

# Chapter 16

## Tornado

Wyoming, lying just west of “tornado alley”, is fortunate to experience fewer intense tornadoes than its neighboring states to the east. However, tornadoes remain a significant hazard in the state. Tornadoes are the most intense storm on earth, having been recorded at velocities exceeding 315 miles per hour (mph). The phenomena results in a destructive rotating column of air ranging in diameter from a few yards to greater than a mile, usually associated with a downward extension of cumulonimbus cloud. Tornadoes are classified by their intensity using the Fujita (F) Scale, with F0 being the least intense and F6 being the most intense. (Table 16.1)

Fujita Scale	Wind Speed	Damage
F0	40-72	Light
F1	73-112	Moderate
F2	113-157	Considerable
F3	158-206	Severe
F4	207-260	Devastating
F5	261-318	Incredible
F6	319-379	Inconceivable

According to the Wyoming Climate Atlas, Wyoming ranks 25<sup>th</sup> in the number of annual tornadoes (10), 33<sup>rd</sup> in fatalities (six deaths per one million people), 36<sup>th</sup> in property damage (\$49,339,505) (figure from WSGS), and 37<sup>th</sup> in injuries, in the U.S. from 1950 to 1994. (Excerpted from the Wyoming Climate Atlas)

Tornado statistics, especially prior to the 1970’s, must be viewed as incomplete since many twisters must have occurred without being witnessed. Wyoming’s open rangelands experience little, if any, damage from these storms so many go unreported. In the 1990’s, the Internet and Doppler radar increased the public’s awareness of tornadoes with the potential of more being observed and reported. However, the trend in annual tornadoes has decreased by one-third since 1976 and appears to have coincided with a major hemispheric weather pattern shift, despite the increased reporting based on Doppler radar vortex (circulation) signatures. (Excerpted from the Wyoming Climate Atlas).

### History

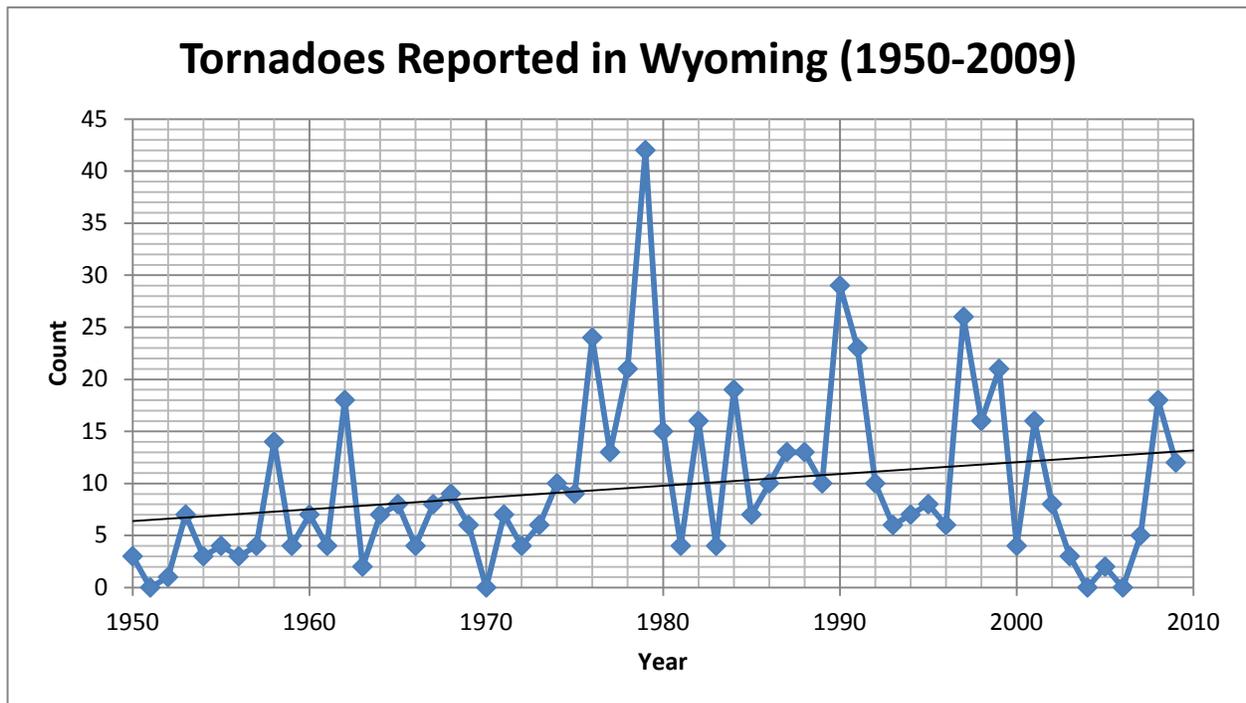
**Table 16.2** presents damages from tornadoes rated by county from 1907 through 2006. **Table 16.3** shows estimated dollar damage by year for the same time period in both dollar amounts for the year of event and for the equivalent in 2010. By a large margin, 1979 was the worst year with a total damage estimate of \$42.8 million (\$136.5 million in 2010 USD), with the influential factor being the Cheyenne-area tornado on July 16. The second worst year was 2005 with a total estimated damage of \$5.0 million (\$5.7 million in 2010 USD). This is a significant difference of \$37.8 million (\$130.8 million in 2010 USD). The amount of damage in 1979 is unlikely, but

nevertheless is possible and should be considered in a mitigation plan. Moreover, the 1979 tornado damage was all concentrated on property, rather than crops.

Property versus crop damage should be considered because, in most instances, property is more critical to restore and time sensitive than crops due to the public service and protection nature of property. Furthermore, public disturbance is affected with property damage, while public disturbance with crop damage is marginal and confined usually to the private owner of the crops. However, long-term effects of crop damage have potential to affect the public, but is not as time sensitive as property damage.

In a database composed of information derived from the National Oceanic and Atmospheric Administration’s (NOAA) National Climactic Data Center (NCDC), the Wyoming Climate Atlas, and the WOHS, there are 523 recorded tornado events from 1907 to 2006 (**Table 16.2**). The number does not include events classified only as funnels. Of the 523 events, 186 tornadoes have been identified as damaging (**Table 16.4**). Damage is defined as those events that resulted in loss of property or life, and any events of F2 or greater.

Annual tornado statistics show a wide degree of variation across the state. For example, 42 tornadoes were counted in 1979 while no tornadoes were reported in 1951 and 1970 (**Figure 16.1**). With respect to counties, of the 523 recorded tornadoes (1907-2006), Laramie County had the most with 82 while Teton County recorded only one. Although Laramie County has the largest population and, thus, the opportunity to see more tornadoes, the fact that extreme southeast Wyoming is closest to “tornado alley” explains these higher numbers (**Figure 16.2**). The average length of a tornado in Wyoming is 3.05 miles with an average width of 79 yards. On average there are six tornado days per year. (Excerpted from the Wyoming Climate Atlas)



**Figure 16.1** – Annual Wyoming Tornado Count with Long-term Trend Line

Table 16.2 - Wyoming Damaging Tornado Data Totals By County For 1907 Through 2006.							
County	Events	Deaths	Injuries	Property Damage (Year of Event USD)	Crop Damage (Year of Event USD)	Total Damage (Year of Event USD)	Total Damage (2010 USD)
Albany	21	0	2	77,500	-	77,500	156,483
Big Horn	23	2	2	329,500	2,750	332,250	1,205,777
Campbell	71	2	23	8,732,500	5,275	8,737,775	15,367,197
Carbon	16	0	0	27,500	277,750	305,250	1,286,526
Converse	37	0	12	185,800	2,750	188,550	1,265,090
Crook	30	0	0	648,525	308,000	956,525	4,678,350
Fremont	15	0	3	490,500	275	490,775	1,685,844
Goshen	51.3	0	26	3,023,775	27,500	3,051,275	9,740,477
Hot Springs	2	0	0	27,500	-	27,500	57,374
Johnson	13.5	0	0	11,050	-	11,050	29,837
Laramie	82.3	1	41	40,177,775	52,750	40,230,525	123,779,305
Lincoln	6	0	4	27,500	-	27,500	74,936
Natrona	31	0	9	390,500	-	390,500	1,115,375
Niobrara	31	0	6	854,750	100,275	955,025	2,372,861
Park	7	0	3	85,250	275,275	360,525	811,089
Platte	32.3	2	4	641,500	32,500	674,000	2,941,022
Sheridan	11.5	1	0	41,250	2,750	44,000	330,289
Sublette	2	0	0	-	-	-	-
Sweetwater	16	0	0	55,000	-	55,000	332,662
Teton	1	0	0	500,000	-	500,000	974,514
Uinta	2	0	0	5,500	-	5,500	25,375
Washakie	6	0	0	30,250	-	30,250	209,912
Weston	15	0	2	130,250	-	130,250	448,964
<b>Total</b>	<b>523</b>	<b>6</b>	<b>123</b>	<b>56,493,675</b>	<b>1,087,850</b>	<b>57,581,525</b>	<b>168,889,259</b>

### Wyoming Government Property

Historically Wyoming’s government property has experienced 1 damaging tornado event totaling \$4,251 in the 307-month period from August, 1985 through February, 2011. If we can assume past experience will continue into the future, the state can anticipate 1 damaging tornado event to its structures every 26 years. Given the number of anticipated tornado events, and based on past experience, damages of \$166 can be anticipated annually ( [ $\$4,250.74 / 307 \text{ months}$ ] \* 12 months each year = \$166.20). Given the value of properties in locations around the state, any of which may be subject to tornados, past history may represent an accurate loss estimate or it may merely reflect historical good fortune. Reference Wyoming Building Insurance Claims Appendix.

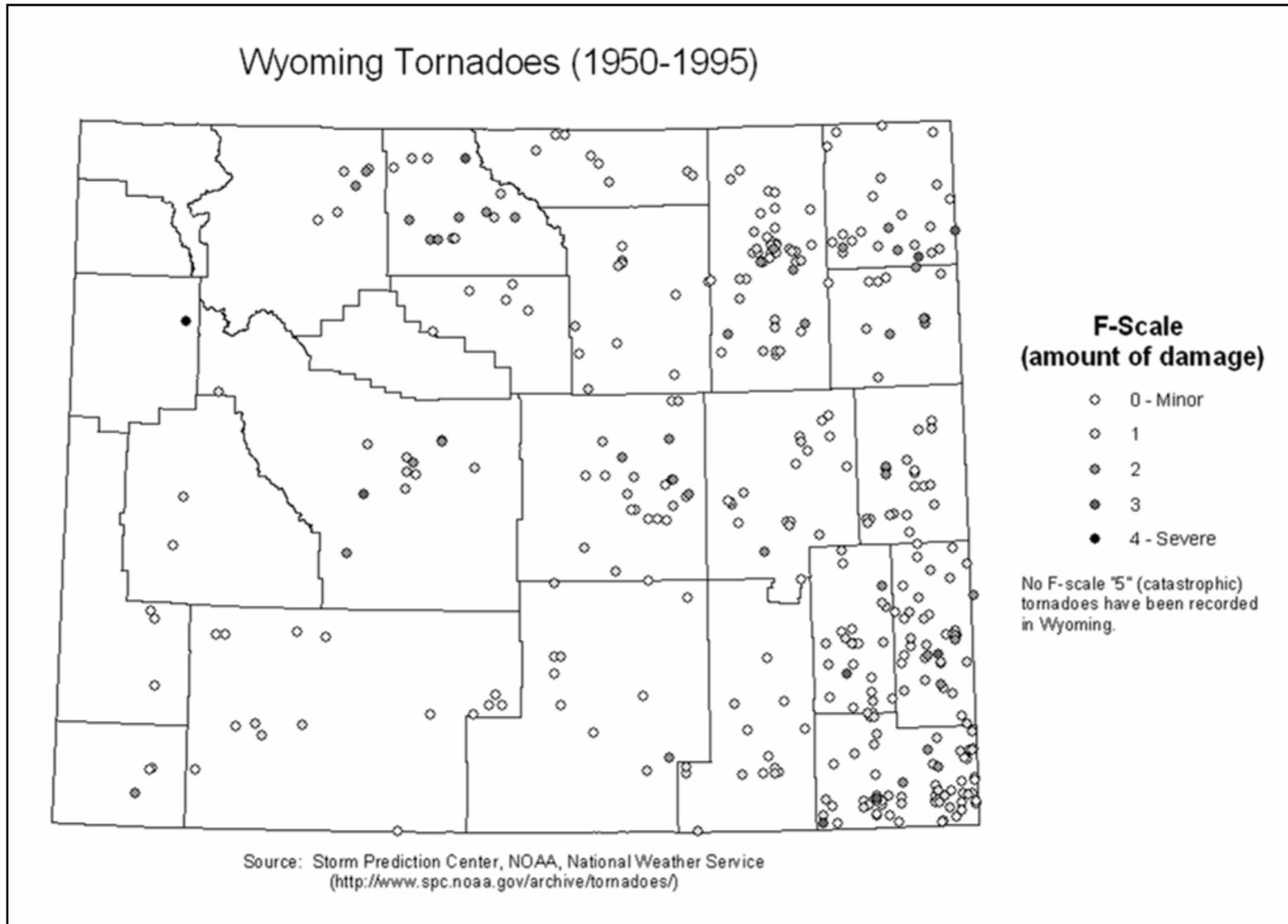
### Presidential Declaration

There has been one Presidential Disaster Declaration related to tornadoes in Wyoming. FEMA DR-WY-1599 was associated with the August 12, 2005, tornado in Wright, Wyoming located in Campbell County.

