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GOPHER ESKER SOIL TEMPERATURE AND POSSIBLE IMPACT ON CONIFER ESTABLISHMENT IN SUBALPINE MEADOWS.................................................................................................85
Polymer matrix composites (PMC), very often referred as fiber reinforced plastics (FRP), consist of fiber reinforcement (E-glass, S2-glass, aramid, carbon, or natural fibers) and polymer matrix/resin (polyester, vinyl ester, polyurethane, phenolic, and epoxies). E-glass/polyester and E-glass/vinyl ester composites are extensively used in marine, sports, transportation, military, and construction industry. Styrene emission is major concern in regard to polyester and vinyl ester. Full-density nonfoam polyurethane does not contain styrene and is a tough polymer. There is renewed interest in using polyurethane in reinforced composites. One of the components in polyurethane formulation, polyol can be made from vegetable oil. In this study low viscosity soy-based polyol was modified using predispersed nano-silica and Halloysite nanotubes (HNT) at different loadings. Nanopol® XP 20/0254 nanosilica that was dispersed in a petroleum-based polyol was dispersed in soy-based polyol (Vikol-1) by simple mechanical stirring. HNT was dispersed using planetary centrifugal mixer. Aliphatic polyisocyanate was used for HNT composites and aromatic isocyanate was used with nano-silica composites as a curing agent to formulate non-foam and full density thermoset polyurethane resin. Further this nonmodified polyurethane resin was used in conjunction with low cost vacuum assisted resin transfer molding (VARTM) process to manufacture E-glass reinforced composites. Mechanical properties were evaluated using appropriate ASTM standards. These mechanical properties include tensile strength, tensile modulus, tensile elongation, compressive strength, flexural strength, flexural modulus, interlaminar shear strength, and mass loss characterization. This research has proved that fiber/matrix adhesion can be improved by modifying polyurethane with HNT and Naosilica which in turn improves the mechanical properties. For 0.8 wt% loaded HNT modified composites, flexural strength, flexural modulus, and ILSS were increased by 6%, 28% and 82%, respectively. For 7.5 wt% loaded Naosilica modified composites, compressive strength, flexural strength, flexural modulus, and ILSS increased by 135%, 64%, 34%, and 120%. These glass reinforced biobased polyurethane nanocomposites have potential to replace traditional E-glass/polyester and E-glass/vinyl ester composites.
Anding, Matt

Geography, Texas State

The Use of a GIS to Delineate Potential Urban Deer Habitats and Analyze their Spatial Distributions

White-tailed deer (*Odocoileus virginianus*) have become a problem in many urban areas across North America. Diverse and suitable habitats, combined with low mortality rates, create white-tailed deer populations that are far greater than local biological carrying capacities and cultural carrying capacities can tolerate. The resulting deer-human conflicts include Lyme disease, damage to natural and ornamental landscapes, deer-vehicle collisions, and other site-specific problems (West and Parkhurst 2002). In the city of San Marcos, TX, a perceived over-abundance of white-tailed deer occurs throughout neighborhoods and green-spaces. In order to better understand the local urban deer population dynamics, a GIS and Fragstats software were used to delineate and analyze potential deer habitats in the city limits of San Marcos. The entire landscape, excluding roads and water bodies, within city limits was categorized as either potential deer habitat or urbanization. Landscape statistics for both patch types were calculated and compared. Results show that while there is more potential deer habitat than there is urbanized land within city limits, there are more urbanized parcels of land with greater densities. There are a total of 27,475 hectares of potential deer habitat compared to 20,034 hectares of urbanization within city limits. There were only 297 parcels of potential deer habitat compared to 1,024 parcels of urbanization. Cohesion statistics, representing habitat connectivity, produced high connectivity results of 99.77 for deer habitat. Distribution statistics showed high habitat clustering. The results suggest that there is an abundance of potential white-tailed deer habitat within city limits, therefore explaining the perceived or realized over-abundance of deer. The connectivity and distribution of habitat patches also benefit the deer populations. These maps and statistics might assist local government in any urban wildlife management decisions in the future.
Baker, Melody Rose and Cade, Tina Marie (Waliczek)

Agriculture, Texas State

The Effect of Gardening Activities on Motor Skills Development of Pre-K and Kindergarten Students

Fine and gross motor skills play a very important part in childhood development. The famous educator, Maria Montessori, believed that children must exercise their "various coordinated movements" (i.e. motor skills), and realized that working in the garden and carrying out its related chores could actually improve motor development. There are definitely physical exercise and coordination components involved in gardening. However this connection has not been empirically evaluated. This study investigates the relationship between gardening and motor skills in pre-k and kindergarten-aged children by quantitatively measuring students’ levels of motor development in both a control population and one that has participated in gardening activities. The study integrates a pre-test/post-test design that uses treatment (gardening) and control (non-gardening) groups of pre-k and kindergarten students from Houston ISD. The Beery Test of Visual Motor Integration (VMI) was used to test students’ motor skills. Classrooms were tested at the beginning and end of their 2009 spring semester. A brief general and demographic questionnaire was also sent home to parents to provide clues into other factors contributing to students’ motor development and to provide a means for sorting data. Results will be used to promote outdoor activities, like afterschool gardening programs.
Graphic Novels, or comic books, has long since been seen as a child’s play thing. Beginning with the Great Depression until the present, comic books and graphic novels have been directly influenced by the political settings of the day. Unless you really observe when characters came out you would not notice that for each major political event in American history the comic book has either flourished or have nearly died off. The purpose of this research is two-fold. The first is to show that during each decade there was a political event that directly influenced events in comic books, both good and bad. The other being that once it was well known that comic books were being read the Government used comic books for influential purposes.
This paper is a comprehensive, synthesized literature review of peer-reviewed journal articles and books on research capacity building in developing countries. Since not many articles focused exclusively on research capacity building, the review includes those articles and books that included sections on the topic. The review discusses definitions of capacity building, types of capacity, and the definition of each type. Then, it categorizes the literature into political, legal, economic and cultural environments; research structure and infrastructure; higher education curricula; access to information and scholarly literature; critical mass of human resources; support services and management; funding; project ownership and direction; education and training; incentives and retention; networking; mentoring; partnership and collaboration; publication and dissemination; utilization of research findings; evaluation and quality assurance; and suggestions for further research. A significant split in the literature occurs between research capacity building for the public good and that for the private good.
Brown, Donald J.; Farallo, Vincent R.

Biology, Texas State

Dixon, James R.

Wildlife and Fisheries Sciences, Texas A&M University

Baccus, John T.; Simpson, Thomas R.; Forstner, Michael R. J.

Biology, Texas State

Freshwater Turtle Conservation in Texas: Lingering Harvest Effects and Efficacy of the Current Management Regime

The collapse of Asian turtle populations led to the creation of a worldwide freshwater turtle market in the 1990s. Texas is one of several states in the U.S. that has capitalized on this market. The Texas Parks and Wildlife Department (TPWD) recently instituted regulations designed to protect turtles from commercial harvest in public waters. Two counties in the Lower Rio Grande Valley (LRGV) accounted for 66.1% of the known wild turtle harvest in 1999, with no reported harvest in subsequent years. We sampled 62 sites in the LRGV to determine if harvest effects could be detected a decade later. We also investigated the potential for sustainable harvest under the new harvest guidelines using source-sink dynamics implemented in a Geographic Information System (GIS) approach. We detected differences congruent with harvest effects for Texas spiny softshells (Apalone spinifera emoryi) and female red-eared sliders (Trachemys scripta elegans). We determined protected turtle populations can interact with between 19.6% and 39.5% of unprotected turtle populations in the LRGV, and concluded that long-term sustainable turtle harvest is unlikely under the current management regime due to the intensity of commercial harvests coupled with non-robust or non-interactive protected populations. One solution to this would be modification of the regulations to include season and bag limits.
Brown, Drew K.
Chemistry, Texas State

Electrochemical Study of Gold Electrodes Surface-Modified with Metal Schiff Bases

Many organohalides are persistent organic pollutants which have been used in industry in various applications and some, like PCBs and DDT, have been banned in America. It is advantageous to use analytical sensors which can monitor organohalide levels. Electrochemically, many can be detected via reduction, but extreme negative overpotentials are needed to counteract the kinetically unfavored reaction.\textsuperscript{1} Metal(II) salen, a Schiff base, has been used as a catalyst to reduce many organic halides via electrochemical reduction at more positive potentials while enhancing the cathodic current.\textsuperscript{2,3} Furthermore, metal salophen, a similar Schiff base, has been used to modify the surface of carbon-paste electrodes to detect ascorbic acid and cysteine via electrochemical oxidation.\textsuperscript{4} If metal(II) salens (Co(II) and Ni(II)) are modified with a side alkanethiol chain and affixed onto a Au electrode via self assembly, it may be possible to develop a multifunctional analytical sensor. However, thiolates detach from Au surface at –1.3 to –1.7 V vs. SCE\textsuperscript{5}, and the free Ni(II)-Ni(I) and Co(II)-Co(I) salen couples undergo reduction at –1.6 V and –1.3 V vs. SCE\textsuperscript{2}, respectively. Consequently, the two reactions may happen simultaneously, limiting the ability of the surface-modified Au electrode to detect organohalides. However, Creagar and Rowe have published data which suggests that varying the alkanethiol chain length attached to the catalyst may be the solution.\textsuperscript{6} In this research, a series of alkanethiol-modified metal(II) salens with varying alkanethiol chain lengths will be synthesized, affixed to Au electrodes via self assembly, and studied via electrocatalytic oxidation and reduction to develop an optimized analytical sensor. The surface-modified Au electrode will be characterized using CV and QCM. More importantly, the relationship between the alkanethiol chain length and the reduction potential shift for surface-confined metal salens (as well as the sensitivity of the Au sensors) will be carefully examined.
Hypersensitive response (HR) is a plant defense mechanism governed by gene-for-gene interaction between plant and pathogen genomes. HR leads to a chemical cascade within plant cells in response to detection of a microbial pathogen which culminates in cell lysis resulting in lesion formation of plant tissue at the site of infection. HR has recently been postulated as a defense mechanism against macroscopic insect invaders (such as gall-forming insects) whose larvae feed within plant tissue. HR-like responses to macroscopic insect invaders are just recently being characterized. We document the presence, and examine the effects of an HR-like response in the leaves of Live Oak, *Quercus fusiformis*, to oviposition by the gall-forming wasp, *Belonocnema treatae* (Hymenoptera:Cynipidae), to determine if the lysis frequently associated with ovipositor insertion scars functions as a plant defense against the gall former. We investigated (a) the incidence of tissue lysis (i.e., percent of oviposition scars developing lesions) within and among trees and in relation to oviposition intensity at the leaf and tree level, (b) the effect of tissue lysis on the probability of gall initiation and development, and (c) whether among-tree variation in the incidence of tissue lysis correlates with gall density/tree. In 2008, *B. treatae* oviposition scars were scored for the presence of lesions and galls from an average of 196 (± 15) leaves from each of 58 Live Oaks at Texas State’s Freeman Ranch, San Marcos, Texas. Across all leaves and trees, 14% of the 142,707 oviposition scars surveyed led to lesion formation. Lesion incidence varied from 3% to 46% of oviposition scars/tree and was negatively related to oviposition intensity/tree (P < 0.003). Only 8% of ovipositions associated with lesions led to gall initiation. Comparison of the rates of gall initiation for oviposition scars associated with lesions versus oviposition scars without lesions showed that lesions significantly reduced the probability of gall establishment (P < 0.001). Finally, the incidence of lesions was negatively correlated with gall density per tree (r = −0.40; P = 0.001). This study demonstrates that an HR-like response of Live Oak to *B. treatae* oviposition functions as a plant defense. The research has been extended to the 2009 field season by replicating the above descriptive study and by implementing transplant experiments to determine whether lesion formation is an intrinsic tree reaction or results from an insect-plant (gene-for-gene) interaction.
Much of Katherine Anne Porter’s fiction shows women pushing the bounds of their sex roles and exploring new avenues of gender freedom. While Porter never admitted to outright feminist themes in her writings, her fiction often focuses on the gender roles of proper southern women and those who accept them as well as those who chafe against their restrictions. I will argue in the course of this essay that the women in Porter’s fiction firmly occupy three categories; the Matriarch figure who accepts her gender role and uses her position within her family to assert her control, the ‘New Woman’, who steps beyond her pre-ordained gender fate to create a place of her own, and finally, those caught in the middle, a transitional figure often caught in an undesirable position full of uncertainty and fear.
The ocelot (*Leopardus pardalis*) was placed on the United States federal endangered species list in 1982 because of habitat loss. Previous research has demonstrated that ocelots prefer habitats of dense shrubs with greater than 95% canopy cover. However, little else is known about the total composition of vegetation in their habitat. The objectives of our study were to compile GIS information of vegetation, soil and satellite imagery for seven counties (Willacy, Cameron (Laguna Atascosa National Wildlife Refuge), Starr, Hidalgo, Jim Hogg, Kenedy, and Zapata) in South Texas to enhance prior research and define areas suitable to support ocelots. Ground-truthing on vegetation transects on public and private land across these counties was performed using densiometer, vegetation profile board (VPB), and daubenmire frame techniques to determine key vegetative parameters which benefit ocelots. Through principal components analysis (PCA), we analyzed slope and intercept (VPB measures), percent canopy cover (overstory), percent grass, litter, bare ground, and forbs from Daubenmire frames, woody species richness, woody plant density, woody plant diversity, and average woody plant height per transect. We found the majority of ocelot habitat was characterized by greater plant diversity, greater vertical cover density at ground level, greater canopy cover, smaller shrubs, and more ground litter than habitat not occupied by ocelots. Along an east-west gradient in South Texas, eastern sites were similar to ocelot habitat. Comprehensive vegetation information (i.e. plant density, percent grass, etc.) is lacking on satellite/land-use images. Therefore, comparing habitat data through PCA analysis would be more effective in delineating ocelot habitat.
Crook, Brittani

Communication Studies, Texas State

“I’m sorry. Do you forgive me? Let’s get back together”: A Negotiated Morality Perspective on Forgiveness’ Role in Reconciliation of Romantic Relationships

Forgiveness is a process that most individuals have participated in by either seeking or granting forgiveness at multiple points throughout their lives. In the context of romantic relationships and as a result of the forgiveness process, the individual who granted forgiveness is encouraged to enter back into the relationship with the individual who committed the initial hurt. Reconciliation involves both forgiveness and the reestablishment of trust. Due to the novelty of these two constructs in the field of communication, the purpose of this literature review was to offer a comprehensive definition of both forgiveness and reconciliation by examining previous research and exploring the messages of forgiveness the aggrieved partner offers to the offender through a negotiated morality lens, to offer better understanding of how these forgiveness messages function in facilitating the reconciliation of romantic relationships.

