Spruce beetle

Why spruce beetle?

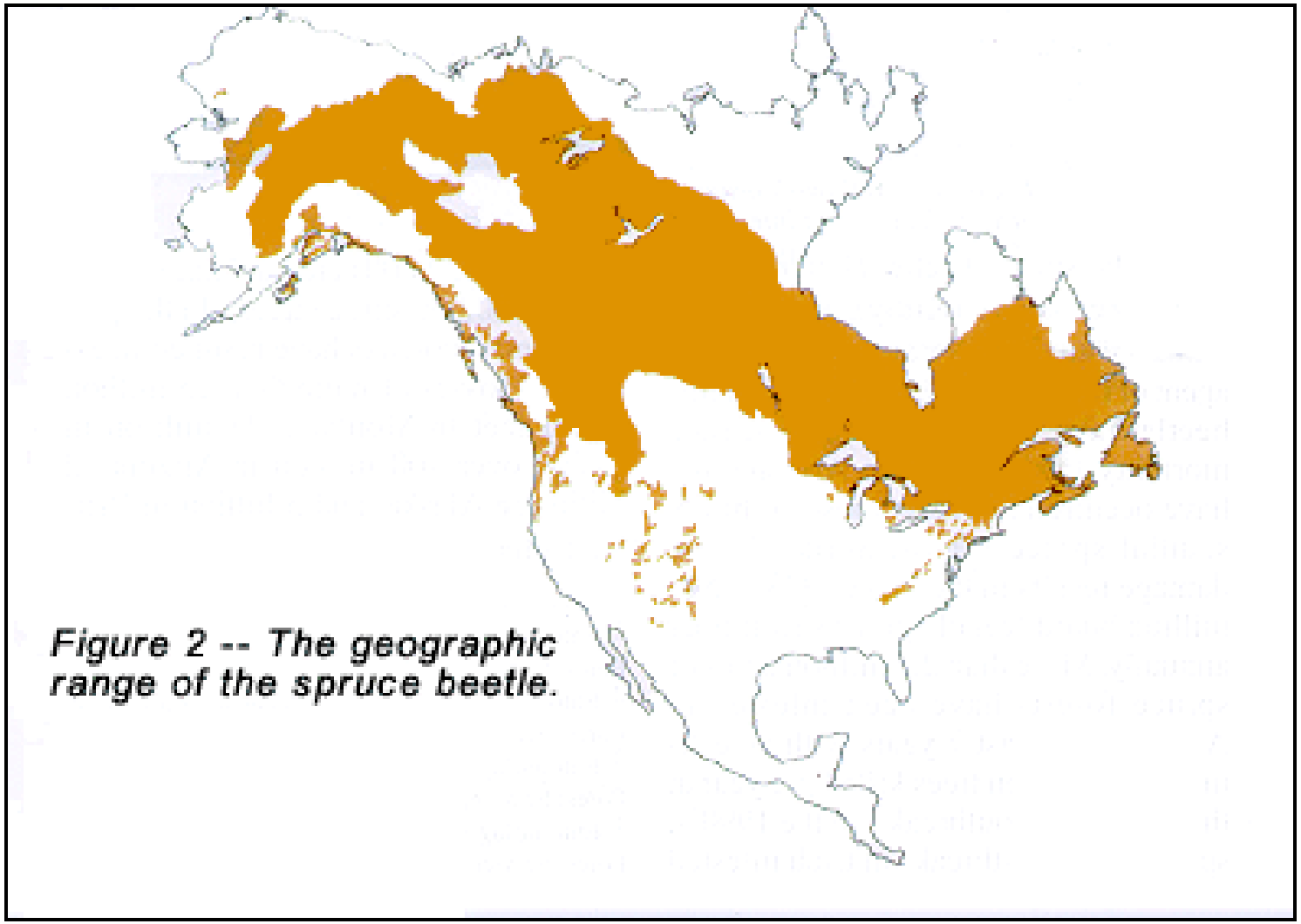


Figure 2 -- The geographic range of the spruce beetle.

https://www.barkbeetles.org/spruce/sbfidl127.htm

Why spruce beetle?

Mackenzie - change in:	Annual	Winter	Spring	Summer	Fall
Precipitation (%)	**-21.2**	**-51.0**	-9.1	**-33.0**	-4.2
Mean Temperature (°C)	**2.0**	**3.6**	**1.4**	**2.0**	**1.2**
Max Temperature (°C)	0.4	0.1	-0.6	1.0	**3.7**
Min Temperature (°C)	**10.0**	**6.7**	**3.5**	**2.3**	3.6
	1971-2018				
	Bold statistically significant p<0.05				

Prince George - change in:	Annual	Winter	Spring	Summer	Fall
Precipitation (%)	**-13.0**	**-40.5**	14.0	**-28.5**	-2.2
Mean Temperature (°C)	**1.8**	**2.8**	**1.6**	**1.7**	0.6
Max Temperature (°C)	1.1	0.3	-0.3	1.0	0.3
Min Temperature (°C)	**9.3**	**9.0**	**7.8**	**1.8**	4.6
	1942-2018				
	Bold statistically significant p<0.05				

Data from Vanessa Foord , FLNRO Research Climatologist

Why spruce beetle?

Fort St. John – change in:	Annual	Winter	Spring	Summer	Fall
Precipitation (%)	10.7	-18.7	20.6	4.4	**42.2**
Mean Temperature (°C)	**1.6**	**4.6**	1.1	**0.8**	-0.2
Max Temperature (°C)	0.1	**1.7**	0.3	-0.4	-0.6
Min Temperature (°C)	**5.2**	**5.3**	**4.0**	0.8	2.0
	1942-2019				
	Bold statistically significant p<0.05				

Data from Vanessa Foord , FLNRO Research Climatologist

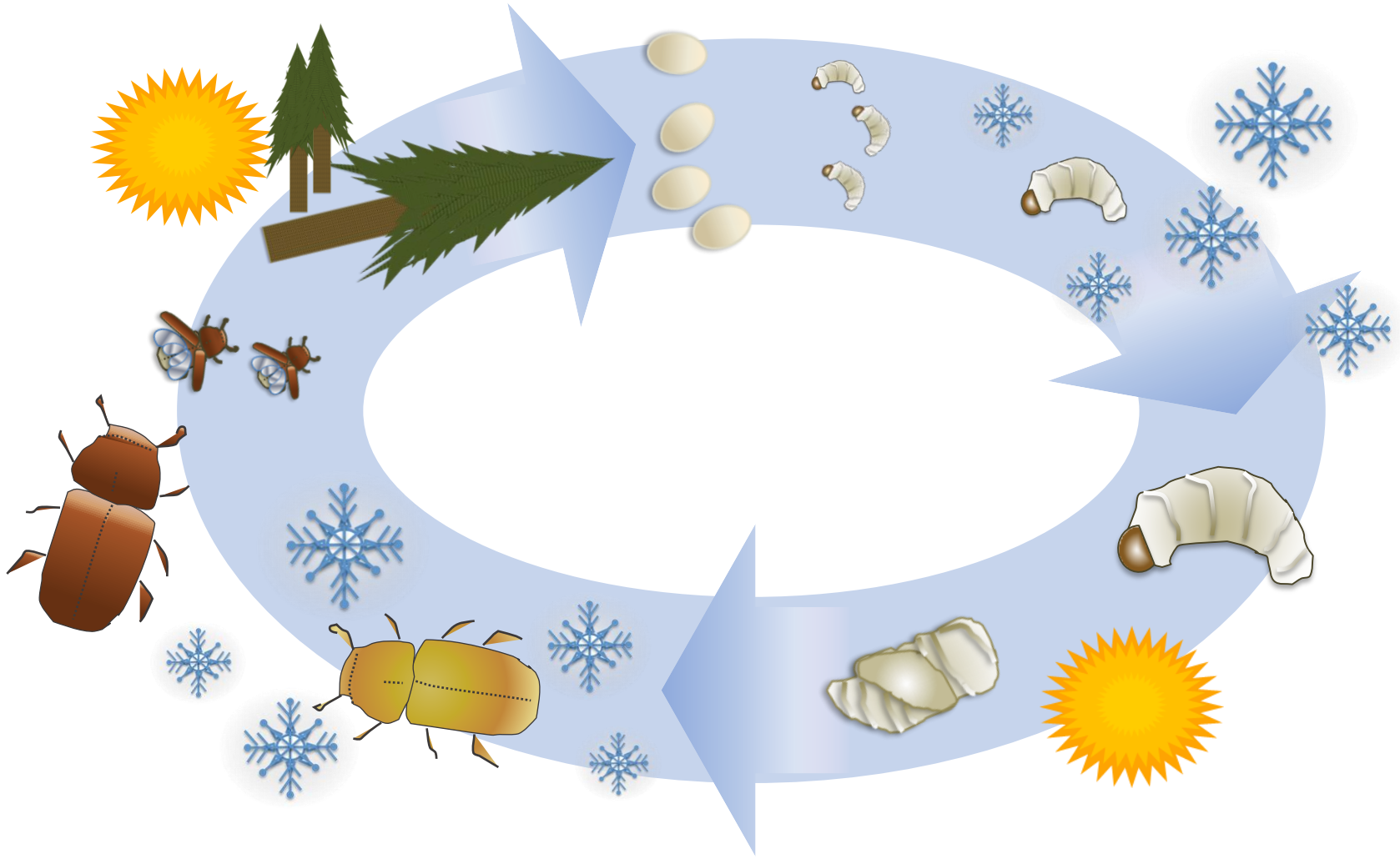
Why spruce beetle?

