



July 26, 2018

YO Ranchlands Landowner Association
1323 Whispering Pines
Houston, TX 77055

To the Wildlife Committee:

Enclosed, please find the 2018 Spotlight Deer Survey Report and Recommendations that we have prepared for your review and records.

Overall, the numbers of native and exotic deer on the YO Ranchlands show a slight decline from 2017: the 3-4-year trend is stable; and 5-8 year trends show only a slight decrease. The decline is primarily attributable to unusually low axis estimates. This may be a one-year anomaly resulting from shifts in axis distributions across the property, which can occur in changing range conditions, or it could be related to the axis hunt that occurred the night prior to the first survey.

All other populations appear fairly stable. Blackbuck populations reflect a slight increase which, when considered with the decline in axis estimates, also make up a larger percentage of the total population estimate. Fallow estimates have shown a one-year decrease. Sika estimates remain low but stable over the past three years.

There seems to be a slight shift in distribution to the western half of the YO Ranchlands, possibly a result of prior drought-kill and recent juniper clearing in the west that may be stimulating new shrub growth desirable for browse. The current estimate is lower than expected based on harvests that were below recommended levels. Harvest recommendations are slightly lower than last year, but still higher than the actual harvest from the 2017-2018 year. Lower than expected fawn production may be attributable to the current drought. More favorable conditions for 2019 fawn production may result following El Nino's **expected return** this year. Range conditions remain very good.

Thank you to all who collaborated with us during the 2018 surveys, including spotlight volunteers. A special thank you goes to Gary Liefer, Chris Conrad, Sandra and Bryon Sadler for providing accommodations, and Mike Sample for coordinating volunteers.

Please feel free to contact me with any questions or concerns. We appreciate your continued trust and confidence in Plateau Land & Wildlife Management. Please let us know whenever we can be of service.

Sincerely,

Sarah Kahlich, AWB®
Senior Wildlife Biologist
Plateau Land and Wildlife Management

Enclosures

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SPOTLIGHT DEER SURVEY
YO RANCLANDS LANDOWNERS ASSOCIATION

±10,400 ACRES

KERR COUNTY

WRITTEN BY: SARAH KALICH, AWB®

SHANE KIEFER, CWB®

PLATEAU LAND & WILDLIFE MANAGEMENT

JULY 26, 2018



EXECUTIVE SUMMARY

Survey Goal

Estimate 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).

Management Goal

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

Results

A spotlight survey was conducted over 3 nights in June and July 2018. Survey methodology used was the same as in prior years. Results were analyzed by section (East/West), though all species were pooled to model sighting distributions for species with low observation numbers.

Deer Population by Ranchland Section

| Section | Axis | White-tailed | Sika | Fallow | Blackbuck | TOTAL |
|---------|------|--------------|------|--------|-----------|-------|
| West | 188 | 273 | 25 | 54 | 168 | 708 |
| East | 102 | 228 | 20 | 49 | 119 | 518 |
| TOTAL | 290 | 501 | 45 | 103 | 287 | 1226 |

Species Composition (%) by Ranchland Section

| Section | Axis | White-tailed | Sika | Fallow | Blackbuck | TOTAL |
|---------|------|--------------|------|--------|-----------|-------|
| West | 27% | 39% | 4% | 8% | 24% | 100% |
| East | 20% | 44% | 4% | 9% | 23% | 100% |
| TOTAL | 24% | 41% | 4% | 8% | 23% | 100% |

Overall estimates are down from 2017. Population estimates are stable on 3-4 year trends and slightly down on 5-8 year trends. White-tailed deer and Axis population estimates are lower than last year, with the largest change in Axis estimates. The Blackbuck population appears to be rising again this year, while Fallow estimates have decreased slightly. Sika estimates remain low but are stable over the last 3 years. Limited observations of Sika and Fallow make these observation estimates least reliable, and expected gains in these animals have not materialized. Fawn observations were down overall from last year, possibly due to the earlier start date or lower production resulting from current drought conditions. Careful attention to fawn production by the landowners is recommended to help determine if predation or other factors may be limiting growth. Harvest should focus on managing white-tailed deer numbers. Overall recommended harvest is lower this year, though still well above actual harvest from 2017-2018.

YOLA Harvest Recommendations 2018/2019

| | Axis | White-tailed | Sika | Fallow | Blackbuck | Total | Grand Total |
|------|------|--------------|------|--------|-----------|-------|-------------|
| Buck | 20 | 30 | 3 | 10 | 20 | 83 | 223 |
| Doe | 20 | 100 | 0 | 0 | 20 | 140 | |

Deer Survey Analysis & Harvest Recommendations

YO Ranchlands - General

Introduction

This report details the results of a deer survey carried out on the 10,400-acre YO Ranchlands in Kerr County, Texas, on the evenings of June 26th, July 2nd, and July 10th 2018. The survey was conducted by two teams of Plateau Land & Wildlife Management staff and YOLA volunteers using Distance Sampling methodology. The two teams surveyed opposite ends of the property covering an average of 26 miles/night. Assistance from YOLA volunteers was essential and greatly appreciated.

Survey Methods.

The surveys were conducted using the Distance Sampling technique, which involves calculating a perpendicular distance from the animal to the driveline through GIS using the distance, bearing, and GPS position recorded for each animal. The data is analyzed in Distance 6.2 software 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 cannot properly estimate species that occur in large groups, overestimates the number of deer by underestimating the average sightable distance, and incorrectly assumes that all deer within that area are observed. Even small errors in estimating the average sightable distance can produce large errors in calculating the total number of deer. Plateau is glad to provide a more comprehensive explanation of the Distance Sampling method upon request.

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 provided for the property as a whole. Population estimates are stable over the last 3-4 years and down slightly on a 5-8 year trend. Overall estimates are down slightly from last year, primarily due to substantially lower Axis estimates.

White-tailed deer are the most abundant species due to the decline in Axis estimates. Sika and Fallow estimates are not increasing as expected. It may be possible their populations are growing, but remain small enough that the surveys are having trouble detecting them. Blackbuck estimates have increased since the previous year. The decline in estimates is unexpected, given the moderate range conditions and lower than expected harvest in 2017-2018.