Examining forgiveness’ impact on reconciliation through a negotiated morality lens leads to understanding of how forgiveness messages negotiate reconciliation in romantic relationships. The literature reviewed illustrated that forgiveness is a separate but necessary component for the potential of reconciliation. Romantic partners who desire reconciliation must communicate with each other, a dialogue must address the transgressions that occurred in the relationship, its impact on the relationship, and in order to redefine the relationship, request for and a granting of forgiveness and a negotiation of the relationships future.
De La Sen, Alejandro

Radio – TV, Arkansas State University; Arkansas

Globalization of national media programs: A NEW DIMENSION OF INTERNATIONAL BROADCASTING PROGRAMMING?

This essay discusses an emerging trend in international broadcasting; homogenization of program strategies and products. The paper provides a historical background to the recent evolution of this trend. Using examples from Africa, Asia, Europe and the United States, the author describes how global media conglomerates are increasing media profits by reducing overheads through the standardization of program production. The paper points how this homogenization affects viewer's opinions and programming diversity (quality, variety). The paper examines the dominant role of that the United States political, economical and technological superiorities play in the process. Finally, the paper presents the implication for media scholars and international media critics.
Delgatty, Christi

Sociology, Texas State

Volunteer Participation in Humanitarian Projects in West Africa: A Qualitative Study

As an applied sociologist, my goal is to do research that will enable humanitarian workers, non-profit organizations, and religious missionaries to understand the true nature of the needs they are working to address and the effectiveness of their methods for addressing them. It is also important for my research to increase the body of work available to researchers concerning the work done by these organizations.

The goal of this project is to research and record the experiences of volunteers for an orphanage in West Cameroon before, during, and after the project(s) in which they participated. This study is part of my on-going research into the work done for orphanages in Africa, and it will provide a basis for comparison with other volunteer groups that use short-term workers for similar projects.

Growing media attention has been given to the needs of African children over the past 10 years, and yet there is a gap in the research. Social scientists, medical professionals, and religious organizations have conducted extensive research concerning these needs, but there is little research concerning the effectiveness of work done by volunteers to combat these issues.

Methodology

This is a qualitative study to find data that will enhance my on-going research into the sociological impact of work being done for an orphanage in West Africa (IRB approval is pending). The study will be conducted by using in-depth interviews. I will identify and evaluate the most advantageous interview questions with the first four interview subjects prior to conducting the subsequent eleven interviews giving a total of fifteen in-depth interviews for evaluation. This method will offer an appropriate consensus of volunteers concerning the work they are doing to help this orphanage. The interview questions fall into three primary categories:

1) **Before**: Why did they become a volunteer? What concerns did they have concerning their first trip to Africa?

2) **During**: How does a volunteer feel about how their experience compared with expectations? Is there a difference between how volunteers feel about their trip when it is led by new volunteers versus led by seasoned leaders?

3) **After**: In the year after the project, does a volunteer feel their involvement was more valuable if they participate in follow-up activities or projects? How does a volunteer rate the successes/failures of a given project?
The red eared slider is among one of the many species one encounters while driving the roads of Texas. It is known that turtles are a species that are regularly killed while attempting to travel across roadways (Ashley & Robinson, 1996). The expansion of roadways in the United States has been linked with an increase in male biased populations of turtles since the 1930’s (Gibbs & Steen, 2005). The lower Rio Grande Valley allows us to examine this phenomenon in real time as this region of Texas has and is currently experiencing extreme levels of urbanization. My study is comprised of 36 sites within 3 counties of the lower Rio Grande Valley. These 3 counties vary in their level of urbanization and effort was made to select an even number of sites within each county that would vary in road density within a 1 km buffer from each site. GIS maps were used to calculate road densities which were then placed into categories of high, medium, or low. Preliminary results using sex ratios among counties and road density categories reveal possible male biased populations in all categories except one. Further statistical analysis will be conducted to determine the level of significance in these sex ratios.
Mix It Up: Correlated Space Science and Geology & Math teacher Professional Development – Program Evaluation

This study is based on the new model of linking science and math called *Correlated Science & Math (CSM)* in two science led courses, Correlated Geology & Math and Correlated Space Science & Math was taught in a two week (70 hours) summer session and five academic year sessions. This study took place during the summer of 2008. The cohort, 10 in-service grades 5-8 math and science teacher teams, had at least one team member with less than 20 hours of math or science content. Teachers were given a pretest prior to training and a posttest after training. A paired t-test was used to determine if teachers increased their content knowledge of math, space science and geology. Preliminary results show teachers (1) increased their content knowledge (*p*<.05) (2) adopted an integrated approach, not the *CSM* model (3) adopted the inquiry model for their demonstration lesson. Further analysis will include analysis of student performance on pre/posttests, state test scores, student work and classroom observations.
Edwards, Jeffrey

Political Science, Texas State

The Court Giveth and the Court Taketh Away: Eroding the Rights of the Criminally Accused in the United States

In its decisions during the 1960s in cases such as *Miranda v. Arizona*, the Supreme Court created protections for citizens accused of crimes. These protections were based on the Court’s interpretation of the U.S. Constitution. Police policy and court decisions over the last forty years, in both Texas and the United States, represent a general trend away from those Constitutional protections. The current policy known as a “no-refusal weekend”, in which police departments and prosecutors work together to forcibly draw blood from all suspected drunken drivers despite clearly worded Texas statutes which prohibit such blood draws outside of very specific circumstances, exemplifies this erosion of Constitutional protections.

This paper argues that these “no-refusal weekends” not only exemplify the erosion of the Constitutional rights given to one accused of a crime, but they are also in direct violation of the Texas Constitution’s Separation of Powers Provision. By examining, evaluating, and synthesizing the U.S. and Texas Constitutions, statutes, and case law, I will show the general trend away from Constitutional rights and the illegality of the “no-refusal weekends”.
Ejigu, Addisu Birhanu

Rural Livelihoods and Development, Addis Ababa University; Addis Ababa, Ethiopia

The Survival and Livelihood Strategies of Rural-urban Migrant Street Children in Bahir Dar Town, Ethiopia

Many of the street children in the study area, Bahir Dar, are rural-urban migrants. This study investigates the diverse livelihood and survival strategies of migrant street children. It further looked at the causes of migration of children and the social networks they maintain among themselves and to their rural villages. Structuration theory and Sustainable Livelihood Framework approach were employed to explain and understand the research problem. Structuration theory and livelihood approach are adopted as a theoretical framework to look at the issues to get insights about how street children make a living in the area. Structuration theory was applied to look at the research problem from different perspectives to understand the factors that shape the life of street children in the urban social system. Structuration theory has its own basic elements (agency, structure, the duality of structure, power, institution, and time-space relation) essential to link to explain the various forces that lead to migration of children and their struggle in the urban setting. Migrant street children make part of the structure of the urban life and as actors are striving to adjust themselves to livelihood outcomes. Livelihood framework approach was adapted in this study to look at the diverse street based economic activities of children and how they adapt survival mechanisms to meet their basic needs. It was used to appreciate diverse livelihoods of street children and their survival strategies. It also assisted to look at vulnerability of migrant street children to trends and shocks and their coping mechanisms.

In this study, qualitative and quantitative methods of data collection were used. Purposive snowball sampling was used to find out the research subjects. The data collected were triangulated and cross-checked to ensure reliability and validity of information.

The study shows that children migrated from different parts of the country into the area as a result of interwoven and various factors. It has been found that increased migration of rural children was aggravated due to rural poverty. This study also shows that street children are engaged in diverse livelihood activities that require different types of assets of which labor is the most decisive one that enables them to earn income either directly in wage employment or indirectly through the production of goods and services sold in the informal market. In their day to day survival scenario, street children interact among themselves through various informal social networks characterized by hierarchies. Their social networks are also important to strengthen the capability of groups’ members to reduce vulnerability and be more beneficial to livelihood outcomes.

The implication of this study shows that rural migration of children increased streetism that would exacerbate socio-economic problems of the children in particular and the urban dwellers in general in the study area. It also increased child laborers in the informal economy without any skilled labor that might lead to increased unemployment of the children. This would put burden to local intervention to address socio-economic issues in the area that need local based means of tackling the case.
Colorectal cancer is the third most common cause of cancer-related deaths in the United States. Death due to colorectal cancer is generally due to metastasis of the primary tumor to other organs in the body, particularly the liver. Metastasis depends on cell invasion through the colonic epithelial basement membrane, a process regulated by matrix metalloproteinase (MMP) enzymes. In addition, infiltration of colon cancer cells through the epithelium also involves loss of intercellular junctions. Probiotic bacteria have been demonstrated to have potential for colon cancer prevention, primarily by mediating early stages of cancer initiation and promotion. However, the ability of probiotic bacteria to decrease the metastatic potential of colon cancer cells has never been investigated. Based on the demonstrated ability of probiotics to improve epithelial barrier function and decrease MMP activity in literature, the aim of this study was to investigate if these observations can translate into an ability to decrease cell invasion and colon cancer metastasis. We studied the effects of two species of probiotic bacteria: Lactobacillus casei (L. casei) and Lactobacillus rhamnosus (L. rhamnosus) on the invasion of metastatic human carcinoma cell line HCT-116 invasion in vitro.

L. casei (ATCC 334) and L. rhamnosus GG (ATCC 53103) were inoculated separately in De Man, Rogas, Sharpe broth (MRS) and grown statically overnight (10-12 h) at 37°C. Cell-free supernatants (CFS) were collected by centrifugation, followed by pH adjustment (7.1) and filter-sterilization. HCT-116 wild-type cells were grown in Dulbecco’s Modified Eagle’s Medium (DMEM) supplemented with 10% fetal bovine serum (FBS) and antibiotics and incubated in a humidified atmosphere at 37°C with 5% CO₂. HCT-116 cells were serum starved for 48 h prior to seeding on Matrigel-coated membranes in Boyden chambers. Cell invasion was measured as the number of cells which invade through the Matrigel to the underside of the membrane. The lower compartment of the chamber contained 10% FBS as a chemoattractant.

To examine the effect of the probiotic bacteria CFS on cell invasion, HCT-116 cells plated in the top compartment of the chamber were treated with CFS from either L. casei or L. rhamnosus at 25% (v/v) in DMEM. Same volume of the bacterial growth medium (MRS broth) in DMEM was used as the control. Cell invasion was measured after 24 h of treatment; by staining and counting the cells on the underside of the membrane. The data was expressed as percent invasion with respect to the control and normalized to the effect of CFS on cell growth. In these assays, L. casei CFS and L. rhamnosus GG CFS resulted in a decrease in cell invasion by 72% and 50%, respectively. We are now investigating the mechanism of decreased cell invasion by these probiotic bacteria, including effect on MMP activity and epithelial barrier function.
The focus of this article lies in the elements of representation and their translation. Within the film Spiderman 3 the presence of both of these elements present themselves repeatedly, leading to my selection of this film to illustrate my theory of racial implications and methods of appropriating of Blackface through new film. I approached the film in a non-specific manner in order to comprehend the storyline and its characters. When I had a satisfactory understanding of the various cinematic elements of style, setting, and cinematic flow between the characters I began to flag specific examples that I would code. I then proceeded to build my argument centralized around these these coded examples. These visual elements may be translated into an understanding of today’s societal preferences and belief system in order to continue to uncover the social world.
Farallo, Vincent R. and Forstner, Michael R.J.

