

Summary Report 2021

Pronghorn antelope abundance survey in south-central Washington

Yakama Nation Wildlife

Washington Department of Fish and Wildlife



Photo by Mark Vekasy

Jason Fidorra - Wildlife Biologist, WDFW

T.C. Peterson – Range Biologist, YNWP

July 6, 2021

SUMMARY

By the start of the 20th century, pronghorn antelope were extirpated from Washington. The Yakama tribe reintroduced pronghorn onto the Yakama Reservation in Washington, releasing 198 animals from 2011 to 2019. These pronghorn dispersed from their release locations and increased in abundance according to biennial surveys. We conducted a fourth biennial aerial survey on March 2-3, 2021 in parts of Benton, Klickitat, and Yakima counties in south-central Washington, including parts of the Yakama Reservation and private lands. The objective of the survey was to obtain a minimum population estimate for pronghorn. We counted a total of 216 pronghorn from the air and an additional 34 from ground counts, for a total minimum population estimate of 250 pronghorn. This remains a relatively small population and there is currently no legal harvest of the species in areas under the auspices of the Washington Department of Fish and Wildlife (WDFW) or Yakama Nation. The Yakama Nation and WDFW have been developing plans regarding future management for this herd.

INTRODUCTION

Paleontological and archeological evidence indicates that pronghorn antelope (*Antilocapra americana*) were historically present in Washington but were never abundant relative to other ungulates in the area (Lyman 2007). Pronghorn were extirpated from Washington by the beginning of the 20th century (Taylor and Shaw 1929). In the winter of 2011, 99 pronghorn were translocated onto the Yakama Reservation from central Nevada (Yakama Nation 2011). In October 2018 and January 2019, two more releases added 50 and 49 pronghorn, respectively, to augment the growing herd. Surveys of this population occurred in Feb 2015, March 2017, and Feb 2019. These surveys indicated that the population was slowly growing and that about half of the population spent winters on the reservation and the other half on private

lands (Oyster et al. 2015, 2017; Fidorra et al. 2019).

The objective of the 2021 pronghorn survey was to reassess the status of the population and provide a minimum population estimate to guide management of pronghorn in the future for both the Yakama Nation and WDFW.

STUDY AREA

The survey took place in portions of Benton, Klickitat, and Yakima counties in southcentral Washington (Fig. 1). The dominant habitat types include dryland wheat agriculture, Conservation Reserve Program (CRP) land, grazed rangeland, and shrub-steppe communities of sagebrush and bunch grass, and degraded steppe invaded by cheatgrass (*Bromus tectorum*). A large area of irrigated agriculture in southern Benton County was excluded from the survey area this year as past surveys and GPS collar data indicated very rare use of this cover type by pronghorn in Washington.



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

METHODS

Surveys were conducted March 2-3, 2021. Due to COVID-19 restrictions at the time, WDFW staff were not able to participate in flight surveys and Yakama Biologists conducted all sections of the survey. We flew parallel strip transects in a north-south direction (Fig. 2). Transects were established prior to the survey in ArcGIS 10.4 (Environmental Systems Research Institute, Inc., Redlands, CA). Transects were spaced at 1.6 km apart on the Yakama Reservation and 2 km apart off the reservation. Transects with narrower spacing were selected based on higher perceived pronghorn abundance and because terrain and vegetation on the Yakama

Reservation (uneven, characterized by shrubs) make pronghorn detection more difficult compared to the typically flat terrain containing agricultural fields. These transects were the same flown in 2019 following changes made to survey area and spacing from the first 2 surveys.

