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Zizotes Milkweed (*Asclepias oenetheroides*) © Forrest Smith

MILKWEEDS, MONARCHS, AND RESTORATION

by Forrest Smith

In 2014, the United States Fish and Wildlife Service (USFWS) announced a status review of the monarch butterfly under the Endangered Species Act (ESA). Justification given for the petition to list this species was the decline of wintering monarch colonies in Mexico over the last 2 decades.

Reasons for the decline are hotly debated. Hypotheses include loss of milkweeds in the midwestern United States associated with increased use of glyphosate herbicides, genetically modified (GM) crops, loss of grasslands because of ethanol mandates, destruction of wintering sites in Mexico, as well as climate change and extreme weather events.

Although many have simplistically linked monarch declines to increased use of GM crops and glyphosate—substantial debate exists as to which factor is a clear smoking gun when it comes to the observed decline in migrating monarch populations.

South Texas plays a critical role in the life cycle of monarchs. Fall migrations follow 2 specific corridors in which each is through South Texas: one through the heart of Texas crossing the Rio Grande between Del Rio and Laredo and the other following the Gulf Coast. For these fall migrations, monarchs need overnight roosting sites and flowering native plants for feeding on nectar. The fall migration terminates at a handful of wintering areas in high elevation meadows containing oyamel fir trees in Central Mexico. These winter hideouts of the monarch were unknown to science until the 1970s!

Each spring, monarchs migrate north, but most overwintering adults do not live long enough to reach the primary monarch breeding grounds in the Midwest. Chemical signatures left in the tissues of adult monarchs that reach these areas by summer indicate that a large portion began their lives as caterpillars feeding

This Issue

Editor's Note: Mr. Forrest Smith is the *Dan L Duncan Endowed Director of South Texas Natives and Texas Native Seeds* at the Caesar Kleberg Wildlife Research Institute at Texas A&M University-Kingsville.

By The Numbers

240–258	gestation period in days of a nilgai (The Mammals of Texas, W.B. Davis and D.J. Schmidly, TPWD)
0.5 to 0.75	size in inches of the wingspan of the western pygmy-blue butterfly (http://www.butterfliesandmoths.org)

© Greg Lasley

Monarch butterflies feeding on nectar aid in pollinating a wide range of flowering plants, thereby benefiting both the plants and the butterflies.

on milkweeds in Texas. Thus, an important part of the monarch breeding cycle includes Texas and other Gulf Coast states. Recent evidence also suggests some monarchs reach the Midwest by flying directly from the wintering grounds in Mexico. These are likely the last monarchs produced in the southern United States during the previous fall, perhaps in southern Texas.

Since monarchs reproduce only on milkweeds (Genus *Asclepias*), native Texas milkweeds are considered critical conservation concerns for recovery of this butterfly. In simplest terms, it is thought that by increasing milkweeds and production of the early generations of monarchs in Texas each spring, and the late generations each fall, the monarch population as a whole could be benefited.

South Texas Natives, *Texas Native Seeds*, and the USDA Natural Resources Conservation Service E. "Kika" de la Garza Plant Materials Center are working with the USFWS and other partners to develop native milkweed seed sources for use in habitat restoration projects. We are focusing on the 3 most common, widespread milkweed species used by monarchs in Texas. These are zizotes milkweed, green milkweed, and antelopehorn milkweed. Currently, seeds of these milkweeds are poorly supplied and have exorbitant prices when they are available for purchase.

Monarch conservation has emerged as a complex political and biological issue in the conservation community, with the potential for major impacts on land use. Our work with milkweeds and monarchs will focus on what we know best—making seeds of native plants available at reasonable costs for use on ecologically meaningful scales. While it is unlikely these efforts alone will keep the monarch from a Federal listing in some form, native milkweed seeds being available for restoration projects should be beneficial.

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Monarch caterpillars prefer to forage on milkweed plants.

Intuitively, loss of native plants may play a role in the decline of the monarch. Consequently, restoration of native plant communities that include milkweeds should be a step in the right direction not only for monarchs, but all South Texas wildlife. ~

Consider giving a tax-deductible donation to CKWRI

CKWRI NEWS

Exciting New Endowment!

We are pleased to announce that **Linda** and **Ed Whitacre, Jr.** generously committed to a new $500,000 endowment that will enhance and underpin our Waterfowl Research Program. Our program is led by **Dr. Bart Ballard**, the *C. Berdon and Rolanette Lawrence Endowed Chair in Waterfowl Research*.

Mr. Ed Whitacre, Jr. (right) and Dr. Bart Ballard displaying the results of their duck hunt near Pearsall, Texas in January 2015.

Waterfowl are a very important resource in South Texas and along the Texas coast, where millions of ducks and geese use freshwater ponds and saltwater wetlands. The new endowment will strengthen our ability to conduct cutting-edge waterfowl research.

Janell Kleberg Honored

At the annual spring banquet of the CKWRI Advisory Board and Institute Scientists, **Janell Kleberg**

Janell Kleberg (center) being presented with the Legend of the Scarf, signed by famed artist Kermit Oliver and all of the Institute Scientists. Pictured with Janell are Anne Thurwalker and Dr. Fred Bryant.

was recognized for her incredible vision and dedication to championing the Caesar Kleberg Wildlife Conservation scarf created by Hermes of Paris, France. The original scarf took about 5 years in the making.

With a limited edition of 2,000 scarves, they sold out within a few months. The Institute received a donation of $90,000 from Hermes, which represented a percentage of the sales that Hermes had promised. Thank you so much Janell!