Biology, Texas State

Why so many forms? Field tests of the selective pressures on color pattern variation and its maintenance in the mottled rock rattlesnake (*Crotalus lepidus lepidus*)

Central to evolutionary biology are questions concerning the origin and maintenance of biodiversity. As all species arise out of existing taxa, the investigations often seek to explain striking examples of morphological variation within species. Color polymorphism is a widely studied example. The mottled rock rattlesnake (*Crotalus l. lepidus*) are a montane species that exhibit striking levels of color polymorphism associated with two distinct substrate types separated by uninhabitable lowland desert. Mechanisms for their differing phenotypes have been proposed but no empirical studies have been conducted. We hypothesize that selective predation on high contrast color and blotching patterns for the two respective regions is an evolutionary force that maintains the distinct races (phenotypes) in the different regions. We performed artificial predation experiment with urethane foam snakes at 12 field sites in the west Texas portion of the species range. The field sites were primarily split between the two regions in which the contrasting races are found including the eastern region composed primarily of light colored limestone and the western region composed primarily of dark volcanic rocks. Two color treatments were used; one mimicking the light colored eastern race and one the dark colored western race. Additionally, these models had no blotching to simulate the eastern race which has high proportions of anterior blotch fading or the models were painted with complete blotching to simulate the western race resulting in four total treatments. Forty models, an equal number from each treatment, were places at each site. Photographs were taken of all models when they were placed at their respective sites as well as when the models were retrieved 2 week after placement. Number and location on the model of non-predator disturbances and avian attacks were recorded. Attack and disturbance data was analyzed with a general linear model under a Poisson distribution with a reciprocal link function with number of avian attacks and non-predator disturbances as the response variable. Attack location data was analyzed with a one-way ANOVA comparing percentage down body (determined from distance from head divided by total length) as the response variable and type of damage (Predator or Disturber) as the independent variable. We found that high contrast color models were attacked significantly more often; however there was no difference in the frequency of attacks on the different blotching frequencies. Additionally, there were no significant differences in non-predator disturbances between the different color or blotching patterns. Predation attempts occurred significantly closer to the anterior end of models than did non-predator disturbances. The results indicate that color pattern was been maintained though selective predation. Despite a lack of difference in attack frequencies on the different banding patterns, we believe selective predation may still be occurring but in conjunction with differing behaviors in the varied habitats. This additional hypothesis will require further examination.
Ferguson, Brent
Music, Texas State

Characters of Mozart

Mozart composed music for controversial libretto in his operas, and scholars have interpreted characters and plots of his operas to have musical figures associated with them that convey hidden meanings and attributes not explained in the text. Different interpretations have collided over the years, and many viewpoints differ from one to the next. The goal of this essay is to assess interpretations of *Die Zauberflöte* to try to find a common bind. Conclusions of my research have uncovered interpretations relating to topics such as social classes, gender conflict, and suggestion of music composed for the brotherhood of the freemasons.
Foster, Jerod  
Electronic Media and Communications, Texas Tech University  

Twenty years later: A qualitative determination of the photography industry’s definition of ethics, and an analysis of the level of ethical acceptance of digital image manipulation in popular press magazines since the introduction of Adobe Photoshop  

Ethics, however difficult to define, is of great concern in a variety of industries. The photography industry, and all of its components, has continuously faced issues regarding the credibility of images and photographers (Ricchiardi, 2007). It has also played recipient to a landscape of cynicism and critique, to the point of potential illegalization, in regards to its effects on the reality and cultivation of lifestyle, particularly in the field of advertising photography and image use (Pfanner, 2009; Spurgin, 2003). Aside from the advertising industry, and their use of digital image manipulation to create financial windfall for their specific institutions, popular press magazines increasingly employ image manipulation techniques, such as Texas Monthly’s cover using then Governor Ann Richards’s head pasted on a biker model’s body in 1992, Time’s cover alteration of O.J. Simpson’s face in 1994, and other instances of body enhancements or compositional non-realities (Haggart, 2009). One former magazine photo editor points this out as “bad for photography and even worse for our concept of reality” (Haggart, 2009, p. 20). While photojournalists involved with news organizations are supposedly operating under a code of ethics established by the National Press Photographers Association, it is difficult to police, if at all needed, others’ use of image manipulation and additional specific issues that sit under the umbrella of ethical discussion for the industry.  

In lieu of the upcoming twentieth anniversary of Adobe Photoshop, the industry standard software application for digital image preparation, editing, and manipulation, it is important to understand how the industry defines ethics in a digital age, as well as the level of acceptance members of the industry have for digital manipulation of photographs. This study examines those issues. Guided by grounded theory methodology, in-depth interviews with key editorial members of 15 popular press, consumer magazines provide data for clarification of the role that ethics plays in this component of the photography industry, as well as define an all too often ambiguous topic. Early in Photoshop’s history, Reaves (1991) stated that in an age of evolutionary digital technology, mainly computer technology, editors and art directors did not necessarily question their actions from an ethical perspective. Yet the question of ethics was left wide open. This study seeks to not only define ethics from an industry point of view, but also to play a role in closing the gap in ethical literature related to this field, as well as lay the groundwork for student and practitioner education of the concept and how the industry approaches it.
Interstate Health Insurance Competition and Mandates, Why and Why Not?

In the presidential campaign last November, a health care reform policy gem was run roughshod over and tossed out the window, essentially forgotten. The author has taken Senator McCain’s idea to let insurance companies compete nationwide, modified it, and has attempted to apply it to today’s health insurance reform debate. Allowing insurance companies to compete nationally could help lower premiums by removing the wasteful and often politicized individual state mandates and encouraging more competition. Also, by removing the state regulations (which would happen naturally if we let them compete nationally) we would be provided with an opportunity to create a uniform federal regulatory board (The “Exchange”) in which Congress could emphasize preventative care, which is proven to bring down costs. This would also streamline the entire process and make the convoluted nature of health insurance much more comprehensible to the average American. The author also explains risk pools and individual mandates to purchase insurance.
The undemocratic capitalist states, the rise of the multi-national corporate ‘person’, and the challenges now facing traditional liberal economic ideals and the democracies that engendered them

The rising tide of undemocratic economic powerhouses in the global economic system provokes fear and optimism in the minds of many economists and politicians. What are their goals? Are their goals ‘in line’ with Western expectations? Will their rapid growth lead to conflict or cooperation? Will it bring sustainable growth or debilitating destabilization? Many rapidly growing economies are in states with political systems that most would not consider to be democracies. Before the world truly embraced the idea of “free trade” after the Cold War, capitalism within one’s borders was easily comparable to political liberalism. For Western thinkers, there has been a break in the link between economics and politics. Although major shifts were already well underway, such as the enshrinement of corporations with individual rights in America, once the walls of protective tariffs and other barriers came down, the individual human within a geographical economy no longer drove economic behavior and trends. Instead a mix of multinational corporations and state/private investment funds (and now state interventionism) powers it. It is all supported by an assumption that the individual human will continue to consume and work at any cost in the new borderless and easily exploitable global arena. Democratic governance, the ultimate insurer of domestic stability through economic regulation with the goal of preserving individual human liberty, has been run over by the bus, the economy. The first step into the road was the Supreme Court’s blurring of the line between human rights and corporate rights. The opening up of economies in the 90s and the intermingling of vastly differing political systems then further brought about an interesting question for Western diplomacy as technology and disappearing tariffs allowed firms, currency, employment, and ultimately individual human liberty, to became globally fluid. Are Western diplomats acting to promote purely economic goals or political ideals? For the past couple decades it has been a confusing array of both, often conflicting with either disastrous or grossly ineffective results.
Galvez, Anthony

Electronic Media and Communications, Texas Tech University

ER and Entertainment-Education: A qualitative analysis of successful storytelling as related to vicarious learning, self-efficacy development, and parasocial interaction

Through processes associated with vicarious learning, television programming continues to be an influential force in the shaping of the self-efficacy beliefs of its viewers (Bandura, 1997). Because of television's influence, many Entertainment-Education (EE) scholars agree that television can be used to inform the general public about critical healthcare issues (Nariman, 1993; Singhal, Cody, Rogers, & Sabido, 2004; Singhal, & Rogers, 1999; Singhal, Rogers, & Brown, 1993). When pro-social messages, such as disease prevention, family planning, or proper nutrition are included in the storyline of popular television programming, audience members can be influenced to change negative behaviors as a result of an increased self-efficacy towards pro-social change. Recent research indicates that television audiences were exposed to 1.5 health-related topics per episode when viewing prime time programming (Murphy, Hether, & Rideout, 2008). Yet despite the apparent abundance of health-related messages, little research has identified the dramatic elements that shape the way the information is presented to the audience. Doing so could lead to critical insight as to how television writers and producers shape and influence relevant healthcare issues.

Using the grounded theory methodological approach, this paper examines a storyline about AIDS in the popular drama ER while identifying key elements that can lead to the audience's desire to build parasocial relationships with the fictional characters. The parasocial interaction between the audience members and the protagonist, within the storyline, works as a critical link necessary for the requisite vicarious learning experience to occur. With a greater understanding of the critical elements necessary for parasocial interaction to occur this research expands on current discourse about EE messages while proposing a three-tiered systematic model for EE message creation that can be used to help guide future EE development. The proposed theoretical model identifies multivariate constructs of (a) character development, (b) audience education, and (c) incorporation of dramatic elements for storyline development, all of which can insure greater parasocial interaction and subsequently the vicarious learning environment necessary for positive behavioral change within the audience.
Culture is not what you get when you study Shakespeare, listen to classical music, or take courses in art history. What culture embraces, according to some anthropologists, are not only values and ideas, but the entire set of institutions that humans live by. Undoubtedly, the term culture has many connotations but for the purpose of this research paper, culture is defined as consisting exclusively of learned ways of thinking and behaving; therefore, my question for the self-reflective inquiry reported here is “How has study abroad, cultural immersion, and reflection on that immersion changed my perspectives on Italian culture?” As a study abroad student in Rome, Italy, I developed understandings of and relationships with others as a result of having to function in an unfamiliar environment and under rules different from those of my own culture. In this study I used self-reflective inquiry to develop a clearer understanding of the power of learning through cultural embrace. Through reflection on photos taken over time and reflective journaling, I have documented the elusive perspective shift that comes from deep, critical immersion in another culture.
Effective management of wetland quantity and quality is crucial to effective conservation of declining amphibian populations. In particular, frogs and toads that employ aggregative breeding strategies may suffer negative population impacts in response to changes in availability of aquatic breeding habitat, including overabundance of suitable habitat, if density of conspecifics attending aggregations is positively correlated with reproductive success. Here we document such a positive relationship, an example of a mate-finding Allee effect, in the critically endangered Houston toad (*Bufo houstonensis*). We assessed the relationship between mean yearly chorus size and reproductive success at the pond level using generalized linear model fitting and the Wilcoxon Rank Sum test. The chosen model contained the single variable of mean yearly chorus size to predict probability of reproduction, as selected using the Akaike Information Criterion corrected for small sample size. Mean chorus sizes were significantly higher among ponds exhibiting evidence of reproduction than in those that showed no evidence of reproduction. Our results suggest that chorusing alone is a poor proxy for inference of population stability and highlight a need for reassessment of widely-used amphibian monitoring protocols. Further, amphibian conservation efforts should account for potential mate-finding Allee effects in order to optimize benefits and avoid underestimating critical population thresholds, particularly in species exhibiting rapid population declines.
Land policy is important for poverty reduction, governance, economic growth and environmental sustainability. Thus governments have a clear role to play in promoting and contributing to socially desirable land allocation and utilization policy. Ethiopia has conducted a radical land reform in 1975. Since then there was no any major change in its basic land policy and there was no land reform except the 1996 Amhara land redistribution program. This program has caused many controversies which demand a detailed research.

This study has focused on Libo Kemkem woreda, South Gondar Zone, Amhara National Regional State where the 1996 land redistribution is not yet studied. The major objective of this study was to show the process and consequences of the 1996 Amhara land redistribution in Libo Kemkem woreda. To this end, assessments of the policy of the redistribution through certain parameters like equity, justice, participation, transparency and accountability and assessment of positive and negative economic and social effects of the redistribution were made in this study.

Qualitative methods of data collection and analysis were employed in this study. The study used FGDs and interviews to collect data from regional bureaus, woreda offices, DAs, and peasant households.

The 1996 land redistribution process in Libo Kemkem woreda was accomplished exclusively by the regional council and administration without public consultation and consensus building, and without the participation of concerned institutions. The regional administration implemented the redistribution in a top-down, centralized, secretive and in an unpredictable approach. This in turn has resulted in arbitrariness, dictatorship, corruption and favoritism, and disappointment.

