

Gallatin National Forest

AVALANCHE CENTER



2018-19 Annual Report



GRIZZLY OUTFITTERS

BRIDGER BOWL

YC COMMUNITY FOUNDATION

YELLOWSTONE ARCTIC YAMAHA

World Boards

Mystery Ranch

Spark R&D

Highline Partners

Cooke City Super 8

Montana State Parks

Alpine Orthopedics

Stronghold Fabrication

Gallatin Valley Snowmobile Association

Ticket River

Gallatin County SAR

Katabatic Brewing Co.

MAP Brewing

Cooke City Motorsports

Knoff Group Real Estate

Community Food Co-op

Lawson Dental

Werner Wealth Management

GNFAC Staff:

Doug Chabot

Alex Marienthal

Eric Knoff

Ian Hoyer



2018-19 Annual Report Gallatin National Forest Avalanche Center

MAY 2019



Thanks for a wonderful winter. We concluded our 29th season after 129 daily avalanche forecasts which began on November 30th and ending April 7th. Additionally, we issued 14 preseason information bulletins and have 7 post season bulletins scheduled. A snowstorm on October 5th was the starter-pistol to winter, and by the beginning of November skiing, riding and avalanches were in full swing. Looking back the season had it all: droughts, cold weather, intense snowfall, many avalanches and a varied snowpack that had months long persistent weakness. Our snowpack depth (SWE) is currently measured to be 100-114% of average.

Ian Hoyer joined our team as a part-time forecaster this season which allowed us to get better field coverage and eased our early morning forecast schedule. Alex, Eric, Ian and I relied on our intern, Andrew Schauer, along with 28 volunteers to partner with us in the field on days we were not out with each other.

This winter there were 25 avalanche fatalities in the US including two in southwest Montana: a skier in the Tobacco Root Mountains and a skier in the Bridger Range. In our area we had 63 avalanche incidents (aka close calls) reported to us that were split between skiers/snowboarders (27), motorized users (31) and ice climbers (5). These incidents resulted in 7 people being caught, 4 partially buried, 1 fully buried and 2 killed.

We worked with the Friends of the Avalanche Center to teach 129 classes reaching over 3,200 people. Many of these were snowmobilers (761) and kids under 18 years old (689), two of our target audiences. Most classes were 1-hour *Avalanche Awareness*, *Companion Rescue* and *Introduction to Avalanches with a Field Session*. With funding from Montana Parks we continued our weekly Cooke City education program of Friday night awareness and Saturday rescue practice. This is the third year of the program and third year without a fatality in the Cooke City area.

GNFAC Index

Total email subscribers to the avalanche forecast: 5,090

Number of daily views to our Forecast page: 1,281

Rank of the Forecast page on our website: 1

Ranks of *weather/bridger-lift* and *weather/lobo* pages: 2 and 3

Number of Avalanche Warnings issued: 7

Additional Avalanche Warnings for the Centennial Range in Idaho: 4

Number of videos posted to YouTube and total views: 118 and 111,529

Total followers on Facebook, Instagram and Twitter: 10,707 and 9,689 and 2,021

Number of Instagram videos posted and views: 75 and 200,932

Average number of views/video: 2,679

Number of field days: 132

Total number of snowpits we recorded on snowpilot.org: 100

Estimated total, in pounds, of snow shoveled digging pits: 200,000

% of digging by our intern: 50%

Days we worked as “excepted” employees during the government shutdown: 34

The best part of the government shutdown: parking

Best “ghost ride” for having his sled get a hole-in-one into a tree well: Eric

Number of blown belts this year: 2

Reported avalanches and incidents: 263 and 63.

The most active weekend for avalanches: January 26 & 27 January with 23 avalanches

Coldest recorded temperature on our vehicle thermometer: -34F

Number of times we had to beat the frozen trailer lock with a wrench to open it: at least 6

THIS WINTER
6,371 PEOPLE A
DAY RECEIVED
OUR AVALANCHE
ADVISORY.

Avalanche Advisories

The daily avalanche advisory is the foundation of our program and is posted and distributed by 7:30 a.m. all season long. Between November 30th and April 7th we wrote 129 daily forecasts plus 14 preseason and 7 post season advisories. The advisory is a synthesis of all our snowpits, field days, observations from volunteers and data from weather stations and weather



models. Waking up early is part of the job and each day one of us is in the office at 4 a.m. to get the advisory out before people head out to recreate.

The advisory is posted to our website which gets 1,281 visits a day and emailed to 5,090 subscribers. We also record it to a phone line which gets listened to by a few hard-core users. Facebook and Twitter get an abbreviated paragraph on the day's danger every morning which drives folks to the website to read the full advisory. Contrary to popular belief, people read. According to all-seeing Google, folks spend 2 minutes and 27 seconds reading the advisory, about as long as it takes to record it for our phone line.

WE POSTED 117
VIDEOS THAT
WERE VIEWED
303,753 TIMES.

YouTube, Instagram, Facebook, Twitter

Almost every field day we make a video about the snowpack that we post that afternoon to all 4 of our social media channels. This year we filmed 117 videos that were viewed over 111,000 times on YouTube and another 192,753 times on Instagram. These vignettes are full of relevant and timely avalanche information. We post them the same day they were filmed in order to give people fresh information to plan the next day's outing.

Every year we increasingly rely on social media to help us preach avalanche safety. We shorten our videos for Instagram and have seen the greatest uptick in users relying on these posts. The number of followers continues to grow: 10,707 on Facebook, 9,689 on Instagram, 3,457 subscribers on YouTube and 2,021 on Twitter.



Centennial Mountains, Idaho

At the start of this winter we added the Centennial Mountains of Idaho to the Regional pages of mtavalanche.com. This range is only 15 miles west of Lionhead and historically the snowpack in these two ranges are similar. When one area is dangerous, so is the other. Snowmobile and snow bike use in the Centennials is growing fast and there were 2 avalanche fatalities in 2018 during a High avalanche danger in the adjacent Lionhead area. After these deaths the riding community reached out to the USFS for help. Consequently, the GNFAC, Sawtooth NF

Avalanche Center, Bridger-Teton NF Avalanche Center and Utah Avalanche Center met at KLIM (snowmobile gear manufacturer) in Rigby, Idaho in December to inform riders about the surrounding avalanche forecasts and resources available to them.

The new web page has relevant weather information as well as valuable observations submitted by riders in the area. Additionally, the GNFAAC, along with the Sawtooth Avalanche Center, worked with Idaho avalanche instructor Bill Radecky to teach a few classes in Island Park, Idaho Falls, Pocatello and Ketchum. Next year we will offer more classes and make an effort to get reliable field observations from the public. Although we do not offer daily avalanche advisories for the Centennial, we issue Avalanche Warnings when conditions are especially dangerous. This winter the Centennials received heavy snowfall and we posted 10 days of Avalanche Warnings.

This grassroots avalanche education and information program is supported by KLIM, the Caribou-Targhee NF, Summer Anderson of the Anderson Avalanche Project, and the owners of Action Motorsports in Idaho Falls and Sawtelle Lodge in Island Park.

Avalanche Activity and Incidents

This season we introduced a new page on our website listing all reported avalanche activity and incidents. It was a sobering list. Most days had avalanche activity and some had incidents, defined as someone triggering an avalanche unintentionally. This season 63 incidents were reported involving snowmobiles and snow bikes (31), skiers and snowboarders (27) and ice climbers (5) resulting in 7 people being caught, 4 partially buried, 1 fully buried and 2 skiers killed. One of the skiers was outside our forecast area in the Tobacco Root Range which we investigated.

The recreating public is growing in southwest Montana, but it's still small enough that we personally know many of the players, including 3 of the last 4 avalanche fatalities in southwest Montana: Pete Lazar, Anthony Saracelli and Inge Perkins. Such acute loss motivates us all to do the best we can.

Over the last ten years Montana is ranked second in the nation in avalanche fatalities (32) and first in snowmobiler avalanche fatalities (17). Pages 18 to 20 have graphs showing the last 10 years of avalanche incidents grouped by activity and state.

THIS YEAR WE
TAUGHT 129
AVALANCHE
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REACHING 3,275
PEOPLE.



Avalanche Education

The Friends of the Avalanche Center work closely with the GNFAAC to bring high quality avalanche education to the public. Nina Hance and Dave Zinn are Education Coordinators responsible for training, scheduling, staffing and teaching. If you asked for an avalanche class you likely interacted with one of them. As the Gallatin Valley grows, so does our education program.



Nina and Dave coordinated 129 classes that reached 3,275 people. We try to accommodate all requests for classes, no matter the age or user group: motorized or human-powered. We have 31 instructors; many are outdoor professionals and all are extremely competent. We could not offer as many classes as we do without their dedication. This year we added a motorized field session to the popular MSU class we hold in December. We had a waiting list, so next season we will add an extra field day to accommodate the demand.

