
SPOTLIGHT DEER SURVEY
YO RANGLANDS LANDOWNERS ASSOCIATION
±10,400 ACRES
KERR COUNTY

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PLATEAU LAND & WILDLIFE MANAGEMENT

JULY 21, 2015



EXECUTIVE SUMMARY

Survey Goal

Determine the total number of native and exotic deer on the YO Ranchlands. Odd year surveys (2015/2017/2019) are meant to adjust Ranchlands-wide estimates from more extensive surveys in even years (2016/2018). Two night surveys typically do not generate enough observations to permit estimates by phase.

Management Goal

Optimize the numbers and diversity of the hunting opportunities for the landowners of all exotics and native game animals with average to good quality or better, with an emphasis in diversity of exotic ungulates.

Results

A spotlight survey covering 2 nights was conducted in July 2015. The same methodology was used as in prior years. Sika deer, Fallow deer, and Blackbuck sightings were too limited to provide reliable population estimates on their own, so those numbers were adjusted based on overall survey estimates.

Deer Population

	Axis	White-tailed	Sika	Fallow	Blackbuck	Total
Total	440	480	70	130	190	1,310

Species Composition (%)

	Axis	White-tailed	Sika	Fallow	Blackbuck	Total
Total	34%	37%	5%	10%	15%	100%

The population appears to be stable overall. Axis deer and white-tailed deer populations are stable. The blackbuck population appears to be rising. The Sika and Fallow populations both show declines over last year, though the trend data indicates the change may just be variation due to small numbers of observations. Harvest recommendations are designed to maintain overall stability over the next year assuming fair fawn crops. Better than average fawn crops are likely due to cessation of the drought and will result in slight population increases.

YOLA Harvest Recommendations 2015/2016		Total
Axis	Buck	30
	Doe	40
White-tailed	Buck	40
	Doe	125
Sika	Buck	5
	Doe	0
Fallow	Buck	5
	Doe	10
Blackbuck	Buck	10
	Doe	10
Grand Total	Buck	90
	Doe	185
	Total	275

Deer Survey Analysis & Harvest Recommendations *YO Ranchlands - General*

Survey Goal

Determine the total number of native and exotic deer on the YO Ranchlands. Odd year surveys (2015/2017/2019) are meant to adjust Ranchlands-wide estimates from more extensive surveys in even years (2016/2018).

Survey Methods

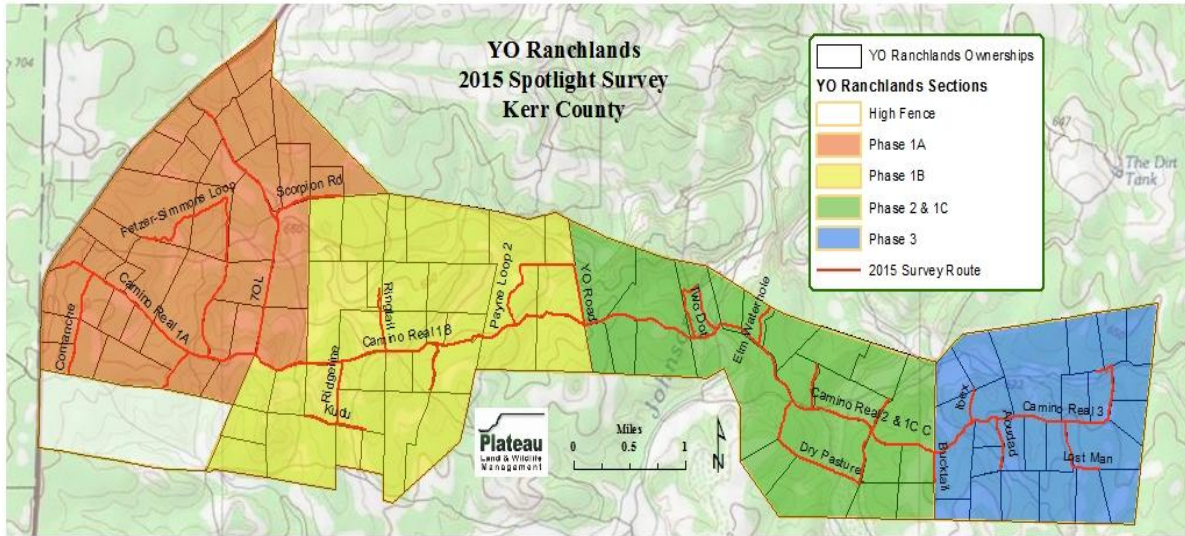
We surveyed the YO Ranchlands using Distance Sampling methodology. Two teams of Plateau staff and YOLA volunteers surveyed opposite ends of the property on July 7th and 14th, covering an average of 25 miles/night. Assistance from YOLA volunteers was essential and greatly appreciated. The surveys are conducted utilizing a technique called Distance Sampling. In this method, a perpendicular distance from the animal to the drive line is calculated through simple trigonometry using the distance, bearing, and GPS position recorded for each animal. The data is analyzed in Distance 6.2 utilizing integral calculus and statistical calculations to determine the actual area surveyed and the density and total number of deer. This is achieved by fitting a detection model to the observations made, which permits an estimate of the animals missed during the survey. The Distance Sampling method has been shown many times to be far more accurate than the traditional Strip Transect method of deer surveys. The more traditional method overestimates the number of deer by underestimating the average sightable distance and incorrectly assumes that all deer within that area are observed. Simple arithmetic is used to calculate the number of deer. Even small errors in estimating the average sightable distance can produce large errors in calculating the total number of deer. If you would like a more detailed explanation of the Distance Sampling method, please contact us.