Overall population estimates were compared to a harvest/net-production estimate using last year's population and reported harvest data. The overall estimates are lower than expected for all species except Blackbuck. Axis estimates have been volatile in the past, especially under changing range conditions. Current population levels are well balanced with the habitat and leave room for growth, if desired.

SURVEY RESULTS & OVERALL SPECIES COMPOSITION

All Deer

| Section | # of Deer | % of Deer | Ac / Deer |
|---------|-----------|-----------|-----------|
| West | 708 | 58% | 8.7 |
| East | 518 | 42% | 8.2 |
| TOTAL | 1,226 | 100% | 8.5 |

Deer Population by Ranchland Section

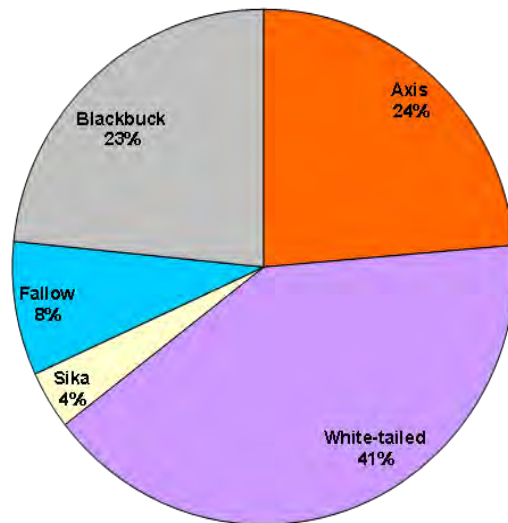
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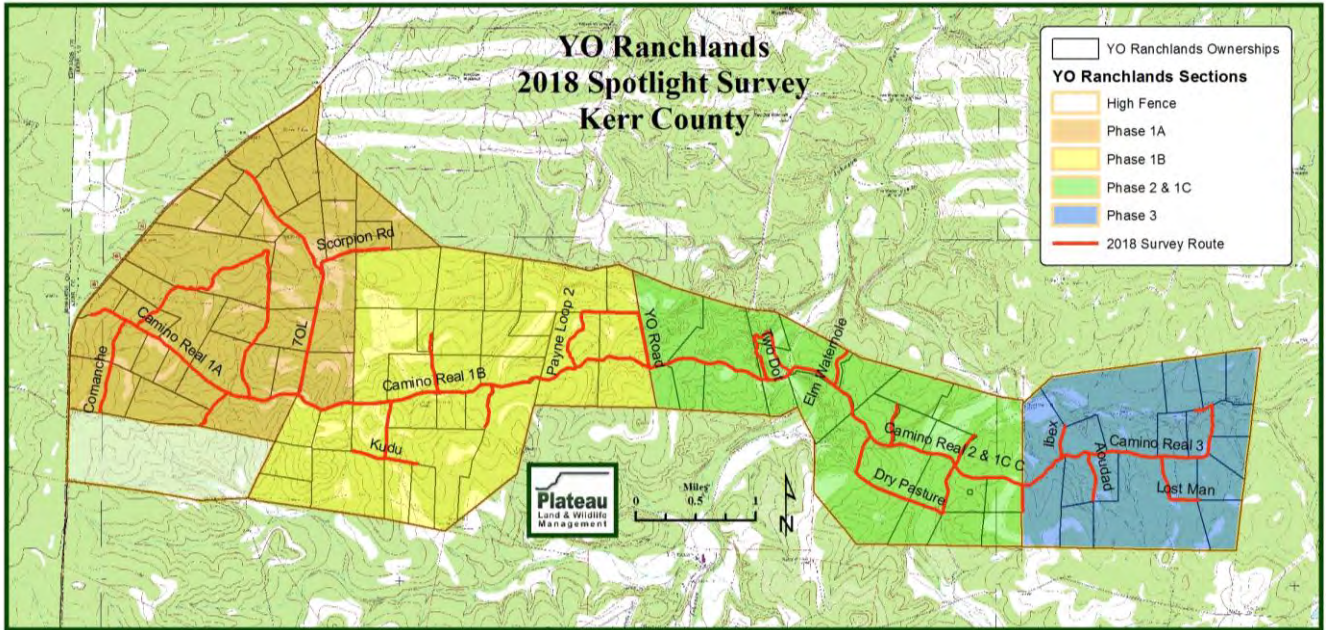
| Sex Ratios | Buck : Doe | |
|--------------|------------|---------|
| | Current | Ideal |
| Axis | 1:2 | 1 : 2 |
| White-tailed | 1:2.5 | 1 : 1.5 |
| Sika | 1:2 | 1 : 2 |
| Fallow | 1:2 | 1 : 2 |
| Blackbuck | 1:2 | 1 : 4 |

Overall Proportions of Deer Species



Survey Lengths and Acreages

| Survey Date | Total Line Length (miles) |
|----------------|---------------------------|
| 6/25/2018 | 26.4 |
| 7/2/2018 | 26.3 |
| 7/10/2018 | 26.3 |
| Total | 79.0 |
| Average | 26.3 |



ANALYSIS

Harvest Recommendations

Overall Deer Density

The current year's estimates are lower than the projected 2018 population of approximately 1,495 animals. This expected population was calculated from the 2017 survey estimates and harvest recommendations in last year's report. However, based on the reported harvest and estimated fawn production, the expected population should have been even higher overall. Observed fawn production is lower than expected, though the earlier start date for the surveys likely influenced that along with current drought conditions.

The overall density of deer on YO Ranchlands is at a very healthy and sustainable level and has resulted in continually visible improvements in habitat for all species, including wild turkey and non-game animals. Rainfall during the first half of 2018 has resulted in moderate July conditions in western Kerr County, which is currently in moderate to severe drought. Maintaining lower ungulate densities has allowed range conditions to stay healthy despite lower rainfall, though there was a noticeable decrease in herbaceous cover compared to last year's lush conditions.