WE TAUGHT 49
SNOWMOBILER
AVALANCHE
CLASSES
ATTENDED BY
761 RIDERS.

This year 689 kids and young adults under 18 attended our classes. Snowmobilers are a huge audience and we taught 49 snowmobile specific classes to 761 riders. We lecture to ski patrols, Search and Rescue groups, local snowmobile clubs, MSU and ski and outdoor stores in Bozeman and Big Sky. We have taught in Bozeman, Big Sky, West Yellowstone, Ennis, Dillon, Livingston, Gardiner, Cooke City, Billings, Big Timber, Helena, Great Falls and, in Idaho, Island Park and Idaho Falls.

Our four main education offerings are:

1. *1-hour Avalanche Awareness* lecture. This class is a starting point with specific talks for each user group that cover Terrain, Weather, Snowpack and Decision-making.
2. *Introduction to Avalanches with Field Session*. These classes consist of lectures, usually over two evenings, with an all-day field session for skiers/snowboarders and one tailored for snowmobilers.
3. *Companion Rescue*. This popular six-hour field-based course concentrates on avalanche rescue. We ran classes outside Bridger Bowl and up Hyalite.

4. *Snowmobiler Avalanche Awareness and Avalanche Rescue*. This course was held in Cooke City every Friday and Saturday from Thanksgiving until mid-March. A lecture on current conditions, basic awareness and avalanche rescue was held every Friday night. On Saturday, instructors set up a wireless beacon park in the field for riders' training. This program, in its third year, was made possible by a donation from Seth McArthur at Montana State Parks.

Beacon Checkers

The Friends maintain beacon checkers at trailheads. These allow skiers and riders to quickly confirm that their beacon is working. We have checkers at Bridger Bowl and Cooke City and will have 3 more next season at Buck Ridge, Sage Creek Trailhead (in partnership with the Gallatin Valley Snowmobile Association) and Beehive Basin (in partnership with the Big Sky Owners Association).

Beacon Parks

The Friends maintain beacon parks outside West Yellowstone, at Beall Park in Bozeman and at Bridger Bowl which allow the public to practice with their avalanche transceivers. The Friends also have four wireless beacon parks that are used in schools, clubs and for field sessions.

Cooke City Avalanche Danger Sign

Cooke City remains a focus of our snowmobile avalanche education efforts. There has not been an avalanche fatality near Cooke City since we





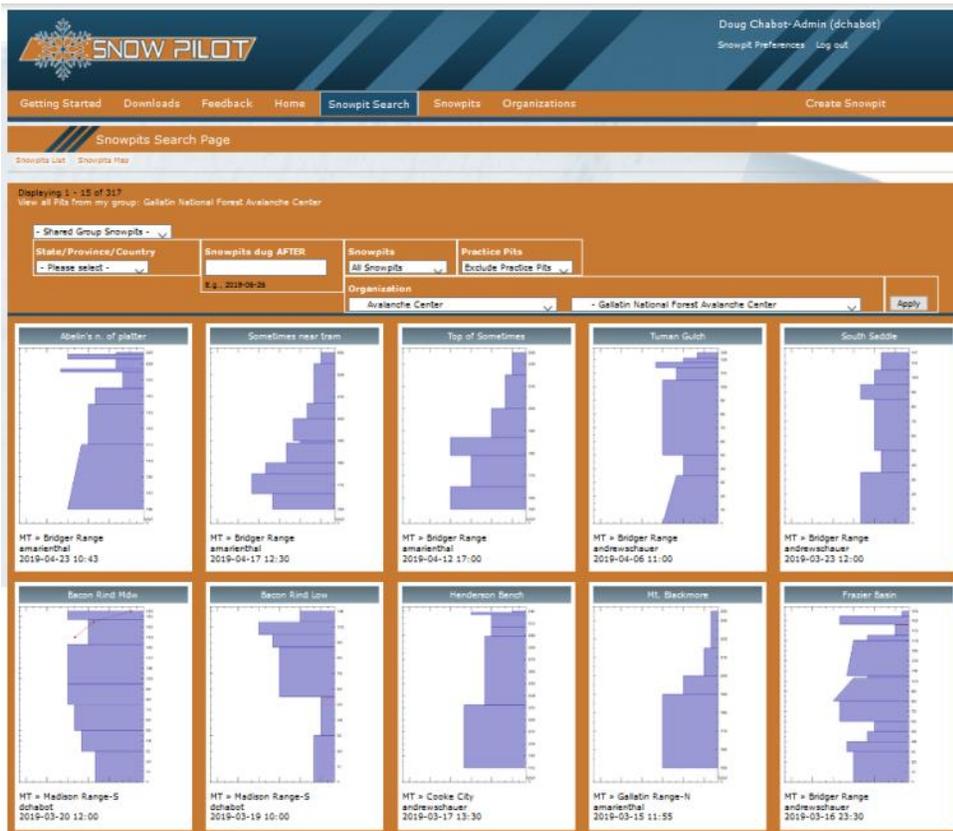
implemented our weekly avalanche education program three years ago. This season, Seth McArthur of Montana State Parks built a sign to display the day's avalanche danger and a large map of the area with all the previous fatality locations displayed. The sign is next to the beacon checker on the highway leading out of town.

Professional Training

On April 3rd we hosted the 10th *Annual Professional Development Workshop for Avalanche Professionals*. Ten speakers talked about avalanche accidents, historic avalanche events, snow stability, climate, decision-making, wet avalanches and risk management. Ron Simenhois from the Colorado Avalanche Information Center told us about the forecasting challenges and carnage that a huge avalanche cycle caused this winter. Sixty professionals attended from Montana, Colorado, and Wyoming. The lectures were filmed and are posted on our YouTube channel for everyone to watch.

SnowPilot

SnowPilot (www.snowpilot.org) is open-source, free software that allows users to graph, record and database snowpit information. We created it during the



winter of 2004. In 2016 it was restructured to allow users worldwide to enter their data on a website. In exchange for providing a free platform to enter snowpit data, *SnowPilot* gets an expanding database that is readily shared with researchers to advance the field of snow science. Over 5,000 people use it and we now have over 18,000 snowpits in the world's largest database.

Awards

This winter the GNFAC was recognized with three awards, one at the regional and two at the national level. Although we were the recipients, the truth is that the exceptional leadership on the Custer Gallatin National Forest is incredibly supportive and encouraging of our work and share in our success.

SINCE 1992 THE
FRIENDS OF THE
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DONATED
\$738,123 TO
THE OPERATION
OF THE GNFAC.

- In November the GNFAC, Friends of the Avalanche Center and Seth McArthur of Montana State Parks received the *Regional Forester Honor Award* for our collaborative efforts on avalanche education in Cooke City.
- In May the GNFAC was awarded the *Unsung Hero Award* from the USFS. It's a national award for our public safety work, and we were 1 of 2 awards given for a team effort.
- In May the *Coalition for Recreational Trails* chose the GNFAC as the winner of their national *Annual Achievement Award* for outstanding use of Recreational Trails Program funds in the Education and Communication category.

Finances of the GNFAC

The Custer Gallatin National Forest provided the Avalanche Center with 48% of its funding which covered salaries, benefits, travel, vehicles, computers and office space. We rely on our long-term supporters, Friends of the Avalanche Center (39%) and Montana Fish, Wildlife & Parks (13%), for the shortfall.

Friends of the Avalanche Center

The Friends of the Avalanche Center is a nonprofit organization whose mission is to financially support the work of the Avalanche Center. The Friends cover expenses related to the avalanche education program, as well as administrative, snowmobile, weather station and website costs.

The Friends were founded in 1992 and have donated over \$738,123 to the operation of the GNFAC. This year their total contribution was \$115,969. This total reflects spending \$79,919 for avalanche education and \$36,050 for direct GNFAC support. Almost all monies came from local businesses and individuals in



southwest Montana with the following long term, recurring support:

- 20th Annual Powder Blast (\$47,431)
- Yellowstone Club Community Foundation (\$7,000)
- 17th Annual King and Queen of the Ridge at Bridger Bowl (\$11,806)
- Ullr and Skadi Fest (\$2,633)
- Bozeman SplitFest (\$3,429)
- Cooke City SledFest (\$8,000)
- Give Big Gallatin Valley (\$4,040)

The Board of Directors is a varied slice of the winter recreating community. They are all volunteers with three paid, part-time staff: Education Coordinators (David Zinn and Nina Hance) and Treasurer (Allyson Fauver). This lean, effective, backcountry savvy group is led by Board President Jeannie Wall. They include: Emily Stifler-Wolfe (Secretary), Ben Nobel, Tyler Allen, Ben Zavora, Mark Greeno, Laura Ryan, Dawn Brown, Leah Knickerbocker and Rob Lininger.

