lakes often a feature. Thus, riverside tracts on which populations of waterallergic mammals live probably have passively, through time, been switched by channel changes from one side to the other presumably diluting, through crossbreeding opportunities, potential isolating features. Currently, the Brazos is perhaps the most formidable barrier with its channel seemingly responsible for separating, for example, one species of pocket gopher *(Geomys breviceps* on the east side) from another *(G. attwateri* on the west) and two subspecies of eastern mole *(Scalopus aquaticus).*

Rivers as barriers to poor swimmers in western Texas - In the west the channels of the Rio Grande and the Pecos are usually entrenched, being spectacularly so in some places. The former seems to be a more effective barrier to mammalian dispersal with, for example, distinctive subspecies of the Botta pocket gopher *(Thomomys bottae)* on each side. The steep-sided canyons in the Big Bend area apparently also bar northern expansion of Nelson's kangaroo rat *(Dipodomys nelsoni)* now occurring only on the southern side in Coahuila.

Lagoons as barriers to poor swimmers - Texas lacks prominent offshore islands containing endemics of the likes of the Santa Barbara Islands and the Islas Tres Marias. However, its so-called barrier beaches of Mustang and Padre do accommodate one distinctive subspecies of the Gulf Coast kangaroo rat *(Dipodomys compactus).*

Lowlands as barriers to highland dwellers - Small areas of boreal habitat crown scattered Trans Pecos highlands - perhaps isolated by alien lowland environments from one another since Ice Age times. Although this montane mammalian fauna is impoverished - no *Sorex* shrews, for example, are present - it does possess such novelties as nameable subspecies of the rock mouse *(Peromyscus difficilis*), eastern cottontail *(Sylvilagus floridanus),* and white-tailed deer *(Odocoileus virginianus).* In fact, the cottontail may actually be specifically differentiated and known as S. *robustus.* The boreal-adapted Mexican meadow mouse *(Microtus mexicanus)* and the gray-footed chipmunk *(Tamias canipes)* make only token appearances, both belonging to subspecies with more extensive ranges in adjacent New Mexico. At the same time the highland-dwelling yellow-nosed cotton rat *(Sigmodon ochrognathus)* appears to remain constantly, and to some systematists, obnoxiously monotypic.

East-west and north-south "barriers" to wide-ranging species -Many mammals occur throughout the state from eastern forests progressively through tall-grass prairies and short-grass prairies and into western deserts and/or

from the winter-chilled Great Plains of the Panhandle south to the subtropical Rio Grande. Many of these ubiquitous species, ranging in size from the smaller white-footed mouse *(Peromyscus leucopus)* and hispid cotton rat *(Sigmodon hispidus)* to the larger long-tailed weasel *(Mustela frenata),* raccoon *(Procyon lotor),* and coyote *(Canis latrans),* have recognizable subspecies. While some taxa have rather distinctive boundaries correlated more-or-less with habitat and climatic changes, others broadly "overlap" environmental changes making so-called intergrades difficult to categorize as merely clines or as distinctly nameable entities.

In a state lacking abrupt environmental changes over much of its landscape, Texas still features a remarkable amount of nameable diversity. However, some species, according to some systematists, have been unduly dignified by an excessive number of formal scientific designations. In fact, one might be astonished at some of the strange assignments.

Texas populations of the mink *(Mustela vison),* for example, are listed by most authorities as belonging to a subspecies (M *v. mink)* that has its type locality in unbelievably far-off Maryland. As shown by Hall's Map 513, the range of this subspecies zig-zags through the northeastern American countryside to such a degree that old Elbridge Gerry himself, of gerrymandering fame, would be right proud.

As a result, we need convincing in order to believe that mink, never known to be allergic to water, living east of the Sabine River in a muskrat marsh in Calcasieu Parish and bearing the name *M. v. vulgivaga* (type locality in Plaquemines Parish) differ subspecifically from those living in similar habitat in nearby Jefferson County, Texas.

Young systematists take note! Plan to spend time taking a long and hard look at the subspecific classification of the mammals in the great state of Texas. Were you to "simplify" some of this nomenclature realistically, ecologists, wildlife managers, biochemists, zoogeographers, behaviorists, and others would appreciate it and might even quit calling us old-timers a bunch of hair-splitting "fuddy-duddies!".

ARE TEXAS MAMMALS IN JEOPARDY?

Comments by Rollin H. Baker

Of course they are! And this should be a matter of serious concern to mammalogists. In fact, for all we know members of our Texas mammalian fauna, as a result of human-induced habitat manipulations as well as possible slight climatic changes, are in the process of becoming extinct or extirpated right now, but the signs are too obscure or minute to identify.

This is surely happening but with none of the fanfare than has been awarded the dramatic demise of the entire southern Attwater flock of greater prairie chickens. As Pogo the opossum might have said, "We know who is the enemy of mammals, and it is one of us, the human."

Because of this encroachment by humans and their camp followers (domesticated animals, noxious pests, etc.) environmental conditions for nonhuman mammals are becoming progressively poorer. Prairies, wetlands, deserts, uplands, and woodlands are being modified by the swarm of human suburbanites and array of their necessities.

I don't need to bore you with statistics about Texas. It is an attractive piece of real estate for human settlement with a year-round, highly liveable, south temperate climate and a long growing season. In 50 or so years, suburban sprawl will border solidly such highway rights-of-way as those between Austin, San Antonio, Houston, Beaumont, Dallas, and maybe El Paso, Laredo and Brownsville. A true rural environment even in Trans Pecos is a feature of the 20th Century. At the rate that humans are taking over the environment these days maybe such expansive areas will only be a memory by the middle 21st or the early 22nd.

Why? Because native Texans are not going to quit breeding and foreigners are not going to quit coming here to live. Thus, human occupation on a per-acre basis grows and grows. Each citizen will want her/his share of the land. This means that the large holdings of today ultimately will be split into much smaller tracts.

Only rich Texans may dine on thick beefsteaks 50 or 100 years from now. And these treats will probably come

from animals raised exclusively in feed lots. Converting about eight pounds of plant-produced protein gleaned by finicky cattle from grazing on unimproved Texas pastures will yield only about one pound of livestock protein. Land will soon become too expensive for us to tolerate this practice. Livestock will be replaced by crops of fast-maturing plants high in proteins.

Cultivated fields, especially in and sectors, will be irrigated with water piped from impounded rivers in East Texas or the Gulf of Mexico, in both cases cleared of dissolved salts by nuclear-powered desalting devices. Wetlands will be filled, perhaps cultivated for truck gardening. Fish and shellfish farming and battery-raised poultry and perhaps swine may provide the only "reasonably-priced" animal protein on the market.

We may be able to ease up a bit on intensive agricultural practices if machines are developed to extract edible protein from the "inedible" standing crop of vegetation. Perhaps we will also be able to "manufacture" low-cost proteins and/or carbohydrates from proper element mixes while skilled biochemists will also figure out how to lab-produce low-cost carbohydrates by mixing carbon dioxide and water in the presence of synthetic chlorophyll and sunlight.

But don't count on these innovations to liberate too much land as habitat for small mammals. As the food supply increases, the human population, as inevitable, will increase so long as there is space on which to build dream homes and produce edibles. Call me a gloomer and doomer, but our Texas real estate can't escape being swamped by people - and sooner than you would like to believe!

In anticipation of an overwhelming human expansion and potential mammalian countdown, it is comforting to know that our good citizens have been busy establishing preserves, parks, and refuges in key Texas habitats. Small mammals should also be "cheering." However, we will need more - in Trans Pecos desert/mountain terrain, in the lower Rio Grande brush country, on the coastal prairie, in northeastern woodlands, in the High Plains, etc.

