2019 MOOSE DAY REPORT

Photo credit: Kathy McCurdy

Summary

The official number of moose counted on Moose Day 2019 (Saturday, February 23) was 139 moose. This is over the total of 124 moose seen in 2011 (another deep-snow year) and below the record of 172 in 2017—when a mother lode of 57 moose was observed out the east end of the Gros Ventre at the Darwin Ranch (Table 1). Notably too, we had a record number of 94 volunteers this year.

February 2019, was an epic month for snowfall and fell just short of the record, missing the high mark by a mere 3.1 inches. It was an incredibly harsh winter for moose who were seen standing on roads, blocked by snowbanks, or huddled near buildings.

What the biologist noted:

Aly Courtemanch, ungulate biologist for Wyoming Game and Fish Department, surveyed for moose in a helicopter while Nature Mappers were searching on the ground. According to her, this was an especially important year for the contribution of volunteers on Moose Day because with the high snow, moose where huddled up against structures and vegetation, which made spotting them from the air especially challenging.

In recent years the moose population in the "Jackson Herd" has been estimated at between 400-450 individuals, down from a decade ago. However, there were some positive indications from this year's Moose Day.

"This year we saw quite a few cows with calves, which was very promising." Courtemanch said. "Generally, there were more cows that had twins too; twins indicated those cows were healthy and have great nutrition."

Another good sign was the observation of moose in areas where they had not been seen in some time.

"This is the second year in a row that we've seen moose in Willow Flats," said Courtemanch. She added, "there used to be a lot of moose that wintered there in the past, but not so recently. After many years, this is the second winter in a row we've noticed moose there."

Condition of moose varied. Most appeared healthy looking, but some, especially juveniles and moose in Jackson were thin with worn coats from an overload of ticks.

So where were the most moose?

Buffalo Valley harbored 19 moose and the area west of Lower Slide Lake had 18. Antelope Flats, Kelly, the floodplain corridor and the area west to the airport had a total of 13. The Jackson Hole Golf and Tennis Club north into Solitude had a count of 10. Most moose, over 50, were in and around Wilson: south down the dike (9), Trail Creek drainage (16), Fall Creek Road (5), and Snake River Ranch (9), as well as scattered in subdivisions (15). Three moose were sighted in Jackson (with several others later in the day), and a few moose were spotted south around Cottonwood, Rafter J, and South Park.

Where did moose not show up?

Despite great effort, intrepid surveyors– mostly on skis–did not see any sign of moose on the north and west regions of the Grand Teton National Park where snow is particularly deep. They did see a few coyote and weasel tracks. Upper Cache Creek trails and vicinity have been devoid of moose sign in recent weeks, where the snow is also deep. Also, teams surveying below South Park to the county border had no moose, consistent with years past.

Table 1: Total moose observed during Moose Day from 2009-2019.

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 27	99
2017	February 25	172
2018	February 24	77
2019	**February 23**	**139**

Table 2: Moose observations in 2019 by sex and age

Sex/Age	Adult	Juvenile	Unknown	Yearling	TOTAL
Female	47	5	2		**54**
Male	27	4	2	1	**34**
Unknown	11	12	28		**51**
TOTAL	**85**	**21**	**32**	**1**	**139**

Over eleven years, the number of Moose Day volunteers has gradually risen to an all-time high of 94 this year (Table 3). Most are long-time Nature Mappers and Jackson Hole residents, but several participants were newcomers to the community who helped survey their new neighborhoods.

Several agency biologists volunteered their time: Sarah Dewey of Grand Teton National Park, Jason Wilmot of the U.S. Forest Service, and Ben Wise of Wyoming Game and Fish Department. All staff and several board members of the Jackson Hole Wildlife Foundation also participated.

Moose Day surveyors worked hard to cover their territories ranging North to Arizona Creek in Grand Teton National Park, east out the Gros Ventre, west up Trail Creek (with a new area around Alta), and south to the county border.

Table 3. Numbers of people, hours volunteered and search effort[1] on Moose Day from 2009-2019

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
2018	74	33	248.75	258.50
2019	**94**	**36**	**365.49**	**139.13**

[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.

Most surveyors traveled in teams by car intermittently getting out, walking, and peering over snowbanks. They scouted along the main highways and throughout neighborhoods. Others skied and snowshoed public lands and extensive private tracts. One agency team snowmobiled far out into the Gros Ventre Range.

In 2018, 94 individual people (36 people units) spent 365.49 total hours volunteering for a total effort of 139.13 hours (83.33 hours by car, 7.75 hours by snowmobile, 6.25 hours walking on foot, 32 hours by ski, 7.8 by snowshoe and 2 hours by snowcat).

[1] 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.

Weather:

Conditions on the morning of February 23, 2019 between 6:00 am – 12:00 pm were cloudy with early morning ice fog then light snowfall and wind blowing north to south averaging 5 mph (a temperature high of 14'F and a low temperature of -4'F). The Snake River Basin was at 101% of the 30-year average of snow water equivalent as of February 23, 2019 (NRCS Snotel precipitation update found at: http://www.wrds.uwyo.edu/wrds/nrcs/snowmap/20190223.html (Table 4). The Natural Resources Conservation Service (NRCS) installs, operates, and maintains an extensive, automated system to collect snowpack and related climatic data in the Western United States called SNOTEL (for SNOwpack TELemetry). Snow Water Equivalent (SWE) is a common snowpack measurement. It is the amount of water contained within the snowpack. It can be thought of as the depth of water that would theoretically result if you melted the entire snowpack instantaneously. In relation to our annual survey, 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 2010-2019.

