

Site Data Sheet
Bark Beetle Winter Mortality and R-Value Survey 2016

Beetle Species: *D. pseudotsugae*

Date Collected: February 24

Stand Location: Dave Means

Waypoint: 49 (Trees: 1-10 North & 1-6 South)

Waypoint: 50 (Trees: 7-10 South)

Forest District : Central Cariboo

Date Examined : March 21

Elevation: 966 - 968 m

GPS Coord: N 52°05.692

GPS Coord: N 52°05.746

Site: 1

W 122°10.381

W 122°10.439

Tree #	DBH	Aspect	Lar.+Pup.		Adults		% Mortality		Gallery Starts	Egg Gall. Only	Pitch-out	Other Insects *	% Sample Consumed	Instar Stages	Woodpecker Area (%)	Comments
			L	D	L	D	Larvae	Adults								
1	62	N	0	5	4	2	100.0	33.3	0			WB	20	1, 2	0	
1	62	S	0	12	8	3	100.0	27.3	2			M.a., WB	70	1, 2	0	Fungal mycelium
2	60	N	0	0	0	1		100.0	1	X	X		10		0	
2	60	S	1	8	3	0	88.9	0.0	1			WB, Coel.	20	1-4	0	Fungal mycelium
3	52.5	N	0	14	27	2	100.0	6.9	1				85	3	0	
3	52.5	S	0	0	30	1		3.2	0			Cl	98		0	
4	53.5	N	0	3	23	2	100.0	8.0	1			M.a.	90	1, 2	0	
4	53.5	S	0	7	8	2	100.0	20.0	2			M.a., WB	85	1, 2	0	Fungal mycelium
5	46	N	0	6	28	1	100.0	3.4	0			WB	80	1, 2	0	
5	46	S	0	0	32	2		5.9	0			Scol.	98		0	
6	52	N	1	6	18	7	85.7	28.0	0			WB, Coel.	90	1-4	0	
6	52	S	1	7	16	2	87.5	11.1	0			Cl	85	3	0	
7	45	N	0	15	25	2	100.0	7.4	0				80	1, 2	0	
7	45	S	0	11	23	5	100.0	17.9	0				75	1, 2	0	
8	61	N	1	0	0	2	0.0	100.0	0		X		10	3	0	
8	61	S	0	4	3	3	100.0	50.0	1	X		WB	10	1, 2	0	Four WB larvae
9	59	N	0	8	0	0	100.0		1				5	1, 2	0	
9	59	S	0	0	0	0			0			WB	0		0	No Douglas-fir beetle galleries
10	60	N	0	17	21	4	100.0	16.0	0			WB	85	1, 2	0	
10	60	S	0	11	2	1	100.0	33.3	1			Scol.	90	1, 2	0	

Sums 4 134 271 42

11

Average Gallery Starts (2002-2015)

1.746

Site R- value 7.9

Average Mortality; Adult (%) 13.4

Average Mortality; Larval (%) 97.1

Average Mortality; Combined (%) 39.0

Average Woodpecker Area (%) 0.0

* Other insects abbreviations:

W B = woodborers

M.a. = *Medetera aldrichii* (Diptera)

Scol. = *Scolytus unispinosus* (Douglas-fir engraver beetle)

P. = *Pseudohylesinus nebulosus* (Coleoptera)

Cl. = clerids

Coel. = *Coeloides* sp. (Hymenoptera)

Site Data Sheet
Bark Beetle Winter Mortality and R-Value Survey 2016

Beetle Species: *D. pseudotsugae*

Date Collected: February 25

Stand Location: Bysack Road

Waypoint: 51 (Trees 1 - 6)

Waypoint: 52 (Trees 7 - 10)

Forest District : Central Cariboo

Date Examined : March 19

Elevation: 950 - 989 m

GPS Coord: N 52°09.457

GPS Coord: N 52°06.188

Site: 2

W 122°15.347

W 122°12.076

Tree #	DBH	Aspect	Lar.+Pup.		Adults		% Mortality		Gallery Starts	Egg Gall. Only	Pitch-out	Other Insects *	% Sample Consumed	Instar Stages	Woodpecker Area (%)	Comments
			L	D	L	D	Larvae	Adults								
1	45.0	N	0	5	14	1	100.0	6.7	0			WB	50	2-4	0	
1	45.0	S	0	0	0	4		100.0	0				25		0	
2	46.0	N	1	0	5	2	0.0	28.6	1			WB, Cl, Scol	20	3	0	WB larvae
2	46.0	S	0	28	4	1	100.0	20.0	0				30	2	0	
3	47.0	N	1	5	2	3	83.3	60.0	0				25	3-4	0	
3	47.0	S	0	18	6	1	100.0	14.3	0				35	2	0	Fungal mycelium
4	39.5	N	0	0	3	2		40.0	0			M.a.	40		0	
4	39.5	S	0	1	7	0	100.0	0.0	0			M.a., Cl	60	2	0	1 dead parasitized Fd beetle larvae
5	36.0	N	0	0	0	0			1				0		0	Appears to be a failed gallery start
5	36.0	S	0	0	0	0			0			WB	0		0	1 WB larvae
6	31.0	N	0	5	2	0	100.0	0.0	0			Scol.	40	2	0	
6	31.0	S	2	0	2	0	0.0	0.0	1			WB, Coel.	40	2	0	Fungal mycelium
7	63.0	N	0	0	2	5		71.4	0			M.a.	25		0	
7	63.0	S	0	0	19	7		26.9	0				85		0	
8	48.0	N	0	0	9	5		35.7	0			M.a.	45		0	
8	48.0	S	0	0	16	6		27.3	0			M.a.	85		0	
9	64.0	N	0	0	2	1		33.3	1				10		0	
9	64.0	S	0	1	1	1	100.0	50.0	0				10	4	0	
10	47.5	N	0	1	4	1	100.0	20.0	0				10	4	0	Fungal mycelium
10	47.5	S	0	9	3	4	100.0	57.1	1				20	2	0	
Sums			4	73	101	44			5							

Average Gallery Starts (2002-2015) 1.746

Site R- value 3.0
Average Mortality; Adult (%) 30.3
Average Mortality; Larval (%) 94.8
Average Mortality; Combined (%) 52.7

Average Woodpecker Area (%) 0.0

* Other insects abbreviations: P.= *Pseudohylesinus nebulosus* (Coleoptera)
W B = woodborers Cl.= clerids
M.a.= *Medetera aldrichii* (Diptera) Coel.= *Coeloides* sp. (Hymenoptera)
Scol. = *Scolytus unispinosus* (Douglas-fir engraver beetle)

Site Data Sheet
Bark Beetle Winter Mortality and R-Value Survey 2016

Beetle Species: *D. pseudotsugae*
 Date Collected: February 28
 Stand Location: Moore Mountain Road
 Waypoint: 53

Forest District : Central Cariboo
 Date Examined : March 20
 Elevation: 655 - 684 m
 GPS Coord: N 52°09.582 W 122°14.033

Site: 3

Tree #	DBH	Aspect	Lar.+Pup.		Adults		% Mortality		Gallery Starts	Egg Gall. Only	Pitch-out	Other Insects *	% Sample Consumed	Instar Stages	Woodpecker Area (%)	Comments
			L	D	L	D	Larvae	Adults								
1	58.0	N	0	10	1	1	100.0	50.0	1				30	1-2		
1	58.0	S	0	5	3	10	100.0	76.9	0			Scol.	40	1-2		
2	62.0	N	2	1	1	5	33.3	83.3	1		X	WB	20	4		Fungal mycelium; pitch in gallery consumed Fd beetle
2	62.0	S	0	7	8	1	100.0	11.1	0				35	1-2		
3	45.5	N	0	10	11	2	100.0	15.4	0				60	1-2		
3	45.5	S	0	7	7	3	100.0	30.0	0				75	1-2		Fungal mycelium
4	47.5	N	1	34	1	0	97.1	0.0	0			Coel.	50	1-4		
4	47.5	S	0	22	11	4	100.0	26.7	1				75	1-3		
5	38.5	N	0	8	9	2	100.0	18.2	1				50	1-2		
5	38.5	S	0	3	22	3	100.0	12.0	0				50	1-2		
6	38.0	N	4	0	9	4	0.0	30.8	1			Coel.	25	4		
6	38.0	S	0	0	4	2		33.3	0			WB	20			
7	57.0	N	0	18	0	3	100.0	100.0	0			WB	20	1-2		
7	57.0	S	0	1	6	3	100.0	33.3	0				60	3		
8	32.0	N	5	6	5	7	54.5	58.3	0			Scol.	50	2, 3		
8	32.0	S	3	3	3	7	50.0	70.0	1				25	3		
9	42.0	N	0	8	3	3	100.0	50.0	1			WB	35	1-2		
9	42.0	S	0	6	4	2	100.0	33.3	0			WB	15	1-2		
10	35.0	N	0	0	0	0			0			WB	0			
10	35.0	S	1	1	4	0	50.0	0.0	0			WB	5	4		
Sums			16	150	112	62			7							

Average Gallery Starts (2002-2015) 1.746

Site R- value 3.7
 Average Mortality; Adult (%) 35.6
 Average Mortality; Larval (%) 90.4
 Average Mortality; Combined (%) 62.4

Average Woodpecker Area (%) #DIV/0!