Dawson Creek TSA - change in:	Annual	Winter	Spring	Summer	Fall
Precipitation (%)	8.8	8.8	16.0	2.2	11.0
Mean Temperature (°C)	3.2	3.5	3.4	3.1	2.6
Extr. Max Temperature (°C)	2.8	*2.9*	*3.2*	*3.1*	*2.4*
Extr. Min Temperature (°C)	6.0	*4.2*	*3.6*	*3.1*	*2.9*
	ClimateBC 2041-2070				
	mean max and min				

Dawson Creek TSA - change in:	Annual	Winter	Spring	Summer	Fall
Precipitation as Snow (%)	-12.8	1.1	-30.4	-73.6	-23.8
Climate Moisture Deficit (mm)	20.5	0.0	0.1	19.5	1.2
Growing Degree Days (heat units)	41.7	0.2	2.4	35.5	3.6
Number of Frost Free Days (days)	37.6	1.4	18.3	3.8	14.1
	ClimateBC 2041-2070				

Data from Vanessa Foord , FLNRO Research Climatologist

Why spruce beetle?



Why spruce beetle?

Contributing factors

Lots of mature, even-aged standing spruce

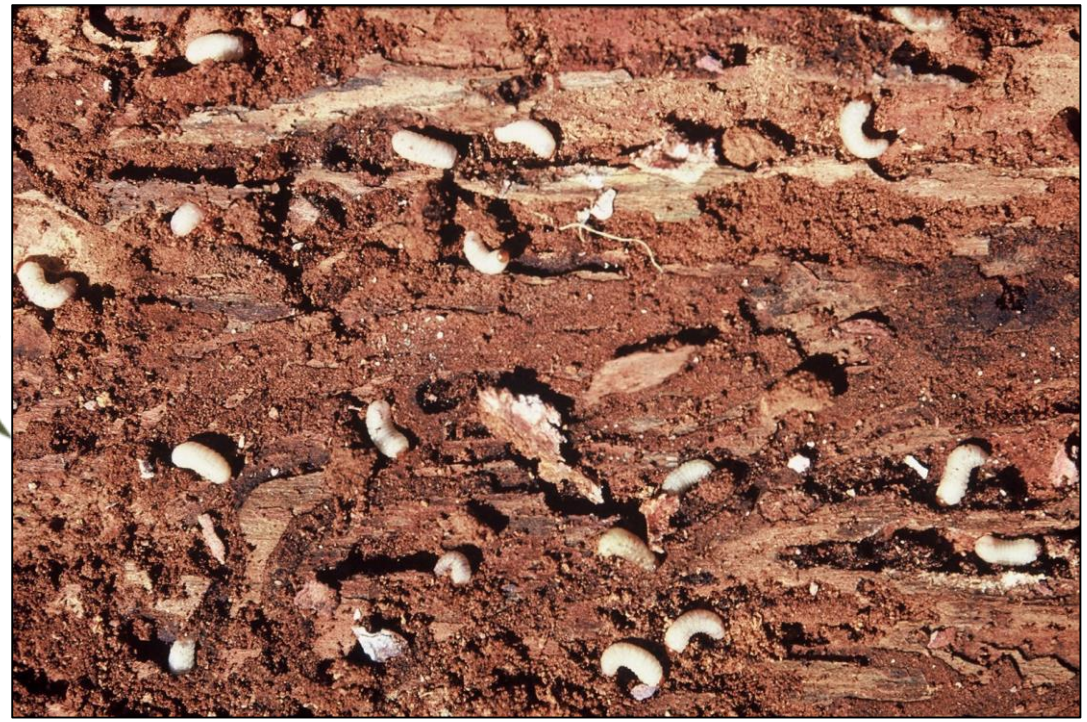
Contributing factors

Blue stain fungi

http://genomealberta.ca/blogs/main_05090801.aspx

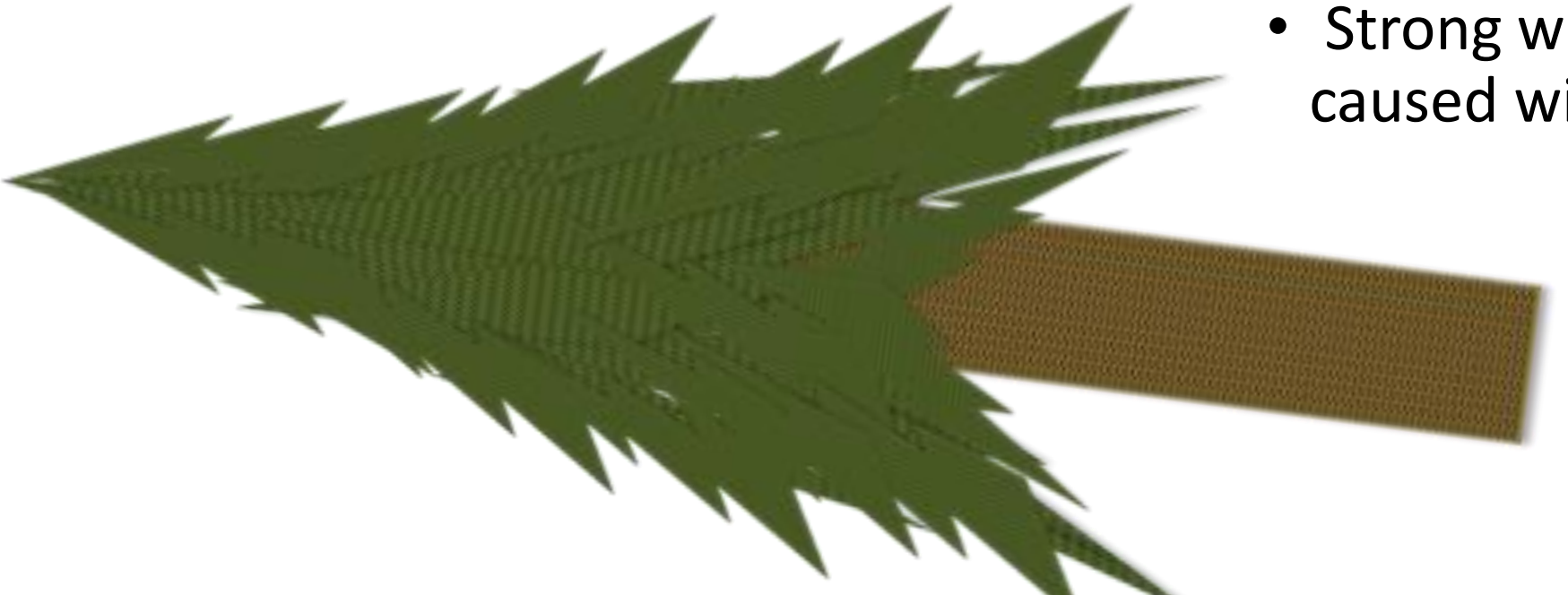
Contributing factors

Mass attack



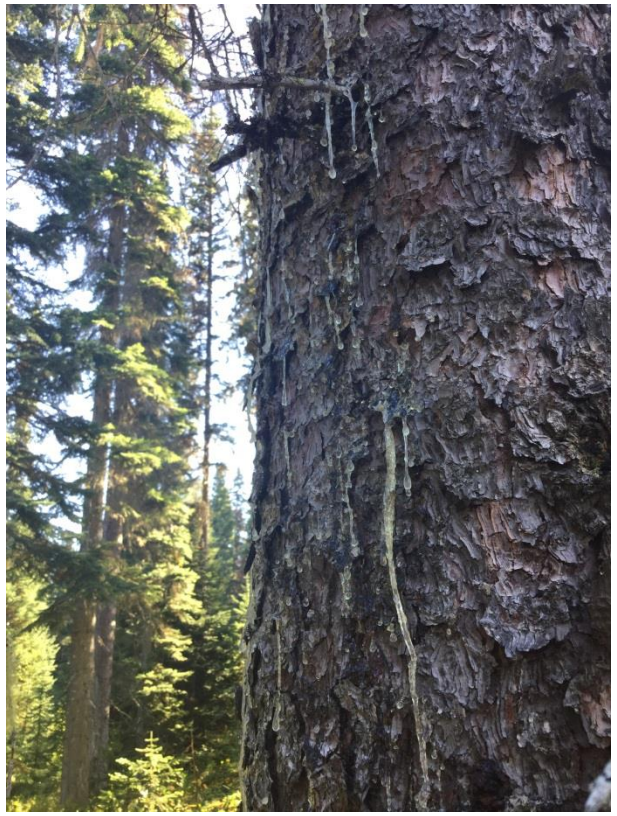
Contributing factors

Wind throw



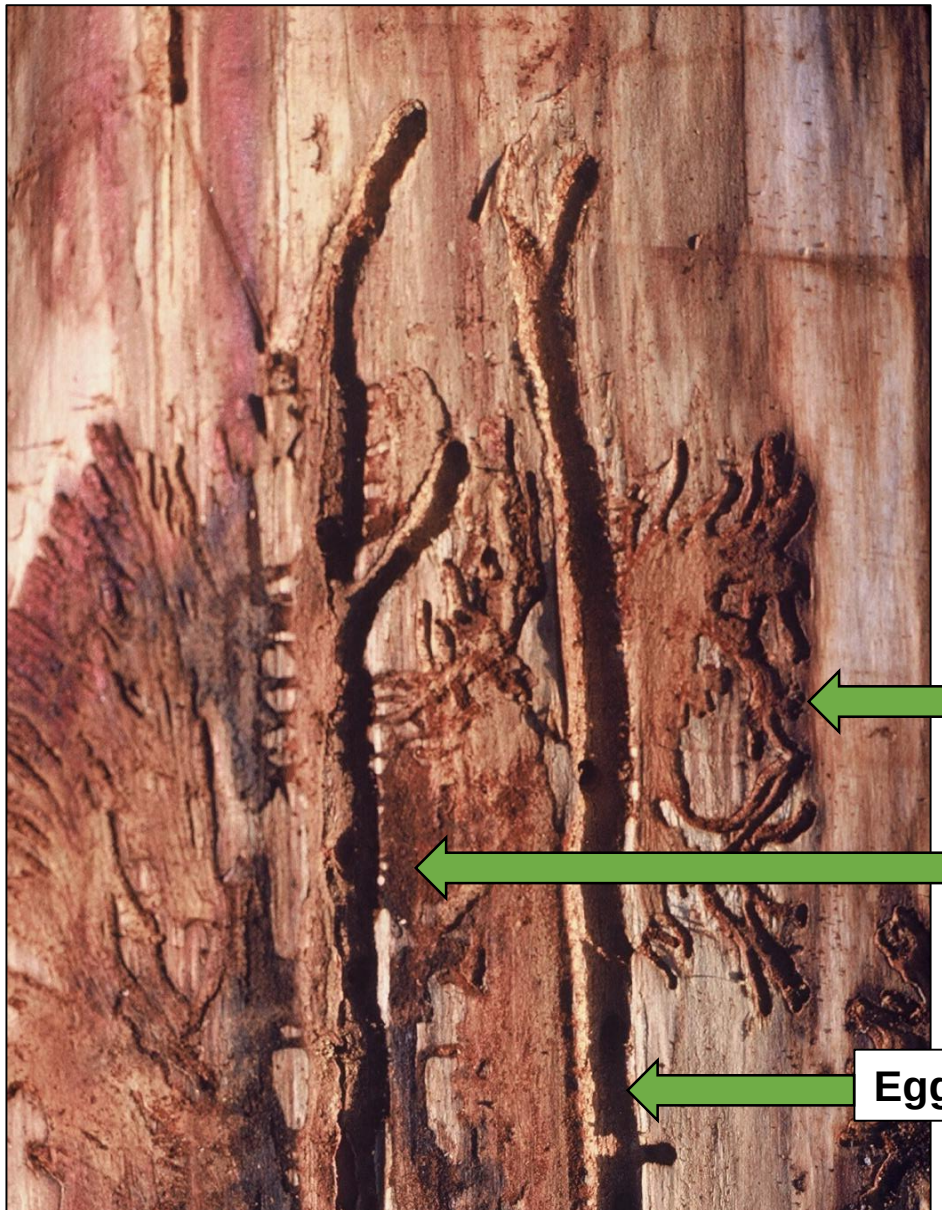
- Interior spruce is a shallow-rooted species
- Strong winds in November 2010 caused widespread windthrow