**Table 16.3 - Wyoming Damaging Tornado Estimated Damage (USD) by Year (1907 - 2005)**

Year	Property Damage	Crop Damage	Total Damage (year or event USD)	Total Damage (2010 USD)
1907	-	-	-	-
1920	-	-	-	-
1923	4,000	-	4,000	51,637
1938	5,000	-	5,000	78,379
1942	1,500	5,000	6,500	84,118
1944	2,600	-	2,600	32,792
1948	110,000	100,000	210,000	1,920,280
1950	-	-	-	-
1953	56,500	5,000	61,500	511,243
1955	210,000	-	210,000	1,732,581
1959	38,000	27,500	65,500	499,120
1960	50,250	-	50,250	375,098
1961	55,275	-	55,275	409,819
1962	96,250	33,275	129,525	947,520
1963	30,250	-	30,250	218,377
1964	137,500	-	137,500	979,734
1965	55,275	275,000	330,275	2,323,149
1966	302,500	-	302,500	2,061,700
1967	57,750	3,025	60,775	401,738
1968	63,525	-	63,525	402,925
1969	-	27,500	27,500	165,801
1971	11,000	-	11,000	60,051
1973	27,500	-	27,500	137,163
1974	90,750	-	90,750	406,449
1975	527,500	-	527,500	2,167,890
1976	338,250	275,000	613,250	2,386,242
1977	-	2,750	2,750	8,928
1978	957,500	3,300	960,800	3,264,048
1979	42,835,250	-	42,835,250	130,564,439
1980	302,500	-	302,500	811,574
1982	335,250	2,750	338,000	774,297
1984	240,250	2,750	243,000	517,756
1985	35,750	-	35,750	73,462
1986	257,750	-	257,750	519,907
1987	802,500	-	802,500	1,564,094
1988	2,752,750	-	2,752,750	5,145,822
1989	30,250	-	30,250	54,664
1990	8,250	-	8,250	13,970
1991	402,500	325,000	727,500	1,180,898
1993	100,000	-	100,000	153,041
1994	-	-	-	-
1996	130,000	-	130,000	183,354
1997	2,000	-	2,000	2,756
1998	20,000	-	20,000	27,128
1999	10,000	-	10,000	13,284
2001	-	-	-	-
2003	-	-	-	-
2005	5,000,000	-	5,000,000	5,662,032
<b>Total</b>	<b>56,493,675</b>	<b>1,087,850</b>	<b>57,581,525</b>	<b>168,889,260</b>

**Figure 16.2**—Tornadoes documented in Wyoming from 1950 through 1995, according to damage on the F-Scale.



June has nearly twice the number of tornadoes compared to May and July. The period of November through March has no reported tornadoes. (Figure 16.3) With the heating of the day, tornadoes peak in occurrence between 3:00 p.m. and 4:00 p.m. MST. Tornadoes occurring at night are rare, although more probably occur but go unseen. (Figure 16.4)

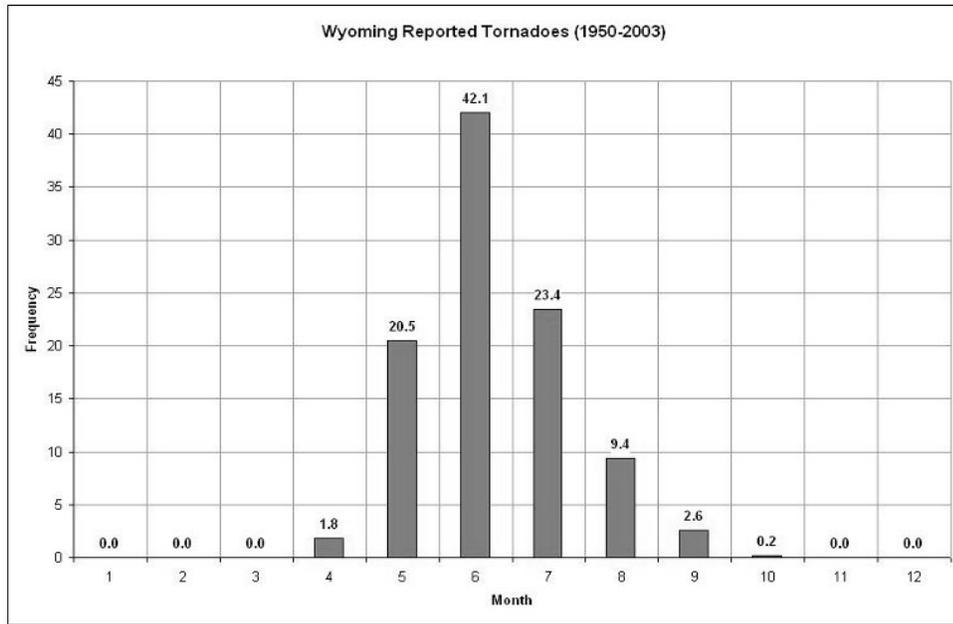


Figure 16.3 – Wyoming Monthly Tornado Statistics (1950-2003).  
Graph from Wyoming Climate Atlas

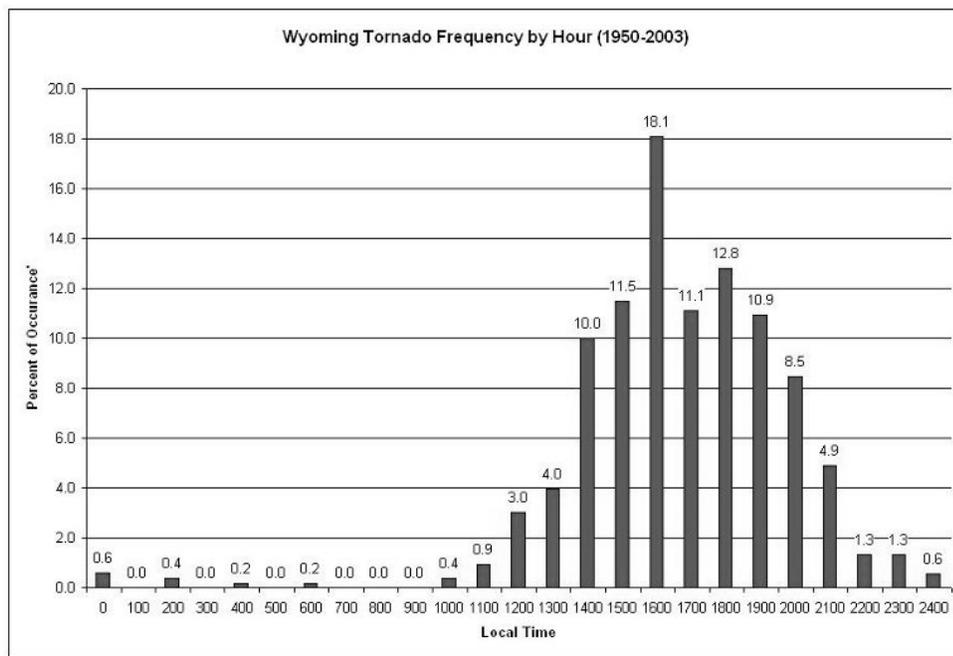
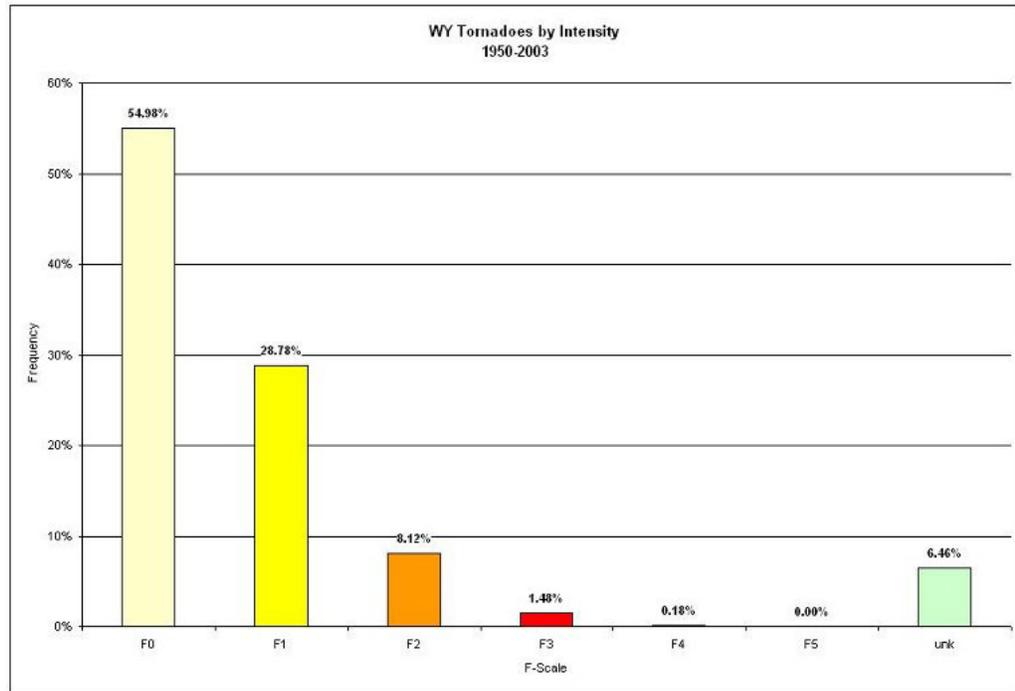


Figure 16.4 – Wyoming Tornado Frequency by Hour (1950-2003).  
Graph from Wyoming Climate Atlas

The weakest intensity (F0) winds (40 to 72 mph) occur more than half the time producing minimal damage (**Figure 16.5**). Significant tornadoes are considered to be F2 intensity winds, between 113 and 157 mph or stronger, or if a weaker tornado kills a person. Significant tornadoes occur in about four out of 100 tornadoes in Wyoming (Excerpted from the Wyoming Climate Atlas).



**Figure 16.5** – Frequency of Tornadoes by Intensity (1950-2003).  
Graph from Wyoming Climate Atlas

The strongest tornado in Wyoming was an F4 with winds between 207 and 260 mph, which occurred on July 21, 1987, in Teton County and resulted in \$500,000 (\$977,145 - 2010 USD) in damages:

“21 July 1987: Cut across the Teton Wilderness, 45 miles northeast of Jackson. About 15,000 acres of trees were downed. This was the highest [*elevation*] F4 tornado ever documented. The downed trees were mostly mature lodgepole pines, from 80 to 100 feet tall. The massive blow down stretched over 24 miles, from Box Creek Trailhead, 10 miles east-northeast of Moran Junction and was about one to two miles wide. The F4 rating was applied after inspection by Dr. Fujita. F4 winds may be needed to do F3 damage in air at this altitude (up to 10,000 feet). Not all experts agree that this entire event should be called a “tornado”. (Excerpted from a quote in the Wyoming Climate Atlas)

**Table 16.4—Wyoming Damaging Tornado Events By Date 1907 through 2006.**

Start Date	End Date	County	Location	Deaths	Injuries	Estimated Property Damage	Estimated Crop Damage (USD)	Total Estimated Damage (USD)	Information
5/18/1907		Converse	25 miles east of Douglas		6				
6/24/1920		Laramie	3 miles south of Hillsdale						
5/31/1923		Converse	5 miles west of Parkerton		2				
5/31/1923		Sheridan	Lariat	1		4,000		4,000	A funnel shaped cloud left a path 300 yards wide and 2 miles long; killing one man, some livestock, and causing an estimated \$4000 damage.
6/12/1923		Park	Southfork near Cody		3				
6/15/1926		Goshen	2 miles southwest of Torrington		26				
6/27/1927		Campbell	20 miles northeast of Gillette		4				
6/29/1928		Campbell	Gillette						
6/8/1930		Niobrara	Hat Creek to southeast of Lusk		1				
5/31/1938		Goshen	Veteran, Huntley			5,000		5,000	Events of more than ordinary interest were the occurrence of three well defined tornadoes during the year. The first was reported in the vicinity of Veteran and Huntley, in Goshen County, during the early afternoon of May 31st. Farm buildings and equipment were destroyed with an estimated loss of more than \$5000.
6/20/1938		Laramie	Federal						On June 20th a well defined tornado funnel developed near Federal, Wyoming, which was visible to many Cheyenne residents. Owing to the character of the country only one wind mill tower was destroyed.
8/13/1938		Sweetwater	Eden						A tornado occurred near Eden, in Sweetwater County, on August 13th. Several farm buildings were completely destroyed and a number of hay stacks were blown over and scattered.
4/27/1940		Goshen	Ft. Laramie						Severe hail and small tornado that occurred in northern Goshen County on the afternoon of April 27th. Considerable property damage was reported from this storm and only the fact that crops were not up or were small prevented serious crop loss.