The redistribution program has given an important attention for the poor households. However the program did not integrate the land redistribution in to the broader strategy of the rural development. This has made the beneficiaries of the redistribution not to see changes in their economic lives. The redistribution had also negative economic effects like inequitable landholding, reduction of holdings, the increment of tenure insecurity, the expansion of sharecropping tenancy and others.

The redistribution has also both positive and negative social effects. The constitutional rights of many households to get land for free is respected, these recipients of land have achieved social independence and manage to form marriages. On the other hand the redistribution has negatively affected the social relationships of the peasantry. The emergence of differentiated social groups, the stigmatization and desperation of the “bureaucrats”, the decrement of intra-household land redistribution and the increment of intra-household conflicts, the perpetuation of corruption, the declining importance of the traditional conflict resolution mechanisms, values, customary laws and others were also some of the negative social effects of the redistribution.
Audiovisual nature plays a great role in presenting events within their contexts to its audiences. Similarly, Ethiopian Television (ETV) has been serving its audiences since its establishment in 1964. Although audiences continue watching ETV, they are usually heard airing their dissatisfaction regarding the quality of ETV services. Despite the fact that audience satisfaction study is invaluable, it is difficult to get such a comprehensive research in Ethiopia. This paper, therefore, aims at investigating how the complaints of audiences of ETV evening Amharic program are deeper. That is, it tries to assess the satisfaction/dissatisfaction level of audiences with the programs. The study focuses on Amharic language since most of ETV’s airtime is covered by this language.

The subjects of the study are 300 TV viewers of Bahir Dar, Dessie and Gondar town’s residents who have television sets and pay annual service charge. Most of the respondents are young people aged 18 to 35. Audience satisfaction studies are usually done using survey methods. As a result, a questionnaire with open ended questions, to find out the audiences’ level of satisfaction based on Likert’s scales, is used to collect the required data. Mean scores of satisfaction scales and percentages of respondents are used for the analysis and interpretation of the data. The questions are analyzed in terms of eleven factors that affect audiences’ gratifications. The results, however, represent tendencies rather than actual facts because they are based on personal opinions and predispositions.

The degree of gratification (satisfaction, dissatisfaction or neutral) is determined based on three assumptions that basis on the mean scores of responses on satisfaction scales. Accordingly, the main findings are the following. Audiences’ level of satisfaction is very low. They show their dissatisfaction with the overall services of the channel. Most of the programs lack credibility. Moreover, among the programs Local News and Current Affairs reports and Advertisements are the most dissatisfying programs. Only Q&A, Sport and ‘50 Lemon’ programs are relatively the most satisfying ones. Furthermore, most of the audiences watch ETV either as a habit or due to lack of an alternative channel.

Hence, looking through these results, it is possible to say that ETV Amharic programs are unable to gratify its audiences by producing and broadcasting programs that go with the needs of its viewers.

All these indicate that ETV, being the only medium in the country, to gratify its audiences, should exert more efforts to improve its programs in line with the needs of its viewers.
This paper examines the inadequate legal duties Texas employers owe employees and the general public when employees leave the workplace in an extremely fatigued condition and subsequently cause motor vehicle collisions. The Texas Supreme Court has held that no legal duty exists, even in high fatigue occupations like oil well drilling, where grueling twelve hour shifts in remote parts of Texas are common. External statistical data is incorporated to show the striking similarities between operating a motor vehicle in a fatigued condition and operating a motor vehicle under the influence of alcohol. The case study approach is also used to analyze the Texas Supreme Court’s historical progression and treatment of this issue in prior cases, and to provide constructive critiques and recommendations as to how Texas law should be modified to make Texas highways safer.
The topic I selected for my research paper addresses the problem of “Blue Water” Navy veterans who served in the territorial waters of the Republic of Vietnam and have recently been diagnosed with diseases they allege are related to exposure to Agent Orange. In order to receive disability benefits from the Department of Veterans Affairs, they must prove those diseases are associated with exposure to the herbicide.

For the necessary background information on Agent Orange, I reviewed scientific commentaries, military field manuals, ALR annotations, and case law. Next, I looked for diseases that exposure to Agent Orange may have caused. Various studies conducted by the Centers for Disease Control, Department of Veterans Affairs, and studies of Australian Vietnam veterans provided the most direct evidence of the health effects of Agent Orange exposure. Based on a relatively large body of evidence from these studies, conclusions were drawn about the linkage of several cancers to Agent Orange.

Veterans filed a class action suit against the chemical manufacturers of Agent Orange in 1984, and thereafter, Congress enacted the Agent Orange Act of 1991. This statute provided great support for my issue because it required the Secretary of Veteran's Affairs to obtain independent scientific evidence regarding associations between diseases and exposure to dioxin and other chemical compounds and herbicides, and for other purposes.

After careful review of many studies, I turned to the Department of Veterans Affairs to see what diseases they found to be eligible for veterans to receive disability benefits. The department’s federal regulations listed several chronic diseases and how “presumptive service connection” for those diseases was to be applied on a case by case basis.

In my review of cases and information, there were only a few regarding “Blue Water” Navy veterans. To support my topic it was necessary to find studies of chemical contaminants in shipboard drinking water. I learned that United States Navy ships produced water while at sea through distilling and reverse osmosis processes and that there was a moderate risk of chemical contamination of the drinking water production, storage, and distribution systems onboard ships.

The spray missions and wind speeds were a good source to show that the herbicides did not stop at the shores of Vietnam but were carried out by trade winds to the ships in the territorial waters of Vietnam. Navy veterans say that their duty was to support the troops on the ground. Stationed aboard their ships, veterans saw first-hand, barrels of herbicides each marked with orange tape. They also said, “many times they would see clouds from the spray missions and shortly after would feel the spray fall on their skin.”

Several ALR annotations and Law Reviews provided case law and references to use as support. After considerable and thorough research I believe that a “Blue Water” Navy veteran could win a case with the Department of Veterans Affairs as long as they have Agent Orange exposure proof.
Rehabilitation projects are often used in order to aid in conservation of threatened species but can be an expensive tool. Sea turtles have been a directly impacted by human activities in the water and on nesting beaches consequently creating a greater need for conservation efforts. While rehabilitation can mean different things for different species, for the sea turtles, it often means hospitalization, treatment, recovery and then release back into the ocean. Those efforts are expensive and the outcomes have not been evaluated, despite several decades of conducting these activities on the Texas coast. The most complete, 26-year sample of stranding, medical, and release records we could obtain was assembled from several major sea turtle rehabilitation projects. While these efforts are all located along the Texas coast the dispersal abilities of sea turtles allows an examination of trends among rehabilitated sea turtles from the entirety of the Gulf of Mexico and Atlantic basin for several species. Trends examined include tag recovery rates of rehabilitated sea turtles, injury frequency among species, species occurrence, rehabilitation duration, and trends among final disposition. The data collected were analyzed to evaluate the efficacy of sea turtle rehabilitation as a means of conservation but also to assist in determining the most efficient use of funding for these efforts.
This study examines cultural communication about love. Specifically, the analysis explores how messages about love are dark in contrast to the generally accepted concept that love is the essence of goodness and light. Cultural messages about love were assessed through various mediums (movies, songs, magazine articles, websites, personal communications, etc.). A critical review of mediums produced six themes highlighting the dark aspects communicated about love. Themes from the analysis include: love is instantaneous and uncontrollable, love is the ultimate relational goal, love always includes sex, love is easy, love is difficult to conceptualize, and love is marketable. Each theme is explored in depth and discussed in terms of current communication research. While it is easy and culturally acceptable to focus solely on the light side of love, this study attempts to bring to the forefront darker aspects of communication about love in order to dispel fantasies that lead to unrealistic expectations.
Hossain, Md. Akhter
School of Local Development, University of Trento; Trento, Italy
Can Industrial Districts accelerate Local Economic Development: a relation analysis

Local Economic Development (LED) is one of the mostly used terms in the recent economic world and due to globalisation, its importance increased drastically in the developed and developing countries. When the recent economic crisis are badly impacting the world economic growth, especially for the developed countries, the strong presence of industrial districts in Italy, which mainly based on SMEs are able to offset the crisis and unemployment pressure in a very well manner. This paper described the theoretical aspects of industrial districts (IDs) and its various characteristics considering the evolution process of the IDs. The existing literature under the theme of economic geography provides some significant information about certain characteristics of IDs. Analysing the definition given by Becattini (1990) some stylised features of the industrial district model emerge, where peculiarities of the Italianate variant of the industrial district model are confronted with the Marshallian ones. According to our research we found the most relevant analysis on IDs characteristics at Fernando Alberti’s scholarly works. Despite the characteristics, we also analyse the dynamics of the IDs and tried to investigate the relationship with process of local economic development and its sustainability due to immediate shifting capabilities from one formate to another. In the final part of the paper we have been explaining the role of IDs in local economic development. The paper consists of three main chapters in order to discuss above-mentioned issues in more details. End of the paper, conclusion has also been developed to illustrate writer’s point of view in a well-stated way.
Alouatta pigra, a howler species located within relatively few sites in Central America, is listed by the IUCN (2008) as endangered and threatened with extinction. Among the reasons for this endangerment are deforestation and forest fragmentation, both of which can result in isolated breeding populations and reduced fecundity (Crocket 1998; Pavelka and Chapman 2006; Strier 2007; Van Belle and Estrada 2006). With the aid of information regarding howler densities, available food resources, and the degree of fragmentation of potential howler habitats, government management programs can work to prevent localized extinctions. In collaboration with CONANP (Comision Nacional de Areas Naturales Protegidas), preliminary data regarding A. pigra in the Natural Protected Area of Mézabok, Chiapas, Mexico were collected between 4 June and 4 August 2009 during 233 hours and 44 minutes in the field. Calls were observed from at least 15 exclusive groups, 7 of which were located. Population trends revealed 2-5 group members with single male, multiple female compositions and at least one juvenile or infant. From 20 Gentry plots, 102 botanical samples ranging over 36 species were encountered. Of these species, 14 were directly observed as feeding trees and 2 were confirmed by seed collection from feces. GPS points were taken to create a land type classification to highlight the structural connectivity of the forest surrounding Mézabok and the degree of isolation of the population.
Oculomotor Plant Biometric Identification

There has been increased interest in reliable, non-intrusive methods of biometric identification due to the growing emphasis on security and increasing prevalence of identity theft. This research presents a new biometric approach that involves an estimation of the unique Oculomotor Plant parameters from an eye movement trace. The OP parameters allow taking into the consideration such individual properties of the human eye as: neuronal control signal, series elasticity, length tension, force velocity, and active tension. These properties can be uniquely estimated for each extraocular muscle. Additionally, the properties of the eye globe provide an opportunity to estimate the values for the individual components such as passive elasticity, viscosity and inertia. We position biometric identification via an Oculomotor Plant Mathematical Model is an additional layer of security designed to provide an extra validation step for a user of an identification system.
Polymer matrix composites (PMC), very often referred as fiber reinforced plastics (FRP), consist of fiber reinforcement (E-glass, S2-glass, aramid, carbon, or natural fibers) and polymer matrix/resin (polyester, vinyl ester, polyurethane, phenolic, and epoxies). E-glass/vinyl ester composites are extensively used in marine, sports, transportation, military, and construction industry. However, these composites are not suitable where fire, smoke, and toxicity (FST) are of major concern such as aircraft interiors and mass transit. To make them suitable for such application one need to add fire retardant additives such as Magnesium Bromide, Phosphorous Pentachloride, Alumina trihydrate (Al\textsubscript{2}O\textsubscript{3}.3H\textsubscript{2}O) and calcium carbonate. To suppress the smoke, additives such as zinc borate and molybdenum trioxide are added in the plastics. These additives increase material weight by 20-30%. Phenolic are inherently fire resistant. There is no need to add any additives. Thus for the same FST performance glass/phenolic composites will be lighter than their counterpart glass/vinyl ester composites. Addition of nanoparticles in polymer matrix enhances fire retardancy. Major concern is simple method to uniformly disperse nanoparticles in liquid resin and cost of nanoparticles. In this study, these composites are manufactured using low-cost vacuum assisted resin transfer (VARTM) process. Low-cost natural clay Halloysite nanotubes (HNT) are dispersed in liquid polymers using simple centrifugal mixing. Mechanical performance is evaluated using appropriate ASTM standards. The mechanical properties include tensile strength, tensile modulus, tensile elongation, compressive strength, flexural strength, flexural modulus, interlaminar shear strength, and mass loss characterization. Phenolic nanocomposites showed much better fire performance compared to widely used vinyl ester nanocomposites without sacrificing mechanical properties. Entire research from manufacturing of composites to nanomodification to mechanical testing was conducted in state-of-the art Composites and Plastics Lab (CPL) of Ingram School of Engineering.
Isolation and characterization of a putative auxin resistant mutant, *ada2* that regulates growth and development of *Arabidopsis thaliana*

The phyto-hormone auxin is vital for the plant growth and development throughout its lifecycle. At the molecular level, auxin rapidly modulates the expression of auxin responsive genes by promoting the degradation of a family of negative regulators known as Aux/IAA proteins. Besides the major endogenous auxin indoleacetic acid (IAA), there are several other natural and many synthetic auxins. Picloram and 2,4-dichlorophenoxyacetic acid (2,4-D) are two synthetic auxins that are commonly used as herbicides. Our initial work suggests that picloram may function differently from other commonly used auxins such as IAA, 2, 4-D and 1-naphthalene acetic acid (1-NAA). To understand the molecular mechanisms of auxin responses in plants, we isolated a group of mutants that exhibit altered response to picloram that showed defective auxin distribution in the root tip.