Rusty-brown pitch tubes are common



Occasional clear resin streams that darken in time

Newly attacking spruce beetle adults on fresh windthrow



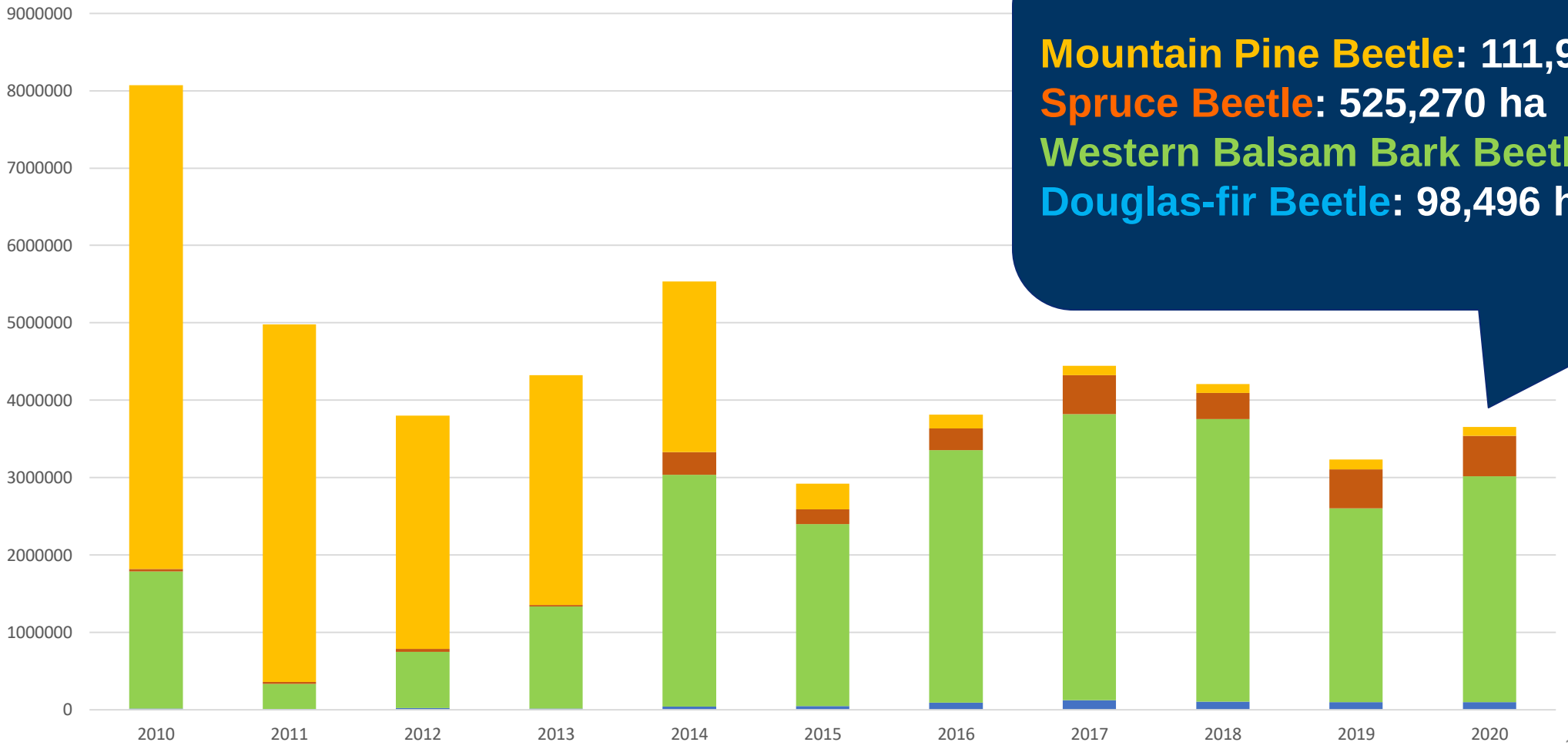
Newly constructed spruce beetle egg galleries & larval galleries in spruce phloem

