Pronghorn Monitoring in the Pinedale Anticline Project Area
2020 Annual Update

Prepared for:

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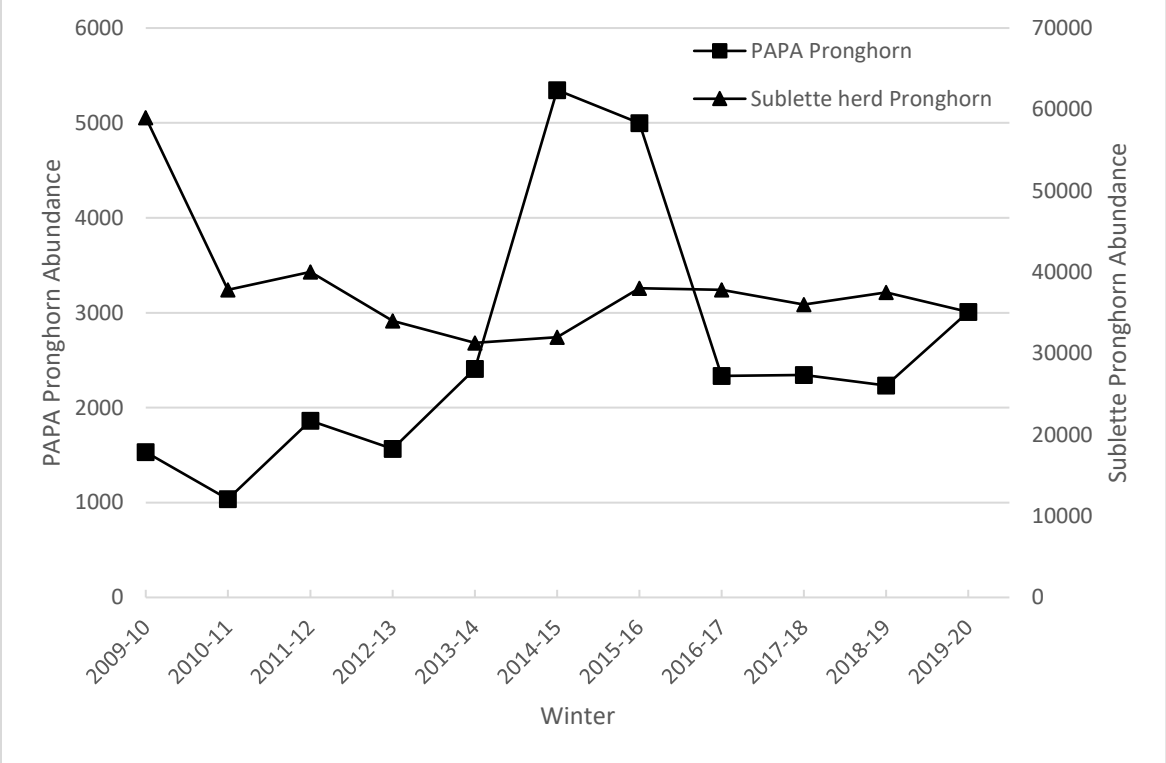

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Overview

As a result of the 2008 Record of Decision for the natural gas exploration and development in the Pinedale Anticline Project Area (PAPA), the Wildlife Monitoring and Mitigation Matrix (WMMM) was developed to define parameters of PAPA pronghorn (*A. americana*) abundances to quantitatively monitor for changes throughout development. According to the WMMM, a 15% decline in abundance in any year or cumulatively over all years from winter 2009-10 relative to abundance changes in the larger Sublette herd would trigger mitigation responses (BLM 2008). What follows is a report on monitoring results for the winter of 2019-2020, where population estimates indicate the 2019-20 PAPA pronghorn had a relative change of ±137% from the baseline.

Methods

For each winter from 2009-10 to 2016-17, pronghorn abundance was estimated using fixed wing aircraft aerial line transects in January, February, and March as described by Sawyer (2018). Surveys were conducted by flying 300-400 feet above ground in line transects spaced ½ mile apart while counting and recording all groups detected with GPS and video recording all groups greater than 50 pronghorn to measure group size later in an office setting (Sawyer 2018). More detailed descriptions of previous survey methods may be found in LeBeau and Hiler (2017).