The mutant *ada2* (*altered distribution of auxin*) is resistant to both picloram and 2,4-D and exhibits many growth and developmental defects. Mutants that respond abnormally to one phytohormone often respond abnormally to others as well, reflecting the complex interacting network of hormone response pathways. So we also checked the effects of other plant hormones like abscisic acid (ABA), 1-aminocyclopropane carboxylic acid (ACC) and methyl jasmonate (MeJa) on *ada2* growth and development. *ada2* did not show any altered response to any of the above tested plant hormone indicating it’s specificity towards auxin signaling. Thirty day old *ada2* mutant plants were dwarfed with curled leaves. Later in development, *ada2* plants produce more lateral shoots and secondary inflorescence indicating lack of apical dominance. By using positional cloning technique, recessive *ada2* mutant was mapped on to a 360 Kb region in chromosome 4. Fine mapping will be continued in order to identify the mutant gene in *ada2* background. Further the characterization of *ada2* mutants in auxin signaling will be done using several biochemical and molecular genetics approach.
Keller, Chrishaun “Sique”

English, Texas State

Digital is the new literacy: Emerging literacies in the digital age

Twenty years ago, a person was considered literate if they could read and write print. Today I teach adult literacy and basic computer skills. I find that the same folks who cannot read beyond a 3rd grade level can text and navigate the Internet. I observed that they recognize icons that allow them on the web, type basic and often misspelled words into a browser (where they will be corrected) and they click into the appropriate site. From there, they manipulate the page through a combination of icons and trial and error, get the video or song they want to see. They rarely use the print literacy skills they have, they used the technology. People are using technology to create language, communities and opportunities with less and less reliance on the printed word.

As the hallmark of literacy for centuries, how does print literacy, and meaning we attribute to it, change when we are finding other successful ways to be literate?

I will analyze research from Stuart Selber, James Paul Gee, James Mangan, and Sherman Young and present an overview of literacies that have developed or have been redefined since the start of the digital age (defined as approximately 1990, when the personal computers and the Internet started to become common in the household and the workplace).

These include:
Critical Literacy: The ability to read text in an active, reflective manner in order to better understand power, inequality, and injustice. This has been redefined to address the understanding needed to determine the quality of the information found on the web.

Icon Literacy: The use of pictures and representations in place of the printed word. From the icons on the computer to IKEA construction manuals, pictorial "texts" have lessened our reliance on the printed word.

I will also present techniques that educators have use to address these issues, including personal pedagogies and co-learning. As the definition of literacy changes, we must be willing to adjust and change with it.
Communities in southwestern Pennsylvania have seen persistent population loss and a declining tax base for more than sixty years. The population of Cambria County, Pennsylvania has declined from a total population of 213,499 in 1940 to only 145,985 in 2007.

In spite of persistent decline and fiscal hardship, it is unusual for communities to seek the legal remedy of consolidation. This composition looks at the communities of East Conemaugh, Daisytown, and Franklin Boroughs and East Taylor and Conemaugh Townships in southwestern Cambria County. These five municipalities spent approximately two years researching the subject and utilized public meeting and still were unable to reach a common ground. It will attempt to answer one query: what prevents Pennsylvania communities from taking what would seem to be the rational step of consolidation and to choose, instead, decline and fiscal stress?
Groundwater marketing is not a new concept in Texas; however, as this precious natural resource becomes increasingly compromised by drought conditions, population growth, and land development, several private entities have taken action in a large-scale manner to secure ownership of groundwater rights for marketing purposes, most notably Clayton Williams Energy, Inc., and T. Boone Pickens’ Mesa Water, Inc. This raises timely questions as to the adequacy of current laws and regulatory controls to effectively manage the resource such that privateers do not profit at the expense of public interests. The incongruence between the Texas Supreme Court’s adherence to the out-dated and problematic rule of capture and the State’s legislatively mandated groundwater management scheme creates unnecessary confusion regularly resulting in litigation. Beyond this, the State’s regulatory scheme has faced challenges as to the constitutionality of some of its allocation policies as applied by the various groundwater conservation districts. Gross disparities in how these policies are applied exist between more sophisticated districts and less sophisticated ones. This paper seeks to demonstrate how these inconsistencies in the law governing groundwater and the lack of adequate funding make Texas vulnerable to exploitation by private interests seeking to profit through groundwater marketing, and to advocate certain remedies with respect to the creation of scientific and administrative protocols for the greater consistency and efficacy of the state’s regulatory scheme.
The Rationale for Expanding the Pipar Pheasant Reserve of Nepal: A perspective from surveys of the Galliformes population in Santel

Pipar, despite comprising an area of only 43 km², provides habitat to five of six Nepal’s Himalayan pheasant species, and hence is considered as a flagship area for pheasant conservation in Nepal. The health of forest and pheasants of this area has been monitored since 1979, pheasant population is assessed by the spring call-count method and trail monitoring, the findings suggest a stable pheasant population in Pipar. However growing human pressures and increased tourism potential represent a risk to the pheasant populations of the area. An assessment of Galliformes in Santel – an adjoining forest area on the west-facing slope of the valley has expanded the scope and is extending conservation activities to this area. During a recent survey of pheasants and a species of Galliformes in 2005 of these areas, the mean number of birds heard calling from each station was $4.33 \pm 0.57$ and $4.88 \pm 0.40$ for satyr tragopan $Tragopan satyra$, $2.67 \pm 0.60$ and $0.65 \pm 0.28$ for koklass pheasant $Pucrasia macrolopha$, and $4.33 \pm 0.45$ and $4.29 \pm 0.56$ for common hill partridge $Arborophila torqueola$ in Pipar and Santel respectively. Healthy population of pheasants in the Santel area and high bird species richness (236 species recorded so far) reflect a pristine bird habitat, and less overall human impact in the area provides an opportunity to consider the Santel area for the extension of management and protection beyond the boundaries of Pipar.
Chelonians are considered the most prolific amniote group, with some species laying up to 1000 eggs per year and nesting more than once during a single nesting season. Turtles have been used to test and developed optimality models predicting the strategy of maternal investment that will maximize maternal fitness within a population. Turtles are also ideal organisms for assessing the relationship of body size/body condition and reproductive fitness. I studied reproductive patterns of two species of emydine freshwater turtles, Texas river cooter (*Pseudemys texana*) and red-eared slider (*Trachemys scripta elegans*) at Spring Lake, Hays County, Texas during the 2009 nesting season, where I followed nesting turtles. After the female was done nesting, I took her measurements (plastron length, carapace length, etc.). Eggs were taken to Texas State University-San Marcos laboratory, where I took the measurements such as egg length, egg width, and egg mass. I used simple linear regression to assess correlations between female body size (plastron length) and reproductive parameters (mean egg mass, mean egg length and width, mean clutch size and mass, and nest distance from water). Pheno...
Amphibian chytrid fungus across the vertical strata of an Amazonian lowland rainforest

The amphibian chytrid fungus, *Batrachochytrium dendrobatidis* (*Bd*), has been implicated as potentially the greatest threat to global amphibian populations and is already responsible for widespread deaths and possible extinction. We tested eighty-six individuals from 31 species of amphibians collected across the vertical strata of a Neotropical lowland rainforest near the Tiputini Biodiversity Station (TBS) - Universidad San Francisco de Quito in the Upper Amazon Basin of eastern Ecuador. Detection for Bd was conducted using a nested PCR protocol. *B. dendrobatidis* was detected on 17 of the 86 individuals (20%), with positive samples collected from each of the vertical strata. Infection was found to be significantly higher in the fossorial/floor and canopy groups, showing 25% and 33% of individuals infected, respectively, than in the shrub/sub-canopy group with only one individual (3%) infected. Thus, *Bd* was non-randomly distributed along the vertical axis, suggesting that microhabitat conditions in the different strata can potentially have an influence in host-pathogen dynamics. To our knowledge this is the first examination of *Bd* infection in amphibians found in the forest canopy and the first record of a symptomatic anuran infected with *Bd* in lowland tropical rainforests of the Upper Amazon Basin.
As humans have evolved, employing technology within the very infrastructure of ourselves, we have made the distinction that technology is in one box and 'man' in another; and while we use technology, we are not one with technology. I would like to examine the notion that this distinction is problematic, drawing upon the argument posited by Donna Haraway that men are in fact cyborgs; and how the distinction between technology and man, and the relationship thereof, can be linked and simplified through a discussion of Plato's work with regard to 'mimesis'. Finally, I propose that to be full-rational beings, we must recognize our cyborg natures, draw upon and realize the freedom we gain from this insight and elimination of the distinction, and celebrate that we are technological beings.
Meadows, Claire  
Modern Languages, Texas State  
The Neurocognitive Model: A New Approach to the Teaching of Spanish as a Second Language  

The proposed study attempts to evaluate the underlying linguistic and cognitive theories in the neurolinguistic model of Computer Aided Language Learning (CALL) currently implemented at Texas State University in San Marcos, Texas. This model is in the experimentation process at the introductory level of Spanish at said institution. It is the first electronic model to incorporate cognitive principles from the neurological perspective and a linguistic reflection of Spanish at the initial level of acquisition.

The study begins with a general vision of the acquisition of a second language with respect to the role of the native language and the process of interlanguage development. This is followed by a comparative study between the division of contents and the sequence of activities in the CALL program and the textbook used for the introductory level, Puntos de Partida, 8th edition. Finally we will take a look at the manner in which the specific case of pronominal verbs is taught both in the CALL program and the textbook.

The study is theoretical, and the data is based on research, observation and personal experience. We expect to see that these underlying theories will support the design of the CALL program and will condemn that of the textbook.
Climatological descriptions of tornadoes associated with Gulf Coast-landfalling hurricanes during the time frame 1950-2005 are provided. Specific climatological descriptions provided are tornado characteristics, temporal distributions, and spatial distributions. Methods of analysis are statistical and spatial mapping. During the examined time frame, 60 hurricanes made landfall along the Gulf Coastline, producing 734 tornadoes, with an average of 9.5 per hurricane. Hurricane-tornadoes rated F0 or F1 by the Fujita Scale, with relatively short path lengths and widths, are most common. Annual hurricane-tornado count had an increasing linear trend. Seasonally, hurricane-tornadoes are most common in August and September. Daily, hurricane-tornadoes are most common during afternoon hours and, with respect to hurricane landfall, they are most common in the first 11 hours post landfall. Spatially, hurricane-tornadoes are not uniformly distributed throughout the Gulf Coast region; however, most do occur in states bordering the Gulf of Mexico, with a large portion located within 200 km of the Gulf Coastline. With respect to hurricane center, tornadoes did not show a preferred distance. They did, however, have preferred locations to the right of hurricane center, relative to the hurricane's directional motion.
Across the globe, as expectations for student achievement rise and student bodies become increasingly diverse, school systems are challenged to recruit and retain principals with the appropriate knowledge, skills, and experience to meet the demanding roles and responsibilities associated with school leadership. The apparent shortage of qualified principals raises the question of whether principal preparation programs are developing the type of school leader needed for the current educational environment. Some scholars have suggested they are not and have called for reform of principal preparation.

This paper begins to address this issue by reporting the results of a survey of novice elementary principals in the state of Texas (USA). The survey, which is part of the International Study of Principal Preparation, reveals the most pressing challenges new principals faced in their first three years on the job and the extent to which the principals felt prepared to meet these challenges. The results have important implications for principal preparation programs in the USA as they respond to criticism. Moreover, because the survey is part of an international study, results are situated within a global context and suggest that there is much to be gained by examining leadership preparation programs worldwide.
As the intersections of differences among students (race, class, gender, and sexuality) become more prevalent in schools of today, school leaders need to know how to better serve all students in an adequate and equitable manner (Capper, 1998; Marshall & Oliva, 2006; McKenzie et al., 2008; Pounder, Reitzug, & Young, 2002; Young & Liable, 2000). In order to facilitate the development of this type of school leader, many faculty members who teach in a principal preparation program have seen the need to integrate issue of social justice into coursework. Although there is no one prescribed curriculum for principal preparation programs to adopt, scholars have proposed a variety of models and approaches to developing social justice leaders (Cambron-McCabe, 2010; Hafner, 2010; McKenzie et al., 2008). For example, Young and Liable (2000) provide a framework for inculcating personal experience and a social justice research agenda within courses. Rusch (2004) argues that the professoriate is a powerful and privileged position that can play a key role in developing leaders for social justice. However, Rusch submits too many professors fear discourse and lack openness to learning about intersections of difference.

