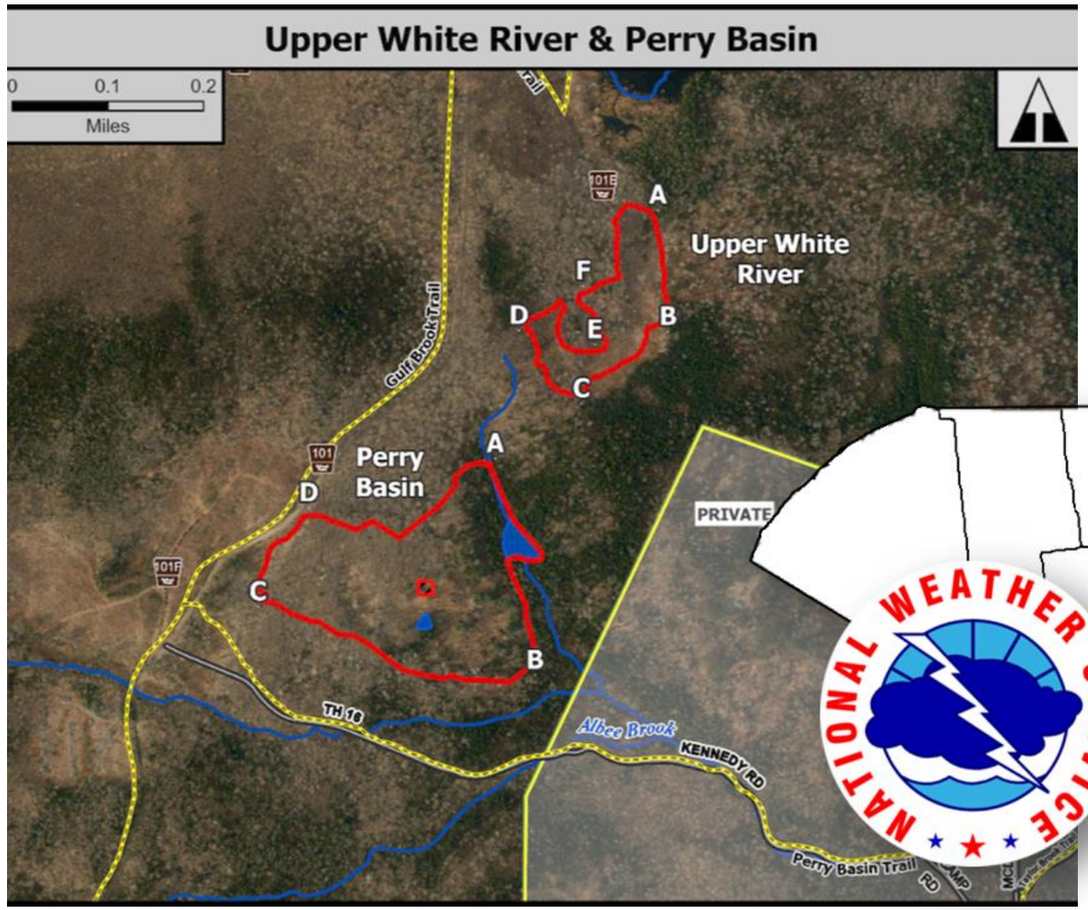
Perry Basin Prescribed Burn with GMNF

March 12, 2025
2:36 AM

On-Site Decision Support April 26, 2024



Location

March 12, 2025
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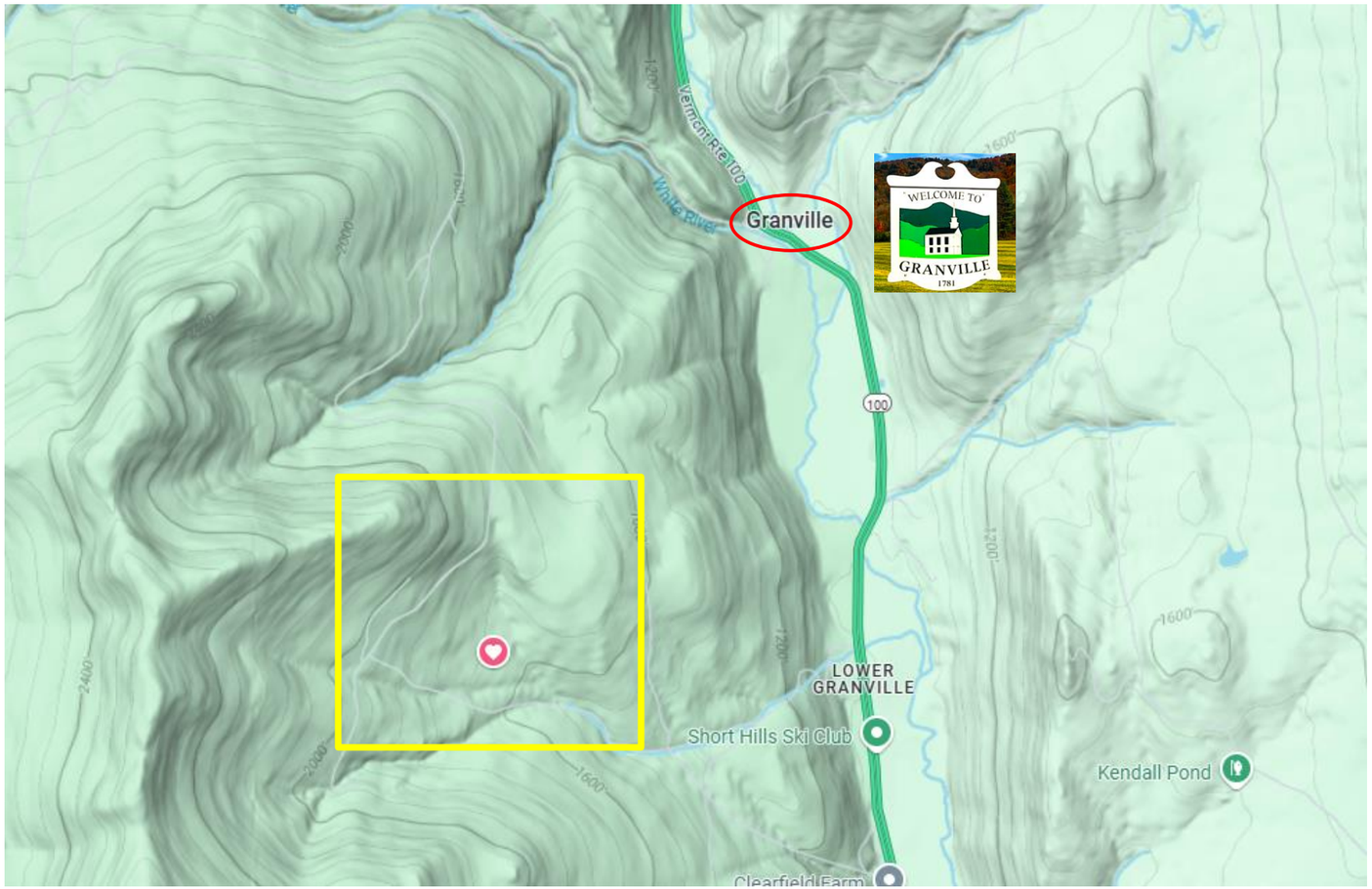