Overall harvest was 46% of recommended levels (as of 7/6/18). The suggested goal since 2012 has been to level the population trend-line and maintain overall numbers while adjusting species composition. The total animal population has hovered around 1,400 since 2012 with the most notable changes being a decrease in Sika and an increase in Blackbuck. The population estimate is lower than last year but well within the margin of error for these types of surveys.

Sika and fallow estimates have not increased despite harvest restrictions. Axis deer now account for approximately 24% of the total deer on the YO Ranchlands, and white-tailed deer at 41%. Blackbuck account for 23%. Overall population levels should have been higher than this year's estimates, especially considering reported harvest levels. Given the quality range conditions, fawn production/survival may be a concern.

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A recent axis harvest immediately prior to the start of the surveys this year could have affected animal distribution on the Ranchlands, concentrating them away from the survey route and, consequently, negatively impacting the estimates. The shift in animals from East to West may be a result of prior drought kill of juniper and recent brush management on the West Section that may be resulting in new shrub growth, drawing animals from the East.

The overall combined deer density on the YO Ranchlands is 8.5 acres / deer, down from the 2017 estimate of 7.1 acres/deer. The property is currently well positioned to produce high-quality deer while providing strong habitat conditions for other wildlife. The most pronounced change was the decrease in Axis estimates. There is capacity for an increase in deer numbers if greater harvest opportunities are desired. The target density for summer of 2018 was 7 acres / deer with room for population increases if fawn production improves. Unless community-wide goals change, the long-term target should be to maintain current overall densities while encouraging growth in the less common species. These harvest recommendations will maintain stable numbers while allowing for population increases if fawn production and recruitment improve.

Species Composition

Axis deer, which currently comprise 24% of the population, are below the previously desired 30-40% of the total deer population. Their population is likely underestimated. Axis are the most aggressive of the YO Ranchlands species and can quickly rebound. However, harvest recommendations are more conservative this year given the estimates.

The white-tailed deer population estimate is lower than last year's but remains stable over the long term and is not a cause for concern. White-tailed deer should comprise the majority of the harvest for the coming year. Sika estimates remain low but stable, while Fallow estimates are lower than last year. A limited number of these animals can be harvested in the coming year. Actual Blackbuck harvest was substantially below recommendations last year and a more liberal harvest is recommended for the coming year.

Sex Ratios

Sex ratios are near ideal levels for all species except Blackbuck, which show an overabundance of bucks, which are typically more desirable for harvest. Stand counts and incidental observations conducted by volunteer landowners would be most helpful in estimating sex ratios and fawn production, providing greater confidence in population growth and harvest recommendations.

HARVEST RECOMMENDATIONS & PROJECTED 2018 POPULATION

| YOLA Harvest Recommendations 2018/2019 | | Total |
|--|--------------|------------|
| Axis | Buck | 20 |
| | Doe | 20 |
| White-tailed | Buck | 30 |
| | Doe | 100 |
| Sika | Buck | 3 |
| | Doe | 0 |
| Fallow | Buck | 10 |
| | Doe | 0 |
| Blackbuck | Buck | 20 |
| | Doe | 20 |
| Grand Total | Buck | 83 |
| | Doe | 140 |
| | Total | 223 |

| YOLA Projected 2019 Population | | Total | % of All Deer |
|--------------------------------|--------------|--------------|---------------|
| Axis | Buck | 91 | 23% |
| | Doe | 188 | |
| White-tailed | Buck | 179 | 41% |
| | Doe | 324 | |
| Sika | Buck | 15 | 4% |
| | Doe | 33 | |
| Fallow | Buck | 31 | 9% |
| | Doe | 76 | |
| Blackbuck | Buck | 96 | 24% |
| | Doe | 191 | |
| Grand Total | Buck | 412 | 100% |
| | Doe | 812 | |
| | Total | 1,224 | |

2017/2018 HARVEST SUMMARY COMPARED TO RECOMMENDATIONS
(As of July 6, 2018)

| YOLA Actual Harvest 2017/2018 | | Total Actual | 2017/2018 Recommendation | Difference |
|-------------------------------|--------------|--------------|--------------------------|-------------|
| Axis | Buck | 14 | 25 | -11 |
| | Doe | 23 | 30 | -7 |
| White-tailed | Buck | 31 | 35 | -4 |
| | Doe | 34 | 100 | -66 |
| Sika | Buck | 0 | 5 | -5 |
| | Doe | 0 | 0 | 0 |
| Fallow | Buck | 3 | 10 | -7 |
| | Doe | 0 | 0 | 0 |
| Blackbuck | Buck | 4 | 15 | -11 |
| | Doe | 1 | 20 | -19 |
| Grand Total | Buck | 60 | 90 | -38 |
| | Doe | 66 | 150 | -92 |
| | Total | 126 | 240 | -130 |

DEER SURVEY ANALYSIS & HARVEST RECOMMENDATIONS
YO Ranchlands – Additional Information