As The University Council for Educational Administration (UCEA) turns a focus toward reflecting on innovative practices, it is our desire to network with other scholars and practitioners to bridge theory and practice in the preparation of leaders for social justice. Therefore, our paper highlights the process one principal preparation program utilized to transform itself from a traditional program focused on educational administration to a one that explicitly aims to develop education and community leaders with the knowledge, skills, and disposition to be leaders for social justice.
The Mexican government and international agencies have created economic opportunities, particularly in ecotourism for the Lacandones in Nahá Chiapas, Mexico. The ecotourism projects are promoting the commercial possibilities of the visible Lacandon male identity, which has excluded women and younger people of the community. These commercial possibilities have encouraged them to retain the perceived “traditional” Lacandon fashion that symbolizes knowledge of traditional lore. Without the visible appearance of a “traditional” Lacandon, women and younger people are categorized as unsuitably modern.
If James Joyce’s *Ulysses* can be considered one of the most renowned and at one point controversial books, then it should be said that Sylvia Beach is one of the most renowned bookstore owners who ever lived. For this thesis I will be looking at Sylvia Beach and her influence and contribution to the literary society of the early twentieth century. I will look at her contemporaries, and will discuss the salon as a meeting place.

The reason why Sylvia Beach was so sought out by the literary community and how she made such an impact will also be discussed. I will look at who visited her bookstore, including Ernest Hemingway, Gertrude Stein, Ezra Pound, F. Scott Fitzgerald, André Gide, Paul ValÉry, Katherine Ann Porter, as well as James Joyce, and what they gained from the experience. Though James Joyce will be discussed, as he is a very integral part in Beach’s story, if not the main reason for Beach’s notoriety today, this paper will not be focused on Joyce specifically. Their working relationship as well as friendship will be considered, as well as Beach’s relationship with other writers of the era.

I will also take a look at the women in Beach’s life and will review the impact of their influence on her, including the Beach sisters, their mother, Beach’s assistant, and most important her confidant, Adrienne Monnier. I will also consider Sylvia Beach’s background, upbringing, and education and discuss how this, along with a number of other issues, was not in her favor regarding who she became. She was from a very religious family and had a sexual relationship with a woman throughout her adult life; she missed the majority of her schooling as a child due to illness, indifference, as well as her family’s constant moving. She was an American expatriate trying to open a bookstore in France and had difficulties renting space due to her citizenship and nationality from the very beginning. On top of this, *Ulysses* was banned in many countries, causing problems regarding publication and distribution. Despite her background, an unmarried expatriate in a foreign country, Sylvia Beach led a full life. Her love of France brought her there as an adult, and her love for travel enabled her to learn many languages including Spanish and Italian, and of course, French, which enabled her to speak fluently with the wide array of visitors to her little store. In this paper I intend to prove how her love for books and her respect for their authors allowed her to make such a huge impact on the literary world of the early 1900s despite her lack of a formal education and the lack of her own personal literary contributions.
One of the most intensely debated issues in contemporary international relations has been the theory of democratic peace. Often times, the democratic peace has been presented as an empirical fact. However, there are many errors in this line of thinking. The number of actual democracies in the world is small, and the sample time frame is even smaller. The democratic peace is also an idea that it is usually thought to be an exclusively idealist thought. However, a relatively little researched strand of realist thought, democratic realism, suggests that democracies are more likely to align with each other out of their own national interests, rather than on pure power or threat concerns alone. Other explanations can also account for the so called democratic peace, one of the most prominent being the idea of the capitalist peace. The capitalist peace theory proposes that rather than democratic institutions being responsible for closer ties between western democratic allies, free, open and competitive economic markets interconnect states with one another making it close to impossible for them to go to war for fear of losing out economically. Although these three reasons bring a shred of doubt to the democratic peace theory, they also raise more important questions about the nature of alliances, and more specifically the nature of democratic alliances. By using selected case studies since 1900, this paper seeks to ask the following questions. First, what makes an attractive ally? More importantly, what characterizes a stable alliance? Secondly, why do democracies tend to engage in longer lasting alliances? Third, are democratic alliances characterized by less friction and strain, and if so, why? Finally, what does the future hold for democratic alliances? Will they continue to grow stronger as more and more countries are liberalized both politically and economically, or will the inherent competition of the international system gradually break down long standing democratic alliances? This paper argues that although democratic institutions are an important factor in determining whether or not a state will be a suitable ally, there are many other factors involved that overshadow institutions. Throughout the course of this paper, I will also show that the democratic peace is as much grounded in realist thought as it is in idealist thought. Finally, this paper argues that although physical conflict between democracies is rare now, competing national interests will eventually lead to a physical confrontation between two or more major democracies. Understanding how and why democracies align with one another will be an important aspect for future policy makers to consider when crafting American foreign policy.
Presidential election in local and student newspapers: what are differences of 2008 presidential election news coverage in student and local newspapers?

This study aims to examine the news coverage of the 2008 presidential election in local and student newspapers in Texas and how many news articles devoted to cover the three major candidates: John McCain, Hillary Clinton, and Barack Obama. To analyze the news coverage, this study asks the following research questions: How do local and student newspapers cover 2008 presidential election?; and which newspapers used more words to represent 2008 presidential election between local and student newspapers?

This study uses agenda setting as a theoretical background. Agenda setting theory is useful to explain how news media set agendas for audience members. Thus, by using agenda setting theory, this study look at how local and student newspapers set agendas related to 2008 presidential election for readers.

To collect data, this study selected two student newspapers (The University Star: Texas State University in San Marcos and The Daily Texan: University of Texas at Austin) and three local newspapers (the San Marcos Daily Record, the Austin American-Statesman and San Antonio Express-News). Further, this study selected every Wednesday of March 2008 to collect research data. For this study, March was chosen because two political parties did caucus voting in March 2008.

The findings of this study show that local newspapers represent 2008 presidential elections more often than student newspapers. Moreover, local newspapers used more words to cover 2008 presidential election than student newspapers.

This study does not analyze contents of the 2008 presidential election articles. Additional analysis of contents in newspapers may help to determine how newspaper’s contents can affect audiences.
This paper analyzes Dr. Jeremiah Wright’s 2003 sermon entitled “Confusing God and Government”. Dr. Wright had long been Barack Obama’s pastor, and, in 2008, when sound bites (“God damn America!”) from the sermon exploded into public awareness through the media, many questioned Obama’s patriotism and were disconcerted by his association with a seemingly radical theology. This study examines the original context of the sermon and utilizes mythic analysis to uncover how Dr. Wright deconstructs the myth of Americas as heroic while strengthening the myth of God as heroic in contrast. The analysis presented here contributes to our understanding of rhetoric by showing how cultural myths interact and how a rhetor may pit one myth against another, creating a dissonance that forces the audience to choose one myth over the other.
Pedersen, Dana

Communication Studies, Texas State

Refracting Messages: The Dark and Light of Manipulative Communication

The purpose of this study is to examine manipulation as a "dark side" of interpersonal communication. Artifacts from popular media (magazines, websites, pop music, and newspapers) were collected and analyzed with regard to the cultural messages presented about manipulation. This study pursues the questions: a) How is manipulation conceptualized and talked about in popular media? b) How do media messages about manipulation compare to scholarly research on manipulative communication? c) How is manipulative communication dark? d) How might manipulative communication be adaptive or functional? This research advances our understanding of how popular media messages contribute to a cultural understanding and classification of communicative manipulation.
“Don’t mean nothin’”: A propaganda analysis of selected films from the World War II, Korean War and Vietnam War eras

Does Hollywood affect or reflect America? Is public opinion influenced by images on the silver screen? To address these questions, it is imperative to first examine films through propaganda analysis. By analyzing production and presentation techniques, institutional ideologies, the climate of opinion, from which the films were produced, and box office and critical success, researchers can derive a deeper understanding of films’ appeal and effectiveness as propaganda.

The present study seeks to analyze the production and presentation of war films through propaganda analysis. By employing propaganda analysis techniques using content analysis, the researcher seeks to investigate the institutional procedures that produce war films, along with identifying the techniques used in production of these films, and how such films relate to the social climate of the eras in which they were produced and disseminated, namely World War II, the Korean War and the Vietnam War. I chose to examine the first and last big-budget American productions made during the relative eras of the conflicts in question, to understand America’s changing opinion climate during wartime (and its reflection on the silver screen), I have extended the Korean War and Vietnam War eras in Hollywood to encompass a lag in production of war films based on those conflicts.

When content analysis is used to infer antecedent conditions of communication, as is the case in propaganda analysis, logical operations are employed that resemble those of scientific inquiry (George, 1954). Content analysis deals with examining the latent and manifest components of any media text and not necessarily with the characterization of the communication arrived at by an analyst. It becomes the job, then, of the propaganda analyst to take the next logical step and evaluate the processes of institutional influences and ideological motivations behind the propaganda. By using Jowett and O’Donnell’s (2006) propaganda case study model, I hope to gain some understanding of these processes.

Production occurs in a variety of environments. The ultimate environment is physical reality, which is experienced first-hand by only a few. Thus, pseudo-reality (i.e. socially constructed reality) is more important in influencing war film content. The direction of institutional control (production) for war films was primarily determined by an interaction of political and economic considerations (Shain, 1976). It appears these considerations drive the content of such films as well. Instead of examining films solely based on artistic merit, it is important to understand the ideological and motivational intentions of the filmmakers, and their role as propagandists.
Affection is a fundamental human need (Schutz, 1958). For over five decades, communication scholars have investigated the way people communicate affection within interpersonal relationships (Schutz, 1958; Mikkelson & Hesse, 2009). The purpose of this literature review is to explore and synthesize recent findings of affection from communication research. The paper uses findings from previous research to argue that, in terms of behavioral changes over time, increased affectionate communication would most likely improve relational satisfaction between partners in long-term, hetero-sexual romantic relationships as opposed to decreased affectionate communication which would most likely diminish relational satisfaction. For years the divorce rate has consistently lingered around 50%, while 25% of intact married couples report that their relationship is distressing (Gottman, Coan, Carrere, & Swanson, 1998). These discouraging statistics are problematic. Communication research should strive to discover ways in which romantic couples can maintain a favorable level of relational satisfaction. This may be achieved by expanding research on affectionate communication within romantic relationships, identifying behaviors and outcomes of affectionate communication, and providing practical information about affectionate communication that could lead to increased relational satisfaction.
The demand for clean, renewable energy is intensifying given rising fossil fuel prices, concerns for the environment and a focus on decreasing our foreign oil dependency. This paper gives a brief history of biofuels and reviews recent literature on the environmental impacts of cellulosic energy crop production for biofuel. Also, this paper discusses an emerging tool used to provide a “cradle-to-grave” perspective of the environmental impacts of crop biofuel processes. Life-cycle Assessment (LCA) evaluates the inputs and outputs throughout the entire life cycle of a product, application, or process. Recent literature has highlighted the benefits of cradle-to-grave thinking, including benefits for public policy, awareness, and environmental impact evaluation. Since biofuel production is an on-going and emerging renewable resource, LCA could provide the valuable information needed to improve production, solving many problems along the way.

The U.S. Congress, Office of Technology Assessment identified various environmental policy tools. These tools are designed to help in one or more of the three general phases of the policy cycle—formulation, implementation and evaluation. Single and multi-source tools can directly limit pollution. Examples include integrated permitting, trackable emissions, technology specifications, and product bans and limitations. Knowledge of the range of policy options and their development and applications will aid policy makers. There should be clear justifications, and a thorough understanding of the options, when choosing and developing the details of these policy tools. Standards for Life Cycle Assessment vary and many organizations and public agencies are currently formulating better ways for governments as well as private industries to standardize LCA methodologies.

Finally, this paper will discuss an example of an on-going Life Cycle Inventory project at the University of Tennessee involving switchgrass fuel pellets. A brief discussion of methods taken to attain an inventory of switchgrass fuel pellets will be discussed. A case will then be made that by using this type of life cycle information, a broader perspective concerning decision-making at several levels, especially policy, can be attained.
The legacy of the 1979 revolution in Iran has been the introduction of a unique theocratic regime, the Islamic Republic of Iran (IRI), based on Khomeini’s (1979) theory of Islamic government. Following this theory, the new regime adopted a constitution that set out to enforce the primacy of *Shari’a* over civil/common law and the absolute leadership of a Shiite jurist over popular sovereignty. In early 1980, Imam Khomeini, founder and the very first Supreme Leader of the IRI, ordered the Cultural Revolution and established the Supreme Council of the Cultural Revolution (SCCR), an independent policy-making organization, with the responsibility of Islamizing academia and society in Iran.

The SCCR has experienced its power in four major areas: (a) “the country’s public culture,” (b) the cultural and social affairs of women,” (c) “the Islamization of universities and educational centers,” and (d) the “art-related issues” (Satellite Councils, n.d.). The Islamization of higher education has had its focus on (a) purging universities of secular elements and ideas, (b) encouraging women to adhere to their traditional role as mothers and the care givers of their families, (c) instituting the spirit of Shiite Islam and its principles in academia and society, and (4) educating students who are loyal to the IRI so that they are equipped with scientific knowledge.

