



NATIONAL TRANSPORTATION SAFETY BOARD

**Office of Aviation Safety
Western Pacific Region**

FLIGHT and SITE INFORMATION

**NTSB Accident: WPR12GA106
Accident Date: February 15, 2012**

This document contains 15 embedded images

A. ACCIDENT

Location: Moran Junction, WY
Date: February 15, 2012
Aircraft: Bell 407, N407HL, Serial # 53869
NTSB IIC: Michael Huhn

B. SUMMARY

On February 15, 2012, about 1301 Mountain Standard Time, a Bell Helicopter model 407, N407HL, was substantially damaged when it impacted trees and terrain in the Bridger Teton National Forest near Moran Junction, Wyoming, during a search and rescue (SAR) mission. The commercial pilot and one SAR crewmember received serious injuries, and the other SAR crewmember was fatally injured. The public use flight was operated by the Teton County Sheriff's Office (TCSO). Visual meteorological conditions prevailed, and no FAA flight plan was filed for the flight.

The mission was in response to a reported snowmobile injury accident, in order to transport medical personnel to that scene. Initial attempts to locate that victim, based on trail network and geographic coordinate information, were unsuccessful. The helicopter began the search, and the crew observed two snowmobilers signaling to them in a meadow. The helicopter landed in the meadow, and a SAR member exited and spoke with the snowmobilers. They were from the victim's party, and they agreed to lead the helicopter on their snowmobiles to the accident site. The SAR member re-boarded the helicopter, the helicopter lifted off to follow the snowmobilers, flying about 100 to 200 feet above the trees. The accident occurred during the period when the helicopter was following the snowmobiles.

C. FLIGHT INFORMATION

1.0 General

- The flight history was obtained from involved personnel and two onboard GPS units that were operating for the flight
- The GPS units were downloaded by NTSB Recorders Laboratory personnel and the results were documented in a separate report
 - GPSMap 296: The accident flight was the last session, recorded starting at 19:25:37 UTC and ending at 20:01:14 UTC on February 15, 2012 (230 total data points).
 - AERA 500: The accident flight was the 71st session, recorded starting at 19:25:39 UTC and ending at 20:01:53 UTC on February 15, 2012 (242 total data points).
 - The track data from both units were congruent
 - Both units appeared to capture the entire flight
- The departure from Jackson, Wyoming occurred about 19:25:39 from a location just east of the Teton Pass Highway, Route 22.

- The enroute portion of the flight (to the search area) occurred between about 19:35 and 19:41. The groundspeed was about 115 knots with altitudes ranging from about 8,976 feet MSL to 9,823 feet MSL.
- Upon entering the search area, the helicopter first proceeded southeasterly until about 19:43:18. The helicopter then tracked southwesterly, and made a 360 degree turn. The helicopter then proceeded north-northwest until about 19:49:06.
- Based on crewmember testimony and geographic information, the northwest-most excursion corresponded to the point in the flight where the crew hovered at a trail sign in order to obtain orientation/location information at about 19:48. After reading the trail sign, they then headed southeast again.
- The helicopter proceeded in a southeasterly direction, traveling about 2.2 nautical miles farther southeast than the prior legs.
- Between about 19:54:12 and 19:58:18, the helicopter executed a 360 degree turn. The helicopter was stationary between 19:54:49 and 19:58:09; this was the point in the flight where the helicopter landed so the crew could speak with uninjured snowmobilers associated with the individual to be rescued. During that ground discussion it was agreed that the snowmobilers would lead the helicopter to the snowmobile victim.
- The last segment of the flight, including the accident, occurred between 20:00:24 and 20:01:53. The groundspeed decreased from about 25 knots to less than 15 knots between 20:00:32 and 20:01:00 while at an altitude of about 9,665 to 9,695 feet MSL. Thereafter, the helicopter lost altitude from 9,695 feet to a final recorded altitude of 9,469 feet MSL between about 20:01:07 and 20:01:53. Due to the rapid rate of change during this period, the GPS-reported altitude and calculated groundspeed and track information should be considered as unknown accuracy/validity.

