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Supplemental Material

Forest Disturbance and Disease: Exploring the Effects of Tree Harvesting Area on *Cryptococcus gattii* sensu lato Infection Risk, Vancouver Island, Canada, 1998–2014

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Figure S1. A) High- and low-confidence tree harvest data at 30-m resolution with Inland Island Highway superimposed (grey line). Three example segments of the highway are shown in closer view, with tree harvest years shown along a colour gradient (blue to red) (B, D, and F) as well as using binary colours to depict the same tree harvests occurring from 1985 through 1998 (yellow) and 1999 through 2014 (purple) (C, E, and G). Inset map specifies region of Vancouver Island shown. Tree harvests were assigned 'high' or 'low' confidence through a random forest classifier, based on how many votes from individual trees were received for each class type (tree harvest, fire, etc.). The proportion of votes of the second most voted class (v2) was divided by the proportion of votes of the assigned class (v1). Tree harvests were considered high confidence if v2/v1 was less than or equal to 0.4 and low confidence if v2/v1 was greater than 0.4. Tree harvest data were provided by Hermosilla et al.[1] (see https://opendata.nfis.org/mapserver/nfis-change_eng.html). This figure was created using ArcGIS v.10.7.1 (Environmental Systems Research Institute, 2019, Redlands, CA, USA).

Figure S2. The area of A) high and low confidence and B) high confidence tree harvests (in square kilometers) associated directly with construction of the Inland Island Highway and Nanaimo Parkway (in black) compared to harvests not occurring within the highway construction area (in grey). Harvests associated directly with highway construction were calculated based on harvests within 60 m of the highway and can be found in Tables S12 and S13. Harvests occurring outside the highway region were those that fell within 10 km of the eastern human settlement area of Vancouver Island. Tree harvests were assigned 'high' or 'low' confidence through a random forest classifier, based on how many votes from individual trees were received for each class type (tree harvest, fire, etc.). The proportion of votes of the second most voted class (v2) was divided by the proportion of votes of the assigned class (v1). Tree harvests were considered high confidence if v2/v1 was less than or equal to 0.4 and low confidence if v2/v1 was greater than 0.4. Tree harvest data were provided by Hermosilla et al.[1] (see https://opendata.nfis.org/mapserver/nfis-change_eng.html). Permanent human settlement areas were created based on the 2015 raster dataset from the European Commission Global Human Settlement -- Settlement Model (SMOD) at 1-km resolution (https://ghsl.jrc.ec.europa.eu/datasets.php). The area of annual high-confidence tree harvesting (in km^2) per year from 1985-2014 is shown in Table S3 and the area of annual high- and low-confidence tree harvesting (in km^2) is shown in Table S4. The spatial extent of the highway is shown in Figure S1.

References

Table S1. Summary of persons living on Vancouver Island with cases of probable and confirmed *Cryptococcus gattii* infection that were diagnosed between 1998 and 2014.

Travel history	Confirmed cases	Probable and confirmed cases
No evidence of travel outside of BC	142	233
Any/no travel history	146	241

Note: Details on the travel history specified by each case and the sample sizes are shown. For cases where the travel history provided no evidence of travel outside of British Columbia (BC), the case either provided no travel history or provided travel history showing travel only within BC in at least one year prior to diagnosis. A confirmed case was defined as a culture-confirmed *C. gattii* infection using differential media and genotyping. A probable case was defined as laboratory evidence of infection in an HIV-negative person using antigen detection, histopathology, or microscopy. Case data were provided through the British Columbia Centre for Disease Control Reportable Diseases Data Dashboard (http://www.bccdc.ca/health-professionals/data-reports/reportable-diseases-data-dashboard).

Table S2. Summary of confirmed and probable human cases of *C. gattii* infection per year from 1998 through 2014 with residences on Vancouver Island with no evidence of travel outside of British Columbia (BC) (i.e., the case either provided no travel history or provided travel history showing travel only within BC in at least one year prior to diagnosis).

Year	Confirmed	Probable	Confirmed + Probable
1998	0	1	1
1999	2	3	5
2000	6	11	17
2001	7	6	13
2002	12	10	22
2003	14	6	20
2004	8	11	19
2005	11	5	16
2006	11	11	22
2007	8	11	19
2008	10	1	11
2009	9	3	12
2010	8	7	15
2011	12	1	13
2012	10	3	13
2013	5	1	6
2014	9	0	9
Total:	**142**	**91**	**233**

Note: A confirmed case was defined as a culture-confirmed *C. gattii* infection using differential media and genotyping. A probable case was defined as laboratory evidence of infection in an HIV-negative person using antigen detection, histopathology, or microscopy. Case data were provided through the British Columbia Centre for Disease Control Reportable Diseases Data Dashboard (http://www.bccdc.ca/health-professionals/data-reports/reportable-diseases-data-dashboard).

Table S3. The area of high-confidence tree harvesting (in km^2) per year from 1985-2014 occurring from 0 to 20 km of the human settlement area of eastern Vancouver Island.