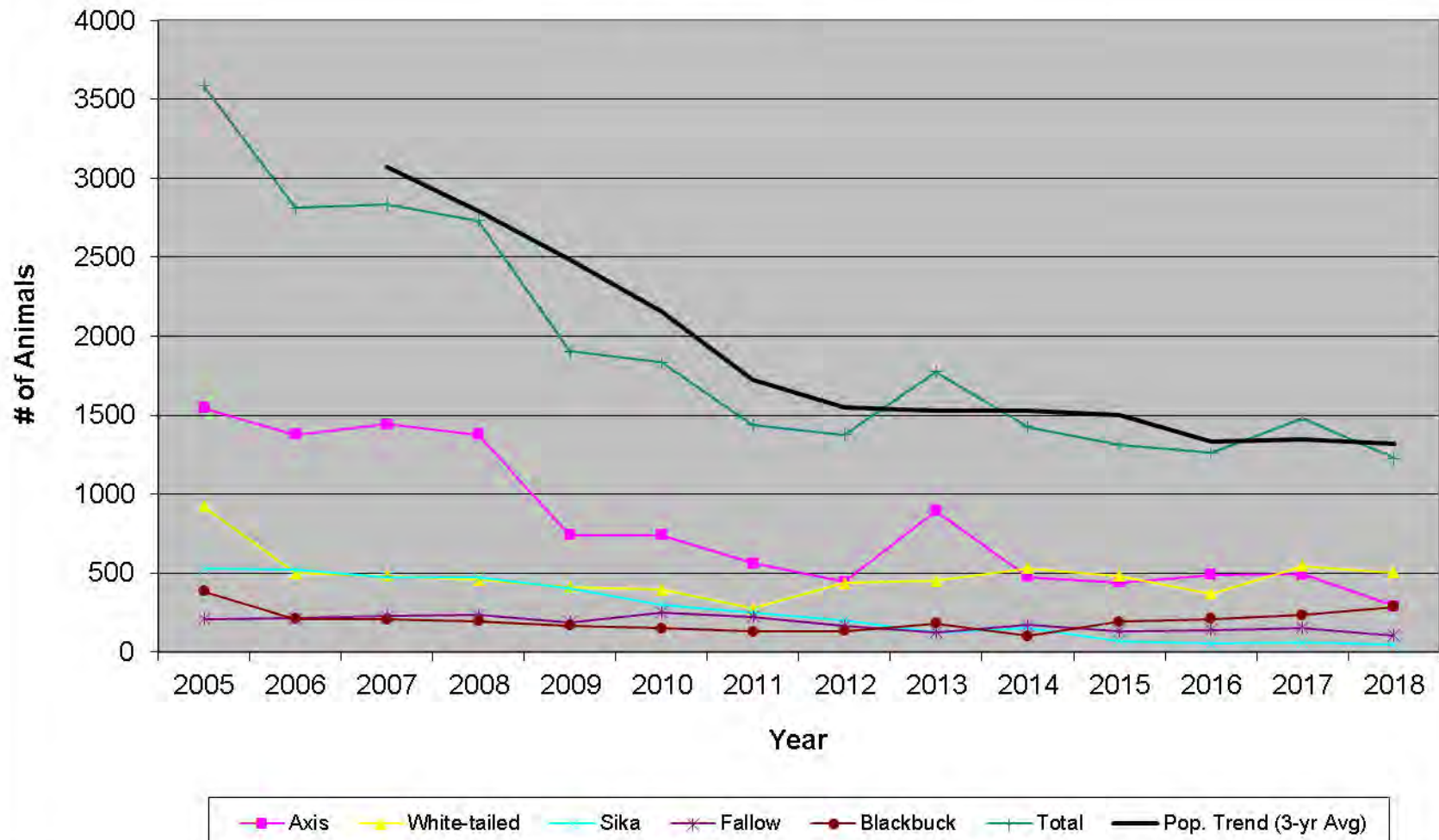
Other Species of Interest

Other Species Identified During 2018 Surveys:

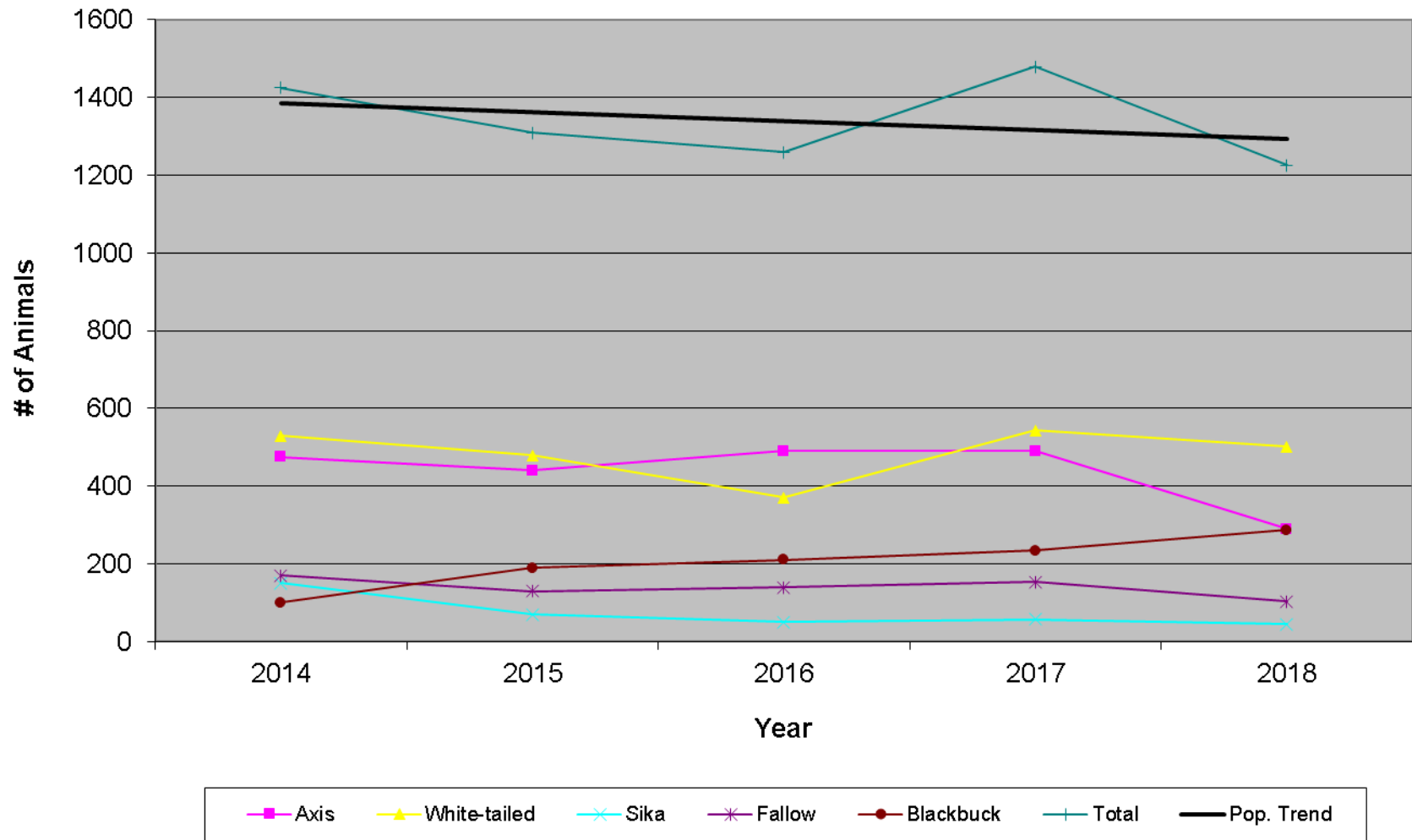
Feral Hogs
Cottontail
Black-tailed Jackrabbit
Northern Raccoon
Gray Fox
Nine-banded Armadillo
Striped Skunk
Barn Owl
Bobcat
Coyotes (heard)
Ringtail