**Table 16.4—Wyoming Damaging Tornado Events By Date 1907 through 2006.**

Start Date	End Date	County	Location	Deaths	Injuries	Estimated Property Damage	Estimated Crop Damage (USD)	Total Estimated Damage (USD)	Information
6/25/1942		Platte	Wheatland	2	4	1,500	5,000	6,500	A tornado occurred near Wheatland on the evening of June 25th, which resulted in the death of two people and injury to four others. It is estimated that property damage from this storm will reach many thousands of dollars and the crop loss to be approximately one-third.
5/17/1944		Converse	Douglas			800		800	A tornado was reported which resulted in considerable damage. This storm occurred during the afternoon and evening of the 17th. It occurred approximately 16 miles south of Douglas and resulted in \$800 damage to ranch buildings. No deaths or injuries resulted from the storm.
5/17/1944		Crook							A tornado was reported which resulted in considerable damage. This storm occurred during the afternoon and evening of the 17th. It began in the Black Hills Region of South Dakota and moved northwestward across the northeast portion of Crook County. Principal damage in this storm was to ranch buildings, standing timber, and considerable stored grain. Heavy rain and hail accompanying the storm resulted in many bridges and large sections of the highway being washed out. No deaths resulted from the storm, although several persons were injured, none seriously, principally by flying glass.
6/11/1944		Laramie	Lindberg						A tornado occurred near Lindberg on June 11 in connection with the hailstorm over the southeastern portion of the State. Damage in this storm was slight.
6/12/1944		Campbell			2				
6/13/1944		Sheridan	Spotted Horse			1,500		1,500	A tornado occurred at Spotted Horse in Sheridan County on June 13, causing approximately \$1500 damage to a dance hall. There were eleven people in the basement at the time the storm struck, but none were injured or killed.
8/3/1944		Johnson	Kaycee			300		300	A report has been received of a small tornado that occurred approximately seven miles west of Kaycee at about 2:45 p.m. on August 3rd. Damage to property from this storm amounted to approximately \$300, and no damage to crops was reported. No loss of life or injuries occurred.
5/29/1948		Laramie	Cheyenne			10,000		10,000	A tornado occurred about 10 miles north of Cheyenne on the 29th destroyed some farm buildings, causing about \$10,000 damage, but there was no loss of life.

**Table 16.4—Wyoming Damaging Tornado Events By Date 1907 through 2006.**

Start Date	End Date	County	Location	Deaths	Injuries	Estimated Property Damage	Estimated Crop Damage (USD)	Total Estimated Damage (USD)	Information
6/17/1948		Converse				100,000		100,000	A hailstorm and tornado that hit parts of Converse and Niobrara Counties on the 17th. This storm caused serious damage, not only to growing crops, but to ranch and farm property as well. Damage from the storm alone will amount to nearly \$100,000.
6/17/1948		Niobrara					100,000	100,000	A hailstorm and tornado that hit parts of Converse and Niobrara Counties on the 17th. This storm caused serious damage, not only to growing crops, but to ranch and farm property as well. Damage from the storm alone will amount to nearly \$100,000.
7/18/1948		Converse	Glenrock						Tornados were observed near Glenrock on the 18th. Only slight damage resulted from the storm near Glenrock
5/10/1950		Uinta	Robertson						A small tornado occurred near Robertson on the 10th causing some damage to ranch buildings.
6/7/1950		Niobrara	Lusk		1				A tornado sighted reached the ground causing damage. One person was slightly injured when a tornado damaged a building south of Lusk on the afternoon of the 7th.
6/14/1950		Weston	Four Corners						A tornado occurred near Four Corners on the afternoon of the 14th doing considerable damage to fences and growing timber.
5/8/1952		Niobrara							A tornado was reported in northern Niobrara County on the 8th. Only the fact that the tornado occurred in open range country prevented serious damage. The only damage reported was to fences and this was light.
6/27/1952		Platte	Guernsey						A tornado was sighted about 20 miles south of Guernsey on the afternoon of the 27th. While no damage resulted from the tornado itself, hail from this storm did considerable damage to growing crops.
5/28/1953		Weston	West of Newcastle			50,000		50,000	A tornado the evening of the 28th cut a swath, averaging about a quarter mile in width, from six miles west of Newcastle to the northeast ending near the county line. Farm buildings in the path were damaged or destroyed with the loss estimated at \$50,000.
6/11/1953		Niobrara	Keeline			4,000		4,000	The tornado near Keeline on the 11th caused property damage estimated at \$4000, with light crop damage
6/12/1953		Campbell	Lawver			2,500	5,000	7,500	A tornado near Lawver on the following day caused \$2500 property damage, with crop damage from hail estimated at \$5000.

**Table 16.4—Wyoming Damaging Tornado Events By Date 1907 through 2006.**

Start Date	End Date	County	Location	Deaths	Injuries	Estimated Property Damage	Estimated Crop Damage (USD)	Total Estimated Damage (USD)	Information
7/2/1953		Platte	Chugwater						A tornado was reported near Chugwater on the 2nd. The storm did not affect a populated area, and other than uprooting a few trees, no damage was done.
7/16/1953		Carbon	Medicine Bow Mountains						A tornado was reported in the Medicine Bow Mountains on the 16th. The storm did not affect a populated area, and other than uprooting a few trees, no damage was done.
5/22/1954		Goshen	Jay Em						A small tornado struck Jay Em, Goshen County, on the 22nd damaging a barn slightly.
7/21/1954		Goshen	Torrington						Cooler weather moved across Wyoming on the 21st, and caused a small tornado which damaged the roofs of two houses at Torrington on that date.
6/26/1955		Goshen	7 miles southwest of Torrington						In early evening of the 26th two tornadoes were noted bobbing along the horizon southeast of Torrington. A house near Veteran southwest of Torrington was smashed by a tornado the night of the 26th. On the 26th a tornado was sighted about 10 miles southeast of Wheatland.
6/27/1955		Platte	Chugwater		3	210,000		210,000	Another tornado about 14 miles south-southeast of Wheatland and 10 miles north of Chugwater, late on the 27th, injured three persons and destroyed their farm home. Injuries ranged from bruises, shock, and concussion to severe cuts and skull fracture; a mother and a 5-year-old son, were in critical condition, but were improving near the end of the month. Loss from demolished ranch buildings was estimated at \$10,000. Southwest of Wheatland there was extensive damage, approximately \$200,000. When total damage from all storms is assessed it will probably run into the millions.
5/6/1957		Hot Springs	Thermopolis						At Thermopolis on the 6th a strong whirlwind caused extensive damage to buildings over a path 20 yards wide and 500 yards long.
5/19/1957		Platte	North of Meadowdale						During the evening of the 19th a whirlwind accompanying a heavy rain and hailstorm north of Meadowdale in the northeast corner of Platte County caused some property damage. A number of persons who saw the funnel cloud touch the ground numerous times considered it a small tornado. Roofs lifted from sheds, a chicken house wrecked, a windmill damaged, and windows broken by wind and hail. Some hail "as big as baseballs" fell. Several persons sought refuge in cellars. No one was injured. Considerable runoff from this storm. Willow Creek flooded.

**Table 16.4—Wyoming Damaging Tornado Events By Date 1907 through 2006.**

Start Date	End Date	County	Location	Deaths	Injuries	Estimated Property Damage	Estimated Crop Damage (USD)	Total Estimated Damage (USD)	Information
5/24/1957		Goshen	Yoder, Torrington						A number of whirlwinds and funnels were reported, even a few full tornadoes, but most of these caused damage of little or no extent; two exceptions being: Farm buildings damaged near Yoder and a house trailer destroyed north of Torrington
5/29/1957		Laramie	Cheyenne						A "small but well defined" tornado was sighted southwest of Cheyenne at a distance variously estimated as 20 to 50 miles. This possibly was the same tornado which demolished a ranch house 4 miles northwest of Wellington, Colorado. It flattened a garage and corral fences and carried away a porch of a ranch house. The top of a tree was carried away.
5/27/1959		Campbell	West/Northwest of Gillette			27,500		27,500	Tornado formed south-southwest of Gillette and moved north-northeast. It crossed two ranches and the airport. Most of the damage occurred at the airport.
6/25/1959		Crook	Southwest of Sundance			2,750	27,500	30,250	Severe thunderstorm moving north to northwest down Kara Creek with heavy rain and hail causing some damage. Tornado developed with storm for a brief period causing most of the reported property damage at one ranch.
6/26/1959		Big Horn	Greybull, 30 miles east of town	1		5,000		5,000	The tornado left a path 200 yards wide and 3 miles long, accompanied by rain and hail. A Game and Fish employee was killed when his pick-up was hit by a falling tree. Other damage in the area was estimated at \$5000.
4/23/1960		Laramie	Colorado-Wyoming		1	20,000		20,000	A funnel cloud was observed forming about 1830 MST near the Front Range between Loveland, Colorado and Ft. Collins, Colorado. The movement was observed toward the NNW. At 1930 MST a tornado moved through the building site of a ranch 19 miles west of Cheyenne. Loss of buildings and fences is estimated at \$13,000 while loss and injury of cattle amounts to at least \$7000. In crossing the highway a few minutes later the tornado caught an empty auto transport and turned it over several times. The driver was seriously injured. The storm then continued toward the north-northwest for an unknown distance. The character of damage definitely corroborates eye-witness reports that this was a tornado.
6/19/1960		Sweetwater	Green River			27,500		27,500	Storm severely damaged a store and bowling alley.
6/26/1960		Niobrara	Manville			2,750		2,750	Damaged two homes.

**Table 16.4—Wyoming Damaging Tornado Events By Date 1907 through 2006.**

Start Date	End Date	County	Location	Deaths	Injuries	Estimated Property Damage	Estimated Crop Damage (USD)	Total Estimated Damage (USD)	Information
7/3/1960		Albany	Thirty-eight miles west of Laramie		2				
8/21/1960		Goshen	Torrington						Small tornado touched down, causing damage to a chicken house and a sheep shed.
5/18/1961		Crook	Sundance 10 W			27,500		27,500	Tornado destroyed a barn and damaged outbuildings.
5/20/1961		Sheridan	Arvada 5 N			27,500		27,500	Tornado traveling from west to east destroyed a granary and shearing shed.
6/3/1961		Laramie	Pine Bluffs 2 E						
7/11/1961		Goshen	Lagrange						Two funnels reported by Scottsbluff, Nebraska radar.
7/17/1961		Crook	Sundance 8 S			275		275	A small tornado moved from west to east across a ranch destroying a shed and ripping telephone lines from poles.
5/24/1962		Uinta	Lyman			2,750		2,750	Tornado moving eastward through farmstead destroyed feed building and injured cow.
6/11/1962		Campbell	Gillette 40 S				275	275	Tornado observed touching the ground by highway employees but details of path not observed.
6/11/1962		Crook	Moorcroft 15 S				2,750	2,750	Tornado and two funnels observed but details of path not. Most damage was done by hail to grasslands.
6/11/1962		Natrona	Casper 27 N		4	27,500		27,500	Tornado tossed car with two people in it up into the air, overturned a truck with two people, destroyed a machine shop and lambing shed, and damaged other ranch buildings and ranch house at Teapot Rock Ranch.
6/12/1962		Big Horn	Greybull 18 W			2,750		2,750	Tornado struck a farm when no one was at home, destroying one outbuilding and damaging others.
6/12/1962		Goshen	Torrington 4 WNW			2,750		2,750	Tornado picked up a cattle shed and smashed it to the ground near the farmhouse, destroying it totally.
6/14/1962		Laramie	Pine Bluffs				2,750	2,750	Tornado moved from 5 miles west of Pine Bluffs to 7 miles north, did damage to crop and range land.
6/14/1962		Platte	Wheatland 12 E				27,500	27,500	Tornado moving northeastward did damage to crop and range land.
6/15/1962		Natrona	Casper 40 NW			27,500		27,500	Tornado wrecked one out-building and damaged others at the Maple Ranch.
6/16/1962		Fremont	Lander 5 N			2,750		2,750	Tornado destroyed cement-block shop, moved northwesterly.
7/9/1962		Big Horn	Basin 10 W			2,750		2,750	A small tornado severely damaged outbuildings and trees on the Gould farm, 10 miles west of Basin.
7/17/1962		Niobrara	Keeline 4 WSW			27,500		27,500	Severe thunderstorms with hail and a small tornado caused damage.