Year	Area (km^2) of harvests per buffer zone radius								
	0 km	**2.5 km**	**5 km**	**7.5 km**	**10 km**	**12.5 km**	**15 km**	**17.5 km**	**20 km**
1985	2.76	15.46	22.11	27.08	30.15	34.78	39.12	44.14	49.02
1986	3.39	13.25	18.88	23.72	30.32	34.32	40.00	45.45	49.57
1987	2.49	14.27	16.79	20.27	23.23	25.89	28.65	31.58	33.75
1988	3.22	20.67	25.33	30.86	38.02	43.05	49.02	55.63	59.33
1989	4.57	17.92	23.30	28.23	33.33	37.57	43.16	48.15	50.95
1990	2.83	11.52	16.06	20.17	23.00	26.15	30.04	31.86	33.94
1991	1.62	7.87	11.85	16.00	20.14	25.94	30.20	35.02	37.13
1992	1.62	10.11	14.57	18.86	22.91	27.02	29.11	33.17	35.89
1993	2.63	10.44	13.70	15.43	18.90	21.59	25.64	28.89	33.41
1994	2.20	10.71	14.82	18.03	21.86	23.80	28.12	30.96	33.30
1995	1.46	18.12	23.39	27.73	31.36	35.60	38.69	41.58	44.21
1996	2.65	15.40	22.68	27.36	31.54	35.34	39.97	42.31	46.91
1997	2.78	17.39	25.72	29.16	32.49	36.55	41.19	44.77	48.48
1998	2.32	20.08	31.99	35.90	38.57	42.12	46.70	49.30	52.11
1999	3.66	32.10	48.00	57.74	65.85	74.62	81.68	86.67	90.52
2000	1.74	20.87	34.74	43.20	49.98	55.17	61.73	65.84	68.64
2001	3.32	23.56	41.36	52.37	59.46	66.32	70.02	74.87	79.82
2002	3.24	30.30	46.92	57.25	66.44	71.89	76.84	83.69	86.74
2003	4.19	43.29	61.14	71.70	83.04	93.32	101.36	107.44	116.05
2004	4.27	36.73	53.09	71.55	79.65	88.73	95.54	102.37	107.67
2005	3.20	30.27	51.94	70.25	85.77	99.60	105.81	116.95	123.20
2006	3.43	23.45	41.63	60.19	77.41	83.76	93.15	98.98	102.98
2007	3.11	31.11	58.94	80.81	98.31	113.55	124.45	132.59	140.98
2008	1.78	16.50	29.39	39.72	46.05	51.95	58.84	61.27	66.92
2009	0.67	13.87	23.09	31.01	40.11	46.79	51.12	55.69	58.87
2010	1.44	13.16	28.05	38.59	49.17	60.29	66.37	73.32	81.14
2011	1.34	13.69	29.19	47.91	60.18	72.47	79.12	85.85	91.00
2012	1.34	15.19	29.73	45.88	59.81	68.37	73.51	78.81	87.08
2013	1.87	14.58	27.92	42.52	53.85	61.42	71.29	83.00	90.96
2014	0.59	14.70	32.09	48.94	63.27	74.77	84.62	94.88	105.49

Note: Tree harvesting in 1999 is highlighted to show the first year that *C. gattii* infection was confirmed in humans on the island. Tree harvests were assigned 'high' or 'low' confidence through a random forest classifier, based on how many votes from individual trees were received for each class type (tree harvest, fire, etc.). The proportion of votes of the second most voted

class (v2) was divided by the proportion of votes of the assigned class (v1). Tree harvests were considered high confidence if v2/v1 was less than or equal to 0.4 and low confidence if v2/v1 was greater than 0.4. Tree harvest data were provided by Hermosilla et al.[1] (see https://opendata.nfis.org/mapserver/nfis-change_eng.html). Permanent human settlement areas were created based on the 2015 raster dataset from the European Commission Global Human Settlement -- Settlement Model (SMOD) at 1-km resolution (https://ghsl.jrc.ec.europa.eu/datasets.php).

Table S4. The area of high- and low-confidence tree harvesting (in km^2) per year from 1985-2014 occurring from 0 to 20 km of the human settlement area of eastern Vancouver Island.

Year	Area (km^2) of harvests per buffer zone radius								
	0 km	**2.5 km**	**5 km**	**7.5 km**	**10 km**	**12.5 km**	**15 km**	**17.5 km**	**20 km**
1985	3.27	18.94	25.97	33.15	37.58	43.64	49.80	57.07	63.68
1986	3.60	14.05	20.38	25.56	32.66	38.11	45.44	52.85	59.02
1987	2.88	15.37	18.19	22.51	25.96	28.99	32.03	35.52	38.00
1988	4.00	23.20	27.95	33.85	41.66	47.17	53.62	60.86	64.95
1989	5.25	21.03	26.88	32.12	37.83	42.26	48.22	54.00	57.29
1990	3.43	13.23	17.95	22.49	25.65	29.36	33.75	35.77	37.96
1991	2.13	9.41	13.79	18.92	24.22	31.24	36.42	41.85	44.31
1992	2.16	11.15	16.06	20.56	24.89	29.50	31.79	36.08	39.19
1993	3.14	11.52	14.88	17.45	21.58	24.97	29.16	32.64	37.55
1994	3.55	12.81	17.09	20.50	24.70	27.10	31.67	34.92	37.39
1995	1.90	20.09	26.20	30.85	34.55	39.30	42.53	45.55	48.66
1996	3.18	17.51	25.28	30.05	34.59	39.06	43.84	46.44	51.47
1997	2.98	18.37	26.91	30.42	33.92	38.22	43.02	47.13	51.60
1998	2.50	22.05	34.50	38.99	42.01	46.41	51.08	53.95	57.44
1999	4.02	34.36	50.72	61.21	69.57	79.26	86.64	92.32	96.70
2000	2.12	22.25	36.63	45.45	52.74	58.12	64.96	69.19	72.11
2001	4.05	25.04	43.33	54.69	62.31	69.35	73.53	78.73	83.94
2002	4.70	32.72	50.64	62.05	72.07	78.54	83.76	90.99	95.01
2003	5.24	47.08	65.72	77.11	90.49	102.34	111.50	118.75	128.37
2004	4.89	38.69	55.30	74.19	82.84	92.19	99.81	107.48	113.60
2005	3.83	32.03	53.84	72.84	90.18	104.42	111.03	122.59	129.30
2006	3.78	24.94	44.30	63.62	81.18	87.77	97.45	103.46	107.85
2007	3.42	32.51	62.11	84.89	102.63	118.37	130.17	140.52	149.66
2008	2.38	18.18	31.39	41.91	48.72	54.77	62.07	64.72	70.55
2009	0.78	14.53	24.09	32.27	41.49	49.33	53.84	58.50	62.11
2010	1.75	13.86	29.14	39.73	50.59	61.76	67.86	75.01	82.90
2011	1.44	13.85	29.55	48.48	60.98	73.47	80.65	87.68	93.19
2012	1.44	15.55	30.22	46.40	60.48	69.14	74.55	79.99	88.33
2013	1.99	14.94	28.47	43.32	54.70	62.35	72.37	84.15	92.40
2014	0.77	14.94	32.63	49.66	65.09	76.80	86.89	97.48	108.67