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
2018	2/24/2018	117%	good
2019	**2/23/2019**	**101%**	**poor**

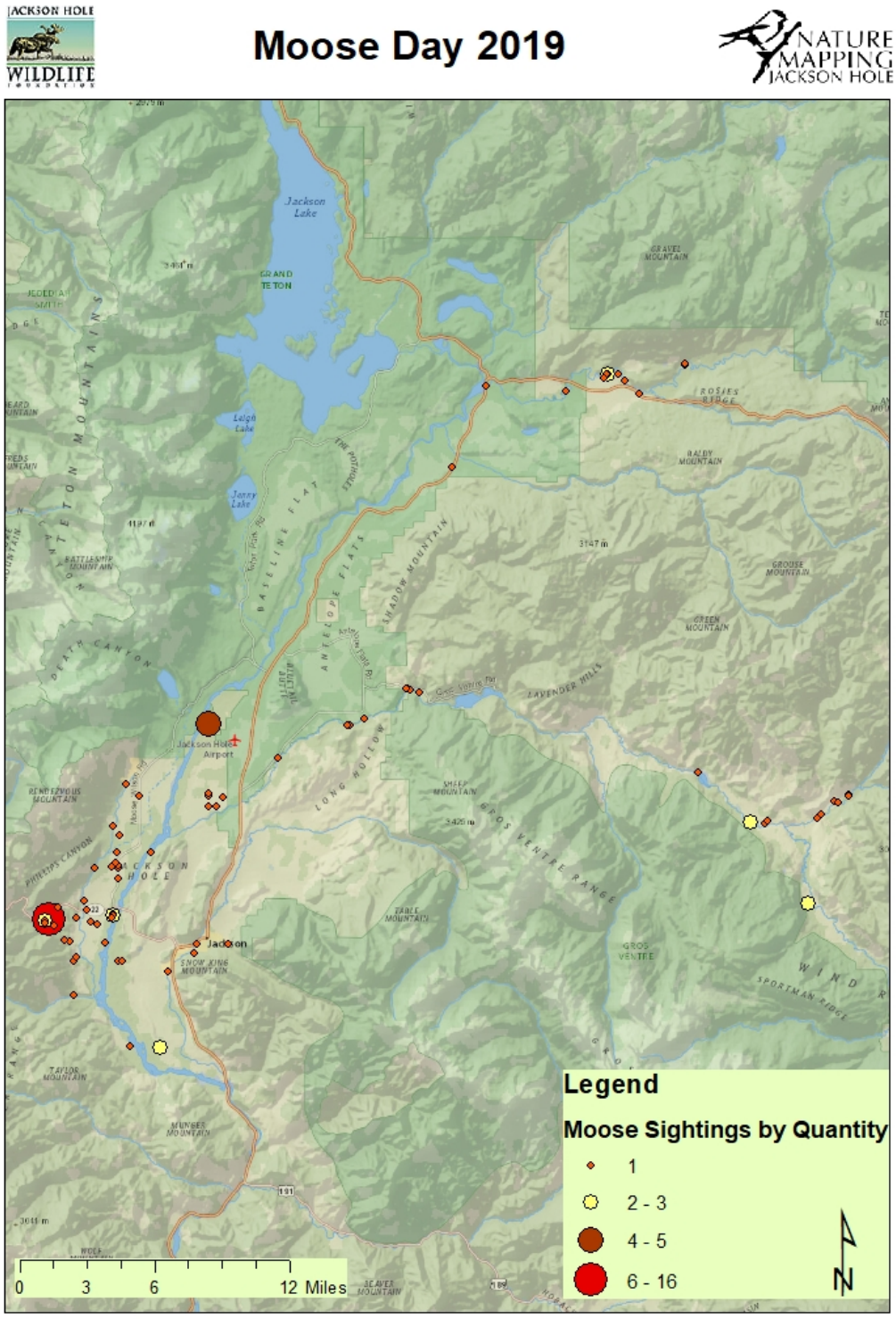
Other notes:

- Prior to Moose Day we held a "Moose ID clinic" on February 20, 2018 from 5:30 – 7:30pm at the Jackson Hole & Greater Yellowstone Visitor Center. We will continue to hold these trainings every year in advance of our annual count since it increases the participants ability to properly sex and age moose.

- Nature Mappers recorded other sightings while out and about during the moose count: One volunteer team saw dippers, Golden Eagle, Red-winged Blackbirds, swans, mergansers, and sage grouse in their area around Kelly and along the Gros Ventre. Two volunteers noted an elk as well as, several mule deer in the heart of Jackson. Many teams reported the above and other species as well. These observations were entered into the Nature Mapping Jackson Hole database under the Casual Observations project category.

- The 12th annual Moose Day will take place on Saturday, February 29, 2020.

Figure 1: 139 individual moose were observed during the 11th annual Moose Day 2019



Moose Observations Recorded by Nature Mappers on Saturday, February 23, 2019 from 7am - 12noon