- Green Mountain National Forest
- Near Granville, Vermont
- Mid slope elevation 2000 feet
- Prescribed burn about 26 acres

Location

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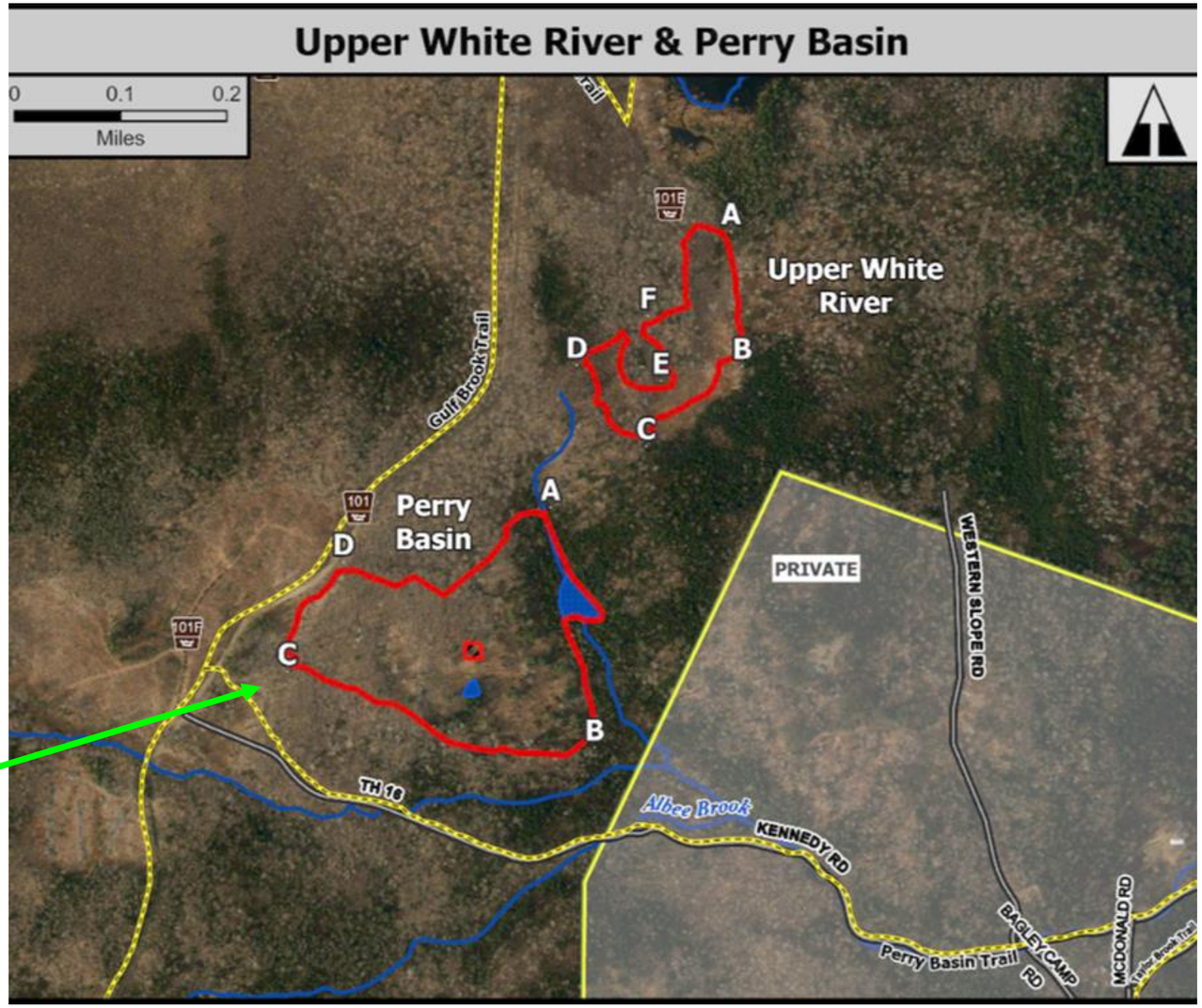
- Perry Basin
- Historic structure in center
- Bordered partially by a brook (side A-B)
- Side C-D coming close to the dirt road (Gulf Brook Trail)
- “Pumpkin” of water located near D



Weather

March 12, 2025
2:36 AM

Mt. Mansfield Webcam via WCAX

- Snowed at higher elevations on April 20, just days before the prescribed burn
- Mt. Mansfield snow depth on the day of the burn: 58 inches
- Prescribed burn mid slope elevation: 2000 feet