Note: Tree harvesting in 1999 is highlighted to show the first year that *C. gattii* infection was confirmed in humans on the island. Tree harvests were assigned 'high' or 'low' confidence through a random forest classifier, based on how many votes from individual trees were received for each class type (tree harvest, fire, etc.). The proportion of votes of the second most voted

class (v2) was divided by the proportion of votes of the assigned class (v1). Tree harvests were considered high confidence if v2/v1 was less than or equal to 0.4 and low confidence if v2/v1 was greater than 0.4. Tree harvest data were provided by Hermosilla et al.[1] (see https://opendata.nfis.org/mapserver/nfis-change_eng.html). Permanent human settlement areas were created based on the 2015 raster dataset from the European Commission Global Human Settlement -- Settlement Model (SMOD) at 1-km resolution (https://ghsl.jrc.ec.europa.eu/datasets.php). The data from the “10 km” column were used for Figure 2.

COMPARING HUMAN CASES TO HARVESTS OCCURRING IN THE SAME YEAR AS CASE REPORTING

Table S5. Spearman rank-order correlation results of annual high- and low-confidence harvests occurring from 0 to 20 km of the human settlement area of eastern Vancouver Island and annual *C. gattii* cases on Vancouver Island (1998-2014) where cases were considered if no evidence of travel outside of BC was shown (this included records with no travel history) (n=142 and 233 for confirmed and combined confirmed and probable cases, respectively).

Buffer radius (km)	**Confirmed cases**		**Probable and confirmed cases**	
	correlation	*p* value	correlation	*p* value
0	0.10	0.71	0.49	0.044
2.5	0.062	0.81	0.47	0.055
5	0.16	0.55	0.55	0.022
7.5	0.38	0.15	0.65	0.005*
10	0.38	0.13	0.63	0.007
12.5	0.39	0.12	0.59	0.013
15	0.42	0.09	0.57	0.017
17.5	0.39	0.13	0.54	0.026
20	0.38	0.14	0.51	0.038

Note: The p values were obtained from the Spearman correlation coefficient test.

*Statistically significant result after Bonferroni adjustment ($p<0.0056$, where p was adjusted as 0.05/9).

Annual human case numbers for confirmed and probable *C. gattii* infections are provided in Table S2. Here, harvest events occurring the same year as case reporting were assessed. A confirmed case was defined as a culture-confirmed *C. gattii* infection using differential media and genotyping. A probable case was defined as laboratory evidence of infection in an HIV-negative person using antigen detection, histopathology, or microscopy. Case data were provided through the British Columbia Centre for Disease Control Reportable Diseases Data Dashboard (http://www.bccdc.ca/health-professionals/data-reports/reportable-diseases-data-dashboard).

Tree harvests were assigned 'high' or 'low' confidence through a random forest classifier, based on how many votes from individual trees were received for each class type (tree harvest, fire, etc.). The proportion of votes of the second most voted class (v2) was divided by the proportion of votes of the assigned class (v1). Tree harvests were considered high confidence if v2/v1 was less than or equal to 0.4 and low confidence if v2/v1 was greater than 0.4. Tree harvest data were provided by Hermosilla et al.[1] (see https://opendata.nfis.org/mapserver/nfis-change_eng.html). Permanent human settlement areas were created based on the 2015 raster dataset from the European Commission Global Human Settlement -- Settlement Model (SMOD) at 1-km resolution (https://ghsl.jrc.ec.europa.eu/datasets.php).

Table S6. Spearman rank-order correlation results of annual high-confidence harvests occurring from 0 to 20 km of the human settlement area of eastern Vancouver Island and annual *C. gattii* cases on Vancouver Island (1998-2014) where cases were considered regardless of travel history (n=146 and 241 for confirmed and combined confirmed and probable cases, respectively).

Buffer radius (km)	**Confirmed cases**		**Probable and confirmed cases**	
	correlation	*p* value	correlation	*p* value
0	0.09	0.73	0.44	0.080
2.5	0.15	0.57	0.45	0.068
5	0.25	0.34	0.56	0.018
7.5	0.39	0.12	0.63	0.007
10	0.48	0.051	0.65	0.005*
12.5	0.45	0.072	0.57	0.017
15	0.44	0.075	0.56	0.020
17.5	0.42	0.092	0.55	0.023
20	0.40	0.11	0.49	0.047

Note: The p values were obtained from the Spearman correlation coefficient test.

*Statistically significant result after Bonferroni adjustment ($p<0.0056$, where p was adjusted as 0.05/9).