In developing a logical schedule of drastic happenings in this sure-to-come mammalian demise, the endemics may very well be the first to be subjected to extinction. Texas has only a few - at last count two pocket gophers, one kangaroo rat, one deer mouse, and possibly a Trans-Pecos cottontail. Each of these unique species live in pitifully-small and easily-altered habitats

Aside from truly cosmopolitan species like some bats, eastern cottontails, hispid cotton rats, gray foxes, and white-tailed deer, whose specific protoplasms are also well scattered elsewhere, many of our approximately 152 mammals are in danger for having rather restricted natural distributions. Perhaps most vulnerable are those confined to the southern Great Plains and the Chihuahuan Desert. Texas populations of desert shrews, black-tailed prairie dogs, hispid pocket mice, golden mice, yellow-nosed cotton rats, and even eastern spotted skunks, for example, could now be under some kind of human-induced environmental stress.

I can cite the nine-banded armadillo as a mammal with its population seemingly in trouble in 1999 in the Colorado County area. Local observers, whom I have interviewed, also agree. After I asked these people if they see fewer live armadillos and/or dead ones on roads now than five years ago, they pause and consider. Then they say, "Come to think about it, I haven't see any lately." Then they look surprised as they exclaim, "You are right. They are scarce these days!"

I have no documented explanation but do notice, as do others, that in the past five years the population of a nasty human "camp-follower," the feral hog, has exploded while that of the armadillo has drastically declined. My gut and unscientific feeling, entirely lacking data, is that the hogs may be finding bite-sized young armadillos tasty?

The trouble with a species - even a conspicuous one - on the decline is that its population reduction usually goes unnoticed until its numbers have dwindled almost to zero.

What TSM mammalogists need to do NOW is establish a Watchdog Committee. This group could explore ways to monitor populations of our mammals. The important need is to be able to detect at an early stage that basic changes are taking place in species numbers and then figure out what to do about them. Otherwise, sure as shooting, we will start losing some of them in the decades ahead from right under our noses through sheer neglect!

And by the way, you can start getting used to the fact that ultimately the huge, harvestable Texas deer herd will surely decline. In stage one, deer will be confined to Texas-type "Sherwood Forests" where only the wealthy will be able to afford to hunt. In stage two, deer will exist mostly in parklike situations, perhaps like the last remaining examples of wild Pere David deer did in the Chinese Emperor's private preserve. In stage three, some freak happenings might eliminate the Texas animals as did Boxer Revolutionists who invaded the Emperor's holdings and took out his entire herd.

DO TEXAS GRANIVOROUS RODENTS HAVE MORE "FUN?"

Comments by Rollin H. Baker

Visit a Texas grassland habitat beset with an assortment of small rodents. As a rule there will be one kind of graminivore and several kinds of granivores. It seems like an odd arrangement with the former, usually a Texas variety of hispid cotton rat, hogging more grassy foliage that it can possibly use for food or cover. Associated in this greenery are four or more of granivores that must eke out a living by sharing for the most part the reproductive products of assorted annuals or perennials. And these often seasonal floral types have their seed production exposed to the ravages and whims of uncertain and capricious environments.

The stogy grass eater has few endearing physical features with a body blunt and chunky, tail short and lacking distinction, nose rounded and characterless, vibrissae inconspicuous, eyes piglike and small, ears undistinguished and halfhidden in fur, neck "stiff' and compressed, feet inconspicuous and lacking contrast, pelage often coarse and drab, etc. One might suppose that this creature is a lot like a grumpy and penurious slum-landlord with a dog-in-the-manger attitude as it appears to guard an over-luxuriant domain from the possible intrusion by other kinds of graminivores

The granivores, on the other hand are of an entirely different breed both physically and behaviorally. Their assemblage might include one or possibly more species of pocket mouse, harvest mouse, and deer mouse plus a pygmy mouse and a grasshopper mouse. There are handsome - sure winners in rodent beauty contests with bodies slender and vigorous, tails usually gracefully long and bicolored, noses perky and expressive, vibrissae long and vibrant, eyes often bulging and shiny, ears large and delicately formed, necks distinct, feet usually white and delicate, pelage often silky-long featuring contrasting shades of brown above and buffy white below. In contrast to their "less social" and uncomely graminivorous associate, these dainty creatures are seemingly more "outgoing."

Why, one may ask, is the graminivore more diurnal than the granivores? It might be logical if our grass eater had a competitor that was more nocturnal. Whatever, the hungry harriers and buteos that forage over our prairies during daylight hours each winter day couldn't be "happier" with oodles of fat cotton rats not hiding by day in their retreats.

While the crepuscular/noctural granivores can use, and hide in - sheltered cotton rat runways, they must also expose themselves a good part of the time in order to forage in outlying seed-bearing vegetation - no doubt to the satisfaction of local strigids.

In short, we have in our grasslands one rather "conservative," thrifty, and "ant-like" grass eater associated with a bunch of less stabilized, perhaps frolicsome and gadabouting, and less habitual "grasshopper-like" seed eaters. Yet, they appear to tolerate each other. Maybe the grass-eater has cleverly "decided" that the brazen ways of these ephemeral-acting associates attract away some of his would be tormenting predators.

COMPETITION

Comments by Rollin H. Baker

Competition, they say, is the spice of life. In the human community there are those like John D. Rockefeller who found ways to eliminate it in order to control commodity prices while others, perhaps track and field stars, savor competition as an incentive to enhance their efforts.

In nature, of course, the "survival of the fittest" motif is the way of life. The evolutionary trail is apparently littered with "unfit" species unable for one reason or another to compete. Those successful in interspecific "quarreling" over one kind of environmental resource or another could be, as a group, the "bullies" while the losers, the "wimps."

Fortunately for diversity, however, age-old natural selective processes have intervened to allow for survival of more specialists than generalists. This process thus narrows the share of the habitat resources for any one species so that several can thrive without severe bloodshed under one environmental canopy. Mammalogists puzzle over these matters, in my opinion, not often enough.

In the species diversity observed in the various communities of small Texas mammals, one may wonder about resource apportionment and/or competition. In the case of competition it may be difficult to determine, in advance at least, even if it is sufficiently severe, through time, to ultimately eliminate adversaries? Is it possible that two species might '"unknowingly" gang up to exclude a third? Do human-wrought land use manipulations provide environments favoring one species over another? Who knows?

How does one design a monitoring device to measure presumably obscure population ups-and-downs among species? It would be a dismal shame, for example, were we to wake up one morning and find a mammal suddenly absent from much of its natural range - for example, the hispid pocket mouse.

Considering food preferences as one example of a species limiting factor, today's communities of small granivorous rodents in Texas must have some ingrained methods of parceling that is developed to divvy these edibles and block excessive competition. Otherwise a dog-eat-dog attitude would seemingly have reduced the species diversity markedly.

In arid sectors "west of the Pecos" assortments of heteromyids and murids, relying chiefly on seeds, seem to reside in seemingly stabilized associations. Studies made in similar desert situations further west indicate that these and related species may avoid usurping each other's rations by having their "tastes" selectively adapted for only certain portions of the habitat's varied plant-producing products.

Less spelled out is how granivores apportion these resources in more mesic habitats in Texas. Cotton mice, white-footed mice, and golden mice, a meager assortment to be sure, appear to "broadly" share edibles in East Texas woodlands. Could it be possible that species diversity of woodland murids has been held in check by aggressive sciurids?

Central Texas grasslands, however, host many more seed-eaters including hispid pocket mice, fulvous harvest mice, eastern harvest mice (in part), plains harvest mice (in part), deer mice, white-footed mice (perhaps marginally), and pygmy mice. How is this array of species, vying for these plant products and dwelling in close proximity, able to thrive?

