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## Researcher Suggests Balanced Approach For Improved/Invasive

by COLLEEN SCHREIBER | Mar 31, 2022

By Colleen Schreiber

KINGSVILLE — Dr. Poncho Ortega, research scientist and professor at Texas A&M Kingsville, has decades of experience in managing rangelands in the U.S. and Mexico.

He has an appreciation for how introduced grasses play a role in some cattle operations, and particularly his home country of Mexico. However, he also fully recognizes that to optimize wildlife habitat, these grass species need to be managed to prevent the habitat from becoming a monoculture.

He offered some general remarks about this at the recent Deer Associates meeting hosted by the Caesar Kleberg Wildlife Research Institute. Ortega first suggested that anyone who was educated in range management during the decades of the 1970s, 80s and even the 90s needs to retool their thinking a bit.

"Things were different back then," said Ortega. "The focus was different back then."

Specifically, he was referring to the fact that back then cattle were king in Texas. Today, that's not so much the case, particularly in South Texas. Many landowners manage for both wildlife and cattle and some manage just for wildlife. He suggested that the concept of range management was already complex, but it becomes even more so when managing for both livestock and wildlife.

He noted that the concept of range condition and what is ideal for white-tailed deer versus cattle is very different. When cattle were king, range condition was classified as poor, fair, good and excellent based on the percentage of plants making up what was considered climax vegetation of an ecological site. As an example, he noted that a site with 50 percent coastal bluestem and only five percent forbs and some brush vegetation would be best suited for cattle and be classified perhaps as good to excellent range condition. However, that same site would be considered poor at best for some wildlife species.

"The concept of range condition is becoming obsolete," said Ortega. "Now we use a similarity index which is nothing more than the percentage of climax plants that are supposed to be in a particular plant community on a particular site."

Another way that times have changed has to do with mechanical treatments. In the past, the focus was again on cattle and oftentimes entire habitats were cleared of brush and reseeded with what was then referred to as improved grasses. In South Texas and northern Mexico, one of the most important ones was buffelgrass. When buffelgrass was seeded, grass productivity shot up from perhaps 1000 pounds to the acre to possibly 3000 pounds to the acre.

"At the time it seemed like the right thing to do," said Ortega.

The problem was these massive brush removal projects took out brush species like Texas kidney wood, granjeno and Colima, which are important browse species for whitetails and when the buffelgrass dominated the site the preferred forbs that attract insects for quail and turkey went away or were reduced dramatically.

Today with wildlife being so important, not only is how the brushwork is done but also the kind of treatment applied makes a difference and the long-term impact of both needs to be considered, Ortega said. As an example of a long-term consequence, he pointed out that with roller chopping, once a very popular treatment, the result was often multi-stemmed mesquite which is much harder to manage.

Ortega told participants that over time, what researchers have learned with respect to wildlife is that it's a lot more important to manage for plant diversity rather than for specific plants with high nutritional value.

"What a deer might consume in a dry year is different than what it is likely to consume in a rainy year," he explained. "A plant that might not be considered all that good in a rainy year may be good in a dry year because it may well be the only green thing available. So, if you want to do a quick evaluation of deer habitat just look at plant diversity," he reiterated. "The more the diversity the better the health quality of the habitat."

Ortega next offered some remarks about the changing attitude towards various grasses. He first reminded again that early on plants like Kleberg bluestem and buffelgrass were referred to as improved grasses. Today many call them invasive species though it largely depends on if the focus is on cattle or wildlife. Rather than focus on them as good or evil or managing for all or nothing, Ortega suggested instead a balanced approach.

"Having the right balance of all species is the key to habitat management," he stressed.

He suggested that this may well be a good approach for financial reasons as well.

"In the cattle business, we walk a fine line between making money and losing money, and in most of the cases, we end on the side of losing money," said Ortega.

Still, he told participants that in some places, case in point northern Mexico, an area heavily dependent upon cattle production, is not likely to stop planting introduced species like buffelgrass anytime soon. Some even contend that they're not nearly as bad for wildlife as some may think. Case in point, a 50,000-acre ranch in Sonora, Mexico, which has anywhere from 50 to 80 percent buffelgrass composition, claims the record for the largest typical Boone and Crockett mule deer ever harvested for a woman.

"This is in the Sonoran Desert, and if they get rain in the spring the first thing to green up is buffelgrass," Ortega pointed out. "I have seen deer rumens full of buffelgrass leaves, so at least for a short period, buffelgrass is a resource for the deer in this area."

He cited another example. In 2008, following a wildfire on the Chaparral Wildlife Management Area deer consumed burned prickly pear and buffelgrass regrowth in April, then shifted to brush regrowth and forbs when the rains came. Additionally, researchers found no differences in body condition scores or reproduction that year.

