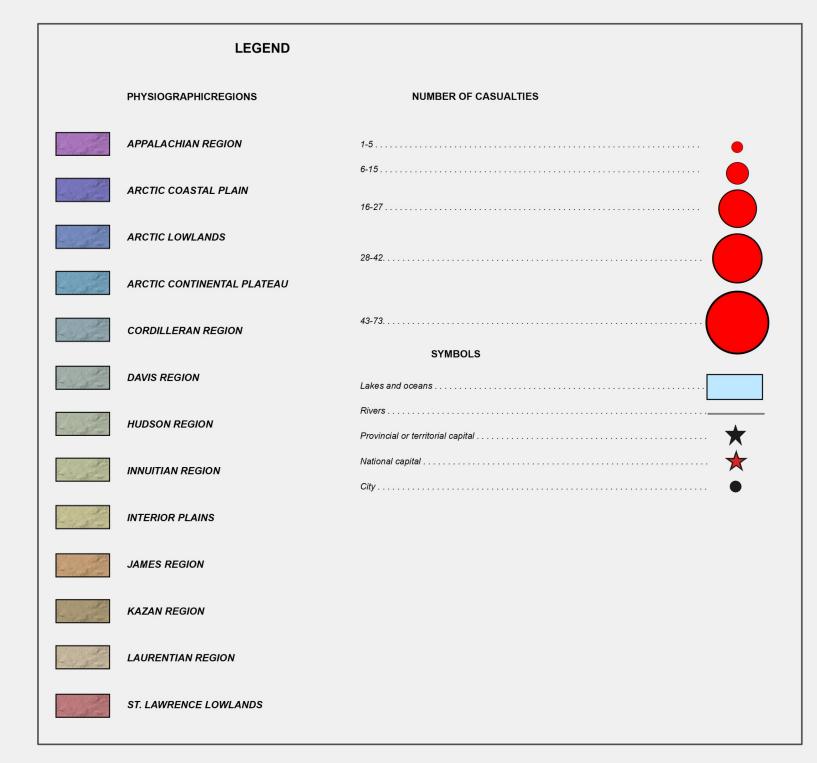


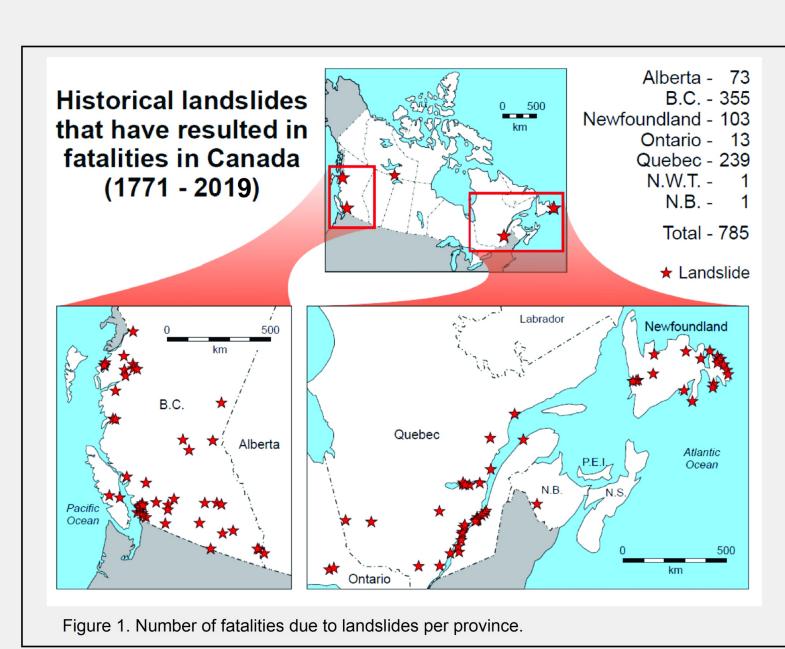


This map represents an updated compilation of historical landslide events that have caused fatalities across Canada (from 1771-2019), which is updated from the ones published in 2015 and 2018 (Blais-Stevens et al. 2015; 2018). The first iteration in 2015 was initiated by a need to update the Canada landslides disasters map (Evans, 1999). A landslide disaster was defined as three or more fatalities per landslide event. However, since the compilation by Blais-Stevens et al. (2015), all landslides with at least one fatality are included. Along with the map is a table listing the events chronologically with coordinates and a brief description. Since the last publication in 2018, two more events took place that year. Moreover, colleagues provided information on past events that was missing or made corrections to listed events. In some cases, only a general location was documented for a specific landslide event, therefore coordinates are approximate and identified as such in the table with an asterisk. Overall, it was considered that the general region in which the event took place was important to document. Also included are landslide events that have caused tsunamis that in turn, caused fatalities. The landslide information comes from technical reports, scientific and newspaper articles or provincial government websites as well as from requests to colleagues who generously gave their time and knowledge. The newspaper article descriptions are often short and not technical, therefore, interpretations were made on the type of landslide. The events were plotted within Canada's physiographic regions (Bostock, 2014) overlain on a hillshade image created from a digital elevation model. A summary of historical fatal landslide events per province is also compiled (Figure 1).