Weather

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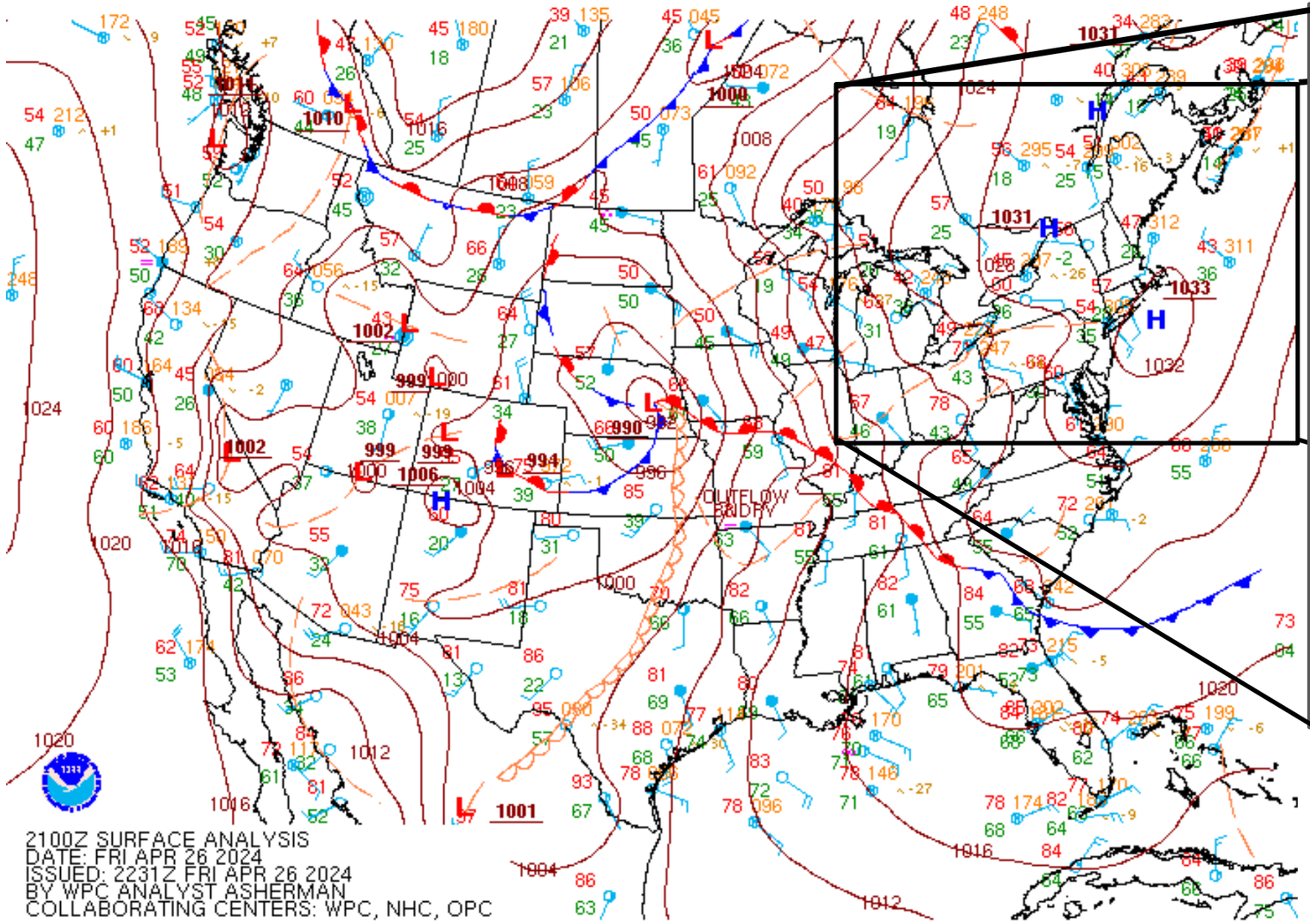
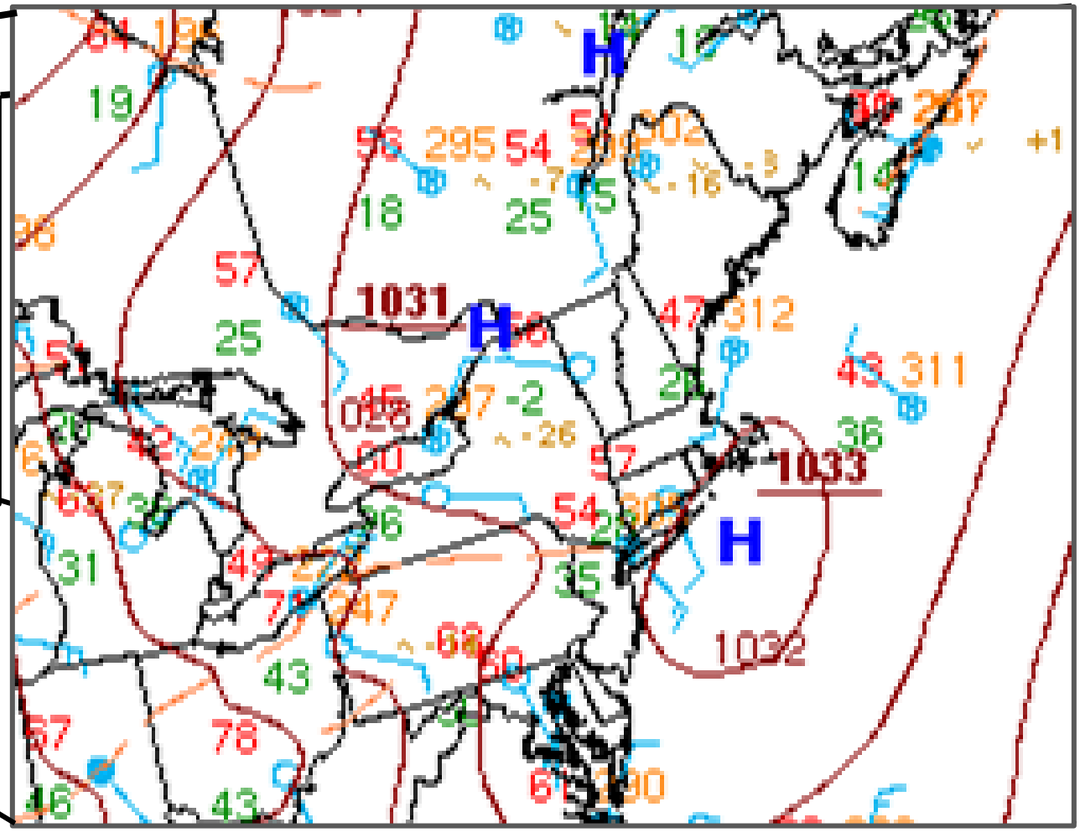