FIGURES

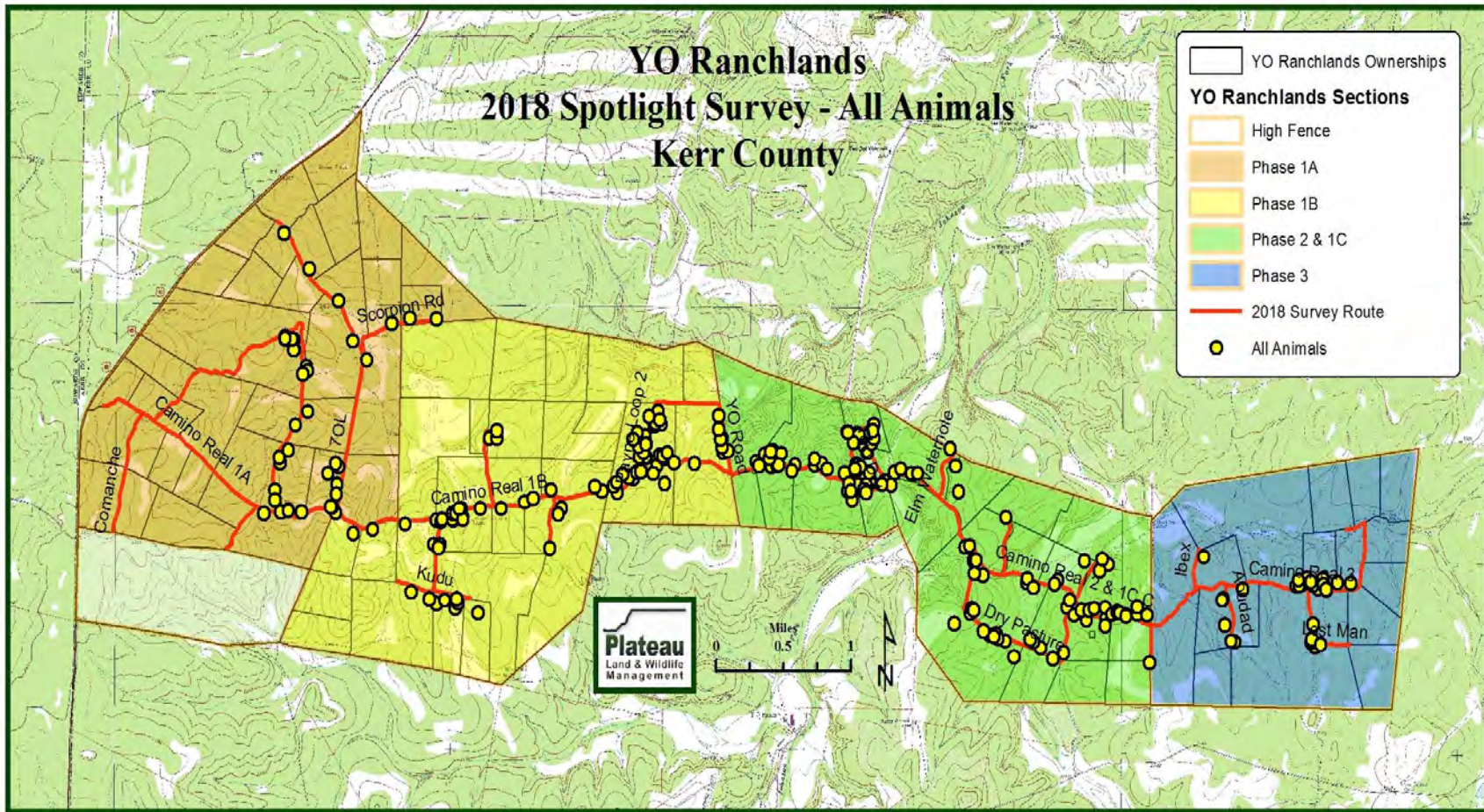
**YO Ranchlands Population Trends
2005-2018**



