

Desert Tracks

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



RESEARCH IN ACTION:

Using VLSA to Assess Vegetation in Desert Grasslands

Megan Boatright, Bonnie J. Warnock, and Corey Moffet (Noble Foundation)

Vegetation assessment is an important tool in range and wildlife management. Advancing technologies have allowed many new methods of remote sensing to be developed and explored. Very Large Scale Aerial (VLSA) imagery has only been lightly examined as a remote sensing technique in rangelands. In order to determine the value and reliability of VLSA imagery, we conducted an experiment to examine the congruity of this technique with that of ground-based field methods for determining various cover types in short-grass rangelands.



Outfitted with digital cameras, laptops, and hard-drives, this ultralight aircraft will fly at low altitudes to capture imagery of desert grassland habitats using the VLSA technique.

We conducted this study on 2 sites within Presidio County, Texas which encompassed 5 different ecological sites. We systematically collected photos using a light-weight fixed-wing aircraft mounted with 2 digital cameras having different focal lengths. We then conducted field sampling using a laser-point sampling method on random transects



BRI graduate student, Megan Boatright measures vegetation to compare to imagery gathered from recent aerial photography using the VLSA technique.

that corresponded precisely with aerially photographs. We compared the ratios of grasses, forbs, shrubs/succulents, inorganic materials, and bare ground between the aerial photographs and ground data.

The highest amount of accuracy in VLSA was for shrub/succulent cover. We also found similarity between the 2 methods for determination of grass cover and forb cover. Inorganic material was found to be the most variable cover class.

Overall, this study showed VLSA imagery to be a comparable tool for determining cover types and composition in short-grass rangelands. However, this method is not yet perfected and will require some modification and development before it can be considered as a tool for the average rangeland management specialist.

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By ear-tagging mule deer bucks at an early age, the Borderlands Research Institute (BRI) is able to monitor antler development as it relates to age, nutrition, and genetics on different ranches. This is just one of the new projects launched by the BRI in 2014.

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From the Director—“Accomplishments of BRI in 2014...”

At the Borderlands Research Institute, we are constantly trying to improve our ability to meet our conservation mission through research, education, and outreach. Below are some of our highlights from 2014:

♦ **Research**—Initiated 10 new research projects ranging from managing wetlands for bird diversity to evaluating potential conflicts between mountain lions and humans at Big Bend NP. The BRI manages 25-30 research projects at any given time.

♦ **Education**—Employed >40 graduate and undergraduate students to help conduct field research and provide second-to-none educational opportunities.

♦ **Outreach**—Published and distributed 3 issues of our newsletter *Desert Tracks*, BRI's 2013-14 *Annual Report*, and 2 research reports to over 5,000 constituents.

♦ **Restoration**—Continued to partner with TPWD in restoring desert big game to the Trans-Pecos. In 2014, we translocated 100 pronghorn and 61 bighorns bringing our total over the past 5 years up to 425 pronghorn and 154 bighorns.

♦ **Management**—Assisted conservation partners in developing guzzlers for wildlife, modifying fences for pronghorn, conducting prescribed fires, and enhancing habitats.

♦ **Conferences**—Hosted 3 conferences at SRSU: *26th Biennial Pronghorn Workshop*, *Texas Section for the Society of Range Management*, and *Texas Section of the Society for Ecological Restoration*.

♦ **Social Media**—Launched new BRI website (bri.sulross.edu), Facebook page, and YouTube channel.

♦ **Development**—Established 2 new endowments for the BRI: *John B. Poindexter Endowed Fund for Desert Quail Research* and the *West Texas Chapter of Safari Club International Endowed Scholarship*.

On behalf of the students, staff, and faculty of the Borderlands Research Institute, we thank you for making conservation a priority!

Please let us know how we can help you with your conservation goals in 2015.

—Louis A. Harveson

Warnock Presented with Ecological Restoration Award

Dr. Bonnie Warnock, Research Scientist with the Borderlands Research Institute recently received the Excellence in Ecological Restoration Award from the Texas and Southwestern Chapters of the Society for Ecological Restoration.