Other relationships, some perhaps too involved to be used as doctoral dissertations, have to do with eastern cottontail associations with swamp rabbits in the east and with desert cottontails in the west; gray squirrels and fox squirrels in "old-growth" forests; gray foxes and intruding red foxes; hooded skunks, striped skunks, and common hog-nosed skunks; and even possibly ringtails, raccoons, and coatis.

To me, determining how these species maintain themselves without one or more community "adversaries" being shafted in the process has all of the intriguing elements of classic movie mysteries.

OLD THOM SEZ

As Reported by Rollin H. Baker

OLD THOM sez: Opt for a bath over a shower every time. Fill the tub with hot water, place a pencil and paper handy, and ease into that stimulating and healing fluid able to cure "everything what ails you." It helps if you assume a fetal position (if room is sufficient) and consider that the medium is actually amniotic fluid. Relax in peace and quiet and consider your options -tasks for the day, week, month, year, whatever. Think of projects you would like to do and the means of doing them - become inspired and by all means grab that pencil and jot down summaries of your thoughts on paper before you forget them. They may be the best ones you will ever get. For further information as to the veracity of this research idea-generating approach, kindly send an e-mail message to that well-known Greek mammalogist Archimedes, who has been successful using this *modus operandi.*

OLD THOM sez: Remember the depression-laced thirties. After a slow early-century start, conservation of natural resources erupted with intensity on the dismal scene with the central focus on soil conservation but with wildlife reclamation tagging along. Dust storms and gullied fields were outlawed while contour-plowed fields and shelterbelt plantings were cheered. The man-on-the-street answered most positively when asked by radio commentators was he for or against natural resource conservation. Unfortunately, WWII reared its ugly head to abolish this great start with natural resources plundered perhaps necessarily? Even that glorious old-growth Singer Hardwood Tract, along the lower Mississippi floodplain, was leveled, obliterating the last sufficiently-large refuge for the failing ivory -billed woodpecker (see Arthur A. Allen's reports) plus adequate space for red wolf, black bear, and puma. Are we as a public as well aroused as was the 1930s citizenry about the need for natural resource conservation? OLD THOM thinks not yet!

OLD THOM sez: That he spent a good part of his time in academia being a salesman. He tried hard to sell careers in vertebrate zoology to bright and interested undergraduates with inquisitive minds and scholarly potential. However, he failed most of the time. Why? Because these choice characters opted for big-money careers as physicians, dentists, veterinarians, even pharmaceutical representatives.

OLD THOM sez: The trouble is that young mammalogists work hard developing a reputation by looking at "trees." And when they get along in years they become too tired to look at "forests." Too bad they can't do both.

OLD THOM sez: Had George Washington declared himself king with a sustained monarchy resulting and at the same time decreed that the land and its physical and biotic resources in 10 out of every 36 sections of each township in the United States and its subsequent possessions belonged to the crown, some of our flora and fauna might be better off today!

TEXAS SOCIETY OF MAMMALOGISTS

Minutes of the Seventeenth Annual Business Meeting, 20 February 1999

The meeting was called to order by President Kenneth T. Wilkins at 4:35 P.M. Minutes of the 1998 Business Meeting, published in the 1999 TSM Program were approved by the members. President Wilkins thanked Robert C. Dowler for his four years of service to the Society as Secretary-Treasurer. The current Secretary-Treasurer Ann Maxwell summarized the Treasurer's Report for 1998. The Society's checking account retained about $1200, with the excess funds from the 1998 meeting being added to the certificate of deposit, which at the time of the 1999 meeting was worth $8,322.08. Maxwell recognized Robert Baker as being largely responsible for the generous donations received in 1998. He donated $250 to the student awards fund and challenged the rest of the Society to match that amount (which we did). Student awards fund donations at the 1998 meeting totaled $876. Assets as of 31 December 1998 totaled $9,622.78. The membership was asked to make donations to help cover the cost of the Friday night refreshments; donations for that purpose totaled $65.

President Wilkins reported that the Executive Committee had approved the Treasurer's Report at their meeting on Friday evening. He thanked Robert Martin for his previous 15 years of service in the capacity of Permanent Secretary and then introduced the new Permanent Secretary, Thomas Lee. Lee reported that he had retrieved TSM archives from Robert Martin and asked that anything additional to be archived be given to him (Lee).

New TSM Newsletter Editor David Ribble reported that 170 newsletters were mailed in January 1999. Previous Editor George Baumgardner left Texas early in 1998 and was not able to continue in that position. Ribble agreed to fill the position immediately. He suggested the possibility of switching the newsletter to some sort of e-mail or web format.

Honorary members selected in 1998 were Jim Scudday and Herschel Garner. Both were absent from the 1999 meeting; their awards were mailed. Tom Lee, Chair of the Committee for Honorary Members reported a unanimous decision to name David Schmidly as an Honorary Member.

The Committee on Conservation was inactive in 1998. It was recommended that the new president appoint a committee.

The Committee on Student Honoraria met immediately following the business meeting and the results of that meeting were reported at the banquet. Recipients of the student awards were announced as folows: Michelle L. Haynie, Department of Zoology at Oklahoma State University received the Robert L. Packard Award ($150 for best paper) for her paper entitled, "Resolving Parentage in a Population of Gunnison's Prairie Dogs *(Cynomys gunnisoni)* using Microsatellites." Darin S. Carroll, Department of Biological Sciences at Texas Tech University, received the TSM Award ($100 for best cell or molecular paper) for his paper entitled *"Sigmodon ochrognathus* in Texas: Relictual Population or Recent Invader?" Recipient of the William B. Davis Award ($100 for best organismic paper) was Annika T. H. Keeley for her paper entitled "The Mating System of the Mexican Free-tailed Bat *(Tadarida brasiliensis mexicana)* in a Large Highway Bridge Colony."

There was no update from the Government Liaison Committee. Dave Schmidly noted his encouragement at hearing Peggy Horner's report that a Wildlife Diversity Division had been established with the TPWD. He suggested the president write to the executive director of TPWD, expressing our appreciation for the establishment of the Wildlife Diversity Division and the Commercial Wildlife Permit. The permit was, in part, a result of the 1998 TSM Resolution. TSM membership sees this as a positive move toward the future of mammalian conservation in Texas. The motion was made and approved that this letter be written and sent (soon). [It was written and mailed 17 March 1998 by Ken Wilkins.]

President Wilkins reported that 1998 was the first year in office for Secretary-Treasurer, Permanent Secretary, and Newsletter Editor. President-Elect Robert Martin, at the close of the 1999 meeting became the Society's 1999-2000 President. Wilkins went on to report that the executive committee, which also serves as Nominating Committee for TSM officers, had chosen one nominee for the new President-Elect -- Robert Dowler. No other nominations were made. By

acclamation, Dowler became TSM's newest President-Elect. A motion was made to elect David Ribble as Newsletter Editor - as he had been appointed mid-term when George Baumgardner had to leave office when he moved to Nevada. Ribble was elected by acclamation to the office of Editor for a term of five years, beginning February 1999.