* Other insects abbreviations:

W B = woodborers

M.a.= *Medetera aldrichii* (Diptera)

Scol. = *Scolytus unispinosus* (Douglas-fir engraver beetle)

P.= *Pseudohylesinus nebulosus* (Coleoptera)

Cl.= clerids

Coel.= *Coeloides sp.* (Hymenoptera)

Site Data Sheet
Bark Beetle Winter Mortality and R-Value Survey 2016

Beetle Species: *D. pseudotsugae*
 Date Collected: February 29
 Stand Location: Knife Creek
 Waypoint: 54

Forest District : Central Cariboo
 Date Examined : March 16
 Elevation: 798 m
 GPS Coord: N 52°03.812 W 121°54.096

Site: 4

Tree #	DBH	Aspect	Lar.+Pup.		Adults		% Mortality		Gallery Starts	Egg Gall Only	Pitch-out	Other Insects *	% Sample Consumed	Instar Stages	Woodpecker Area (%)	Comments
			L	D	L	D	Larvae	Adults								
1	57.0	N	0	0	25	5		16.7	1				90		0	Fungal mycelium
1	57.0	S	0	5	8	0	100.0	0.0	0				40	1, 2	0	Fungal mycelium
2	65.0	N	0	0	0	1		100.0	0				2		0	
2	65.0	S	0	0	0	0			0				2		0	
3	54.5	N	0	0	14	4		22.2	0			Cl	75		0	
3	54.5	S	0	0	15	4		21.1	0				50		0	Fungal mycelium
4	71.0	N	0	0	8	1		11.1	0			WB	90		0	
4	71.0	S	3	0	18	2	0.0	10.0	1			WB	90	3,4	0	
5	57.5	N	0	0	4	2		33.3	2			WB	45		0	Fungal mycelium
5	57.5	S	0	18	0	2	100.0	100.0	0			WB	35	1, 2	0	
6	56.0	N	0	0	0	1		100.0	0				5		0	
6	56.0	S	0	0	0	2		100.0	0				5		0	
7	47.5	N	0	7	5	4		44.4	1			Coel	60		0	Fungal mycelium
7	47.5	S	2	0	4	1	0.0	20.0	0			WB, Coel.	40	2	0	Fungal mycelium
8	46.0	N	0	28	0	0	100.0		1				10	1-3	0	
8	46.0	S	0	10	0	1	100.0	100.0	1				5	1, 2	0	
9	55.0	N	0	0	0	1		100.0	1				10		0	
9	55.0	S	0	7	0	2	100.0	100.0	1				25	1, 2	0	Fungal mycelium
10	52.0	N	0	0	0	0			2	X		M.a.	2		0	
10	52.0	S	0	0	0	0			0	X			2		0	
Sums			5	75	101	33			11							

Average Gallery Starts (2002-2015) 1.746

Site R- value 3.0
 Average Mortality; Adult (%) 24.6
 Average Mortality; Larval (%) 93.8
 Average Mortality; Combined (%) 50.5

Average Woodpecker Area (%) 0.0

* Other insects abbreviations: P.= *Pseudohylesinus nebulosus* (Coleoptera)
 W B = woodborers Cl.= clerids
 M.a.= *Medetera aldrichii* (Diptera) Coel.= *Coeloides* sp. (Hymenoptera)
 Scol. = *Scolytus unispinosus* (Douglas-fir engraver beetle)

Site Data Sheet
Bark Beetle Winter Mortality and R-Value Survey 2016

Beetle Species: *D. pseudotsugae*
 Date Collected: March 2
 Stand Location: Fox Mountain
 Waypoint: 55

Forest District : Central Cariboo
 Date Examined : March 20
 Elevation: 800 - 810
 GPS Coord: N 52°09.136

Site: 5

W 121°08.503

Tree #	DBH	Aspect	Lar.+Pup.		Adults		% Mortality		Gallery Starts	Egg Gall. Only	Pitch-out	Other Insects *	% Sample Consumed	Instar Stages	Woodpecker Area (%)	Comments
			L	D	L	D	Larvae	Adults								
1	60.0	N	0	0	10	3		23.1	0				80		0	
1	60.0	S	0	0	31	11		26.2	0			M.a.	98		0	
2	42.5	N	0	0	12	4		25.0	0			Scol.	50		0	Fungal mycelium
2	42.5	S	1	3	0	2	75.0	100.0	0			Scol.	15	3	0	
3	34.0	N	0	2	11	1	100.0	8.3	0			M.a., Coel.	70	4	0	
3	34.0	S	5	0	13	1	0.0	7.1	0			Coel.	90	2-4	0	
4	35.0	N	0	0	14	2		12.5	0	X		WB	50		0	
4	35.0	S	0	5	0	3	100.0	100.0	0		X		10	2	0	Fungal mycelium
5	40.5	N	0	17	0	3	100.0	100.0	1		X		35	2	0	
5	40.5	S	0	29	0	3	100.0	100.0	0		X	Coel.	10	4	0	
6	33.5	N	4	0	0	1	0.0	100.0	0		X		5		0	
6	33.5	S	0	0	0	1		100.0	0		X		10		0	
7	30.5	N	0	0	2	0		0.0	0				50		0	
7	30.5	S	0	6	2	1	100.0	33.3	0			WB	90	2	0	
8	30.0	N	0	0	0	0			1				5		0	
8	30.0	S	0	0	1	0		0.0	0			WB	40		0	
9	41.0	N	0	12	1	2	100.0	66.7	0		X		30	2	0	
9	41.0	S	0	22	5	2	100.0	28.6	0		X		40	2	0	
10	33.0	N	1	9	10	0	90.0	0.0	0				80	2-4	0	
10	33.0	S	0	0	5	3		37.5	0				80		0	
Sums			11	105	117	43			2							

Average Gallery Starts (2002-2015) 1.746

Site R- value 3.7
 Average Mortality; Adult (%) 26.9
 Average Mortality; Larval (%) 90.5
 Average Mortality; Combined (%) 53.6

Average Woodpecker Area (%) 0.0

* Other insects abbreviations:

W B = woodborers

M.a.= *Medetera aldrichii* (Diptera)

Scol. = *Scolytus unispinosus* (Douglas-fir engraver beetle)

P.= *Pseudohylesinus nebulosus* (Coleoptera)

Cl.= clerids

Coel.= *Coeloides* sp. (Hymenoptera)

Site Data Sheet
Bark Beetle Winter Mortality and R-Value Survey 2016

Beetle Species: *D. pseudotsugae*
 Date Collected: March 3
 Stand Location: 100 Road
 Waypoint: 56

Forest District : Central Cariboo
 Date Examined : March 23
 Elevation: 810 - 820 m
 GPS Coord: N 52°17.127 W 122°19.585