This study used a critical perspective to examine the complex and evolving conditions that affected women’s higher education in Iran.

The study focused on the interactions between Shiite religion and politics and their influence on women’s higher education and social life. It, also, examined the role that women students have played as regards such influence. The study revealed that Iranian women, who have been the subject of much discriminations, have worked hard to overcome Iranian men in higher education, and will eventually be the ones to bring about social and political change and the rule of law in Iran.
Robertson, Polly J.
Political Science, Texas State

Case Scenario for Legal Memorandum

Mr. and Mrs. Smith’s two children were removed from their home while they were both at work and the children were being cared for by the babysitter.

The children are Bobby age 7 and Melinda Sue age 9. The babysitter, Sara, has been with the Smith’s for approximately a year, she came with references from 3 other families she has babysat for in the past.

The Department of Family and Protective Services removed the children because of an anonymous call they had gotten on their hotline alleging that the children were being neglected, physically abused, and drugs were being used in the home.

The TDFPS had no search warrant, were accompanied by two police officers, and came when they knew the parents would be at work and the children would be home with the babysitter.

The TDFPS’ hotline had received the anonymous call on April 7th 2009, but did not come to the home to investigate until April 13th 2009. They did not contact the Smith’s, their neighbors, teachers, or anyone who knew the Smith family before coming to the home.

The reason they removed the children was because of a bruise on Melinda Sue’s right arm and a cut on Bobby’s left leg. When they came into the home they saw several medication bottles on the kitchen counter with the name of Bonnie Brown. The medications appeared to be for someone with a mental illness. The names of the medications were Abilify, Lexapro, and Trazadone.

The Smiths have come to the office seeking help in getting their children home and their family back to its normal state. The TDFPS are now filing a court case in the district court for termination of the Smiths parental rights.
Sarangkar, Santosh

Computer Science, Texas State

Effective Search Heuristics for Automatic Performance Tuning on High-end Microprocessors

The landscape of computer architecture has witnessed dramatic changes over the last few decades. New architectures have emerged at a dizzying speed, with greater computing capabilities that have often exceeded our expectations. However, the rapid rate of architectural innovations has also been a source of major concern for the high-performance computing community. Each new architecture has brought with it new features that have added to its complexity. As a result, achieving a high fraction of peak performance for scientific application has become increasingly difficult. Because traditional compiler techniques rely on static information for optimizing program performance, they are rarely effective in exploiting the underlying hardware features on today’s complex architectures. To address this issue, recent research efforts have proposed methods of auto-tuning, where the best sequence of optimizations is chosen by repeated execution of the program on the target platform and performing a search for the best sequence based on dynamic feedback. Although auto-tuning systems have achieved some success, significant challenges need to be overcome for making this strategy a viable alternative to traditional compilation techniques. In particular, a key challenge is to manage the large and complex search spaces of alternate code variants, which can easily go up to millions of points even for small programs.

This research aims to tackle the search space problem by developing pruning heuristics and architecture-sensitive search algorithms that enable efficient exploration of the search space. The novelty of our approach is in utilizing feedback at a very fine granularity. We measure a variety of performance metrics including cache misses at multiple levels, clock cycle count, total number of instructions, and TLB misses. This enhanced feedback is incorporated in search heuristics to both cut down the size of the search space and quickly pinpoint performance bottlenecks in large programs. Having detailed knowledge of the running environment helps search algorithms discover good values more quickly, reducing overall tuning time. Preliminary experiments on a set of kernels suggest that our approach can be effective in reducing search space dimensionality without a corresponding sacrifice in performance. In some cases, our strategy is able to reduce overall tuning time by as much as 40%.
Especially with the ongoing revitalization of Maya culture, it has become evident that indigenous religious beliefs still predominate in many Maya communities. Recent investigations in the community of San José Chacayá, Guatemala, identified the sacred sites presently utilized by local Maya religious practitioners. These altars were mapped and their significance discussed with a local spiritual leader. While site distribution reflects a directional patterning common in other Maya communities, additional relationships among the altars were also revealed. Many are clustered around an archaeological site, and local residents associate these altars with the antiguos, or ancients. Rituals performed at them are often linked to the "knowledge" of the ancients. However, the specific attributes of those altar sites being utilized also seem to be linked to present subsistence strategies in the community. The interaction between contemporary factors linked to economic changes and the continuity exhibited in the utilization of prehistoric sites may hold a clue as to the means by which contemporary Maya sacred geography is defined.
Smith, Rhonda Adams  
Sociology, Texas State  

Experiences of First-Generation Immigrants as First-Generation College Students

Forty years ago, first-generation college students were largely white second-generation students with white European ethnic background (Merritt, 2008). Today, however, the demographic characteristics of first-generation college students have become more ethnically diverse and include the status of first-generation immigrants. The purpose of this study is to gain an in-depth understanding of the experiences of the first-generation college students who are also first-generation immigrants. I conducted four interviews with first-generation immigrant students in September of 2009. The participants attend a university located in the Southwest. Access to respondents was gained through Student Support Services, a department that assists First-Generation College students on the campus of the university and the Department of Multicultural Student Affairs. The focus of the study was to find out: (1) How and why did the students come to be college students in the United States? (2) What are the unique challenges that immigrant students experience because of probable language and culture barriers? (3) What types of familial support, student support, financial support, and university level support has the first generation immigrant student received?

The sample was a non-random convenience sample; the participants represented an age range from 19 to 47, and included 3 females and 1 male with varied socioeconomic statuses. Each participant identified with a Hispanic ethnic identity and participants have achieved different levels of educational achievement, ranging from obtaining two Master’s degrees to being first year students. Interviews lasted approximately one hour to two hours long. The interview contained questions regarding background, family history, the immigration process, education experiences, and the college experience. Examples of the interview questions are, “Do you feel the university has meet your needs as a first-generation student,” “Does your family support your education either financially or emotionally, or why did your parents immigrate”, and “Do you feel you have ever been the target of discrimination?”

This study may contribute to the body of literature on first-generation college students. The results of the interviews indicate that lack of social capital and the challenge faced by their parents’ limited English proficiency were the major obstacles faced by these students once they arrived in the United States and upon entering the new educational system. This is interesting because the students never indicated their own lack of English proficiency. An emerging theme in the responses of all four interviewees was the need to make a “good life” for themselves as well as their families and the need to prove they belong to the country they now call home. Respondents suggested that universities offer bilingual parent orientations in order to maintain higher retention rates and graduation rates of these foreign-born students. Most respondents thought it important to create an atmosphere of inclusion in order to facilitate a higher level of parent involvement for this group of students.
Ecological surveys are a snapshot in time, providing biological inventories and important documentation about ecological communities. These data may be used to estimate population sizes and demographics as well as community parameters such as abundance, species richness and diversity. The results of such surveys assist land managers and agency personnel formulate conservation protocols and serve as important tools in assessing both impacts of conservation efforts and temporal changes in community parameters. Herpetofauna are particularly important because they are easily monitored, locally abundant, and have been used as indicator taxa of ecosystem diversity and health.

From January 2008 to June 2009, reptiles and amphibians of Palmetto State Park and the Ottine Wetlands were surveyed to produce a current herpetofaunal inventory and produce estimates of relative abundance, evenness and diversity. We were able to compare the data to the results of a survey performed in the late 1950s by Gerald Raun, Ph.D to determine if the composition of this community has changed through time or in relation to land use practices (agriculture vs. preserve/outdoor recreation). Five standard herpetological survey methods were used equally among sites to survey amphibians and reptiles. A total of 862 animals representing 38 species (9 amphibians, 29 reptiles) were captured or observed. Time constrained counts (46.2%), nocturnal road surveys (30.9%), and drift fence arrays (10.1%) produced the highest amount of observations. Direct comparisons suggest noteworthy changes in the relative abundance within the snake assemblage between 1958 and 2008 despite little observed change in estimates of diversity and evenness. These data suggest that community composition of the herpetofauna has changed over the past 50 years resulting in a loss of amphibian richness (loss of five species) and changes to the composition and relative abundance of species within the reptile assemblage. Furthermore, a greater richness and abundance of species are observed at the wetlands contained within boundaries of Palmetto State Park, compared to adjacent privately owned wetlands of Ottine. We suggest that these changes are a result of changes in ground water availability through time (droughts and increased anthropomorphic use) and the geophysical attributes of the wetlands. Assemblage compositions between sites are consistent with differences in land use practice.
By conducting this research I will attempt to uncover whether the portrayal of graphic violence and the use of fear tactics as utilized by new media news outlets (such as cnn.com via the internet) have effected adolescent-teens perceptions and attitudes leading to truly measurable aggressive/altered behavior. Contrarily, I will also examine whether this bombardment of graphic imagery and sensational reporting has led to over-saturation and thus nurtures a desensitizing effect upon viewers?

The purpose of this research will be to specifically identify whether the “perception” exists that new media news outlets utilize fear tactics such as graphic imagery or sensational headlines and stories to attract and entertain (possibly manipulate) their audience members?

There are many existing factors that I believe contribute to a distorted view of this topic and are not being scrutinized closely enough or are being applied to generally (home-life, mental health, capacity to interpret reality). With a myriad of viewpoints and opinions being expressed from a plethora of sources ranging from research and media scholars to everyday media consumers, this hotly debated topic has lead to distinctly divergent paths in communication research.
Iris nelsonii is a purported homoploid hybrid species between the three widespread members of the Louisiana Iris species complex. We followed segregation of 120 codominant markers in an F2 population between Iris nelsonii and an ecologically divergent progenitor, I. hexagona. Many loci in this cross experienced transmission ratio distortion that do not correspond to regions of transmission ratio distortion in a map created between the other two species of this complex. Furthermore, numerous regions of heterozygote deficiency and possible rearrangements were revealed when these markers were used to create a genetic linkage map. This map will be used to detect genomic regions associated with postzygotic isolation as well as those regions associated with variation in characteristics of the pollinator syndromes of these species.
Thomas, Christina
Sociology, Texas State
An Assessment of College Aspirations among African American Children in Secondary Education

This study investigated how African American students in 10th grade develop their college aspirations. This study compares African American and white students using data from the 2002 Educational Longitudinal Study. Bivariate and multivariate regressions analyses were conducted to examine the relationship between race/ethnicity and college aspirations. The results suggest that students with a black parent are more likely than students with a white parent to want to graduate from college or obtain an advanced degree. The results also suggest that African American students experience more teacher put down than white students. The results indicate that lack of home resources such as a computer or books negatively effects students’ college aspirations. African American students are less likely than white students to have access to a home computer or books.
The spread of urban and suburban habitats into what were rural and undeveloped lands has left urban green spaces as refuges for wildlife populations in otherwise inhospitable environments. As human populations grow, so does the use of these green spaces for recreational activities. This study examined the effects of human recreational activities within green spaces on bird populations in Sunset Valley, Texas, an urban/suburban habitat southwest of Austin, Texas. Thirty fixed-radius point count stations were placed on walking trails throughout the city. Each point was visited five times during each of four seasons. I recorded birds seen or heard at the point count station, their distance from the center of the point, the number of recreationists passing through the point count site, and decibel levels at the point. Vegetation information was taken at each point before and after leaf drop using a vegetation profile board and a densiometer. I used a principal component analysis (PCA) to describe habitat characteristics at each site and a canonical correspondence analysis (CCA) to assess relationships between bird species, habitat, season, area of the study site, and recreational activities. I also conducted univariate tests to determine the relationship between urban bird guilds and different habitat and anthropogenic variables. Urban adapted birds were positively associated with CCA axis I, indicating an association with higher decibel levels and less vegetation cover, whereas urban intolerant birds were negatively associated with CCA axis I. Urban tolerant birds showed no strong association with either CCA axis. Univariate tests also showed a significant ($p < 0.05$) increase in urban adapted birds in areas with high decibel levels above 60 dB whereas urban tolerant and urban intolerant birds decreased significantly with rising decibel levels. The CCA indicated no major influence of urban bird guilds by recreational activities, and univariate tests indicate only urban adapted birds were significantly affected by the presence of recreationists. My results indicate that vegetational characteristics are the primary factor influencing bird populations in urban/suburban habitats, followed by the mean maximum decibel level at each point. This suggests that bird species that are already stressed by urban/suburban environments can be excluded from areas where noise levels are too high even if appropriate habitat is available.
Purpose: The purpose of this study is to examine the types of community participation in later life. The study focuses on older women and their community participation activities after the age of sixty, including organizational membership, volunteering, voting and place of worship involvement.

Design and Methods: This study is a qualitative study of approximately twenty-two women over the age of sixty. Interview questions explore various areas of community participation including voting, community, school and faith-based organizations and local government. This study examines the following broad research questions: (1) What types of community participation activities do these older women tend to perform in later life? (2) What types of community participation activities do these older women tend not to perform in later life? Theories incorporated include activity theory and continuity theory. This study fills a gap within current literature regarding community participation and healthy aging from a qualitative perspective.