Annual human case numbers for confirmed and probable *C. gattii* infections are provided in Table 1. Here, harvest events occurring the same year as case reporting were assessed. A confirmed case was defined as a culture-confirmed *C. gattii* infection using differential media and genotyping. A probable case was defined as laboratory evidence of infection in an HIV-negative person using antigen detection, histopathology, or microscopy. Case data were provided through the British Columbia Centre for Disease Control Reportable Diseases Data Dashboard (http://www.bccdc.ca/health-professionals/data-reports/reportable-diseases-data-dashboard). Tree harvests were assigned 'high' or 'low' confidence through a random forest classifier, based on how many votes from individual trees were received for each class type (tree harvest, fire, etc.). The proportion of votes of the second most voted class (v2) was divided by the proportion of votes of the assigned class (v1). Tree harvests were considered high confidence if v2/v1 was

less than or equal to 0.4 and low confidence if v2/v1 was greater than 0.4. Tree harvest data were provided by Hermosilla et al.[1] (see https://opendata.nfis.org/mapserver/nfis-change_eng.html). Permanent human settlement areas were created based on the 2015 raster dataset from the European Commission Global Human Settlement -- Settlement Model (SMOD) at 1-km resolution (https://ghsl.jrc.ec.europa.eu/datasets.php).

Table S7. Spearman rank-order correlation results of annual high-confidence harvests occurring from 0 to 20 km of the human settlement area of eastern Vancouver Island and annual *C. gattii* cases on Vancouver Island (1998-2014) where cases were considered if no evidence of travel outside of BC was shown (this included records with no travel history) (n=142 and 233 for confirmed and combined confirmed and probable cases, respectively).

Buffer radius (km)	**Confirmed cases**		**Probable and confirmed cases**	
	correlation	*p* value	correlation	*p* value
0	-0.005	0.99	0.43	0.087
2.5	0.062	0.81	0.46	0.062
5	0.18	0.49	0.57	0.018
7.5	0.33	0.19	0.62	0.009
10	0.44	0.081	0.63	0.007
12.5	0.41	0.10	0.54	0.025
15	0.41	0.10	0.53	0.029
17.5	0.39	0.13	0.52	0.034
20	0.38	0.14	0.45	0.068

Note: The p values were obtained from the Spearman correlation coefficient test.

*Statistically significant result after Bonferroni adjustment ($p<0.0056$, where p was adjusted as 0.05/9).

Annual human case numbers for confirmed and probable *C. gattii* infections are provided in Table S2. Here, harvest events occurring the same year as case reporting were assessed. A confirmed case was defined as a culture-confirmed *C. gattii* infection using differential media and genotyping. A probable case was defined as laboratory evidence of infection in an HIV-negative person using antigen detection, histopathology, or microscopy. Case data were provided through the British Columbia Centre for Disease Control Reportable Diseases Data Dashboard (http://www.bccdc.ca/health-professionals/data-reports/reportable-diseases-data-dashboard). Tree harvests were assigned 'high' or 'low' confidence through a random forest classifier, based on how many votes from individual trees were received for each class type (tree harvest, fire, etc.). The proportion of votes of the second most voted class (v2) was divided by the proportion

of votes of the assigned class (v1). Tree harvests were considered high confidence if v2/v1 was less than or equal to 0.4 and low confidence if v2/v1 was greater than 0.4. Tree harvest data were provided by Hermosilla et al.[1] (see https://opendata.nfis.org/mapserver/nfis-change_eng.html). Permanent human settlement areas were created based on the 2015 raster dataset from the European Commission Global Human Settlement -- Settlement Model (SMOD) at 1-km resolution (https://ghsl.jrc.ec.europa.eu/datasets.php).

COMPARING HUMAN CASES TO HARVESTS OCCURRING ONE YEAR PRIOR TO CASE REPORTING

Table S8. Spearman rank-order correlation results of annual high- and low-confidence harvests occurring from 0 to 20 km of the human settlement area of eastern Vancouver Island one year prior to case reporting and annual *C. gattii* cases on Vancouver Island (1998-2014) where cases were considered regardless of travel history (n=146 and 241 for confirmed and combined confirmed and probable cases, respectively).

Buffer radius (km)	**Confirmed cases**		**Probable and confirmed cases**	
	correlation	*p* value	correlation	*p* value
0	0.37	0.14	0.62	0.009
2.5	0.22	0.40	0.53	0.028
5	0.36	0.16	0.56	0.020
7.5	0.49	0.046	0.59	0.012
10	0.51	0.036	0.60	0.011
12.5	0.51	0.035	0.60	0.011
15	0.47	0.057	0.56	0.019
17.5	0.48	0.051	0.54	0.026
20	0.48	0.051	0.54	0.026

Note: The p values were obtained from the Spearman correlation coefficient test.

*Statistically significant result after Bonferroni adjustment ($p<0.0056$, where p was adjusted as 0.05/9).

Annual human case numbers for confirmed and probable *C. gattii* infections are provided in Table 1. A confirmed case was defined as a culture-confirmed *C. gattii* infection using differential media and genotyping. A probable case was defined as laboratory evidence of infection in an HIV-negative person using antigen detection, histopathology, or microscopy. Case data were provided through the British Columbia Centre for Disease Control Reportable Diseases Data Dashboard (http://www.bccdc.ca/health-professionals/data-reports/reportable-diseases-data-dashboard). Tree harvests were assigned 'high' or 'low' confidence through a

random forest classifier, based on how many votes from individual trees were received for each class type (tree harvest, fire, etc.). The proportion of votes of the second most voted class (v2) was divided by the proportion of votes of the assigned class (v1). Tree harvests were considered high confidence if v2/v1 was less than or equal to 0.4 and low confidence if v2/v1 was greater than 0.4. Tree harvest data were provided by Hermosilla et al.[1] (see https://opendata.nfis.org/mapserver/nfis-change_eng.html). Permanent human settlement areas were created based on the 2015 raster dataset from the European Commission Global Human Settlement -- Settlement Model (SMOD) at 1-km resolution (https://ghsl.jrc.ec.europa.eu/datasets.php).

