SURVEY ANALYSIS
& HARVEST RECOMMENDATIONS

YO Ranchlands Landowner Association

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Executive Summary

Survey Goal

Determine the total number of native and exotic deer on the YO Ranchlands by sex. Odd year surveys (2011/2013) are meant to adjust Ranchlands-wide estimates from more extensive surveys in even years (2010/2012/2014).

Management Goal

Optimize the number and diversity of hunting opportunities for the landowners of all exotic and native game animals of average to good quality or better.

Results

Two spotlight surveys were conducted in July 2011. Distance Sampling methodology was used to determine the number and kind of deer living on the YO Ranchlands. The rate of animal sightings was lower than in prior years and both Sika deer and Blackbuck did not provide sufficient data to estimate populations reliably through Distance analysis. For those species, estimates were made based on 2010 estimates, reported harvest, and estimated production.

Deer Population by Species

	Axis	White-tailed	Sika	Fallow	Blackbuck	TOTAL
TOTAL	563	275	250	222	128	1438

Species Composition (%)

	Axis	White-tailed	Sika	Fallow	Blackbuck	TOTAL
TOTAL	39%	19%	17%	15%	9%	100%

Current estimates are down from last year, with an unusual decline in virtually all species. The population has been at a sustainable level since 2009 and the goal since that time has been to flatten the trend to maintain relatively stable populations. This was achieved from 2009-2010. Current declines are very likely due to drought, and other recent climatic conditions. Axis deer remain a larger proportion of the population than originally desired. Sika deer numbers once again showed an unexpected decline and landowner input is requested to help determine the cause. Harvest recommendations are designed to allow deer populations to remain stable over the next year and to grow slightly if conditions improve.

YOLA Harvest Recommendations 2011/2012		Total
Axis	Buck	45
	Doe	60
White-tailed	Buck	15
	Doe	20
Sika	Buck	10
	Doe	10
Fallow	Buck	10
	Doe	10
Blackbuck	Buck	10
	Doe	10
Grand Total	Buck	90
	Doe	110
	Total	**200**

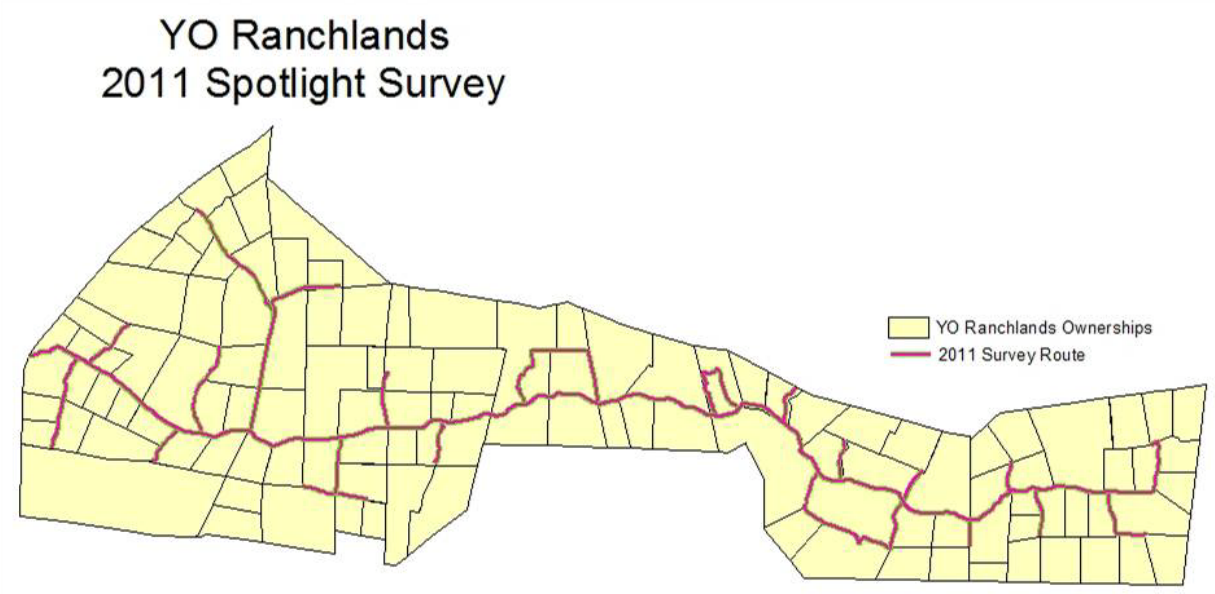
Deer Survey Analysis & Harvest Recommendations
YO Ranchlands

Survey Goal

Determine the total number of native and exotic deer on the YO Ranchlands by sex. Odd year surveys (2011/2013) are meant to adjust Ranchlands-wide estimates from more extensive surveys in even years (2010/2012/2014).