On the order of new business, a motion was passed to hold the eighteenth annual meeting of TSM at Texas Tech University Center at Junction on 18-20 February 2000. President Wilkins pointed out that the Society has been very adequately and hospitably served by the center for many years. Wilkins discussed the possibility of placing one or more TSM members on the Wildlife Diversity Program Advisory Board of TPWD and also getting one or more members involved in the State Bat Working Group. He suggested that we might want to designate an individual, or perhaps the Conservation Committee, to take part in these two programs. It was suggested that this was the purpose of the Conservation Committee. The membership was reminded that Rodney Honeycutt is already involved on the Advisory Board of the Wildlife Diversity Division and is on the TSM Conservation Committee. Robert Baker suggested that the Conservation Committee recommend a TSM representative to that board. This representative would be responsible for reporting back to the membership. He would not have to be on the Conservation Committee to be recommended. The recommendation should be conveyed by the TSM President to the appropriate TPWD personnel. On further discussion, members were reminded that having an official TSM representative would not negate participation by other TSM members. It was further suggested that there was some urgency, dictating that the Conservation Committee meet immediately and make their recommendation to the TPWD within a few days. Baker's suggestion was put into a motion, which was approved unanimously by the TSM membership. Baker made another motion that the TSM Conservation Committee recommend a representative to participate with the State Bat Working Group. As soon as that motion was passed, Bob Dowler pointed out that TSM does not have a current Conservation Committee. Baker suggested that the TSM President appoint one.

Bob Dowler asked President Wilkins to address the issue of the TSM logo. Wilkins' predecessor, Rodney Honeycutt, had approached Terry Maxwell at the 1998 meeting about designing an official logo for TSM. Robert Baker pointed out that the armadillo used on the newsletter cover has been the official logo and that the TSM owns the rights for use of that illustration. Wilkins recommended that Maxwell continue working on the logo. His designs are to be shared with the membership for consideration at a later date.

On a final order of business, President Wilkins welcomed the 33 new TSM members, who had been approved by the Executive Committee during their Friday evening meeting. Attendance at the Seventeenth Annual Meeting of Texas Society of Mammalogists was 93 strong. Wilkins voiced his pleasure at having served TSM and working with fellow officers. He gave a few words of encouragement to incoming President Robert Martin. The meeting was adjourned at approximately 5:10 P.M.

COMMENTS/ARTICLES

INFORMATION on PROGRAMS of TSM MEMBERS

EDITOR'S NOTES: The following accounts are alphabetized by institution, department and researcher. Spelling was generally not checked on text received electronically. Any errors or inaccuracies are unintentional. Text from the previous year was used for those programs for which a response to the questionnaire was not received in time for printing of this issue.

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Research Interests, Projects & Grants:

Texas Parks and Wildlife survey of Fort Griffin

Undergraduate Students & Their Research:

Rebecca Belcher --Work on the karyotypes of *Rhipidomys*, *Sigmodon*, and *Oligoryzomys* from South America.
Spencer Stewart --Rodent populations of Abilene State Park.
Kevin Rhodes --Agouti (*Dasyprocta ruatanica*) behavior, and ecology.

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Robert C. Dowler

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Research Interests, Projects & Grants:

My current research interests continue to be in understanding the endemic rodent fauna of the Galapagos Islands. This year funding was received from the National Geographic Society for the project entitled Status of the Endemic Rodents of the Galapagos Islands, Ecuador. This grant funded one expedition during the summer of 1999 to survey rodents on seven islands and another trip this coming summer to concentrate on Isla Isabela, the largest island in the archipelago.

In Texas, I have projects to survey mammals, birds, reptiles and amphibians at the Devils River State Natural Area. This project is a collaboration with Terry C. Maxwell and J. Kelly McCoy, ornithologist and herpetologist, respectively, of the Angelo State Natural History Collections. Joel Brant is completing the field portion of the mammal survey as part of his M.S. thesis research. Also with Kelly McCoy and Joel Brant, I am conducting a survey of mammals, reptiles, and amphibians of San Angelo State Park.

Graduate Students & Their Research:

Joel G. Brant --A survey of the mammals of Devil's River State Natural Area and relative abundance of small mammals in the area.

Marisol Salazar --Thesis topic will deal with effectiveness of scent station surveys in measuring relative abundance of medium-sized mammals.

Undergraduate Students & Their Research:

Eddie K. Lyons --An analysis of geographic variation in litter litter size for raccoons (*Procyon lotor*) in Texas.

Richard A. Humbertson --Mammals in the diet of Long-eared Owls in Irion County, Texas.

Additional Information:

The Angelo State Natural History Collections are publishing the ASNHC Newsletter, the first issue produced in 1999. We anticipate that the second issue will be mailed during early 2000. If you would like to be on our mailing list, please contact Robert Dowler, Terry Maxwell or Ann Maxwell.

Recent publications from the Angelo State Natural History Collections:

Burt, M. S. and R. C. Dowler. 1999. Biochemical systematics of three chromosomal races of *Geomys attwateri* and *G. breviceps* in eastern Texas. Journal of Mammalogy 80(3):799-809.

Carroll, D. S., R. C. Dowler, and C. E. Edwards. 1999. Estimates of relative abundance of the medium-sized mammals of Fort Hood, Texas using scent-station visitation. Occasional Papers, Museum of Texas Tech University 188: 1-10.

Dowler, R. C., R. C. Dawkins, and T. C. Maxwell. 1999. Range extensions for the evening bat, (*Nycticeius humeralis*) in west Texas. Texas Journal of Science 51(2):193-195.

Dowler, R. C. 1999. Mexican spiny pocket mouse / *Liomys irroratus*. P. 547, in The Smithsonian Book of North American Mammals (D. E. Wilson and S. Ruff, eds.). Smithsonian Institution Press, Washington, D. C., 750 pp.

Dowler, R. C. 1999. Plains harvest mouse / *Reithrodontomys montanus*. Pp. 560-561, in The Smithsonian Book of North American Mammals (D. E. Wilson and S. Ruff, eds.). Smithsonian Institution Press, Washington, D. C., 750 pp.

Edwards, C. E., R. C. Dowler, and D. S. Carroll. 1998. Assessing medium-sized mammal abundance at Fort Hood Military Installation using live-trapping and spotlight counts. Occasional Papers, Museum of Texas Tech University 185: 1-23.

Husak, M. S. and T. C. Maxwell. 1998. Golden Fronted Woodpecker. No. 373 in: The Birds of North America.

BAT CONSERVATION INTERNATIONAL
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Research Interests, Projects & Grants: Bats and economics, bat behavior, bats and human perception.

Conservation programs: Programma Para la Conservacion de Murcielagos Migratorios (migratory bats initiative), Pollinator Conservation Consortium, North American Bat Conservation Partnership (NABCP)

Grants: As a non-profit, BCI operates completely on funding from outside sources. BCI offers 2 mechanisms for receiving grants for bat conservation projects. A student scholarship program and the NABCP grants program. Applications for both programs can be found on our web-site (http://www.batcon.org).

Graduate Students & Their Research:

Partial funding is provided for graduate programs.

Undergraduate Students & Their Research:

Not applicable

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Research Interests, Projects and Grants: The population and behavioral ecology of mammals; prairie vole social behavior and mating systems; the landscape ecology of mammals inhabiting the Chihuahuan Desert and Chisos Mountains in the Big Bend of Texas.

Graduate Students and Their Research:

Tracy Carter (M.S. student) --The effect of landscape heterogeneity on the diversity of medium and large-sized mammals at Big Bend National Park.
Cathy Early (Ph.D. student) --Fox squirrel foraging behavior: A test of a model of sciurid urbanization.
Richard Howard (M.S. student) --Water demand as a constraint on *Sigmodon hispidus* feeding behavior.

Undergraduate Students and Their Research:

Arthur Chavason (Honors Thesis) --The evolutionary advantage of biparental care in prairie voles (*Microtus ochrogaster*).
Brian Moore (co-adviser with Joseph White;Undergraduate Research) --Variation in edaphic, biological, and biochemical conditions along an old-field successional gradient in Central Texas.

Additional Information:

I will be seeking to recruit several new graduate students over the next couple of years: a Ph.D. student to begin in the Fall 2000, and several Masters students for Fall 2001.