Survey Results

Estimates of Axis, Sika, Fallow, Blackbuck, and White-tailed Deer were made and compared to historical estimates and harvest data provided by YOLA. Harvest data was only provided for the property as a whole. The rarer species (Sika, Fallow and Blackbuck) did not provide sufficient data to reliably estimate populations independently using Distance sampling, so those populations were estimated based on models from the pooled data and comparisons to historical data. The overall population trend appears stable.

Overall population estimates were compared to a harvest/net-production estimate using last year's population and harvest data. The overall estimates are slightly lower than expected from harvest/net-production based estimates unless fawn recruitment suffered for some reason, which would be unexpected. Current levels remain very sustainable long-term, with room for population growth if desired. Improved range conditions will reduce animal visibility, and while the Distance Sampling technique accounts for this overall, the reduction in ability to detect less common species like Sika deer may result in relatively larger impacts to sample size, and thus precision, in estimates for those species. Improving range conditions will also spread resources more evenly throughout the Ranchlands, which is indicated by an apparent shift in populations to the west. Antler quality and fawn production should be trending upward into 2016.

SURVEY RESULTS & OVERALL SPECIES COMPOSITION



All Deer

	# of Deer	Ac / Deer
TOTAL	1,310	7.9

Deer Population

	Axis	White-tailed	Sika	Fallow	Blackbuck	TOTAL
TOTAL	440	480	70	130	190	1,310

Species Composition (%)

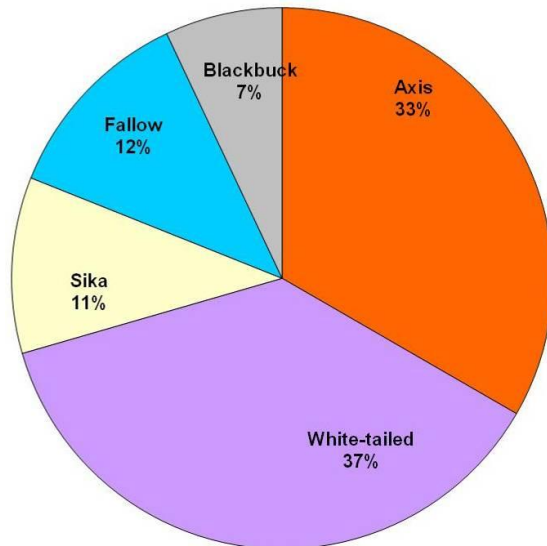
	Axis	White-tailed	Sika	Fallow	Blackbuck	TOTAL
TOTAL	34%	37%	5%	10%	15%	100%