Survey Methods

Two nights of driving surveys (reduced from 3 nights in 2010 per the contract) were conducted by Plateau Land & Wildlife Management using the same protocol established in 2005 and 2006. The surveys used a technique called Distance Sampling. An explanation of the technique is provided in previous years' survey reports. During the driving surveys, we drove at an average speed of <10mph. We visually searched both sides of the roads for deer. We actively surveyed an average of 25.1 miles of road each night during these surveys. When deer were seen, we measured the distance and bearing to the animal or group of animals using a laser rangefinder and a compass. The surveys were conducted from 10pm – 2am on July 5th and 12th. We recorded the number and species, if possible, of all deer seen. Both surveys were performed by 2 groups of 3 or more people. Assistance from YOLA volunteers was essential and greatly appreciated. We saw a total of 400 (877 in 2010) animals in 145 (320) groups during the surveys and over 95% of the deer were identified to species.



Survey Results

Estimates of Axis, Sika, Fallow, Blackbuck, and White-tailed Deer were made and compared to historical estimates and harvest data from 2010-2011 provided by YOLA. Harvest data were only provided for the property as a whole. The rarer species (Sika and Blackbuck) did not provide sufficient data to reliably estimate populations using only Distance analysis, so the estimates for those species are based on last year's estimates, reported harvest, and very conservative estimates of production due to the severe and ongoing drought (Net Production Method or Harvest-based Method). Comparison estimates were made for all species using the

Net Production Method and these fit nicely with the survey-based estimates of Axis deer and Fallow deer. However, White-tailed deer should be much more numerous than the spotlight surveys suggest. A complete failure of the fawn crop this year (not unreasonable) would help explain the survey estimates.

SURVEY RESULTS & OVERALL SPECIES COMPOSITION

All Deer

	# of Deer	Ac / Deer
TOTAL	1,438	6.9

Deer Population by Species

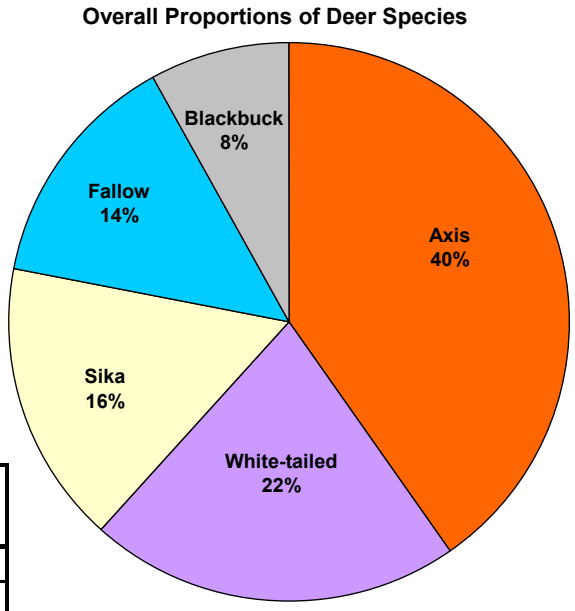
	Axis	White-tailed	Sika	Fallow	Blackbuck	TOTAL
TOTAL	563	275	250	222	128	1438

Species Composition (%)

	Axis	White-tailed	Sika	Fallow	Blackbuck	TOTAL
TOTAL	39%	19%	17%	15%	9%	100%

Survey Length

Survey Date	Total Line Length (miles)
7/5/2011	25.1
7/12/2011	25.1
Total	50.2
Average	25.1



2010-2011 Harvest

YOLA Actual Harvest 2010/2011		Total Actual	2010/2011 Recommendation	Difference
Axis	Buck	72	110	-38
	Doe	160	145	15
White-tailed	Buck	34	25	9
	Doe	69	25	44
Sika	Buck	15	15	0
	Doe	45	20	25
Fallow	Buck	11	15	-4
	Doe	30	5	25
Blackbuck	Buck	15	10	5
	Doe	24	5	19
Grand Total	Buck	147	175	-28
	Doe	328	200	128
	Total	**475**	**375**	100

Management Goal

Optimize the number and diversity of hunting opportunities for the landowners of all exotic and native game animals of average to good quality or better.