4th stage (or instar) larvae

Pupae

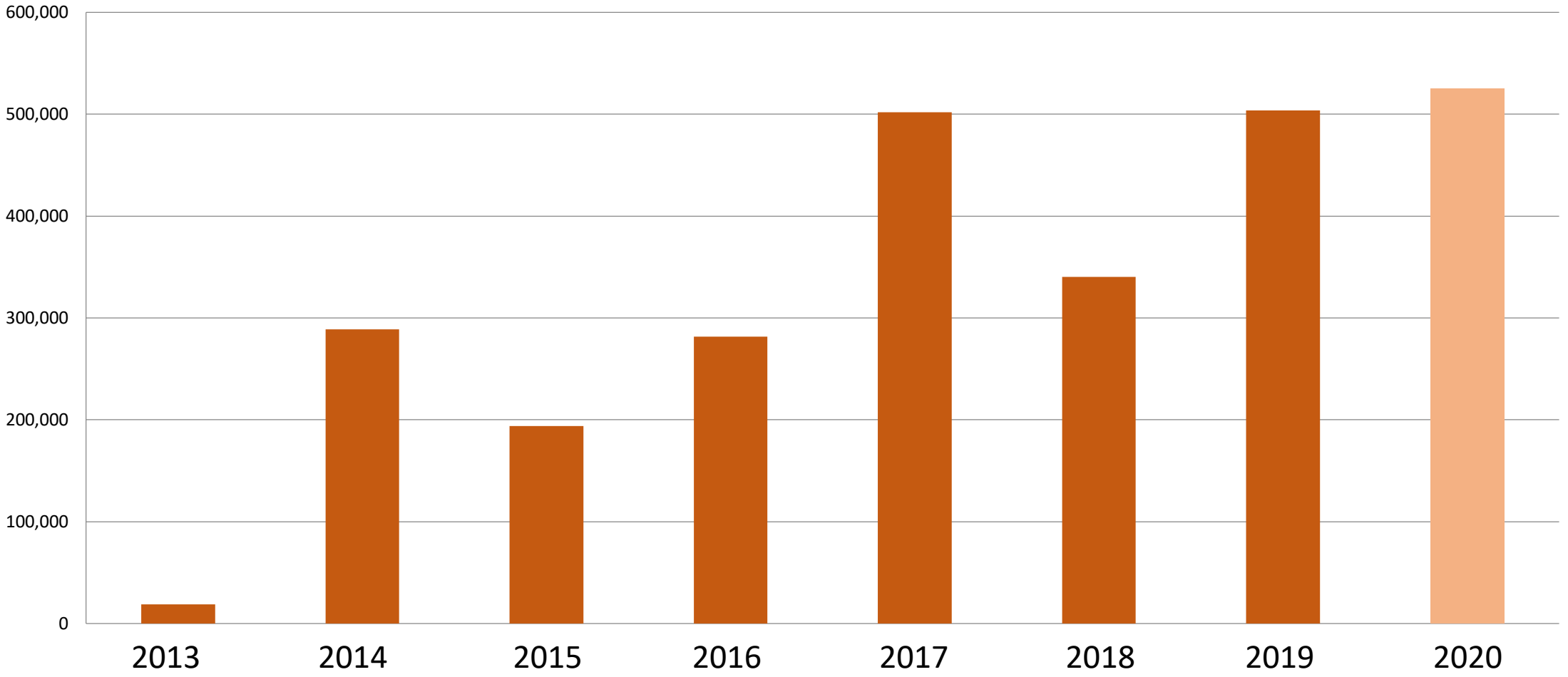
Immature (callow or teneral) adults

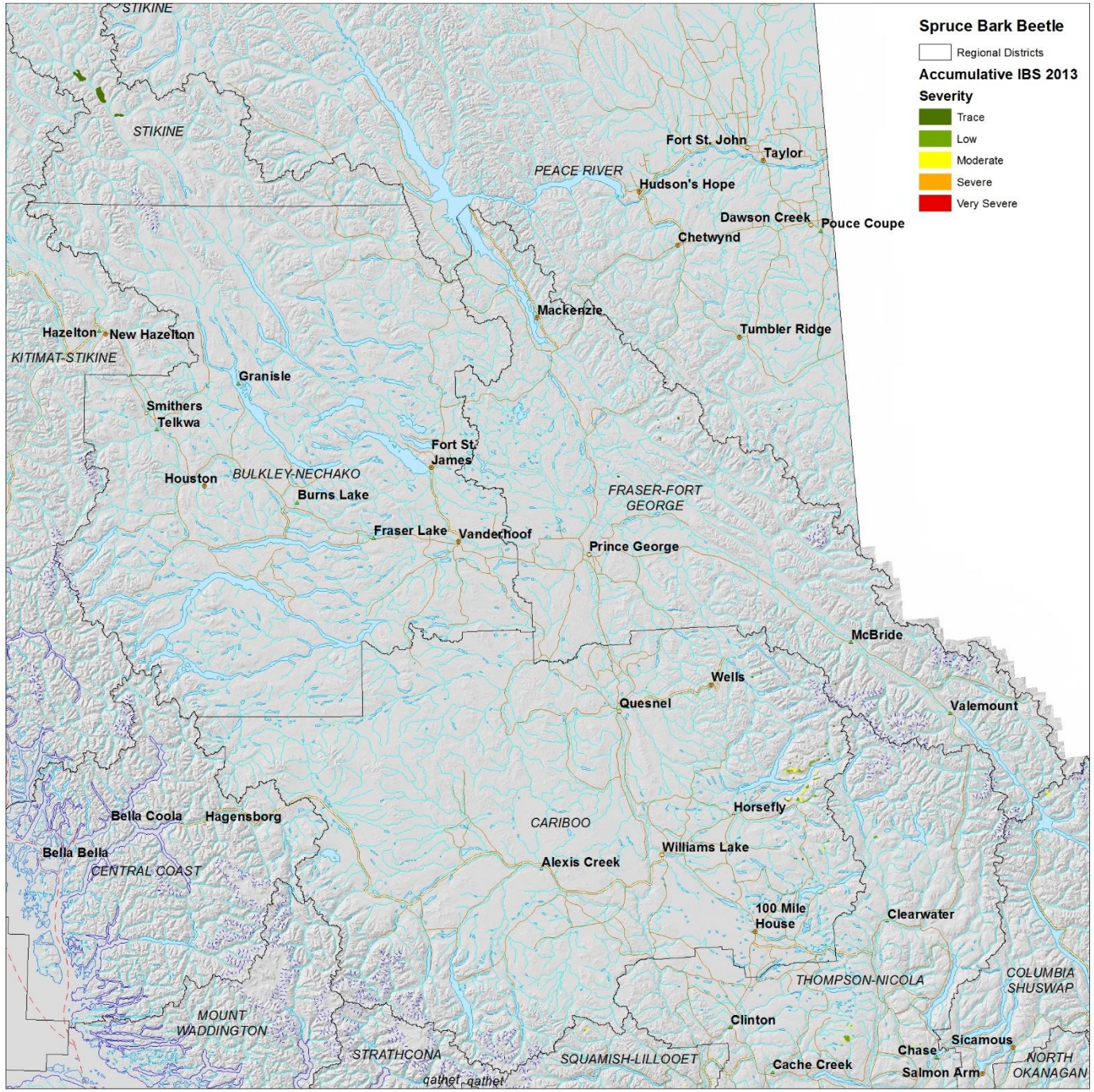
Provincial Bark Beetle Trends



Mountain Pine Beetle: 111,963 ha
Spruce Beetle: 525,270 ha
Western Balsam Bark Beetle: 2.9M ha
Douglas-fir Beetle: 98,496 ha