Donated Labor and Equipment

The Avalanche Center could not operate at its current level without the local community donating time, expertise and equipment. Added up, their donated work totals \$28,650, a dollar estimate of what it would cost to hire people and buy/rent equipment.

Avalanche Intern

This winter MSU graduate student Andrew Schauer was our intern.

Andrew is a long time backcountry skier and quick learner on a snowmobile. He accompanied us on many field days and was especially helpful getting photos, videos and observations onto our website. He also taught for the Friends of the Avalanche Center. His Master's Thesis was titled "Atmospheric Processes Related to Deep Persistent Slab Avalanches in the Western United States".

Field Volunteers/Observers

We do not go in the field solo and it's not always possible for us to partner with



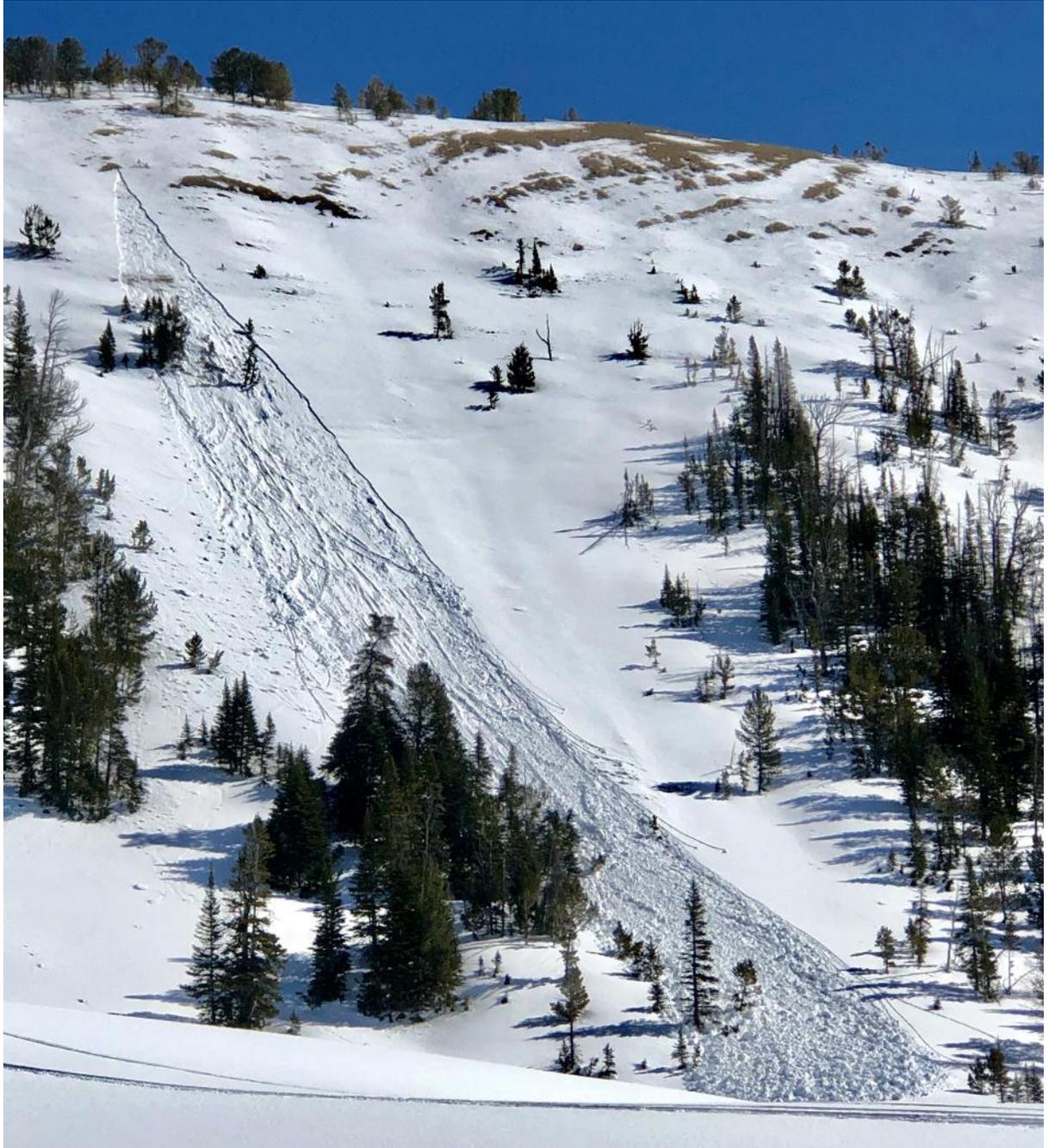
each other, so we rely on a team of skilled volunteers to help. Thirty-four volunteers accompanied us on 83 field days totaling 664 hours. They are: Gabrielle Antonioli, Chelan Babineau-Z, Andy Beck, Nick Bilton, Karl Birkeland, Logan DeMarcus, Wes Dudley, Allyson Fauver, Quint Gidley, Marcie Hahn-Knoff, Liala Kraska, Nina Hance, Trent Harvey, Sam Hennessey, Dan Kavaney, Forrest Madsen, Jordan Mancey, Matt Menge, Tom Oechslin, Tyler O’Leary, Andy Olson, Adam Pohl, Kolin Powick, Bill Radecky, Jody Redfield, Rusty Rustigan, Andrew Schauer, Allen Steckmest, Laila Sterman, Nick Truax, Dan Ventura, Rusty Willis, David Zinn and Lucas Zukiewicz.

34 VOLUNTEERS
ACCOMPANIED
US ON 83 FIELD
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664 HOURS.

These folks are our peers and several are professional snow workers. We also count on folks emailing their personal field observations, stability test results and snowpits. The accuracy of our forecasts is a direct reflection of their detailed and steady reports. We owe a special thanks to Big Sky and Bridger Bowl Ski Patrols for their daily observations as well as Beartooth Powder Guides, Yellowstone Ski Tours and Montana Alpine Guides.

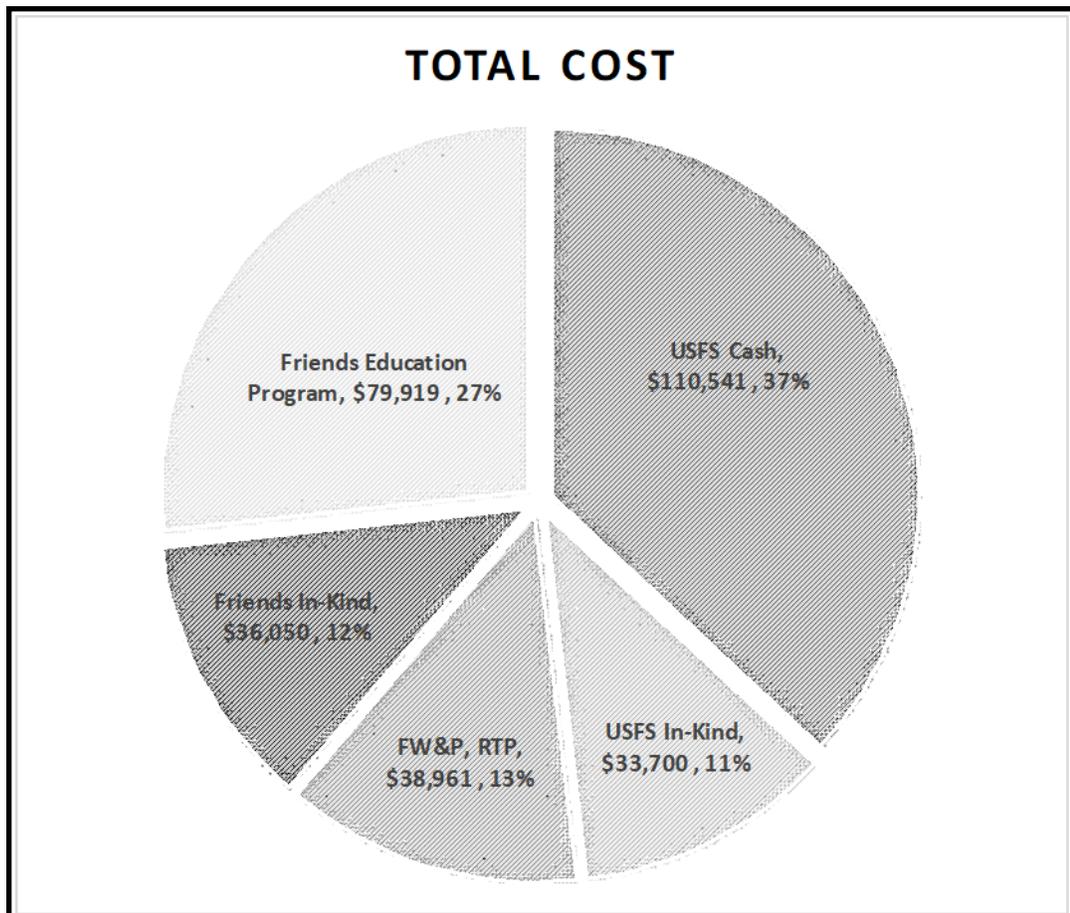
VOLUNTEER LABOR (billed at \$15/hour):

