

# Your Side



## of the fence

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## Managing Genetics in Whitetail Deer

By Mike Sams, Private Lands Senior Biologist



**P**ictures of massive captive-bred deer on the Internet have stoked an ongoing debate over managing genetics within wild populations. The role of genetics in antler development can't be denied as

evidenced by the growing business of deer breeding. However, transferring the results of captive breeding to a free-ranging population of deer is a huge leap.

The theory of managing genetics from the treestand holds that if you remove undesirable antlered animals from the population the antler characteristics of the herd will be improved. This practice, referred to as culling, has been hotly debated among professionals, primarily because few studies have investigated its merits.

Despite its uncertain merit, the theory has spilled over into mainstream hunting as evidenced by the increasing use of the term "Management Buck." So what is a management buck? Specifically, management bucks have been defined a number of ways, be it by antler points, spread or estimated Boone & Crockett Score. Put simply, a management or cull buck is a buck that displays antler characteristics that have been deemed undesirable.

In theory, culling seems to have merit, but in practice not so much. One study on a 9,500-acre ranch in South Texas found

no improvements in antler characteristics following eight years of intensively culling of "undesirable" bucks. Culling in this study involved removal of bucks that as yearlings had less than six antler points or less than nine antler points as an adult. The results of this and companion studies, along with our increasing knowledge of deer biology, seems to detract from the practicality of manipulating antler genetics in a free-ranging white-tailed deer populations.

Assessing genetic potential is one of the biggest obstacles of culling strategies. Few studies have explored a buck's future antler growth potential based off of his first set of antlers. Those studies that have been done show mixed results. Biologists conducted

studies in captive herds, which much like the results of deer breeders, make it difficult to draw a parallel to wild, free-ranging deer. In a captive environment most of the variables that can prevent a wild deer from expressing its full genetic potential are strictly controlled. Fawning dates and nutrition are managed and in the case of breeding facilities, selective mating is arranged between two animals, both with a known history – or in other words, a pedigree. However, the treestand yields no insight into birth date or the huge effects of nutritional history that may be expressed over multiple generations. The treestand provides nothing more than a snap-shot of an animal's physical stature at that time-assigning genetic potential.



*Managing genetics requires a hunter to assign potential with very little supporting evidence. Photo by [wildlifedepartment.com](http://wildlifedepartment.com).*

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Managing Oklahoma's wildlife resources and habitat to provide scientific, educational, aesthetic, economic, and recreational benefits for present and future generations of hunters, anglers, and others who appreciate wildlife.

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*Half of the genetic equation for antler characteristics comes from does and tells us little or nothing about antler potential. Photo by Nels Rodefeld.*

The theory of managing genetics not only relies on being able to assess genetic potential but also that the potential is transferred to the local herd. Certain aspects of white-tailed deer biology make this transition from individual genetics to herd genetics extremely difficult to manage in free-ranging populations.

It was once thought that a single dominant buck was responsible for most of the breeding, thus contributing the most to the genetic makeup of the herd. We have since learned that many bucks are involved in breeding. Synchronized estrous and the time involved in tending a receptive doe (as much as 48 hrs) limits an individual buck's contribution to just a handful of offspring, regardless of what kind of headgear he is sporting. Studies suggest breeding falls to the largest available buck. Even in areas with near equal buck to doe ratios, yearlings and presumable "undesirable" bucks are involved in breeding.

Another complication to the transfer of genetics to the herd is the dispersive nature of bucks. Once the fall breeding season begins, many yearling bucks move considerable distances, establishing new home ranges. In fact, studies suggest that larger, more "desirable" yearlings are the most likely to disperse. These new home-ranges are often several miles from their

birthplace. The resulting effect of this dispersal is loss of genetics off-area as "assumed" desirable buck offspring leave. Research suggests that to hold 50 percent of the buck fawns born on an area requires upwards of 60,000 acres.

Conversely, female offspring tend to set up home ranges adjacent to their mother. Thus the genetic flow of a localized deer herd is heavily weighted toward the maternal contribution. Despite not growing antlers, does are responsible for half of the genetic code for antler growth. This maternal contribution is one that cannot be assigned from the treestand.

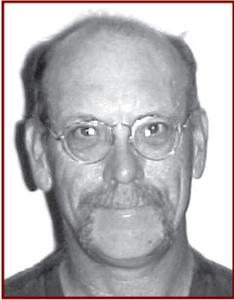
Because of the inherent difficulties in managing genetics, population and habitat management should remain the principal focus of managing free-ranging deer. In fact, dabbling in the management of genetics should never take place without first managing population and habitat.