This open file map has tried to summarize, in a joint effort, all known landslides in Canada that have resulted in fatalities. Undoubtedly, some landslide events may be missing from this compilation. Please communicate any omission, error or inaccuracy to the Geological Survey of Canada.

EVENT#	DATE	LOCATION			LONGITUDE		COMMENTS
		St-Pierre-de-Montmagny		46.9819	-70.5546	4	Flowslide swept away a house and a barn. *
2	1823	Ferryland	NL	47.0228	-52.8842	42	Rockfall killed fisherman in a cave.
3	1829/05/10		QC	45.4637	-74.3655	2	Flowslide swept away a house and its two occupants. *
4		Quebec City	QC	46.8064	-71.2047	32	Rockslide destroyed houses.
5	1846/10/17		QC	45.4637	-74.3655	1	Flowslide swept away a house and a barn. *
6		Grate's Cove	NL	48.1667	-52.9333 -53.0137	2	Rockfall from seacliff killed two brothers. Rock fell from seacliff.
7 8	1852	Kelley's Island Quebec City	NL QC	47.5455 46.8064	-71.2047	7	Rockslide destroyed houses.
9	1860	Cape Cove	NL	46.8278	-71.2047	7	Landslide killed seven fishermen in camp.
10		Quebec City	QC	46.8064	-71.2047	4	Rockslide destroyed houses.
11		Sainte-Geneviève-de-Batiscan	QC	46.5475	-72.3386	4	Flowslide by the Champlain River on Rang des Lahaie.
12		Sainte-Geneviève-de-Batiscan	_	46.5416	-72.3380	5	Flowslide in quick clay.
13	1887	Tilton	NL	47.6333	-53.3333	1	Clay and rock embankment failure
14		North-East Arm, Placentia Bay	NL	47.2334	-53.69667	1	Clay bank failure on railway.
15	1880/01/30		BC	49.2154	-122.6086	1	Landslide into the Fraser River caused a 20 m wave.
16		Quebec City	QC	46.8064	-71.2047	43	Rockslide destroyed houses.
17		St-Pierre-de-Montmagny	QC	46.9819	-70.5546	1	Flowslide swept away a house and its ten occupants. *
18		North Pacific Cannery	BC	54.1939	-130.2192	35	Debris flow caused by breach of lands in Prince Rupert.
19	1892/04/19	Beaches, Humber Arm	NL	49.0167	-58.15	1	Landslide burried a house.
20	1894/04/27		QC	46.7797	-72.0378	4	Quick clay flowslide destroyed a farmhouse.
21		St-Luc-de-Vincennes	QC	46.5031	-72.3794	5	Quick clay flowslide destroyed a home.
22		Sheep Creek, near Rossland	ВС	49.0147	-117.8181	7	Debris flow struck railway maintenance camp.
23	1898/02	Quesnel Forks	ВС	52.6553	-121.7836	3	Debris flow damaged homes and a highway.