NRCS	\$3,600
Big Sky Ski Area (~175 hours)	\$2,625
Bridger Bowl Ski Area (~130 hours)	\$1,950
Yellowstone Club (~80 hours)	\$1,200
National Weather Service (121 hours)	\$1,815
Volunteer observers (~500 hours)	\$7,500
Field volunteers (664 hours)	\$9,960
TOTAL	\$28,650



Total Costs

Custer Gallatin National Forest (salaries/benefits)	\$110,541
◆ CGNF In-Kind (vehicles, office, etc)	\$33,700
Montana FW&P Rec Trails Program (salaries)	\$38,961
Friends of the Avalanche Center (education program)	\$79,919
◆ FOAC In-Kind	\$36,050
Total Costs	\$299,171 (100%)
<i>CGNF Contribution</i>	<i>\$144,241 (48%)</i>
<i>Outside Contributions (non federal government)</i>	<i>\$154,930 (52%)</i>





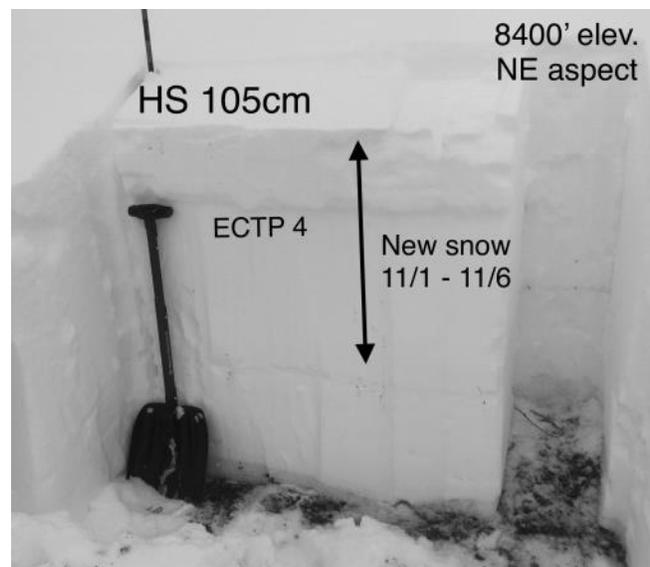
Snowpack and Weather Summary

Early season snowfall favored the mountains around Bozeman and Big Sky. Shower Falls Snotel site in the northern Gallatin Range recorded 9" of SWE by the end of November. This was the fifth highest recording in 54 years. The mountains around Big Sky also recorded above average snowfall through November while the southern ranges had a much drier start. A prolonged dry spell consumed all of southwest Montana during the first 7-10 days of December which had very cold temperatures. On December 5th, West Yellowstone recorded minus 26 degrees F. This period of cold, dry weather wreaked havoc on the snowpack. The Lionhead area formed a weak layer of facets near the ground and a well-developed layer of near surface facets and/or surface hoar formed on many slopes. A series of small storms from the 11th to 14th of December capped these persistent weak layers. From the 15th to the 17th numerous natural and human triggered avalanches were reported across the forecast area, but nobody was caught or injured. On December 30th, the GNFAAC issued the first avalanche warning of the season. The warning only lasted 24 hours, but the snowpack remained under stress for an extended period of time both in the northern and southern portions of the forecast area. Signs of instability such as cracking/collapsing and avalanche activity occurred every day during the first two weeks of January, but no serious avalanche incidents occurred over this time.

Incremental loading in the second half of January continued to keep buried weak layers grumpy. On January 25th, a group of four skiers were caught in an avalanche in the Tobacco Root Mountains west of the GNFAAC forecast area. One skier died from his injuries, one was seriously injured and two escaped without harm. The slide broke 3-5 feet deep and failed on a layer of well-developed facets formed in December.

The slope had a southeast aspect and was heavily wind loaded.

Following the avalanche fatality, a widespread avalanche cycle occurred across the forecast area from January 26th to January 29th. On February 4th, the GNFAAC issued an avalanche warning for the Southern Madison and Gallatin Ranges, the Lionhead