Sex Ratios	Buck:Doe	
	Current	Ideal
White-tailed	1:2.5	1:1.5
Axis	1:1.5	1:2
Sika	1:2	1:2
Fallow	1:3	1:2
Blackbuck	1:2	1:4

Survey Lengths and Acreages

Phase and Section	Line Length (miles)	Area (acres)
Phase 1A	8.3	3,078
Phase 1B	6.6	3,083
TOTAL West	14.9	6,161
Phase 2 & 1C	7.2	2,401
Phase 3	3.8	1,834
TOTAL East	11.0	4,235
GRAND TOTAL	25.9	10,396

Overall Proportions of Deer Species



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Management Goal

Optimize the numbers and diversity of the hunting opportunities for the landowners of all exotics and native game animals with average to good quality or better, with an emphasis in diversity of exotic ungulates.

Harvest Recommendations

Overall Deer Density

The current year's estimates are lower than the projected 2015 population of approximately 1,505 animals. This expected population was calculated from the 2014 survey estimates and harvest recommendations in last year's report. Adjusted estimates based on actual harvest and measured fawn production are closer to the survey estimates at 1,337 animals. Observed fawn production is much lower than expected based on the cessation of the drought, though quality range conditions make young animals harder to observe. The overall density of deer on YO Ranchlands is at a very healthy and sustainable level and is resulting in continually visible improvements in habitat for all species, including wild turkey and non-game animals. These improvements in range conditions and habitat have occurred through the drought and should accelerate with the recent cessation. High rainfall during the first half of 2015 has resulted in lush July conditions in western Kerr County. Maintaining lower ungulate densities has allowed the populations to better withstand drought conditions and will permit responsive population increases if conditions continue to improve.

Overall harvest was 80% of recommended levels (as of 6/20/15). The recommended goal since 2012 has been to level the population trend-line and maintain overall numbers while adjusting species composition. Overall population stability has been achieved. Even Axis deer show a stable pattern when viewed over the last 5-6 years. Due to gains in White-tailed deer numbers and stable to improving trends in Sika and Fallow, Axis deer now account for approximately 35% of the total deer on the Ranchlands. This is an indicator that the long-term goal of more equitable distribution across species is being attained. Careful monitoring and continued efforts to manage Axis and white-tailed deer numbers will be important to helping the rarer species (Fallow, Sika, Blackbuck) take advantage of newly available resources when conditions improve.

The overall combined deer density on the YO Ranchlands is 7.9 acres / deer, down from a high of 2.8 ac/deer in 2005 and only slightly down from the 2014 estimate of 7.3 acres / deer. The most pronounced change was an increase in the Blackbuck estimate. Fallow deer and Sika deer were both lower than expected, though this could be caused by random variability in the estimates due to the small number of observations in 2015. The property is currently well-positioned to produce high-quality deer while providing strong habitat conditions for other wildlife. There is also capacity for increases in deer numbers if greater harvest opportunities are desired. The target density for summer of 2016 is a stable 8.0 acres / deer with room for rarer species to increase if favorable conditions continue. Unless community-wide goals change, the long-term target should be to stabilize current overall densities while permitting the less common species to take advantage of improving conditions. The harvest guidelines outlined below will maintain a stable deer density assuming conservative fawn recruitment. These harvest recommendations will maintain white-tailed deer and axis numbers while allowing for population increases of the less common species if fawn production and recruitment improve, which is to be expected.

Species Composition

Axis deer are within the previously prescribed goals of approximately 30% of the total deer population. They comprise 34% of the deer on the Ranchlands as a whole. Axis are more aggressive, dominant, and productive than any other species of deer on the property. Axis should make up about 25% of the total

harvest for the coming year. Conservative management of Sika and Fallow should continue to allow them to take advantage of improvements in range conditions.