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Research Interests, Projects and Grants:

Mammalian biogeography, especially in Texas.
Ecology of subterranean mammals, especially pocket gophers.
Ecological morphology (or morphological ecology), especially of hearing in subterranean mammals.
Survey of mammalian (and amphibian and reptilian) fauna at Hill Country State Natural Area and Pedernales Falls State Park (contract research with Texas Parks & Wildlife Dept.).

Graduate Students and Their Research:

Jeff Sammon (M.S. student) --Effects of Exotic King Ranch Bluestem (*Bothriochloa ischaemum*) on the Rodent Community of the Edwards Plateau.

Undergraduate Students and Their Research:

David Brandon (Honor's program student) --Relationship of Population Density of a Subterranean Herbivore (*Geomys bursarius*) to Density of Food Plants

Additional Information:

We offer both M.S. and Ph.D. degree programs in Biology. Mammalogy is one of our specialties; see also Dr. Wendy Sera's listing in this newsletter. If you're interested in studying field biology in Mexico, consider participating in our summer program at Chapala Ecology Station (http://www.baylor.edu/~ces/).

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Research Interests, Projects and Grants:

Distribution of the woodrats in Georgia.
Various bioremediation projects, involving microbial augmentation.
Southwestern China mammal distribution.
Bioremediation consultation.
Writing one bat and two rodent Mammalian Species accounts.

Graduate Students and Their Research:

Patty Kosky --Impact of military activities upon small mammal presence at sixty sites at Fort Benning.
Neal Pierce --Bioremediation of nitrocellulose in soil utilizing microbial augmentation.

Undergraduate Students and Their Research:

Wendy Pearce --Armadillo endoparasites.
Keith Edmund --Mammal survey of Talbot County, GA.
Toney Griffin --Relationship of blood composition to parasitism levels in the nine-banded armadillo.

Additional Information:

Enjoying three grandchildren.
Had a tardigrade from China named after me. (Zoologischer Anzeiger 238:135-138 Dec, 99) *Echiniscus clevelandi* (Clark Beasley).
Recently presented a paper at an international environmental conference in Monterrey
Chair of the Atlanta Chapter of the Explorers Club

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Research Interests, Projects, and Grants: Status of the Texas Kangaroo Rat, *Dipodomys elator*, working to complete a status report. Completed the revision of the 3rd. Edition of *A Manual of Mammalogy* along with coauthors Ron Pine and Tony DeBlase. The revised edition is due to be published in August of 2000.

Graduate Students and Their Research:

None--McMurry is an undergraduate institution.

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Research Interests, Projects and Grants: Various aspects of mammalogy, with emphasis on Rolling Plains and Trans-Pecos.

Graduate Students and Their Research:

Lance Lyles --morphometric study of *Peromyscus attwateri*.
Robert Smith --reproduction, growth, and development of *Chaetodipus hispidus* (tentative topic).
Kimberly Spradling --multiple paternity testing in *Lasiurus borealis* (Aug. graduate).
Steven Shoen --morphometric study of *Chaetodipus hispidus* (Aug. graduate).
Monica Townsend --gut microbial population responses to hibernation in *Spermophilus tridecemlineatus*. (Dec. graduate).
Cecil Cowan --seasonal shifts of parasite loads in *Sigmodon hispidus.*
Kyle Wells --correlations of age and size with antler development of white-tailed deer in north Texas.

Undergraduate Students and Their Research:

Karen Killion --comparative lingual morpholology of shrews.

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Research Interests, Projects & Grants:

Distribution of mammals in Nevada. This reflects part of the mission of the Nevada State Museum and is, thereby, an ongoing project. It is not a current objective of this project, however, to generate any type of update of the "Mammals of' Nevada" by E. R. Hall.
Mammals occurring on the Mora Federal Fish Hatchery & Technology Center, Mora, New Mexico. The majority of the project is complete but monitoring of the occurrence of select taxa may well occur in the future.
Possible impacts of estrogen agonist bisphenol-A on *in utero* development and growth of the skeleton in mice (with Fred vom Saal & Michael Smolen, Funded by World Wildlife Fund).
Conservation and restoration of damaged vertebrate natural history collections.
Intra- and interspecific relationships of mammals using morphometric analyses.

Graduate Students and Their Research:

The Nevada State Museum is part of the government of the state of Nevada and is not directly affiliated with any college or university system.

Additional Information.

The Nevada State Museum in Carson City is the principle museum for the state. Part of its mission is to document and interpret the natural history of Nevada for its residents. In accordance with these goals, the collections of the Natural History Department are composed primarily of representatives of the flora and fauna of Nevada. To better understand this material, these collections also house specimens representative or taxa occurring in the Great Basin and other desert areas outside the state. The mammal collection (ca. 1,600 specimens) is composed primarily of rodents with the remainder of this material consisting of representatives of most of the taxa occurring in Nevada.

During the last year, I began familiarizing myself with the mammal and reptile taxa of Nevada via work in our collection and by fieldwork throughout this state.

The NSM is in the process of expanding its efforts to address its mission to interpret the natural history of Nevada. Toward this end, the museum is looking for new ways to perform public service and outreach. During the past year I have been active in preparing additional text for use in the exhibit hall for natural history and in helping to formulate new educational programs within the museum. Within the next few years, I hope to be able to participate in redesigning the Natural History Galleries.

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Research Interests, Projects and Grants: My research interests focus on two different aspects of the role that environmental stressors play in altering the genetic structure of populations. My lab uses several genetic techniques to investigate relationships between exposure to environmental pollutants and induction of genetic damage in wildlife species and to explore how induced genetic damage may translate into long term population demographic effects. We also use molecular techniques to investigate how exposure to environmental stressors may result in selection for specific genotypes leading to reduced genetic variability within populations. I am also interested in mammalian systematics and evolution and my lab uses cytogenetic and molecular tools to investigate phylogenetic and phylogeographic relationships of mammals.

Graduate Students and Their Research:

Russell S. Pfau, Ph.D. student (co-chaired with R.A. Van Den Bussche) --Geographic and environmental variability in MHC genes in *Sigmodon hispidus*.
Greg. M. Wilson, Ph.D. student (co-chaired with R.A. Van Den Bussche) --Intraspecific phylogeography of boreal-adapted mammals.

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Research Interests: Mammalian Molecular Systematics, Evolution of the Major Histocompatibility Complex (MHC), and Conservation Genetics.

Current Funding:

Van Den Bussche, R. A. Collaborative Research: higher-level relationships among microchiropteran bats based on mitochondrial gene sequences, morphology, and echolocation call structure. NSF-Systematics Panel. $123,500

Van Den Bussche, R. A. Genetic Testing of Lesser Prairie Chickens. Western Governor¡s Association. $3,200.

Echelle, A. A., R. A. Van Den Bussche, L. Coffer, and W. L. Fisher. Factors influencing fish populations in Oklahoma waters. Oklahoma Department of Wildlife Conservation. $50,666.

Hellgren, E. C., R. A. Van Den Bussche, D. M. Leslie, Jr., and D. P. Onorato. Genetic structure of black bears in the Big Bend/Sierra del Carmen borderlands of Mexico and the United States. $6,500.

Echelle, A. A., and R. A. Van Den Bussche. 1997. Genetic structure and age and growth of smallmouth bass in two Oklahoma reservoirs. Oklahoma Department of Wildlife Conservation. $86,665

Graduate Students and Their Research:

Ph.D. Students

Steven R. Hoofer --Higher taxonomic relationships of Vespertilionidae based on 12S rRNA, tRNA-Val, and 16S rRNA sequence variation.
Russell S. Pfau (Co-advised with Dr. Karen McBee) --Environmental Stress and Immunogenetic Structure of cotton rat (*Sigmodon hispidus*) populations.
Gregory M. Wilson (Co-advised with Dr. Karen McBee) --Post-Pleistocene habitat fragmentation and intraspecific phylogeography of boreal-adapted mammals in Wyoming and adjacent states.
Terry Malloy (Co-advised with Dr. Tony Echelle) --Genetic structure and age and growth of smallmouth bass in two Oklahoma reservoirs.