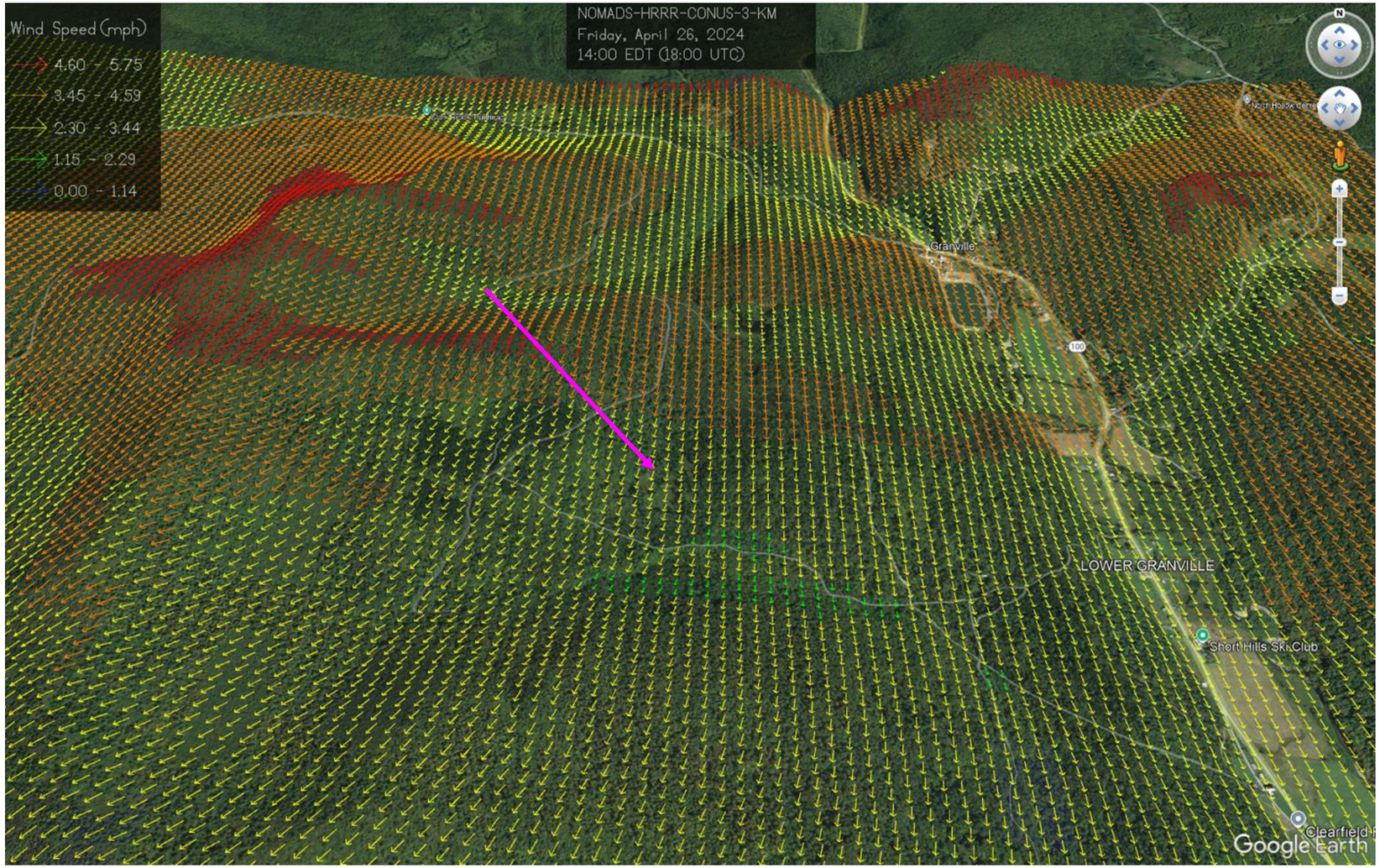


- Large and strong high pressure directly overhead

Weather

Models

March 12, 2025
2:36 AM



- Topography a complex bowl structure
- Wind Ninja program utilized to model wind direction and speed
- Model was showing 3 to 5 mph NNE wind around 2 PM the day of the prescribed burn

Weather

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2:36 AM

Forecast

Sunny conditions will prevail across the region. Most regions had good recoveries of relative humidity overnight, but sites near Granville are reporting values around 60 percent already. Minimum relative humidity values will occur around 1 PM to 5 PM today, and will range between 20 to 25 percent. Winds today will be largely terrain driven. Winds will initially be light and variable. Given the terrain composition, think the wind direction will favor north or northeasterly winds near the site this afternoon. Wind speeds will be around 5 mph today.

For tonight, warmer minimum temperatures should result in poorer recovery of relative humidity. Winds will transition towards south or southeast winds with little increase in moisture. By tomorrow afternoon, wind speeds are likely to be 5 to 10 mph with gusts 15 to 20 mph possible. Minimum relative humidity values on Saturday will likely range between 25 and 30 percent. Scattered rain showers will become possible heading into Sunday.