24	1898/05/07	St-Thuribe	QC	46.7053	-72.1478	1	A large flowslide swept away two houses, a school and two barns.
25	1900/06/17		QC	46.873	-70.8075	2	Two people and a mill were swept away by a lateral spread.
26	1901/11/13	Cappahayden	NL	46.8608	-52.9466	1	Rockfall from cliff.
27	1903/04/29	Frank	AB	49.595	-114.3844	73	Rock avalanche buried part of the coal mining town of Frank.
28		Pouch Cove	NL	47.7472	-52.775	1	Rockfall killed labourer.
29		Pas Island, Hermitage Bay	NL	47.4909	-56.1977	1	Rock fall killed one man.*
30		Spences Bridge	BC	50.4144	-121.366	18	Landslide into Thompson River caused displacement wave which swept victims.
31		Knight Inlet	BC	50.8615	-125.581	2	Debris flow in Knight Inlet killed two loggers. *
32		Notre-Dame-de-la-Salette	QC	45.7675	-75.5928	34	Landslide in quick clay into Lievre River.
33	1908/10/31	Collingwood; Vancouver	BC	49.2409	-123.0383	1	Landslide killed an employee of BC Electric Company. *
34	1909/11/28		BC	49.2436	-122.8669	22	Slump of railway embankment derailed a train.
35		St-Alphonse-de-Bagotville	QC	48.3308	-70.9425	4	Construction camp buried by landslide in quick clay.
36		Coucoucache	_	47.7097	-73.2642	6	Slump of railway embankment derailed a train.*
37		Cape Shore	NL	46.9336	-54.0431	1	Landslide killed one camper/fisherman.
38	1914/02/13		NL	47.6333	-52.9667	1	Landslide of loosened earth in Scotia mines.
39		Jane Camp/Britannia Mine	BC	49.6117	-123.1394	54	Rock avalanche swept into mining camp.
40		West of Coquihalla	BC	49.5994	-121.0572	1	Rockslide smashed into a plow train, killing a crewmember. *
41	-	lago train station		49.5168	-121.1521	1	Snow and rockslide struck a plow train killing one person.
42		St-Pierre-de-Montmagny		46.9312	-70.6185	2	Two people and a barn were swept away by a flowslide.
43		Britannia Beach/Howe Sound	BC	49.6244	-123.2003	37	Outburst flood caused by failure of railway fill.
44		Elcho Harbour	BC	52.3933	-127.5342	5	Debris avalanche caused by heavy rains.
45	1924/10/02		QC	48.4351	-71.2442	1	A minor flowslide triggered by a factory's water drainage.
46	1927/01/01	Anse Saint-Jean	BC QC	49.3793	-121.3643	1	Rockslide on the Kettle Valley Railway. Landslide swept away a victim.
47 48		Burin Peninsula	NL	48.2312 46.8581	-70.2066 -55.7489	1 28	Tsunami caused by seismically (M7.2) triggered submarine landslide.
49		Between Brodie-Juliet stations	BC	49.7061	-121.0179	1	Rockslide on the Kettle Valley Railway killed an engineer. *
50	1930/05/26		ON	46.5933	-80.9511	8	Slump of railway embankment derailed train.
51	1930/06/27		ON	46.6289	-80.6672	4	Slump of railway embankment derailed train.
	1931/05/04		BC	54.4644	-128.7689	1	Rockslide hit a train east of Amsbury.
53		East of New Hazelton	BC	55.253	-127.5665	1	Landslide caused a derailment killing the fireman. *
54		North Bend	BC	49.8828	-121.4511	1	Snow and debris avalanche killed a railway worker. *
55	1935/01/24		BC	51.2979	-116.8655	1	A slide killed a CPR foreman. *Estimated location
56	1935/01/24		ВС	49.0716	-122.1677	1	Landslide at Kilgard on main road to Chilliwack . *