GPSMap 296 last data point

TIME (UTC hh:mm:ss)	LAT (Degs)	LONG (Degs)	ALTITUDE (Ft MSL)	GROUND SPEED (Kts)	TRACK (Degs True)
20:01:14	43.72593	110.217	9603	14	95.9

AERA 500 last data point

TIME (UTC hh:mm:ss)	LAT (Degs)	LONG (Degs)	ALTITUDE (Ft MSL)	GROUND SPEED (Kts)	TRACK (Degs True)
20:01:53	43.72583	110.217	9469	2	45.3

- The tracking and notification procedures regarding the flight, and the response to the helicopter accident, are documented separately.

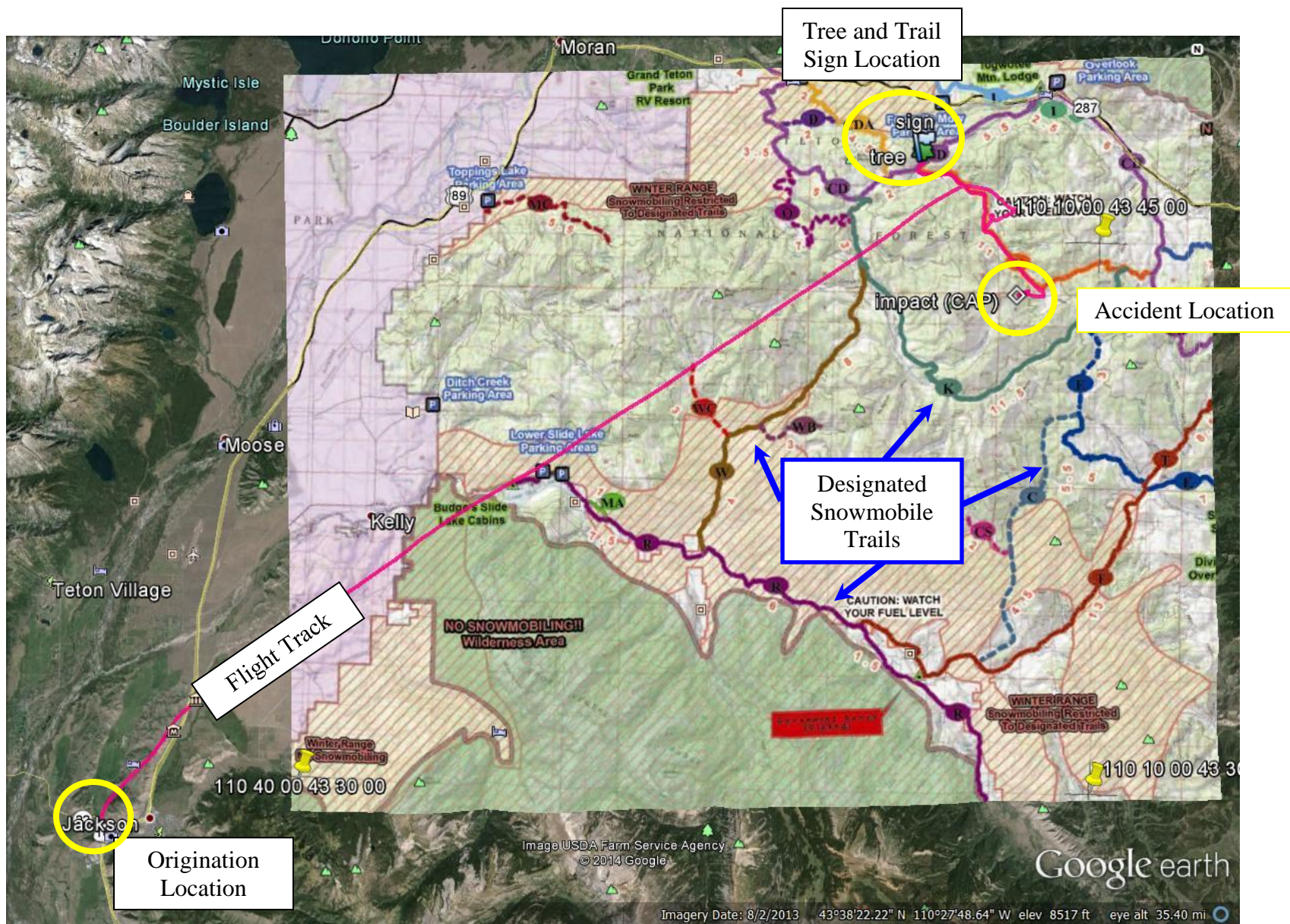


Figure 1 - Snowmobile Trail Map, Flight Track, and Location Information

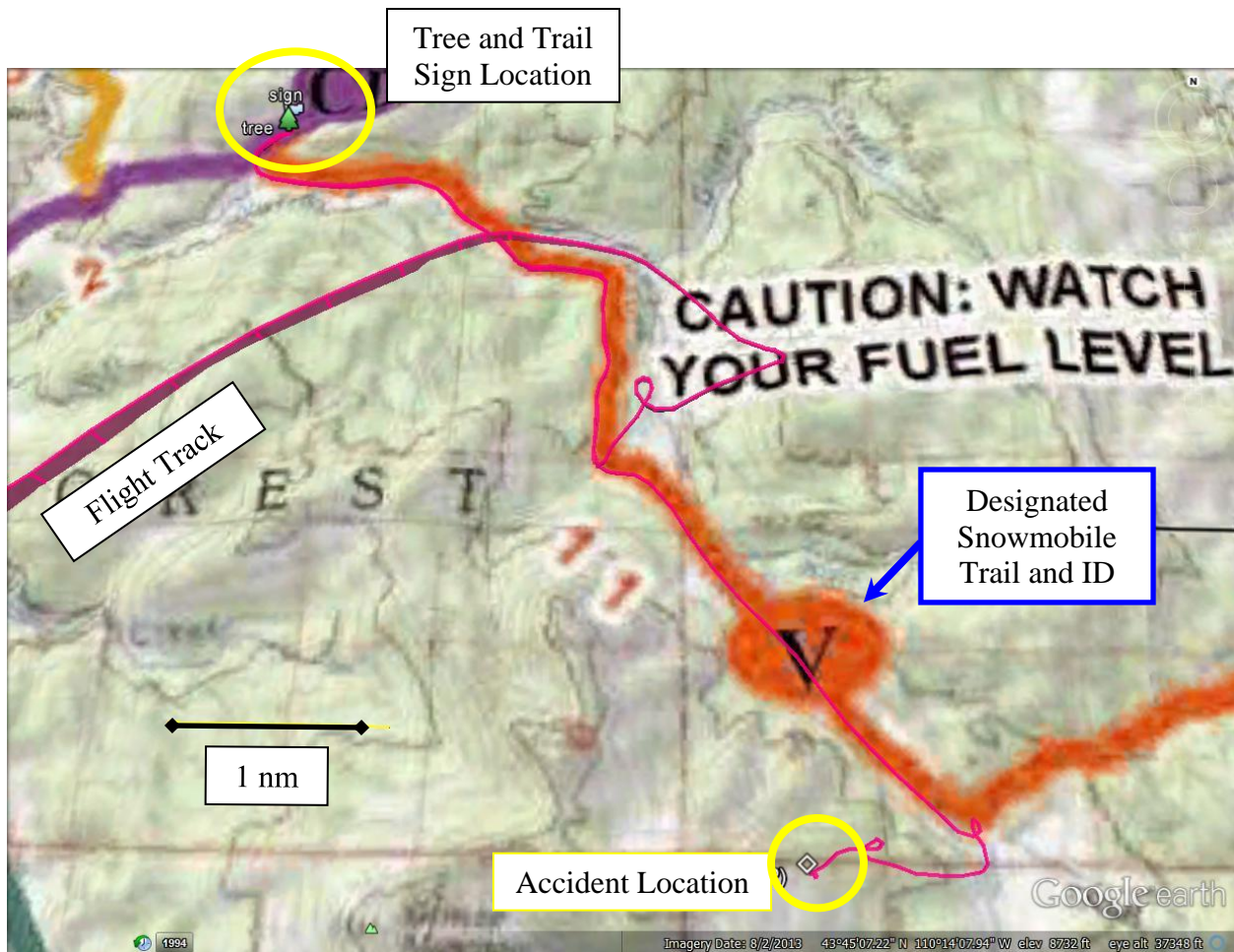


Figure 2 - Close Up of Search Area Track

2.0 Possible Tree Strike

- The possibility that the TR struck a small tree during the previously-mentioned hovering maneuver (when the crew was trying to read the trail sign) was considered
- This was prompted by the finding of a small tree whose top was observed to be damaged
 - The tree was observed by personnel enroute to the wreckage
 - The top was still attached, but lying over, roughly parallel to the ground
 - Data provided by the recovery crew indicated that the tree was located at 43° 47.204 N, 110° 16.588 W
- The sign was located at 43° 47.186 N, 110° 16.551 W
 - The trail sign was located 220 feet, on a bearing of 062° magnetic, from the tree
 - The sign denoted the junction of the CD and V trails

- Review of the trail map indicated that the CD and V trails intersected at two locations
- The crew did not specify which trail sign they observed
- GPS data from the helicopter indicated that it conducted low and slow maneuvering at a location consistent with the location of tree and trail sign

