

Desert Tracks

"Helping conserve the natural resources of the Chihuahuan Desert Borderlands through research, education, & outreach."



RESEARCH IN ACTION:

Understanding Diets of Pronghorn in the Trans-Pecos

Justin French, Ryan O'Shaughnessy, Shawn Gray (TPWD), and Louis A. Harveson

One of the prerequisites of managing wildlife is knowing what they eat. Understanding seasonal diets of a species will ultimately guide habitat management decisions. To aid our large-scale restoration effort for pronghorn, we initiated a study to assess the seasonal diets of pronghorn in the Trans-Pecos. We assessed diets of pronghorn from the Marfa Plateau and the Marathon Basin in 2013 by collecting 20 fresh fecal samples/season/site. Fecal samples were cleansed in the lab and plant fragments were identified via microscope.

Pronghorn diets for all seasons were overwhelmingly dominated by forbs (broad-leaved, herbaceous plants). Forbs accounted for 80-90% of pronghorn diet across all seasons and study sites. Seasonal use of browse and grasses was low and ranged from 2-12% and 1-13%, respectively. During our study, we identified a total of 51 different plants consumed by pronghorn; however, only 14 of those species were considered "targeted forage". All targeted forage consisted of forbs. Based on forage availability in the landscape, the most preferred plants were daleas (*Dalea* spp.), shrubby milkwort (*Polygala lindeheimeri*), and Texas filaree (*Erodium texanum*).

Grasses and shrubs occur at much higher frequency than forbs in habitats across west Texas. Additionally, most of the forbs in desert grasslands are annual (as opposed to perennial), meaning their presence on the



Although inhabitants of desert grasslands, the seasonal diets of pronghorns are almost exclusively dominated by forbs (80-90%).

landscape is temporary and highly dependent upon rainfall. Despite the limited availability of forbs, pronghorn have found a way to specialize in forb consumption.

Pronghorn have long been considered concentrate selectors, in that they select for forage with high concentrations of nutrients (e.g., forbs). Through thousands of years, the anatomy and physiology of pronghorn have evolved to specialize in forb consumption. Their small mouth, agile tongue, shape and size of their teeth, and even their gut morphology are well adapted for biting, chewing, and digesting small forbs. Even their foraging and grouping behavior provides them with effective means of searching and locating forbs.

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The flower and fruit of Apache plume make it one of the most recognizable and attractive plants in the Chihuahuan Desert Borderlands.

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From the Director—Committed to Conservation

Please know that the BRI is committed to our mission of conservation, education, and outreach. This issue of *Desert Tracks* highlights that commitment.

Our research team continues to conduct ground-breaking research focused on furthering our knowledge and management of natural resources of the region. We've highlighted a portion of our pronghorn restoration project (see page 1) and have included a list of new projects ranging from desert quail to brush encroachment to resource competition and predation.

One of the guiding forces for the Institute has been the strength and depth of our Advisory Board. The Board has provided tremendous guidance and resources for programs,

and we are pleased to welcome James King to that group of esteemed advisors.

As educators, we are also renewing our commitment to educating the next generation of wildlife biologists and ranch managers. In 2014, we launched a new "Mentorship Program" with the Houston Livestock Show and Rodeo (see page 3) that has already produced excellent results in generating quality graduates.

Lastly, we have enhanced our landowner services and outreach with the launch of our Ranch Mapping Program (see page 4).

Thank you for your commitment to conservation and the Borderlands Research Institute!

—Louis A. Harveson

James King Joins Borderlands Advisory Board

The Borderlands Research Institute is excited to announce the addition of James King to our Advisory Board. Mr. King worked for 19 years as part of the statewide senior management team and head of real estate with The Nature Conservancy in Texas, before leaving in 2008 to start his own statewide conservation real estate business, King Land & Water LLC, with his wife Tammy.

During his tenure with The Nature Conservancy, James successfully led efforts to protect over 500,000 acres of Texas' most important conservation lands and waters as Nature Conservancy preserves, and through the establishment of conservation easements, helped to protect an additional 300,000 acres.