YO Ranchlands Population Trends 2014-2018



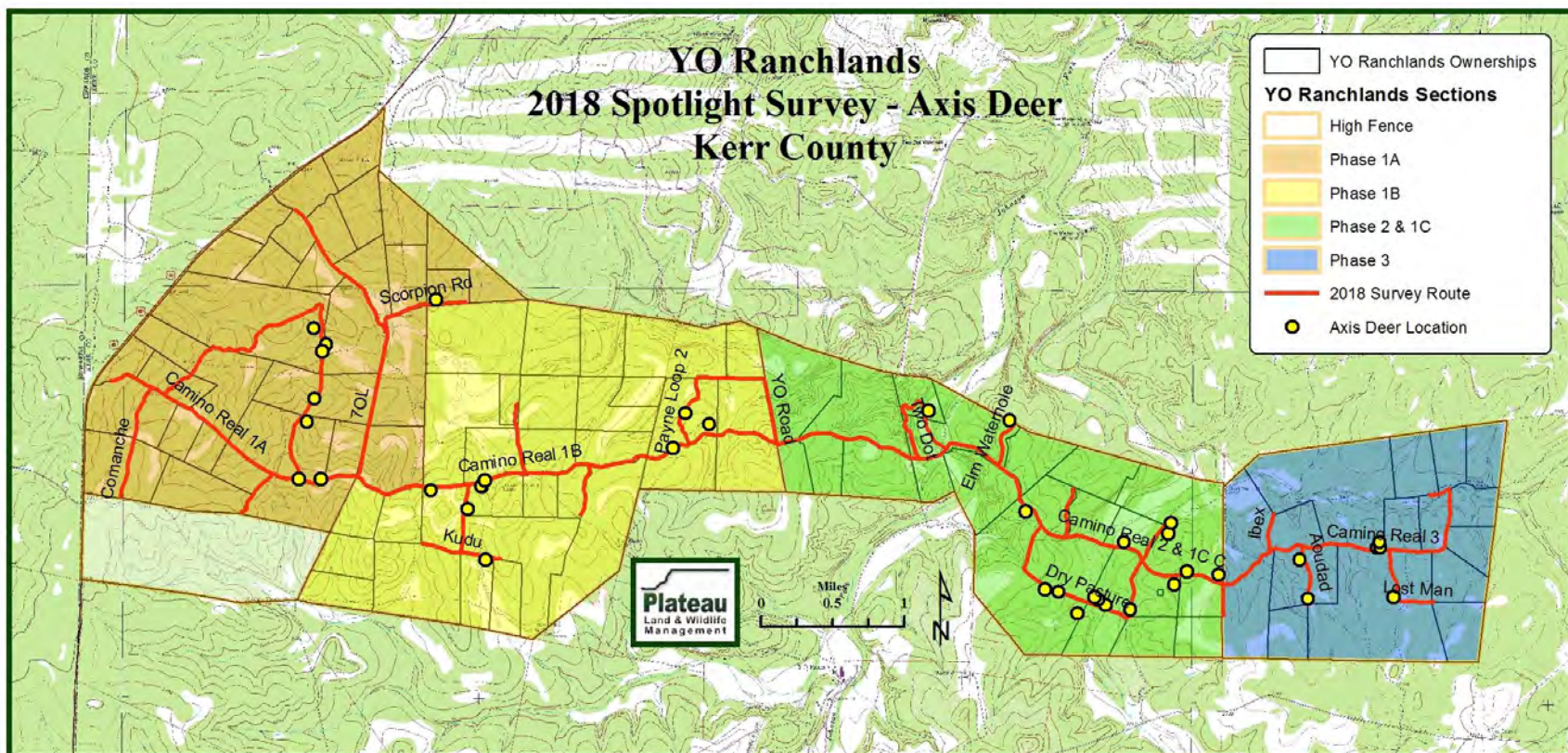
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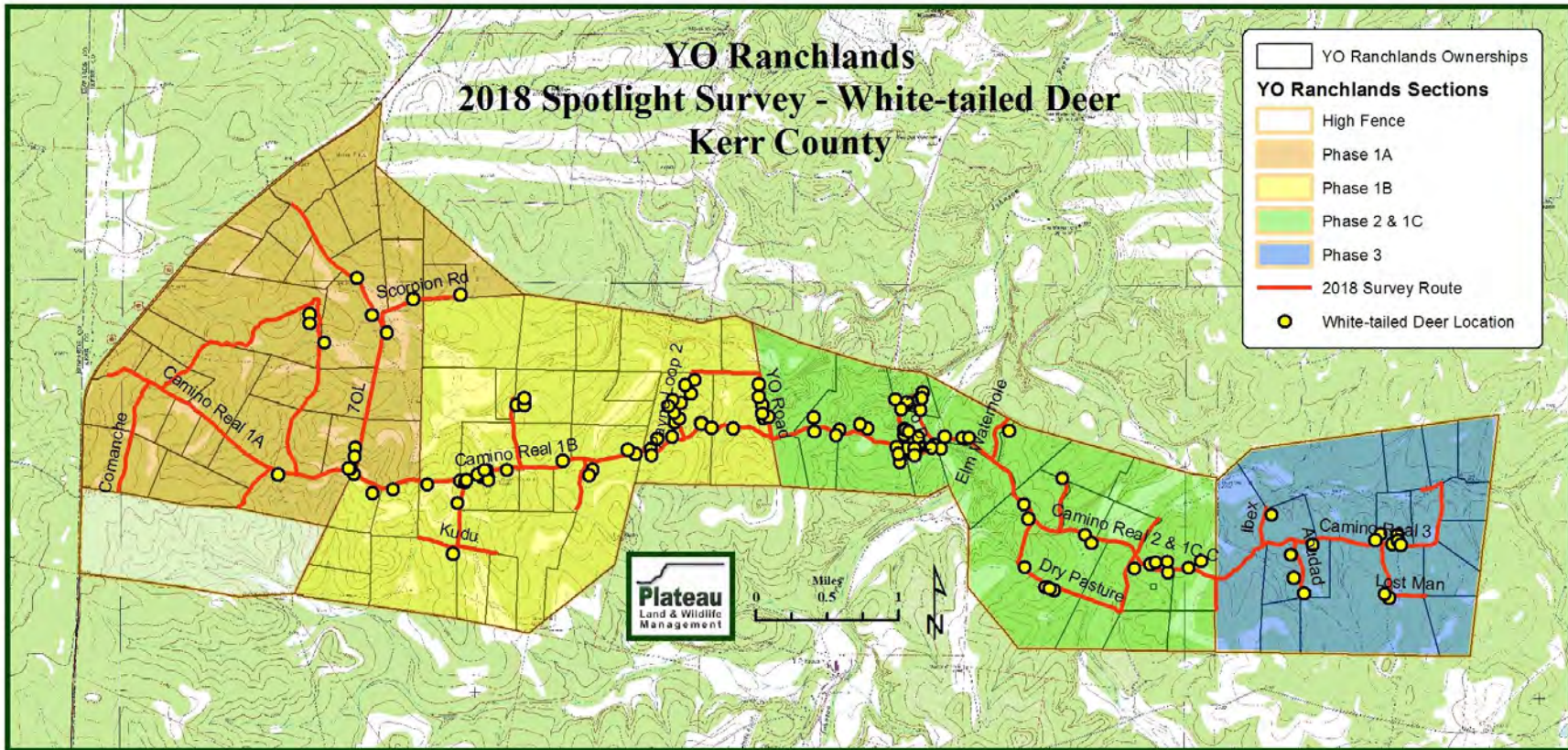
Observed Deer Locations by Species