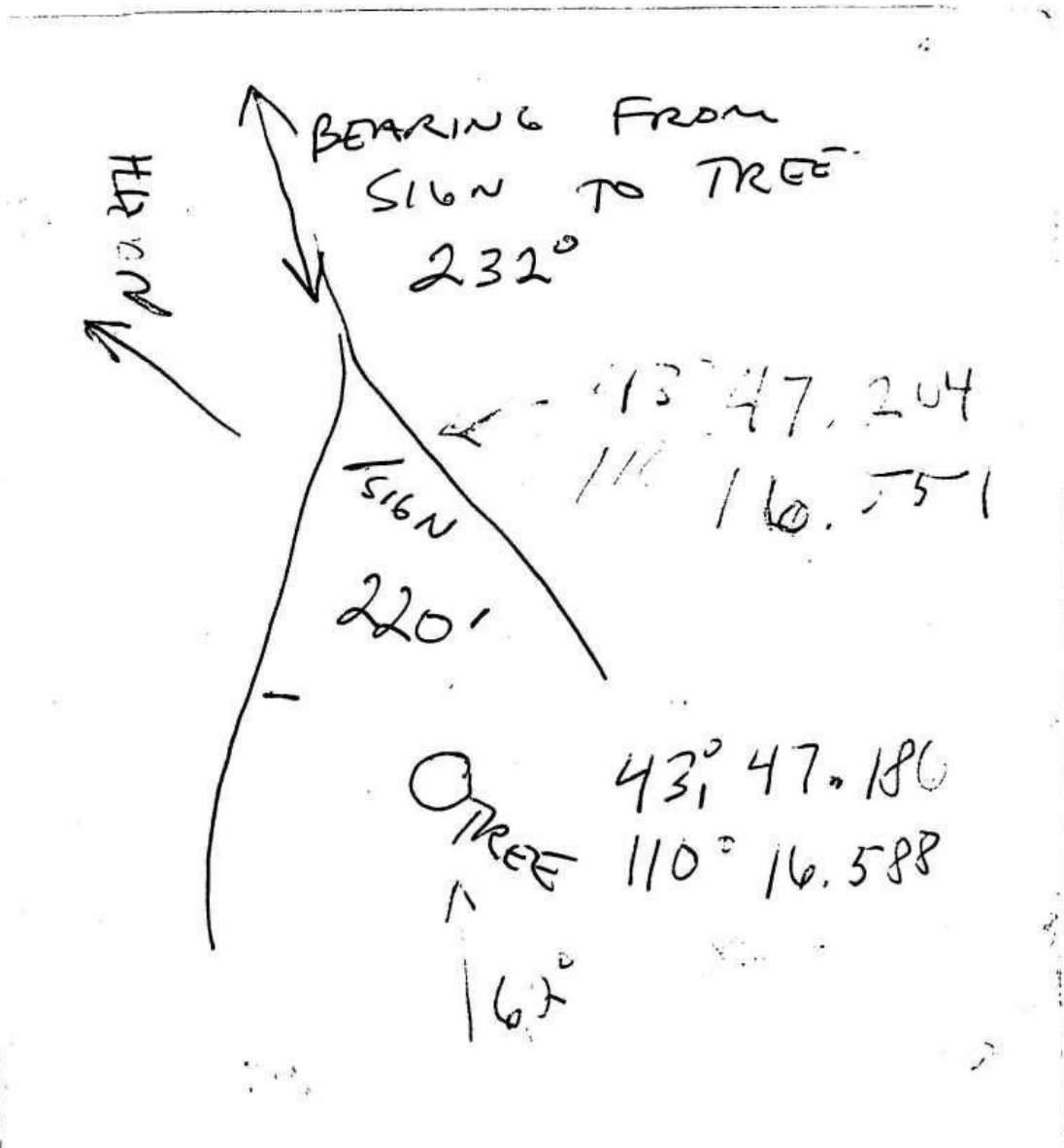


Figure 3 - Raw Sign/Tree Data from Recovery Personnel



Figure 4 - Trail Sign at Junction of 'CD' and 'V' Trails



Figure 5 - Suspect Tree (Note horizontal branch on left)

AERA 500 Data Points Near Tree/Sign Location

TIME (UTC, hh:mm:ss)	LAT (Degs)	LONG (Degs)	ALTITUDE (Ft MSL)	GROUND SPEED (Kts)	TRACK (Degs True)	REMARKS
19:48:15	43.78637	-110.277	8330	18	72	Just before tree
19:48:24	43.78635	-110.276	8307	9	94.1	Just after tree
19:48:25	43.78636	-110.276	8307	3	19.2	
19:48:31	43.78656	-110.276	8314	7	15.3	
19:48:37	43.78679	-110.276	8320	11	40.6	Sign & course reversal
19:48:45	43.78666	-110.276	8327	5	225	
19:48:56	43.78651	-110.276	8307	3	183.9	
19:49:06	43.78649	-110.276	8307	1	241	
19:49:13	43.78614	-110.277	8330	19	235.8	
19:49:19	43.78546	-110.278	8363	41	233.5	

GPS 296 Data Points Near Tree/Sign Location

TIME (UTC, hh:mm:ss)	LAT (Degs)	LONG (Degs)	ALTITUDE (Ft MSL)	GROUND SPEED (Kts)	TRACK (Degs True)	REMARKS
19:48:16	43.78636	-110.277	8327	17	75.1	
19:48:18	43.78636	-110.277	8320	13	90	Just before tree
19:48:27	43.7864	-110.276	8304	4	76.3	Just after tree
19:48:32	43.78662	-110.276	8307	10	22.9	
19:48:36	43.78679	-110.276	8314	11	39.1	Sign & course reversal
19:48:43	43.78669	-110.276	8317	3	211.7	
19:48:54	43.78653	-110.276	8301	3	203.3	
19:49:02	43.78651	-110.276	8304	1	140.3	
19:49:08	43.78645	-110.276	8327	6	251.9	
19:49:15	43.78597	-110.277	8363	26	235.1	

