

Summary report
**Pronghorn antelope abundance survey in south-central
Washington**

February 25-26, 2015

Yakama Nation Wildlife

Washington Department of Fish and Wildlife



Photo by Mark Vekasy

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SUMMARY

By the start of the 20th century, pronghorn antelope had become extirpated from Washington. Ninety-nine pronghorns were reintroduced onto the Yakama Reservation, Washington in 2011 and many have since dispersed from their release locations. We conducted aerial surveys on February 25-26, 2015 in Benton, Klickitat, and Yakima Counties in south-central Washington, both on the Yakama Reservation and off the Reservation. The objective of the survey was to obtain a minimum population estimate for pronghorn. We counted a total of 106 pronghorns during our aerial survey and an additional 26 from ground surveys, for a total minimum population estimate of 132 pronghorns. The true abundance is likely to be underestimated because small group sizes (resulting from the early spring) made detecting animals difficult, and because we did not survey all areas where pronghorns have historically been observed. Additionally, coyotes might be at sufficiently high densities to keep pronghorn fawn survival low for this population. Human-induced mortality must be kept low to protect this small population for a few years.

INTRODUCTION

Paleontological and archeological evidence indicates that pronghorn antelope (*Antilocapra americana*) were historically present in Washington (Lyman 2007). However, pronghorns had become extirpated from Washington by the beginning of the 20th century (Taylor and Shaw 1929). Ninety-nine pronghorns were translocated onto the Yakama Reservation in the winter of 2011 from central Nevada (Yakama Nation [<http://www.ynwildlife.org/biggame.php>]). Of those, only 2 mortalities were recorded as a

direct result of capture and transport and 97 were released successfully. All were ear-tagged and 19 were fitted with VHF collars and. Since 2011, the Yakama Nation Wildlife Program (YNWP) has continued to monitor the collared pronghorns (Swan 2011), some of which have since dispersed off of the Yakama Reservation (unpublished WDFW files). The overall abundance, growth rate, and dispersal patterns of the herd are in need of clarification. More research is needed to describe the overall abundance, growth rate and dispersal patterns of this population.

STUDY AREA

Our survey was conducted in portions of Benton, Klickitat, and Yakima counties in southcentral Washington. The dominant habitat types are a mix of croplands (primarily winter wheat and crops with center pivot irrigation), Conservation Reserve Program (CRP) land, grazed rangeland, and shrub-steppe communities.

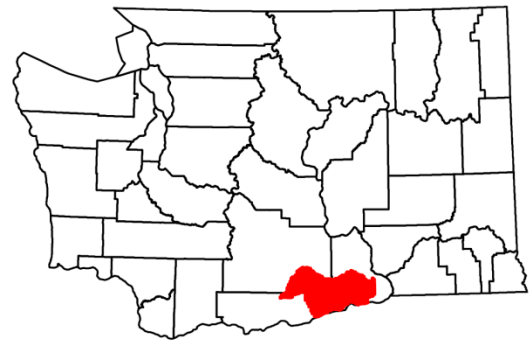


Figure1. The survey area (red) including portions of Benton, Klickitat, and Yakima counties.

METHODS

We used a strip transect method for the survey. We flew parallel transects in a north-south direction. Transects were established prior to the survey in ArcGIS 10.1 (Environmental Systems Research Institute, Inc., Redlands, CA). Transects in Benton and Klickitat counties were spaced 2 km apart, whereas transects on the Yakama Reservation were spaced at 1 mile intervals (Figure 2). Surveys were conducted February 25-26, 2015. Some of the planned transects in Benton

County were not surveyed due to time constraints.