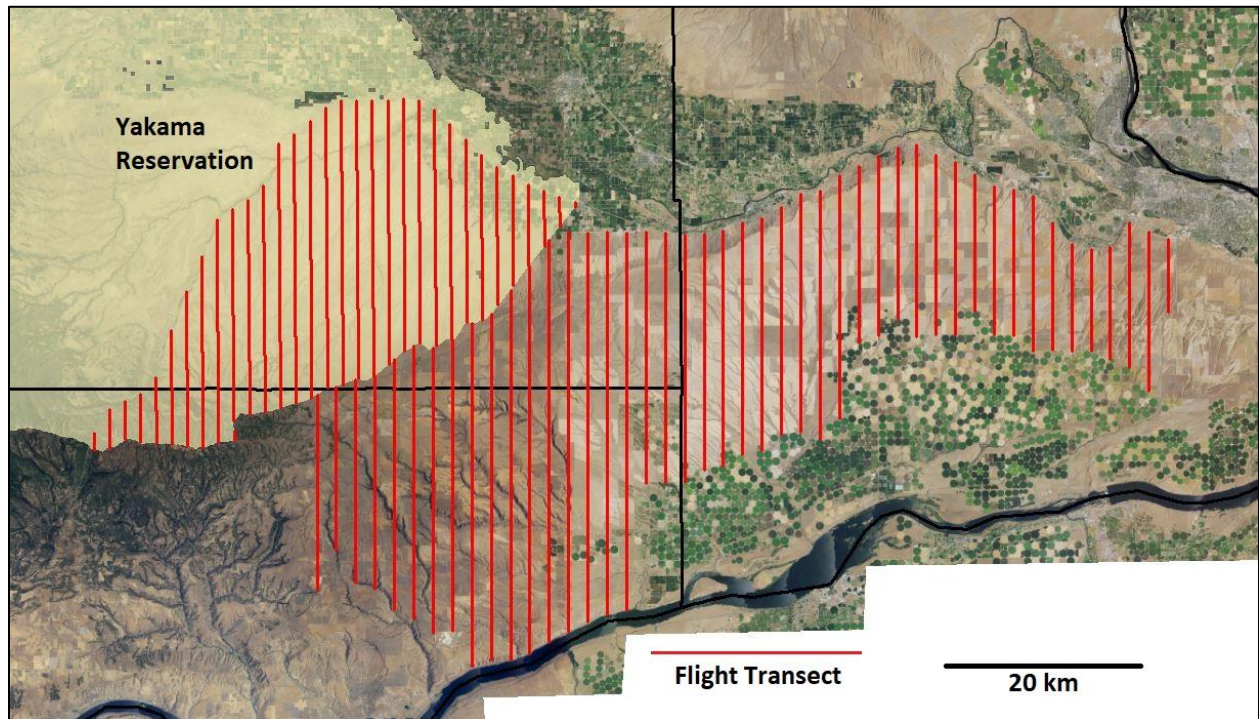


Figure 2. Flight Transects planned for pronghorn survey in south-central WA, March 2021.

We conducted aerial surveys in a Cessna 182 fixed-wing aircraft at an approximate speed of 80—90 knots and at 100—150 meters above ground level. A ground survey crew of 2-3 vehicles coordinated by the Safari Club International (SCI) was actively searching for pronghorn concurrently with the aerial survey. When the ground crew detected a pronghorn group, they relayed the location to the aerial crew. If possible, the aerial crew obtained a count of that group from the plane. We had two observers in the plane, plus the pilot in the front left seat. The main duty of the pilot was flight safety and remaining near the transect line; however, we included any pronghorn he detected in our count as well.

We began our survey at the western-most transect in Klickitat County and continued east

through the Yakama Reservation the first day just past Mabton, WA. The remaining transects in Klickitat County were flown at the start of day two along with Benton County. When we observed a pronghorn group we left the transect and recorded: (1) a waypoint for time and location, (2) the total number of pronghorn, (3) the observer that detected the pronghorn, (4) pronghorn activity (standing, moving, bedded), and (5) the number of identified bucks. Buck, does, and fawns are not as easily distinguished during the winter as other times of year and this data was incidental.

RESULTS

The survey was completed on March 2-3, 2021 with the exception of the 5 eastern transects in Benton County which were not completed due to running out of daylight on the second day. The ground cover of the survey area was clear of snow except small patches of snow in the upper elevation transects in Klickitat County and on the Yakama Reservation (Appendix A). It was sunny with little cloud cover on both survey days, making the detection of pronghorn easy to distinguish from the plane. On the first day we surveyed the Yakama Reservation plus 4 transects in Klickitat/Yakima. On day 2 we finished Klickitat/Yakima and moved to as much of Benton that could be completed before running out of daylight. Including refuel stops, the Yakama Reservation took 4.75hrs to survey, Klickitat/Yakima took 5.75hrs, and we spent 3.5hrs in Benton before running out of light to complete the final 5 transects. Commute time from Pullman added an additional ~2hrs (Table 1).

Table 1: Survey dates and flight details of aerial pronghorn surveys in south-central WA.

Year	Date	Vendor	Aircraft	Flight time	Comments
2015	Feb 25-26	Inter-State	Cessna 182	10.4hrs	
2017	Mar 16-17	Baker	Cessna 182	15.9hrs	Weather delay to Mar.
2019	Feb 6-7	Inter-State	Cessna 182	13.9hrs	
2021	Mar 2-3	Inter-State	Cessna 182	16.2hrs	Did not fly 5 of the transects

We detected a total of 250 pronghorn in 34 groups (Figure 3; Figure 4). Mean group size was 7.0 with group sizes ranging from of 1 to 24. Of the total observed, 124 pronghorn (50%) were on the Yakama Reservation. One group of 12 pronghorn observed from the ground in Benton County were not located during the flight. Ground observations on the Yakama Reservation further confirmed an additional 22 animals in 3 groups that were underestimated during the flight.

