

SOUTH TEXAS WILDLIFE



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WATER, COOL WATER

by Charles A. DeYoung

*“All day I face the barren waste
without the taste of water Cool water.
Old Dan and I with throats burned dry
and souls that cry for water, Cool water.”
(Sons of The Pioneers, 1947)*

One of the tools that frequently falls through the cracks for deer managers is water and its availability, especially in semiarid regions like South Texas. This is one of those

Editor’s Note: Dr. Charles DeYoung is a research scientist at the Caesar Kleberg Wildlife Research Institute and professor emeritus at Texas A&M University-Kingsville.

“out of sight, out of mind” things that everyone knows is important, but how important? In discussions with deer managers, I have found it hard to convey the importance of free water to deer. Frequently, I get a nod from managers and a statement like “Sure, I know that water is important,” but then nothing happens to improve management.

Wildlife can acquire water from 3 sources: free water (ponds and water troughs), water from food, and metabolic water created as a by-product of metabolizing carbohydrates and fats. Free water is the main source for deer; however, the amount of water in plants they eat

is an important factor. Mule deer and pronghorns can survive without drinking free water. Although, whitetails can in some circumstances go several days without water, they are in general more dependent.

Water requirements for deer are affected by many things, including air temperature, thermal radiation, relative humidity, feed intake, water quality, mineral content of food, protein content of food, body size, and metabolic rate. Also, growth, gestation, and lactation can make it more difficult for an animal to maintain water balance.

There are several “unknowns” regarding water use by deer. There is virtually no research on water quality for deer. All managers can use is livestock standards when testing for water quality. Also lacking is information on competition for water between deer and livestock. In a traditional cattle management setting with windmills perhaps 2 miles apart, deer may have to travel

This Issue

Deer and Water.....	1
By The Numbers.....	2
CKWRI News.....	2
Did You Know?.....	3
Moist-Soil Management.....	3
What Do They Eat?.....	4
Advisory Board.....	4

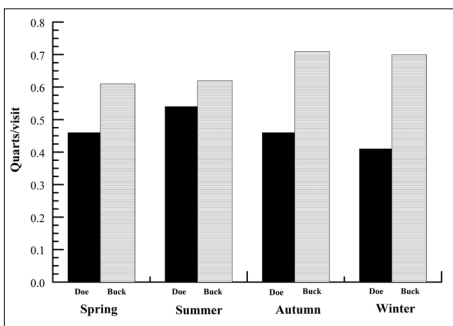
By The Numbers

- 4–5 typical length in inches of adult yellow mud turtles (Guide and Reference to the Crocodylians, Turtles, and Lizards of Eastern and Central North America North of Mexico, R.D. Bartlett and P.P. Bartlett, University Press of Florida)
- 10 approximate life expectancy in years of a nilgai occurring in South Texas (The Mammals of Texas - Online Edition, W.B. Davis and D.J. Schmidly, Texas Tech University)

a good distance to drink. Even more constraining may be the habit of cattle to loaf around water sources when not actively grazing. Deer are reluctant to enter water traps with cattle present in high numbers, thereby restricting access to a few times per day.

The Caesar Kleberg Wildlife Research Institute has conducted 2 research projects on deer and water in recent years. Graduate student J. Hunter Brooks studied water use at concrete troughs on the Comanche and Faith ranches during 2015. At times, rains provided temporary pools of free water, in addition to the troughs. He found that does coming to a trough consumed an average 5.3 quarts of water per month while bucks consumed an average of 6.3 quarts per month. Does visited water 9.3 times per month while bucks averaged 8.8 visits per month.

Dr. David Hewitt conducted a water and pelleted feed study at the Alkek Captive Ungulate Facility located in Kingsville. He used 2 groups of deer to assess the effect of water availability on feed consumption. One group had unrestricted access to drinking water, whereas



Results of water consumed per visit by deer from a study by graduate student J. Hunter Brooks on the Faith and Comanche ranches, Dimmit County, Texas 2015.



Trail camera at a water tank demonstrating the need for available water resources.

the second group had to go down a winding corridor to access a small container of water, which refilled slowly once empty. The amount of pelleted feed consumed by the 2 groups was monitored, and the second group, which had to work harder, consumed less feed.