Table S9. Spearman rank-order correlation results of annual high- and low-confidence harvests occurring from 0 to 20 km of the human settlement area of eastern Vancouver Island one year prior to case reporting and annual *C. gattii* cases on Vancouver Island (1998-2014) where cases were considered if no evidence of travel outside of BC was shown (this included records with no travel history) (n=142 and 233 for confirmed and combined confirmed and probable cases, respectively).

Buffer radius (km)	**Confirmed cases**		**Probable and confirmed cases**	
	correlation	*p* value	correlation	*p* value
0	0.28	0.27	0.60	0.011
2.5	0.12	0.64	0.53	0.030
5	0.27	0.30	0.55	0.023
7.5	0.41	0.10	0.58	0.014
10	0.44	0.081	0.59	0.012
12.5	0.45	0.072	0.59	0.012
15	0.40	0.11	0.55	0.022
17.5	0.42	0.095	0.53	0.029
20	0.42	0.095	0.53	0.029

Note: The p values were obtained from the Spearman correlation coefficient test.

*Statistically significant result after Bonferroni adjustment ($p<0.0056$, where p was adjusted as 0.05/9).

Annual human case numbers for confirmed and probable *C. gattii* infections are provided in Table S2. A confirmed case was defined as a culture-confirmed *C. gattii* infection using differential media and genotyping. A probable case was defined as laboratory evidence of infection in an HIV-negative person using antigen detection, histopathology, or microscopy. Case data were provided through the British Columbia Centre for Disease Control Reportable Diseases Data Dashboard (http://www.bccdc.ca/health-professionals/data-reports/reportable-diseases-data-dashboard). Tree harvests were assigned 'high' or 'low' confidence through a random forest classifier, based on how many votes from individual trees were received for each class type (tree harvest, fire, etc.). The proportion of votes of the second most voted class (v2)

was divided by the proportion of votes of the assigned class (v1). Tree harvests were considered high confidence if v2/v1 was less than or equal to 0.4 and low confidence if v2/v1 was greater than 0.4. Tree harvest data were provided by Hermosilla et al.[1] (see https://opendata.nfis.org/mapserver/nfis-change_eng.html). Permanent human settlement areas were created based on the 2015 raster dataset from the European Commission Global Human Settlement -- Settlement Model (SMOD) at 1-km resolution (https://ghsl.jrc.ec.europa.eu/datasets.php).

Table S10. Spearman rank-order correlation results of annual high-confidence harvests occurring from 0 to 20 km of the human settlement area of eastern Vancouver Island one year prior to case reporting and annual *C. gattii* cases on Vancouver Island (1998-2014) where cases were considered regardless of travel history (n=146 and 241 for confirmed and combined confirmed and probable cases, respectively).

Buffer radius (km)	**Confirmed cases**		**Probable and confirmed cases**	
	correlation	*p* value	correlation	*p* value
0	0.25	0.33	0.55	0.022
2.5	0.20	0.45	0.51	0.038
5	0.34	0.18	0.55	0.023
7.5	0.46	0.065	0.58	0.014
10	0.49	0.045	0.57	0.017
12.5	0.47	0.058	0.55	0.023
15	0.45	0.069	0.52	0.033
17.5	0.47	0.059	0.52	0.032
20	0.44	0.079	0.42	0.091

Note: The p values were obtained from the Spearman correlation coefficient test.

*Statistically significant result after Bonferroni adjustment ($p<0.0056$, where p was adjusted as 0.05/9).

Annual human case numbers for confirmed and probable *C. gattii* infections are provided in Table 1. A confirmed case was defined as a culture-confirmed *C. gattii* infection using differential media and genotyping. A probable case was defined as laboratory evidence of infection in an HIV-negative person using antigen detection, histopathology, or microscopy. Case data were provided through the British Columbia Centre for Disease Control Reportable Diseases Data Dashboard (http://www.bccdc.ca/health-professionals/data-reports/reportable-diseases-data-dashboard). Tree harvests were assigned 'high' or 'low' confidence through a random forest classifier, based on how many votes from individual trees were received for each class type (tree harvest, fire, etc.). The proportion of votes of the second most voted class (v2) was divided by the proportion of votes of the assigned class (v1). Tree harvests were considered

high confidence if v2/v1 was less than or equal to 0.4 and low confidence if v2/v1 was greater than 0.4. Tree harvest data were provided by Hermosilla et al.[1] (see https://opendata.nfis.org/mapserver/nfis-change_eng.html). Permanent human settlement areas were created based on the 2015 raster dataset from the European Commission Global Human Settlement -- Settlement Model (SMOD) at 1-km resolution (https://ghsl.jrc.ec.europa.eu/datasets.php).

Table S11. Spearman rank-order correlation results of annual high-confidence harvests occurring from 0 to 20 km of the human settlement area of eastern Vancouver Island occurring one year prior to case reporting and annual *C. gattii* cases on Vancouver Island (1998-2014) where cases were considered if no evidence of travel outside of BC was shown (this included records with no travel history) (n=142 and 233 for confirmed and combined confirmed and probable cases, respectively).

Buffer radius (km)	**Confirmed cases**		**Probable and confirmed cases**	
	correlation	*p* value	correlation	*p* value
0	0.17	0.51	0.54	0.025
2.5	0.10	0.71	0.50	0.040
5	0.25	0.33	0.54	0.026
7.5	0.38	0.14	0.58	0.015
10	0.42	0.091	0.57	0.018
12.5	0.40	0.11	0.54	0.025
15	0.39	0.12	0.51	0.036
17.5	0.40	0.11	0.51	0.035
20	0.38	0.13	0.41	0.11

Note: The p values were obtained from the Spearman correlation coefficient test.

*Statistically significant result after Bonferroni adjustment ($p<0.0056$, where p was adjusted as 0.05/9).