Applying culling practices to deer herds whose sex ratio and age structure are not managed under quality criteria will likely be detrimental to a goal of producing quality bucks. Likewise, unless deer are given enough time to mature and enough quality forage to eat, no amount of genetic manipulation will ever produce quality deer. ■

# Landowner Spotlight

## A Little Piece of Heaven

By Ian Campbell, Private Lands Technician



**M**anaging habitat in the hills of Adair County can be hard work. However being one of the first women to work as a lineman for the Telephone Company, Kris

Prochaska has never been one to shy away from hard work. Now Kris' work centers around her love of the outdoors.

Kris's love for the outdoors began when she was young. Growing up near Blackwell, Oklahoma, she always enjoyed hunting and fishing with her dad. In her adult years, she had deer leases in Texas and traveled to Colorado deer hunting many times.

Kris was living in Arkansas when she saw an ad in the local newspaper for a beautiful property consisting of 230 acres of rolling hills and mixture of hardwoods and pines. The property borders the US National Forest on the east and US Fish and Wildlife refuge on the southwest. Kris always knew that she wanted to return to Oklahoma to retire on her own little piece of heaven.

Kris fell in love with the place at first sight. She built a house on the property and settled in for the good hunting and fishing life.

After owning the property for about a year, Kris saw another ad in the newspaper about the Wildlife Habitat Incentive Program through the Natural Resource Conservation Service in Adair County. She decided to contact the District Conservationist, Andy Inman about the program. He went over the specifics with her and told her that a technician from the Oklahoma Department of Wildlife Conservation would meet with her soon.



*Kris Prochaska stands next to one of specialty deer feeders on her 230-acre property in Adair County. Photos by Ian Campbell.*

The property was almost entirely closed canopy timber. Because tree canopy limits the amount of sunlight reaching the ground, there was very little ground cover and forage for the desired species. One of the suggested changes was to install firebreaks and conduct a prescribed burn every three years. This would aid in opening the timber canopy.

Since the meeting, Kris has completed her firebreaks, conducted two prescribed burns and built three ponds. Kris has also developed five food plots and a pond without financial aid. She has started seeing more wildlife and has noticed more turkeys since the prescribed burns and has

even seen a black bear or two. Kris is always looking for new plants and techniques to improve her wildlife habitat.

Kris Prochaska has worked hard for what she now has and the Wildlife Department is proud to showcase her as this issue's Landowner Spotlight. ■





## The Alligator Snapping Turtle

By Dale Schmitz, Holdenville Assistant Hatchery Manager



**T**he alligator snapping turtle is a living part of the past. It is the largest freshwater turtle in North America. Although still present in most of its native range of the southeastern

part of the United States, it is listed as endangered by the United States Fish and Wildlife Service (USFWS) in all states where it is found. They were believed to be nearly extinct in Oklahoma until the USFWS released 77 in the Washita River drainage system near the Tishomingo National Wildlife Refuge (NWR) after being confiscated from a commercial breeder in Arkansas. Up until that time the only viable breeding population in Oklahoma was in the Sequoyah NWR. Some of the released turtles have electronic tracking devices attached to them and will be monitored by graduate students from Oklahoma State University.

Alligator snappers inhabit slow moving rivers, streams, and lakes. They are



*Three raised ridges along the back are an easily distinguishable characteristic of the alligator snapping turtle. Photo by Dale Schmitz.*

seldom seen because of this. Many times they are confused with their cousins, the common snapping turtle, which is found in most Oklahoma waters, including farm ponds. They can be distinguished from each other; however, by some basic characteristics. The alligator snapper has three raised ridges running down their back; whereas, the common snapper is mostly smooth. The alligator snapper has a triangular pointed head; while the common snapper is mostly oval in shape. But the most striking difference is the reddish fleshy appendage attached to the underside of its mouth, which is believed to be used as a lure to attract small fish close enough to be caught. The common snapping turtle never has this. The alligator snapping turtle can reach weights of 150 to 200 pounds, with one individual in Missouri weighing in at 319 pounds! The common snapper seldom exceeds weights of 50 to 60 pounds

It is an extreme rarity to find an alligator snapper in a farm pond; while the common snapper is found quite often. They are slow moving and feed mainly on sick or dead fish. Research indicates that they have little impact on healthy fish populations in a farm pond. They can actually do a service to the overall health of the fishery by removing the sick, weak, and dead individuals from the pond. In some cases they can become a nuisance to fisherman and need to be removed. One of the simplest methods is to use jug lines or trot lines to catch them out. Their meat can be eaten and is considered a delicacy by many.

The alligator snapping turtle is declining in its native range because of several factors. One leading factor is habitat loss



Alligator Snapper



Common Snapper

*The triangular shape of an alligator snapping turtle on comparison to common snapping turtle. Photos by Dale Schmitz.*

through commercial and agricultural development. Another is the over collection of adults from the wild for human consumption and the live sale of hatchlings destined for pet trade. Surviving individuals may live several decades; however, they do not reach reproductive maturity until they are 11 to 13 years old and typically lay eight to 52 eggs per clutch once each year. The removal of just a few adult females each year can impact their numbers drastically on a local level.