Site: 6

Tree #	DBH	Aspect	Lar.+Pup.		Adults		% Mortality		Gallery Starts	Egg Gall. Only	Pitch-out	Other Insects *	% Sample Consumed	Instar Stages	Woodpecker Area (%)	Comments
			L	D	L	D	Larvae	Adults								
1	56.0	N	0	4	22	3	100.0	12.0	0			Scol.	95	1	0	
1	56.0	S	0	12	17	4	100.0	19.0	1			WB	95	1	0	
2	49.0	N	1	16	21	2	94.1	8.7	0			M.a.	95	1-3	0	L3 is the live larvae
2	49.0	S	0	5	19	2	100.0	9.5	1				98	1, 2	0	
3	49.0	N	0	0	9	4		30.8	0				75		0	
3	49.0	S	0	5	0	0	100.0		0	X	X		20	1	0	
4	69.0	N	0	2	23	7	100.0	23.3	0			M.a.	95	1	0	
4	69.0	S	0	14	9	5	100.0	35.7	0				95	1	0	
5	62.0	N	0	11	0	1	100.0	100.0	1			WB	10	1-3	0	
5	62.0	S	4	9	6	3	69.2	33.3	2			WB	50	3, 4	0	
6	41.0	N	1	0	0	1	0.0	100.0	0			WB	10	3, 4	0	
6	41.0	S	0	14	0	1	100.0	100.0	0		X	WB	10	1, 2	0	WB activity is extensive
7	55.0	N	1	9	33	5	90.0	13.2	1			WB, Coel.	98	1-4	0	
7	55.0	S	0	3	27	4	100.0	12.9	0			WB, Coel., M.a.	98	1-4	0	
8	58.0	N	0	4	0	2	100.0	100.0	1		X		10	1	0	
8	58.0	S	0	9	0	0	100.0		2			WB	15	1-4	0	
9	45.0	N	0	0	0	0			0	X			5		0	
9	45.0	S	0	10	2	2	100.0	50.0	0			WB, Coel.	85	1-4	0	
10	64.5	N	0	5	5	1	100.0	16.7	0			WB, Coel.	15	1-4	0	
10	64.5	S	0	3	3	1	100.0	25.0	0		X	WB	15	1, 2	0	
Sums			7	135	196	48			9							

Average Gallery Starts (2002-2015) 1.746

Site R- value 5.8
Average Mortality; Adult (%) 19.7
Average Mortality; Larval (%) 95.1
Average Mortality; Combined (%) 47.4

Average Woodpecker Area (%) 0.0
 * Other insects abbreviations: P.= *Pseudohylesinus nebulosus* (Coleoptera)
 W B = woodborers Cl.= clerids
 M.a.= *Medetera aldrichii* (Diptera) Coel.= *Coeloides* sp. (Hymenoptera)
Scol. = *Scolytus unispinosus* (Douglas-fir engraver beetle)

Site Data Sheet
Bark Beetle Winter Mortality and R-Value Survey 2016

Beetle Species: *D. pseudotsugae*
 Date Collected: March 4
 Stand Location: Riske Creek
 Waypoint: 59

Forest District : Central Cariboo
 Date Examined : March 24
 Elevation: 1190 - 1195 m
 GPS Coord: N 51°54.268 W 122°43.331

Site: 7

Tree #	DBH	Aspect	Lar.+Pup.		Adults		% Mortality		Gallery Starts	Egg Gall. Only	Pitch-out	Other Insects *	% Sample Consumed	Instar Stages	Woodpecker Area (%)	Comments
			L	D	L	D	Larvae	Adults								
1	64.0	N	0	29	1	1	100.0	50.0	0			WB	60	1-4	0	
1	64.0	S	0	9	3	1	100.0	25.0	2				95	1-4	0	
2	78.0	N	0	4	3	6	100.0	66.7	2			M.a.	95	1-3	0	Fungal mycelium (engulfed one beetle in gallery)
2	78.0	S	0	0	2	3		60.0	0				90		0	Fungal mycelium
3	38.0	N	2	6	18	0	75.0	0.0	3			M.a., Coel.	75	3-4	0	
3	38.0	S	1	2	1	0	66.7	0.0	1				75	3	0	
4	61.0	N	0	17	7	1	100.0	12.5	1				85		0	
4	61.0	S	0	19	7	0	100.0	0.0	2			WB	40	1-3	0	
5	77.0	N	0	6	3	0	100.0	0.0	0			M.a.	75	1-3	0	Numerous M.a. larvae
5	77.0	S	0	12	15	1	100.0	6.3	0			M.a.	98	1, 2	0	
6	61.0	N	0	20	0	0	100.0		0				50	1-3	0	
6	61.0	S	0	20	0	0	100.0		1			WB	45		0	
7	46.0	N	0	31	1	0	100.0	0.0	1				75	1-3	0	3 exit holes (previous year)
7	46.0	S	0	6	3	1	100.0	25.0	0			Scol., M.a., Coel	85	1-4	0	2 exit holes (previous year)
8	28.0	N	0	4	0	3	100.0	100.0	0				80	1-3	0	
8	28.0	S	0	9	3	3	100.0	50.0	1				40	1-3	0	
9	72.0	N	0	9	18	5	100.0	21.7	2			M.a.	95	1, 2	0	Numerous M.a. larvae
9	72.0	S	1	14	9	4	93.3	30.8	1			M.a., Cl	95	3	0	Fungal mycelium
10	94.0	N	0	6	1	0	100.0	0.0	0			M.a.	95	1-3	0	
10	94.0	S	0	14	9	2	100.0	18.2	0			WB	95	1-3	0	Fungal mycelium
Sums			4	237	104	31			17							

Average Gallery Starts (2002-2015) 1.746

Site R- value 3.1
 Average Mortality; Adult (%) 23.0
 Average Mortality; Larval (%) 98.3
 Average Mortality; Combined (%) 71.3

Average Woodpecker Area (%) 0.0

* Other insects abbreviations:

W B = woodborers

M.a.= *Medetera aldrichii* (Diptera)

Scol. = *Scolytus unispinosus* (Douglas-fir engraver beetle)

P.= *Pseudohylesinus nebulosus* (Coleoptera)

Cl.= clerids

Coel.= *Coeloides* sp. (Hymenoptera)

Site Data Sheet
Bark Beetle Winter Mortality and R-Value Survey 2016

Beetle Species: *D. pseudotsugae*
 Date Collected: March 4
 Stand Location: Alexis Creek
 Waypoint: 61

Forest District : Central Cariboo
 Date Examined : March 22
 Elevation: 860 - 865 m
 GPS Coord: N 51°56.348 W 123°00.402

Site: 8

Tree #	DBH	Aspect	Lar.+Pup.		Adults		% Mortality		Gallery Starts	Egg Gall. Only	Pitch-out	Other Insects *	% Sample Consumed	Instar Stages	Woodpecker Area (%)	Comments
			L	D	L	D	Larvae	Adults								
1	29.0	N	0	16	9	2	100.0	18.2	0			M.a., Coel.	70	1-4	0	
1	29.0	S	0	5	12	0	100.0	0.0	0			M.a., Cl.	60	1-2	0	
2	34.0	N	0	0	13	1		7.1	0			M.a., Cl.	90		0	
2	34.0	S	1	5	2	1	83.3	33.3	0		X	WB, Cl., Coel.	80	2-4	0	Fungal mycelium
3	30.0	N	0	0	4	2		33.3	0			M.a., Scol.	70		0	
3	30.0	S	0	3	0	1	100.0	100.0	0			M.a., Coel.	50	2-4	0	
4	35.0	N	0	0	0	1		100.0	0			M.a., Cl.	40		0	
4	35.0	S	0	0	3	0		0.0	0			M.a.	75		0	Fungal mycelium
5	70.0	N	0	0	4	1		20.0	0			M.a.	25		0	
5	70.0	S	0	0	4	2		33.3	1			WB	60		0	Pitchy around 5 cm diameter knot
6	51.0	N	0	0	7	2		22.2	0		X	M.a.	85		0	
6	51.0	S	0	10	0	0	100.0		0				60	1-2	0	
7	32.0	N	1	0	4	1	0.0	20.0	0			WB, Coel.	40	4	0	
7	32.0	S	0	1	8	3	100.0	27.3	1			WB, M.a., Coel.	40	4	0	
8	35.0	N	0	0	0	0			0				90		0	90% consumed but no beetles, lots of exit holes
8	35.0	S	0	0	0	1		100.0	0				90		0	90% consumed but no beetles, lots of exit holes
9	50.0	N	0	0	2	1		33.3	0				60		0	
9	50.0	S	0	1	3	3	100.0	50.0	0			M.a., Cl.	80	2	0	
10	48.0	N	0	0	1	0		0.0	0				98		0	Lots of exit holes
10	48.0	S	0	7	0	0	100.0		0			WB, M.a., Coel.	95	2-4	0	Lots of exit holes
Sums			2	48	76	22			2							