Spruce Beetle – Province of BC




Spruce Bark Beetle
Regional Districts
Accumulative IBS 2013
Severity
Trace
Low
Moderate
Severe
Very Severe
STIKINE
STIKINE
PEACE RIVER
Fort St. John
Taylor
Hudson's Hope
Dawson Creek
Pouce Coupe
Chetwynd
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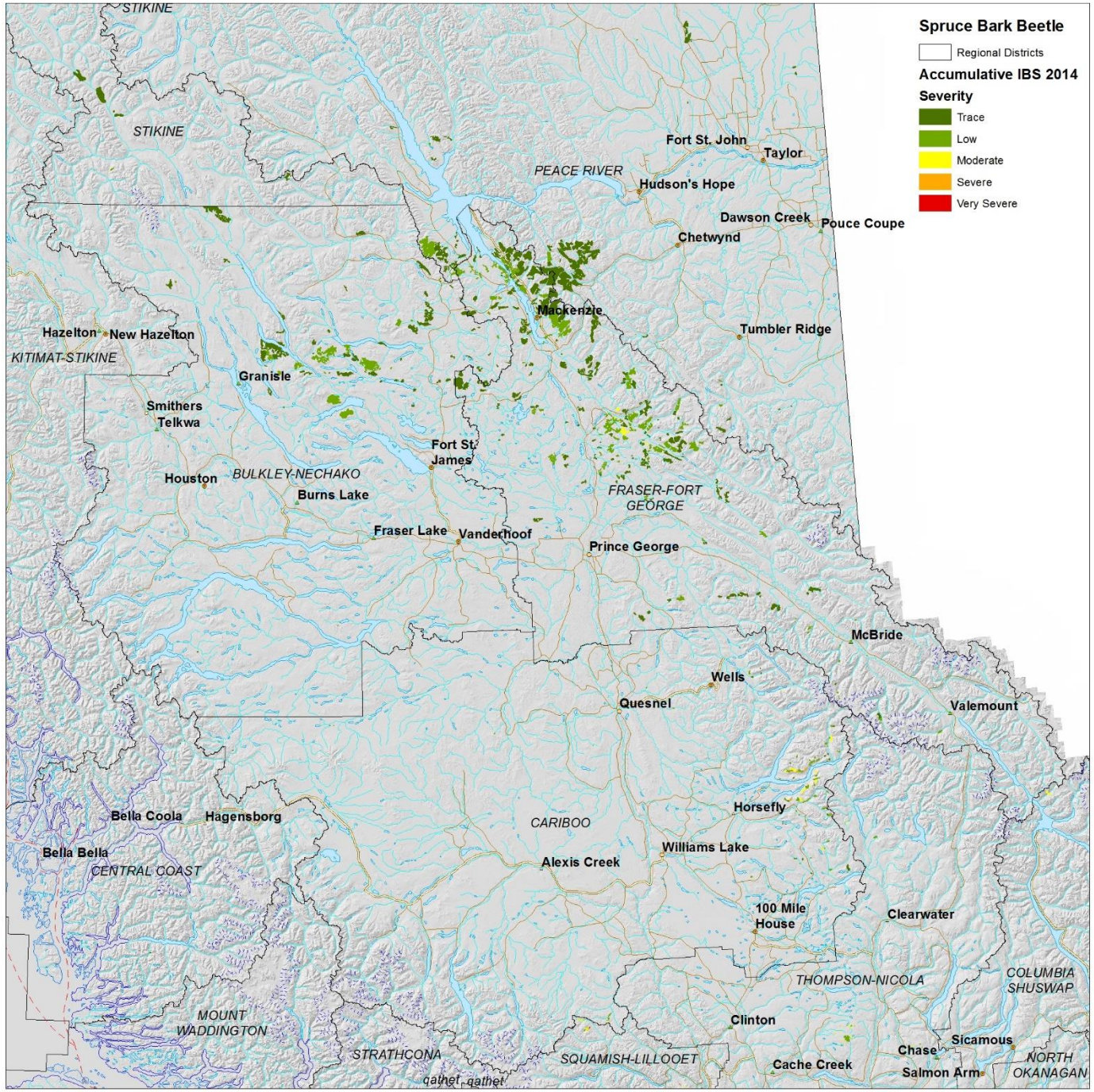