**Table 16.4—Wyoming Damaging Tornado Events By Date 1907 through 2006.**

Start Date	End Date	County	Location	Deaths	Injuries	Estimated Property Damage	Estimated Crop Damage (USD)	Total Estimated Damage (USD)	Information
6/14/1963		Goshen	Hawk Springs 3 W			27,500		27,500	Tornado destroyed and damaged farm outbuildings and damaged equipment. Path of storm unobserved.
7/14/1963		Weston				2,750		2,750	Tornado struck 30 miles southwest of Newcastle. It did minor damage to ranch outbuildings and an abandoned country school. The tornado moved north-northeast.
4/23/1964		Fremont	Pavilion			27,500		27,500	Tornado struck farm 3 miles south of Pavilion doing damage to farm buildings and house. Direction and size were not noted by farm occupants.
6/5/1964		Washakie	Tensleep 30 NE			27,500		27,500	Tornado did damage to resort lodge and forest by Meadowlark Lake. Storm moved from southeast to northwest.
6/21/1964		Platte	Wheatland 18 NE			27,500		27,500	Tornado struck Albert Fisher farmstead while no one home, did much damage to house and farm buildings.
6/26/1964		Park	Powell			27,500		27,500	Tornado struck Ronnie Decker farmstead while no one was home, did damage to house, farm buildings, and machinery. The Decker farm is in the Willwood irrigation area.
7/2/1964		Weston	Newcastle 20 W			27,500		27,500	Tornado destroyed 55-foot trailer house and did damage to other ranch buildings. No one was at the Harry Borgjalli ranch at the time.
5/23/1965		Goshen	Torrington			27,500		27,500	A small tornado touched down in a mobile home sales lot.
6/14/1965		Converse	Orin Junction 2 E		1	27,500		27,500	Tornado tipped over a halted truck with minor injuries to the driver.
7/12/1965		Crook	Moskee				275,000	275,000	A tornado cut a swath about 0.5 mile wide and 20 miles long through the Black Hills National Forest, touching down about 4 miles southwest of Moskee and traveling easterly.
7/13/1965		Laramie	Pine Bluffs 15 WNW			275		275	Tornado touched down, did some damage to crops and Air Force sites.
6/15/1966		Carbon	Ryan Park			27,500		27,500	Tornado touched down on Barrett Ridge and Ryan Park, 14 miles southeast of Saratoga, primary damage to forest, minor damage to a shed and some trailers at Ryan Park trailer park.
7/22/1966		Campbell	Gillette			275,000		275,000	A tornado accompanied by heavy rain and hail did damage, caused flash flooding primarily in south and east Gillette.
4/12/1967		Goshen	Veteran			27,500		27,500	Tornado first seen 1 mile northwest of Veteran. Tornado destroyed outbuildings and haystacks on several farms as it moved northeastward then northward along a patch 4 miles west of Torrington.

**Table 16.4—Wyoming Damaging Tornado Events By Date 1907 through 2006.**

Start Date	End Date	County	Location	Deaths	Injuries	Estimated Property Damage	Estimated Crop Damage (USD)	Total Estimated Damage (USD)	Information
4/19/1967		Campbell	Gillette 30 S						Tornado destroyed a small shed on a ranch 30 miles south of Gillette.
6/6/1967		Fremont	Riverton 5 N		2		275	275	A tornado that topped several trees injured two boys when it dropped one of the tree portions on them; 1-inch hail did minor damage in the same area.
6/14/1967		Fremont	Riverton 5 S		1	27,500		27,500	Tornado destroyed an outbuilding injuring a woman who was inside. Five other funnels aloft were observed.
7/15/1967		Carbon	Encampment 15 SW				2,750	2,750	A tornado touched down in the Hayden Division of the Medicine Bow National Forest, damage to trees.
7/24/1967		Big Horn	Basin 5 W			2,750		2,750	A tornado touched down on the Cecil Dennison farm damaging outbuildings and grain fields.
6/5/1968		Fremont	Riverton			2,750		2,750	A tornado touched down 1 mile northwest of Riverton and again 1 mile northeast of Riverton doing damage to two farmsteads.
6/5/1968		Goshen	Torrington			275		275	A tornado touched down 24 miles north of Torrington destroying an unused chicken house.
6/6/1968		Fremont	Riverton			7,500		27,500	A tornado struck 6 miles north of Riverton doing damage to utility lines, buildings, cars, trees, and crops.
6/7/1968		Sheridan	Sheridan			2,750		2,750	A tornado destroyed a barn 8 miles southeast of Sheridan.
6/11/1968		Sheridan	Sheridan			2,750		2,750	A tornado touched down doing damage to buildings and trees 25 miles north of Sheridan.
6/23/1968		Laramie	Burns			27,500		27,500	Tornados moving from north of Burns to north of Albin touched the ground intermittently doing damage to buildings and crops. A funnel aloft was reported at 1645 MST south of LaGrange along the same line.
7/23/1969		Goshen	Yoder				27,500	27,500	Hail up to 1.5 inches and a tornado did crop damage from Yoder eastward for about 10 miles.
4/18/1971		Goshen	Ft. Laramie 7 NE			2,750		2,750	Tornado moved towards farm from east, did damage to outbuildings and equipment, then moved north.
4/19/1971		Laramie	Cheyenne			2,750		2,750	Tornado moved from southeast to northwest, did damage to roofs, outbuildings, and toppled one house trailer, 3.5 miles east northeast of Cheyenne Weather Service Office.
5/29/1971		Natrona	Casper		3				Four small hangars and one airplane damaged as tornado moved east to west, 8 miles northeast of Casper Weather Service Office.
6/3/1971		Johnson	Buffalo			2,750		2,750	Tornado touched down on the Camino Ranch south of Buffalo, did damage to lambing shed and wind-break fence, moved northeast.

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Start Date	End Date	County	Location	Deaths	Injuries	Estimated Property Damage	Estimated Crop Damage (USD)	Total Estimated Damage (USD)	Information
6/12/1971		Goshen	Torrington			2,750		2,750	Tornado moved from south edge of Torrington to east edge. Damage to small structures.
8/27/1973		Fremont	Louis Lake			27,500		27,500	A combination of high wind and a tornado uprooted or damaged about 5 acres of trees, damaged one boat dock and a number of camper trailers. There were several reports of a funnel touching the ground.
6/20/1974		Big Horn	Basin			2,750		2,750	A small tornado touched down briefly, damaged the roof of one building.
6/20/1974		Big Horn	Shell			2,750		2,750	A small tornado touched down briefly, damaged a horse barn and a cowshed.
6/20/1974		Sweetwater	Green River			27,500		27,500	A small tornado touched down briefly damaging one building.
7/1/1974		Niobrara	Lusk 21 SE			27,500		27,500	A small tornado struck a ranch and did damage to stock tanks, hay barn, Quonset hut, and trailer house.
7/20/1974		Sheridan	Sheridan 35 WSW			2,750		2,750	A small tornado touched down in a campsite causing damage to facilities and trees.
8/28/1974		Laramie	Cheyenne 30 N			27,500		27,500	Tornado touched down at ranch destroying trailer house and stack of bailed hay.
6/25/1975		Campbell	**Gillette		1	27,500		27,500	The tornado first touched down at a trailer park northeast of Gillette around 1430 MST, destroying 5 of 8 mobile homes; a 60-year-old woman was injured. The tornado last seen near Wyodak at 1500 MST. Straight-line winds, clocked at 75 mph at the Campbell County Airport, caused scattered damage to outbuildings and trees from Rozet to Wyodak. Most damage attributed to straight-line winds.
6/25/1975		Crook	**Sundance (near)						A tornado struck the Willow Springs area, causing damage to timber.
6/25/1975		Crook	**14 SE Sundance			500,000		500,000	The tornado demolished a mobile home located 8 miles SSE of Sundance about 1715 MST. The tornado skipped northeastward at 30 mph, damaging fences, corrals, and outbuildings on three ranches located approximately 7 miles ESE of Sundance.
4/12/1976		Niobrara	Manville 2 W			27,500		27,500	Small tornado destroyed cattle shed and did damage to house and other buildings at a ranch 2 miles west of Manville.
6/17/1976		Washakie	Tensleep 4 S			2,750		2,750	A tornado did damage to outbuildings on a ranch.
6/26/1976		Park	Powell			2,750		2,750	A tornado touched down just NE of Powell and did damage to a house, haystack, trees, etc.

**Table 16.4—Wyoming Damaging Tornado Events By Date 1907 through 2006.**

Start Date	End Date	County	Location	Deaths	Injuries	Estimated Property Damage	Estimated Crop Damage (USD)	Total Estimated Damage (USD)	Information
7/2/1976		Carbon	Saratoga 22 E				275,000	275,000	A tornado touched down early in the afternoon in forest on Medicine Bow Mountains. It destroyed about 245 acres of prime timber, an estimated 3.75 million board feet. The area is about 1 mile south of Turpin Reservoir.
7/4/1976		Big Horn	Basin			2,750		2,750	A small tornado brushed Basin and continued on to Orchard Bench. It did damage to three houses, some power poles, and miscellaneous property.
7/12/1976		Campbell	Gillette 40 NW						A tornado touched briefly over open prairie. It was moving east-northeast.
7/12/1976		Crook	Moorcroft 19 ENE			27,500		27,500	A tornado struck a ranch doing damage to ranch house, outbuildings, equipment, trees, and gardens.
8/15/1976		Campbell	Gillette 30 S			275,000		275,000	A tornado touched down at a coal mine damaging equipment and facilities. Tornado was moving from south to north.
5/9/1977		Converse	Douglas 5 N				2,750	2,750	Tornado touched down during the night and destroyed a cattle shed.
5/16/1978		Converse	Lost Springs						This tornado destroyed one barn and a water tower.
5/23/1978		Campbell	Gillette, 25 mi. W			275,000		275,000	Tornado caused major damage to several mobile homes in the Gillette area. High winds overturned several mobile homes in area with no serious injuries reported. Golf ball-sized hail from same storm caused widespread damage to homes and cars in the Gillette area.
6/18/1978		Big Horn				27,500		27,500	A tornado touched down 7 miles east of Lovell, damaging a house chimney and roof and destroying a shed. It was then observed moving into the adjacent wildlife habitat area.
7/4/1978		Big Horn			1	275,000	2,750	277,750	A tornado uprooted numerous trees in over 800 acres of forest near Greybull as it traveled northeastward in a 5-mile path of destruction. One woman was injured in a camper as it was rolled over by winds. Damage to a lodge at a dude ranch was also noted.
7/11/1978		Park				27,500	275	27,775	A funnel cloud briefly touched down at a ranch southwest of Powell destroying a barn and other property. Rancher said that the "... structure was twisted clockwise by the tornado from the apparent look of the damage."

**Table 16.4—Wyoming Damaging Tornado Events By Date 1907 through 2006.**

Start Date	End Date	County	Location	Deaths	Injuries	Estimated Property Damage	Estimated Crop Damage (USD)	Total Estimated Damage (USD)	Information
7/20/1978		Natrona			1	27,500		27,500	The late afternoon tornado hit the Gas Hills mining district doing considerable damage to buildings and equipment as well as a dozen cars. One man was injured when broken glass was blown into his eye. Observers said the "winds first came from the southwest, stirring up a terrific amount of dust ... then it sort of gasped and quit--and then whipped in from the other direction and everything started to fly."
7/28/1978		Goshen				50,000		50,000	Tornado touched down 21 miles NNE of Torrington, destroying one trailer home, and damaging other equipment in the immediate area. A 400-gallon gas truck was "tossed around," and a tractor moved some 30 yards.
7/28/1978		Niobrara				275,000	275	275,275	Severe thunderstorm with an associated tornado and severe winds did considerable damage to the Lance Creek area. Damage included one steel building, several houses and trailers, campers, private and commercial television antennae, and hay.
5/5/1979		Albany				27,500		27,500	A small tornado briefly touched down in the Laramie area destroying a roof on the Regency Apartments. Locals "saw a dust storm coming," and shortly after the "twister hit the back of the building." 14 vehicles damaged as pieces of roof hit parking lot area.
6/28/1979		Goshen				2,750,000		2,750,000	As the severe thunderstorm moved into Torrington the tornado caused power outages in the north part of the town but did only minor damage to other property.
6/28/1979		Goshen				27,500		27,500	Heavy damages were reported in Fort Laramie as well as nearby ranches from the severe thunderstorm that reportedly had four tornadoes as well as golf ball-sized hail. Numerous buildings and crops (corn, sugar beets, and grain) were damaged, mostly by the hail and gusty winds.
7/16/1979		Laramie							A second and much weaker tornado was evident during the following Cheyenne disaster in the east part of the town. This tornado did only very minor damage.