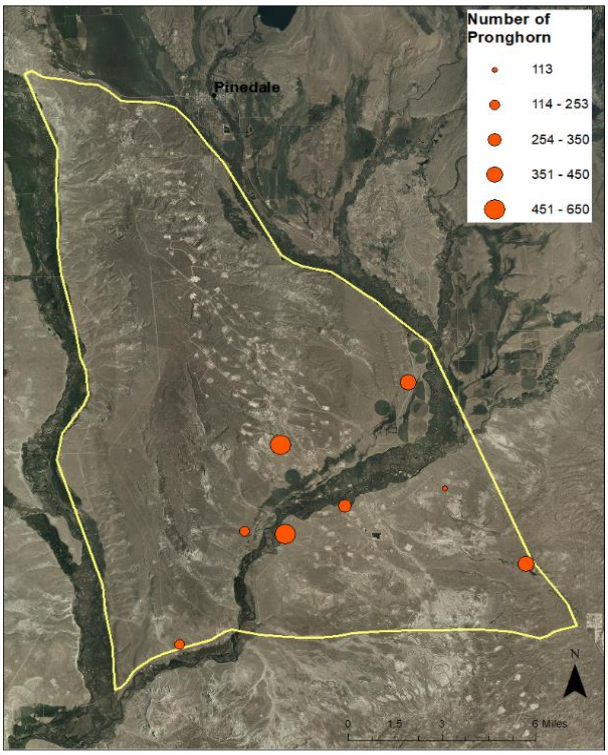

Figure 1. Map of the PAPA pronghorn survey area depicting eight different groups of pronghorn detected. Sizes of circles indicating groups increase with group size.

The three fixed wing aircraft surveys were replaced by aerial infrared surveys in the winter of 2017-18 in order to reduce disturbance to pronghorn, increase accuracy, increase surveyor safety, and reduce costs (Sawyer 2018). 2019-20 surveys were conducted by Owyhee Air Inc. from the morning of February 5 to the morning of February 8 in early mornings and afternoons by flying over the 119,600 acres pronghorn treatment area at 100mph, 2,000 feet aboveground in ¼ mile transects. All pronghorn encountered were documented with video, real-time counts, and geographical coordinates (Figure 1).

To determine if a mitigation threshold had been met as defined by the ROD (BLM, 2008), PAPA pronghorn and Sublette reference herd 2019 abundances from Wyoming Game and Fish Department (WGFD)

were compared to their respective baseline estimates to determine rates of change. Population estimates for the Sublette Pronghorn Herd Unit are derived using a semi-constant survival model periodically grounded by stratified line-transect flight estimates. Results were then compared to conclude if a cumulative 15% decline threshold had been met by the PAPA pronghorn relative to the reference herd. Abundances for both herds from the previous year's (2018-19) survey were compared to 2019-20 abundances to determine if the PAPA herd experienced a decrease greater than 15% over the year compared to the Sublette herd.

Results

From February 5-8, 2020, Owyhee Air Inc. observed 3,010 pronghorn in the survey area. Observers noted that, besides one group of 113 pronghorn, the pronghorn observed were in groups of over 200 individuals, with one group containing over 650 individuals (Figure 1). Observers also noted the previous year's survey (2019) observed pronghorn in much smaller groups that were more spread out over the survey area.

	PAPA			Sublette Herd Unit			Relative % Change	Threshold Exceeded?
Winter	Estimate	SE	% Change	Estimate	SE	% Change		
2009-10	1,533[a]	761	baseline	59,000	n/a	baseline	n/a	baseline
2010-11	1,036[a]	825	-32%	37,800	n/a	-36%	4%	NO
2011-12	1,861[a]	388	21%	40,000	n/a	-32%	53%	NO
2012-13	1,567[a]	672	2%	34,000[b]	n/a	-42%	44%	NO
2013-14	2,409[a]	359	57%	31,300	n/a	-47%	104%	NO
2014-15	5,347[a]	1251	248%	32,000	n/a	-46%	294%	NO
2015-16	4,998[a]	919	226%	38,000	n/a	-36%	262%	NO
2016-17	2,335[a]	798	52%	37,800	n/a	-36%	88%	NO
2017-18	2,345[c]	n/a	53%	36,000	n/a	-39%	92%	NO
2018-19	2,234	n/a	46%	37,500	n/a	-36%	82%	NO
2019-20	3,010	n/a	96%	35,100	n/a	-41%	137%	NO