- Sunny conditions
- Minimum relative humidity: 20-25% occurring 1 PM - 5 PM
- Winds terrain-driven 5 mph N or NE

Weather

Forecast

March 12, 2025
2:36 AM

```
.REST OF TODAY...

Sky/weather.........Sunny (0-10 percent).
Chance of pcpn......0 percent.
LAL.................1.
Begin/end of pcpn...
Max temperature.....Around 53.
Min humidity........23 percent.
Wind (20 ft)........Light winds becoming northeast around 5 mph.
Mixing height.......6200 ft AGL.
Transport winds.....North 6 to 8 mph.
Haines Index........4 or low potential for large plume dominated
                    fire growth.

TIME (EDT)      8AM 9AM 10A 11A 12P 1PM 2PM 3PM 4PM 5PM
Sky (%).........2   2   2   3   3   4   6   6   6   4
Weather cov.....
Weather type....
Tstm cov........
Chc of pcpn (%).0   0   0   0   0   0   0   0   0   0
LAL.............1   1   1   1   1   1   1   1   1   1
Temp............28  33  38  43  46  49  51  52  53  53
RH..............60  49  38  32  28  25  24  24  23  24
20 FT wind dir..N   N   N   NE  E   NE  NE  NE  NE  N
20 FT wind spd..1   2   3   3   3   3   5   5   5   5
20 FT wind gust.3   5   5   6   6   6   6   6   6   6
Mix hgt (kft)...1.6 3.1 4.5 5.0 5.5 5.8 6.2 6.1 5.9 5.8
Transp wind dir.N   N   N   N   N   N   N   NW  NW  NW
Transp wind spd.6   7   8   8   7   7   7   8   8   7
Haines index....4   4   4   4   4   4   4   4   4   4
```

- Sunny conditions
- Minimum relative humidity: 20-25% occurring 1 PM - 5 PM
- Winds terrain-driven 5 mph N or NE

Decision Support

March 12, 2025
2:36 AM

Our Role Onsite

Taking weather observations

Reporting them via radio

1. Incident weather briefing on expected weather conditions
2. Half hour weather updates via radio stating current:
   - Temperature
   - Relative humidity
   - Wind direction
   - Wind speed
   - Significant wind shifts
   - Fine dead fuel moisture
   - Probability of ignition
   - Changes in fire behavior
   - Smoke observations

Decision Support

Our Role Onsite

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Decision Support

Our Role Onsite

March 12, 2025
2:36 AM

Optional Form 251 (12/89) USDA/USDI **MOBILE FIRE WEATHER OBSERVER'S RECORD**

Date: 4/26/2024 | Location: Upper White River and Ferry Basin | Elevation: 1770 Feet | Aspect: 135° (N E S W)

Exposure (Ridgetop, slope, etc.): midslope bowl | Cover Type (As indicator of wind obstruction): Partial | Stand Density (As indicator of wind obstruction):

43.970 N -72.865W

Time (__ ST)	Temperature (Degrees F.) Dry	Wet	Relative Humidity (Percent)	Wind Speed (M.p.h.)	Direction (From)	Characteristics and Comments (See instructions on cover)
12:30	49	20	24%	2-4 G5	SSE	fine dead fuel moisture 5 PIG 60
13:00	50	19	22%	1-3 G4	SE	FDFM 5 PIG 60
13:30	52	19	22	calm	-	FDFM 5 PIG 60
14:00	52	19	22	5 Gusts	E	FDFM 5 PIG 60
14:30	53	16	22	6	SE	FDFM 5 PIG 60
15:00	54		20	6 G5 (1-3)	SE	FDFM 5 PIG 60
15:30	53	17	~~21~~ 22	1-3	SE	FDFM 5 PIG 60

* U.S. G.P.O.:1998 693-044

- FDFM = Fine Dead Fuel Moisture
- PIG = Probability of Ignition

Observations

March 12, 2025
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- Sunshine
- Winds
  - Light, 2-4 mph
  - A few gusts 4-6 mph around 2 PM
  - Upslope terrain driven/east-southeast
- Relative humidity
  - 20-24% during the burn
  - Minimum RH of 20% at 3 PM
  - Started to increase toward 5 PM

FDFM and PIG

Our Role Onsite

March 12, 2025
2:36 AM

Table A

Table A
REFERENCE FUEL MOISTURE
Day Time 0800 - 1959

Relative Humidity (Percent)																					
Dry Bulb Temperature (F)	0-4	5-9	10-14	15-19	20-24	25-29	30-34	36-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89	90-94	95-99	100
10 - 29	1	2	2	3	4	5	5	6	7	8	8	8	9	9	10	11	12	12	13	13	14
30 - 49	1	2	2	3	4	5	5	6	7	7	7	8	9	9	10	10	11	12	13	13	13
50 - 69	1	2	2	3	4	5	5	6	6	7	7	8	8	9	9	10	11	12	12	12	13
70 - 89	1	1	2	2	3	4	5	5	6	7	7	8	8	8	9	10	10	11	12	12	13
90 - 109	1	1	2	2	3	4	4	5	6	7	7	8	8	8	9	10	10	11	12	12	13
109+	1	1	2	2	3	4	4	5	6	7	7	8	8	8	9	10	10	11	12	12	12

Go to Tables B, C, or D for Corrections

Table B

Table B
DEAD FUEL MOISTURE CONTENT CORRECTIONS
MAY JUNE JULY

Exposed - Less than 50% Shading of Surface Fuels

	0800 >		1000 >		1200 >		1400 >		1600 >		1800 >	
% Slope	B	L	A	B	L	A	B	L	A	B	L	A
N 0 - 30%	2	3	4	1	1	1	0	0	1	0	0	1
N 31% +	3	4	4	1	2	2	1	1	2	1	1	2
E 0 - 30%	2	2	3	1	1	1	0	0	1	0	0	1
E 31% +	1	2	2	0	0	1	0	0	1	1	1	2
S 0 - 30%	2	3	3	1	1	1	0	0	1	0	0	1
S 31% +	2	3	3	1	1	2	0	1	1	0	1	1
W 0 - 30%	2	3	4	1	1	2	0	0	1	0	0	1
W 31% +	4	5	6	2	3	4	1	1	2	0	0	1