MS Students

Stephanie Harmon --Evaluating genetic variability at diverse loci in the eastern wild turkey: insights into population structure, sexual selection, and MHC evolution.
Michelle Haynie --Microsatellite DNA analysis of parent-offspring relationships in two species of prairie dogs (*Cynomys gunnisoni* and *C. parvidens*).
Warren Caughlin (Co-advised with Dr. Tony Echelle)-Factors influencing fish populations in Oklahoma waters: genetic structure of black bass.

Undergraduate Students and Their Research:

Julianna Peters (Undergraduate Honors Thesis) --Evolution of the Chiropteran Protamine P1 gene.
Kelly Warren (Undergraduate Honors Thesis) --Evolution of lasiurine bats based on the Protamine P1 gene.
Raymond Ary --Moleular Sexing of American Crows.
Eric Hansen --Parentage analysis of Prairie Dogs
Laurie Kump --Characterization of the MHC-DQ(locus in Chiroptera.
Sarah Moore --Parentage analysis of Prairie Dogs
Ian Date --Exchange student form the University of Hertfordshire, United Kingdom. Geographic variation of the MHC-DQA locus in hispid cotton rats.

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Research Interests, Projects & Grants:

Community Ecology of Vertebrates.
Ecology of White-tailed deer and Exotic Ungulates.
Biology of *Peromyscus pectoralis.*
Ecology of Free-tail Bat Colonies.
Ecology of Rodents.

Graduate Students & Their Research:

Ron Kerchof --Comparison of Antler Measurements and Body Weights of Fork-antlered as a Yearling to Spiked-antlered as a Yearling White-tailed Deer at Age 2.5 Years.
Lin --Poor Food Habits of White-tailed Deer in the Western Cross Timbers of Texas.
Brian Pierce --Comparison of Census Methods for Estimating White-tailed Deer Populations at Camp Bullis, Texas.
Todd Pilcik --Habitat Affinity of Small Mammals at the Kerr Wildlife Management Area.
Harry Bashaw --Multivariate Analysis of Temporal Emergent Patterns of the Mexican Free-tailed Bat Colony at the Old Tunnel Wildlife Management Area.
Trevor Tanner --Variation in Gender and Age Composition in Mexican Free-tailed Bat Emergences at the Old Tunnel Bat Colony.
Annika Nickalus --The Mating System of the Mexican Free-tailed Bat in a Large Bridge Colony.
Paul Hendrick --Comparison of Antler Measurements and Body Weights of Fork-antlered as a Yearling to Spiked-antlered as a Yearling White-tailed Deer at Age 1.5 Years.
Nicole Kuhl --Ecology of the Red Lechwe (*Kob leche*) on a Central Texas Ranch.
Helen Becker --Rodent Diversity on a Heavily Grazed Rangeland.

Undergraduate Students and Their Research:

Scott Pettingill --Food Habits of an Urban Coyote Population at Camp Bullis, Texas.

Additional Information:

The Wildlife Ecology and Vertebrate Zoology programs continue to grow at SWT. We have about 50 Master's graduate students pursuing research projects on amphibians, reptiles, birds and mammals in Texas and Mexico. Stipends are available for teaching and research. Contact Francis Rose, Chair, Department of Biology, Southwest Texas State University, San Marcos, Texas 78666.

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Research Interests, Projects and Grants: Finishing up the Mammals of Lost Maples State Natural Area.

Graduate Students and Their Research:

Brady McGee --Lost Maples Study.
Kathy Towns --Food habits of nutria in Spring Lake.
Cris Hein --Bats of Old Railroad tunnel.

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Research Interests, Projects and Grants: I continue to work with pocket gopher systematics primarily using molecular techiniques to investigate relationships between various taxa. Additional projects include work with the Attwater's Prairie Chicken - specifically a recently funded project to compare historical to current levels of microsatellite variation.

Graduate Students and Their Research:

Rex McAliley --comparing molecular variability among populations of *Geomys texensis* and investigating the occurrence of *G. texensis* mtDNA in a *G. bursarius* population around Waco.
Bobbie Pemberton --comparing RAPD and microsatellite variation in the captive breeding population of Attwater's Prairie Chickens.

Undergraduate Students and Their Research:
Jennifer Jurney --assisting me with pocket gopher PCR and sequencing.

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Research Interests, Projects & Grants: I am interested in amphibian, reptilian, and mammalian parasite taxonomy and ecology. Ongoing mammal projects include the coccidia of *Glaucomys volans* in Arkansas (with G.A. Heidt and S. J. Upton), coccidia of *Thomomys* and *Geomys* (with S. J. Upton), coccidia of *Neotoma* (with J. V. Planz and S. J. Upton) and coccidia of Newfoundland rodents (with D. W. Hale, L. Stavinoha, and S. J. Upton). The latter project funded, in part, by a grant from the National Geographic Society (to D. A. Hale).

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Research Interests, Projects and Grants:

Chromosomal rearrangement and its role(s) in mammalian evolution.
Taxonomy and Systematics of *Peromyscus.*
Chromosomal fragile sites.

Graduate Students and Their Research:

Jeshu Weerasinghe (Ph.D-Zoology) --Fragile sites in the *Peromyscus maniculatus* species group.
Scott Chirhart (MS - Zoology) - Microsatellite variation in *Peromyscus maniculatus.*

Additional Information:

Recent graduations:
Lisa Smith. Ph.D. graduated 12/99. Dissertation: "Phenotypic and genetic heterogeneity between sympatric deer mice from Washington State". Current position: Postdoctoral Fellow - Indiana University School of Medicine, Department of Medical and Molecular Genetics

Stacy Denison. Ph.D. graduated 12/99. Dissertation: "How common are common fragile sites in humans; interindividual variation in the distribution of aphidicolin-induced fragile sites". Current position: Postdoctoral Fellow - Cancer Genetics Program, Mayo Clinic Cancer Center, Rochester MN.

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Research Interests, Projects and Grants: Molecular Phylogenetics and Molecular Evolution of Mammals; Population Genetics and Conservation of Mammals.

Graduate Students and Their Research:

Diane Rowe (Ph.D.) --Molecular Phylogenetics of South American Caviomorph Rodents.
April Harlin (Ph.D.) --Conservation Genetics and Biogeography of Dusky Dolphin.
Joel Anderson (MS) --Population Genetic Structure of White-tailed Deer in Enclosed and Free-ranging populations.
Kiara Banks (MS) --Conservation Genetics and Intraspecific Phylogeography of Southeastern U.S. White-tailed Deer.
Larry Frabotta (Ph.D.) --Molecular Phylogenetics of Mammals.

Undergraduate Students and Their Research:

Katherine Connell --Molecular Phylogenetics of South American Caviomorph Rodents: Evidence from the Growth Hormone Gene.

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Research Interests, Projects and Grants: Subterranean mammals, faunal surveys and biogeography in South Texas.

Graduate Students and Their Research:

Maria Lathrop --Burrow use on a barrier island
Ric Garcia --Biology of the Painted Bunting in the Corpus Christi area
Scott Walker --Snake diets
Loretta Pressly --Invasive grasses and the endangered Rush Pea

Additional Information: TAMUCC campus continues to grow. The new student union building is now in use, and construction is beginning on a new addition to the Center for Sciences. Enrollment for the spring has climbed to 6,606.

TEXAS A&M UNIVERISTY
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Research Interests, Projects and Grants: Behavioral ecology of cetaceans, with an emphasis on effects of human habitat change. Specific research on bowhead whales, dusky dolphins, bottlenose dolphins, gray whales in far east Russia, and river dolphins.