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Start Date	End Date	County	Location	Deaths	Injuries	Estimated Property Damage	Estimated Crop Damage (USD)	Total Estimated Damage (USD)	Information
7/16/1979		Laramie		1	40	40,000,000		40,000,000	The most damaging tornado in the history of Wyoming rapidly developed from a moderate thunderstorm and moved through the north part of Cheyenne housing and airport areas. Damage included four C-130 aircraft and National Guard ground equipment (\$12 million est.), City-owned airport hangars and building damaged (\$10 million est.), 40 homes destroyed, 100 homes with major damage, 225 homes with lesser damage, and 17 trailer homes destroyed (\$18 million est.). One destroyed trailer home contained a family, killing a 14-month old boy and severely injuring the mother and a second child.
7/30/1979		Laramie	Cheyenne Area			2,750		2,750	As a large severe thunderstorm approached Cheyenne, two tornadoes and several funnel clouds were seen just west of town. One of the tornadoes did some damage to buildings on a ranch 8 miles west of Cheyenne. The second tornado was near some housing but caused no damage.
8/1/1979		Niobrara				27,500		27,500	A tornado struck an area 8 miles southeast of Manville causing damage to livestock sheds and other farm buildings.
6/14/1980		Crook							A small tornado struck west of Hulett lifting half of the roof off a home. A lot of hail was reported causing heavy damage to the deputy sheriff's car. Crop and gardens were ruined.
6/30/1980		Laramie							A tornado hit windbreak and took 30 feet off barn on Henry Miller farm 7 miles southeast of Burns. Reported by Civil Defense.
7/24/1980		Lincoln				27,500		27,500	"A mini-tornado" passed through a residential area in Afton destroying a metal storage shed and damaging a camper and pickup.
8/3/1980		Fremont				275,000		275,000	A "small twister" caused extensive damage to 18 new campers on a sales lot in Shoshoni, along with other minor damages.

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Start Date	End Date	County	Location	Deaths	Injuries	Estimated Property Damage	Estimated Crop Damage (USD)	Total Estimated Damage (USD)	Information
6/5/1982		Converse	Douglas		3	30,000		30,000	A severe thunderstorm complex moved through Natrona, Converse, and Niobrara counties between 1800 and 2100 MST, spawning five tornados. One tornado formed over Casper before dissipating around 1910 MST. There were no damage reports. Three tornados hit the Douglas area causing several injuries and considerable damage. One briefly touched down 3 miles west of Douglas at 1804 MST; the second hit 15 miles southwest at 1825 MST and moved northeast with a 17-minute ground time causing \$30,000 damage to the Red Canyon Ranch with major injuries to an 85-year-old woman. The third occurred 3 miles northwest of Douglas at 1845 MST causing several minor injuries and the destruction of a mobile home. At 1920 MST, the storm hit Lance Creek with a 4-mile-wide swath of golf ball- to tennis ball-sized hail. At 1930 MST, a tornado formed 2 miles west of Highway 85/270 junction damaging a farmhouse, destroying a mobile home, and destroying a wooden barn. It then moved northeast tearing up 1 mile of power lines and blowing cars and pick-ups off the highway. Only minor injuries were reported.
6/5/1982		Niobrara	Lance Creek		3	275,000		275,000	A severe thunderstorm complex moved through Natrona, Converse, and Niobrara counties between 1800 and 2100 MST, spawning five tornados. One tornado formed over Casper before dissipating around 1910 MST. There were no damage reports. Three tornados hit the Douglas area causing several injuries and considerable damage. One briefly touched down 3 miles west of Douglas at 1804 MST; the second hit 15 miles southwest at 1825 MST and moved northeast with a 17-minute ground time causing \$30,000 damage to the Red Canyon Ranch with major injuries to an 85-year-old woman. The third occurred 3 miles northwest of Douglas at 1845 MST causing several minor injuries and the destruction of a mobile home. At 1920 MST, the storm hit Lance Creek with a 4-mile-wide swath of golf ball- to tennis ball-sized hail. At 1930 MST, a tornado formed 2 miles west of Highway 85/270 junction damaging a farmhouse, destroying a mobile home, and destroying a wooden barn. It then moved northeast tearing up 1 mile of power lines and blowing cars and pick-ups off the highway. Only minor injuries were reported.

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Start Date	End Date	County	Location	Deaths	Injuries	Estimated Property Damage	Estimated Crop Damage (USD)	Total Estimated Damage (USD)	Information
6/6/1982		Natrona	Casper		1	27,500		27,500	A severe thunderstorm complex moved through Natrona, Converse, and Niobrara counties between 1800 and 2100 MST, spawning five tornados. One tornado formed over Casper before dissipating around 1910 MST. There were no damage reports. Three tornados hit the Douglas area causing several injuries and considerable damage. One briefly touched down 3 miles west of Douglas at 1804 MST; the second hit 15 miles southwest at 1825 MST and moved northeast with a 17-minute ground time causing \$30,000 damage to the Red Canyon Ranch with major injuries to an 85-year-old woman. The third occurred 3 miles northwest of Douglas at 1845 MST causing several minor injuries and the destruction of a mobile home. At 1920 MST, the storm hit Lance Creek with a 4-mile-wide swath of golf ball- to tennis ball-sized hail. At 1930 MST, a tornado formed 2 miles west of Highway 85/270 junction damaging a farmhouse, destroying a mobile home, and destroying a wooden barn. It then moved northeast tearing up 1 mile of power lines and blowing cars and pick-ups off the highway. Only minor injuries were reported.
7/24/1982		Crook	Moorcroft			2,750	2,750	5,500	A thunderstorm dumped 2.3 inches of rain in a short amount of time causing local flooding. It also spawned a tornado and marble-sized hail that left a path of destruction in the Buck Miller subdivision north of town and damaged crops in the area.
5/3/1984		Big Horn	Lovell			2,750		2,750	A small tornado briefly touched down in the east part of Lovell causing minor damage to a few houses.
5/31/1984		Crook	Near Moorcroft			27,500		27,500	A small tornado touched down briefly, destroying a mobile home about 2 miles north of Moorcroft.
6/13/1984		Converse	Near Bill			27,500		27,500	A tornado touched down about 3 miles southwest of Bill, damaging ranch outbuildings, barns, and some mobile homes. Quite a few electricity and telephone poles were knocked down. A few cars were damaged by the tennis ball-sized hail that accompanied the storm.
6/13/1984		Niobrara	Near Bill						A small tornado touched down briefly in open country about 7 miles east of Bill.
6/13/1984		Niobrara	Near Bill						A weak tornado touched down briefly about 7 miles northeast of Bill over open country.

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Start Date	End Date	County	Location	Deaths	Injuries	Estimated Property Damage	Estimated Crop Damage (USD)	Total Estimated Damage (USD)	Information
6/13/1984		Niobrara	Near Lance Creek			27,500		27,500	Three other tornadoes were also observed in the Lance Creek area. Damage was mostly to ranch buildings and to some mobile homes. *All tornadoes combined
6/13/1984		Niobrara	Lance Creek		1	100,000		100,000	The strongest tornado of the outbreak on the 13th touched down about 2 miles south of Lance Creek and moved through the south end of town. A small house addition was completely demolished, and several other outbuildings were destroyed. Hail up to tennis ball size fell also, damaging some cars and injuring one person in a car.
6/15/1984		Sheridan	Northwest Sheridan County			-	2,750	2,750	An unusual tornado formed near the ridge of the northern Big Horn Mountains west of Dayton and ripped down briefly along a slope. Over 30 acres of trees were broken off about 6 feet off the ground.
5/10/1985		Crook				2,750		2,750	A tornado demolished a small pig shed and came to within 100 feet of a ranch house. The tornado briefly lifted a cow into the air shortly before dissipating. The cow was uninjured.
6/20/1985		Hot Springs				27,500		27,500	A "twisting black cloud" ripped the roof off a trailer north of Thermopolis. The tornado approached from the west and lasted 3 to 4 minutes.
7/26/1985		Niobrara				2,750		2,750	Two tornadoes dipped out of a thunderstorm at Hat Creek Junction, 10 miles north of Lusk. The twisters tore up some trees and shrubbery, but otherwise caused no damage.
8/2/1985		Big Horn							A tornado moved through the Medicine Wheel District of the Big Horn National Forest. An estimated 1100 acres were damaged in several locations, including 500 acres of harvestable timber. An eye-witness described the tornado as a "big black cloud which circled around, and uprooted and snapped off trees all around."
6/7/1986		Fremont	Shoshoni			100,000		100,000	A tornado formed south of Shoshoni and moved northeast through the town. Several mobile homes were damaged, one two-story building was destroyed, and debris was scattered throughout the town. Damage was estimated at \$100,000. The local electric association measured the wind to 120 mph.

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6/12/1986		Natrona	Bar Nunn			2,750		2,750	A tornado tore off half the roof of a home at Bar Nunn. Four trailers were also damaged at 1900 MST. About the same time, golf ball-sized hail fell on the west side of Casper.
7/4/1986		Crook	Aladdin			27,500		27,500	A tornado at Aladdin at 1700 MST lifted the roof from a house and nearly demolished a large garage. The tornado damaged another house and knocked down several trees. About 1 mile away, it damaged a couple vehicles, ripped off a barn roof, and rearranged some haystacks.
8/25/1986		Park	4E Cody			27,500		27,500	At 0345 MST, wind gusts to 69 mph were logged at the Cody airport with a thunderstorm. At 0430 MST, two eye-witnesses 4 miles east of Cody saw a tornado destroy a trailer house and a shed. Trees were uprooted and cars damaged by flying debris. During the afternoon, lightning did \$8000 damage to a television transmitter near Cody.
9/18/1986		Platte	3NW Wheatland			100,000		100,000	A tornado 3 miles northwest of Wheatland near Festo Lake at 1422 MST damaged signs, uprooted 15 to 20 trees, overturned several campers, and damaged garages and storage sheds. As the tornado moved over water, ducks and water were sucked into it. Just north of Wheatland at 1515 MST, golf ball-sized hail was reported. Fifteen miles north of Wheatland, 2 inches of rain fell in 45 minutes, causing the hail to pool knee deep.
6/18/1987		Natrona	Casper (10N)			275,000		275,000	A life-flight helicopter returning to Casper spotted a tornado about 10 miles north of Casper moving through the Homa Hills Trailer Park. Three to four mobile homes were severely damaged. Eight other trailers experienced window damage. The deputy Emergency Management Coordinator for Natrona County said that one mobile home in Homa Hills Trailer Park was totally destroyed.
6/18/1987		Platte	Glendo(8N)		1	27,500		27,500	A severe thunderstorm moved over the eastern plains of Wyoming and produced a tornado about 8 miles north of Glendo. As this tornado passed north of Glendo it passed over a small ranch. The tornado tore off the patio roof and caused a patio window to explode while one of the residents was walking by. This resident received some minor cuts due to broken glass.

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Start Date	End Date	County	Location	Deaths	Injuries	Estimated Property Damage	Estimated Crop Damage (USD)	Total Estimated Damage (USD)	Information
7/21/1987		Teton Wilderness	Jackson 45NE			500,000		500,000	Unusually severe thunderstorms swarmed over northwest Wyoming during the afternoon. 60-mph wind gusts were reported by a radio station in Jackson at 1300 MST. As these severe thunderstorms moved northeast, additional reports of hail between 1 and 2.25 inches in diameter were observed along with winds gusting above 58 mph. Also, torrential rains were noted from Jackson northeast to Cody. When these severe thunderstorms moved northeast of Jackson over the Teton Wilderness Area, it spawned the highest elevation F4 tornado ever documented. The devastating winds from the tornado produced a massive blow down of 15,000 acres of mostly mature lodgepole pines that ranged from 80 to 100 feet tall. The massive blow down stretched slightly over 24 miles from Box Creek Trailhead, 10 miles ENE of Moran Junction, on the south to beyond the Yellowstone River on the north and was about 1 to 2 miles wide, 2.5 miles at the widest. An eye-witness to the blow down stated, "You could look up a hillside where there had been a dense forest and count the trees left standing." Later, as these severe thunderstorms moved over the East Entrance of Yellowstone National Park, torrential rains produced mudslides that closed highways for a few hours. The Park County Sheriff reported that some of these mudslides buried about 50 yards of highway to a depth of 2 feet.