Shaded - Greater than or Equal to 50% Shading of Surface Fuels

N	0% +	4	5	5	3	4	5	3	3	4	3	3	4	3	4	5	4	5
E	0% +	4	4	5	3	4	5	3	3	4	3	4	4	3	4	5	4	5
S	0% +	4	4	5	3	4	5	3	3	4	3	3	4	3	4	5	4	5
W	0% +	4	5	6	3	4	5	3	3	4	3	3	4	3	4	5	4	4

B = Area of concern 1000'-2000' below wx site location
L = Area of concern within +/- 1000' of wx site location
A = Area of concern 1000'-2000' above wx site location

Table C

Table C
DEAD FUEL MOISTURE CONTENT CORRECTIONS
FEBRUARY MARCH APRIL/AUGUST SEPTEMBER OCTOBER

Exposed - Less than 50% Shading of Surface Fuels

	0800 >		1000 >		1200 >		1400 >		1600 >		1800 >	
% Slope	B	L	A	B	L	A	B	L	A	B	L	A
N 0 - 30%	3	4	5	1	2	3	1	1	2	1	1	2
N 31% +	3	4	5	3	3	4	2	3	4	2	3	4
E 0 - 30%	3	4	5	1	2	3	1	1	1	1	1	2
E 31% +	3	3	4	1	1	1	1	1	1	1	2	3
S 0 - 30%	3	4	5	1	2	2	1	1	1	1	1	2
S 31% +	3	4	5	1	2	2	0	1	1	0	1	1
W 0 - 30%	3	4	5	1	2	3	1	1	1	1	1	2
W 31% +	4	5	6	3	4	5	1	2	3	1	1	1

Shaded - Greater than or Equal to 50% Shading of Surface Fuels

N	0% +	4	5	6	4	5	5	3	4	5	3	4	5	4	5	5	4	5
E	0% +	4	5	6	3	4	5	3	3	4	3	4	5	3	4	5	4	5
S	0% +	4	5	6	3	4	5	3	3	4	3	4	5	3	4	5	4	5
W	0% +	4	5	6	3	4	5	3	3	4	3	4	5	3	4	5	4	5

B = Area of concern 1000'-2000' below wx site location
L = Area of concern within +/- 1000' of wx site location
A = Area of concern 1000'-2000' above wx site location

Table D

Table D
DEAD FUEL MOISTURE CONTENT CORRECTIONS
November December January

Exposed - Less than 50% Shading of Surface Fuels

	0800 >		1000 >		1200 >		1400 >		1600 >		1800 >	
% Slope	B	L	A	B	L	A	B	L	A	B	L	A
N 0 - 30%	4	5	6	3	4	5	2	3	4	2	3	4
N 31% +	4	5	6	4	4	5	3	4	5	3	4	4
E 0 - 30%	4	5	6	3	4	4	2	3	3	2	3	3
E 31% +	4	5	6	2	3	4	2	2	3	3	4	4
S 0 - 30%	4	5	6	3	4	5	2	3	3	2	2	3
S 31% +	4	5	6	2	3	3	1	1	2	1	1	2
W 0 - 30%	4	5	6	3	4	5	2	3	3	2	3	3
W 31% +	4	5	6	4	5	6	3	4	4	2	2	3

Shaded - Greater than or Equal to 50% Shading of Surface Fuels

N	0% +	4	5	6	4	5	6	4	5	6	4	5	6	4	5	6	4	5
E	0% +	4	5	6	4	5	6	4	5	6	4	5	6	4	5	6	4	5
S	0% +	4	5	6	4	5	6	4	5	6	4	5	6	4	5	6	4	5
W	0% +	4	5	6	4	5	6	4	5	6	4	5	6	4	5	6	4	5

B = Area of concern 1000'-2000' below wx site location
L = Area of concern within +/- 1000' of wx site location
A = Area of concern 1000'-2000' above wx site location

Table E

Table E
Probability of Ignition Table
FINE DEAD FUEL MOISTURE PERCENT

Shading (Percent)	Dry Bulb Temp (F)	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Unshaded <50%	110+	100	100	80	70	60	60	50	40	40	30	30	20	20	20	20	10
	100-109	100	90	80	70	60	60	50	40	40	30	30	20	20	20	10	10
	90-99	100	90	80	70	60	50	40	40	30	30	30	20	20	20	10	10
	80-89	100	90	80	70	60	50	40	40	30	30	20	20	20	10	10	10
	70-79	100	80	70	60	60	50	40	40	30	30	20	20	20	10	10	10
	60-69	90	80	70	60	50	50	40	40	30	30	20	20	20	10	10	10
	50-59	90	80	70	60	50	40	40	30	30	20	20	20	10	10	10	10
	40-49	90	80	70	60	50	40	40	30	30	20	20	20	10	10	10	10
	30-39	80	70	60	50	50	40	30	30	20	20	20	10	10	10	10	10
Shaded >50%		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	110+	100	90	80	70	60	50	50	40	40	30	30	20	20	20	10	10
	100-109	100	90	80	70	60	60	50	40	40	30	30	20	20	20	10	10
	90-99	100	90	80	70	60	50	40	40	30	30	30	20	20	20	10	10
	80-89	100	80	70	60	60	50	40	40	30	30	20	20	20	10	10	10
	70-79	90	80	70	60	60	50	40	40	30	30	20	20	20	10	10	10
	60-69	90	80	70	60	50	40	40	30	30	20	20	20	10	10	10	10
	50-59	90	80	70	60	50	40	40	30	30	20	20	20	10	10	10	10
	40-49	90	80	60	50	50	40	30	30	30	20	20	20	10	10	10	10
	30-39	80	80	60	50	50	40	30	30	20	20	20	10	10	10	10	10