Average Gallery Starts (2002-2015) 1.746

Site R- value 2.2
 Average Mortality; Adult (%) 22.4
 Average Mortality; Larval (%) 96.0
 Average Mortality; Combined (%) 47.3

Average Woodpecker Area (%) 0.0

* Other insects abbreviations: P.= *Pseudohylesinus nebulosus* (Coleoptera)
 W B = woodborers Cl.= clerids
 M.a.= *Medetera aldrichii* (Diptera) Coel.= *Coeloides* sp. (Hymenoptera)
 Scol. = *Scolytus unispinosus* (Douglas-fir engraver beetle)

Site Data Sheet
Bark Beetle Winter Mortality and R-Value Survey 2016

Beetle Species: *D. pseudotsugae*
 Date Collected: March 5
 Stand Location: West Fraser Road
 Waypoint: 62

Forest District : Central Cariboo
 Date Examined : March 22

Elevation: 630 - 665 m
 GPS Coord: N 52°05.312 W 123°16.245

Site: 9

Tree #	DBH	Aspect	Lar.+Pup.		Adults		% Mortality		Gallery Starts	Egg Gall. Only	Pitch-out	Other Insects *	% Sample Consumed	Instar Stages	Woodpecker Area (%)	Comments
			L	D	L	D	Larvae	Adults								
1	38.0	N	0	19	1	2	100.0	66.7	2				95	1-3	0	Fungal mycelium
1	38.0	S	0	14	1	7	100.0	87.5	0			WB, Cl	80	1-3	0	Fungal mycelium
2	41.0	N	0	0	0	0			0			WB	5		0	WB galleries; no Fd beetles
2	41.0	S	0	2	1	0	100.0	0.0	0			WB	50	1-2	0	WB galleries; failed Fd beetle larval mines
3	43.5	N	0	8	1	0	100.0	0.0	1			WB	85	1-2	0	Fungal mycelium
3	43.5	S	0	2	1	1	100.0	50.0	0			WB, M.a.	98	1-2	0	Fungal mycelium; WB galleries
4	42.0	N	0	12	11	2	100.0	15.4	0			WB	85	1-2	0	Fungal mycelium
4	42.0	S	0	16	8	5	100.0	38.5	0			WB	60	1-2	0	
5	41.0	N	0	0	2	3		60.0	0			WB, M.a., Scol.	90		0	Fungal mycelium
5	41.0	S	0	8	2	1	100.0	33.3	1			WB, M.a.	95	1-2	0	Fungal mycelium
6	37.5	N	0	0	16	3		15.8	1				30		0	1 small failed brood mine fan
6	37.5	S	0	15	0	1	100.0	100.0	0				25	1-2	0	Failed brood ~ L2
7	39.0	N	0	24	2	7	100.0	77.8	0			WB	95	1-4	0	
7	39.0	S	0	9	6	7	100.0	53.8	0				90	1-2	0	Fungal mycelium
8	50.0	N	0	16	10	6	100.0	37.5	0				80	1-2	0	
8	50.0	S	0	2	12	5	100.0	29.4	0			WB	85	1-2	0	
9	47.0	N	2	15	8	4	88.2	33.3	0			WB, Coel.	95	1-4	0	Fungal mycelium
9	47.0	S	0	7	10	3	100.0	23.1	0			WB	95	1-2	0	Fungal mycelium
10	44.5	N	0	9	0	0	100.0		0			WB	10	1-2	0	Failed brood - L2; mainly WB galleries
10	44.5	S	0	1	0	0	100.0		1				5	2	0	1 small gallery start; 1 small brood mine

Sums

2 179 92 57

6

Average Gallery Starts (2002-2015) 1.746

Site R- value 2.7
 Average Mortality; Adult (%) 38.3
 Average Mortality; Larval (%) 98.9
 Average Mortality; Combined (%) 71.5

Average Woodpecker Area (%) 0.0

* Other insects abbreviations:
 W B = woodborers
 M.a.= *Medetera aldrichii* (Diptera)
 Scol. = *Scolytus unispinosus* (Douglas-fir engraver beetle)
 P.= *Pseudohylesinus nebulosus* (Coleoptera)
 Cl.= clerids
 Coel.= *Coeloides* sp. (Hymenoptera)

Site Data Sheet
Bark Beetle Winter Mortality and R-Value Survey 2016

Beetle Species: *D. pseudotsugae*
 Date Collected: March 6
 Stand Location: Stack Valley Road
 Waypoint: 63

Forest District : Central Cariboo
 Date Examined : March 23
 Elevation: 1108 - 1112 m
 GPS Coord: N 52°06.722 W 122°34.812

Site: 10

Tree #	DBH	Aspect	Lar.+Pup.		Adults		% Mortality		Gallery Starts	Egg Gall. Only	Pitch-out	Other Insects *	% Sample Consumed	Instar Stages	Woodpecker Area (%)	Comments
			L	D	L	D	Larvae	Adults								
1	49.0	N	0	5	17	2	100.0	10.5	1			Cl., Scol.	98	1-2	0	
1	49.0	S	0	0	20	1		4.8	0			M.a.	80		0	
2	54.5	N	0	18	0	3	100.0	100.0	0				85	1-2	0	Several exit holes
2	54.5	S	0	12	2	7	100.0	77.8	0				40	1-2	0	
3	51.0	N	0	8	2	1	100.0	33.3	0				90	1-2	0	
3	51.0	S	0	5	2	1	100.0	33.3	1				60	1-2	0	Failed larval mines
4	55.0	N	1	25	7	2	96.2	22.2	0				30	3-4	0	
4	55.0	S	0	7	0	0	100.0		0				40	3	0	
5	45.0	N	0	5	1	0	100.0	0.0	1		X	Coel.	25	1-2	0	Fungal mycelium; partly pitched out gallery
5	45.0	S	0	22	1	2	100.0	66.7	0			WB	20	1-2	0	WB gallery only
6	57.0	N	0	8	8	6	100.0	42.9	0			WB	50	1-2	0	WB gallery only
6	57.0	S	0	0	9	6		40.0	0			Scol., WB	80		0	
7	46.5	N	0	5	3	3	100.0	50.0	0			M.a.	40	1-2	0	~ 25% of the phloem is hard and dry
7	46.5	S	0	5	10	1	100.0	9.1	0			WB	60	1-2	0	Fungal mycelium
8	45.0	N	0	0	9	1		10.0	0				50		0	
8	45.0	S	4	0	2	2	0.0	50.0	0			M.a.	60	1-2	0	
9	35.0	N	0	7	0	2	100.0	100.0	0		X		10	1-2	0	
9	35.0	S	0	8	2	5	100.0	71.4	0		X	Scol., Coel.	60	1-2	0	Some pitching; phloem is dry & hard
10	47.0	N	0	12	10	2	100.0	16.7	1			Coel.	60	1-2	0	
10	47.0	S	1	0	3	1	0.0	25.0	0			Scol., Coel.	90	3	0	
Sums			6	152	108	48			4							

Average Gallery Starts (2002-2015) 1.746

Site R- value 3.3
 Average Mortality; Adult (%) 30.8
 Average Mortality; Larval (%) 96.2
 Average Mortality; Combined (%) 63.7

Average Woodpecker Area (%) 0.0

* Other insects abbreviations: P.= *Pseudohylesinus nebulosus* (Coleoptera)
 W B = woodborers Cl.= clerids
 M.a.= *Medetera aldrichii* (Diptera) Coel.= *Coeloides* sp. (Hymenoptera)
 Scol. = *Scolytus unispinosus* (Douglas-fir engraver beetle)

Site Data Sheet
Bark Beetle Winter Mortality and R-Value Survey 2016

Beetle Species: *D. pseudotsugae*
 Date Collected: March 7
 Stand Location: Cell Tower
 Waypoint: 64

Forest District : Quesnel District
 Date Examined : March 24
 Elevation: 764 - 774 m
 GPS Coord: N 52°36.254