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Start Date	End Date	County	Location	Deaths	Injuries	Estimated Property Damage	Estimated Crop Damage (USD)	Total Estimated Damage (USD)	Information
5/6/1988		Campbell	Nickelson, Little Farms, 8SE Gillette		2	2,750,000		2,750,000	During the afternoon of the 6th, an intense line of thunderstorms developed. These storms moved rapidly northeastward through Campbell County. Between 1336 to 1350 MST, two tornadoes tore through a mobile home park at Nickelson Little Farms. The second tornado was the most destructive. Thirteen trailer homes were destroyed leaving seven families homeless. Also, sheds, boats, and roofs were damaged, and there were overturned campers, broken windows, and downed power lines. During the time of these tornadoes, the City of Gillette was experiencing straight-line winds from thunderstorms gusting to 61 mph. At 1345 MST, straight-line winds from the same line of storms hit Newcastle. There, office windows were broken, doors ripped off hinges, power lines downed, and a tree fell on a trailer. By 1400 MST, Upton felt the fury of these thunderstorms. Straight line winds knocked down a high school scoreboard, damaged storage buildings, blew down a hangar roof, downed power lines, and broke tree limbs causing partial road blockages. From 1400 to 1415 MST, a small tornado was sighted about 1 mile northeast of Upton. It was ropelike in appearance and uprooted cottonwood trees. Several days later the Town of Nickelson Little Farms was declared a state of disaster area.
7/7/1988		Natrona	Alcova Reservoir			2,750		2,750	Three tornadoes touched down in Natrona County during the early evening. The first twister hit the Alcova Marina, about 29 miles southwest of Casper. This storm tore the roof off of the marina's boat shop and blew over a mobile home. The second tornado struck in an open field near a subdivision just west of Casper. The third tornado occurred in an open field 5 miles northeast of the Natrona County airport. As the parent thunderstorms moved east, a funnel cloud was sighted 15 miles west of Douglas. Farther southeast, other intense thunderstorms were occurring over Platte and Laramie counties. There were numerous reports of small hail and brief heavy rain. Earlier during the afternoon, around 1615 MST, the City of Cheyenne had 0.25-inch-diameter hail and up to 1 inch of rain. Minor street flooding was reported.

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Start Date	End Date	County	Location	Deaths	Injuries	Estimated Property Damage	Estimated Crop Damage (USD)	Total Estimated Damage (USD)	Information
5/12/1989		Goshen	Torrington			27,500		27,500	On the afternoon of the 12th, severe thunderstorms formed over far southeastern Wyoming. At 1245 MST, golf ball-sized hail occurred near Bosler, located about 20 miles north of Laramie. Later, at 1510 MST, three tornadoes briefly touched down in the vicinity of Torrington, including one that moved north through the center of that community. Damage in Torrington included the roof being torn off of a bean elevator, a church chimney destroyed, uprooted trees, and damaged cars. Most automobile damage was caused by fallen tree limbs. The damage was restricted to a four-block area.
5/30/1989		Uinta	1 SW Lyman			2,750		2,750	
5/18/1990		Goshen	3 SW Fort Laramie			2,750		2,750	A very weak tornado went right through the historical site of Old Fort Laramie around 1615 MST. It damaged a tree, some tents, and outbuildings, but none of the historical buildings.
5/24/1990		Laramie	12 SW Lagrange			2,750		2,750	
5/24/1990		Laramie	20-25 N Cheyenne			2,750		2,750	
5/11/1991		Weston	Newcastle Airport			50,000		50,000	A series of severe thunderstorms moved through east-central and northeastern Wyoming during the afternoon and evening. Hail up to 0.75 inch in diameter was at the Casper airport at 1552 MST. A tornado touched down briefly at 1654 MST 5 miles south of Bill in Converse County. Another tornado was reported near Upton at 1839 MST. Funnel clouds were noted 30 miles northeast of Wheatland at 1940 MST. A tornado at the Newcastle airport was reported at 2222 MST.
5/15/1991		Laramie	8 E Cheyenne			50,000	50,000	100,000	
5/18/1991		Park	7 W Powell			-	275,000	275,000	A late afternoon thunderstorm spawned a hail storm and a tornado in Park County. Golf ball-sized hail in Cody caused damage to cars, and a tornado caused damage to local crops 7 miles west of Powell.
6/2/1991		Platte	Guernsey			275,000		275,000	A morning tornado in Guernsey damaged five homes and numerous trees. Several vehicles were damaged and one was destroyed at 0900 MST.

**Table 16.4—Wyoming Damaging Tornado Events By Date 1907 through 2006.**

Start Date	End Date	County	Location	Deaths	Injuries	Estimated Property Damage	Estimated Crop Damage (USD)	Total Estimated Damage (USD)	Information
6/27/1991		Laramie	2 NE Albin			27,500		27,500	A thunderstorm outbreak in southeastern Wyoming produced hail, strong winds, and tornadoes. The tornado, 2 miles northeast of Albin, downed power lines.
8/19/1993		Campbell	6 E Gillette			100,000		100,000	A rancher east of Gillette reported a tornado touched down briefly and destroyed a building and ripped a roof off a barn. No injuries.
5/19/1994		Platte	14 W Chugwater			-		-	A possible small tornado destroyed a small barn 14 miles west of Chugwater. Ranch wranglers saw a funnel just after the barn was destroyed.
5/7/1996		Crook	12 N Hulett to 13 N NE Hulett			10,000		10,000	A tornado began on the north side of Highway 112 near Deer Creek uprooting 20 to 30 trees. The tornado moved ENE 3 miles uprooting several more large trees and destroying part of a barn.
5/23/1996		Albany	3 N Laramie to 3.2 N Laramie			50,000		50,000	A tornado briefly touched down just north of Laramie. The tornado downed a large spruce tree and a metal shed was blown up into a tree.
7/30/1996		Goshen	9 NW Hawk Springs to 8 NW Hawk Springs			70,000		70,000	A tornado twisted a grain auger, buckled two grain bins and blew an empty 300 gallon fuel tank 0.5 mile. In addition, several trees were downed by the tornado and a power pole was knocked down.
6/18/1997		Laramie	4 NE Cheyenne			2,000		2,000	An ticyclonic tornado touched near intersection of Four Mile Road and College Drive, destroying a storage shed.
6/13/1998		Crook	9 SE Sundance to 10 SE Sundance			20,000		20,000	Damage was sustained to a three-car garage, several barn roofs, several campers, and a home satellite dish.
5/30/1999		Laramie	Cheyenne			2,000		2,000	Tornado briefly touched down on the extreme north edge of Cheyenne, blowing out two windows and causing minor roof damage to a house on Riding Club Road.
8/11/1999		Johnson	25 ENE Kaycee			8,000		8,000	Tornado touched down at Cogema-Irigaray uranium mine. Path length, width, and intensity are estimates.

**Table 16.4—Wyoming Damaging Tornado Events By Date 1907 through 2006.**

Start Date	End Date	County	Location	Deaths	Injuries	Estimated Property Damage	Estimated Crop Damage (USD)	Total Estimated Damage (USD)	Information
6/9/2001		Weston	Newcastle to 1 S Newcastle		2				A low-pressure system over Wyoming pulled middle 60s dew points into the region all day. A surface trough moved across northeastern Wyoming initiating thunderstorms. A moderate upper level short wave provided support for sustained organized thunderstorms to become severe. Strong instability was noted with CAPE values around 4000 J/kg with moderate shear in the lower 6 km of the atmosphere. A thunderstorm developed over Weston County, with 67 mph winds measured at the RAWS southwest of Rochelle (time was estimated) and spawning a tornado over the southeast side of Newcastle. Several reports of tornado sightings and tree damage were received during the 10 minutes the tornado was on the ground. Tree limbs were thrown over 150 feet, breaking windows and downing power lines. Several large trees were uprooted. A facade of a Forest Service shop building collapsed and carport was destroyed. Two people received minor injuries from flying debris.
7/10/2001		Hot Springs	2.5 NW Kirby						Eyewitnesses reported two brief touchdowns. Mobile home destroyed and barn damaged, approximately 0.25 mile apart. Property damage amounts unknown. Water at least 3 feet deep caused considerable damage to mobile home and fences. 3 horses injured.
9/8/2003		Natrona	19 N Casper						At 1530 MST, law enforcement reported a tornado 19 miles north of Casper. One mobile home sustained heavy damage.
6/7/2005		Campbell	15 NE Recluse						A supercell thunderstorm developed across northern Campbell County and moved to the northeast. A small tornado touched down just southwest of the intersection of Bay Horse and Weischedel Roads, damaging trees on several ranches as it traveled north along Bay Horse Road into Montana. Funnel cloud was observed near the tornado, but did not appear to touch down. Quarter sized hail, with gusts around 60 mph, and heavy rain also reported.

**Table 16.4—Wyoming Damaging Tornado Events By Date 1907 through 2006.**

Start Date	End Date	County	Location	Deaths	Injuries	Estimated Property Damage	Estimated Crop Damage (USD)	Total Estimated Damage (USD)	Information
8/12/2005		Campbell	1 N Wright to Wright	2	14	5,000,000		5,000,000	A tornado touched down 1 mile north of Wright and traveled southeast into the town. It crossed Wyoming Highway 387, slammed into a mobile home park, and dissipated a half mile from the highway before reaching the elementary school and Wright Blvd on the southeast edge of the park. It damaged 120 of the approximately 250 homes in the park; 91 had major damage with 60 completely destroyed. Roofs, porches, siding, and trees sustained light damage from the strong wind gusts. Two people were killed and 13 injured; all were in mobile homes.
5/17/2007		Platte	14 W Guernsey			48,450			Brief tornado spotted just east of Interstate 25 near mile marker 94. A short lived tornado touched down over open country.
5/20/2007		Campbell	18 SW Gillette						The tornado hit a methane gas well, which started to leak. It also broke a large tree about two feet off the ground, lifted and tossed livestock feeders, and ripped the roof off of a well house. Path length and width were estimated. A severe thunderstorm developed across southwestern Campbell County and tracked to the northeast. A tornado briefly touched down southwest of Gillette.
5/28/2007		Campbell	10 WSW Wright						A small tornado touched down in sagebrush and did no damage. Path length and width were estimated.
6/6/2007		Campbell	10 SW Gillette						A tornado briefly touched down southwest of Gillette, dissipating before reaching the south side of town. Location was estimated from Doppler Radar data based on the times of public reports.
6/6/2007		Campbell	8 SSW Rozet						A tornado briefly touched down southeast of Gillette. Location was estimated from Doppler Radar data based on the times of public reports.
5/22/2008		Albany	2 SSW Perkins, 1 N Laramie		1				Tornado skipped along it's path north-northwest and moved across eastern and northeastern sections of Laramie, WY. Strong winds also overturned a tractor-trailer on Interstate 80 near Laramie and blew a boat off another trailer.
5/23/2008		Platte	4 NNE Chugwater, 9 ENE Wheatland			50,350			Tornado remained over open country.