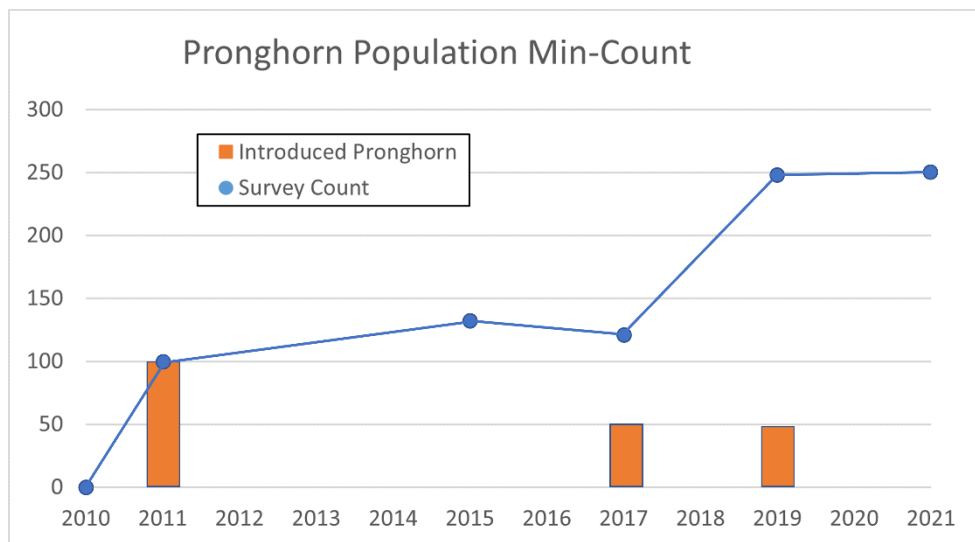


Figure 3. South-central Washington pronghorn population based on counts from survey efforts compared to the total number of introduced individuals.

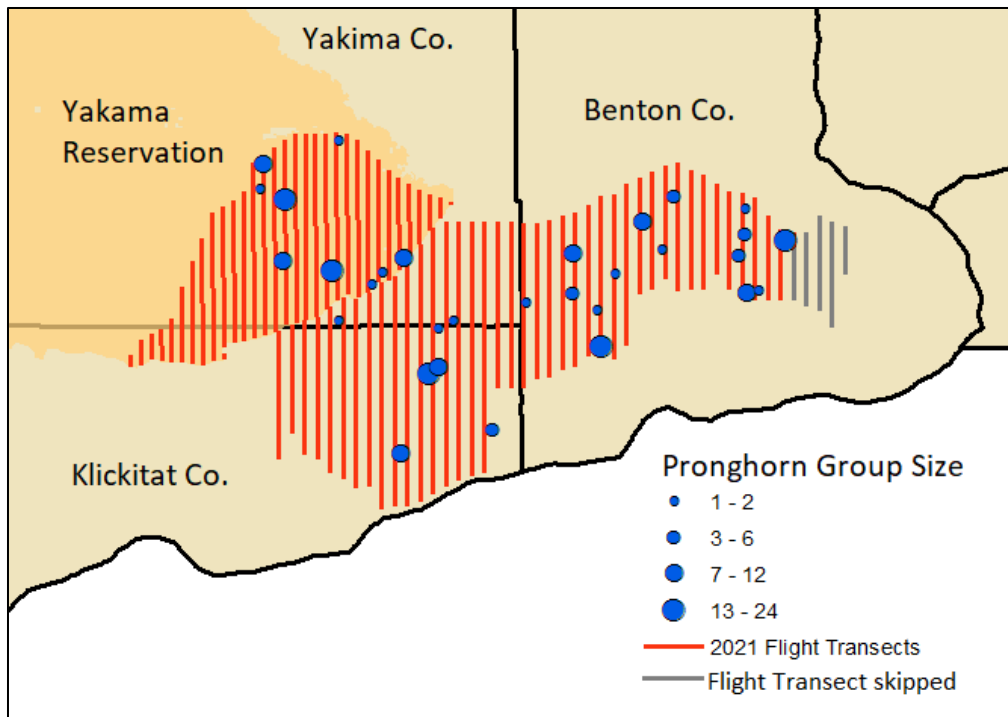


Figure 4. Pronghorn group locations during 2021 flight survey.