The White-tailed deer population estimate is slightly lower than last year's but they comprise a larger percentage of the overall population than in the past. Recommended harvest is 34% of the population to maintain a stable level. Sika estimates are well below historical levels though this is just as likely an artifact of a low number of observations. Fallow estimates are lower than last year but not outside historical ranges. Both of these species remain near historical percentages for species composition. Blackbuck estimates show an increase over last year in number and percent species composition. Harvest recommendations are conservative for Sika and Fallow with additional Blackbuck available for harvest.

Sex Ratios

Sex ratio estimates are near ideal levels for all species, though Blackbuck ratios are down from last year and White-tailed deer ratios are up. Stand counts and incidental observations conducted by volunteer landowners are helpful in estimating sex ratio and fawn production estimates, providing greater confidence in making harvest recommendations.

HARVEST RECOMMENDATIONS & PROJECTED 2016 POPULATION

YOLA Harvest Recommendations 2015/2016		Total
Axis	Buck	30
	Doe	40
White-tailed	Buck	40
	Doe	125
Sika	Buck	5
	Doe	0
Fallow	Buck	5
	Doe	10
Blackbuck	Buck	10
	Doe	10
Grand Total	Buck	90
	Doe	185
	Total	275

YOLA Projected 2016 Population		Total	% of All Deer
Axis	Buck	186	35%
	Doe	264	
White-Tailed	Buck	166	35%
	Doe	286	
Sika	Buck	25	6%
	Doe	54	
Fallow	Buck	32	10%
	Doe	92	
Blackbuck	Buck	63	15%
	Doe	126	
Grand Total	Buck	472	100%
	Doe	822	
	TOTAL	1294	

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2014/2015 Harvest Summary Compared to Recommendations
(As of June 20, 2015)

YOLA Actual Harvest 2014/2015	Total Actual	2014/2015 Recommendation	Difference	
Axis	Buck	29	40	-11
	Doe	49	60	-11
White- Tailed	Buck	40	35	-5
	Doe	84	100	-16
Sika	Buck	6	10	-4
	Doe	0	5	-5
Fallow	Buck	11	10	-1
	Doe	6	10	-4
Blackbuck	Buck	0	5	-5
	Doe	0	5	-5
Grand Total	Buck	86	100	-14
	Doe	139	180	-41
	TOTAL	225	280	-55

Deer Survey Analysis & Harvest Recommendations
YO Ranchlands – Additional Information