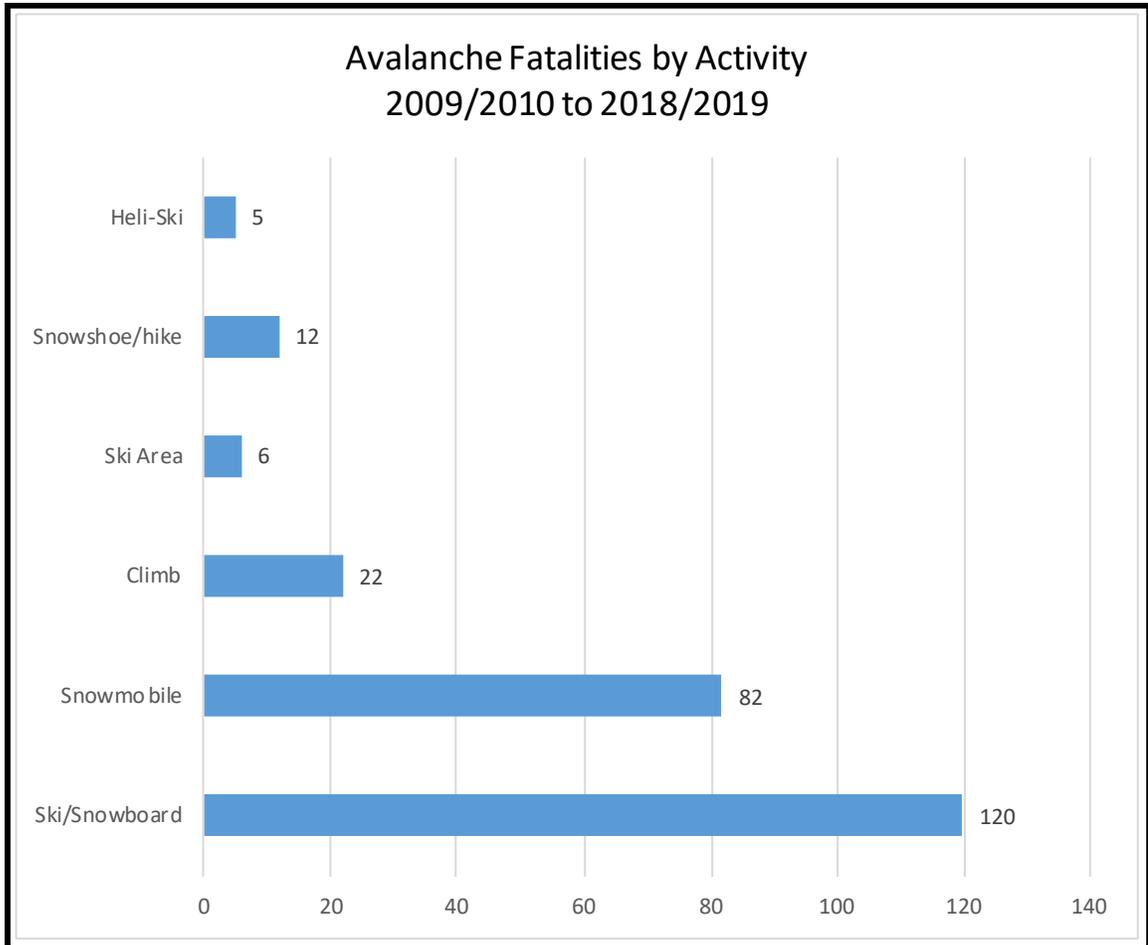


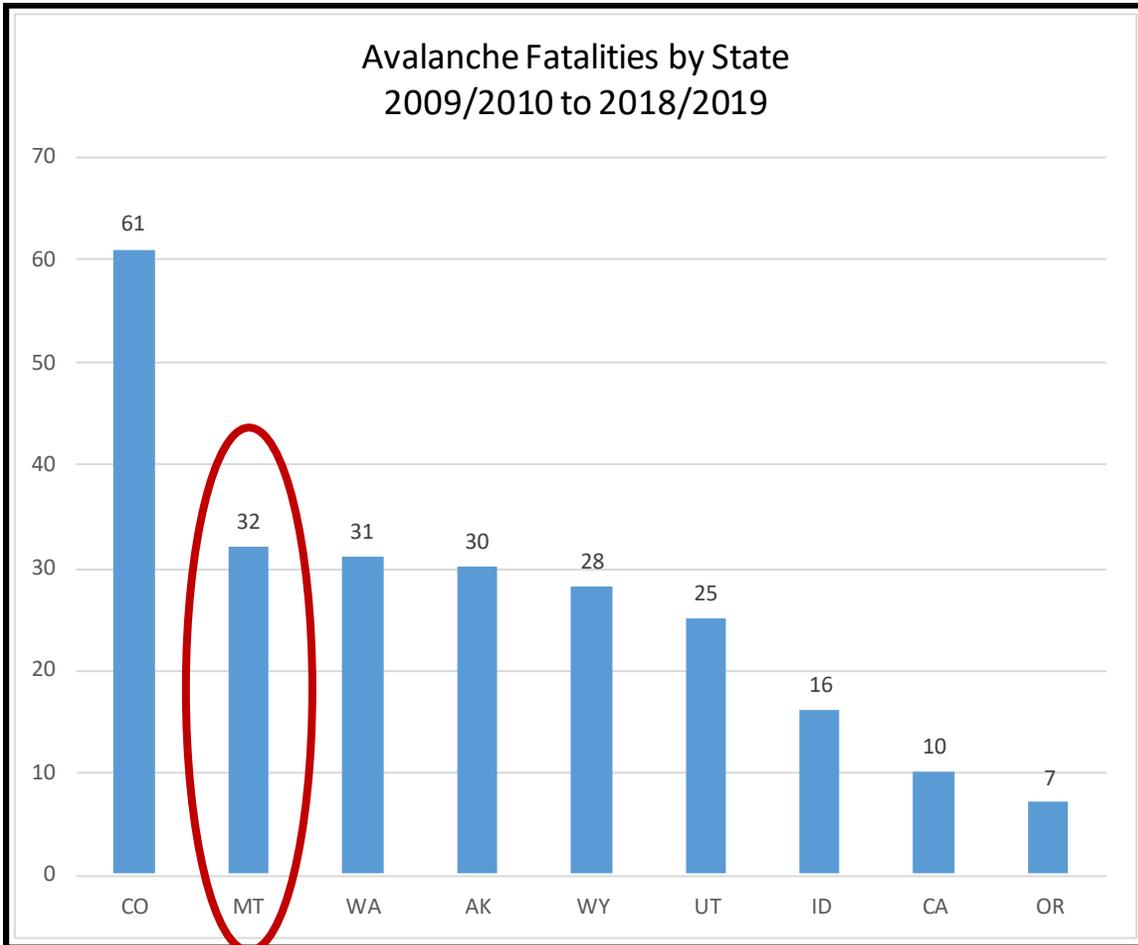
area, and the Centennial Range. Heavy snow continued through February favoring the mountains near West Yellowstone and Cooke City. Black Bear Snotel site near West Yellowstone recorded 19" of SWE during the month of February while Madison Plateau recorded 14.3". Fisher Creek Snotel site near Cooke City recorded 12" of SWE. Avalanche danger peaked when the GNFAC issued a four day avalanche warning from the 26th of February to the 1st of March for mountains near West Yellowstone and Cooke City. Snow totals weren't as high in the mountains around Bozeman and Big Sky, but dangerous avalanche conditions existed. Sadly, on February 26th a local skier was killed in an avalanche in Truman Gulch on the west side of the Bridger Range during a Considerable avalanche danger.

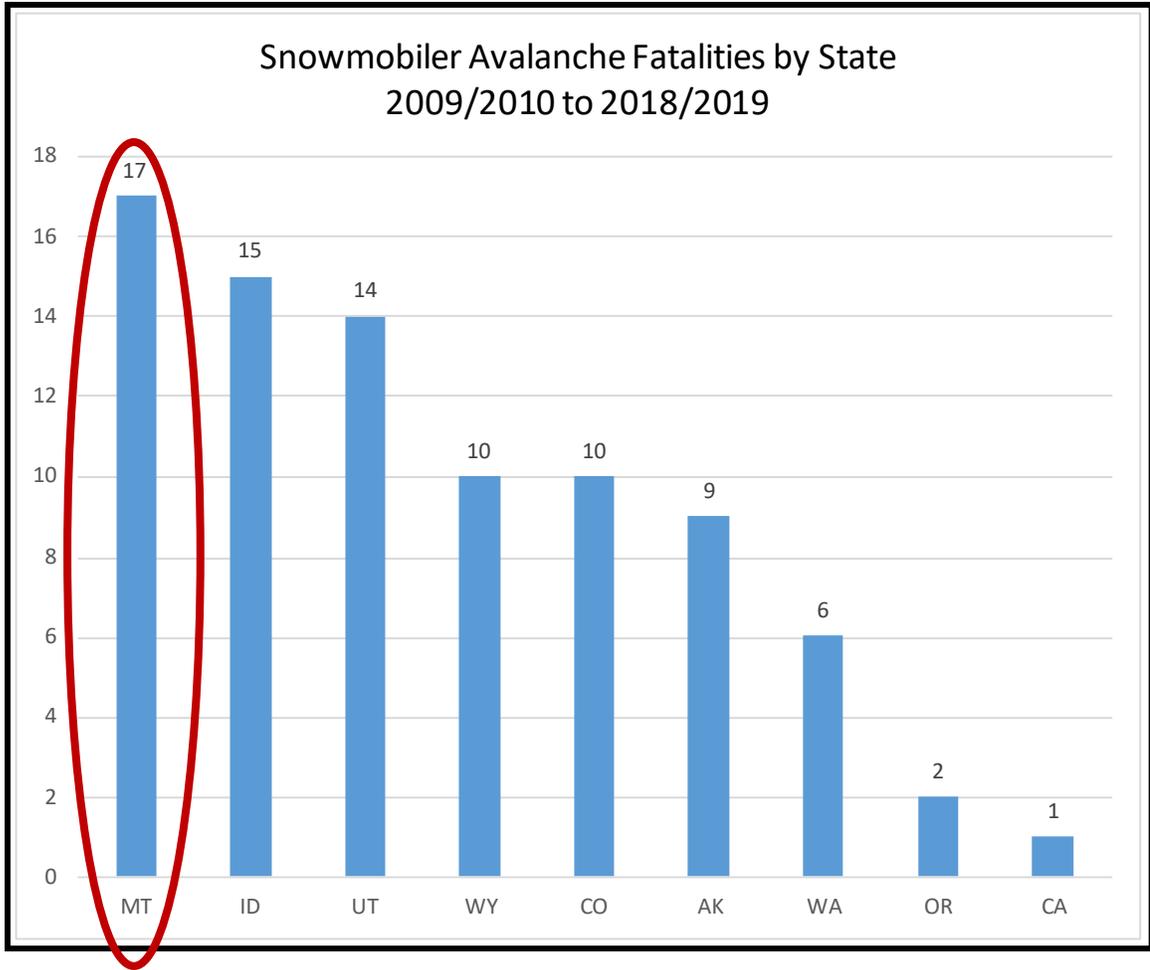
Snow let up during the first week of March, which allowed avalanche activity to gradually decrease. A stretch of high pressure was a welcomed change and consumed the forecast area for nearly three weeks. This allowed the snowpack to gain strength and transition to a more wet snow regime. On March 17th, the GNFAC issued a Low avalanche danger for the entire forecast area for the first time in nearly two months. By March 20th a wet snow avalanche cycle was under way. On March 21st, a timber sled rider was caught and partially buried in a wet slab avalanche in the southern Madison Range. Wet slab activity continued through the weekend of March 23rd-24th with a small skier triggered wet slab in the Bridger Range and natural wet slabs near Big Sky and in Hyalite. Temperatures cooled the following week and wet avalanche activity ended. The last week of March and beginning of April were quiet. Unsettled weather brought alternating sun and small snowfall events. A wet storm beginning on April 5th brought a combination of valley rain and mountain snow across the advisory area. A handful of avalanches were triggered in the new snow, but avalanche activity was minimal.

The GNFAC issued its last advisory on Sunday, April 7th. Seasonal SWE totals were slightly above average for most of the advisory area (100-120% of median) and well above average near West Yellowstone (130% of median at the Madison Plateau Snotel site).