Axis



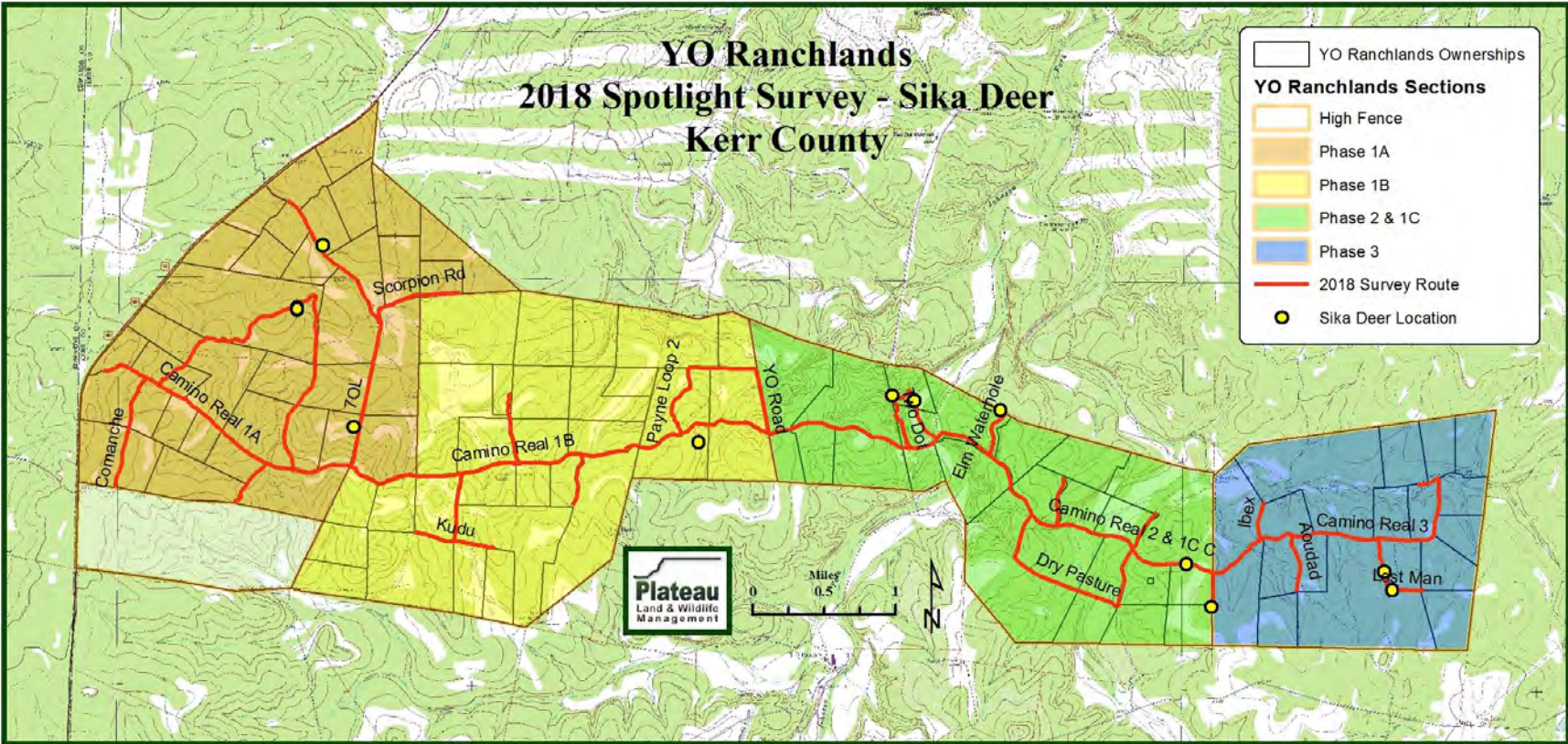
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White-tailed Deer