With ready access to water during drought or periods of extreme heat, deer may not need to adjust their foraging to maintain water balance or prevent dehydration. Availability of water may be especially important when providing supplemental feed. Deer pellets are relatively dry, and deer may eat more if water is available to maintain their water balance. Several anecdotal observations during drought conditions have revealed that deer abandon supplemental feed sites that are not close to water.

So, at what spacing should managers provide water for deer? There is not a clear answer to fit all scenarios except more is better. For most ranches, developing supplemental water is a relatively cheap practice compared to high fencing, supplemental feeding, etc. Providing supplemental water for ranches that have no wells and rely

on pond water may be more difficult, but still feasible. The take home message is that providing frequent sources of water for deer will likely pay off in better deer productivity. Cool water should not be out of sight, out of mind. ~

CKWRI NEWS

CKWRI Adds New Advisory Board Members

We are excited to announce 2 new CKWRI advisory board members, **Mason D. King** and **Tim Leach**. These individuals bring life-long passion for wildlife and habitat conservation and strengthen representation of the advisory board in north and west Texas. According to **Dr. David Hewitt**, CKWRI director, “The CKWRI advisory board is selfless and generous in support of the Institute. Mason and Tim have already shown these traits in their interactions with the Institute, and we are thrilled to have them on the advisory board.”

Mason D. King was born in Dallas, Texas. Mason graduated from St. Mark’s School of Texas and earned a Bachelor’s Degree from Princeton University. He also graduated from the Ranch Management Program at Texas Christian University and earned a MBA from the McCombs School of Business at the University of Texas. Mason is a Principal and Vice President at Luther King Capital Management and serves as an equity analyst and portfolio manager. In addition to



Mason D. King is one of CKWRI’s new advisory board members.

Editor’s Note: Biography material for Mason D. King and Tim Leach was provided by Luther King Capital Management and Concho, respectively.

his roles at the firm, Mason contributes to the management of his family's ranching operations, 4K Land and Cattle Company, which has operations in McCulloch, San Saba, Mason, Hill, Ellis, and Jeff Davis counties. He has held board positions with various companies and organizations, including Texas and Southwestern Cattle Raisers Foundation and Texas Wildlife Association. He is an avid outdoorsman and has an appreciation for active management of natural resources. Mason lives in Dallas and has a son, John Luther "Tres" King III.

Tim Leach has been Chairman and Chief Executive Officer since Concho was formed in 2004 and served as President until 2017. Previously, Tim was Chairman of the Board and Chief Executive Officer of Concho Oil & Gas Corp. from its formation in 2001 until its sale in 2004. From 1997 to 2001, Tim was the Chairman and Chief Executive Officer of Concho Resources, Inc., a predecessor company to Concho. Prior to founding Concho, Tim served in various positions with Parker & Parsley, including Executive Vice President. Tim holds a Bachelor of Science in Petroleum Engineering from Texas A&M University and a Master of Business Administration from the University of Texas of the Permian Basin. He was appointed to the Texas A&M University System Board of Regents by Governor Greg Abbott in 2017. Tim also serves on the Board of Governors for Midland Memorial Foundation, as well as the Board of Directors of the Midland College Foundation and the Scharbauer Foundation. ~



Tim Leach is one of CKWRI's new advisory board members.

WETLAND MANAGEMENT: MANAGING FOR MOIST-SOIL PLANTS

by Jay VonBank and Bart Ballard

Moist-soil management is the act of encouraging the growth of natural, early successional plant species (annual plants), sometimes referred to as "weeds," which produce copious amounts of seeds. This strategy provides abundant, high-energy foods for migrating waterfowl when their energy demands are high. It can produce more energy per acre than many wetland types and has helped mitigate the reduction of waterfowl food on the landscape because of the loss of much of our natural wetland base in North America. The overarching goal is to produce quality foraging habitat for waterfowl throughout the winter period, but moist-soil management also provides benefits to wading birds, shorebirds, and other wetland-associated wildlife.