Avalanche Incident Graphs: 10 Years







Avalanche Education (next 3 pages)**TOTAL: 3,275(689 kids <18 y.o.; 761 snowmobilers)**

Date	Instructor	Group/Topic	Total
9/12/2018	Schauer	World Boards Staff-KBYG	7
9/15/2018	Greeno, Hance	Bozeman Preparedness Expo	5
9/24/2018	Schauer	World Boards Staff-Terrain Recognition	7
9/25/2018	Zinn	Aerie BC Medicine WFR--KBYG	19
10/31/2018	Chabot	GYCC/ Avalanches in Greater Yellowstone	15
11/01/2018	Darham	KBYG: South Hedges Hall MSU	18
11/06/2018	Hance	KBYG: Rooskie Hall MSU	16
11/07/2018	Chabot	Lewis and Clark NF/ KBYG	10
11/7/2018	Hance	KBYG: REI	26
11/8/2018	Hance	KBYG: Langford Hall MSU	29
11/8/2018	Greeno	KBYG: Sidecountry Awareness @ PhD	5
11/8/18	Marienthal	Big Sky SAR - Season Recap	30
11/14/18	Schauer	KBYG: Spire Climbing Center	19
11/14/18	Knoff	Gallatin County SAR-Season Recap	25
11/16/18	Chabot, Marienthal, Knoff	Ski Patrols Avalanche Training	200
11/18/2018	Zinn	Bridger Patrol Beacon Training	40
11/24/2017	Olson	Cooke City Conditions Update and Rescue Lecture	12
11/25/2017	Olson	Cooke City Rescue Practice, Field	6
11/26/18	Greeno	KBYG: Livingston	73
11/26/18	Marienthal, Antonioli	MSU SAW	200
11/28/2018	Knoff, Alex, Zinn, Schauer	ASMSU Intro to Avalanches	250
11/30/18	Olson	Cooke City Conditions Update and Rescue Lecture	8
12/1/18	Olson	Cooke City Rescue Practice, Field	6
12/5/18	Darham	KBYG: REI Bozeman	22
12/6/18	Olsen	KBYG: Story Mill Community Center	17
12/7/18	Marienthal	YC Patrol, pits and lecture	40
12/7/18	Greeno and Regan	KBYG and Beacon Park: PSIA Fall Fest	6
12/7/2018	Gidley	Cooke City Conditions Update and Rescue Lecture	2
12/8/2018	Gidley	Cooke City Rescue Practice, Field	4
12/7/2018	Zia and Mailyly	Beacon Park at Ice Fest	8
12/9/18	Zia and Mailyly	Beacon Park at Ice Fest	
12/01/18	Chabot	Klim Winter Kick-off, Rigby, Idaho	70
12/06/18	Chabot	Bozeman Ice Fest - Hyalite avalanche conditions	150



12/11/2019	Knoff	West Yellowstone Snowmobile Class	40
12/10/2018	Greeno	Park High School: Greeno BC Program	23
12/12/18	Olson	KBYG: Yellowstone Motorsports	16
12/12/18	Olsen	KBYG: The Base Camp Helena	70
12/13/18	Schauer, Maily, Regan,	KBYG, Avalanche Board, Beacon Park: CJMS	120
12/13/18	Darham	KBYG: Play It Again Sports	6
12/14/18	MacKenzie M and For-	KBYG and Avalanche Board: Belgrade Middle	240
12/14/18	Schauer	Companion Rescue Course: REI	16
12/14/18	Turnage	Cooke City Conditions Update and Rescue Lec-	14
12/15/18	Turnage	Cooke City Rescue Practice, Field	12
12/15/18	Radecky	Switchback Motorsports, ID: Avalanche aware-	27
12/21	Maily, Schauer, Greeno,	KBYG, Avalanche Board, Beacon Park: CJMS	130
12/21/18	Lucas	Cooke City Conditions Update and Rescue Lec-	12
12/22/18	Lucas	Cooke City Rescue Practice, Field	8
12/27/18	Hance	BRASS KBYG for BSF	12
12/28/18	Hance, Redfield	Field Session for BSF	7
12/28/18	Olson	Cooke City Conditions Update and Rescue Lec-	4
12/29/18	Olson	Cooke City Rescue Practice, Field	8
01/02/19	Darham	KBYG: REI Bozeman	23
1/4/19	DeMarcus	Cooke City Conditions Update and Rescue Lec-	6
01/05/19	DeMarcus and Green	Cooke City Rescue Practice, Field	15
01/05/19	Greeno	KBYG/ Beacon Park: Military Group Helena	32
01/08/19	Hance	KBYG: Women's Specific at Story Mill	6
01/09/18	Gullet	GVSA: Avalanche Awareness	28
1/9/19	Darham	KBYG: Spire Climbing Center	11
1/11/19	Schauer, Madsen	CRC: at REI	16
1/11/19	Larson	Cooke City Conditions Update and Rescue Lec-	8
1/12/19	Larson	Cooke City Rescue Practice, Field	25
1/12/19	Norlander	Snowmo KBYG: Holiday Inn West Yellowstone	10
1/13/19	Freeman	BRASS KBYG for BSSEF: Big Sky	14
1/15/19	Olson	Snowmo KBYG: Redline Sports Butte	6
1/16/19	Karl, Marienthal, Schau-	ASMSU Intro to Avalanches	86
1/18/19	Lucas	Cooke City Conditions Update and Rescue Lec-	8
1/19/19	Lucas	Cooke City Rescue Practice, Field	19
1/20/19	Lucas	Cooke City Rescue Practice, Field	12
1/19/19	Zolynski	Snowflinga Butte	5
1/21/19	Hance	KBYG/ Beacon Park: Bozeman Field School	3
1/22/19	Greeno	Montana Wilderness Association: KBYG	15
1/22/19	Dunn	KBYG: UM Western Dillon	10
1/22/19	Chabot	Cooke City SAR Training	12
1/23/2019	Knoff, Birkeland	ASMSU Advanced Class	26

1/26/19	Gullett	GVSA Poker Ride, Beacon Park	21
1/19/2019	Dunn	Avalanches/rescue lecture and practice, Idaho	15
1/26/2019	Radecky	Avalanches/rescue lecture and practice, Idaho	16
1/29	Greeno	Park High School: Greeno BC Program	22
1/31/19	Hance	Livingston Introduction to Avalanches	36
2/1/19	Dunn	Dillon Introduction to Avalanches	6
2/1/19	Hance	CRC: MSU Backcountry Club	21
2/1/19	DeMarcus	Cooke City Conditions Update and Rescue Lecture	16
2/2/19	DeMarcus and Pope	Cooke City Rescue Practice, Field	10
2/5/19	Hance	Sidecountry Awareness: Story Mill	1
2/6/19	Hance	Women's Specific KBYG: REI	16
2/8/19	Hance	Bridger Snowsports: Rescue and Beacon Practice	14
2/8/19	Hance	CRC: REI	10
2/8/19	Larson	Cooke City Conditions Update and Rescue Lecture	10
2/9/19	Larson	Cooke City Rescue Practice, Field	8
2/9/19	Norlander	Snowmo KBYG: Holiday Inn West Yellowstone	14
2/13/19	Hoyer	Awareness: Carroll College Helena	4
2/15/19	DeMarcus	Cooke City Conditions Update and Rescue Lecture	12
2/16/19	Norlander	Snowmo KBYG: Holiday Inn West Yellowstone	4
2/21/19	Ella Darham	KBYG, Avalanche Board, Beacon Park: Home School	40
2/22/19	Olson	Red Lodge SAR: Avalanche Awareness w/ Field	24
2/22/19	Hance, Redfield, Regan,	She Jumps CRC	21
2/23/19	Norlander	West Yellowstone Holiday Inn: KBYG	8
2/24/19	Ladean, Redfield, Zukie-	Gallatin County SAR: Class and Field	21
2/26/19	Hance	BHS Backcountry Club: Sidecountry KBYG	5
2/28/19	Regan	Ennis: KBYG	12
3/1/19	Zukiewicz	Split Fest KBYG: Map Brewing	5
3/1/19	Zukiewicz, Regan, Schau-	Split Fest: Field sessions (Pit digging and partner rescue	30
3/1/19	Gidley	Cooke City Conditions Update and Rescue Lecture	1
3/2/19	Gidley	Cooke City Rescue Practice, Field	7
3/3/19	Regan, Schauer	Ennis: Field Session	9
3/6/19	Darham	REI: KBYG	25
3/7/19	Hance, Regan	Headwaters Academy: Field Practice	18
3/8/19	Hance	Park County SAR Middle School Class	6
3/8/19	Hance, Regan	Headwaters Academy: Field Practice	18
3/19/19	Radecky	Beacon Park and Rescue, Island Park, ID	30
04/03/19	All	Pro Development Workshop	47
02/07/19	Knoff	Level 1 for snowmobilers	16
3/8/19		Cooke City Conditions Update and Rescue Lecture	10
3/9/19		Cooke City Rescue Practice, Field	8
3/13/19	Ella and Nina	KBYG and Beacon: Holiday Inn Bozeman x 3	60

Letters of Support



January 14, 2019

To Whom it may Concern:

The service that The Gallatin National Forest Avalanche Center provides is invaluable to myself, local backcountry ski guides and outdoor enthusiasts throughout South West Montana. As the owner and lead guide for Beartooth Powder Guides in Cooke City, Montana, the information that the GNFAC provides on a daily basis throughout the Winter/Spring season's is crucial to the decision making process for our guides, guests and myself. We use the advisory and the links to weather stations on mtavalanche.com on a daily basis. In addition to these services being beneficial to Beartooth Powder Guides employees and guests, the GNFAC provides avalanche education to over 5000 people a year. The demographics of the people being educated by the GNFAC range from children, snowmobiler's, skier's/snowboarder's. These classes are provided at an affordable price for all (or free) The daily advisories, video's, online tutorials and weather station links are important for public safety and help reduce accidents and fatalities in the backcountry for the public. Southwest Montana is fortunate to have the GNFAC as a resource and continued support from grant monies, donations and public support is crucial to keeping this program going.