Annual human case numbers for confirmed and probable *C. gattii* infections are provided in Table S2. A confirmed case was defined as a culture-confirmed *C. gattii* infection using differential media and genotyping. A probable case was defined as laboratory evidence of infection in an HIV-negative person using antigen detection, histopathology, or microscopy. Case data were provided through the British Columbia Centre for Disease Control Reportable Diseases Data Dashboard (http://www.bccdc.ca/health-professionals/data-reports/reportable-diseases-data-dashboard). Tree harvests were assigned 'high' or 'low' confidence through a random forest classifier, based on how many votes from individual trees were received for each class type (tree harvest, fire, etc.). The proportion of votes of the second most voted class (v2)

was divided by the proportion of votes of the assigned class (v1). Tree harvests were considered high confidence if v2/v1 was less than or equal to 0.4 and low confidence if v2/v1 was greater than 0.4. Tree harvest data were provided by Hermosilla et al.[1] (see https://opendata.nfis.org/mapserver/nfis-change_eng.html). Permanent human settlement areas were created based on the 2015 raster dataset from the European Commission Global Human Settlement -- Settlement Model (SMOD) at 1-km resolution (https://ghsl.jrc.ec.europa.eu/datasets.php).

Table S12. Area of high-confidence tree harvests (in km^2) directly associated with the construction of the Inland Island Highway from 1991 to 1999.

	Harvest area (km^2) associated with									
Year	**Highway construction**	**Buffer zone with radius**								
		0	**2.5**	**5**	**7.5**	**10**	**12.5**	**15**	**17.5**	**20**
1991	0.7218	1.62	7.87	11.85	16.00	20.14	25.94	30.20	35.02	37.13
1992	0.2646	1.62	10.11	14.57	18.86	22.91	27.02	29.11	33.17	35.89
1993	0.3852	2.63	10.44	13.70	15.43	18.90	21.59	25.64	28.89	33.41
1994	1.5111	2.20	10.71	14.82	18.03	21.86	23.80	28.12	30.96	33.30
1995	2.0025	1.46	18.12	23.39	27.73	31.36	35.60	38.69	41.58	44.21
1996	0.8037	2.65	15.40	22.68	27.36	31.54	35.34	39.97	42.31	46.91
1997	0.3087	2.78	17.39	25.72	29.16	32.49	36.55	41.19	44.77	48.48
1998	0.7785	2.32	20.08	31.99	35.90	38.57	42.12	46.70	49.30	52.11
1999	1.8225	3.66	32.10	48.00	57.74	65.85	74.62	81.68	86.67	90.52
Total area	**8.5986**	**20.94**	**142.22**	**206.72**	**246.21**	**283.62**	**322.58**	**361.3**	**392.67**	**421.96**
Percentage of area attributed to highway construction		**41.06**	**6.05**	**4.16**	**3.49**	**3.03**	**2.67**	**2.38**	**2.19**	**2.04**

Note: The percentage of high-confidence tree harvest areas in each buffer zone attributed to the highway construction was calculated by summing annual high-confidence tree harvest areas occurring within 60 m of the highway between 1991 and 1999, dividing this sum by the sum of annual high-confidence tree harvest areas occurring within each buffer zone, and multiplying by 100. It is important to note that less than 10% of 30-m grid cells (1102/11294 grid cells) directly associated with the highway fell within the eastern human settlement area (i.e., 0-km buffer zone). Tree harvests were assigned 'high' or 'low' confidence through a random forest classifier, based on how many votes from individual trees were received for each class type (tree harvest, fire, etc.). The proportion of votes of the second most voted class (v2) was divided by the proportion of votes of the assigned class (v1). Tree harvests were

considered high confidence if v2/v1 was less than or equal to 0.4 and low confidence if v2/v1 was greater than 0.4. Tree harvest data were provided by Hermosilla et al.[1] (see https://opendata.nfis.org/mapserver/nfis-change_eng.html). High-confidence tree harvest areas occurring within each buffer zone are directly taken from Table S3 for 1991-1999. Harvest area data for the highway construction were used to create Figure S2.

Table S13. Area of high- and low-confidence tree harvests directly associated with the construction of the Inland Island Highway from 1991 to 1999.

Year	Harvest area (km^2) associated with									
	Highway construction	Buffer zone with radius								
		0	2.5	5	7.5	10	12.5	15	17.5	20
1991	1.098	2.13	9.41	13.79	18.92	24.22	31.24	36.42	41.85	44.31
1992	0.2979	2.16	11.15	16.06	20.56	24.89	29.50	31.79	36.08	39.19
1993	0.4005	3.14	11.52	14.88	17.45	21.58	24.97	29.16	32.64	37.55
1994	1.5939	3.55	12.81	17.09	20.50	24.70	27.10	31.67	34.92	37.39
1995	2.9286	1.90	20.09	26.20	30.85	34.55	39.30	42.53	45.55	48.66
1996	1.2825	3.18	17.51	25.28	30.05	34.59	39.06	43.84	46.44	51.47
1997	0.5247	2.98	18.37	26.91	30.42	33.92	38.22	43.02	47.13	51.60
1998	1.0809	2.50	22.05	34.50	38.99	42.01	46.41	51.08	53.95	57.44
1999	2.7072	4.02	34.36	50.72	61.21	69.57	79.26	86.64	92.32	96.70
Total area	**11.9142**	**25.56**	**157.27**	**225.43**	**268.95**	**310.03**	**355.06**	**396.15**	**430.88**	**464.31**
Percentage of area attributed to highway construction		**46.61**	**7.58**	**5.29**	**4.43**	**3.84**	**3.36**	**3.01**	**2.77**	**2.57**