Management techniques to maximize seed production typically rely on disturbance to set back succession, which may involve burning, mowing, or applying herbicides to reduce growth of perennial plants. Disking soil and/or manipulating water levels are also used. Wetland draining during the growing season is needed to promote germination of annual wetland plants, and keeping the soil moist throughout the

Editor's Note: Mr. Jay VonBank is a Ph.D. student at Texas A&M University-Kingsville; Dr. Bart Ballard is the C. Berdon & Rolanette Lawrence Endowed Chair in Waterfowl Research at the Caesar Kleberg Wildlife Research Institute and professor in the Department of Animal, Rangeland and Wildlife Sciences at Texas A&M University-Kingsville.

growing season helps to promote annual seed-bearing plants. Once the plants mature and produce seeds, the wetlands are then flooded to allow access by waterfowl.

Water management is usually the most critical aspect of moist-soil



© Jay VonBank

Moist-soil wetlands are essential to a variety of wetland-associated wildlife species.

management. The timing, duration, and depth of flooding will directly influence the response from moist-soil plants and ultimately impact a wetland's use by waterfowl. Having control over when one can drain and flood a wetland allows a manager to manipulate these critical aspects and is necessary for effective moist-soil management, particularly in regions where precipitation is limited and unreliable. Since factors such as soil type and climate also influence plant responses, there is no single prescription that works in all locations. An effective wetland manager will take detailed records of the management inputs and the resulting response from wetland plants to guide future management.

Another technique for providing abundant carbohydrates to wintering waterfowl is to flood row crops, such as corn. Although alone, this is an effective management tool, by

Did You Know?

The scaled quail also goes by the names blue quail, blue racer quail, cottontop quail, Mexican quail, scaled partridge, and top-knot quail. (North American Game Birds of Upland and Shoreline, P.A. Johnsgard, University of Nebraska Press)

The endangered black-footed ferret once occurred in Texas; last records were from Dallam County (1953) and Bailey County (1963). (The Mammals of Texas, W.B. Davis and D.J. Schmidly, Texas Parks and Wildlife Press)

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integrating a moist-soil component with flooded agricultural crops, a manager can increase plant diversity and the site's value to waterfowl. Planting crops in rows that are much wider than typically used allows adequate sunlight to penetrate the soil and leaves room for annual plants that commonly occur in crop fields (such as curly dock, pigweed, and barnyard grass) to grow densely between the rows.

Reducing or ceasing use of herbicides within crop fields can promote the growth of annual vegetation in addition to crops, and can also reduce the cost of management. Planting wider rows, cutting the use of herbicides, and increasing competition for nutrients reduces the total crop yield compared to standard row cropping; however, the reduction in crop seeds is compensated by the diversity and abundance of annual plant seeds produced, creating an attractive foraging area for waterfowl throughout the winter period.

Advisory Board

The Advisory Board of the Caesar Kleberg Wildlife Research Institute provides leadership in all aspects of our work. We are indebted to them for their commitment to CKWRI and its mission.

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Gary Kramer, USFWS

Wetlands can provide needed food resources for waterfowl during the winter period.

Additionally, the increased structural diversity of the vegetation supports aquatic invertebrates. Invertebrates are an important source of protein

for waterfowl, particularly later in winter. This strategy provides food early to mid-winter in the form of moist-soil vegetation seeds, carbohydrate-rich crop seeds—important during cold weather spells, and an abundance of invertebrates for late winter into early spring.

Wetland management is often a learning process because of the numerous variables that influence wetland plant responses. Although moist-soil management is a productive way to provide large amounts of energy to wintering waterfowl, it can often provide less diversity than natural wetlands. Understanding the role each wetland plays in the landscape will determine whether active management is needed or not, as many wetlands naturally provide diverse and abundant food. ~

What Do They Eat?

The diet of spotted sandpipers includes aquatic and terrestrial insects, small crustaceans, molluscs, and small fish. *(Handbook of Birds of the World, Vol. 3, del Hoyo et al., Lynx Edicions)*

Great plains rat snakes feed primarily on rodents and other small mammals as well as birds, bird eggs, and lizards. *(Texas Snakes: Identification, Distribution, and Natural History, J.E. Werler and J.R. Dixon, University of Texas Press)*

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

Editor: Alan Fedynich, Ph.D.

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