DISCUSSION

Survey Methods

This survey is intended to occur in winter as pronghorn form large groups during winter months that are easier to spot than smaller groups (Figure 5; Oyster 2014). When temperatures warm and new vegetation begins growing, pronghorn split up into smaller groups (O’Gara and Yoakum 2004, Bernt 1976), which has occurred by mid-March in this area (Oyster et al. 2017). Weather pushed back surveys from February to early March this year, but the generally mild winter resulted in most large groups having broken up by the survey time. In the Feb 2019 survey, pronghorn were detected in 8 groups ranging from of 3 to 97 pronghorn with a mean group size of 31.0. This year, 34 groups were detected with an average size of 7.4 pronghorn ranging from 1 to 24 animals. Past survey recommendations suggest pronghorn surveys should

be conducted during December or January, though February has been suitable in the past (Fidorra et al. 2019). Flight observers missed at least 1 mid-sized group of 12 animals and 2 mid-sized groups located in wooded riverine areas during the survey.

This pilot informed us that the Prosser Airport was out of fuel at the time resulting in longer refuel trips to Yakima. The pilot also returned to Pullman between survey days which resulted in wasted daylight. For these reasons the flight crew ran out of time to complete the survey in 2 days and the 5 easternmost transects in Benton County were not surveyed. SCI ground crews did not locate any pronghorn in the skipped area before and during surveys, but some small groups have been present here in the past and some animals may have been missed. In the future, refueling and overnighting in Prosser, as done in the past, will reduce travel time and allow for all survey transects to be completed.

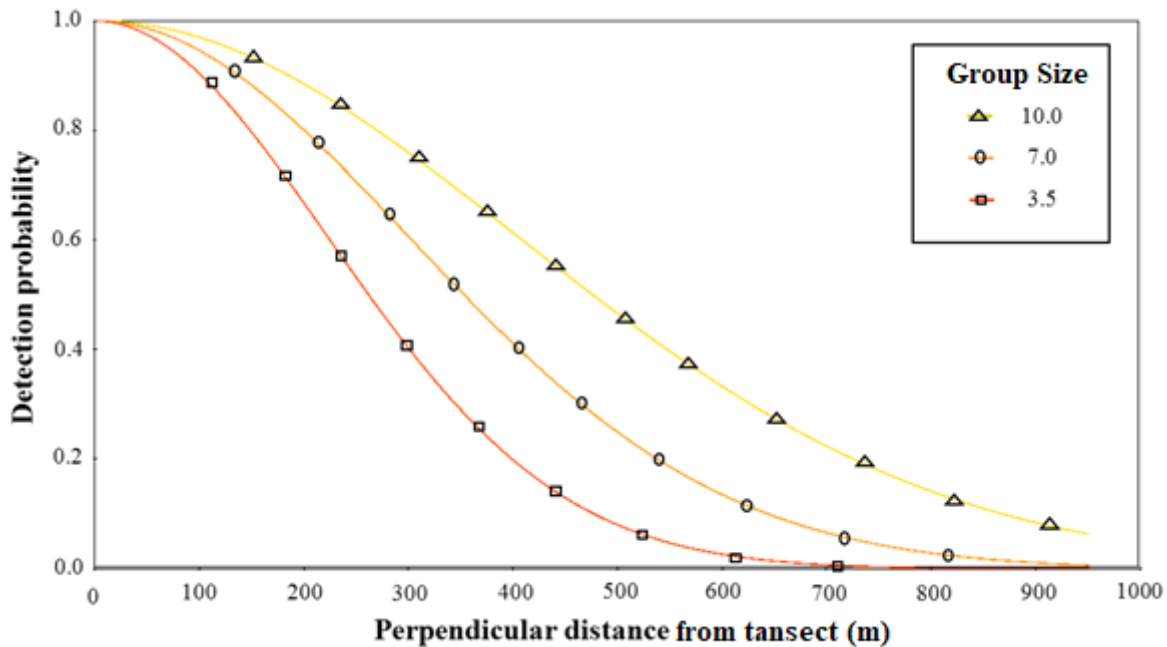


Figure 5. Detection function curves for three different pronghorn group sizes in western Kansas, summer 2012. Adapted from Oyster (2014).

Pronghorn does and fawns are not easily distinguished during this time of year because fawns are nearly full-grown. Yearling bucks are also difficult to distinguish from does and fawns because their horns (~ 7 inches) are only about as long as their ears (5-6 inches), and their dark cheek patches are only about 50% the size they attain during the pre-rut and rut (O’Gara and Yoakum 2004). Furthermore, classifying animals from the air would increase risk from low level maneuvering and pushing of animals across the landscape that could contact fences or roadways. Therefore, we did not attempt to estimate buck:doe ratios from our survey in 2021.