	1935/01/25		BC	49.0654	-122.1941	4	Mudslide at Clayburn Brick Company's plant. *
58		Portugal Cove	NL	47.625	-52.8333	1	Rockfall killed one girl.
59		South Side Road, St-John's	NL	47.5667	-52.7333	1	Debris flow due to heavy rainfall.
60		Near Coalmont	BC	49.5026	-120.6827	1	Rockfall in Granite Canyon killed one miner. *
61		St-Grégoire-de-Montmorency	QC	46.8808	-71.1528	4	Landslide caused by heavy rains.
62	1939/01/24			49.3562	-120.0747	2	Rockfall damaged nine houses and killed two people.*
63		48 km east of Hope	BC	49.5826	-121.0829	1	Rockfall killed a man on the Kettle Valley Railway. *
64	1939/10/21	Near Invermere	BC	50.51	-115.9958	1	Landslide killed a man during road construction. *
65	1940/04/01	Humbermouth	NL	48.9639	-57.9056	1	Landslide killed ditcher.
66	1943/11/13	West of Kamloops	BC	50.5585	-121.294	1	Large rockfall hit a CNR train killing the fireman. *
67		Mapleguard Spit	BC	49.4662	-124.7249	1	M7.3 earthquake generated a shoreline failure causing a tsunami.
68		Beattie Gold Mine, Duparquet	QC	48.5056	-79.2553	4	Landslide debris flowed into mine.
69	1947/09/27		BC	50.7824	-121.0628	5	A CNR freight train struck a slide in Thompson gorge. *
70		South Side Road, St-John's	NL	47.5667	-52.7333	1	Landslide.
71	1949/10/31	-	NL	47.3251	-52.7866	2	Landslide in gravel killed two brothers.
		American Bar reserve	BC	49.4292	-121.4374	1	Debris flow killed a woman at American Bar reserve. *
73	1952/07/12		NL	48.9916	-58.0484	1	Rockfall killed a boy.
74		Rothermere Mine, Buchans	NL	48.8224	-56.8629	1	Rockfall killed driller.
75	1953/10/23		NL	48.7833	-54.2167	1	Landslide in sand buried a boy and injured another.
76	1953/10/27		BC	54.8814	-128.4347	1	Rock slide.
77		Terrace-Kitimat	BC	54.2834	-128.5183	2	Debris slide on the rail line.*
	1955/11/12		_	46.2256	-72.62	3	Flowslide in quick clay.
78	1956/02/02	Retaskit	BC	50.5786	-121.818	1	Rockfall hit a train at Retaskit. *
		Woodbury Bluffs, near Kaslo	BC	49.806	-116.9028	1	Rockfall killed a railway employee south of Kaslo. *
78 79 80	1957/02/20	•				1 1	Rock slide north of Horseshoe Bay.
78 79 80 81	1957/02/20 1957/03/13	Sunset Beach	BC	49.4157	-123.2344	1	
78 79 80 81 82	1957/02/20 1957/03/13 1957/04/07	Sunset Beach West of Nelson	BC	49.4712	-117.4709	2	Debris flow killed two occupants of a car. *
78 79 80 81	1957/02/20 1957/03/13 1957/04/07	Sunset Beach West of Nelson Prince Rupert	BC BC				





86	DATE 1959/03/21	LOCATION		54.782	LONGITUDE -127.9732	1	COMMENTS Landslide hit train west of Smithers.
86 87		Smitners Revelstoke	_	54.782	-127.9732 -118.2	4	Landslide nit train west of Smithers. Landslide triggered by highway construction.
88		Cassiar Cannery	BC	54.197	-130.2318	1	Rockslide north of Stewart.
89		Arrow Lake	BC	50.3475	-117.885	1	Landslide killed a worker at Arrow Lake near Forstall beach. *
90		West of Ashfort		50.684	-121.2963	2	A rockslide hit the CNR train west of Ashcroft.*
91	1960/09/07		_	53.4383	-120.5011	3	Debris flow killed highway construction workers.
92		Near Gold River	ВС	49.7995	-126.068	1	A mud and rock slide hit the Taisho Logging Co. bridge, killing a logger.
93	1961/02/20	Hatzic Lake	ВС	49.1898	-122.2339	1	Debris avalanche on Dewdney Mountain killed a farmer. *
94	1962/03/20	Granite Creek	ВС	49.4861	-120.7158	2	Rock slide killed two people. *
95	1962/05/23	Toulnustouc River	QC	49.8172	-68.3742	9	Landslide in marine clay caused by blasting.