Best
regards,

Ben Zavora Owner/Lead Guide Beartooth
Powder Guides Cooke City, Montana



Spark R&D
P.O. Box 3284
Bozeman, MT 59772 USA
P: +1.866.725.2085
F: +1.866.323.7948
sparkrandd.com

MADE IN THE USA

Spark R&D Letter of Support for the Gallatin National Forest Avalanche Center

January 15, 2019

To Whom It May Concern:

I'm writing on behalf of Spark R&D, a splitboard binding manufacturer based out of Bozeman, Montana. As a backcountry company, we are proud to support the GNFAC. Spark R&D employees are active splitboarders and backcountry users. We rely heavily on the daily advisories, snowpit observations, videos, photos, articles, and accident reports provided by the avalanche center to make informed decisions.

The intermountain snowpack often provides difficult avalanche problems for backcountry users. When you couple that with the diverse ranges and microclimates found within our large geographic forecasting area, the challenges faced by the GNFAC are considerable. We can say with confidence that their forecasters and staff are up to the challenge. They do a tremendous job covering all the zones in detail. From one corner to the other, they deploy their resources appropriately and convey both their general and more nuanced findings in way that the average backcountry user can understand and then use to make decisions.

The GNFAC is also very active in the community. They organize a wide variety of clinics and educational opportunities throughout the winter that target both new users and more seasoned skiers and snowboarders. We've been particularly impressed with the video series they've work on this year. It is a perfect example of how in tune they are with the local community and the need to find new ways to educate the growing number of backcountry travelers. We believe the most reliable way to reduce avalanche accidents, as more people venture into the backcountry, is through education. We look forward to having them present to a large group of splitboarders at the Bozeman Splitfest for the third year in a row this March.

Over the last ten years, Montana is second in the nation in avalanche fatalities. This is an eye-opening statistic and is a one of many clear indicators that there is a legitimate need for the services the GNFAC provides. We value our partnership with them and will continue to support them in any way possible going forward. Please strongly consider their Recreation Trails Grant Application.

Sincerely,

Dan Ventura, Spark R&D



January 14, 2019

Dear Recreation Trails Program,

Bridger Bowl Ski Area fully supports Gallatin National Forest Avalanche Center (GNFAC)'s Recreational Trail grant application.

GNFAC's advisories and avalanche education classes are of great value to the skiing and snowmobiling community. Given the tremendous local growth in winter backcountry use, their website is increasingly important as a valuable resource for all sorts of weather, avalanche and snowpack information. I believe the education and good information provided by GNFAC is the best way to help reduce the high number of avalanche accidents and fatalities that occur in Montana each year.

Sincerely,

Randy Elliott



**COOKE CITY MOTORSPORTS INC.
SHANNON & MONA ABELSETGH
203 EATON STREET – P.O. BOX 1 120 - COOKE CITY, MT 59020
(406) 838-2231**

1-13-19

To whom it may concern:

We are writing in support of the GNFS Avalanche centers RTP grant funding.

This is a 27 year strong organization that has done an awesome job in bringing avalanche awareness to winter sport enthusiasts. Without Doug and his team.... people die.

We have noticed a huge increase in avalanche awareness "from a snowmobilers stand point" these guys and gals are picking this up at a rate we have never seen before. The last three holiday seasons have proven this. No body left Cooke City in a body bag....

We would like to see a larger budget for the Avy Center from the USDA and the US Forest Service for these guys. The Friends of the GNFAC work hard to bring in donations for Doug and his crew, The Friends have picked up the tab for 27 years.... USDA you need to match funds...

We will continue to support the GNFAC because of the stellar work they do and their true commitment to educating snow enthusiasts. We encourage all businesses, individuals and government agencies to support the GNFAC in any capacity they can.

Mona & Shannon Abelseth
Cooke City Motorsports



Brian M. Gootkin
Sheriff

Dan Springer
Undersheriff

Warren Hiebert
Chaplain

Jason Jarrett
Jail Administrator

615 South 16th
Bozeman, Montana 59715

January 15, 2019

Montana Fish Wildlife and Parks
Trails Program Grant

Dear Decision Makers,

The Sheriff's Office would appreciate your positive consideration of the grant application from the Avalanche Center. Having statutory responsibility for Search and Rescue and Public Safety in general, the Sheriff relies heavily on the Avalanche Center and its employees. Like you we have supported the Center financially in the past because they are effective in educating the public and most certainly have saved lives with their programs. In addition to the education part we count on them for expertise when SAR units are active in avalanche country. They are always willing and able to be part of our rescue and search operations. It is often difficult to make decisions that promote the most good but supporting the Avalanche Center should not be one of them. In our view this program works and does make a positive difference. Should you have any questions please contact me at the number below. Thank you for your consideration.

Captain Jason Jarrett
Gallatin County Sheriff's Office
Search and Rescue Commander
(406)-582-2105
Jason.jarrett@gallatin.mt.gov



January 16th, 2019

Letter of Support for the Gallatin National Forest Avalanche Center,

The Gallatin National Forest Avalanche Center is such an amazing resource for this recreational, snow motivated community. I am a manager of a popular restaurant here in Bozeman that employees up to 140 employees (most of them choose the restaurant profession as a way to make money while focusing on their skiing/climbing/snowmobiling etc passions).

Throughout the years I have witnessed the far reach that the Avalanche Center has had in educating the population, not only on snow pack but on group dynamics, terrain management, and equipment use and knowledge. I have attended several avalanche classes that were both very affordable and incredibly informative. My staff, friends, family and self are so fortunate to have the website, daily advisories and videos, just a click away.

The guys that operate the avalanche center really care about what they are doing. They are passionate, humble, and ingrained in the community. Because of their constant strides to reach more diverse user groups I have personally witnessed groups of people become more engaged in conversations pertaining to snow pack and decision making. Younger and younger groups are becoming educated which is awesome as a parent myself! I am grateful to live in a community that has an avalanche center with such a commitment to keeping people safe and informed regardless of age and preferred method of travel.

It has also been eye-opening to see the outreach that has been devoted to the snowmobile population. In an area where we have historically lead the nation in snowmobile avalanche fatalities it is great to see such a targeted effort to reach this user group. Being immersed in snow culture myself, I have noticed education efforts increase yearly in the Cooke City area a popular vacation destination for snowmobilers.

Living in a place that has such extreme weather scenarios, temperatures, and questionable snowpack, we are so very fortunate to have people out in the trenches assessing snow and sharing their knowledge with the rest of us. Education is the most reliable way to reduce avalanche incidents.

Sincerely,

Dawn Brown
Montana Ale Works
Human Resources Director
406-579-8379
dawn@montanaaleworks.com



Department of
Political Science

1/14/19

Re: Fish, Wildlife and Parks Recreation Trails Program grant

Members of the grant committee:

Thank you for the FWP Recreation Trails grant program and for the opportunity to endorse the application of the Gallatin National Forest Avalanche Center (GNFAC) for your continued support.

In a community where winter recreation is an important part of community life, the GNFAC is the foundation. In any given year they educate literally thousands of people on the basics of avalanche safety and inform virtually all winter recreationists in a large geographically diverse region on current conditions and avalanche hazard. Their impact cannot be underestimated.

Montana has the unfortunate distinction of having a high rate of accidents and deaths due to avalanches. As an avalanche researcher at MSU I am convinced those numbers would be much higher if the center was not able to fulfill its mission. Avalanche education and information works to reduce those accident rates and GNFAC is an exemplar in the industry.