**Table 16.4—Wyoming Damaging Tornado Events By Date 1907 through 2006.**

Start Date	End Date	County	Location	Deaths	Injuries	Estimated Property Damage	Estimated Crop Damage (USD)	Total Estimated Damage (USD)	Information
5/28/2008		Fremont	1 WNW Dubois		1				<p>A brief tornado occurred just north of the central business district in Dubois. A roof was torn from a public restroom facility and subsequently sheared off an 8x8-inch pole used for a sign at a local business. Flying debris also smashed a large window at a nearby residence. The broken glass slightly injured one woman in the home. A small tornado briefly touched down near the southern edge of the Pumpkin Buttes. A small tornado touched down in southwestern Campbell County.</p> <p>A small tornado touched down briefly in the Highland Subdivision. It blew shingles off a roof, tore siding from a house, and blew down a portion of a fence. A small tornado touched down on the northwest side of Gillette.</p> <p>A small tornado briefly touched down in far northern Campbell County. A severe thunderstorm clipped far northern Campbell County, producing a brief tornado and penny sized hail north of Recluse.</p> <p>The brief tornado caused no damage. A small tornado touched down near Savageton</p> <p>A car was lifted off the ground and swirling debris was observed near the intersection of Casper Mountain Road and McKinley Street.</p> <p>A small tornado was on the ground for about three minutes in open country. It caused no damage. Two brief funnels were observed between 2:00 and 2:10 pm MDT.</p> <p>Tornado tracked over open country, but did destroy a pole barn.</p> <p>Tornado briefly touched down in open area.</p> <p>Tornado moved primarily over open country, but removed a roof from a mobile home. For a second day in a row severe thunderstorms moved across parts of for southeastern Wyoming and produced hail and some tornadoes. The tornadoes remained generally over open country.</p>
6/1/2008		Campbell	20 W Wright						
6/2/2008		Campbell	3 WNW Gillette						
6/20/2008		Campbell	17 NNE Recluse						
9/1/2008		Campbell	5 NE Savageton						
5/7/2008		Natrona	1 SW Allendale						
5/9/2008		Weston	6 SE Rochelle			75,525			
5/22/2008		Laramie	7 E Cheyenne						
5/22/2008		Laramie	4 SW Cheyenne						
5/23/2008		Goshen	9 SW La Grange, 3 SW Yoder						

**Table 16.4—Wyoming Damaging Tornado Events By Date 1907 through 2006.**

Start Date	End Date	County	Location	Deaths	Injuries	Estimated Property Damage	Estimated Crop Damage (USD)	Total Estimated Damage (USD)	Information
5/23/2008		Laramie	12 NW Cheyenne, 6 E Federal			25,175			Tornado tracked over open country.
5/23/2008		Laramie	6 SW Pine Bluffs						Tornado tracked northward over open country.
5/29/2008		Hot Springs	10 SE Hamilton Dome						A tornado touched down south of Missouri Flats Road northwest of Thermopolis. The tornado remained over open land and caused no damage. A funnel cloud was visible for six minutes before the tornado formed.
5/29/2008		Johnson	25 ESE Buffalo						A trucker reported a tornado near Interstate 90 east of mile marker 76. Thunderstorms generated several reports of funnel clouds and tornadoes in Fremont and Hot Springs counties northeast to Johnson County.
6/2/2008		Weston	17 WSW Upton			40,280			No damage was reported as the tornado touched down in open country. Path length and width was estimated. A tornado touched down over western Weston County.
6/10/2008		Weston	2 SE Four Corners						A tornado touched down near Beaver Creek Road southeast of Four Corners and traveled northeastward into South Dakota. The only damage it caused was blown down and snapped trees. Time of the tornado was estimated from Doppler Radar. A supercell thunderstorm developed over northeastern Weston County. The storm produced hail to golf ball size and a tornado.
5/13/2009		Crook	6 S Alva, 6 SSW Aladdin		2				A large tornado touched down west of Cook Lake and tracked east-southeastward across the Bear Lodge Mountains, dissipating west of Wyoming Highway 111. The tornado downed about 4000 acres of Ponderosa pine trees, destroyed two metal shop buildings and a large barn at a ranch, and severely damaged a house and a mobile home. Two people in the residences received very minor injuries.
6/1/2009		Big Horn	7 NE Raiden						A tornado struck a ranch, including a home, east of Manderson. Three children were in the house at the time of the tornado. The tornado was about 100 feet wide and traveled approximately one-third mile from north-to-south, crossing State highway 31 before dissipating. Several trees, two fences, and a wooden corral sustained considerable damage. An All-Terrain Vehicle (ATV) was

**Table 16.4—Wyoming Damaging Tornado Events By Date 1907 through 2006.**

Start Date	End Date	County	Location	Deaths	Injuries	Estimated Property Damage	Estimated Crop Damage (USD)	Total Estimated Damage (USD)	Information
6/3/2009		Sweetwater	17 SW Jeffrey City						lifted, spun 180 degrees, and moved about 15 feet. A bicycle was tossed onto the roof of the ranch home and several water bins were tossed about. This landspout tornado occurred in a post-cold frontal environment. A cold front moved through Manderson around 0830MST on Monday leaving northwest wind of 30 to 40 mph in its wake. Solar heating continued to warm the surface while colder air streamed into the region aloft. This helped set the stage for an unstable atmosphere during the afternoon. A west-moving boundary from showers to the east of Manderson in the Bighorn Mountain foothills helped initiate the updraft that spawned the tornado. A non-supercell tornado struck a ranch about nine miles east of Manderson.
6/3/2009		Fremont	17 SW Jeffrey City			20,000			A weak tornado was seen and photographed for about four minutes over open country in the Great Divide Basin. The tornado occurred in association with a thunderstorm moving east-southeast near the Fremont-Sweetwater County line. A lone thunderstorm produced a tornado over extreme southeast Fremont County.
6/5/2009		Goshen	11 W La Grange						A weak tornado was seen and photographed for about four minutes over open country in the Great Divide Basin. The tornado occurred in association with a thunderstorm moving east-southeast near the Fremont-Sweetwater County line. A lone thunderstorm produced a tornado over extreme southeast Fremont County.
6/7/2009		Goshen	4 SE La Grange						A widely observed tornado moved across open country of far southern Goshen County. Only minor damage was caused, mainly to a few power poles and trees.
6/10/2009		Goshen	12 W Hawk Spgs						Narrow landspout type tornado tracked over open rangeland.
6/14/2009		Hot Springs	6 SE Hamilton Dome						Rope tornado briefly on the ground over open rangeland. A couple of storms produced some hail and a brief tornado.
6/14/2009		Platte	6 NE Chugwater						Several people including a sheriff's deputy observed a tornado west of State highway 120 northwest of Thermopolis.
									Rope tornado touched down and lifted multiple times along track over open country.

**Table 16.4—Wyoming Damaging Tornado Events By Date 1907 through 2006.**

Start Date	End Date	County	Location	Deaths	Injuries	Estimated Property Damage	Estimated Crop Damage (USD)	Total Estimated Damage (USD)	Information
6/30/2009		Campbell	7 NE Rozet			10,000			A small tornado briefly touched down north of Rozet. A small tornado briefly touched down in extreme eastern Campbell County.
7/27/2009		Campbell	6 S Savageton						A small tornado was observed south of Savageton by a cooperative observer. It blew over a section of snow fence along Wyoming Highway 50 and tin off a shed. Path length and width were estimated by the observer. A tornado briefly touched down south of Savageton.
8/14/2009		Washakie	15 SE (WRL)Worland Muni Ar						A non-supercell tornado was photographed from Worland over southern Washakie County. The tornado was short-lived and caused no damage over open range. Southwest flow ahead of an upper low over the Intermountain West and a favorably unstable atmosphere combined to generate hail and an isolated tornado over the southern Big horn Basin.

# Impacts

## Historical Review

Although counties have been affected to lesser and greater extents by tornado intensity, frequency, and damage, they nevertheless have struck every county in Wyoming, thus proving to be a considerable danger.

Historically, the most devastating tornado event in Wyoming was July 16, 1979 when the Cheyenne area received an estimated \$121,910,233 worth of damage (2010 dollars). This is significant because Laramie County, the location of the state’s capitol city, has Wyoming’s greatest population and is also the most likely to have the highest frequency and intensity of tornadoes. However, tornado frequency and dollar damage are not necessarily directly related as they are with some counties, including Laramie and Campbell Counties (compare **Tables 16.5, Tables 16.6 and 16.7**).

Teton County, for example, only had one tornado event, but suffered approximately \$974,514 in total damage (2010 dollars). In contrast, Sheridan and Johnson counties each experienced more than 10 tornadoes, yet only suffered an estimated \$330,289 and \$29,837 in total damage, respectively (2010 dollars). **Figure 16.6** is a graphical representation of the number of damaging tornadoes, the number of deaths and injuries, and the amount of damage in 2010 dollars by county.

County	Number of Events
Laramie	82.3 (crossed 3 counties)
Campbell	71
Goshen	51.3 (crossed 3 counties)
Converse	37
Platte	32.3 (crossed 3 counties)
Natrona	31
Niobrara	31
Crook	30
Big Horn	23
Albany	21
Carbon	16
Sweetwater	16
Fremont	15
Weston	15
Johnson	13.5 (crossed 2 counties)
Sheridan	11.5 (crossed 2 counties)
Park	7
Lincoln	6
Washakie	6
Hot Springs	2
Sublette	2
Uinta	2
Teton	1
<b>TOTAL</b>	<b>523</b>

## Future Impacts

Historical data demonstrates the most critical area of the state for tornado hazard is the eastern one third, with the five most threatened areas being Laramie, Campbell, Goshen, Converse, and Platte Counties. The five least threatened areas include Teton, Uinta, Sublette, Hot Springs, and Washakie Counties (**Table 16.5**). Laramie, Campbell, Goshen, Crook, and Platte Counties are the five counties having received the most damage, while Sublette, Uinta, Johnson, Hot Springs, and Lincoln Counties have sustained the least damage. Interestingly, when the damage values

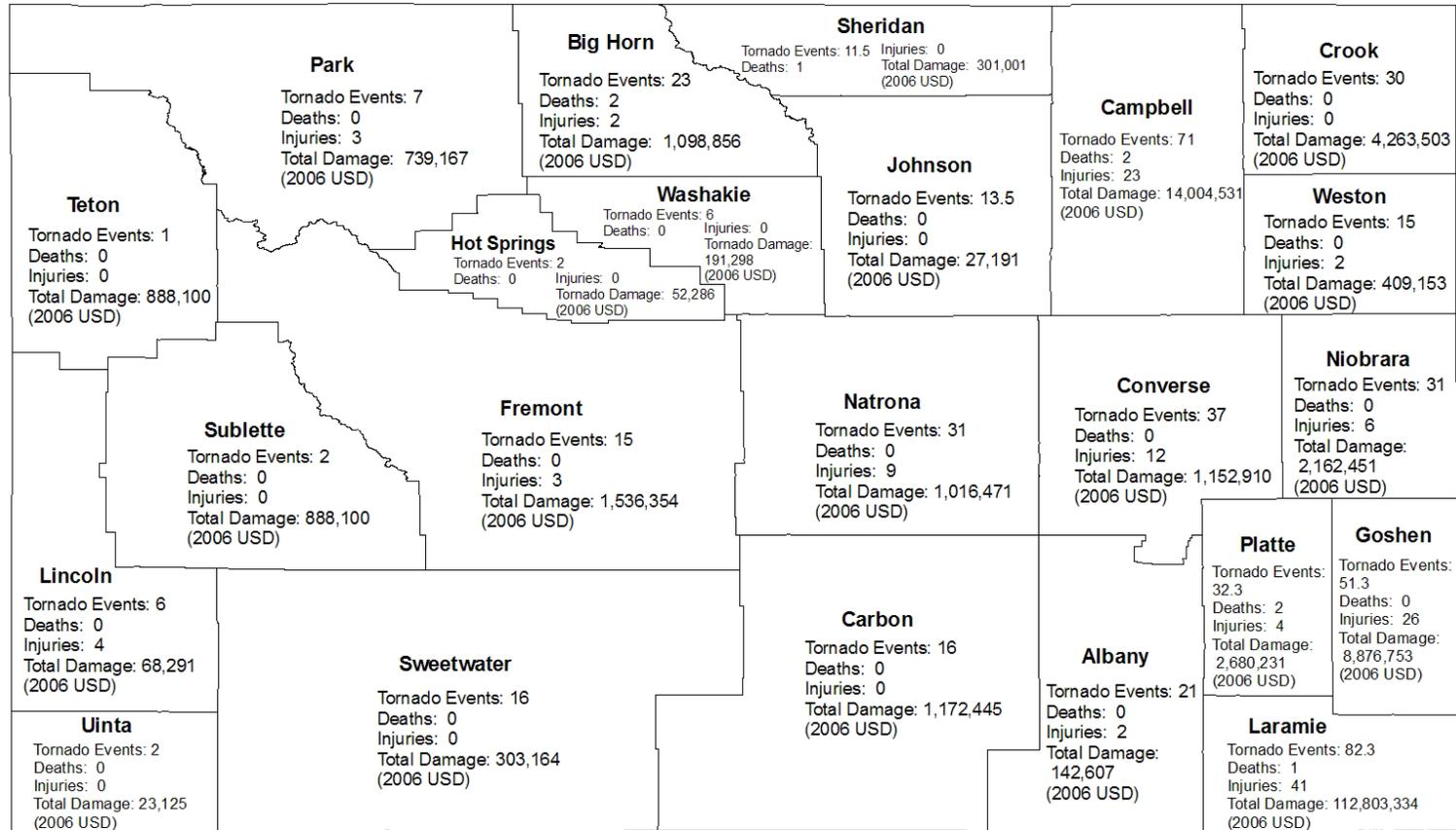
from the year of the event are converted to 2006 values, Carbon County (which originally seemed to have less damage than Big Horn, Park and Natrona Counties) actually had more damage in current dollars. There are also other noticeable changes in the order of counties when the damages are converted to 2010 dollars (compare **Tables 16.6** and **16.7**).

Using the figures from **Tables 16.6** and **16.7** as a determiner of the future, Laramie, Goshen, and Campbell Counties should be viewed as most critical, and Johnson, Uinta, and Sublette Counties are the least threatened. The July 1979 tornado in the Cheyenne area, resulting in over \$111 million worth of damage in 2006 dollars, should be considered a worst-case scenario. The data suggests that Cheyenne’s size and location places it at the highest risk for economic damage from tornado hazards.