Site: 11

W 122°33.336

Tree #	DBH	Aspect	Lar.+Pup.		Adults		% Mortality		Gallery Starts	Egg Gall. Only	Pitch-out	Other Insects *	% Sample Consumed	Instar Stages	Woodpecker Area (%)	Comments
			L	D	L	D	Larvae	Adults								
1	39.0	N	0	19	1	2	100.0	66.7	0				5	1-2	0	
1	39.0	S	0	0	2	6		75.0	0		X		5		0	
2	30.0	N	0	11	0	2	100.0	100.0	0			M.a.	70	1-2	0	Fungal mycelium
2	30.0	S	0	16	0	2	100.0	100.0	0				2	1-2	0	Fungal mycelium; 3 exit holes
3	27.0	N	0	0	0	0			1			Coel.	90		0	Fungal mycelium; 5+ exit holes
3	27.0	S	0	0	0	0			2				90		0	Fungal mycelium; 5+ exit holes
4	39.5	N	0	3	0	4	100.0	100.0	0				40	1-2	0	Fungal mycelium
4	39.5	S	0	0	0	1		100.0	0		X		5		0	Fungal mycelium
5	32.5	N	0	5	0	1	100.0	100.0	1				50	1-2	0	Fungal mycelium
5	32.5	S	0	8	1	0	100.0	0.0	1				50	1-2	0	Fungal mycelium
6	32.0	N	0	0	0	5		100.0	1				50		0	Fungal mycelium; dead adults surrounded by mycelium
6	32.0	S	0	0	0	0			0		X		1		0	
7	40.0	N	0	0	1	5		83.3	0		X	Coel.	95		0	Fungal mycelium; pitchy rot
7	40.0	S	0	0	0	5		100.0	1		X		95		0	Fungal mycelium; pitchy rot
8	40.0	N	0	6	0	0	100.0		0		X		50	1-2	0	Fungal mycelium; many exit holes
8	40.0	S	0	0	0	0			2				95		0	Fungal mycelium; lots of larval mines & exit holes
9	51.0	N	0	0	1	1		50.0	1		X	WB	90		0	WB galleries only; pitch & hardened phloem
9	51.0	S	0	0	0	0			0		X	WB	40		0	WB galleries only; pitch & hardened phloem
10	30.0	N	0	0	0	0			0		X		10		0	Fungal mycelium; exit holes; some pitch & hardened phloem
10	30.0	S	0	10	0	0	100.0		0		X		15	1-2	0	Fungal mycelium; a little pitch & hardened phloem
Sums			0	78	6	34			10							

Average Gallery Starts (2002-2015) 1.746

Site R- value 0.2
 Average Mortality; Adult (%) 85.0
 Average Mortality; Larval (%) 100.0
 Average Mortality; Combined (%) 94.9

Average Woodpecker Area (%) 0.0

* Other insects abbreviations:

W B = woodborers

M.a.= *Medetera aldrichii* (Diptera)

Scol. = *Scolytus unispinosus* (Douglas-fir engraver beetle)

P.= *Pseudohylesinus nebulosus* (Coleoptera)

Cl.= clerids

Coel.= *Coeloides sp.* (Hymenoptera)

Site Data Sheet
Bark Beetle Winter Mortality and R-Value Survey 2016

Beetle Species: *D. pseudotsugae*
 Date Collected: March 8
 Stand Location: F Road
 Waypoint: 65

Forest District : Quesnel District
 Date Examined : March 29
 Elevation: 1030 - 1035 m
 GPS Coord: N 52°20.125 W 122°18.660

Site: 12

Tree #	DBH	Aspect	Lar.+Pup.		Adults		% Mortality		Gallery Starts	Egg Gall. Only	Pitch-out	Other Insects *	% Sample Consumed	Instar Stages	Woodpecker Area (%)	Comments
			L	D	L	D	Larvae	Adults								
1	45.0	N	0	12	0	7	100.0	100.0	2		X		50	1-2	0	
1	45.0	S	0	12	1	1	100.0	50.0	1		X		5	1-2	0	3 exit holes
2	51.0	N	0	0	1	4		80.0	0				10		0	
2	51.0	S	0	0	0	0			0			Cl.	20		0	Fungal mycelium
3	50.5	N	1	0	9	1	0.0	10.0	2				60	3	0	
3	50.5	S	0	0	3	0		0.0	0	X			5		0	
4	41.5	N	0	0	1	3		75.0	1			M.a.	70		0	Exit holes
4	41.5	S	0	0	0	2		100.0	0				50		0	Dermestidae species larvae; 4 exit holes
5	36.0	N	0	2	1	2	100.0	66.7	1		X		10	1-2	0	Fungal mycelium
5	36.0	S	0	5	0	2	100.0	100.0	0		X		10	1-2	0	Fungal mycelium
6	35.0	N	0	0	8	2		20.0	1			Cl., Scol.	60		0	2 exit holes
6	35.0	S	0	4	9	4	100.0	30.8	0			Cl.	80	1-2	0	
7	38.0	N	0	0	8	3		27.3	0			WB, M.a., Scol.	90		0	
7	38.0	S	0	0	17	2		10.5	0				95		0	
8	53.0	N	0	0	8	1		11.1	0				60		0	Fungal mycelium
8	53.0	S	1	0	15	4	0.0	21.1	0			Cl., Scol.	98	3	0	
9	58.0	N	0	7	2	1	100.0	33.3	0			M.a., Scol.	60	1-2	0	
9	58.0	S	0	2	5	5	100.0	50.0	1			Scol.	60	1-2	0	
10	66.0	N	0	12	1	7	100.0	87.5	0		X		85	1-2	0	Several exit holes
10	66.0	S	0	22	1	3	100.0	75.0	0		X		50	1-2	0	
Sums			2	78	90	54			9							

Average Gallery Starts (2002-2015) 1.746

Site R- value 2.6
 Average Mortality; Adult (%) 37.5
 Average Mortality; Larval (%) 97.5
 Average Mortality; Combined (%) 58.9

Average Woodpecker Area (%) 0.0

* Other insects abbreviations: P.= *Pseudohylesinus nebulosus* (Coleoptera)
 W B = woodborers Cl.= clerids
 M.a.= *Medetera aldrichii* (Diptera) Coel.= *Coeloides* sp. (Hymenoptera)
Scol. = *Scolytus unispinosus* (Douglas-fir engraver beetle)

Site Data Sheet
Bark Beetle Winter Mortality and R-Value Survey 2016

Beetle Species: *D. pseudotsugae*
 Date Collected: March 8
 Stand Location: 4800 Road
 Waypoint: 66

Forest District : Quesnel District
 Date Examined : March 24
 Elevation: 935 - 940 m
 GPS Coord: N 52°31.219 W 122°42.665

Site: 13

Tree #	DBH	Aspect	Lar.+Pup.		Adults		% Mortality		Gallery Starts	Egg Gall. Only	Pitch-out	Other Insects *	% Sample Consumed	Instar Stages	Woodpecker Area (%)	Comments
			L	D	L	D	Larvae	Adults								
1	60.0	N	0	15	1	4	100.0	80.0	0			Coel.	98	1-4	0	Fungal mycelium; 2 exit holes
1	60.0	S	0	29	1	1	100.0	50.0	0			M.a.	85	1-2	0	2 exit holes
2	62.0	N	0	3	3	3	100.0	50.0	2			Scol.	98	1-2	0	
2	62.0	S	0	0	5	1		16.7	0			WB, M.a.	98	1-2	0	
3	53.0	N	5	14	3	2	73.7	40.0	0			WB	60	3-4	0	
3	53.0	S	0	26	1	0	100.0	0.0	0			WB, Coel.	45	1-2	0	
4	63.5	N	0	32	0	0	100.0		0	X	X		10	1	0	
4	63.5	S	0	8	2	1	100.0	33.3	1			WB, Coel., Cl.	25	1-2	0	
5	74.0	N	0	20	17	5	100.0	22.7	0			WB, Coel.	95	1-4	0	
5	74.0	S	0	17	2	4	100.0	66.7	0			WB	98	1-2	0	Fungal mycelium
6	54.0	N	0	14	2	1	100.0	33.3	2			M.a.	50	1-2	0	Fungal mycelium
6	54.0	S	0	24	2	0	100.0	0.0	2				40	1-3	0	Fungal mycelium
7	48.5	N	0	15	0	2	100.0	100.0	2		X		30	1	0	
7	48.5	S	0	18	0	1	100.0	100.0	1				10	1-3	0	Fungal mycelium
8	46.0	N	1	16	10	2	94.1	16.7	1				70	1-4	0	L4 larvae was alive
8	46.0	S	2	23	2	1	92.0	33.3	3				35	1-3	0	Fungal mycelium; L3 larvae was alive
9	36.0	N	0	0	4	0		0.0	1			WB, Coel.	70	1-4	0	Fungal mycelium; 5 WB larvae clustered together
9	36.0	S	0	6	2	3	100.0	60.0	1			Coel.	70	1-4	0	
10	46.0	N	0	5	3	3	100.0	50.0	1			M.a.	95	1-2	0	Fungal mycelium
10	46.0	S	0	12	1	0	100.0	0.0	1			WB	15	1-2	0	Fungal mycelium
Sums			8	297	61	34			18							