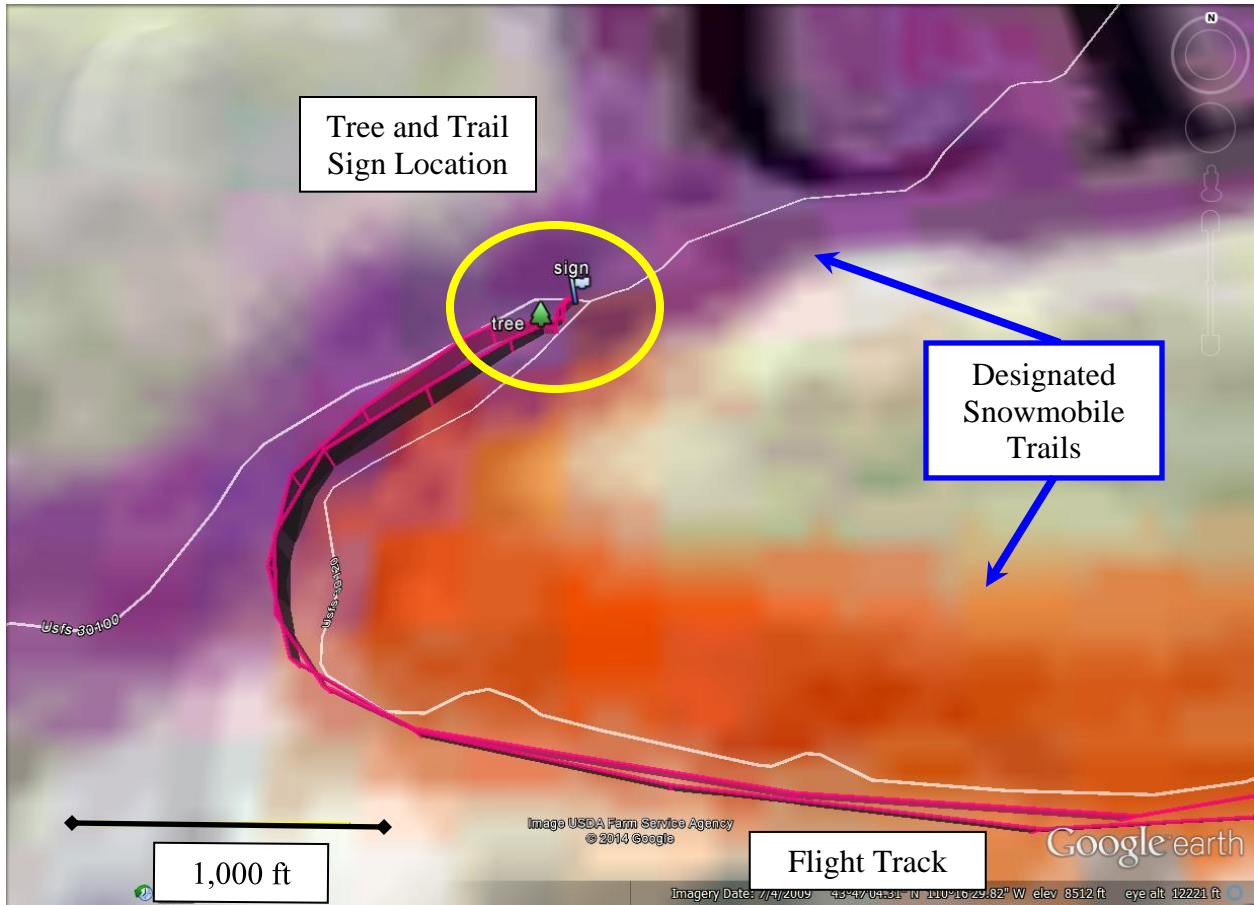


Figure 6 - Track Near Trail Sign and Tree

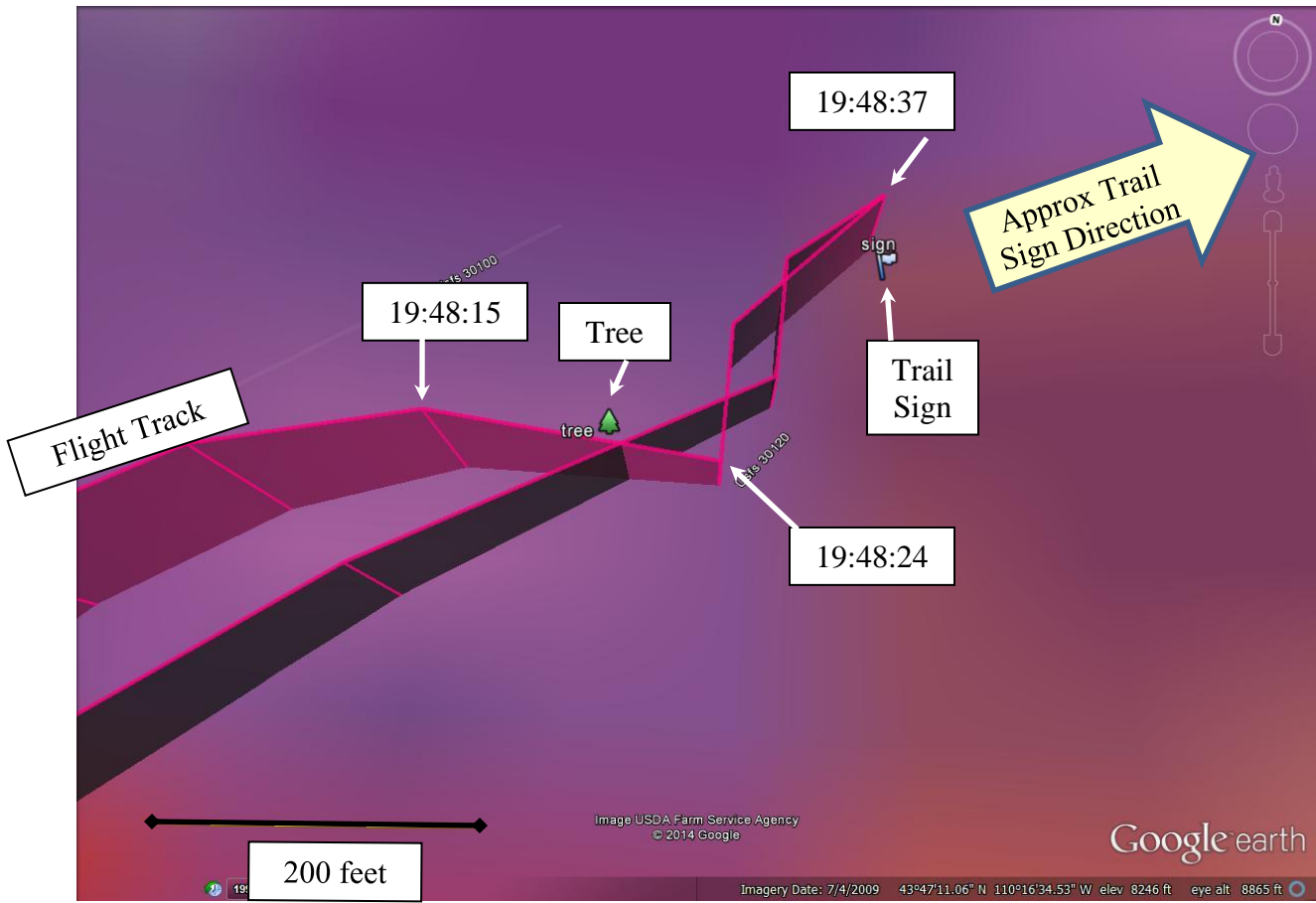


Figure 7 - Close Up of Trail Sign and Tree Area, plus GPS Track s and Times

D. SITE PHOTOGRAPHS

All photographs are courtesy Teton County Sheriff's Office



Figure 8 - Front Left View of Helicopter



Figure 9 - Aft Fuselage and Forward Tailboom



Figure 10 - Tailboom



Figure 11 - Aft Left View



Figure 12 - Underside from Aft



Figure 13 - Tail Rotor



Figure 14 - Site Overview (Note cut tree in upper left frame)



Figure 15 - Cut Tree