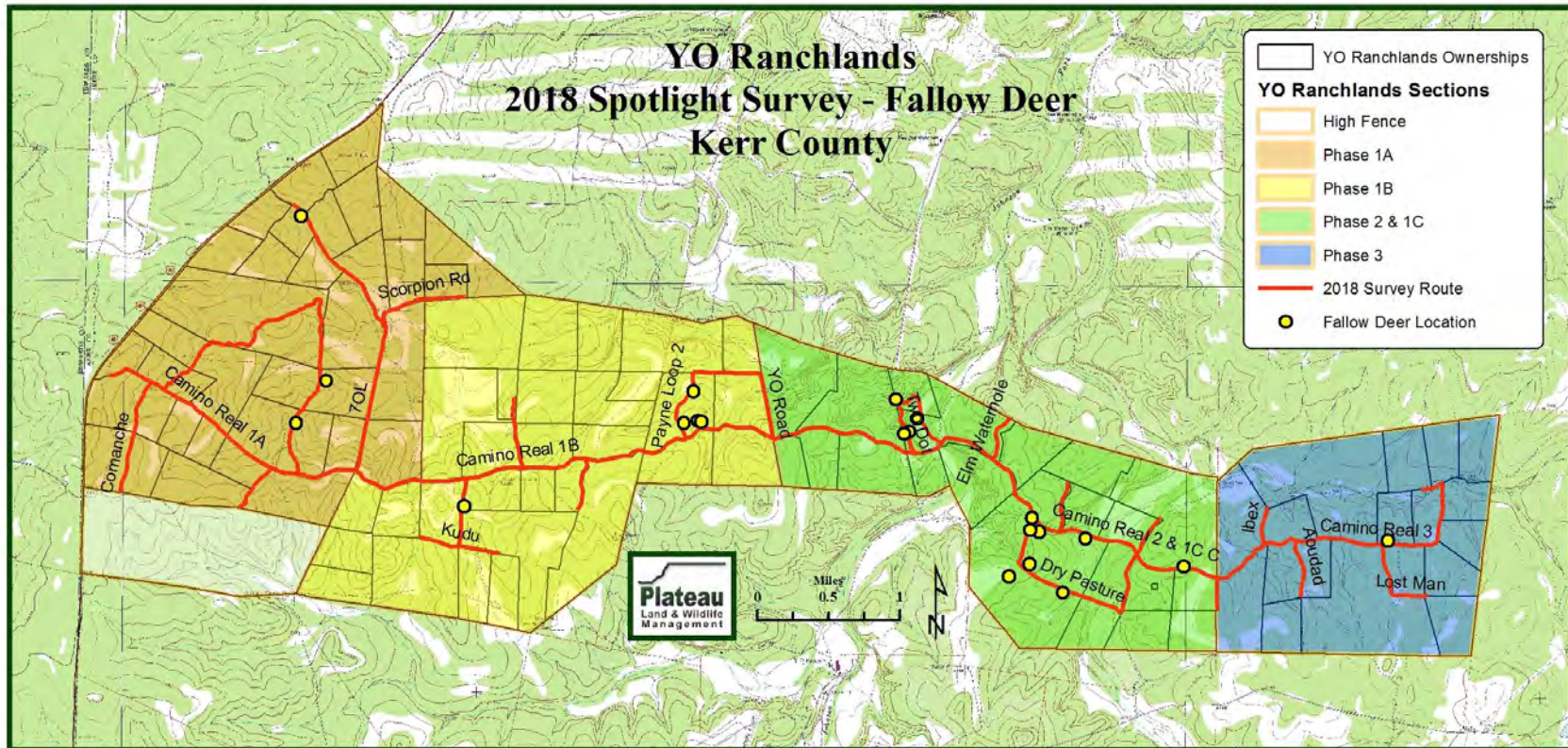
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Sika



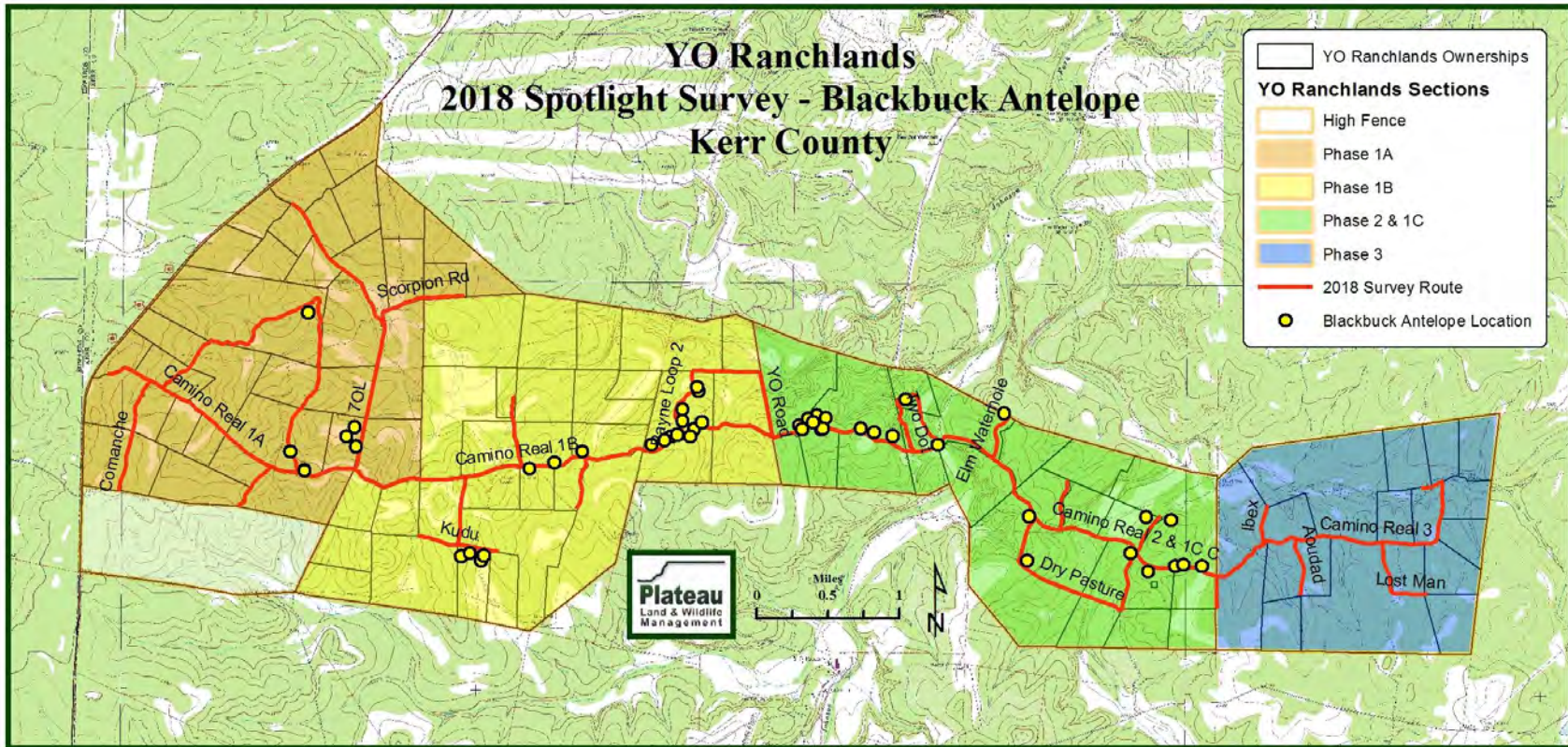
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Fallow



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Blackbuck



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