Landowners and managers who eliminated livestock completely in favor of wildlife have also learned some valuable lessons. For example, many have learned the hard way that there is an art to grazing management whether it's wildlife or cattle.

"Some think wildlife is something that just floats in the air just being beautiful," he quipped. "That's not true; wildlife can overgraze too."

He shared a picture from a high-fenced ranch in Sonora, Mexico where it clearly shows the browse line in a tree.

"It's the only place where I've seen that creosote bush was overgrazed," said Ortega.

He added that cattle grazing can be beneficial, neutral or detrimental, depending on how it is applied.

"That is the manager's decision, not the decision of the cattle," he stressed.

He shared some other unintended consequences of removing cattle in favor of wildlife. One of the big ones was after cattle were eliminated the desired balance of plants, often got out of whack and the hated invasives encroached even more. That in turn led to the loss of habitat for wildlife and an excessive accumulation of fine fuels which can lead to a greater threat from wildfire.

Ortega turned his attention then to some work they've done to try to get the balance back under control, to manage the most common introduced/improved grasses in South Texas, like Kleberg bluestem, guinea grass and buffelgrass as well as the native tanglehead. First, he told participants that these ecosystems are out of balance not only because of the lack of cattle grazing but also because of a change in rainfall patterns over the last many years. Summer rains are beneficial for these types of grasses, particularly guinea grass as it is more tropical.

In 2002, Ortega tested a theory for managing guinea grass using patch burning and cattle grazing. What he found was that burned patches of guinea grass were highly palatable and had as much as 10 percent crude protein immediately following a burn. Furthermore, the cattle would concentrate on these burned patches when the guinea grass was tender and just coming back after the fire.

By concentrating cattle on these patch burned areas, they were able to decrease the density of guinea grass by about 45 percent. Plant species richness increased by 300 percent. Specifically, they found more preferred forbs for deer and quail after the burn.

As for tanglehead, Ortega first noted that ideally in the Coastal Bend, this native grass species should not exceed five percent of the plant community. At that level, it provides good nesting habitat for quail and turkey and good fawn cover.

The problem is tanglehead is extremely unpalatable to cattle when plants are mature. On a ranch in Jim Hogg County near Hebronville, prescribed fire and cattle grazing were again applied as a treatment in an attempt to manage a severely infested 236-acre pasture of tanglehead.

The site had about 5000 pounds of fine fuel per acre which made for a very hot fire. Following the fire, the cattle, which had already been grazing the area, were fitted with GPS collars and their location tracked every 30 minutes.

Five months after the burn, plant species richness went from 2.5 plants per square meter to 8.3 plants per square meter. On the unburned areas, it was only 4.8 plants per square meter. Plant species richness increased tremendously as well, up 172 percent on the burned areas compared to the unburned areas.

On the unburned areas, bobwhites made little use of the site. After the burn, the number of bobwhites found in the burned areas increased significantly.

"With the patch burning and cattle grazing, we created a mosaic and the bobwhites started using the whole area instead of only the burned patches," he told the group.

There was a 51 percent utilization of the tanglehead by the cattle after the burn whereas, before the burn, utilization was only about five percent, Ortega said.

He added that the germination of new tanglehead plants increased significantly following the fire. However, because the cattle kept them grazed down, they never got established enough to spread.

He also told the group that in this particular study two fires were used, one in November and another in February. He said that both fires were effective and while there was no difference in species richness between the November and the February fires if forced to choose he said he preferred to burn in November.

The area was stocked at 23 acres per animal unit. The weaning rate was 90 percent and weaning weight averaged 550 pounds.

The study was continued for five years, and researchers found that the burned patches where the cattle focused were still visible even after five years. That kept the tanglehead from expanding, Ortega reiterated.

He also pointed out that cattle have a learning mechanism. Those that were not raised, so to speak, on tanglehead are not likely to ever graze it. As an example, he pointed to the East Foundation's San Antonio Viejo, which has always had cattle grazing. On this ranch the tanglehead is kept in check whereas on the neighboring properties where cattle have not been grazed, tanglehead has exploded and cattle brought in will not eat it either, he said.

Wrapping up, Ortega reminded participants that the old concept of range condition is no longer applicable. Plant species diversity is the tell-tale sign. Also, mechanical treatments to improve habitat must be evaluated site by site, and those areas that are more naturally diverse should be left alone.

"Diversity is good for cattle and it's good for white-tailed deer," said Ortega.

Finally long-term planning is a must, and more research is needed to evaluate the value of introduced/improved grasses on white-tailed deer habitat, he concluded.

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