Rationale: As the older adult population in the United States continues to increase, age-related studies offer rich data that are useful in gaining a better understanding of a growing segment of the population. Considering this, an exploration of the types of activities older women perform provides insight to the intersection between these older women and their lived experiences with community participation. After attending this session, participants will become acquainted with a variety of community participation activities linked to women in later life.
Tucker, Justin

English, Texas State

Examining Imperialistic Rhetoric

This paper examines imperialistic rhetoric, particularly in terms of how one country attempts to assert itself over another country. I examine three countries: Colonialist Spain, Ancient Greece as shown through Isocrates, and Empire England as seen through the Romantic and Victorian literary movements. These imperialist countries sought to justify their conquests through rhetoric and I show where that rhetoric came from and how it works in imperialistic ways. This imperialistic rhetoric is then applied to current events and countries.

Rhetoric can be used in a similar manner to martial arts: we can use rhetoric defensively and offensively. As global intellectuals, we should better understand the imperialistic rhetoric those countries used those for both offensive and defensive purposes. In having imperialistic rhetoric displayed like this, we can see and examine what this particular rhetoric really looks like and what ideas are basis for imperialistic rhetoric.

In this particular paper, I look at the contemporary texts as each country’s imperialistic conquests were happening. Some, like Isocrates, are the cause of the imperialist actions that follow. Others in Spain are witnessing the imperialistic actions firsthand and are using rhetoric to justify their gains. In England, we have the benefit writings by those who set up the imperialistic ideas (the Romantics), and then the writings of people who witness the events happening (the Victorians). I also look at current scholars who analyze imperialist writers and arrive at their own conclusions about imperialism to gain clarity and insight into the ideas and ideals behind the writings.

I analyze and search for what Laurence Kitzan calls *Humanity’s Burden*. This *burden* is defined as one culture seeing “evils in the world” and feeling “it was their duty to do something about it”. I want to take this *Humanity’s Burden* and apply it to the different cultures and work to see where the common threads of this *burden* exist.

I analyze these texts to find where this *burden* is used to condemn those being conquered and their culture as “evil” and examine how each imperialistic country felt they needed “to do something about it”. I examine how each imperialistic country used rhetoric offensively to justify their conquering actions and then defensively to respond to criticism. This criticism comes from those conquered and also from those in the imperialistic country itself. In analyzing this *burden*, I show how it exists still today and is used in similar actions and political statements.

Audience members will have insights into the how and why imperialistic rhetoric happened and existed in these three countries. The reader will also gain insight into this rhetoric and how it applies to our current global culture and further be able to make judgments about contemporary imperialistic rhetoric.
Tura, Gudeta Seifu
Journalism and Communication, University of Aarhus; Aarhus, Denmark

Self-regulation of private presses in Ethiopia: Prospects and Challenges

The research has attempted to study the practices of self-regulation among the Ethiopian private presses with a view to apprehend the prospects and challenges of institutionalizing vibrant and functional self-regulatory bodies in the press industry.

In Ethiopia the press has been liberalized since the downfall of the socialist military government in 1991. The FDRE constitution and the subsequent press proclamation has provided recognition to the freedom of expression and the freedom of the press which in turn contributed to the proliferation of the private press. However, the private as well as the government press were not functioning in line with recognized journalistic standards. There was a north-south dichotomy in the press. Some of the private presses were serving as a mouthpiece for certain opposition political parties while others were highly affiliated with the incumbent government. Still others were established to promote parochial ethnic politics. The government press was also serving as a conduit to the government propaganda. Consequently, journalistic ethics and self-regulation were highly disregarded.

The researcher has employed a qualitative methodology to conduct the research. In-depth interviews are conducted with journalists, editor-in-chiefs, owners and representatives of media professional associations to apprehend the prospects and challenges of institutionalizing self-regulatory frameworks in the country’s media industry. Beside this, the researcher has exhaustively explored pertinent Ethiopian media legislations in a bid to examine their conduciveness for exercising self-regulation.

The finding of the research demonstrates that the practice of media self-regulation in Ethiopia is in its nascent stage. There are some media houses that have developed in-house codes of conduct as ethical guidelines. However, only in very few media houses are the codes treated as an institutional ethical standard. In most cases self-regulation predicates upon the will, consent and cooperation of the press industry. However, in Ethiopia the private/government dichotomy and the chasm among the private presses make institutionalizing self-regulatory bodies very remote. There is also a substantial polarization among and within journalists’ associations in political lines. Some of the journalists’ associations are highly politically charged. Despite these, however, there are some promising movements among some private presses and the civil society to establish an independent self-regulatory body.
Characterization of *pic7*, an auxin resistant mutant of *Arabidopsis thaliana*

Auxins are a group of phytohormones extensively involved in a multitude of vital plant developmental processes. At the molecular level, auxin regulates gene expression through the degradation of a group of transcriptional repressors known as Aux/IAAs. These repressor proteins interact with SCF^{TIR1/AFB} complexes in the presence of auxin and are ubiquitinated and degraded through the ubiquitin-proteasome pathway. To identify new genes involved in plant auxin response, we previously screened a population of EMS mutagenized *A. thaliana* seeds and identified a large number of mutants that are resistant to picloram, an auxinic herbicide. One of the mutants, *pic7*, showed numerous developmental and growth defects. The cotyledons are overdeveloped but produces stunted roots with minimal root hairs. At maturity, its shoot growth far exceeds that of the wild-type (Col-0). Mutant plants are less fertile and are often unable to self-pollinate on their own. Initial studies have shown that a considerable fraction of *pic7* pollen are malformed and the pollen sac is poorly developed. *pic7* is resistant to the auxins 2,4-D, IAA, picloram but is hypersensitive to IBA. To date, the *pic7* mutation has been mapped to a narrow genetic window on Chromosome 1 that includes a group of 46 putative genes. Work is in progress to identify and clone the *pic7* gene.
When species hybridize: The case of two Texas snakes (*Elaphe bairdi* and *Elaphe obsoleta*) using evidence inferred from Microsatellite and Mitochondrial DNA data

We compared the mitochondrial DNA sequences as well as nuclear microsatellite allelic diversity of two species of rat snakes (*E. bairdi* and *E. obsoleta*) within the state of Texas. Cytochrome-\(b\) fragments as well as six nuclear microsatellite loci were analyzed for 23 *E. bairdi* and 33 *E. obsoleta*. Overall little intraspecific sequence divergence was found within *E. obsoleta* (0.1-0.5%) and only slightly higher divergence was found within *E. bairdi* (0.1-2.16%). Evidence for population structure was tested based on geographic and the recovered mtDNA haplotype clades. Significant structuring could be identified from the mitochondrial data, yet microsatellite analyses were not supportive of those units within the species. Admixture was detected using Bayesian assignment probabilities of the genotypes and incongruence between nuclear and mitochondrial species assignments was recorded. These results match suspect phenotypes in several cases. However, while there is admixing, gene flow between these two species remains strictly constrained to the zone of sympatry in a bimodal fashion and we conclude the evolutionary lineages remain intact and independently evolving.
The emergence of Multi-core systems has dramatically increased the performance potential of computer systems. However, the promise of Multi-core cannot be realized through hardware alone. Much of the responsibility of exploiting the available parallelism and utilizing the underlying hardware resources lies with the programmer and software tools like the compiler. A key feature of Multi-core platforms that makes obtaining a high fraction of peak performance is the shared cache. Because cache memory is shared at different levels, performance issues related to parallelism and locality become interrelated. As a result, traditional optimization techniques are not working well, and many scientific applications like dense matrix computations perform well below the peak. To address this problem, we need a deeper understanding of performance issues related to locality and parallelism. This research is an experimental study of the matrix-matrix multiplication kernel on Multi-core architectures. In this study, we evaluate the effects of loop-blocking optimization on cache performance. Using loop-blocking, blocks of different sizes are applied to both sequential and parallel versions of the matrix multiplication kernel. We use hardware performance counters to measure a variety of memory performance metrics to identify performance bottlenecks in the matrix multiplication kernel. Experimental results show that the performance of the parallel version varies significantly with block size, whereas the sequential version shows less variation throughout. These results indicate that the parallel version is more sensitive to the block size than the sequential version, and hence choosing a correct block size plays a very important role in enhancing performance of dense matrix computations on current Multi-core architectures.
This study focuses on the indigenous creative productions of basket weaving, pottery, and mural painting among Luo women of Western Kenya. It will: define creative expertise according to the trainers and learners involved in the afore-mentioned forms of expression, document the indigenous education methods used with the forms through a feminist postcolonial qualitative study design; develop a model for use of identified methods to develop women's capacities, and collect the perceptions of study participants of the value of their productions. Enhancing women's creative productions will both nurture a sustainable development plan and encourage women to be initiators of solutions to social problems. This will help in the global effort at poverty reduction among women who, studies show, make up the majority of the most poor in the world. The objectives of this study will be to find out; what makes for a successful trainer and expert in the three creative forms, the methods used to train these women, and the perceptions of both the trainers and trainees about the value of their creative ventures. The study will contribute to the literature about indigenous methods of teaching and learning and help policy developers with valuable information about designing development projects for use with women who have low levels of Western education.
Population density and probability of detection: Implications for population estimation for the Golden-cheeked Warbler *Dendroica chrysoparia*

Occupy and binomial mixture models (OMs) use geo-referenced presence-absence and count data in an attempt to provide reliable estimates of population states by accounting for the ever-present and vexing problem of imperfect detection. OMs are not structured to allow for variation in detectability between sampling sites and, therefore, these models assume that the probability of detection at a sampling station within and between populations is independent of population density. However, density dependent behaviors, like singing, likely create variation in the probability of detection within and between populations. Herein I propose to test the null hypothesis that probability of detection and density are uncorrelated in populations of the golden-cheeked warbler (GCWA), *Dendroica chrysoparia*. Known variation in singing behavior in this and related species suggests that a positive correlation between singing rate/type and conspecific density is highly likely. This has been and will be approached using two methods over two breeding seasons. Automated digital recorders (ARU) were used in 2009 to record the average singing behavior of six populations of GCWAs. Each ARU recorded five-minute intervals from sunrise to sunset for two days at 14 listening stations within six 1km² study sites (~1,960 hours in total) in the Balcones Canyonlands Preserve (BCP) in Austin, TX. Average song rate and the proportion of song types sung will be assessed for each study site. These data will be compared to density estimates calculated by colleagues at Texas State University using OMs as well as density estimates from BCP staff biologists using the spot-mapping technique. Preliminary analysis indicates that rejection of my null hypothesis is likely. The source of this potential correlation at the population level is likely due to territorial interactions between males within those populations. To address this, in 2010 the singing behavior of focal males will be recorded within 100ac plots within the same BCP sites recorded in 2009. Randomly selected, colored banded males will be recorded for 20-minutes per visit with a shotgun microphone and digital recorder. Due to BCP biologist spot-mapping efforts I will be able to compare the song rate and type of each focal male to the number of neighboring territories as well as the total number of territories within each site. Given preliminary analysis at the population level rejection of the null at the individual level seems highly likely as well.
Whitesides, Clayton J.
Geography, Texas State

Gopher esker soil temperature and possible impact on conifer establishment in subalpine meadows

Alpine treeline has long been used as a proxy for global change. Past treeline research primarily attributed conifer invasion of subalpine meadows and alpine tundra to climate variability. Despite the strong control of macro-scale climate on treeline location, many micro-scale factors have been shown to influence treeline pattern and process. Micro-scale sites disturbed by animal activity in mountains regions have experienced altered soil characteristics that directly impacted vegetation. Animal disturbance in subalpine meadows or alpine tundra may allow conifers to establish in areas that were previously uninhabitable. Northern pocket gophers (Thomomys talpoides) in Glacier National Park have created a network of mounds and eskers in subalpine meadows that may contain dissimilar soil compaction and temperature characteristics than the surrounding matrix. Variations in surface and subsurface temperature associated with gopher eskers may facilitate seedling establishment on gopher disturbed areas.

Gopher activity was evaluated in a subalpine meadow undergoing conifer invasion in Glacier National Park. Soil temperature of gopher eskers was recorded at surface and subsurface (depth of 10 cm) levels. Soil compaction was also measured with a soil penetrometer in association with temperature readings. ANOVA and t-test analysis identified that the interaction between disturbed/undisturbed areas and surface/subsurface locations had a significant effect (p<.001) on soil temperature. Penetrometer data revealed that soil compaction of gopher eskers was more homogenous (sd. esker = .131, sd. undisturbed = .257) and significantly less compact (p=.042) than undisturbed locations. A weak inverse relationship (R= -.234) existed between soil compaction and temperature suggesting that less compacted areas produced higher surface temperatures. Elevated soil temperatures and reduced compaction due to gopher activity may induce preferential seedling establishment in alpine and subalpine environments.