Average Gallery Starts (2002-2015) 1.746

Site R- value 2.0
 Average Mortality; Adult (%) 35.8
 Average Mortality; Larval (%) 97.4
 Average Mortality; Combined (%) 82.8

Average Woodpecker Area (%) 0.0

* Other insects abbreviations: P.= *Pseudohylesinus nebulosus* (Coleoptera)
 W B = woodborers Cl.= clerids
 M.a.= *Medetera aldrichii* (Diptera) Coel.= *Coeloides* sp. (Hymenoptera)
 Scol. = *Scolytus unispinosus* (Douglas-fir engraver beetle)

Site Data Sheet
Bark Beetle Winter Mortality and R-Value Survey 2016

Beetle Species: *D. pseudotsugae*
 Date Collected: March 9
 Stand Location: Honolulu Road
 Waypoint: 67

Forest District : Quesnel District
 Date Examined : March 24
 Elevation: 900 - 915 m
 GPS Coord: N 52°51.852

Site: 14

W 123°35.150

Tree #	DBH	Aspect	Lar.+Pup.		Adults		% Mortality		Gallery Starts	Egg Gall. Only	Pitch-out	Other Insects *	% Sample Consumed	Instar Stages	Woodpecker Area (%)	Comments
			L	D	L	D	Larvae	Adults								
1	47.5	N	0	9	37	2	100.0	5.1	1			Coel.	98	1-2	0	
1	47.5	S	1	0	24	0	0.0	0.0	0		X		98	4	0	Small area of pitch
2	84.5	N	12	11	0	0	47.8		0		X	Coel.	40	1-4	0	Live=L3 & L4; 1 dead L2 was parasitized, some pitch
2	84.5	S		10	3	8	100.0	72.7	0			WB	90	1-2	0	
3	86.0	N	1	0	7	4	0.0	36.4	1			M.a.	80	3	0	Fungal mycelium (small amount)
3	86.0	S	0	5	21	1	100.0	4.5	0				98	1-2	0	
4	71.0	N	0	0	31	1		3.1	0			Coel.	98		0	
4	71.0	S	0	4	17	1	100.0	5.6	1			Coel., M.a.	98	1-2	0	
5	53.0	N	0	21	1	3	100.0	75.0	0		X		30	1-2	0	
5	53.0	S	0	10	0	6	100.0	100.0	2				40	1-2	0	
6	49.5	N	0	0	8	6		42.9	0		X	Coel.	90		0	Small area of pitch
6	49.5	S	0	25	0	0	100.0		0		X		10	1-2	0	
7	31.0	N	0	0	22	8		26.7	1			Coel.	95		0	Several exit holes
7	31.0	S	0	6	7	1	100.0	12.5	0				20	1-2	0	
8	40.5	N	0	3	5	2	100.0	28.6	1				98	1-2	0	
8	40.5	S	0	0	6	1		14.3	1			M.a., WB	75		0	Several exit holes
9	61.0	N	1	1	15	6	50.0	28.6	0				25	4	0	
9	61.0	S	1	0	13	3	0.0	18.8	0			Coel.	25	4	0	
10	68.0	N	0	0	22	3		12.0	1			Coel.	95		0	
10	68.0	S	0	0	28	7		20.0	0			Coel.	95		0	
Sums			16	105	267	63			9							

Average Gallery Starts (2002-2015)

1.746

Site R- value 8.1
 Average Mortality; Adult (%) 19.1
 Average Mortality; Larval (%) 86.8
 Average Mortality; Combined (%) 37.3

Average Woodpecker Area (%)

0.0

* Other insects abbreviations:

W B = woodborers

M.a.= *Medetera aldrichii* (Diptera)

Scol. = *Scolytus unispinosus* (Douglas-fir engraver beetle)

P.= *Pseudohylesinus nebulosus* (Coleoptera)

Cl.= clerids

Coel.= *Coeloides* sp. (Hymenoptera)

Site Data Sheet
Bark Beetle Winter Mortality and R-Value Survey 2016

Beetle Species: *D. pseudotsugae*
 Date Collected: March 9
 Stand Location: Nazko River
 Waypoint: 68

Forest District : Quesnel District
 Date Examined : March 28
 Elevation: 870 - 880 m
 GPS Coord: N 53°03.655 W 123°34.597

Site: 15

Tree #	DBH	Aspect	Lar.+Pup.		Adults		% Mortality		Gallery Starts	Egg Gall. Only	Pitch-out	Other Insects *	% Sample Consumed	Instar Stages	Woodpecker Area (%)	Comments
			L	D	L	D	Larvae	Adults								
1	89.0	N	0	0	0	4		100.0	0			WB	10		0	Fungal mycelium; WR gallery only
1	89.0	S	0	0	0	2		100.0	0			WB	40		0	Fungal mycelium; WR gallery only
2	65.5	N	0	0	0	0			0			WB	80		0	Fungal mycelium; no Fd beetles; 6 exit holes
2	65.5	S	0	0	0	0			0			WB	10		0	Fungal mycelium; no Fd beetles; 4 exit holes
3	50.0	N	0	30	0	0	100.0		1			WB	30	1-2	0	Fungal mycelium
3	50.0	S	0	8	0	0	100.0		0			WB	50	1-2	0	Fungal mycelium; significant WB activity
4	61.0	N	0	5	1	4	100.0	80.0	1			WB, M.a.	25	1-2	0	Fungal mycelium
4	61.0	S	1	10	0	1	90.9	100.0	2			M.a.	20	1-4	0	Alive = L4 larvae
5	53.0	N	0	0	8	3		27.3	2			WB, M.a.	40		0	
5	53.0	S	2	20	6	1	90.9	14.3	4			Coel.	75	1-3	0	
6	55.0	N	0	0	8	3		27.3	2				98		0	
6	55.0	S	1	0	5	0	0.0	0.0	2			M.a., Cl., Scol.	95	4	0	
7	65.0	N	0	14	1	1	100.0	50.0	2				95	1-3	0	
7	65.0	S	0	19	0	1	100.0	100.0	1			WB, Coel., M.a.	90	1-4	0	4 exit holes
8	53.0	N	0	3	5	0	100.0	0.0	2				75	1-2	0	
8	53.0	S	1	4	10	2	80.0	16.7	1				90	1-4	0	Alive = L4 larvae
9	39.0	N	0	0	0	1		100.0	0			WB	98		0	Fungal mycelium; 4 exit holes
9	39.0	S	0	0	0	0			0			WB	75		0	Fungal mycelium; 4 exit holes
10	61.0	N	0	4	0	1	100.0	100.0	0			WB	95	1-2	0	Fungal mycelium; dry bark
10	61.0	S	0	5	0	3	100.0	100.0	0			WB	75	1-3	0	Fungal mycelium; 3 exit holes
Sums			5	122	44	27			20							

Average Gallery Starts (2002-2015)

1.746

Site R- value 1.4
 Average Mortality; Adult (%) 38.0
 Average Mortality; Larval (%) 96.1
 Average Mortality; Combined (%) 75.3

Average Woodpecker Area (%) 0.0

* Other insects abbreviations:

W B = woodborers

M.a.= *Medetera aldrichii* (Diptera)

Scol. = *Scolytus unispinosus* (Douglas-fir engraver beetle)

P.= *Pseudohylesinus nebulosus* (Coleoptera)

Cl.= clerids

Coel.= *Coeloides* sp. (Hymenoptera)

Site Data Sheet
Bark Beetle Winter Mortality and R-Value Survey 2016

Beetle Species: *D. pseudotsugae*
 Date Collected: March 11
 Stand Location: Wright Station Road
 Waypoint: 72