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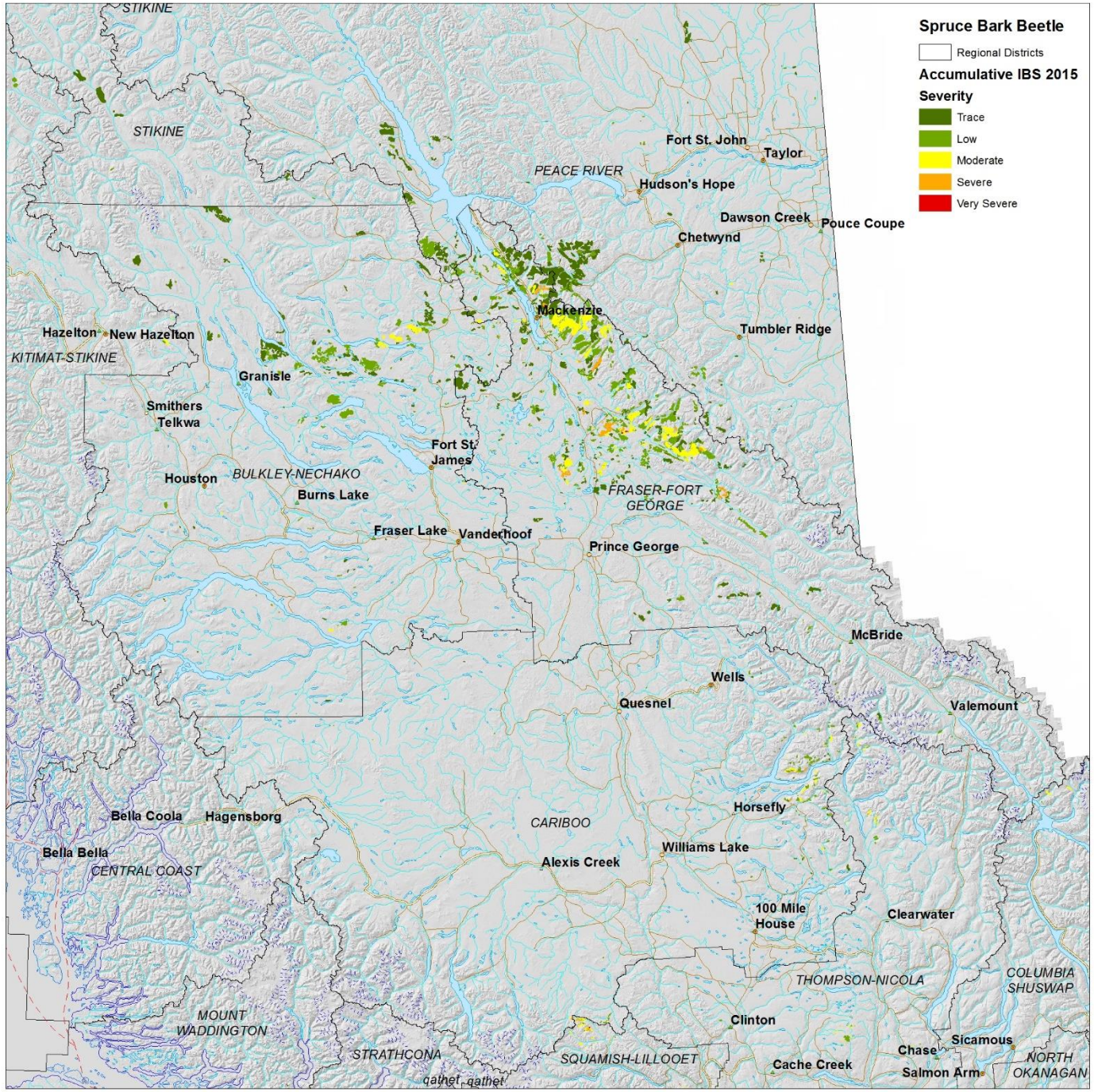
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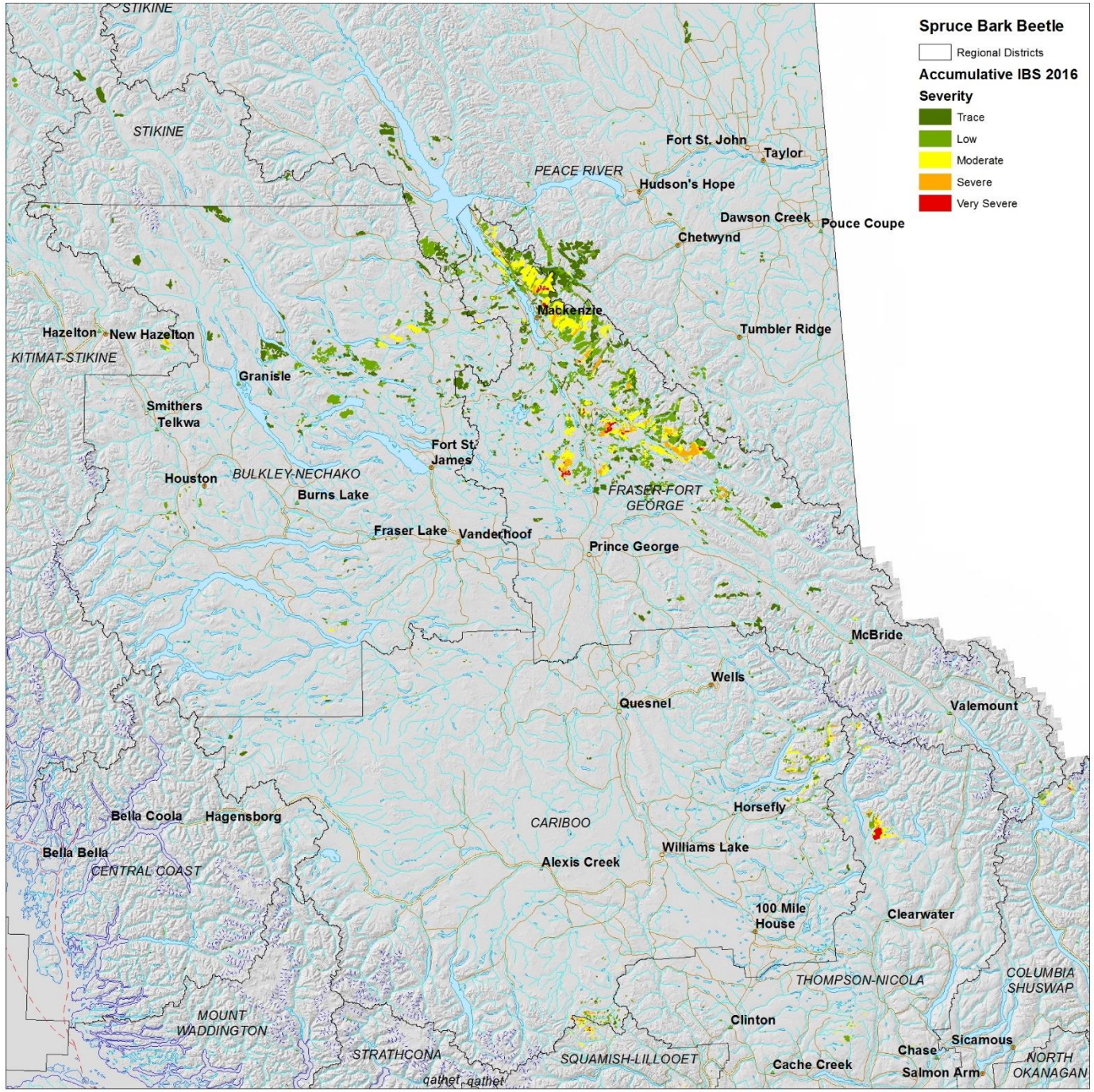
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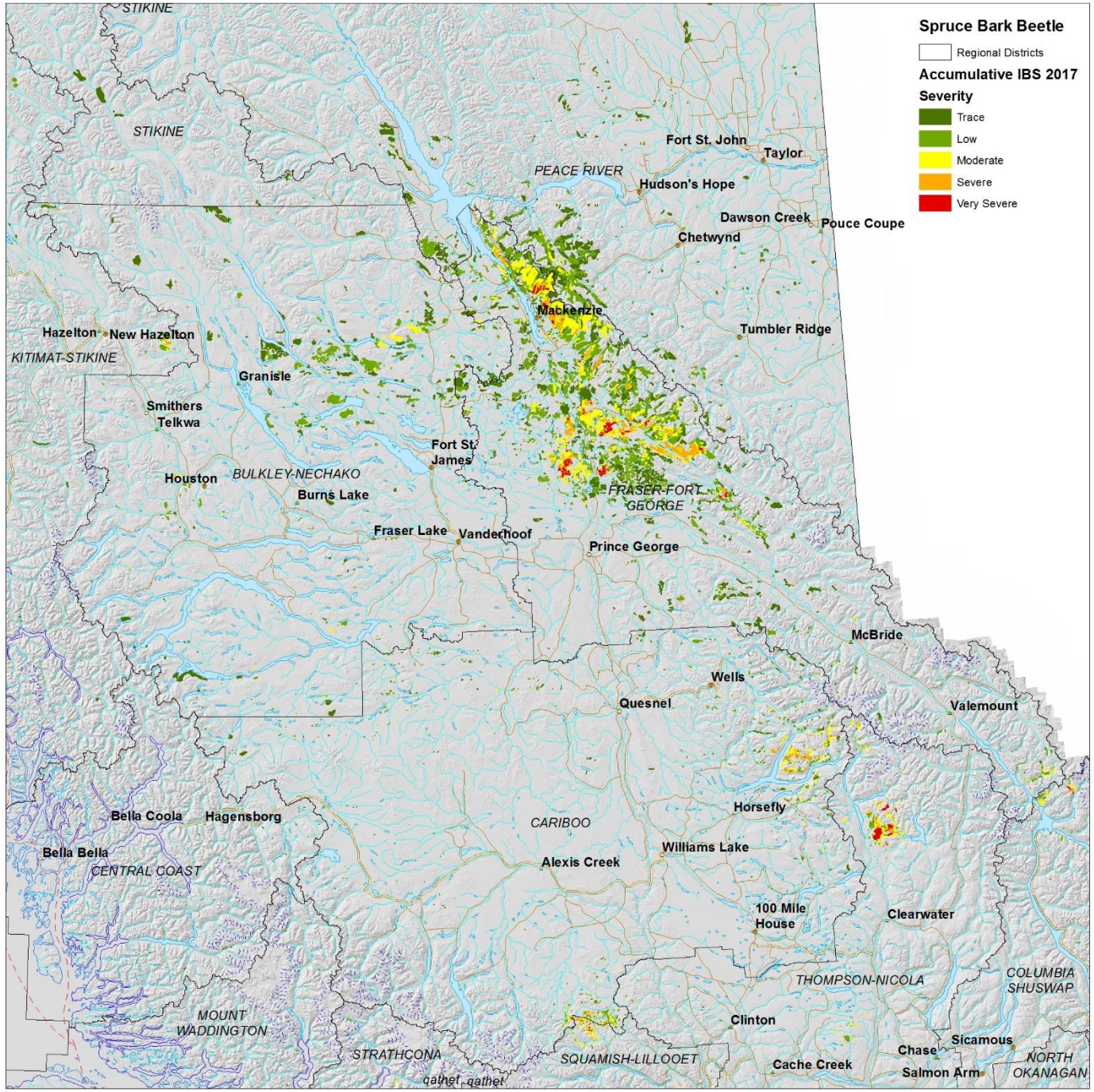