Table 1. Abundance estimates for PAPA pronghorn and Sublette reference herd pronghorns from winter 2009-10 to 2019-20. Mitigation thresholds were not reached in any year.
a Estimate and SE is average of 2-3 surveys conducted in each of those winters (Sawyer 2018, Lebeau and Hiler 2017)
b WGFD changed population models from POP2 to spreadsheet (Sawyer 2018)
c Surveys changed from 2-3 fixed wing aircraft surveys to aerial infrared surveys

Abundance in PAPA pronghorn documented in winter 2019-20 was a ±96% change from the baseline estimate of 1,533 pronghorn. The 2019 post-season Sublette pronghorn herd estimate by WGFD was 35,100 pronghorn, a 41% change from the 2009-10 abundance baseline of 59,000 pronghorn (Table 1, Figure 2).

Discussion

According to the WMMM, a mitigation trigger is met if there is a 15% decline in PAPA pronghorn abundance in any year or cumulatively over all years of survey compared to the Sublette reference herd over the same period. Compared to the Sublette herd, 2019-20 PAPA pronghorn abundance had a relative change of ±137% from the baseline, indicating the cumulative threshold was not met (Table 1). Compared to the 2018-2019 winter survey, and relative to the Sublette herd, PAPA pronghorn experienced a 41% increase, which also does not meet the mitigation threshold of 15% decline in any year relative to the reference herd. For more information regarding methodologies, results, and variations in past survey methods, refer to Sawyer (2018)

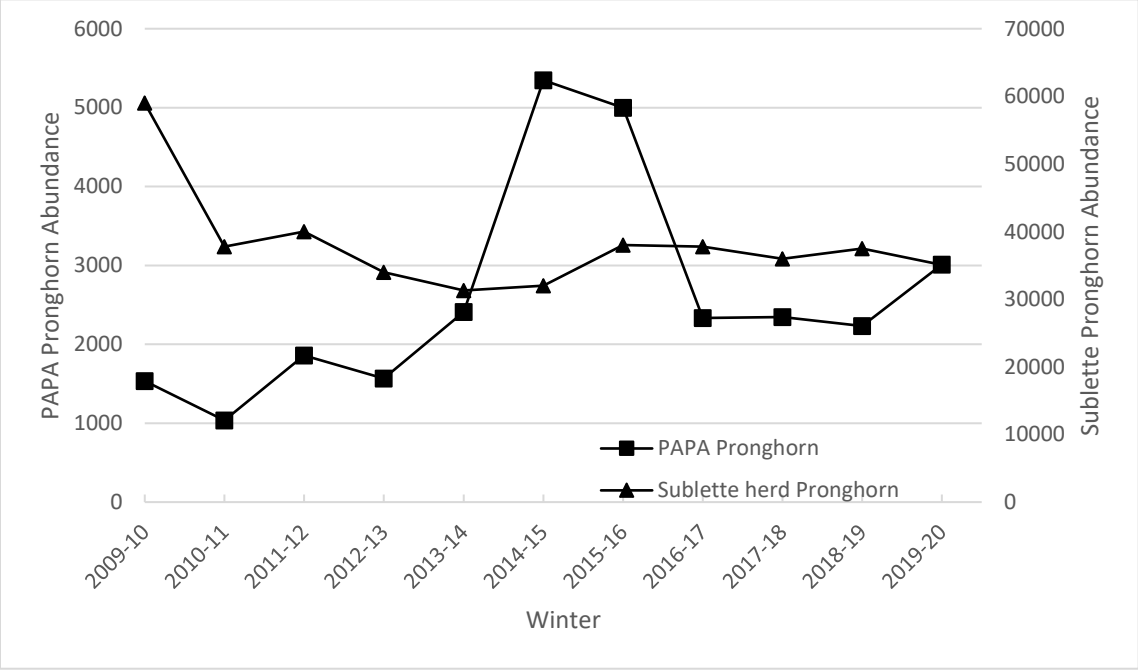

Figure 2. Graph of abundances for the PAPA pronghorn and Sublette reference herd over time from winter 2009-10 to winter 2019-20. The PAPA herd has been generally increasing in abundance since 2009-10, the population dropped sharply following the severe 2016-2017 winter. The Sublette reference herd saw a large drop after the first winter of observation (2009-2010), but has been generally stable since, though it has not recovered to pre-2009-10 amounts.

References

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