96	1962/08/16	Harrison Lake camp	BC	49.4663	-121.7636	1	Giant mud slide killed a worker. *
97	1962/10/03	Near Alert Bay on Seymour Inlet	BC	51.0248	-127.3285	1	Mud and rockslide hit Wright's logging camp. *
98	1963/10/21	Britannia Beach	BC	49.5858	-123.22	1	Rock slide derailed train.
99	1963/12/11	Saint-Joachim-de-Tourelle	QC	49.1547	-66.4153	4	Flowslide in quick clay.
100	1963/12/24	Crescent Beach	BC	49.0663	-122.848	1	Bank collapse along Nicomekl River at Crescent Beach.*
101		Ramsay Arm	BC	50.4189	-124.9506	5	Debris flow caused by heavy rains.
102	1965/01/09	•	BC	49.3039	-121.2508	4	Massive rock avalanche.
103		Ocean Falls	BC	52.3539	-127.6844	7	Debris flow caused by melting snow.
104		Fountain Indian Reserve	BC	50.7523	-121.8929	1	Rock slide at the Fountain Indian Reserve near Lillooet *
105	1968/01/14		BC	49.1932	-121.7314	1	Debris flow destroyed a house at Cattermole Timber Co. *
		Camp Creek/Revelstoke		50.9703	-118.5169	4	Debris flow caused by heavy rains.
107	1968/08/09		NWT	60.0132	-111.8883	1	Debris slide buried house and one woman inside.
108	1968/08/26		BC	50.9567	-118.3962	1	Rockfall killed passenger on CPR train. *
109	1968/11/24		BC	49.7181	-114.8336	3	Massive slide of overburden of a mining operation.
	1969/02/09		BC	49.56	-123.2178	3	Rockfall on Highway 99.
111		Charles Creek	BC	49.4206	-123.2326	1	Debris flow destroyed a bridge and car.
112		Summerland	BC	49.6001	-119.6548	1	Silt fall
		Boothroyd near Boston Bar	BC QC	49.9604 48.4733	-121.4946 -71.2175	3 31	Rock and mudslide near Boston Bar derailed a CNR train. *
		Saint-Jean-Vianney North of Lytton		48.4733 50.3439	-/1.21/5 -121.651	2	Flowslide in quick clay. Two people were killed by a landslide. *
115 116		Michel Creek Road, Sparwood	BC	49.6864	-121.651	3	Debris flow from coal mine waste dump.
117		Harbour Breton	NL	47.4783	-55.8117	4	Debris now from coarrinne waste dump. Debris avalanche struck houses.
		Spences Bridge		50.39614	-121.38412	2	Rockfall derailed a CPR train. *
		Cypress Bowl	BC	49.3935	-123.1977	1	Rockslide killed one man during home construction. *
	1974/11/02		QC	46.0105	-72.9138	1	A lateral spread swept away an onlooker.
		Devastation Glacier	BC	50.565	-123.5508	4	Massive rock avalanche.
	1976/04/01				67.60084	1	Railway embankment failure *
	1978/05/03		QC	45.4637	-74.3655	1	Lateral spread triggered by pile-driving activities.
124		Carolin Mines camp	BC	49.5044	-121.2859	1	Debris flow at Carolin Mines camp. *
125		Belmoral Mine	QC	48.1358	-77.6506	8	Cave-in of mine roof triggered a flow of lacustrine sediments into mine.
126	1980/07/01	Beaver Valley	ВС	54.9975	-129.3483	1	Debris avalanche caused by the vibrations of a tractor.
127	1981/09/28	Tumbler Ridge	BC	55.1277	-120.9953	1	Landslide near the Tumbler Ridge coal site.
128	1981/10/28	M Creek	BC	49.4794	-123.2508	9	Debris flow destroyed bridge.