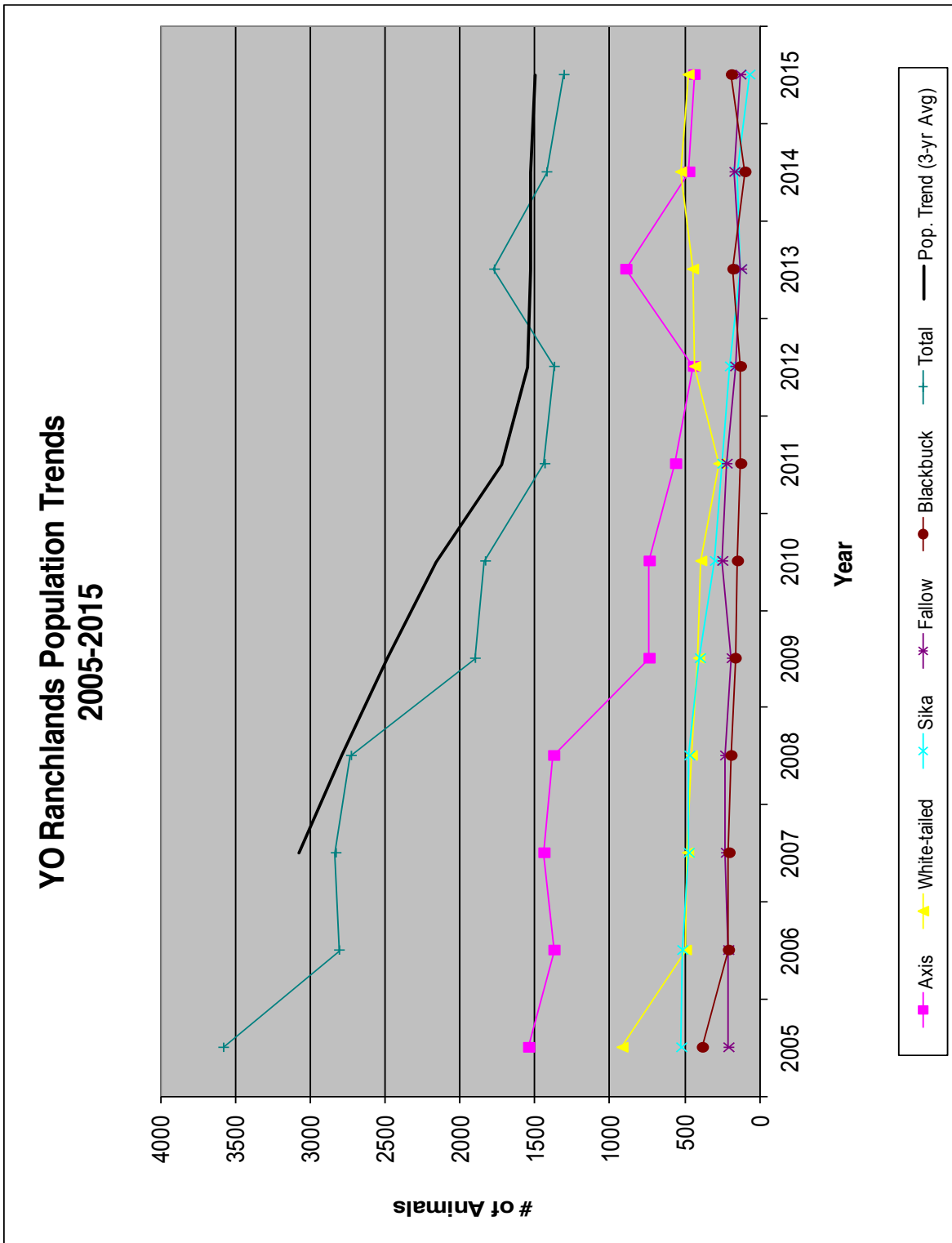
Other Species of Interest

Wild Sheep Seen During 2015 Surveys – 30+

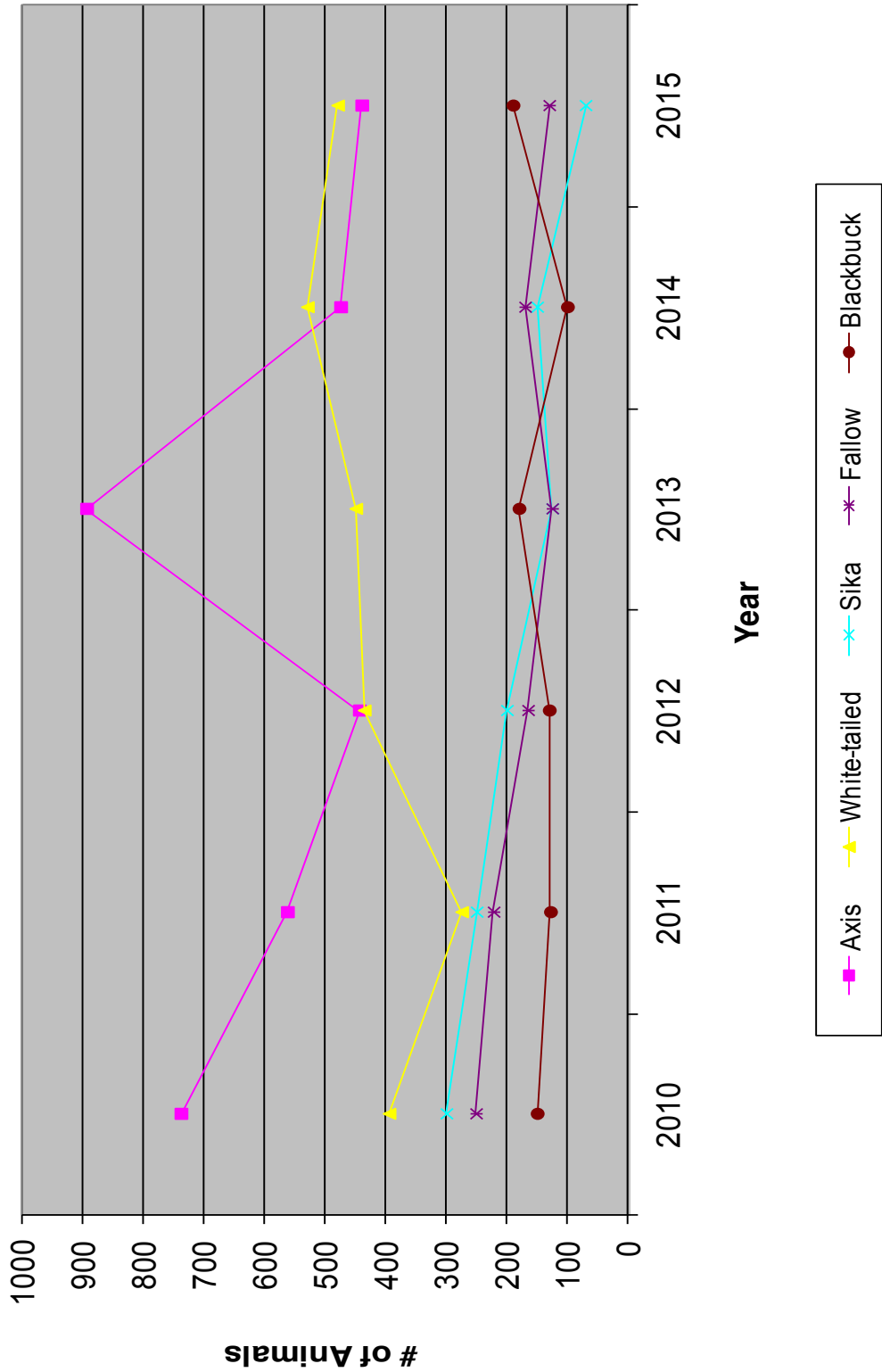
Other Species Identified During 2015 Surveys:

Feral Hogs
 Cottontail (*Sylvilagus sp.*)
 Black-tailed Jackrabbit
 Gray Fox
 Ringtail
 Armadillo
 Striped skunk
 Common Nighthawk
 Rio Grande Leopard Frog
 Great Plains Ratsnake

