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A LEGACY LANDSCAPE FOR BOBWHITE CONSERVATION

by Leonard A. Brennan

This past July the National Bobwhite Conservation Initiative (NBCI) designated South Texas as a Legacy Landscape of National Significance for Northern Bobwhite Conservation. This is the first such designation of its kind. South Texas represents one of the Last Great Places—and thus habitat—that supports populations of wild quail.

The criteria for being designated a Legacy Landscape by NBCI are not trivial. These criteria state that a region must have (1) large areas of contiguous habitat that support wild quail, (2) a long term—multiple decades—tradition of purposefully implementing or maintaining land use practices that support quail habitat conservation, and (3) landowners, hunters, leasees, and other stakeholders that have demonstrated strong support for quail hunting, management and/or quail research (both financially as well as providing access to land for study) over multiple decades.

Habitat

With approximately 10 million acres of habitat that support wild bobwhites, there is nowhere in the United States that has such habitat for quail on such a grand scale. The livestock ranching community of South Texas has some unique cultural aspects that have had a profound influence on quail and wildlife conservation in this region. Because property ownerships relate back to large Spanish Land Grants, ranch sizes were large (from 100,000 to over 800,000 acres), and many of these historic large ranches remain intact today. The fee-lease hunting system has been an important element responsible for maintaining the habitat that is the backbone of the quail hunting industry that exists in South Texas today.

Editor's Note: Dr. Leonard Brennan is the *C.C. "Charlie" Winn Endowed Chair for Quail Research*, Research Scientist at CKWRI, and Professor within the Department of Animal, Rangeland, and Wildlife Sciences at Texas A&M University-Kingsville.

This Issue

By The Numbers

4 pounds of fish per day that can be eaten by a brown pelican (Brown Pelican *Pelecanus occidentalis*, Biologue Series, U.S. Fish and Wildlife Service)

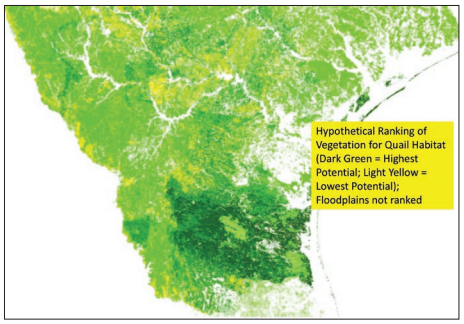
16 minimum age of those hunting waterfowl that need to purchase the federal Migratory Waterfowl Stamp

Land Use that Supports Quail Conservation

In South Texas, many ranchers reduce stocking or temporarily destock pastures to either restore or maintain nesting cover and other habitat components for bobwhites. The native bunchgrasses that quail prefer for nesting are the same grasses that cattle prefer to eat. While cattle and quail can certainly coexist, it is not possible to maximize stocking rates and also maximize quail numbers for hunting. Thus, over the past 15 or so years, some ranches have either completely destocked or have dramatically reduced stocking rates, while others destocked and are putting cattle back on as a tool to manage habitat.

The poor soils and unpredictable rainfall in this semiarid, subtropical region also meant that large tracts of land were required to develop and sustain economically viable cattle herds. After World War II, oil and gas exploration in South Texas resulted in additional sources of income. This allowed many of the large ranches in this region to remain intact and produce economically viable herds of cattle. Today, many landowners in South Texas have opted to use a Wildlife Property Tax Exemption instead of an Agricultural Tax Exemption as part of their wildlife management planning and implementation. The Wildlife Tax Exemption allows flexibility to implement land use practices beneficial for wild quail.

The plaque given by the National Bobwhite Conservation Initiative.



Relative rankings of vegetation as quail habitat in South Texas. Ranking is based on soil productivity criteria presented in Lehmann (1984) *Bobwhites in the Rio Grande Plain of Texas*.

Stakeholder Support

The Richard M. Kleberg, Jr. Center for Quail Research is home to the largest research program in the world that is focused on the habitat and population ecology of wild quails. During 2012, the Quail Research Program at CKWRI received the Group Achievement Award from the National Bobwhite Technical Committee. Background and details of this award can be found at http://bringbackbobwhites.org/newsroom/fact-sheets/doc_view/148-2012-nbtc-proceedings.