We benefited from SCI and Yakama ground crews during survey efforts as 34 animals would have otherwise been missed from the air. We recommend continuing ground survey efforts during the flight and increasing scouting 1-2 days before the survey as well.

Pronghorn Population

The 250 pronghorn observed during the survey represent a minimum population count for south-central Washington. This population is considered a closed population with no known movements across the Columbia River to the south where populations reside in Oregon, or east to populations reintroduced in North-central WA by the Collville Tribe. The 2021 count is comparable to the 2019 count (248 pronghorn). Shortly after the Feb 2019 survey, heavy snowfall and cold temperatures in February and March 2019 resulted in a severe mortality event especially amongst the 50 newly introduced pronghorn released in January 2019. Over 80% of these newly relocated animals were believed to have perished following the survey. Therefore, the relatively stable counts between 2019 and 2021 despite this known mortality event between counts indicate this small population is moderately resilient and continues to grow and sustain itself through natural recruitment, to an extent. No further reintroductions are currently planned by the Yakama Tribe.

This count is a minimum and it is likely that more animals exist in this landscape.

Detection of small groups can be challenging during flights and this survey was conducted past the optimal timeframe as wintering groups were breaking up. Efforts should continue to attempt to conduct flights earlier in winter (January). In addition, pronghorn may have been in areas missed during this year's survey in the eastern transects left incomplete, or outside our survey boundary. Reports of up to 40 animals west of Hwy 97 on the Yakama Reservation were received in the spring following the survey but never confirmed. This area should be considered for future flight survey expansion or more in-depth ground surveys.

CONCLUSION

Our minimum south-central population of pronghorn was 250, indicating effectively no change from 2019 despite a known winter mortality event from which the population has rebounded. The population appears to be growing and maintaining itself naturally but is still small and considered sensitive to adult mortality including roadkill, harsh winter conditions, and changing habitat and land use. Biennial survey flights have been a positive cooperative undertaking and should be a continued priority for the WDFW, Yakama Tribe, and SCI partners. The Yakama Nation and WDFW are currently both developing plans regarding future management for this herd.

ACKNOWLEDGMENTS

We are especially thankful to the Safari Club International Volunteers for coordinating and conducting ground surveys. We thank Inter-State Aviation pilot Gene Gussehoven for safe and effective flying, and flight observers Dave Blodgett III (YN) and Kyrsten Wolterstorff (YN) for their work during the aerial survey. We are grateful to Yakama Dispatch for flight following during the survey.

LITERATURE CITED

- Bernt, W.C. 1976 Observations on a pronghorn antelope winter range. M.S. thesis. Idaho State University. Pocatello, ID.
- Fidorra, J. C., Blodgett III, D., Bergh, S., Wickham, C., and Harris, R. 2019. Summary Report 2019: Pronghorn antelope abundance survey in south-central Washington. Yakama Nation Wildlife and Washington Department of Fish and Wildlife. Unpublished report online.
<https://wdfw.wa.gov/publications/02071>
- Lyman, R.L. 2007. The Holocene history of pronghorn (*Antilocapra americana*) in eastern Washington State. Northwest Science 81: 104 – 111.
- O’Gara, B. W., and J. D. Yoakum. 2004. Pronghorn ecology and management. Wildlife Management Institute, Washington, D.C., USA.
- Oyster, J. H. 2014. Distance Sampling as a technique to monitor pronghorn in Kansas. Thesis, Fort Hays State University, Hays, Kansas, USA.
- Oyster, J., Blodgett III, D., Swan, G., Harris, R. 2015. Pronghorn antelope abundance survey in south-central Washington. Yakama Nation Wildlife and Washington Department of Fish and Wildlife. Unpublished report online. <https://wdfw.wa.gov/publications/01770/>
- Oyster, J., Blodgett III, D., Swan, G., Harris, R. 2017. Pronghorn antelope abundance survey in south-central Washington. Yakama Nation Wildlife and Washington Department of Fish and Wildlife. Unpublished report online. <https://wdfw.wa.gov/publications/01907/>
- Taylor, W.P. and W.T. Shaw. 1929. Provisional list of land mammals of the state of Washington. Occasional Papers of the Charles R. Conner Museum 2. Washington State University, Pullman. 32 pp.
- Yakama Nation. 2011. Pronghorn Antelope (wa’wataw) on the Yakama Reservation. Online

<https://www.ynwildlife.org/pronghorn.php>. Accessed Feb 2019.

Appendix A. Photos of typical terrain and snow cover during flight survey in March 2021.



Snow free and brown landscape conditions in Benton County.



Very little snow even at higher elevations on Yakama Reservation.