High Impact Article

In 2010, **Forrest Smith**, the *Dan L Duncan Endowed Director of South Texas Natives and Texas Native Seeds*, published an article in the journal **Ecological Restoration** called "*Texas Today: A Sea of the Wrong Grasses*." Now, 4–5 years later, his article has been recognized by this Journal as the single most read article between May 2014 and April 2015 (http://er.uwpress.org/reports/most-read).

Mr. Forrest Smith is the *Dan L Duncan Endowed* Director of South Texas Natives and Texas *Native Seeds* at the CKWRI who is making a major impact on rangeland restoration across the Texas landscape.

Such a widespread distribution of useful information is what we in the science community call "*having a major impact*." It just underscores how valuable Forrest is to the national reputation of the CKWRI. We very much appreciate the **Duncan Family** for endowing this important position. ~

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

THE GREAT WHITE QUAIL: PART 1

by Fred Bryant

When a hunter emailed me a picture of a white quail he harvested in Kleberg County during early February, I was stunned. I had never heard of a white quail before and wondered how rare they might be. Because I have several quail enthusiasts who are Caesar Kleberg Partners, I decided to send the picture to them to see what they thought. To grab their attention, I titled the email "The Great White Quail" after the line in Moby Dick about "The Great White Whale." Their responses were fascinating.

Most thought it was very rare indeed. But later that week, I was hunting scaled quail with Ryan Seiders near Eagle Pass and showed him a picture of the white quail; he said his grandfather killed one almost 30 years ago. Later, he sent me a photo of a white quail mounted under glass. I also received other responses to my email, which I will present as proof that others have harvested white quail too.

James Pettus from Corpus Christi responded to my email saying that they harvested a white quail on their La Rucia Ranch in Brooks County. They too had it mounted under glass, but their ranch house was destroyed by the wildfire of 2008 that burned some 100,000 acres across Jim Hogg, Brooks, and Hidalgo counties.

Gus Canales had a white quail mounted that he killed in the 1970s on his ranch in Jim Wells County. One day he came home to a pile of white feathers in his living room. His daughter Dawn had been raising a pet bobcat that pounced on the stuffed white quail expecting a scrumptious meal—so much for the evidence of a white quail from Jim Wells County!

Tio Kleberg killed a white quail back in the late 1960s on the Laureles Division of King Ranch, in Nueces County. But, that was in his college days when no quail was spared from the bacon-wrapped "poppers" served each evening after a successful hunt.

Photograph of a white colored bobwhite harvested on a ranch in South Texas.

Will Vogt remembered a white quail harvested on their Eshleman-Vogt Ranch in Jim Hogg County about 10 years ago. Gary and Linda Roark sent me a picture of a cream colored quail photographed in 2011 on their ranch 3 miles northwest of Tilden in McMullen County. Linda also saw one in 2012.

My good friend Bubba Wood from Dallas called me on March 13 to tell me a couple of white quail stories. He connected me to Bob Lane, whose cousin Jim Hutcheson had taken a white quail in Bosque County in the early 1990s. They had seen this white quail in a big covey around the first of October. On the last day of the season at dusk, in

Editor's Note: Dr. Fred Bryant is CKWRI's *Leroy G. Denman, Jr. Endowed Director of Wildlife Research.*

Did You Know?

Hookworms from young cats and dogs can be transmitted to humans via filariform larvae found in the contaminated environment.

"Birdwatching is one of America's favorite forms of outdoor recreation." (U.S. Fish & Wildlife Service, Office of Migratory Bird Management, Brochure)

late February 1991, they jumped the covey and harvested the white quail. Jim took it to a taxidermist, but the guy moved to South Dakota and took it with him. Jim never heard from that taxidermist again.

The most interesting story of all was Bubba's experience growing up in Wichita Falls. His dad, Frank, was Commissioner of the Texas Game, Fish and Oyster Commission (now Texas Parks and Wildlife) back in the 1950s. On a farm near Wichita Falls, he raised quail, pheasants, and chukars in flight pens, not to sell, but for the dinner tables of his family, friends, and associates in the oil business as well as for President Eisenhower.

As a 12-year boy in the early 1950s, Bubba's job was to shoot grackles and starlings with his BB gun to keep them from stealing all the grain around the flight pens. One year, he remembers a Game Warden who brought his dad a covey of at least 10 white quail that he had trapped on the Waggoner Ranch, probably in Wilbarger, Baylor, or Knox County. His dad tried every combination of breeding, white to white, normal colored cocks to white hens, white cocks to normal colored hens, but nothing worked. Finally, they were all gone a year or two later.

As an aside, I recently ran across a website from a peafowl farm in Missouri. They raise several mutations of bobwhites including ones they call snow flake, silver, smokey grey, blonde, and even orange. Is it possible that the quail reported herein were remnants of some distant interbreeding with pen-raised quail? Who knows for sure.

This story about white quail will be continued by Dr. Randy DeYoung, our molecular geneticist. He will answer questions about "whiteness" in animals, and these quail in particular. Part 2 of *The Great White Quail* will appear in the fall issue of our newsletter, so be on the lookout. ~

A white colored bobwhite and a "normal" colored hen photographed near Tilden, Texas by Linda Roark.

What Do They Eat?

The diamond-back watersnake feeds on frogs and toads, but will also eat small fish and carrion. (http://www.pwrc.usgs.gov/bioeco/dbwsnake.htm)

The diet of bottlenose dolphins is primarily fish, but this mammal will also eat shrimp and eels. (The Mammals of Texas - Online Edition, W.B. Davis and D.J. Schmidly, Texas Tech University)

TEXAS A&M UNIVERSITY KINGSVILLE

Caesar Kleberg Wildlife Research Institute
700 University Boulevard
MSC 218
Kingsville, Texas 78363-8202

Editor: Alan Fedynich, Ph.D.

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