Harvest Recommendations

Overall Deer Density

The current year's estimates are below the expected 2011 population of ~1,800 animals calculated from the 2010 survey and harvest recommendations in last year's report. This is likely due to 2 primary causes: reduced production due to unusually extreme drought and overharvest (see table above). Expected populations were recalculated based on actual harvest numbers provided and the result (~1,500 animals) is much closer to the survey estimate of 1,438.

The YO Ranchlands, as a whole, has exceeded the original long-term goal for overall deer density. This will result in improvements in habitat quality for all species, including wild turkey and non-game animals. Lower densities will allow for population increases without severe degradation of habitat and will allow populations to better withstand drought. Continued decreases in density may reduce hunting opportunities below acceptable levels for landowners.

Shifts in distribution due to changes in feeding patterns (and due to water availability this year) may be affecting annual estimates of individual species, but the overall trend is a more important indicator of progress. The goal moving forward should be to level the trend-line and maintain overall numbers while adjusting species composition according to landowner goals. Axis deer were slightly underharvested in 2010-2011. White-tailed deer, Fallow, Sika, and Blackbuck were all overharvested by nearly 100% compared to recommendations. Overall harvest was 100 animals (25%) over the recommended level and it at least partially contributed to a decline in numbers. This decline will help protect the habitat from degradation during the current drought, but it will reduce hunting opportunities as well.

While good range conditions due to favorable weather in 2009 and 2010 and the positive reductions in overall density of animals on the Ranchlands should have resulted in strong reproduction over the last year, the unforeseen drought of late 2010-2011 that continues at this time resulted in very little plant production in Spring and Summer 2011. This has resulted in very low fawn production for this year, which is the other likely cause of the decline in numbers.

The overall combined deer density on the YO Ranchlands is 6.9 acres / deer, down from a high of 2.8 ac/deer in 2005 and the 2010 estimate of 5.4 acres / deer. The original density goals designed to provide a large number of hunting opportunities for deer and maintain moderate to good production of gamebirds was 4.5 acres / deer. The maximum combined deer density for trophy animal management is 6 acres / deer. The property is currently well-positioned to produce some high-quality deer while providing strong habitat conditions for other wildlife. The target density for summer of 2011 is 6.5 acres / deer if production increases and a stable 6.9 acres / deer if drought persists and production remains low.

Unless community-wide goals change, the long-term target should be to maintain current densities while attempting to shift species composition toward the less common species to improve the diversity of hunting opportunities. The harvest guidelines outlined below will maintain a stable deer density under continued poor conditions and will allow a moderate increase if conditions and production improve. They are also designed to continue to reduce the dominance of Axis deer. The recommendations are based on expected poor reproduction due to ongoing drought.

Species Composition

Axis deer remain overabundant in relation to other species though their overall numbers have declined substantially. They comprise 40% 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. Last year's axis harvest was slightly below the recommended level though does were taken at a higher rate, which will help with population control. Axis should make up 50% of the total harvest for the coming year. A combination of aggressive Axis harvesting and conservative management of the remaining species should improve the overall species composition.

The White-tailed deer population has declined. This past year continued a trend of harvesting at nearly twice the recommended levels. The populations of Blackbuck and Sika remain lower than they should be to optimize the diversity of hunting opportunities. Sika populations suffered a second straight year of declines. Conservative harvest is recommended until future surveys can reveal if this is a real phenomenon or just an anomaly complicated by drought. The Fallow population was relatively stable with only slight declines and now comprises 15% of all deer. Harvest recommendations are designed to keep fallow populations stable. Blackbuck have declined slightly along with all other species. Harvest recommendations remain conservative.