129	1982/01/16	Brunswick Point	BC	49.5261	-123.26	1	Single boulder landing on car.
130	1983/02/11	Alberta Creek	BC	49.4605	-123.2325	2	Debris flow due to rain flood;
	1983/11/23		BC	50.7751	-119.2724	2	A large boulder detached from a cliff and destroyed a house.
	1984/04/28		NL	49.5	-56.0667	1	Rockfall killed youth climbing on slope face.
	1989/11/10		BC	56.1186	-129.7344	1	Rockfall on highway 37A.
	1990/06/12		BC	49.8936	-119.1431	3	Debris avalanche caused by heavy rains.
		Dorothy Creek	BC	49.3583	-125.4	1	Debris slide associated with forestry activities
136		Porteau Cove	BC	49.5507	-123.235	1	Rockfall on Highway 99.
	1993/11/19			53.4753	-128.5769	1	Debris flow on eastern shore of Alan Reach.
		Longue-Rive	QC	48.5855	-69.203	1	A landslide buried a victim.
		Kootenay Lake	BC		-116.85935	2	Rockfall killed a locomotive operator and conductor
		Coffee Creek Area, Hwy 31	BC		-116.90906	1	Rockfall struck vehicle
		North of Lardeau, Hw 31	BC		-116.93829	1	Vehicle hit rock and went off highway
	1996/07/20		_	48.3085	-70.8535	2	Landslide caused by heavy rains.
		Spences Bridge	BC		-121.33702	1	Rolling rock hit railway worker
144	1997/03/26		BC	50.1167	-121.5667	6	Highway and railway fill failures.
145		West Quesnel Gowan Creek	_	52.9725 49.9663	-122.5128 -122.3813	1	Shifting soil snapped a gas line and caused an explosion. Debris flow caused by heavy rains.
		East of Sicamous, Hwy 1	BC		-122.3813	1	Debris flow caused by neavy rains. Vehicle hit rock and went off highway
		Lytton Area, Hwy 1	BC		-118.88982	1	Rock on hwy struck vehicle
		South of Barrier, Hwy 5			-120.13855	1	Rockfall struck vehicle
		Three Valley Gap, Hwy 1	_		-118.44715	1	Vehicle went off hwy into lake to avoid rock on highway
		North Vancouver	BC	49.3292	-123.0032	1	Landslide after heavy rains.
		Messiter Summit, Hwy 5	_		-119.34653	1	Vehicle hit rock and went off highway
		Legate Creek	BC	54.7494	-128.2556	2	Debris flow burried a truck on Highway 16.
		Van Tuyl Creek	_	49.8287	-117.4367	1	Debris flow during snowmelt following wildfire.
	2009/02/22	•			-123.96315	1	Boulder hit a labourer at hydroelectric construction site. *
	2010/05/10		QC	45.8041	-72.9638	4	Flowslide in quick clay.
		Tank Hill, Hwy 1		50.25729	-121.45844	1	Rockfall struck vehicle
		Random Island	NL	48.1445	-53.7158	1	Landslide due to flooding and rainfall from hurricane Igor.
		Johnsons Landing	BC	50.0869	-116.8703	4	Landslide following heavy rains.
		L'Épiphanie	QC	45.8412	-73.4914	2	Two truck drivers buried by landslide in a quarry.
		Wreck Beach	BC	49.2658	-123.263	1	Debris fall.
	2014/11/07		_	50.3418	-66.1963	1	Rock slide derailed a train north of Sept-Iles.
	2014/12/22	•	BC	49.448	-123.1981	1	Rock slide likely due to heavy rains.
		Emery Creek north of Hope	BC	49.4934	-121.4771	1	Debris flow from old logging road killed truck driver.
		Tappen	BC	50.8106	-119.1323	1	Mudslide hit house with one man in it.
165	2017/03/03						
	2017/11/25	Hamilton	ON	43.1785	-79.8134	1	Trench collapsed in backyard of a house.
166	2017/11/25	Hamilton Okanagan Falls			-79.8134 -119.5763		Trench collapsed in backyard of a house. Rockfall on Green Lake Road.*

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