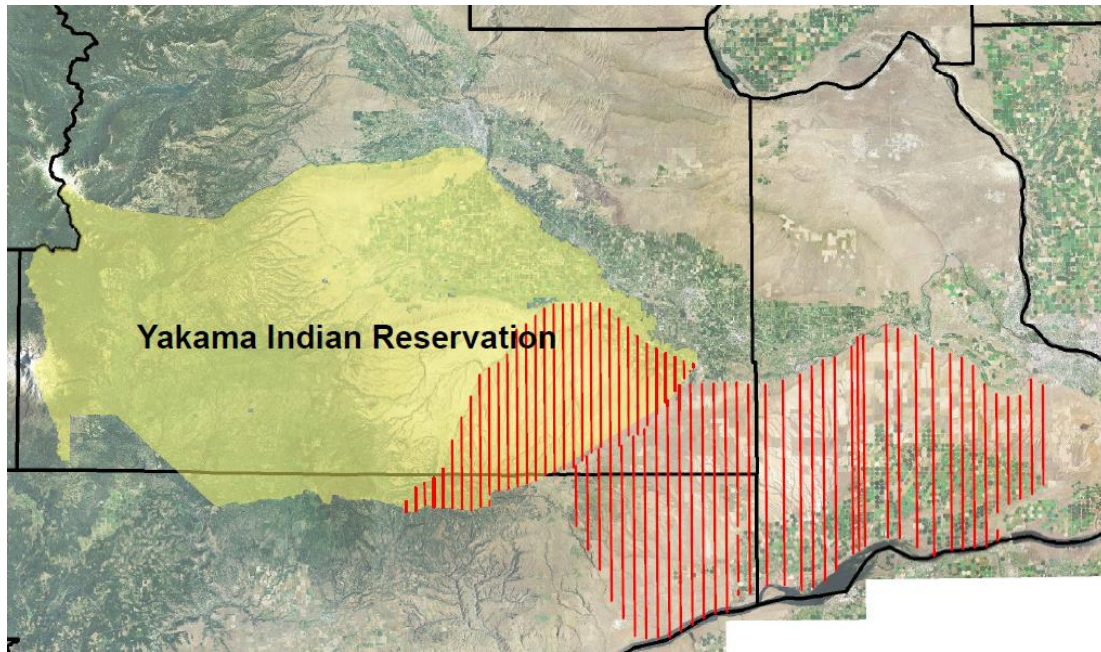


Figure 2. Transects (red) flown in search of pronghorn antelope, February 25-26, 2015. Note: some transects we had planned to fly in Benton County were not surveyed due to time constraints.

We conducted aerial surveys in a Cessna 182 fixed-wing aircraft at an approximate speed of 80 – 90 mph and at 400 - 500 feet above ground level. Recent ground observations from the public were documented and relayed to the flight crew. Real-time ground locations from public volunteers were also relayed to the flight crew during the survey. We began our aerial survey by flying the transects adjacent to the documented pronghorn locations. We spent the remainder of the survey time flying the remaining transects, as time allowed. When we observed a pronghorn group we left the transect, and recorded: (1) a waypoint, (2) the total number of pronghorns, (3) the number of distinguishable bucks, (4) any pronghorns with collars or ear tags, (5) the observer that detected the pronghorn, (6) pronghorn activity (e.g. standing, bedded etc.), and (7) habitat type. We surveyed for about 6 hours in Benton County, 3 hours in Klickitat/southern Yakima County, and 3 hours over the Yakama Reservation.

RESULTS

During our aerial survey we detected 15 pronghorn groups for a total of 106 pronghorns; 49 were seen on the Yakama reservation and 57 were seen off the reservation. There were at least 3 pronghorn groups that have consistently been observed from the ground that were not detected during our aerial survey: a group of 4 pronghorns south of Kennewick, and groups of 15 and 7 pronghorns on the Yakama Reservation. Combining the ground observations with those from the aerial surveys, we obtained a minimum population estimate of 132 pronghorns. Of the 15 aerial detections, 13 groups were seen in rangeland habitat, 1 in cropland, and 1 in CRP land.

Mean group size was 7.1 pronghorns; group sizes varied from of 1 to 27. Does and fawns are not easily distinguishable during this time of year because fawns are nearly full-grown. However, we were able to distinguish between bucks and does/fawns in all groups except for one (we were not able to accurately classify the largest group of 27 pronghorns). Of the pronghorns that we were able to classify, 44% (24 of 79) were bucks. Collars and ear tags were likely difficult to detect from the aircraft, however, we saw 1 collared and 2 ear-tagged pronghorns. Additionally, we recorded coyote (*Canis Latrans*) sightings in Benton and Klickitat counties. During our 3 hour flight in eastern Klickitat/southern Yakima County, we observed 15 coyotes. We saw an additional 7 coyotes in Benton County, for a total of 22.

MANAGEMENT IMPLICATIONS

Pronghorns aggregate into larger groups during winter months. When temperatures warm up and new vegetation begins to grow, pronghorns will split up into smaller groups

(O’Gara and Yoakum 2004). February 2015 was the fifth warmest February on record in our study area (National Weather Service 2015). Given the warm weather and early “green-up”, pronghorns probably split up into smaller groups earlier than anticipated. Smaller group sizes likely made pronghorns more difficult to detect and lowered our overall count from what it could have been in mid-winter (Oyster 2014). Ideally, future pronghorn surveys should be conducted in January. Despite the potential underestimation of the population abundance, there was a minimum mean rate of increase of 7.5% per year ($\lambda = 1.075$) from winter 2011.

Coyotes can be effective predators of pronghorn adults (Bright and Hervert 2005) and fawns (Gregg et al. 2001). High coyote densities have been shown to have a direct impact on fawn survival (Berger et al. 2008). Pronghorn rely on birth synchrony and predator swamping (i.e. high prey abundance lessens the probability that an individual is preyed upon) to maximize fawn survival (Gregg et al. 2001). If there is a high density of coyotes in this area, high coyote densities relative to pronghorn densities could effectively limit population growth by consuming a large proportion of pronghorn fawns every year (Holling 1965, Berger et al. 2008).

Although these counts represent minimums, it is nonetheless clear that pronghorn antelope have increased modestly in abundance (and considerably in geographic scope) since their reintroduction in 2011. That said, this recovery remains fragile. For pronghorns to become self-sustaining and secure, it will be important to assure that human-induced mortality (e.g., from poaching or poor fence construction) remains low, and that any conflicts with agricultural use are minimized so as to maintain landowner acceptance. Both the Yakama Nation and WDFW consider that the population will require at least a few more years of continued growth before recreational harvest should be considered. Potential conflicts between pronghorns and

feral horses will need to be researched and described. Although horses and pronghorns do not overlap substantially in dietary consumption, indirect impacts likely exist. The Yakama Nation will likely need to reduce feral horse populations for pronghorn to persist within Reservation boundaries (Swan 2011). If possible, it would also be desirable to assess genetic diversity in this herd to help understand the usefulness of additional transplants (Stephen et al. 2005)

ACKNOWLEDGMENTS

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