Note: The percentage of high-confidence tree harvest areas in each buffer zone attributed to the highway construction was calculated by summing annual high-confidence tree harvest areas occurring within 60 m of the highway between 1991 and 1999, dividing this sum by the sum of annual high-confidence tree harvest areas occurring within each buffer zone, and multiplying by 100. It is important to note that less than 10% of 30-m grid cells (1102/11294 grid cells) directly associated with the highway fell within the eastern human settlement area (i.e., 0-km buffer zone). Tree harvests were assigned 'high' or 'low' confidence through a random forest classifier, based on how many votes from individual trees were received for each class type (tree harvest, fire, etc.). The proportion of votes of the second most voted class (v2) was divided by the proportion of votes of the assigned class (v1). Tree harvests were

considered high confidence if v2/v1 was less than or equal to 0.4 and low confidence if v2/v1 was greater than 0.4. Tree harvest data were provided by Hermosilla et al.[1] (see https://opendata.nfis.org/mapserver/nfis-change_eng.html). High- and low-confidence tree harvest areas occurring within each buffer zone are directly taken from Table S4 for 1991-1999. Harvest area data for the highway construction were used to create Figure S2.

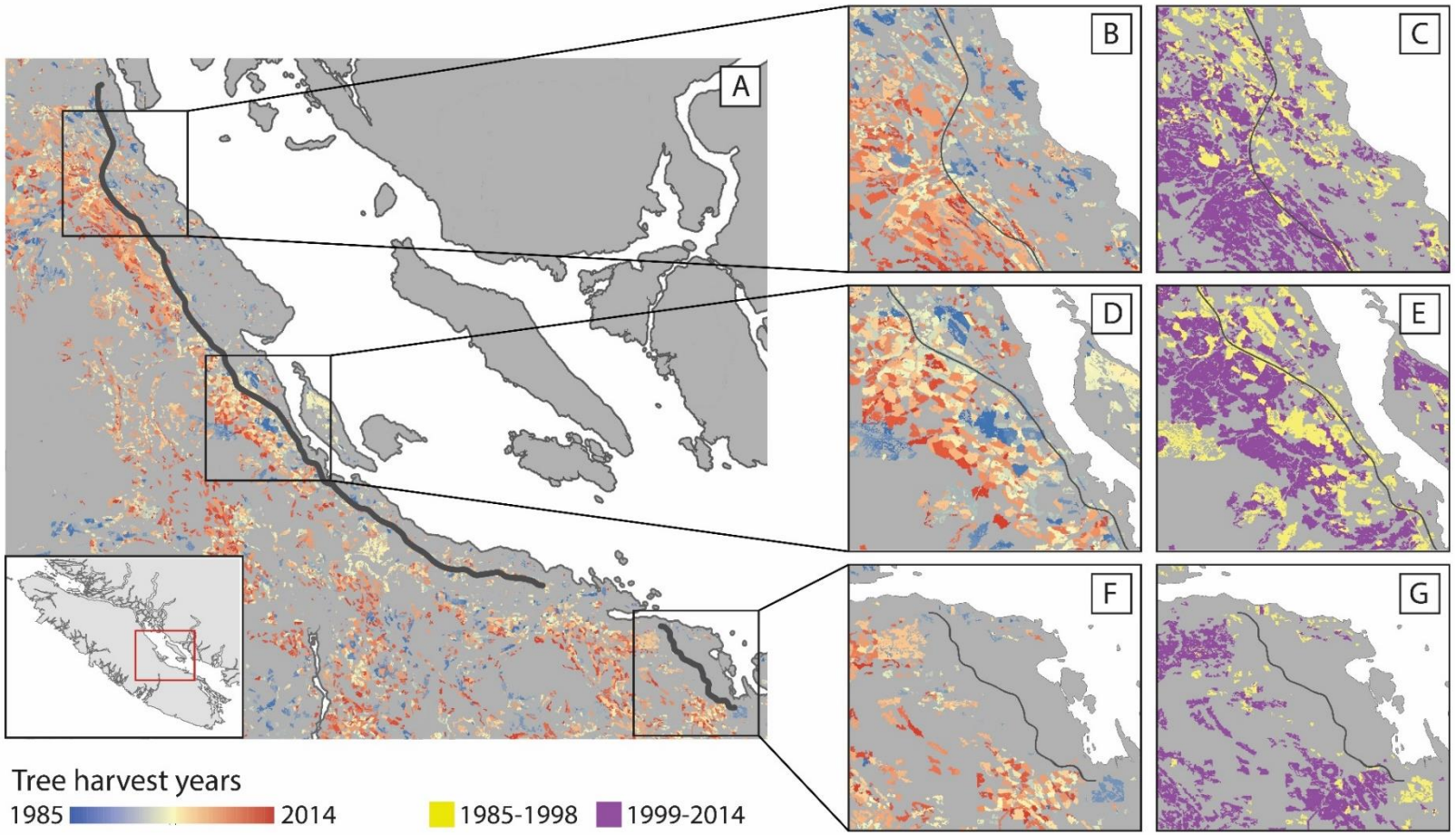
A
B
C
D
E
F
G
Tree harvest years
1985
2014
1985-1998
1999-2014

Figure S1. A) High- and low-confidence tree harvest data at 30-m resolution with Inland Island Highway superimposed (grey line). Three example segments of the highway are shown in closer view, with tree harvest years shown along a colour gradient (blue to red) (B, D, and F) as well as using binary colours to depict the same tree harvests occurring from 1985 through 1998 (yellow) and 1999 through 2014 (purple) (C, E, and G). Inset map specifies region of Vancouver Island shown. Tree harvests were assigned 'high' or 'low' confidence through a random forest classifier, based on how many votes from individual trees were received for each class type (tree harvest, fire, etc.). The proportion of votes of the second most voted class (v2) was divided by the proportion of votes of the assigned class (v1). Tree harvests were considered high confidence if v2/v1 was less than or equal to 0.4 and low confidence if v2/v1 was greater than 0.4. Tree harvest data were provided by Hermosilla et al.[1] (see https://opendata.nfis.org/mapserver/nfis-change_eng.html). This figure was created using ArcGIS v.10.7.1 (Environmental Systems Research Institute, 2019, Redlands, CA, USA).