Forest District : 100 Mile District
 Date Examined : March 27
 Elevation: 862 - 872 m
 GPS Coord: N 51°52.295 W: 121°40.687

Site: 16

Tree #	DBH	Aspect	Lar.+Pup.		Adults		% Mortality		Gallery Starts	Egg Gall. Only	Pitch-out	Other Insects *	% Sample Consumed	Instar Stages	Woodpecker Area (%)	Comments
			L	D	L	D	Larvae	Adults								
1	60.0	N	0	0	26	0		0.0	0				98		0	Several exit holes present
1	60.0	S	0	0	34	0		0.0	0			Coel.	98		0	
2	42.5	N	0	0	18	2		10.0	0			WB	95		0	
2	42.5	S	0	16	2	1	100.0	33.3	1				40	1-2	0	Fungal mycelium
3	34.0	N	0	0	0	0			0	x	x		2		0	
3	34.0	S	0	0	0	1		100.0	0	x	x		5		0	
4	35.0	N	0	0	0	1		100.0	0	x	x		5		0	
4	35.0	S	1	0	4	6	0.0	60.0	0		x		90	4	0	
5	40.5	N	0	0	14	1		6.7	0			WB	98		0	
5	40.5	S	0	0	3	1		25.0	0			WB, Coel.	25		0	WB gallery only
6	33.5	N	0	0	0	3		100.0	0				20		0	
6	33.5	S	0	5	1	5	100.0	83.3	1				95	1-2	0	
7	30.5	N	0	0	58	0		0.0	1			WB	98		0	
7	30.5	S	0	0	3	3		50.0	0			Coel.	98		0	
8	30.0	N	0	0	27	11		28.9	0			Coel.	95		0	
8	30.0	S	0	0	14	1		6.7	0			M.a., Coel., WB	80		0	A few exit holes present
9	41.0	N	5	0	19	4	0.0	17.4	0			.	98	3-4	0	Small area of fungal mycelium
9	41.0	S	0	0	15	8		34.8	0				90		0	Small area of fungal mycelium
10	33.0	N	0	0	13	3		18.8	0				50		0	
10	33.0	S	0	0	11	3		21.4	0				100		0	Small area of fungal mycelium
Sums			6	21	262	54			3							

Average Gallery Starts (2002-2015) 1.746

Site R- value 7.7
Average Mortality; Adult (%) 17.1
Average Mortality; Larval (%) 77.8
Average Mortality; Combined (%) 21.9

Average Woodpecker Area (%) 0.0

* Other insects abbreviations:

W B = woodborers

M.a.= *Medetera aldrichii* (Diptera)

Scol. = *Scolytus unispinosus* (Douglas-fir engraver beetle)

P.= *Pseudohylesinus nebulosus* (Coleoptera)

Cl.= clerids

Coel.= *Coeloides sp.* (Hymenoptera)

Site Data Sheet
Bark Beetle Winter Mortality and R-Value Survey 2016

Beetle Species: *D. pseudotsugae*

Date Collected: March 12

Stand Location: Dingwall Lake

Waypoint: 71

Forest District : 100 Mile District

Date Examined : March 21

Elevation: 962 - 968

GPS Coord: N 51°49.830

Site: 17

W: 121°43.254

Tree #	DBH	Aspect	Lar.+Pup.		Adults		% Mortality		Gallery Starts	Egg Gall. Only	Pitch-out	Other Insects *	% Sample Consumed	Instar Stages	Woodpecker Area (%)	Comments
			L	D	L	D	Larvae	Adults								
1	60.0	N	1	0	0	1	0.0	16.7	0		x		25	4	0	
1	60.0	S	0	13	5	3	100.0	75.0	0		x	WB, Coel.	80	2	0	
2	42.5	N	0	0	1	0		0.0	0		x		90		0	
2	42.5	S	0	10	4	3	100.0	27.3	0		x		80	2	0	
3	34.0	N	0	0	8	2		10.5	0			M.a.	95		0	
3	34.0	S	0	0	17	1		11.1	0			WB	98		0	
4	35.0	N	0	0	8	9		60.0	0			WB	95		0	
4	35.0	S	0	4	6	2	100.0	22.2	1			WB	50	2	0	
5	40.5	N	0	0	7	2		40.0	0				50		0	
5	40.5	S	0	0	3	1		16.7	0			WB	30		0	
6	33.5	N	3	6	5	1	66.7	12.5	3			WB	60	3	0	Small bit of fungal mycelium
6	33.5	S	1	5	7	2	83.3	8.7	0		x		30	2	0	
7	30.5	N	0	0	21	8		38.1	0				90		0	Fungal mycelium
7	30.5	S	2	4	13	1	66.7	4.3	0			M.a., Coel.	90	1-4	0	
8	30.0	N	0	0	22	0		0.0	0				98		0	
8	30.0	S	0	0	42	2		22.2	0			M.a., Coel.	98		0	Photo #2585-2595
9	41.0	N	0	0	7	4		30.8	1				90		0	Small bit of fungal mycelium
9	41.0	S	0	1	9	3	100.0	10.7	0			M.a., Coel.	50	4	0	
10	33.0	N	3	0	25	3	0.0	8.6	0			WB, M.a.	98	3	0	
10	33.0	S	0	0	32	1		0.4	0				98		0	
Sums			10	43	242	49			5							

Average Gallery Starts (2002-2015) 1.746

Site R- value 7.2
Average Mortality; Adult (%) 16.8
Average Mortality; Larval (%) 81.1
Average Mortality; Combined (%) 26.7

Average Woodpecker Area (%) 0.0
* Other insects abbreviations:
W B = woodborers
M.a.= *Medetera aldrichii* (Diptera)
Scol. = *Scolytus unispinosus* (Douglas-fir engraver beetle)

P.= *Pseudohylesinus nebulosus* (Coleoptera)
Cl.= clerids
Coel.= *Coeloides* sp. (Hymenoptera)

Site Data Sheet
Bark Beetle Winter Mortality and R-Value Survey 2016

Beetle Species: *D. pseudotsugae*
 Date Collected: March 12
 Stand Location: Wright Station/Clancy's
 Waypoint: 73
 Waypoint: 69

Forest District : 100 Mile District
 Date Examined : March 26
 Elevation: 837 m

Site: 18a and 18b

GPS Coord: N 51°52.296
 GPS Coord: N 51°52.988

W: 121°40.778 (Trees # 1 - # 5)
 W: 121°37.247 (Trees # 6 - # 10)

Tree #	DBH	Aspect	Lar.+Pup.		Adults		% Mortality		Gallery Starts	Egg Gall. Only	Pitch-out	Other Insects *	% Sample Consumed	Instar Stages	Woodpecker Area (%)	Comments
			L	D	L	D	Larvae	Adults								
1	42.5	N	0	11	17	5	100.0	22.7	1		x	Coel.	98	1-4	0	beetle engulfed in pitch, only 2 galleries, 2 unknown insects, photos # 2812 -2826
1	42.5	S	0	0	2	1		33.3	1		x	WB	40		40	pitching of parent gallery; Woodpecker activity
2	33.0	N	0	0	0	0			1	x		WB	20		0	fungal mycelium, major WB activity
2	33.0	S	0	0	0	0			1		x	WB	2		0	mainly WB
3	57.0	N	0	13	0	0	100.0		1		x		20	1-2	0	
3	57.0	S	0	30	0	3	100.0	100.0	0		x		20	1-2	0	
4	69.0	N	0	30	0	0	100.0		0			WB	20	1-2	0	
4	69.0	S	0	0	17	3		15.0	0			WB	80		0	
5	97.0	N	0	6	0	2	100.0	100.0	1			WB	85	1-2	0	fungal mycelium
5	97.0	S	0	0	0	2		100.0	0			M.a., WB	98		0	fungal mycelium, 2 old exit holes
6	111.0	N	0	10	27	2	100.0	6.9	0			WB	98	1-2	0	2 WB larvae
6	111.0	S	0	28	6	8	100.0	57.1	2			WB	90	1-3	0	
7	75.5	N	0	1	5	2	100.0	28.6	1			WB, M.a.	50	1	0	
7	75.5	S	0	6	0	0	100.0		0				10	1-2	0	
8	76.5	N	0	0	0	2		100.0	0	x			2		0	
8	76.5	S	0	18	6	0	100.0	0.0	2			Cl, WB	85	1-2	0	2 exit holes
9	80.5	N	0	63	0	0	100.0		1		x		20	1	0	
9	80.5	S	0	0	0	2		100.0	0			WB	98		0	fungal mycelium, bark crumbling
10	94.5	N	0	18	8	2	100.0	20.0	1			WB	98	1-2	0	fungal mycelium, 3 exit holes, old attack with thick bark and WB mining
10	94.5	S	0	0	12	2		14.3	2			WB, M.a.	90		0	
Sums			0	234	100	36			15							