FIGURES

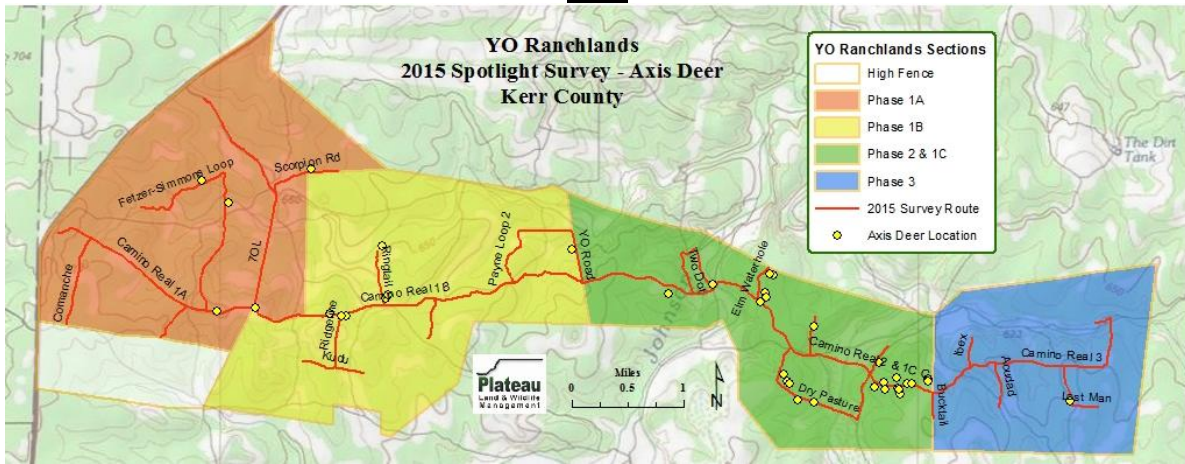


YO Ranchlands Population Trends by Species 2010-2015

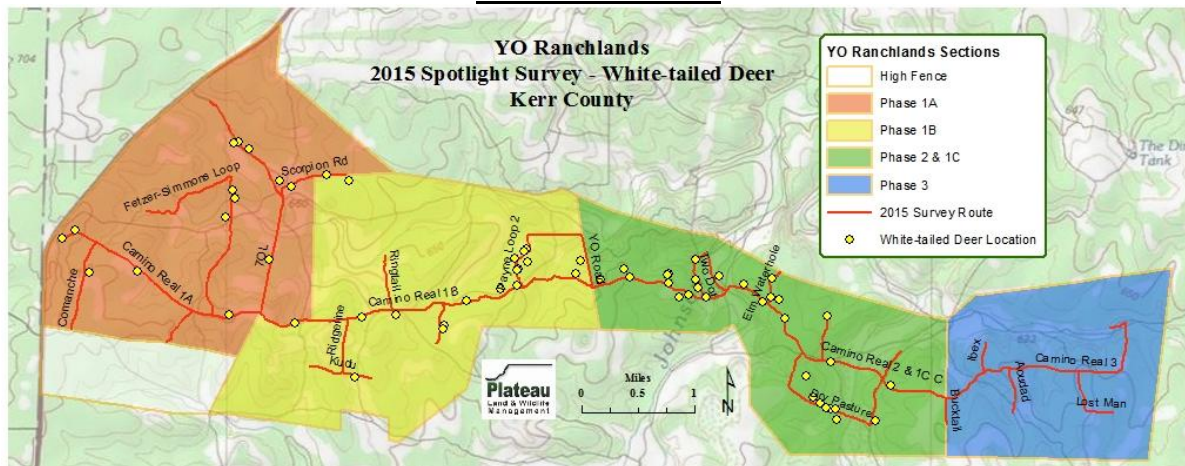


Observed Deer Locations by Species

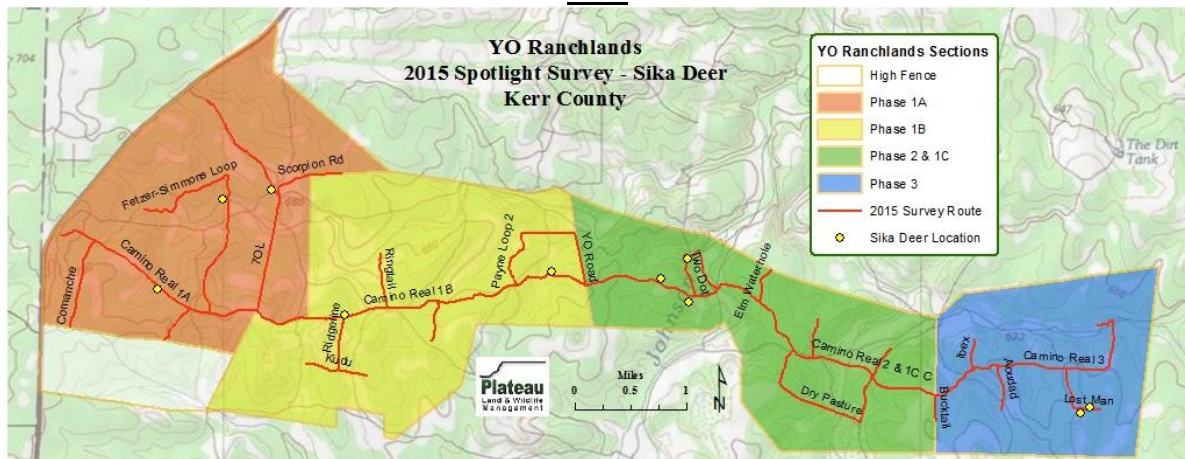