Annual donations that support our operating expenditures for quail research are typically in the range of $200,000 to more than $300,000 per year. Endowments that support the Richard M. Kleberg, Jr. Quail Research Center, along with endowed faculty positions and endowed graduate fellowships, total nearly $5 million. During the past decade and a half, we have garnered more than $1 million in grants and contracts for quail research projects from state and federal resource agencies. The Quail Associates Program, which is a network of private donors, contributed more than $680,000 to quail research and related activities, and helped support the publication of more than 50 peer-reviewed publications over a 10-year period.

Quail research has a continuous 8-decade track record in South Texas that spans 4 generations of scientists who have been dedicated to developing a scientific basis for sustaining wild populations of quail. Val Lehmann was the 1st generation quail researcher in South Texas (1940s to 1980s), followed by Fred Guthery (2nd generation; early 1980s to 1997), then 3rd generation with Fidel Hernández (1999–present) and myself (2000–present). We now have a 4th generation quail research scientist, Eric Grahmann. Additionally, we have 7 other part-time faculty, 2 post-doctoral scientists, and 20 graduate students who are all active with quail and quail-related research and initiatives throughout South Texas.

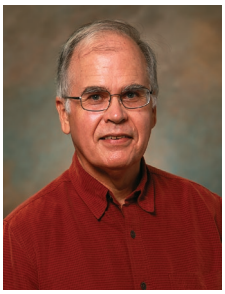
In Summary

South Texas clearly represents one of the Last Great Places with respect to bobwhite habitat and wild populations for hunting. As such, this region certainly deserves recognition as a Legacy Landscape for Northern Bobwhite Conservation. Although South Texas bobwhite population fluctuations are largely driven by annual rainfall, the huge swings in abundance from boom to bust and back to boom would be impossible without vast areas of habitat that have been conserved by people who cherish wild quail. ~

CKWRI NEWS

Lifetime Achievement Award

CKWRI's **Dr. Tim Fulbright** was honored with the *Charles Weddle Award* presented by the Native Plant Society of Texas during the society's annual awards banquet at the Texarkana Convention Center on October 18th. This award is to recognize individuals for their lifetime achievements in the field of Texas native plants.



Dr. Tim Fulbright is the latest recipient of the coveted *Charles Weddle Award* given by the Native Plant Society of Texas.

As many of you know, Tim has been actively engaged in studying the effects of exotic grasses, improving habitats, and characterizing wildlife and habitat interactions. His research has provided insight regarding vegetation communities found in South Texas that has benefitted numerous landowners and wildlife habitat managers interested in improving habitats in the region. For a complete press release, please visit the Native Plant Society of Texas' website at http://npsot.org/wp/story/2014/6590/.

Graduate Students Receive Scholarships

The Houston Safari Club has awarded 10 of their 25 annual scholarships to our graduate students working on wildlife-related projects. That is a 40% success rate for our students in getting this scholarship! Through these scholarships, the Houston Safari Club is providing support needed to help educate students pursuing a career in wildlife and/or range management "who will work to protect hunter's rights and the cause of wildlife conservation for decades to come." We are proud of our scholarship recipients and thank the Houston Safari Club for recognizing them! ~

Consider giving a tax-deductible donation to CKWRI

Ten CKWRI graduate students received scholarships sponsored by the Houston Safari Club at the club's fall banquet on September 3rd in Houston, Texas.

PARENTAGE ANALYSIS OF OCELOTS IN SOUTH TEXAS

by Michael Tewes and Randy DeYoung

Less than 80 ocelots use a few isolated habitats in extreme South Texas, which is the only portion of the ocelot's range that occurs in the United States. About a dozen ocelots have been identified from the Cameron County population and about 35 ocelots from the Willacy County population.