Sex Ratios

Sex ratios were assumed to remain stable unless the available data warranted change. To maintain sex ratios, it is important to harvest <u>at least</u> as many does as bucks of any species. Stand counts would greatly improve sex ratio and fawn production estimates, providing greater confidence in making harvest recommendations.

HARVEST RECOMMENDATIONS & ESTIMATED 2012 POPULATION

YOLA Harvest Recommendations 2011/2012		Total
Axis	Buck	45
	Doe	60
White-tailed	Buck	15
	Doe	20
Sika	Buck	10
	Doe	10
Fallow	Buck	10
	Doe	10
Blackbuck	Buck	10
	Doe	10
Grand Total	Buck	90
	Doe	110
	Total	**200**

YOLA Estimated 2012 Population		Total
Axis	Buck	156
	Doe	382
White-tailed	Buck	95
	Doe	182
Sika	Buck	90
	Doe	173
Fallow	Buck	79
	Doe	153
Blackbuck	Buck	32
	Doe	96
Grand Total	Buck	451
	Doe	986
	Total	**1437**

Deer Survey Analysis & Harvest Recommendations
YO Ranchlands – Additional Information

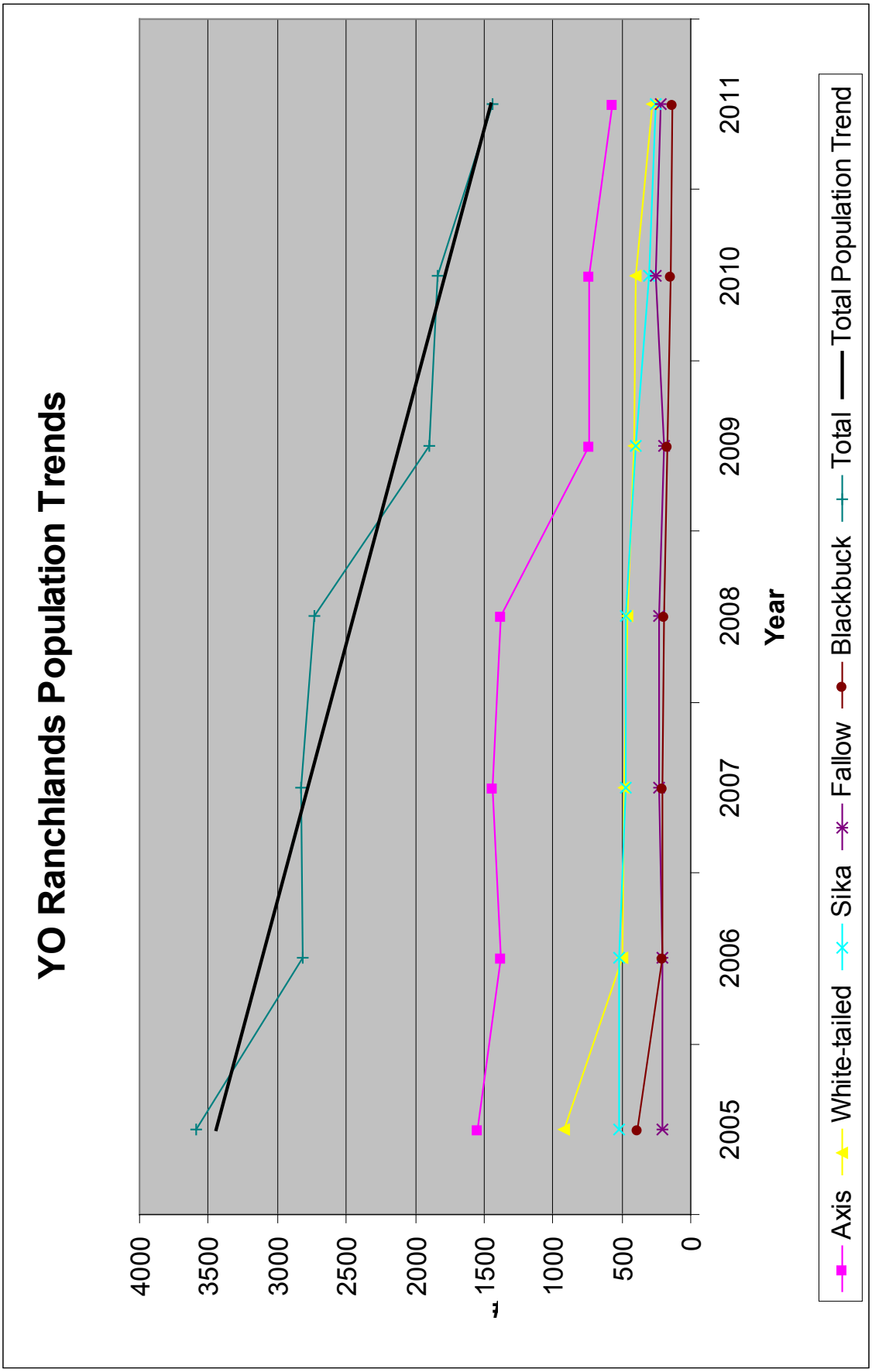
Other Species of Interest

Hogs Seen During 2011 Surveys – 0

Wild Sheep Seen During 2011 Surveys - 0

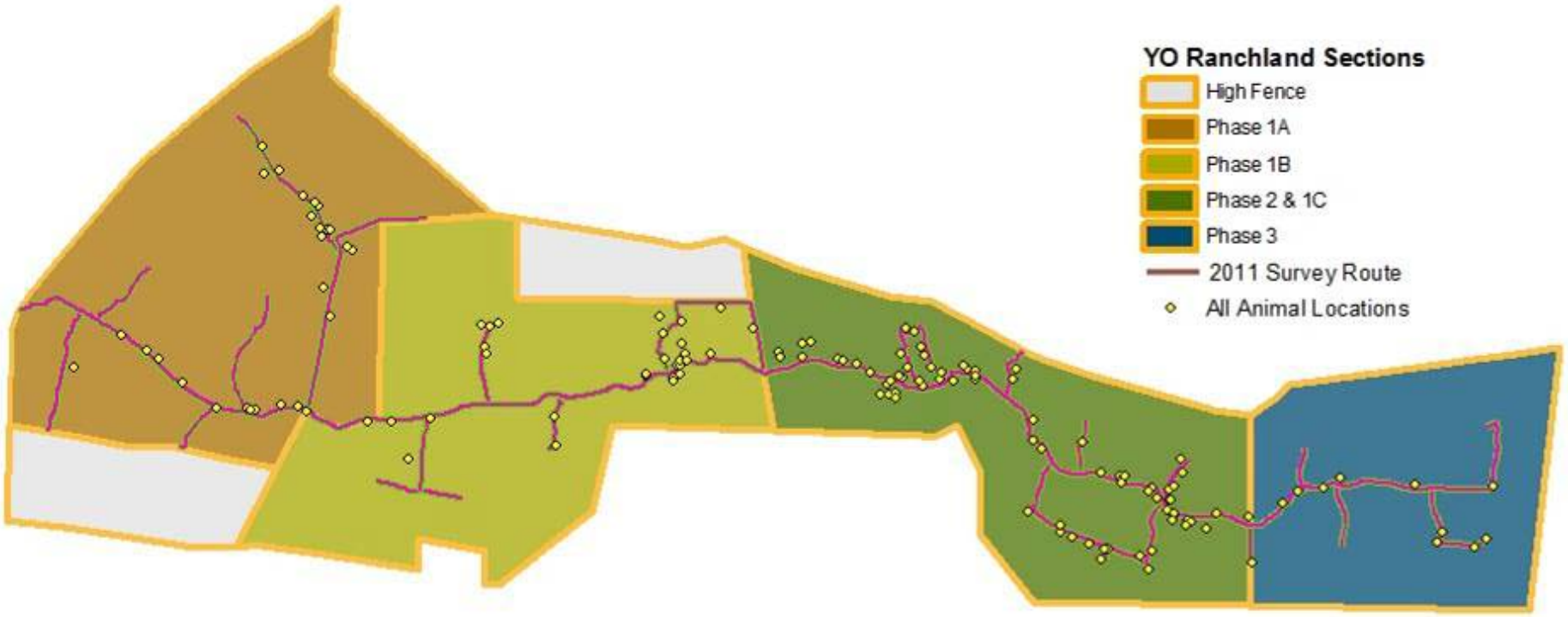
Other Species Identified during 2011 Surveys:

Cottontail (*Sylvilagus sp.*)
Black-tailed Jackrabbit
Coyote
Gray Fox
North American Porcupine
Raccoon
Common Poorwill
Lark Sparrows
Eastern Screech-owl- 1
Western Diamondback Rattlesnake

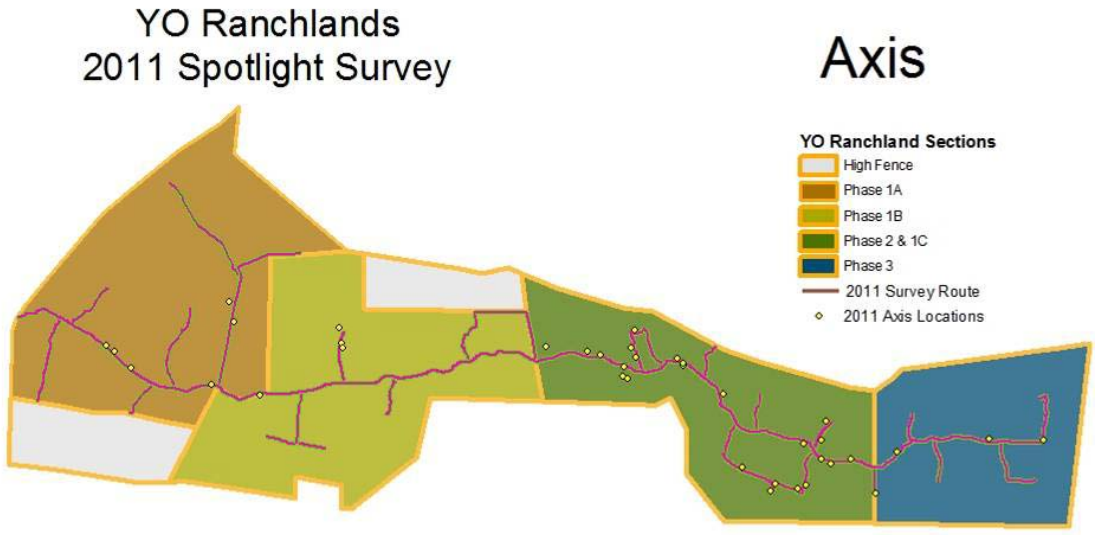

YO Ranchlands Population Trends
4000
3500
3000
2500
2000
1500
1000
500
0
2005
2006
2007
2008
2009
2010
2011
Year
Axis
White-tailed
Sika
Fallow
Blackbuck
Total
Total Population Trend