The award recognizes an individual who has shown exemplary dedication to the conser-

vation, management, and restoration of the natural resource base in the Southwest.

Warnock has contributed significantly to rangeland restoration techniques for the Trans-Pecos over the past decade including extensive studies conducted on the O2 and Mimm's ranches.

Donor Spotlight: Houston Livestock Show and Rodeo

The Houston Livestock Show and Rodeo (HLSR) recently awarded the Borderlands Research Institute (BRI) a \$50,000 grant to support undergraduate education.

The grant will help formalize the Undergraduate Mentorship Program at the BRI and allow undergraduates the opportunity to gain valuable practical experience in natural resource management by serving as field and lab technicians. Through the program,

undergraduate students will be engaged in research and management activities that are typically conducted by staff and graduate students. Undergraduate students will be actively involved in project design, data collection and analysis, and reporting.

By engaging undergraduate students earlier in their career with research activities, we hope to enhance their real-world experiences and the quality of their education.



With the assistance of HLSR, the Borderlands Research Institute will formalize and administer a new undergraduate mentorship program. The new program will allow students many more opportunities to develop into professional wildlife biologists and conservationists.

Pronghorn Research Report Available Online

The Borderlands Research Institute (BRI) recently posted *A Research Report on the Restoration and Management of Pronghorn in Trans-Pecos, Texas* to our website.

Since 2010, the BRI has been partnering with Texas Parks and Wildlife Department, private landowners, and other conservation organizations to restore pronghorn to the Trans-Pecos region of Texas.

To date, we have translocated over 400 pronghorn to the Trans-Pecos!

The report highlights some of the more recent efforts featuring articles on survival, fence modifications, habitat assessment, movements, and fawn production. The latest Pronghorn Research Report can be found at bri.sulross.edu/pubs/reports/pronghorn_research_report_2014.pdf.

Over 90% of our funding comes through private donations!

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

Hughes Honored as Texas Outdoorsman of the Year

Borderlands Research Institute Advisory Board member, Dan Allen Hughes, Jr., was recently awarded the 2014 Texas Outdoorsman of the Year.

Awardees are selected based on their skills as an outdoorsman and their dedication to conservation and/or hunting heritage.

Hughes is an accomplished fisherman, hunter, and conservationist and has been a member of the BRI Advisory Board since its inception in 2007.

Hughes has also been a leader in conservation and is currently serving as Chairman of the Texas Parks and Wildlife Commission. Hughes was first appointed to the Commission in 2009 by Governor Rick Perry.

Since 2006, all proceeds generated from the Texas Outdoorsman of the Year Award have been dedicated to the Texas Wildlife Association Foundation (TWAF). TWAF promotes educational, research, and informational activities in support of wildlife, habitat, and their management.



Dan Allen Hughes, Jr., (L) recently received the 2014 Texas Outdoorsman of the Year award from 2013 awardee, Randy Rehmann (R). For more information about the Texas Wildlife Association Foundation go to www.twafoundation.org.



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Undergraduate Monitors Bear Activity at Big Bend

The Borderlands Research Institute continues its effort to better understand the ecology of recolonizing black bear populations. Working with BRI Research Scientist, Dr. Patricia Moody Harveson and the Ronald E. McNair Program at SRSU, undergraduate student Cameron Goebel recently conducted a study on black bear distribution and behavior.

Focusing on the Chisos Mountains of Big Bend National Park, the researchers used a series of remote cameras to document the presence, distribution, and composition of the black bear population.

The study is also assessing denning behavior by bears, specifically the timing of den entrance and emergence, as well as the

climatic factors influencing this behavior. This year, the first black bear emergence in the Chisos was photographed on March 30, 2014.



SRSU undergraduate student, Cameron Goebel, recently monitored black bear activity using remote cameras in the Chisos Mountains in Big Bend National Park to better understand their movements and behavior.