<b>Table 16.6—Tornado Damage by County in 2010 USD (1907 through 2006).</b>	
<b>County</b>	<b>Damage</b>
Laramie	123,779,305
Campbell	15,367,194
Goshen	9,740,477
Crook	4,678,350
Platte	2,941,022
Niobrara	2,372,861
Fremont	1,685,844
Carbon	1,286,526
Converse	1,265,090
Big Horn	1,205,777
Natrona	1,115,375
Teton	974,514
Park	811,089
Weston	448,964
Sweetwater	332,662
Sheridan	330,289
Washakie	209,912
Albany	156,483
Lincoln	74,936
Hot Springs	57,374
Johnson	29,837
Uinta	25,375
Sublette	0
<b>TOTAL</b>	<b>\$168,889,256</b>

<b>Table 16.7—Tornado Damage by County In Year-of-Event USD (1907 through 2006).</b>	
<b>County</b>	<b>Damage</b>
Laramie	40,230,525
Campbell	8,737,775
Goshen	3,051,275
Crook	956,525
Niobrara	955,025
Platte	674,000
Teton	500,000
Fremont	490,775
Natrona	390,500
Park	360,525
Big Horn	332,250
Carbon	305,250
Converse	188,550
Weston	130,250
Albany	77,500
Sweetwater	55,000
Sheridan	44,000
Washakie	30,250
Lincoln	27,500
Hot Springs	27,500
Johnson	11,050
Uinta	5,500
Sublette	0
<b>TOTAL</b>	<b>\$57,581,525</b>

**Wyoming Torando Damage Data:  
Damage by County in 2006 USD (1907 - 2006)**



**Wyoming State Totals:**  
**Damaging Events: 523**  
**Deaths: 6**  
**Injuries: 123**  
**Tornado Damage: 153,913,222**  
**(2006 USD)**

Figure 16.6 – Wyoming Tornado Damage Data



The only recent tornadoes causing loss of life occurred in Big Horn County on June 26, 1959, in Cheyenne on July 16, 1979, and in Wright on August 12, 2005. One life was lost in the Big Horn County Cheyenne events, and two lives were lost in the Wright event. The Cheyenne event also resulted in 40 injuries, caused an estimated \$121.8 million in damage in 2010 dollars, and is considered the state's worst tornado. (**Figure 16.7**)



**Figure 16.7** – Worst tornado in Wyoming history was on July 16, 1979, in Cheyenne (photographer unknown).

Photograph courtesy of Southern Wyoming Skywarn

(<http://wy.skywarn.net/tornado.htm>)

An excerpt from a report filed at the time of the 1979 Cheyenne tornado is as follows:

“16 July 1979,: Moving north in the northern part of Cheyenne housing and airport areas. Four C-130 aircraft and National Guard ground equipment sustained \$12 million damage. Municipal hangers and buildings suffered another \$10 million damage. Seventeen trailers and 140 houses were destroyed, and 325 homes were damaged. A baby was killed in a trailer.” (Excerpted from Wyoming Climate Atlas)

In **Figure 16.8**, tornado occurrence by county is shown from 1950 to 2003. The three highest counts occurred in Laramie, Campbell, and Goshen Counties. For average annual damage costs based on 1999 dollars from 1950 to 1999.see **Figure 16.9**.

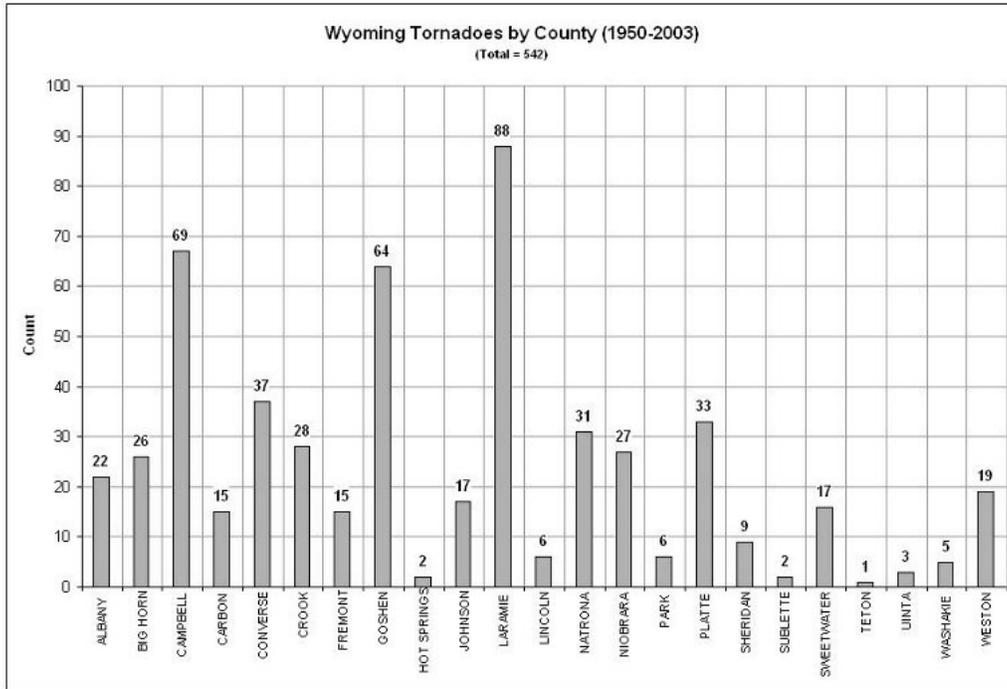


Figure 16.8—Wyoming Tornadoes by County (1950-2003). Graph from Wyoming Climate Atlas.

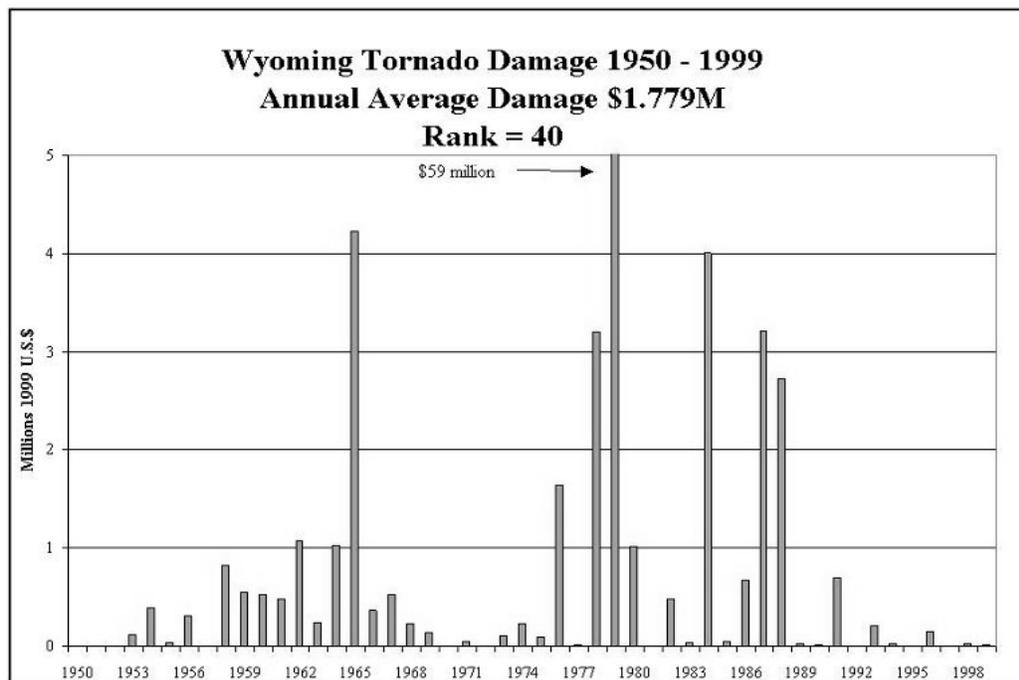


Figure 16.9 – Wyoming Tornado Damage (1955 – 1999). Graph from Wyoming Climate Atlas.

## Local Mitigation Plan Risk Assessments

A review of Wyoming local mitigation plans reflects tornadoes are a hazard existing within their borders. They have utilized data available to them through the State Multi-Hazard Mitigation Plan and have added some limited additional information. Each county has ranked tornado risk within their borders based on the population impacted, probability of occurrence within their borders and the property impacted.

Below is a table outlining information mined from the local plans' tornado hazard sections. The table shows previous historical incidents of tornadoes within each county's borders as outlined in their plans and extrapolates, based on population impacted, probability of occurrence within their borders, and property impacted, the risk perceived by each county relative to tornado hazards. You will note all counties rank tornadoes risk between a medium and high hazard within their borders. Potential losses quoted within the local plans vary widely. In those counties providing estimated loss potential, potential losses vary from \$22,000 per event to \$247.2 million per event.

### Tornadoes Information Mined from Local Plans

COUNTY	Plan Y/N	Year Approved	Included in Plan	Rank-High, Medium, Low	Loss Potential	Previous Incident(s)
ALBANY	Y	2010	Y	Medium	Statewide Figures Only	22-2 Injuries
BIG HORN	Approvable	2010	Y	High	247.2 million	34/ Multiple ea yr
CAMPBELL	Expired	2005	Y	Medium-High	historical-\$4 million/ event	70 (Incomplete)-2 deaths
CARBON	Y	2008	Y	Medium	\$1.1 million quoted from State Plan	16
CONVERSE	N/Draft	2005			Not Stated	
CROOK	N/Draft	2003	Y		State-level Info from State Plan	
FREMONT	Expired	2005	N			
GOSHEN	Y	2007	Y	Medium	historical-\$2.75 million/event	51
HOT SPRINGS	N					
JOHNSON	Y	2008	Y	Medium	historical-\$22,000/event	13
LARAMIE	Expired	2005	N			
LINCOLN	Y	2006	Y	Medium-High	historical-\$63,000/event	1 every 16 years
NATRONA	Approvable	2010	Y	Medium-High	Medium-High	Frequent
NIOBRARA	Y	2009	Y	High	\$275,000/event	28
PARK	Y	2006	Y	Medium	\$381,000/event	7
PLATTE	Expired	2004	Y	Medium	Not Stated	24
SHERIDAN	Y	2009	Y	Medium	\$174,000	11-1 every 16 yrs
SUBLETTE	Y	2008	N			
SWEETWATER	N					
TETON	Y	2009	Y	Medium	historical- \$831,000	1
UINTA	N/Draft	2011	N			
WASHAKIE	Expired	2005	Y	Medium	\$168,000 +	6
WESTON	N					
NORTHERN ARAPAHO TRIBE	N					
EASTERN SHOSHONE TRIBE	N					

Because of the devastating impact tornadoes can have on a community, the vulnerability of the community has an impact on the risk associated with tornado hazards. Additionally, development can impact the risk presented by tornadic activity. Increased population can mean greater damage in the event a tornado strikes. Tornado shelters and basements become more important the greater the population in order to help prevent loss of life in the event of a tornado. Additionally, those unfamiliar with the hazard may be drawn to watch events as they unfold rather than take shelter, putting them at greater risk of injury or death. The 2010 census documents those counties with higher levels of population increases.

## Proposed State Mitigation Projects

The following mitigation projects have been proposed by state, federal and local entities in the process of generating the Wyoming Multi-Hazard Mitigation Plan. Chapter 22 has all proposed mitigation projects.

- Education.
- Establish tornado shelters.
- Study of governmental buildings to determine which qualify as potential shelters.
- Enhanced radar coverage in northeast Wyoming.
- Warning systems.
- Provide all-hazards weather radios to all residences in Wyoming.
- Identify and inspect shelters in hazard prone areas.
- Research feasibility and costs of adding new frontage roads/detour routes to I-80, I-90, and I-25 to prevent significant delay in traffic flow and resultant economic loss and possible loss of life.
- Provide hazards information to shelters, emergency facilities in public buildings, campgrounds, and phone books.
- Provide emergency phones at strategic locations with direct lines to emergency dispatch services.
- Develop reseeding plans for losses due to all hazard events.
- GIS training for local jurisdictions with emphasis on hazards recognition and analysis for application to mitigation planning.
- Investigate opportunities for developing or improving warning systems as a means to reduce loss of life, damage to property, and economic losses.
- Education programs encompassing multi-hazard insurance for business, resident and government application.
- Education programs encompassing multi-hazard mitigation for business, resident and government application.
- Planning studies regarding transportation of essential and/or key personnel during all hazard events.
- Continue outreach to counties on identifying cost effective and feasible mitigation projects.
- Promote Continuity of Operations and Continuity of Government, statewide.
- Maintain and continue to expand hazards databases that were generated for the State Hazard Mitigation Plan. Seek new sources of information.
- Identify, document, and advertise all volunteer agency's locations and contact information.