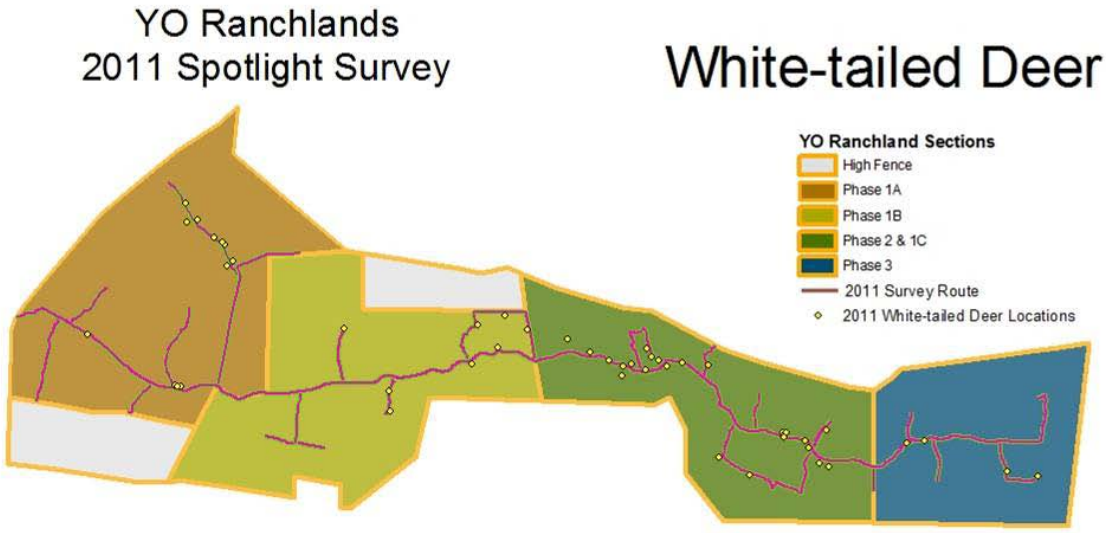
YO Ranchlands
2011 Spotlight Survey

All Animals



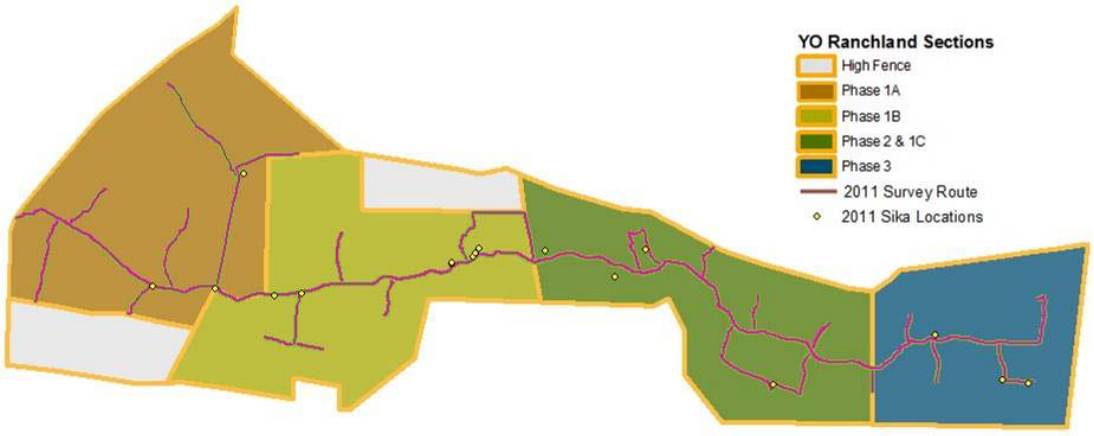
Surveyed Deer Locations by Species





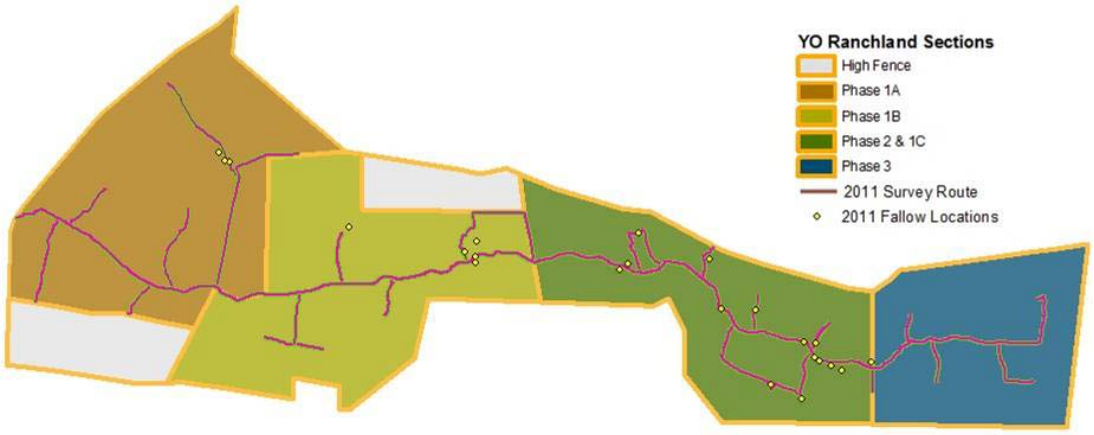
YO Ranchlands
2011 Spotlight Survey

Sika



YO Ranchlands
2011 Spotlight Survey

Fallow



YO Ranchlands
2011 Spotlight Survey

Blackbuck