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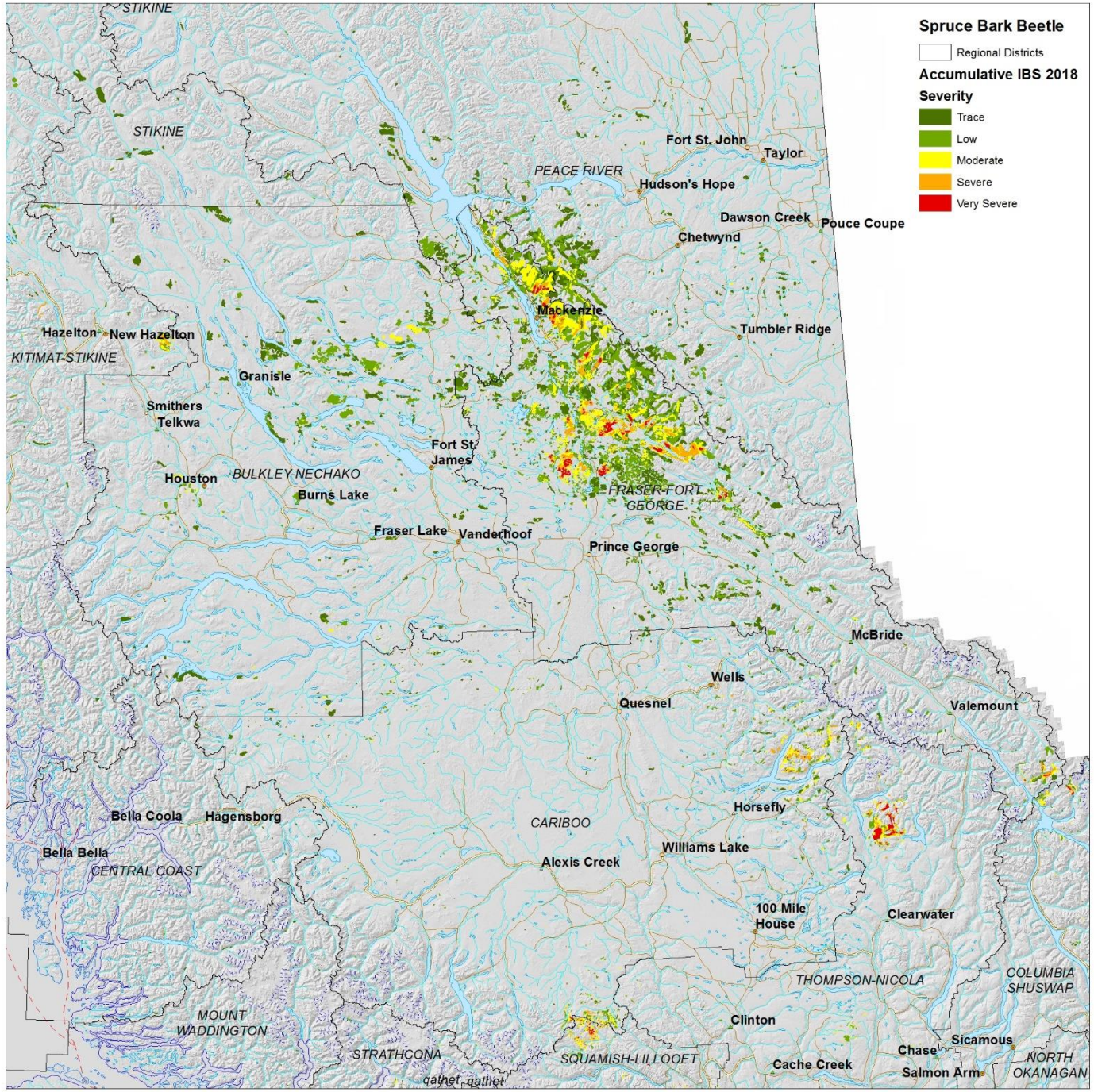
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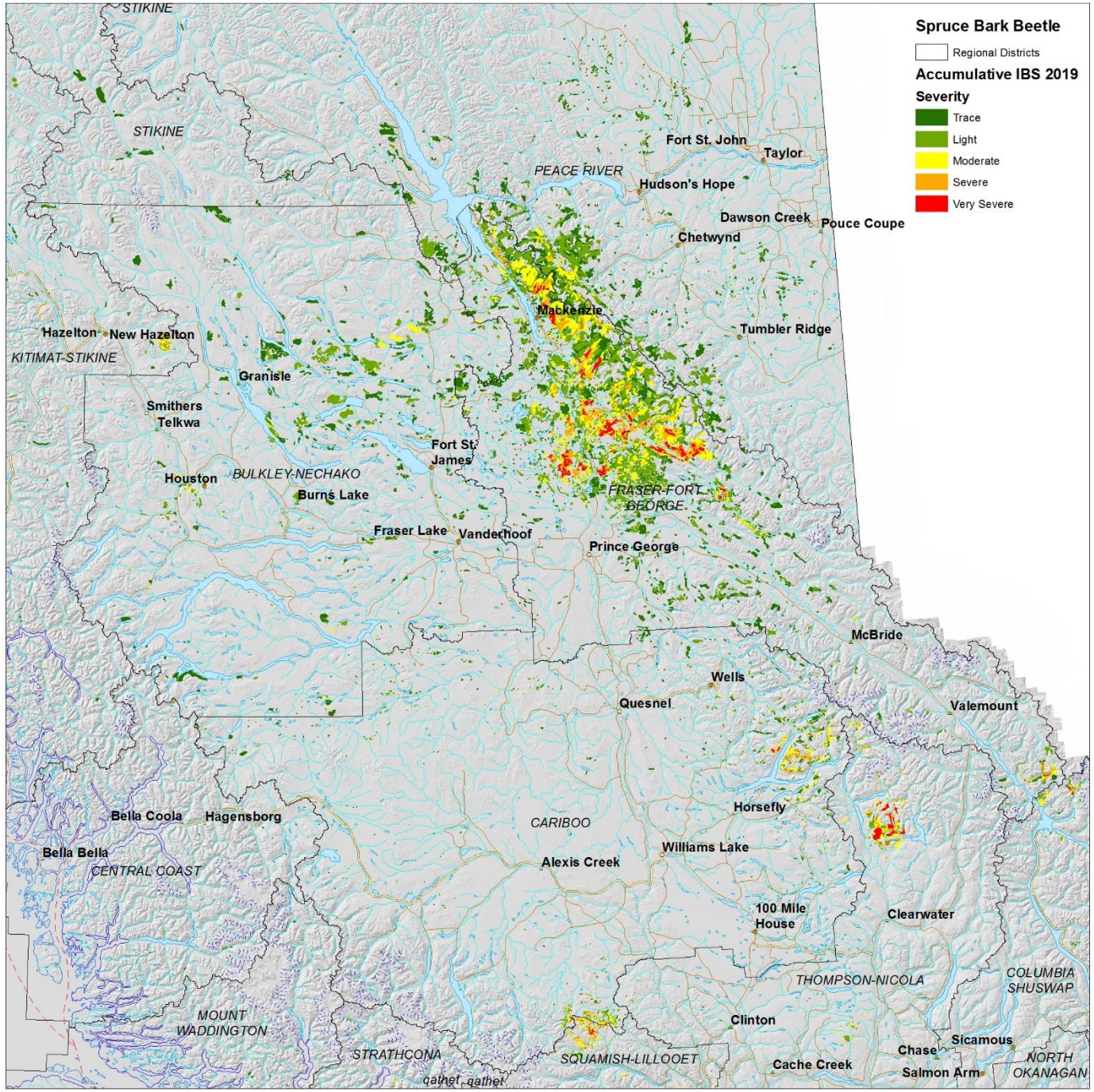
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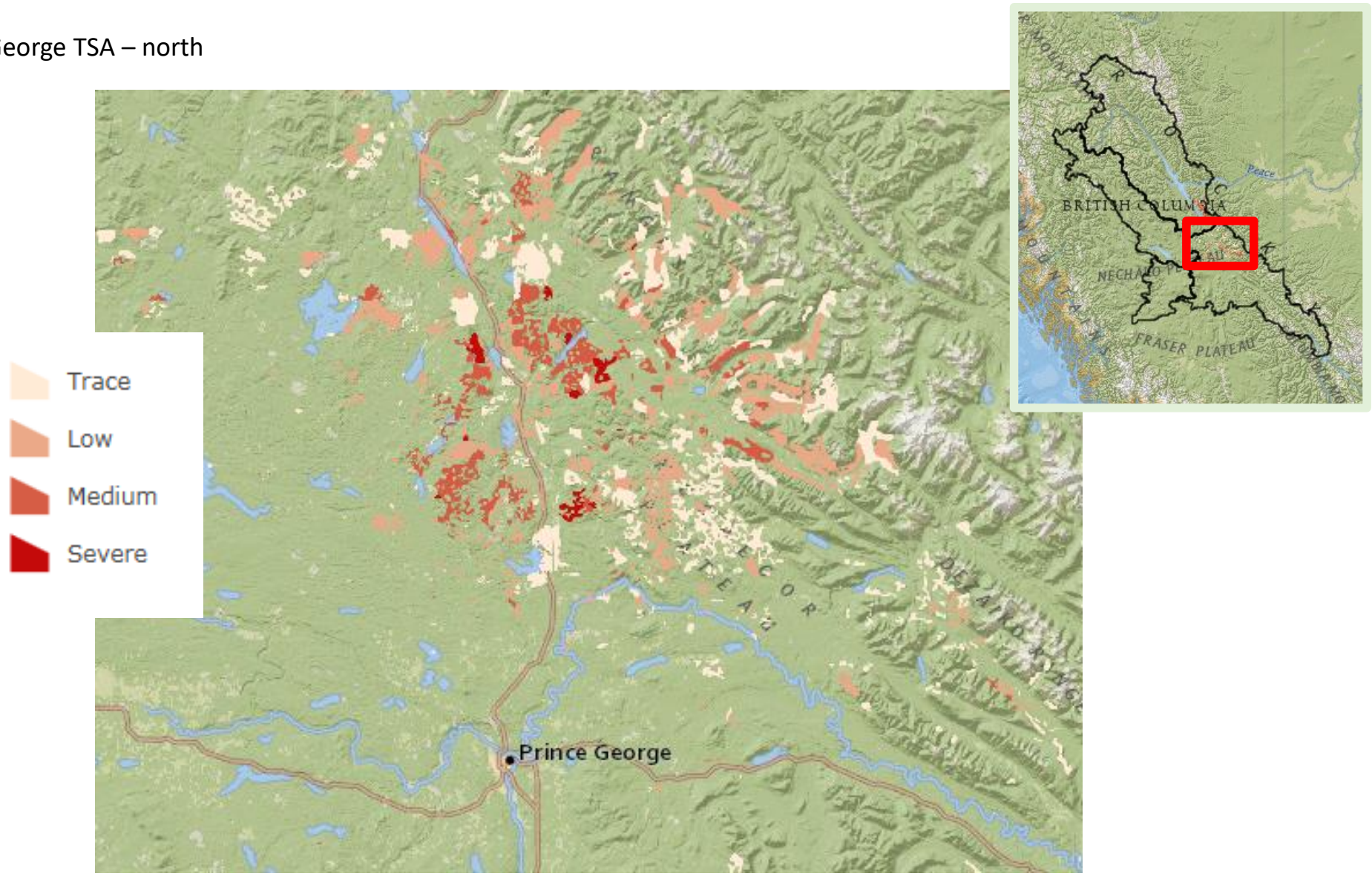
Prince George TSA – north



