In May of 2011, students from St. Edwards University, Texas A&M University, Texas A&M University-Kingsville, and Stephen F. Austin State University traveled over 6000 miles through the western U.S. to learn about employment opportunities in natural resources, and land management issues on public lands. We did this with the help of many collaborators and partners. The students helped arrange this slide presentation, and provided some excerpts from their journals.

Three E’s: Education, Experience, and Employment
2011 Field Trip

Sponsored by
the US Department of Agriculture
National Institute for Food and Agriculture
Fire Management Officer, Mary Kay Hicks, Texas Forest Service, taught us about fire ecology, soil erosion, and natural vegetation recovery in the recent burn at the state park. Although the park was closed to the public, they kindly took us “behind the scenes” to learn.

“Portion of the wildfire damage to the park. Currently closed to the public because of the high wildfire risk.” Michelle Gutierrez
Wichita Mountains National Wildlife Refuge in Oklahoma

Ralph Godfrey, Fire Management Officer with the US Fish & Wildlife Service, taught us about job opportunities with the federal government, cattle management, fire ecology, and wildlife management on the refuge.
National Weather Center, Norman, Oklahoma

Dr. Mark Shafer spent quality time showing us the “real world” of storm chasers and weather forecasters. We happened to be at the center the day before the Joplin tornados, so we were able to see the staff in action. We learned about weather modeling, supercells, and monitoring climate change.
Flint Hills, Kansas

What a treat to get to see some of the last remnants of the Native Tallgrass Prairies with Dr. Mort Kothmann, long-time range specialist and professor. “Dr. K” taught us about range ecology and management, the importance of topsoil, and wise cattle management. We also learned to identify the “Big 3” grasses.
Konza Tallgrass Prairie Preserve, Kansas

The Konza is a Long Term Ecological Research area where researchers come to learn about burning regimes, grazing ecology of large ungulates such as bison, and ecological relationships between insects, grass, and wildlife. Dr. Angela Laws of Kansas State University gave us a tour and showed us examples of the research.
Agricultural Research Service – Wind Erosion Research Unit, Manhattan, Kansas

We were excited to learn about wind erosion, good soil conservation practices in farming and ranching, and the science of dirt with Dr. John Tatarko. Some of us were reading “The Worst Hard Time” about the Dust Bowl, and this brought it to life. We saw a lot of evidence of soil erosion on the trip, and the need for good soil managers.
"Pine bark beetle damage in the black hills national forest - Recent increases in population of the pine bark beetle could be due to global warming, or land management methods." Erick Ramirez

"The natural balance looks to have been disturbed. Once the pine forest is thinned by the beetles, the seed bank will repopulate and hopefully the forest will be healthy without a large pine beetle population." Jonathan Stevens
Soil erosion control, stream ecology, pine beetle ecology, and Native American history were easy topics to witness in the Black Hills.
It was time to say goodbye to Dr. Kothmann, who had a full plate back at Texas A&M University. Also, his role was to teach us about range management, and we were now leaving the Great Plains and moving into the Rocky Mountains.

“I liked how honest Dr. Kothmann was; he didn’t hesitate to give us guidance on how we could improve academically and ethically.” Erick Ramirez

“Dr. Kothmann referred to the five tools mentioned by Aldo Leopold in his 1933 textbook titled Game Management, ”The central thesis of game management is this: game can be restored by the creative use of the same tools which have heretofore destroyed it – ax, plow, cow, fire, and gun...; Management is their purposeful and continuing alignment.”” Ingrid Karklin
We were now heading into the great Rocky Mountains. We wondered what Lewis and Clark must have felt when they saw the huge and ominous peaks on the horizon, wondering how they would make it through to the Pacific coast. We saw Pompey’s Pillar from a distance, which is where William Clark engraved his signature on their journey.
Flooding Ecology, Montana

We were diverted from our visit with our friends at the Crow Nation in Crow Agency, Montana, because of record flooding. The entire state seemed to be under water, so we learned about the effects of flooding on river ecology and soil erosion. We also lived in our raincoats.
Dr. Mark Petersen talked to us about cattle and range research, and microbial soil ecology after fires. We had a lot of questions for Dr. Petersen, and wished that we could have stayed longer to learn about cattle management on the range. Thanks to Kim Haile for arranging this interesting visit when our trip was diverted. We’ll be sure to stop here next year!
The Center lies along the Great Missouri River, so we were able to get a real “feel” for what Lewis and Clark saw when they reached the Great Falls. We learned about Sacagawea, their brave guide, and exploring the unknown, mapping, and our nation’s natural history. Here, we began using our GIS equipped Trimble Units to map our trip using current mapping technology with the help of Elvis Takow, our GIS expert from Texas A&M University’s Knowledge Engineering Laboratory.
“Our time with Woody Kipp was very eye opening. He could have told us endless stories about the Blackfeet. We heard first-hand about how the Blackfeet used to live on the land and how they live today and have been affected by European settlement. He told us some history about the Blackfeet and how the college is educating their people with history and information for today.” Simon Chavez