Graduate Students and Their Research:

Similar to above

Undergraduate Students and Their Research:

Similar to above, as assistants

Additional Information: Look for the new book: Würsig, B., T.A. Jefferson, and D. Schmidly. 2000 (March). The Marine Mammals of the Gulf of Mexico. 304 pages and over 50 color illustrations and photos. Texas A&M University Press, College Station, TX. $35.

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Research Interests, Projects and Grants: Ecology, natural history, and systematics of vertebrates.

Graduate Students and Their Research:

Keith Krakauer--Effects of roller-chopping on vertebrate populations.
Victor French--Sperm competition between two species of *Peromyscus.*

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Research Interests, Projects and Grants: My interests encompass the ability to dissect the genome in an efficient way to provide resolution to problems concerned with systematics, conservation, biodiversity, genotoxicology, agriculture, etc. Major projects in the lab include understanding the biological consequences of the meltdown of the nuclear reactor at Chornobyl, understanding chromosomal evolution, especially using fluorescent in situ hybridization, providing genetic markers for cultivars of cotton, and my first love, systematics, of the New World leaf-nosed bats (Family Phyllostomidae). The Chornobyl project is part of a larger project headed by Dr. Ron Chesser at the Savannah River Ecology Lab. The lab is also involved in a study of abundance and biodiversity of small mammals on Fort Bliss. The Fort Bliss Project is headed by Robert J. Bradley.

Graduate Students and their research:

Kelly Allen is a Ph.D. student concerned with using GIS methods to better understand the patterns of biodiversity that are being generated by the GAP program. She blends together a strong interest in geography and biology and the use of computer methods to better understand the forces that regulate regional biodiversity. She is expected to graduate either in May or August and has accepted a faculty position at a college in Oregon.

Brenda Rodgers is in the third year of her Ph.D. program and has completed a study examining micronuclei frequencies in *Clethroinomys glareolus* from Chornobyl, Ukraine. This manuscript is in press in Environmental Toxicology and Chemistry. She will continue to examine micronuclei frequencies in *C. glareolus* placed in enclosures in the most radioactive region in the 30km Exclusion Zone to explore the evolution of radioresistance in organisms living in this extremely radioactive environment. Brenda has recently been appointed as a research assistant to Laura K. Baker, M.D. in a study to examine the human health effects of chronic exposure to radiation and the Chornobyl environment. Dr. L. Baker and Brenda examined records and physiological parameters of liquidators in October of 1999.

Jeffrey K. Wickliffe is in the second year of his Ph.D. program and is currently investigating possible genetic effects in rodents chronically exposed to ionizing radiation in the Chornobyl region (Ukraine) using mtDNA heteroplasmy (cyt b) as a mutational endpoint. We have recently completed an exposure study involving the Mus C57Black strain in which male mice were placed in enclosures in the most radioactive region in Chornobyl. Heteroplasmy will be estimated in these individuals as a complement to our native rodent studies. We are also investigating the molecular systematics of *Thomomys bottae* using the mtDNA cyt b gene. In addition, we are investigating the molecular systematics of *Apodemus agrarius, A.sylvaticus,* and *A. flavicollis* from Ukraine and South Korea using a nuclear gene corresponding to the androgen binding protein (alpha subunit) and a suite of microsatellite (STR) loci.

Federico J. Hoffman is from Uruguay where he was a student of Enrique Lesse's. Federico is currently pursuing a Ph.D. degree in systematics at Texas Tech. As part of the program's studies on systematics of phyllostomid bats, Federico has sequenced to cyt b gene from approximately 30 individuals of the genus *Glossophaga and* has started a project of geographic variation in the cyt b gene in *Uroderma*.

Diedre Parish is in the first year of her Ph.D. program. Her work involves *in situ* hybridization and her main focus is the studies of LINE elements in *Sigmodon*. She has also contributed to the study of the genomic distribution of DNA fragments isolated by Representational Difference Analysis (RDA) in 4 species of *Microtus from* the Chornobyl fauna. This work with Anton Nekrutenko and Brenda Rodgers, documents that unique fragments that identify species are most often on the sex chromosomes.

Marcy Revelez is a first year Ph.D. student who is being co-directed by Robert Bradley. Marcy completed her master's degree on pocket gophers (*Geomys*) at Angelo State University under the direction of Dr. Robert Dowler. Her research project at Tech is yet to be determined, but probably will involve chromosomes and their use in systematics. She is exploring the use of pseudo-G-bands generated from computer image analysis systems. She also continues to have an interest in the research project on the Galapagos Islands led by Dr. Dowler.

Mark B. O'Neill, is in the first year of his Master's program. Mark is currently using mtDNA sequence data to estimate the genetic distinctiveness of water shrews (*Sorex)* on Vancouver Island, British Columbia from mainland populations. In addition, Mark is working on a project that is looking at the desert shrew (*Notiosorex)* for the possibility of genetic subunits.

Nicole Lewis-Oritt is in her second year of her Master's program. Her research is concerned with the phylogenetics of Mormoopidae and Noctiolonidae. She is using the cytochrome b gene of the mitochondrial genome to infer ancestral relationships among these taxa as well as to assess geographic variation.

Amy Halter is working on a Master's degree in Museum Science. Her thesis interest is in developing standards for the management of recent mammal collections. Amy is a major positive force in taking care our mammal collection.

Reagan King is working on a master's degree in Museum Science. Her thesis project involves developing the software and methods to collect field data directly into the computer. Hopefully, we will be able to reduce the number of transcriptions of data as well expedite data computerization and cataloging.

Undergraduate Students and Their Research*:*

Amy Bickham is a freshman at Texas Tech. Her research project is studying the haplotype frequencies in *C. glareolus* from highly contaminated regions at Chornobyl as compared to sites that are relatively pristine. Her work also addresses temporal changes in haplotype frequencies. Her work is an extension of Cole Matson's master's work.

Additional Information:

Calvin A. Porter was recently appointed as a Visiting Assistant Professor, and he is working on the molecular systematics of phyllostomid bats. With Robert Baker, he has recently submitted an NSF grant proposal to continue these studies. Calvin adds important leadership to the lab.

Students who have graduated:

Kateryna Makova is a post-doc in Wen-Hsiung Li's lab at the University of Chicago. She is studying the genes in humans associated with skin color.

Anton Nekruntenko is a post-doc in Wen-Hsiung Li's lab at the University of Chicago. His interest is changing toward genetic mining and bioinformatics.

Britany Hagar has accepted a position as Collection Manager at the Dallas Museum of Natural History.

Cole Matson is in the first year of his PhD. program at Texas A&M University in Dr. John Bickham's lab.

Ellen Roots is a project manager at the Institute of Environmental and Human Health at Texas Tech University.

Lara Wiggins is in the second year of her M.D./PhD. program at Baylor College of Medicine.

Amanda Wright is working on *C. elegans* at Harvard.

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Current Research Interests, Projects, And Grants: My research interests include systematics and molecular evolution in mammals, particularly in geomyoid and sigmodontine rodents. Examination of hybrid zones between genetically distinct taxa; including isolating mechanisms and the dynamics of genetic introgression. Determining the origin of hybrizymes generated from hybridization events. Chromosomal evolution and how changes in chromosome structure relate to models and mechanisms of speciation. Examination of the origin and evolution of rodent-borne viruses; especially in the use of rodent phylogenies and

genetic structure to predict the transmission and evolution of viruses. Growth and utilization of natural history collections, especially those pertaining to mammals. Development of bioinformatics and how this field can be interphased better with natural history collections. Natural history and distributions of mammalian species.

