

JACKSON HOLE



WILDLIFE
FOUNDATION



2017 MOOSE DAY REPORT

Ninth Annual Moose Day Yielded Record Results

Moose Day 2017 set a record for community participation and for the number of moose counted from 7 a.m. to 12 noon on Saturday, February 25, 2017. A total of 84 volunteers from Nature Mapping Jackson Hole, and personnel from Wyoming Game and Fish Department, Grand Teton National Park and U.S. Forest Service took part and expended a collective total of 294.5 hours of volunteer time. 172 individual moose were observed (*Note: this number has been updated since previous reports, to reflect additional entries verified after a glitch within an individual participant's database record was corrected*) in 59 individual search areas. As a comparison, during the 2016 survey, 99 individual moose were observed by 73 volunteers in 58 individual search areas.

Moose Day is an annual event, in which passionate citizen scientists can utilize their great observation and naturalist skills to benefit conservation of the Jackson Hole moose population. By helping to count moose, Nature Mappers (citizen scientists trained and participating through the Nature Mapping Jackson Hole project) directly help biologists to best evaluate and understand the moose population's long-term trend (i.e., decreasing, stable or increasing) and composition; set the harvest for the subsequent hunting season; improve our understanding of moose ecology and otherwise contribute to sound future management.

In 2017, the Wyoming Game and Fish Department's Jackson Moose Herd classification came in at 346 total moose which includes unduplicated observations from Wyoming Game and Fish Department aerial surveys and Moose Day citizen scientists. The calf to cow ratio was 47 calves per 100 cows, which is the highest recorded since the mid-1990s. The increase in the calf ratio is promising, however, the population is still at very low numbers.¹ Fortunately, most reports indicated that moose were seen to be in good condition last year.

¹ A. Courtemanch, Wildlife Biologist, Wyoming Game and Fish Department, personal communication, March 15, 2017.

Summary

Where were the moose last winter? It appears they were attracted to low-lying willow wetlands, such as in the Buffalo Fork Valley, along the Gros Ventre River and in Wilson. Moose were also seen browsing on exotic shrubs in Jackson or loafing in the shelter of buildings.

Where were moose missing? Often in areas of extremely deep snow, such as the northern stretches of Grand Teton National Park and at the base of the mountains along Fish and Fall Creek Roads. Other wide-open areas had little browse for the amount of effort it would take to reach it.

All moose observations were entered into the Nature Mapping Jackson Hole online database. Only live moose were recorded while deceased moose, tracks and other signs were omitted. 172 individual moose were observed in 2017 throughout 59 distinct search areas across much of the Jackson Hole valley (Figure 1). This exceeds our previous record of 124 moose in 2011 (Table 1).

Table 1: Total moose observed during Moose Day from 2009-2017.

Year	Date	Total Moose Observed
2009	April 18	95
2010	February 27	86
2011	February 27	124
2012	February 25	94
2013	February 23	67
2014	March 1	74
2015	February 28	97
2016	February	99
2017	February 25	172

Table 2: Moose observations in 2017 by sex and age

Sex/Age	Adult	Juvenile	Unknown	Yearling	TOTAL
Female	70	4	4	0	78
Male	29	0	6	0	35
Unknown	10	17	32	0	59
TOTAL	109	21	42	0	172

In 2017, 84 individual people (33 people units) spent 294.50 total hours volunteering for a total effort of 246.5 hours (187.7 hours by car, 20 hours by snowmobile, 15.8 hours by foot and 23 hours by skis) (Table 3). Volunteer numbers are well over our 65-person average. Search effort was not recorded in 2009 or 2010. Search efforts for 2011 and 2012 were calculated based on the 2012 method. A more streamlined effort calculation was used in 2012 than in the 2011 report. This 2012 method more accurately represents the volunteers' effort covering the search areas rather than purely the hours volunteered. The 2012 method used "people units" rather than just the raw number of people.

Table 3. Numbers of people, hours volunteered and search effort on Moose Day from 2009-2017

Year	People	People Units ^a	Total Hours Volunteered _b	Total Effort ^c
2009	57			
2010	47			
2011	46	31	137.5	88.8
2012	70	49	177.3	103.5
2013	80	40	291.45	132.45
2014	71	36	240.5	115.5
2015	71	39	214	108
2016	73	38	259	100.5
2017	84	33	294.50	246.5

^a **People Units** represent the unit traveling together. For example, two people in one car represent one people unit and three people in one car also equate to one people unit.

^b **Total Hours Volunteered** is the sum of each team's number of people multiplied by the number of hours spent searching.

^c **Total Effort** represents the sum of each team's people units multiplied by the number of hours spent searching.

Weather:

Weather conditions were overcast, cold, and with a light mixture of precipitation (a temperature high of 18°F and a low temperature of 9°F). The Snake River Basin was at 155% of the 30-year average of snow water equivalent as of February 25, 2017 (NRCS Snotel snow water equivalent data found at:

<http://www.wrds.uwyo.edu/wrds/nrcs/snowprec/historical/20170225.html>) (Table 4). The

snow water equivalent measures the depth and density of the snowpack. Higher snow water

equivalents indicate a deeper, denser snowpack and lower ones indicate a shallower, less dense snowpack. In general, a deeper and denser snowpack causes moose to become more concentrated on valley bottoms and closer to roads, leading to higher observability on Moose Day.

Table 4. Snow water equivalent measurements and observer visibility scores from 2010-2017.

Year	Date of Average	Snow Water Equivalent	Observer Visibility
2010	n/a	55%	good
2011	3/16/2011	111%	excellent
2012	3/29/2012	88%	poor
2013	3/10/2013	89%	poor
2014	3/10/2014	142%	poor
2015	3/1/2015	99%	good
2016	3/1/2016	93%	good
2017	2/27/2017	155%	good

Low snow water equivalent measurements may enable moose to disperse across the landscape while higher snow water equivalents measurements may limit dispersal, restricting moose to the valley floor. This difference in snow water equivalent between the years could in part account for the varying numbers of moose observed. Variation in visibility conditions, such as in 2014, also has a direct effect on the number of moose observed. A continuation of this project into future years and a comparison with WGFD annual population estimates may provide for better comparisons between similar environmental conditions and an overall trend. The data from NMJH Moose Day is most appropriately used as an indicator of moose population trend over time vs. year-to-year comparisons.

Other notes:

- Sex and age identification are difficult in February due to antler drop in December and January. Thus, many observations are recorded as “unknown.”
- Yearlings are not easily distinguished from calves and younger adults. As a result, all “potential” yearlings were classified as unknowns.
- Volunteers continue to be enthusiastic with regard to Moose Day and express their appreciation and willingness to participate in a systematic, focused project.
- About 30 volunteers gathered for lunch at E.Leaven after the counting was complete to exchange stories and report in their observation numbers.

- In 2014-2017, we increased our training of sex and age identification by providing a Moose ID class the week prior to Moose Day. The trainings are well attended and will continue to be offered prior to future Moose Days; in fact, our next “ID clinic” is scheduled for Thursday, February 15, 2018 from 5:30 – 7:30pm at the Jackson Hole & Greater Yellowstone Visitor Center.
- The 10th annual Moose Day will take place on Saturday, February 24, 2018.

Report compiled by:

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Figure 1: Total of 172 individual moose were observed during the 9th annual Moose Day 2017