“Everyday has been very rewarding, but this experience has been my favorite. Learning about their culture and being able to experience it first-hand by a beautiful waterfall named after one of their warriors... yeah, not many get to experience that!!” Michelle Gutierrez
Researcher Kate Kendall and her team are using the collection of bear hair and the analysis of DNA to identify individuals and provide critical information for the management of the species and their landscapes. One of our own students, Mike Satcher, ended up returning to intern for the project.
Human-bear conflict specialist, Tim Manley, talked about the importance of educating the public on how to coexist with bears. Garbage is the main culprit for getting bears into trouble, but habitat fragmentation is the most critical threat to bears. Ryan Alter also talked about technology and how it helps field biologists get their work done.
For many of us, this was our first time to see and explore SNOW! Montana received record snowfall this year, but this didn’t stop the group from hiking over 3 miles, seeing moose and bear tracks, and hearing the “quiet” sound of snow. We almost reached Red Rocks Lake when we found a deer carcass on the trail, and Dr. Crider made us turn back – she wasn’t ready to use us for bear bait...yet. We reported the carcass to Park officials, and they thought we were crazy for hiking on the snow-packed trail – we like that kind of reputation!
We were all smiles over the beauty of Glacier National Park.
Our travels took us through all kinds of weather, and we saw our first “wildlife overpass” on the Salish-Kootnai reservation. We picnicked every day in new places – here, we were at a park in St. Ignatius on the reservation, and played frisbee with some kids after lunch.
Yellowstone National Park provided us with wonderful learning opportunities in geology, wildlife ecology, fire and forest ecology, and mapping skills. The park offers so much diversity in terms of “things to see,” especially during record snowfall for this time of the year.
Our eyes were never bored in Yellowstone National Park.
“A survey of the vegetation in the Norris Geyser Basin was conducted using Trimble handheld units. Lodgepole Pine was the only tree species observed in the Norris Geyser Basin. Lodgepole pines have serotinous cones that open only when exposed to extreme heat, such as fire or hot steam from geysers, and this trait has been beneficial for the success of the species in the Norris Geyser Basin.” Kristina Schenck
“Monument of Geyser Basin. Earth on fire. Schedule of geyser determined by accumulation of water and how long it gets heated up. Geysers erupt in cycles because of a constant accumulation of slow-moving water to fill a cavity. Note that the rock inside geyser cavities is geyserite.” Ingrid Karklins
We were given the opportunity to go “behind the scenes” at this facility where they keep non-releasable grizzly bears and wolves, and have them “earn their keep” educating the public about the causes of human-wildlife conflicts. They also conduct “garbage can” testing to see if “bear proof” containers are really grizzly proof!
Mr. Barry Hicks is a veteran smoke jumper and forest fire management officer from the US Forest Service. He told us about the Smokejumper Center, whose mission is to reach out to youth and help them reconnect with the great outdoors, and understand the relevance and behavior of fire. We met at one of the historic US Forest Service cabins.
At this point in the trip, we had to sadly let Elvis Takow, our GIS technician, return to his responsibilities back at Texas A&M University. Michelle Gutierrez was entering into her summer internship with the US Forest Service in Big Timber, Montana, but we were so glad to have her along for the first part of the trip.
While passing through the Tetons, we watched a young black bear forage alongside the road, and got to witness our first “bear jam.” The Teton Mountains were covered in snow. Here, we are at the “Oxbow,” which has appeared in many famous photographs and paintings because of its beauty and propensity to attract wildlife.
In Jackson, we received a real treat when we were invited to see the National Museum of Wildlife Art by Dr. and Mrs. Rich Sugden, great supporters of this project. The museum was spectacular, and then our hosts took us to dinner at a fabulous restaurant right below the Snow King ski-run. The food was wonderful, and Jackson was great!
We traveled south to Logan, Utah, passing the beautiful Bear Lake, whose blue color is due to the suspended limestone in the water. In Logan, one of our students, Chris Garza met with a leading USDA US Forest Service expert on the pine beetle. Chris will be entering into graduate school at Texas A&M University in the fall to study the ecology of pine beetles and their effect on forests, while working with the US Forest Service.
At Canyonlands, we met Jordan Davis, who is a range conservationist with the Bureau of Land Management. We learned about managing rangelands on public lands for multiple use, and the accompanying challenges. We hope to provide the BLM with several interns from our program.
We then explored Arches National Park – the beauty was almost too much to absorb in one day.
After being locked in vans for 5000 miles, Drs. Quinn and Crider agreed that we needed to burn some energy on a huge sand dune along the highway. We carried the sand (unintentionally) all the way back to Texas.
Veteran range manager Bob Alexander taught us about soil erosion and restoration in a very erosive environment. On the right, you can see where engineers tried to cut a small diversion around a bridge about 40 years ago, which eventually grew exponentially and became a huge erosion problem for the water reservoirs below. We are learning about the importance of soil conservation, and now several of us in the group want to become soil and restoration ecologists.
We learned about internships and employment opportunities with US Forest Service program directors, and listened to the daily fire briefing where they planned logistics for the huge Wallow and Horseshoe Fires in Arizona. We then went to the MOB’s unit, which serves as the mobilization hub for the firefighters, tankers, and equipment, and learned about the large scale coordination that it requires to fight fires.

US Forest Service and the Southwest Coordinating Center for Fire, Albuquerque, New Mexico
We learned about more internship and job opportunities with Lincoln Forest staff members. They taught us about wildlife and range management issues on public forests, and fire planning in an urban interface. We also surveyed a Mexican Spotted Owl nest and watched the owl come down and eat a mouse within just feet of our eyes! We spent the evening watching bats at Carlsbad Caverns National Park.

US Forest Service, Ruidoso, New Mexico
Finally, after 3 weeks, and 6000 miles, and unpredictable accommodations (just kidding!), we headed home. However, we were not home free! The field trip was just the beginning of a long-term program with the USDA to help us find our career path. Some of us will continue with summer internships, and even go on to attend graduate school with projects tied to agency needs. Hopefully, we’ll end up working for many of the agencies that we visited on our trip, and become the people that are needed to manage this country’s vast natural resources.
Thanks to Our Many Supporters!

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About the Students

We would like to thank this year’s students for an exceptional trip. Your behavior was beyond professional and polite, and considering the length and travel distances, we didn’t hear one complaint. We hope that many of you do end up managing our resources; we cannot think of anyone better in whom to entrust our future. Thank you for an extraordinary experience ~ Drs. Quinn and Crider