



**Yellowstone National Park
Index of Winter Severity**

Winter Ending	Northern Range Montana	Lower Northern Range in YNP				Upper Northern Range (Lamar)		Madison - Firehole		Upper Gallatin		Pelican Hayden	
		Elk	Prong-horn	Mule Deer	Elk	Bison	Elk	Bison	Elk	Bison	Elk	Bison	Elk
1949					2.58	2.43			0.95		-1.56		
1950					1.44	1.51			1.09		-0.11		
1951					-1.67	-1.74			-2.40		-0.89		
1952					0.87	-0.19			1.38		2.06		
1953					-0.09	-1.98			0.42		-1.81		
1954					0.14	2.06			0.13		2.28		
1955					-2.83	-3.44			-2.64		-2.26		
1956					-1.76	-0.73			-2.94		-0.79		
1957					2.58	2.14			2.29		0.35		
1958	3.46	3.43	3.53	2.88	3.49	2.58							
1959	0.86	1.74	1.48	0.00	1.00	0.83	-0.23			1.90		1.64	
1960	0.84	1.11	2.96	0.15	1.23	0.95	2.74			0.63		2.70	
1961	2.73	2.29	2.23	2.16	2.79	1.54	1.66			-0.58		0.94	
1962	-3.52	-3.55	-3.49	-3.56	-3.44	-3.51	-3.47			-2.77		-2.80	
1963	0.66	1.20	3.20	2.76	1.03	0.23	1.18			1.32		3.09	
1964	0.47	0.63	0.65	-0.92	0.42	-0.78	-1.22			-0.98		0.34	
1965	-1.65	-2.69	-2.17	-2.88	-1.65	-3.07	-3.26			-2.97		-2.86	
1966	2.74	2.40	3.15	0.95	2.84	2.47	2.10			2.24		1.49	
1967	-1.08	-0.62	-3.05	-0.68	-1.30	-0.50	-2.70			-0.66		-2.87	
1968	-1.69	-0.50	-1.90	-2.20	-1.85	-0.33	-0.44			1.21		2.23	
1969	-0.67	-0.29	-1.66	-2.02	-0.78	-0.18	-1.26			-0.97		-2.26	
1970	0.94	0.44	0.82	1.17	0.97	0.59	-0.32			0.19		1.33	
1971	-0.97	-0.42	-1.94	-1.03	-1.09	-0.51	-1.31			-2.08		-2.40	
1972	-2.06	-0.59	-3.08	-2.39	-2.11	-0.44	-1.42			0.56		-2.09	
1973	-0.29	0.73	1.27	1.07	0.10	0.63	2.14			0.38		1.80	
1974	-0.45	-0.65	-0.93	2.31	-0.41	2.07	1.59			-1.00		-2.04	
1975	-0.32	-1.47	-0.61	-0.40	-0.30	-1.85	-1.55			-1.66		-0.45	
1976	-1.57	-0.25	-2.83	-1.08	-1.66	-1.40	-1.23			-1.35		-1.09	
1977	1.26	2.21	1.46	-0.02	1.37	2.32	2.16			0.80		1.60	
1978	-1.12	-0.14	-1.76	0.03	-1.27	-0.08	-1.65			0.50		-1.52	
1979	-2.67	-3.18	-1.59	-3.18	-2.61	-2.48	-1.66			-2.34		-0.33	
1980	0.36	-0.49	0.29	0.57	0.61	-0.73	-0.91	-1.28	-1.19	0.34		-0.70	
1981	2.16	3.60	1.88	2.67	2.24	3.28	2.96	3.13	2.81	3.44		3.53	
1982	-2.53	-0.44	-2.03	-0.86	-2.52	-0.24	-1.16	-0.86	-2.05	-0.07		-2.12	
1983	2.38	2.23	2.22	2.15	2.40	2.30	2.24	0.32	-0.37	-0.09		1.47	
1984	-0.19	-0.14	2.05	1.44	0.15	0.41	2.68	1.03	2.40	0.37		2.32	
1985	-0.59	-0.93	0.11	-1.06	-0.34	-0.74	0.94	-2.15	-1.15	-0.78		1.33	
1986	1.23	0.76	1.50	1.79	1.39	0.38	0.02	-0.14	-1.96	0.70		-0.71	
1987	3.08	1.14	3.33	2.92	3.17	0.48	1.89	1.46	2.45	1.37		3.26	
1988	1.52	1.51	1.82	1.24	1.65	1.77	2.90	1.17	2.19	2.25		3.18	
1989	-2.36	-2.30	-2.08	-1.57	-2.17	-1.61	-1.25	-1.95	-2.99	-1.73		-3.17	
1990	-0.53	0.56	-0.76	1.20	-0.54	0.21	-0.19	1.52	1.30	2.00		0.46	
1991	-1.27	-0.20	0.99	1.59	-0.96	0.00	0.87	-0.31	0.86	0.46		1.40	
1992	0.81	0.37	-0.03	1.07	0.83	-0.77	-1.27	0.90	0.87	0.55		0.84	
1993	-1.01	0.32	-0.67	-2.16	-0.89	0.64	1.98	-0.36	0.68	-0.48		1.06	
1994	0.04	1.99	0.28	0.04	0.10	2.06	2.04	2.89	2.83	3.21		2.44	
1995	1.34	0.19	0.28	2.03	1.35	-0.24	0.19	-0.35	-1.11	-0.28		-0.74	
1996	-0.89	0.01	0.75	1.49	-0.79	-1.27	-0.97	-1.49	-0.80	-0.10		-1.87	
1997	-0.81	-2.92	-1.94	1.32	-0.89	-2.70	-3.78	-2.70	-3.85	-2.10		-2.83	
1998	1.32	2.44	1.22	1.61	1.33	2.43	2.34	2.04	1.76	2.66		1.84	
1999	-0.03	-0.20	-1.42	0.95	-0.03	0.39	-0.77	-0.42	-1.42	0.19		-2.32	
2000	2.34	0.63	1.38	2.26	2.33	-0.12	-1.61	0.87	-0.53	1.27		-0.86	
2001	2.12	1.80	2.20	1.14	2.23	1.03	2.17	1.78	3.11	1.93		2.25	
2002	0.34	1.74	0.28	0.02	0.36	2.11	2.31	0.43	0.81	0.45		0.99	

The Index of Winter Severity program is a cooperative effort of the USGS Northern Rocky Mountain Science Center's Greater Yellowstone Initiative and Snowcap Hydrology.