Habitat change, such as the building of reservoirs, pollution, and over-harvesting have led to about an 80 percent decline in the alligator snapping turtle population in southern Oklahoma. Most of the over-harvesting can be attributed to jug lines and trot lines. Many times this is by accident when fishing for blues and flatheads in the larger rivers and reservoirs. These voracious eaters can create havoc when

they find a “buffet” in the form of a trot line or string of jug lines. Aside from eating the bait or the catch, their powerful jaws can cut lines and break number 4 hooks with ease. Should an alligator snapper be caught, extreme care should be taken when releasing them. A 50 to 100 pound individual has been known to snap a broom stick with one bite! Biologists from the Tishomingo National Fish Hatchery recommend relocating them to an area away from the spot being fished and released back into the wild as soon as possible. Alligator snapping turtles are listed as threatened in Oklahoma and any individual needs a scientific collectors

permit to possess one.

The Tishomingo National Fish Hatchery near Reagan, Oklahoma, is continuing to collect eggs and release hatchlings in and around the Tishomingo NWR. In 2007 over 500 eggs were collected from their captive brood stock. Only a small number of these eggs would hatch and survive their first year in the wild. The actual number surviving to adulthood is unknown but is believed to be extremely small. Many of the clutches fall victim to predators before they hatch or during their first weeks of life when they are very vulnerable. Hatching them in a controlled environment and releasing them

in selected areas should greatly increase their survival rate; but, not enough data is available yet to determine just how much. Hopefully, the data collected from the tag and release project monitored by OSU graduate students will shed some light on how much their survival rate can be increased by this method.

So, should you catch something that looks like it should be a cast member of a Jurassic Park movie, give it a break and release it back into the wild. With a little help from sportsmen and the USFWS maybe these links to the past will once again be a common part of the Oklahoma outdoors. ■



## Did You Know?

As a landowner in the short and mixed-grass prairie you could receive aid for species that are already living on your land.

Participants in the Landowner Incentive Program receive technical and financial assistance from the Oklahoma Department of Wildlife Conservation. The Wildlife Department could pay you to manage prairie habitat used by declining species.

There are no restrictions on a landowner's property rights.

To receive an application or for more information, contact Landowner Incentive Program biologist Larry Wiemers at (405) 990-7206.

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Your Side of the Fence is a FREE publication produced three times a year by the Oklahoma Department of Wildlife Conservation for Oklahoma landowners. It is our mission to provide practical information for managing wildlife on your property and address issues that affect you, the landowner. This is your opportunity to tell us what you think. What would you like to learn more about? Do you have any questions for any of our ODWC professionals? Are we doing a good job of providing useful, practical information? Please let us know. If you would like, send your advice to the editor.

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## Testing for Success

By Eric Bartholomew, Quail Habitat Biologist



**M**any land-owners and land managers across Oklahoma use food plots to enhance their hunting experiences. Often times a lot of hard work

goes unrewarded when a food plot fails to produce. Several factors are at play to make or break a food plot like rainfall, soil type, crop type, etc.

One key to having a successful food plot year in and year out is a soils test. Many of the plants that are used in food plots are obviously not native to the area and require an extra boost of fertilizer to grow properly. Knowing whether or not and how much fertilizer is required can save you time and money.

You will need a shovel or soil corer and a clean plastic bucket (to avoid metal contamination). It is important to get a representative sample of your food plot for sampling. One way to do this is to walk in a zigzag pattern across your food plot in an effort to get a random sampling of the entire area. Research has shown that an average of 20 sub samples gives the best results for a given area. If using a shovel dig out a shovel full of dirt and then take a slice from the edge of the hole (see Figure). The sample should be taken from the bottom four to six inches of the slice to represent the root zone for most plants. If a corer is used then simply cut out the section that is four to six inches deep and put that in the bucket. After you have your 20 sub-samples in the bucket mix them

together to represent that food plot.

There is no rule on size of food plot that can be sampled using this method. The deciding factor is the amount of variability of the soils in your food plot. When working the ground you have likely noticed areas that are sandier or areas that grow better regardless of the conditions then sample these areas separately. In addition, areas that are always wet or are salty should be avoided when sampling the plot as a whole. For large food plots that have a lot of variability, it is probably best to sample each area separately and submit them as separate samples.

You can then take your samples to your local county extension agent, who will send in your sample and can have results back within seven to ten working days. They charge \$10 for each sample submitted and require approximately one pint of soil. It is important to put on each sample what will be planted so the

test results can be customized for your needs. ■

For more information about soil sampling, contact your local OSU Extension agent or visit [www.osuextra.okstate.edu/pdfs/F-2207web.pdf](http://www.osuextra.okstate.edu/pdfs/F-2207web.pdf)



*This image shows an example of the proper soil sampling method when using a shovel. Image provided by Virginia Cooperative Extension.*



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