Current Projects:

Molecular systematics of pocket gophers of the genus *Geomys.*
Systematics and phylogenetic studies of *Peromyscus boylii*.
Systematics and phylogenetic studies of the genus *Sigmodon*.
Systematics and phylogenetic studies of the genus *Neotoma*.
Ecology of emerging arenaviruses in the southwestern US.
Emerging and re-emerging rickettsioses in Latin America - flying squirrels as a host.
Effects of ammonium perchlorate on small mammals.

Current Graduate Students And Their Research:

Cody W. Edwards (PhD), in his third year --Molecular systematics of the genus *Neotoma*.

Darin Carroll (PhD), in his second year --Mitochondrial and Nuclear DNA variation in *Sigmodon*.

Melinda Clary (MS), in her second year --Habitat preference and movement of small mammals at the Ft. Bliss Military Base.

Kristina E. Halcomb (MS), in her first year --Molecular Systematics of the *Peromyscus truei* Species Group.

Marcy Ann Reveles (PhD, co-advised with Dr. Robert J. Baker), in her first year --Undecided but will involve mammal collections and mammalian systematics.

Current Undergraduate Students And Their Research:

Darin M. Bell --Howard Hughes and Goldwater Fellow - Cytochrome *b* variation in *Geomys* at a contact zone in Nebraska.

Additional Information:

Stacy Mantooth (MS), completed his thesis "Molecular Systematics of *Dipodomys elator*". (Co-chaired with Dr. Clyde Jones).
Irene Tiemann-Boege (MS), completed her thesis "Molecular Phylogenetics of the *P. boylii* Species Group". Currently she is enrolled in a PhD program at the University of Southern California (Dr. Norman Arnhein).

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Research Interests, Projects and Grants: Biodiversity, biogeography, and systematic relationships of mammals of the southwest, with special emphasis on the Chihuahuan Desert region.

Graduate Students and Their Research:

Robert S. DeBaca--Mammals of the Davis Mountains and vicinity, Texas.

Additional Information: See research interests: work is in partnership with the Texas Parks and Wildlife Department, as well as The Nature Conservancy of Texas. Some activities are being carried out in conjunction with the Texas Department of Health.

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Research Interests, Projects and Grants:

Mammalian systematics, zoogeography, and evolution, with emphasis on Neotropical fauna.
Multivariate statistical methods in systematics and evolution.
Philosophy and methodology in vertebrate phylogenetics.
Currently on one-year Development Leave in Paraguay, using Geographic Information System analysis to investigate patterns of small-mammal distributions in Paraguay. Additional funding provided by Organization of American States.

Graduate Students and Their Research:

Carl Dick began his Ph.D. program this year, and his research interests are systematics and coevolution of ectoparasitic arthropods and their chiropteran hosts, with a focus on ectoparasites of Paraguayan mammals.

Brian Amman began his Ph.D. program this year, and will be working on a problem in bat systematics, probably in *Tadarida* (Molossidae) and/or *Diclidurus* (Emballonuridae).

George Wang is working on an M.S. He is investigating the factors that affect the distribution of bats in the Mexican state of Michoacan. This project utilizes geographic information systems (GIS) softwares including ArcView GIS and PC ARC/INFO to examine the effect of climate, precipitation, vegetation, and soil type on bat species-richness in the state. A subsequent portion of the project analyzes the role of elevation in spatial segregation.

Undergraduate Students and Their Research:

None currently.

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Research Interests, Projects and Grants: Natural History, Systematics, and Conservation of Texas Mammals

Graduate Students and Their Research:

Chris Hice: Peruvian mammals and natural history

Additional Information:

March 2000 the following book will be published: Wursig, B., T.A. Jefferson, and D.J. Schmidly. The Marine Mammals of the Gulf of Mexico. Texas A&M University Press, College Station.

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Research Interests, Projects and Grants: I am currently the Program Leader for the Nongame and Rare Species Section of the Wildlife Diversity Program. This program recieves proposals to be funded by Section 6 of the Endangered Species Act. If the Conservation and Reinvestment Act (CARA) is passed in Congress in 2000, we will have more funds available for nongame and rare species conservation projects.

Additional Information: Most of my time is now spent administering the Nongame and Rare Species Section of the Wildlife Diversity Program. In April 1999, Dr. Paul Robertson was hired to replace me as the staff mammalogist. Paul is not a newcomer to Texas mammals or the Texas Mammal Society since he was a professor in mammalogy at Trinity University for many years. In addition, Annika Keeley has been hired as the staff bat biologist as part of a partnership with Bat Conservation International. She will be drafting a statewide bat management plan, as well as creating and disseminating Texas-specific bat education materials.

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Research Interests, Projects and Grants: Mountain lion conservation & management; prairie dog conservation & management; ecology & management of meso-carnivores.

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Research Interests, Projects and Grants: Natural history of the bats of Big Bend especially *Lasiurus xanthinus*

Undergraduate Students and Their Research:

Roger Rodriguez --Intra- and interspecific sequence variation in mitochondrial D-loop of *Myotis californicus* and *M. ciliolabrum*.

Additional Information: This will be the sixth summer that Loren Ammerman (UTA) and I have taken undergraduates to Costa Rica during the summer. Please see http://www.txwesleyan.edu/biology/CRmain.html for details.

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Research Interests, Projects & Grants: I am interested in the ecology and evolution of mating systems in *Peromyscus*, and work primarily in northern New Mexico on *P. truei* and *P. boylii*. I also work with Trinity undergraduates on the ecology, natural history, distribution, and conservation of mammals in Bexar County. We are currently focusing on the mammals of Government Canyon State Natural Area. Lastly, I will be studying the social organization of elephant-shrews in South Africa beginning summer 2000.

Undergraduate Students & Their Research:

Geoff McPherson --Nesting behavior of *Peromyscus pectoralis*.
Aaron Richardson --Genetic structure of *P. pectoralis* populations of Government Canyon State Natural Area.
Clifton Ruehl --Bats of Government Canyon State Natural Area.

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Research Interests, Projects and Grants:

Applications of remote sensing and GIS to studies of biodiversity.
Applications of GIS to epidemiology.
Applications of DNA sequencing to studies of biodiversity.
Use of GIS for modeling habitat for game species.

Graduate Students and Their Research:

Carla Carr - PhD student - Biogeography of mountaintop islands on the Colorado Plateau - tests of island biodiversity models using GIS and DNA sequence analysis.
Vicki Jackson - PhD student - Modeling of habitat for ocelets in Arizona and Texas using remote sensing and GIS.
Chris Miller - MS student - Modeling habitat for the Rio Grande turkey using remote sensing and GIS.
Bethany Dyke - MS student - Use of GIS for modeling epidemiologically important insects.

Additional Information: The 47th annual meetings of the Southwestern Association of Naturalists will be held on the campus of the University of North Texas in Denton on April 20-22, 2000. For more information see: www.biol.unt.edu/swan. Abstracts are due by March 1, 2000.

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Research Interests, Projects and Grants: My interests are in molecular vertebrate systematics, desert and tropical bat ecology (especially roosting and foraging ecology in Big Bend National Park and Costa Rica), and bat conservation issues.

Graduate Students and Their Research:

none

Undergraduate Students and Their Research:

Amanda Matthews --Trophic partitioning among four species of coexisting free-tailed bats in Big Bend National Park.
Evelyn Rainey --Dietary analysis of tropical fruit bats in the family Phyllostomidae.
Roger Rodriguez --Geographic variation and genetic substructuring of *Myotis californicus* and *M. ciliolabrum.*
Renee Richey --Molecular systematics of the family Cacatuidae (Order Psittaciformes).

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Research Interests, Projects, and Grants: "Big Picture" Mammalogy with no grants.

Graduate Students and Their Research: Long ago!