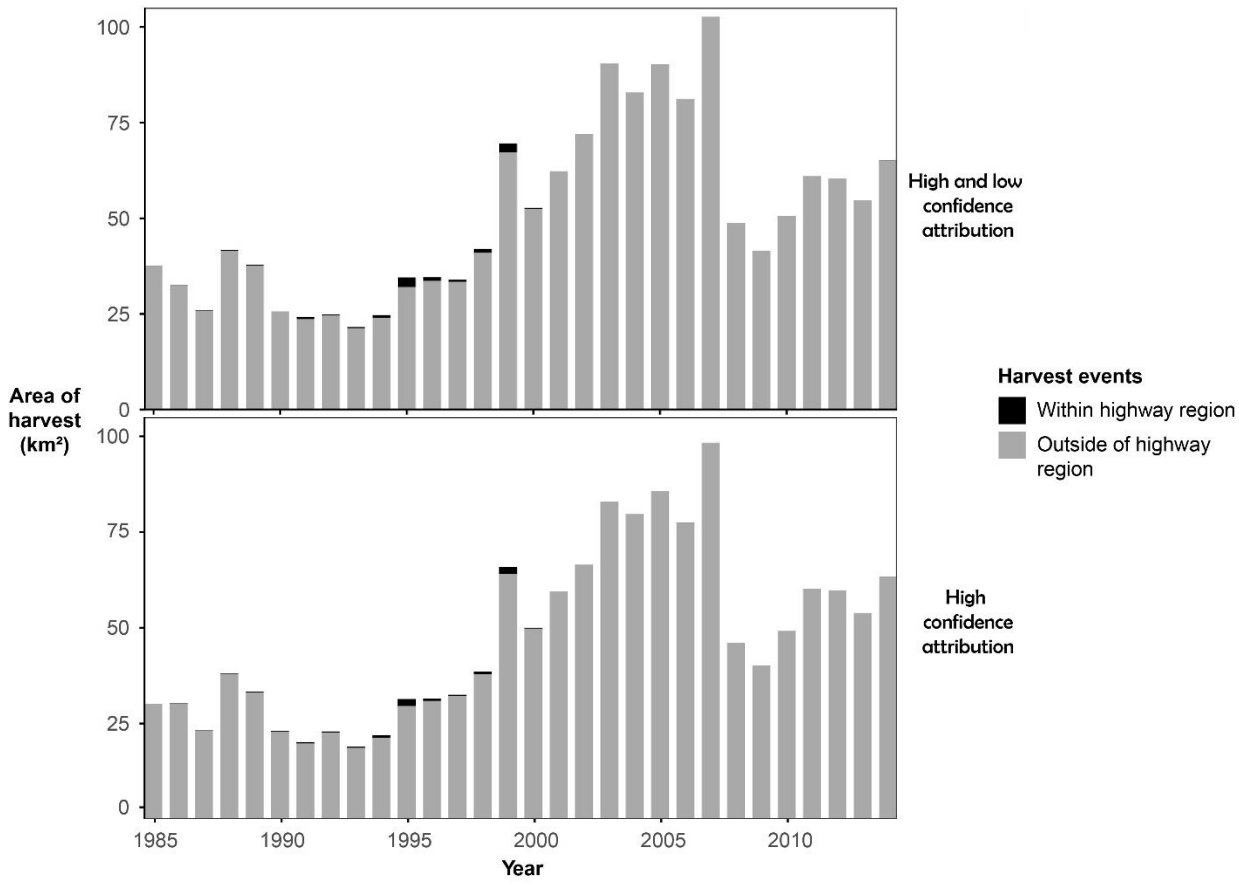

Figure S2. The area of A) high and low confidence and B) high confidence tree harvests (in square kilometers) associated directly with construction of the Inland Island Highway and Nanaimo Parkway (in black) compared to harvests not occurring within the highway construction area (in grey). Harvests associated directly with highway construction were calculated based on harvests within 60 m of the highway and can be found in Tables S12 and S13. Harvests occurring outside the highway region were those that fell within 10 km of the eastern human settlement area of Vancouver Island. Tree harvests were assigned 'high' or 'low' confidence through a random forest classifier, based on how many votes from individual trees were received for each class type (tree harvest, fire, etc.). The proportion of votes of the second most voted class (v2) was divided by the proportion of votes of the assigned class (v1). Tree harvests were considered high confidence if v2/v1 was less than or equal to 0.4 and low

confidence if v2/v1 was greater than 0.4. Tree harvest data were provided by Hermosilla et al.[1] (see https://opendata.nfis.org/mapserver/nfis-change_eng.html). Permanent human settlement areas were created based on the 2015 raster dataset from the European Commission Global Human Settlement -- Settlement Model (SMOD) at 1-km resolution (https://ghsl.jrc.ec.europa.eu/datasets.php). The area of annual high-confidence tree harvesting (in km^2) per year from 1985-2014 is shown in Table S3 and the area of annual high- and low-confidence tree harvesting (in km^2) is shown in Table S4. The spatial extent of the highway is shown in Figure S1.

References

[1]Hermosilla T, Wulder MA, White JC, Coops NC, & Hobart GW. 2015. Regional detection, characterization, and attribution of annual forest change from 1984 to 2012 using Landsat-derived time-series metrics. Remote Sens Environ 170, 121-132. https://doi.org/10.1016/j.rse.2015.09.004