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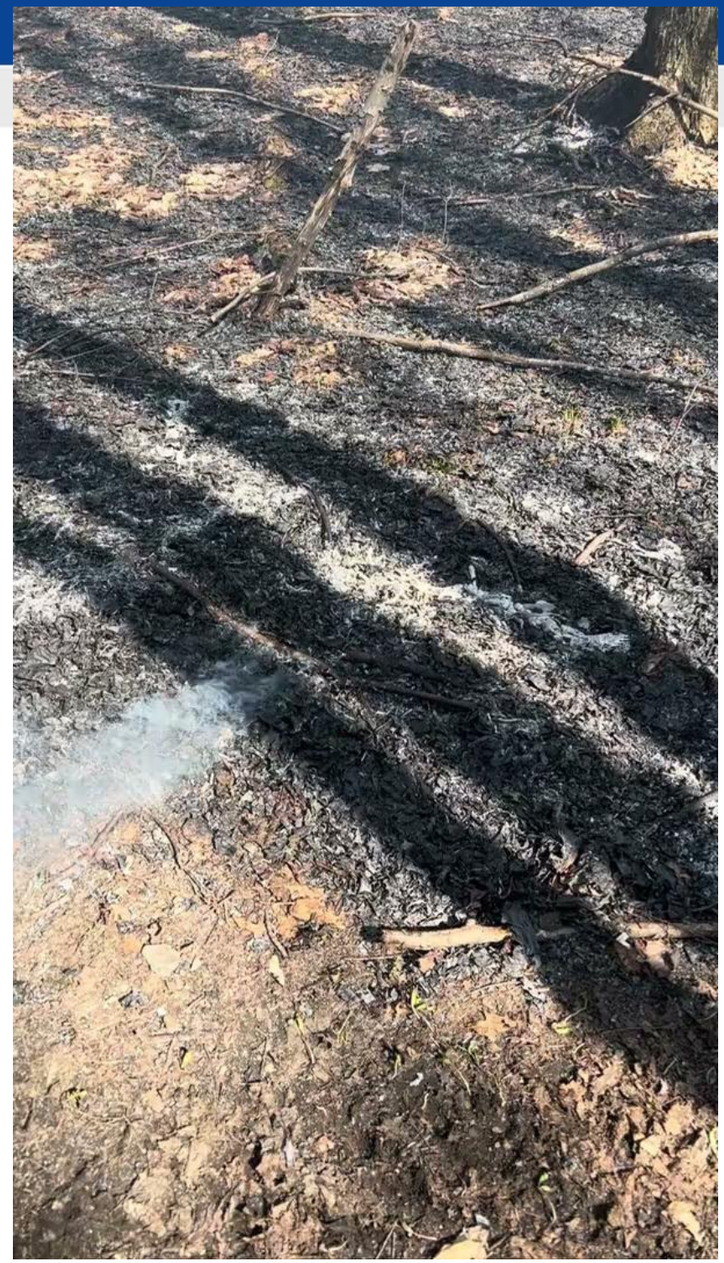
Characteristics and Comments
(See instructions on cover)

fine dead fuel moisture 5 PIG 60
FDFM 5 PIG 60
FDFM 5 PIG 60
FDFM 5 PIG 60
FDFM 5 PIG 60
FDFM 5 PIG 60
FDFM 5 PIG 60

- Use first table to determine Reference Fuel Moisture (RFM) % using temperature and relative humidity.
- Use other tables based on month of the year, amount of shade (canopies, clouds vs. exposed), aspect and slope, time of day, and elevation.
- Use FDFM to find PIG % from temperature and amount of shade.

Observations

- Recent snowfall made fuels difficult to burn
- Environment in some areas was swampy
- The prescribed burn was especially smoky



Observations

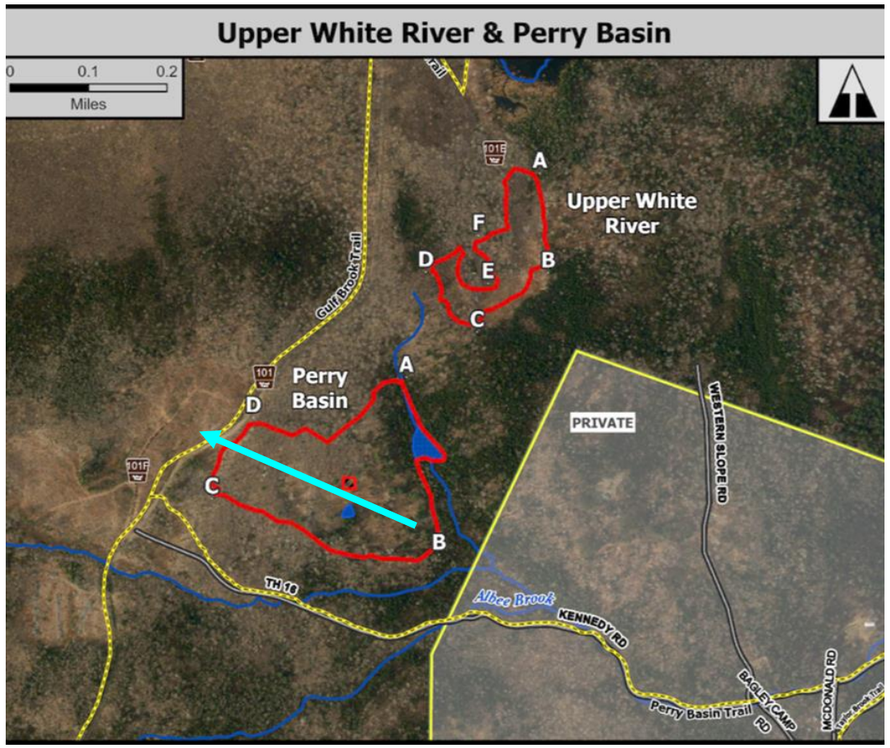
March 12, 2025
2:36 AM

- Recent snowfall made fuels difficult to burn
- Environment in some areas was swampy
- The prescribed burn was especially smoky