How do we know?

- We monitor:
  - Aerial overview survey
  - Helicopter surveys
  - Ground surveys
    - Walkthroughs
    - Beetle probes
- Other sources:
  - Timber cruisers
  - Community members
  - First Nations
  - Private landowners

Omineca Spruce Beetle Outbreak

More than 156,000 hectares of forest in the Omineca Region are currently infested by spruce beetles. This number is considerably higher than normally would be expected (e.g., only 7,653 hectares in 2013) and represents the biggest spruce beetle outbreak in British Columbia since the 1980s.

Key Facts

The spruce beetle is native to British Columbia and is regularly seen in forested areas, but higher-than-normal populations have been detected in the Omineca region.

Since 2014, the B.C. Government has been actively identifying tree stands in this region where adult beetles and their young are present.

More than 156,000 hectares of forest in the Omineca region are currently infested by spruce beetles, primarily in the eastern valleys of the Mackenzie Timber Supply Area and the northern portion of the Prince George Natural Resource District, in the Prince George Timber Supply Area.

Although this outbreak is a concern, the situation is not comparable to the spread of the mountain pine beetle in recent decades.

Past outbreaks have lasted up to seven years.

Government is closely monitoring the situation to minimize any impacts on timber supply, the forest industry and forestry jobs and will continue to work with forest licensees and other stakeholders to identify affected areas, evaluate population control methods and determine the most effective ways to limit the current outbreak.

Important Links

- Working Together: BC's Spruce Beetle Mitigation Strategy
- Map of the Current Infestation in Omineca Region
- Map of the Provincial Spruce Beetle Situation in 2015
- Beneficial Management Practices
- Conventional Trap Trees
- Hauling and Milling Guides
- Guidelines for using Lindgren Funnel Traps

Fast facts

http://www2.gov.bc.ca/gov/content/industry/forestry/managing-our-forest-resources/forest-health/forest-pests/bark-beetles/spruce-beetle/omineca-spruce-beetle