Today James is active in many major conservation projects across Texas and serves on the board of the Trans-Pecos Water Trust and on the Executive Committee of the McDonald Observatory Board of Visitors.

Mr. King's experience in conservation and rangeland ecology, and his knowledge of Texas wildlife and rangeland issues, are sure to make him an asset to our organization.



James King recently joined the BRI Advisory Board. King is originally from south Texas, but now makes his home in Fort Davis.

New Research Projects Launched for BRI in 2015-16

The Borderlands Research Institute has been fortunate to receive research funding from a variety of organizations, including private foundations and state and federal government programs. By seeking support from organizations with varying interests and initiatives, we have been able to expand the breadth of our research, and ask interesting, innovative research questions.

BRI research scientists are currently managing over 20 different multi-year projects. Below is a list of some of our new projects and the respective supporting organizations and sponsors:

- **Resource partitioning between desert bighorn sheep and aoudad** - Various chapters of Safari Club International
- **Using quail as indicators of habitat health** - United States Fish and Wildlife Service

- **Effects of forest thinning on Montezuma quail habitat use** - National Wild Turkey Federation and Bureau of Land Management
- **Using seed bank dynamics to inform moist-soil management decisions in arid wetland systems** - United States Fish and Wildlife Service
- **Assessing predator-prey relationships in west Texas** - West Texas Chapter of Safari Club International
- **Effects of SENDERO® on mesquite and scaled quail habitat use** - Texas Parks and Wildlife Department

Stay tuned to future editions of *Desert Tracks* and the BRI website (<http://bri.sulross.edu>) for updates on these and other research projects.

BRI Holds First Undergraduate Research Symposium

On August 14, 2015, the Borderlands Research Institute held its first annual Undergraduate Research Symposium. Seven undergraduate students displayed posters and presented their research findings to a crowd of supporters including Sul Ross students, professors, and staff, as well as family members, and members of the community.

The symposium marked the culmination of the first year of BRI's Undergraduate Research Program. This program, established through a generous matching grant provided by the Houston Livestock Show and Rodeo (HLSR), provides undergraduate students an

opportunity to work as a technician under the mentorship of a BRI graduate student. While working with their graduate student mentor, each student completed their own independent research project. Research subjects ranged from plants to pronghorn, along with deer, mountain lions, skunks and more.

In September, HLSR generously renewed the matching grant for another year, and 6 new students have already begun work on their research projects, to be presented at the 2016 Symposium. To view biographies of the program participants and learn about their research projects, visit: bri.sulross.edu/mentorship.html.



SAVE THE DATE!

**AUGUST 4-5, 2016
TRANS-PECOS
WILDLIFE CONFERENCE**

This summer, we will once again be co-hosting the Trans-Pecos Wildlife Conference. We look forward to seeing you there!

Over 90% of our funding comes through private donations!

Please consider making a tax-deductible donation to the Borderlands Research Institute.



This year's undergraduate researchers pose at the symposium with the program's director, Thomas Janke, and BRI Director, Dr. Louis Harveson.



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New Ranch Mapping Program for Landowners

Looking to learn more about your property or ranch? One of the first steps to learning more is to have a high quality map that depicts the natural resources and infrastructure of your property.

Understanding the need for sound resource management plans, the BRI recently launched the BRI Ranch Mapping Program. The new program will provide valuable experience and training to natural resource management students, while also offering landowners the opportunity to obtain accurate, up-to-date maps of their property.

The BRI mapping team will use remote sensing and on-the-ground verification to accurately map all aspects of your ranch including roads, fences, and gates; buildings and infrastructure; water troughs, springs, and

waterways; and the multitude of habitats and soils on your property.

In return for providing this learning opportunity, landowners will receive map products, including map booklets, wall maps, and digital map files. Our goal is to not only provide products which are beautiful to look at, but that will also be useful in planning and management of the property.

For more information, visit our website at bri.sulross.edu/ranchmapping.html



The BRI Ranch Mapping Program provides mapping services and custom map products for landowners.