Doctoral student, Jennifer Korn, recently examined parental relatedness of ocelots in these 2 populations. This research also developed a partial pedigree analysis using blood samples of several ocelots captured over the past few decades.

Ocelots have continued to lose genetic diversity over time with both populations becoming more genetically isolated. There was a 10% decrease in genetic diversity in the Cameron population from samples taken in 1999–2005 compared to 2006–2013. Potential inbreeding is a risk in small populations, but seldom has been scientifically documented.

Inbreeding includes reproductive matings between closely related individuals, such as parent-offspring, between siblings, or other closely related relatives. One of the primary concerns is that recessive genes that are innocuous in the hidden or recessive form, become lethal or have injurious effects when they are matched in the dominant form through inbreeding.

Although the Willacy population has historically retained greater genetic diversity, it has not been resistent to inbreeding. Eight inbred events were identified in the Willacy population, and 6 inbred events in the Cameron population. Both

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The endangered ocelot is being extensively studied in South Texas to learn about this species, information which is needed to ensure that this amazing animal is not extirpated from the South Texas landscape.

Editor's Note: Dr. Michael Tewes holds the *Frank Daniel Yturria Endowed Chair for Wild Cat Studies* at CKWRI and is a Regents Professor at Texas A&M University-Kingsville; Dr. Randy DeYoung is a Research Scientist at the CKWRI and Associate Professor within the Department of Animal, Rangeland, and Wildlife Sciences at Texas A&M University-Kingsville.

Did You Know?

White-footed and deer mice are mostly nocturnal species. (White-footed and Deer Mice, R. Timm and W. Howard, Prevention and Control of Wildlife Damage – 1994)

The common carp, grass carp, smallmouth bass, and redbreast sunfish are considered invasive fish species in Texas. (Invasive Species: Texas, Union of Concerned Scientists)

populations had mother-son pairings (Cameron-3 events, Willacy-2 events)—matings normally avoided in carnivores by the dispersal of male offspring from their natal range. Matings between father-daughter also were identified (Cameron-1 event, Willacy-2 events).

These documented inbreeding events provide another strong piece of evidence that the ocelot populations are isolated with limited pathways for dispersal to nearby available habitat. Maximizing habitat connectivity in a fragmented landscape is a basic strategy in wildlife conservation.

Results for the Willacy population found that 7 females produced one young, 4 females produced 2 young, and 1 female produced 3 young or 17% of the identified offspring. In the Cameron population, a female ocelot and a male ocelot produced 17% and 25% of the offspring assigned to that population. Breeding by a few dominant individuals is another factor that can hasten loss of genetic diversity in small populations.

To obtain large samples of ocelots over 3 decades required hard work by dozens of biologists, and represents a major team effort. In addition, long-term support by the Tim and Karen Hixon Foundation and Frank Yturria was critical to this success. The recent initiation of a major ocelot project by the East Wildlife Foundation has provided important new samples and results.

These results are the first to identify the mating structure and parental relatedness of an ocelot population anywhere within its range in the Western Hemisphere. They have critical implications in guiding the recovery of this endangered cat in the United States.

Translocation is an important strategy that can provide temporary assistance. Moving ocelots from the genetically rich pool in northeast Mexico is the preferred option, but translocations between the 2 ocelot populations in Texas can provide some benefits. For example, ocelots sampled on the East El Sauz Ranch had over 25% greater genetic diversity than the Cameron population, and could assist in genetic augmentation of this depleted population.

The ultimate solution requires restoration of several large tracts of dense thornshrub communities. These tracts will be expensive, and should be created where they will be used by ocelots, or within dispersal distance (or 10 miles) of the 2 remaining ocelot populations. ~

What Do They Eat?

Hackberry emperor butterfly caterpillars, as the name implies, forage on hackberry trees. (http://www.butterfliesandmoths.org/species/Asterocampa-celtis)

The American beaver is a herbivore, eating inner bark of willows and cottonwoods and various upland and aquatic grasses, forbs, and sedges. (The Mammals of Texas - Online Edition, Texas Tech University)

Visit our web page at
Http://www.ckwri.tamuk.edu

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