Observations

March 12, 2025
2:36 AM

- Upslope winds could be seen allowing smoke to drift from lower elevations to higher elevations



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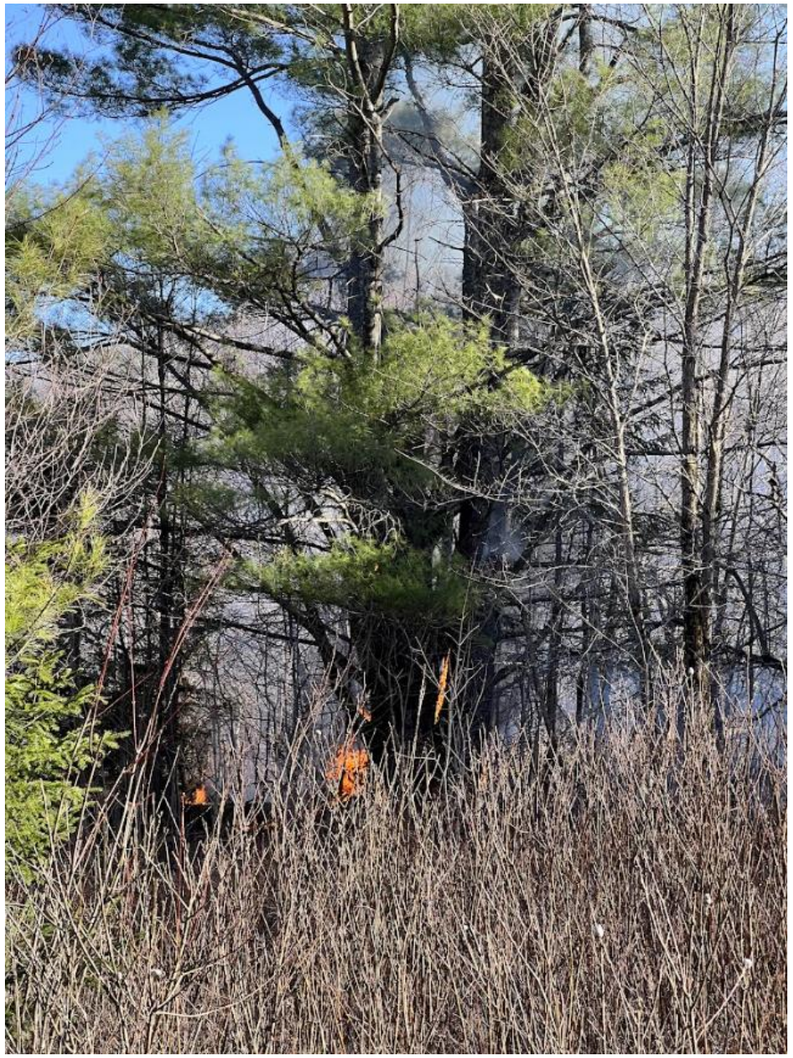

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March 12, 2025
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Observations

March 12, 2025
2:36 AM

Observations vs. Forecast

Our Role Onsite

March 12, 2025
2:36 AM

Optional Form 251 (12/88) USDA/USDI **MOBILE FIRE WEATHER OBSERVER'S RECORD**

Date: 4/26/2024 | Location: Upper White River and Ferry Basin | Elevation: 1770 Feet | Aspect: 135° (N E S W)

Exposure (Ridgetop, slope, etc.): midslope bowl | Cover Type (As indicator of wind obstruction): Partial | Stand Density (As indicator of wind obstruction):

43.970 N -72.865W

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13:30	52	19	22	calm	-	FDFM 5 PIG 60
14:00	52	19	22	5 G7	E	FDFM 5 PIG 60
14:30	53	16	22	6	SE	FDFM 5 PIG 60
15:00	54		20	5 G(1-3)	SE	FDFM 5 PIG 60
15:30	53	17	21 22	1-3	SE	FDFM 5 PIG 60

* U.S. G.P.O.:1998 693-044

```
.REST OF TODAY...

Sky/weather.....Sunny (0-10 percent).
Chance of pcpn......0 percent.
LAL.................1.
Begin/end of pcpn...
Max temperature.....Around 53.
Min humidity........23 percent.
Wind (20 ft)........Light winds becoming northeast around 5 mph.
Mixing height.......6200 ft AGL.
Transport winds.....North 6 to 8 mph.
Haines Index........4 or low potential for large plume dominated
                    fire growth.

TIME (EDT)      8AM 9AM 10A 11A 12P 1PM 2PM 3PM 4PM 5PM
Sky (%).....2   2   2   3   3   4   6   6   6   4
Weather cov.....
Weather type....
Tstm cov........
Chc of pcpn (%).0   0   0   0   0   0   0   0   0   0
LAL.............1   1   1   1   1   1   1   1   1   1
Temp............28  33  38  43  46  49  51  52  53  53
RH..............60  49  38  32  28  25  24  24  23  24
20 FT wind dir..N   N   N   NE  E   NE  NE  NE  NE  N
20 FT wind spd..1   2   3   3   3   3   5   5   5   5
20 FT wind gust.3   5   5   6   6   6   6   6   6   6
Mix hgt (kft)...1.6 3.1 4.5 5.0 5.5 5.8 6.2 6.1 5.9 5.8
Transp wind dir.N   N   N   N   N   N   N   NW  NW  NW
Transp wind spd.6   7   8   8   7   7   7   8   8   7
Haines index....4   4   4   4   4   4   4   4   4   4
```

Thanks for Listening!

March 12, 2025
2:36 AM