Average Gallery Starts (2002-2015) 1.746

Site R- value 2.9
 Average Mortality; Adult (%) 26.5
 Average Mortality; Larval (%) 100.0
 Average Mortality; Combined (%) 73.0

* Other insects abbreviations:

W B = woodborers

M.a.= *Medetera aldrichii* (Diptera)

Scol. = *Scolytus unispinosus* (Douglas-fir engraver beetle)

Average Woodpecker Area (%) 2.0

P.= *Pseudohylesinus nebulosus* (Coleoptera)

Cl.= clerids

Coel.= *Coeloides* sp. (Hymenoptera)

Site Data Sheet
Bark Beetle Winter Mortality and R-Value Survey 2016

Beetle Species: *D. pseudotsugae*
 Date Collected: March 13
 Stand Location: Lac La Hache
 Waypoint: 74

Forest District : 100 Mile District
 Date Examined : March 26
 Elevation: 911 - 916 m
GPS Coord: N 51°49.676 W: 121°28.364

Tree #	DBH	Aspect	Lar.+Pup.		Adults		% Mortality		Gallery Starts	Egg Gall. Only	Pitch-out	Other Insects *	% Sample Consumed	Instar Stages	Woodpecker Area (%)
			L	D	L	D	Larvae	Adults							
1	78.0	N	0	0	20	3		13.0	0			WB, Cl.	95		0
1	78.0	S	0	11	11	2	100.0	15.4	1			Cl., WB	98	1-4	0
2	49.0	N	0	5	16	1	100.0	5.9	0			M.a.,WB, Coel.	90	1-4	0
2	49.0	S	0	21	7	2	100.0	22.2	0			WB	98	1-2	0
3	64.0	N	0	25	6	3	100.0	33.3	2			WB	80	1-2	0
3	64.0	S	0	23	3	0	100.0	0.0	0			WB	75	1-2	0
4	69.0	N	0	25	7	1	100.0	12.5	2			WB	95	1-2	0
4	69.0	S	0	10	8	1	100.0	11.1	2			M.a.,WB	90	1-2	0
5	88.0	N	0	16	16	3	100.0	15.8	1			Cl., WB	99	1-2	0
5	88.0	S	0	10	12	0	100.0	0.0	0			WB	99	1-2	0
6	63.5	N	0	3	28	0	100.0	0.0	0				95	1-2	0
6	63.5	S	0	0	32	0		0.0	0			WB	90		0
7	51.0	N	1	25	7	2	96.2	22.2	1			Coel, M.a.	95	1-3	0
7	51.0	S	0	9	4	0	100.0	0.0	2			M.a.	80	1-2	0
8	51.0	N	0	0	3	3		50.0	0			Cl.	75		0
8	51.0	S	0	5	2	0	100.0	0.0	0			WB	50	1-2	0
9	67.5	N	0	0	10	2		16.7	1			Cl., WB	98		0
9	67.5	S	0	1	9	0	100.0	0.0	1			Coel.	99	4	0
10	74.0	N	0	11	0	0	100.0		2		x		15	1-2	0
10	74.0	S	0	0	0	1		100.0	1			WB	2		0

Sums	1	200	201	24	16
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Average Gallery Starts (2002-2015)	1.746
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Site R- value	5.8
Average Mortality; Adult (%)	10.7
Average Mortality; Larval (%)	99.5
Average Mortality; Combined (%)	52.6

Average Woodpecker Area (%)	0.0
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* Other insects abbreviations:
 W B = woodborers
 M.a.= *Medetera aldrichii* (Diptera)
 Scol. = *Scolytus unispinosus* (Douglas-fir engraver beetle)

P.= *Pseudohy*
 Cl.= clerids
 Coel.= *Coeloc*

Site: 19

Comments
fungal mycelium
fungal mycelium
fungal mycelium
fungal mycelium
fungal mycelium
fungal mycelium, the Cl. is blue-coloured
5 WB @ 10 - 15mm length
fungal mycelium, live larvae = L3, dead larvae = L1-2
fungal mycelium
fungal mycelium, bark very dry with exit holes
fungal mycelium, bark very dry with exit holes
fungal mycelium
1 failed gallery
1 exit hole, 1 failed gallery ~ 2cm long, WB activity

Ilesinus nebulosus (Coleoptera)

Iles sp. (Hymenoptera)

Site Data Sheet
Bark Beetle Winter Mortality and R-Value Survey 2016

Beetle Species: *D. pseudotsugae*
 Date Collected: March 14
 Stand Location: Canim Lake
 Waypoint: 75

Forest District : 100 Mile District
 Date Examined : March 27
 Elevation: 1020 - 1030 m
GPS Coord: N 51°54.866

Site: 20

 W: 120°45.598

Tree #	DBH	Aspect	Lar.+Pup.		Adults		% Mortality		Gallery Starts	Egg Gall. Only	Pitch-out	Other Insects *	% Sample Consumed	Instar Stages	Woodpecker Area (%)	Comments
			L	D	L	D	Larvae	Adults								
1	71.0	N	0	0	1	0		0.0	0				80		0	little bit of fungal mycelium, WB gallery only
1	71.0	S	0	2	1	5	100.0	83.3	0				98	1-2	0	fungal mycelium
2	48.5	N	0	7	1	0	100.0	0.0	0		x	WB	15	1-2	0	little bit of fungal mycelium, WB gallery only, a small amount of pitch
2	48.5	S	0	3	0	3	100.0	100.0	0		x		30		0	fungal mycelium
3	63.0	N	0	8	0	0	100.0		0		x	WB, M.a., Coel.	15	1-2	0	black fungus present, photo # 2843 - 2845
3	63.0	S	0	15	0	0	100.0		0		x		15	1-2	0	fungal mycelium & black fungus
4	53.0	N	0	0	5	0		0.0	0			WB, M.a.	50		0	WB gallery only
4	53.0	S	0	0	0	2		100.0	1			Coel.	30		0	fungal mycelium, 1 exit hole
5	59.0	N	0	0	0	1		100.0	0	x			10		0	
5	59.0	S	0	2	0	1	100.0	100.0	0		x	Coel.	5	1-2	0	
6	31.0	N	1	0	10	2	0.0	16.7	0				25	4	0	
6	31.0	S	0	0	7	1		12.5	0			Coel.	10		0	
7	60.0	N	0	0	20	2		9.1	0			WB, Coel.	95		0	
7	60.0	S	1	1	20	1	50.0	4.8	0			WB, M.a.	60	4	0	
8	66.0	N	1	0	10	4	0.0	28.6	0			WB, Coel.	50	3	0	
8	66.0	S	1	8	8	3	88.9	27.3	0			Coel.	70	1-2	0	
9	47.5	N	1	8	19	3	88.9	13.6	0			Coel.	90	1-2	0	
9	47.5	S	0	0	10	1		9.1	0			Coel., Scol., M.a.	90		0	photo # 2846 - 2872
10	55.0	N	0	7	12	5	100.0	29.4	1		x	Cl., Coel.	70	1-2	0	small area of pitch in larval mine
10	55.0	S	2	4	0	3	66.7	100.0	0				60	L1-2, L4, P	0	dead=L1-2, 1 live L4, 1 pupae
Sums			7	65	124	37			2							

Average Gallery Starts (2002-2015) 1.746

Site R- value **3.8**
 Average Mortality; Adult (%) **23.0**
 Average Mortality; Larval (%) **90.3**
 Average Mortality; Combined (%) **43.8**

* Other insects abbreviations:

W B = woodborers

M.a.= *Medetera aldrichii* (Diptera)

Scol. = *Scolytus unispinosus* (Douglas-fir engraver beetle)

Average Woodpecker Area (%) 0.0

P.= *Pseudohylesinus nebulosus* (Coleoptera)

Cl.= clerids

Coel.= *Coeloides* sp. (Hymenoptera)