Axis



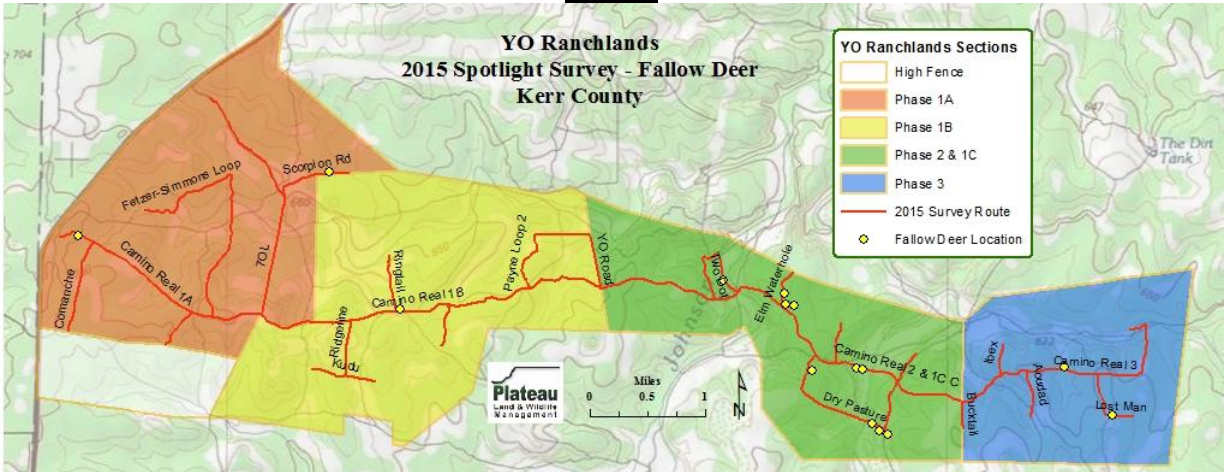
White-tailed Deer



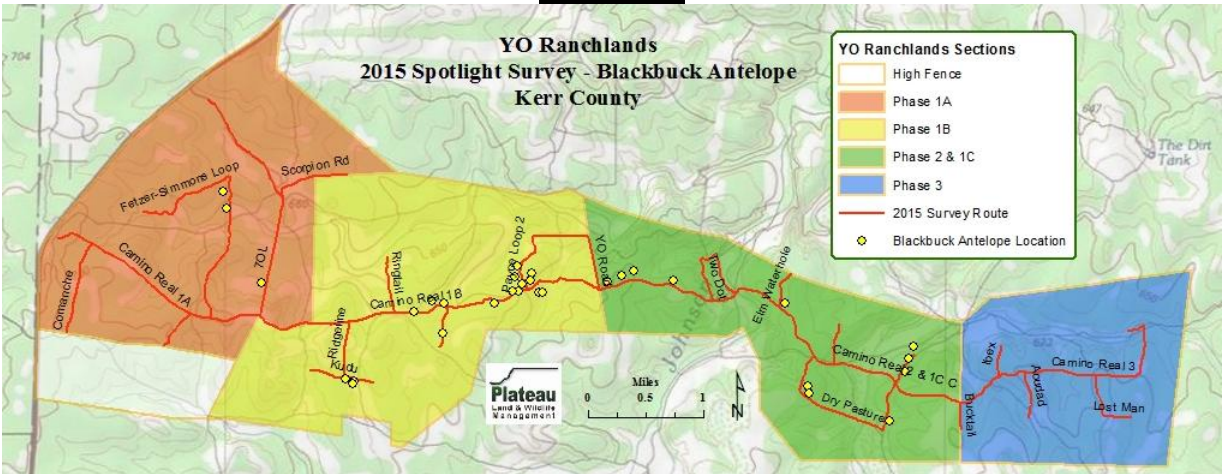
Sika



Fallow



Blackbuck



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