Doug and his team are spread far and wide as they collect real time snowpack data, produce the forecast, compile observational data, teach awareness classes, and engage the community. Their videos are viewed by others in the industry as a new standard for education. During our annual Snow and Avalanche Workshop at MSU I can always count on Doug and his crew to be integral to reaching out to our hundreds of students who recreate in Montana's winter backcountry.

Of course winter activities are also important to the regional economy. The snowmobile activity in Cooke City is but one example. Doug, Erik, and Alex have stepped up their activity in Cooke to include more awareness classes and finer scale forecasts. Again, these activities, though expensive and time consuming, have had a positive impact on the sled community – many of whom come from out of state to enjoy destination snowmobiling of the highest quality.

I could go on but will conclude that your grant support is recognized by the recreation community and is important to the continued excellence of the center. I wholeheartedly urge your continued support.

Yours truly,
Jerry Johnson
MSU

2-143 Wilson Hall
Bozeman, MT 59717
www.montana.edu/politicalscience

Tel 406-994-4141
politicalscience@montana.edu

Mountains & Minds



Mystery Ranch, Ltd.
1750 Evergreen Drive
Bozeman, MT 59715

January 14, 2019

Letter of Support for the Gallatin National Forest Avalanche Center

To the Board of the Recreation Trails Grant Committee,

On behalf of Mystery Ranch, LTD – a leading designer & manufacturer of outdoor products including backpacks for expedition, skiing, firefighting, hunting and military - we are writing to show our unflinching support of the Gallatin National Forest Avalanche Center [GNFAC] and their application for the Recreation Trails Grant.

We, as a locally owned and operated company, employing over 110 people in Bozeman, rely heavily on the GNFAC daily advisories for regional avalanche information as a large percentage of our employees are backcountry users. In addition to the daily advisory, the GNFAC's education opportunities offer not only our employees, but our community, gold standard education on avalanche awareness & safety and teaches us the value of good judgment in the backcountry. A mandatory skill, that unfortunately without the help of the GNFAC, many users would not have, and could potentially be putting themselves at serious risk.

The GNFAC website offers us valuable information on a daily basis including weather, accident reporting, avalanche articles for further education, snowpit data and online tutorials to further their exposure to the backcountry community. Without this priceless information, our residents would not be as safe in the backcountry as they are.

The GNFAC offers a multimedia platform including photos, videos and articles to help further understand the snowpack and widen their reach to younger demographics (important as more and more kids are entering the backcountry).

In their 25+ years of operation the GNFAC has offered the SW Montana community precious information on how to stay safe in the backcountry, reduce fatalities, and encourage good decision making. As Montana is ranked #1 in snowmobile fatalities and #2 in overall fatalities nationwide, we will continue to support the GNFAC for years to come.

Sincerely,
Ben Nobel
North American Sales Manager
Mystery Ranch Backpacks



PRINCIPAL'S AWARD

This certificate recognizes

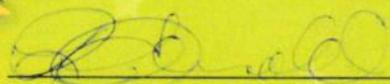
Gallatin Nat'l Forest Ava-

for outstanding achievement in

Volunteer Work @ Morning Star

Morning Star

Grade Teacher


Signed

June 7, 2018
Date





Gmail - Friends of Avalanche Center Grant Application

https://mail.google.com/mail/u/0?ik=6e9e438b35&view=pt&search=all...



AvalancheGuys <mtavalanche@gmail.com>

Friends of Avalanche Center Grant Application

Yellowstone Club Community Foundation <yccf@yellowstoneclub.com>
 To: "mtavalanche@gmail.com" <mtavalanche@gmail.com>

Tue, Nov 27, 2018 at 5:04 PM

Dear Doug,

On behalf of the Board of Directors of the Yellowstone Club Community Foundation, I am delighted to inform you YCCF can fund Friends of Avalanche Center with a \$4,000 grant for the Saving Lives through Avalanche Information and Education program. This grant is designated as matching funds. YCCF focuses on helping organizations get up and going but tries to not be the main funder for organizations for too long. We encourage you to seek out other funding from local Foundations, such as Moonlight Community Foundation and Spanish Peaks Community Foundation.

Please fill out and return the attached Grant Acknowledgement Form. You should receive your funding within 10 days after we receive the form. Upon receipt of your funding, please be sure to acknowledge the Foundation's support of this program in all applicable materials. We greatly appreciate updates and pictures throughout the year and pictures of relevant events. Please note, our new grant reporting form can be found on our [website](#).

We are thrilled to announce that we will once again be partnering with Bozeman Area Community Foundation to support GIVE BIG Gallatin Valley including increased prize money for nonprofit participants. The 24 hour online giving campaign will take place May 2 – 3, 2019. Nonprofit registration opens on February 4, 2019.

We deeply enjoyed reviewing your materials and learning about your program. Thank you for the work you do in our community! We are thrilled to be able to award a total of \$265,845 to our community nonprofits in this Fall Grant Cycle. To streamline the efficiency of our grant application process, we are asking all organizations to apply once a year moving forward. Please plan to apply during the grant cycle that is the best fit your organization and budget (during 2019, please apply for a grant in Spring or Fall but not both).

Again, congratulations and thank you for all you do to make this part of Montana a special place to live and work. We look forward to following your continued success.

Best,

Britt Ide

Executive Director

Yellowstone Club Community Foundation



 Grant Acknowledgment Form.pdf

Bozeman Women's Activity Groups (B.W.A.G.s)
Bozeman, Montana
<http://www.bwags.org/>

Bozeman Women's Activity Groups (B.W.A.G.s)
c/o Patti Steinmuller
952 Knolls Drive
Bozeman, MT 59715

December 14, 2018

Friends of the Gallatin National Forest Avalanche Center (GNFAC)
PO Box 130
Bozeman, MT 59717

Dear Friends of the Gallatin National Forest Avalanche Center:

Enclosed is a check for \$150.00 as a donation to the Gallatin National Forest Avalanche Center from the Bozeman Women's Activity Groups (B.W.A.G.s). Many of us receive the Avalanche Center report each morning and have attended your educational sessions. Thank you for your service to our community.

Sincerely,



Patti Steinmuller
B.W.A.G.s Treasurer

Enclosure



International Snowmobile Manufacturers Association

1640 Haslett Rd., Suite 170 • Haslett • Michigan 48840 • (517)339-7788 • Fax: (517)339-7798



Web: www.snowmobile.org

November 1, 2018

Jay Pape
Friends of the Gallatin NF Avalanche Center
PO Box 6799
Bozeman, MT 59771

Dear Jay,

On behalf of the snowmobile manufacturer members of ISMA (Arctic Cat, BRP, Polaris, and Yamaha) I am pleased to send you the enclosed check for your Organization. The snowmobile manufacturers and the snowmobile community are pleased to support all of your efforts in safeguarding our National Forests.

We are thankful for all of the work you are doing in supporting avalanche safety education and in particular the advancement of safety classes specifically designed for snowmobilers. Your avalanche safety training teams are recognized as leaders in their field.

We look forward to working with you, encouraging and welcoming visitors to enjoy our great National Forests.

Sincerely,

Ed Klim
President, ISMA

enclosure

PHS
102 View Vista Drive
Livingston, MT 59047

NEOPOST
12/21/2018
US POSTAGE \$000.4
ZIP 5904



Dear Mark Greeno + Friends of the Avalanche Center,

Thank you!! Thank you for coming to Park High to teach us how to be safe in Avalanche terrain. We appreciate your enthusiastic lesson and outlook on backcountry travel!

Thank you!!
-Emmitt

Much Thanks!
-Elizabeth Henry

David G.
Thank you!

Colton Peacher Joseph Bender

Thank You!!
Melissa Hamblitt

Thank you!
-melanie G

Caden J.

Thanks
- Cody Gray

Thank you! Kate Kaylyn Kuehn

Thank you!!
-Brianna Buyer

Tha. Brandon Coody Mrs Davis

Jack B. Alan Jean

Kennedy Hader Henry Jewell



Nina, Nicki, and Shannon,
We had a blast and learned
so much at our March
Companion rescue clinic! Thank
you so much for taking the
time to instruct our participants
as they practiced their
companion rescue skills, and for
providing female mentorship in
the outdoor community! SheJumps
values what you three and the
GWFAC contribute to our community.
We look forward to partnering
with you in the future!

Thank you.

- Hannah, Hailey,
and SheJumps ♡

Hannah
SheJumps
2025 Ridge Ave 2000
Bozeman, MT 59715

Nina, Nicki, Shannon
Friends of GWFAC
TC Box 6799
Bozeman, MT 59711







Gallatin National Forest Avalanche Center

PO Box 130, Bozeman, MT 59771

mtavalanche@gmail.com/406-587-6984