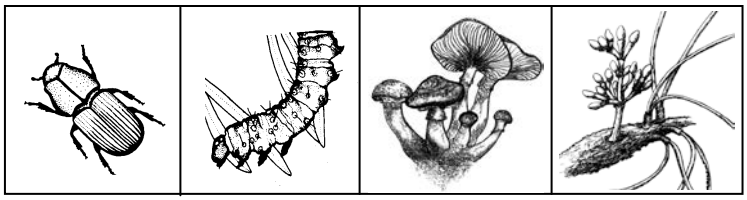
Forest Health Protection



Report 10-04 **June 2010**

2009 NORTH IDAHO DOUGLAS-FIR TUSSOCK MOTH TRAPPING SYSTEM REPORT

Lee Pederson, Entomologist,
Doug Wulff, Biological Science Technician
USDA Forest Service, Northern Region, Coeur d'Alene

Tom Eckberg, Lands Program Specialist-Forest Health,
Neal Kittelson, Exotic Forest Pest Data Coordinator
Idaho Department of Lands

Introduction

The Douglas-fir tussock moth (DFTM) Early Warning System (EWS) uses a series of permanent pheromone trap sites to identify increasing populations prior to undesirable tree defoliation; it is essentially a modification of the system devised by Daterman et al. (1979). The trapping system is designed to detect DFTM population changes over large geographic areas, and to give land mangers advance warning of an impending outbreak. Region 1 of the US Forest Service (USFS-R1) maintains trapping sites from Potlatch to Lucille (Fig. 2) and collaborates with the Idaho Department of Lands (IDL). Their personnel maintain a network of trap sites from Coeur d'Alene south to Moscow and east to Harvard (Fig. 3). These sites have been selected on the basis of the impact of potential DFTM defoliation management objectives.

Five pheromone-baited sticky traps are installed at each trapping site to monitor the flight of male moths. They are placed in host trees (grand fir or Douglas-fir) in a transect with a minimum spacing of 75 ft. between traps. An average trap catch of 25 or more moths per trap, per trapping site is the threshold used to indicate where heavy defoliation may occur the following year. Follow-up sampling is then conducted in these areas to locate potentially injurious population densities (Daterman et al. 1979).

Where trap counts have reached the average trap catch threshold, egg mass sampling should be conducted in the fall and larval sampling should be conducted in the spring of the following year. Larval sampling may also be conducted at sites with historic tussock moth problems before trap counts reach an average of 25 moths per trap, per trap site.

2009 Trapping Results

Thirty-one trapping sites were monitored by USFS-R1 (Appendix 1) and 133 by IDL (Appendix 2), for a total of 164 monitored sites in north Idaho. The USFS-R1 mean trap capture was 2.06 moths per trap, up from 0.30 and 0.47 moths per trap in 2008 and 2007 respectively. None of the sites had trap captures exceeding an average of 25 or more moths per trap, per trap site. However, the Pine Knob (Plot #1-3, Appendix 1) trapping site yielded an average of 16.4 moths per trap, which compares to numbers recorded in 2001, after the start of the 2000 outbreak.

The mean trap capture for the IDL traps in 2009 was 11.9 moths per trap, up from 1.12 and 0.42 moths per trap in 2008 and 2007 respectively. Twenty-two IDL trap sites in north Idaho had average trap captures equal to or greater than 25 moths per trap, and 4 sites exceeded an average of 50 moths per trap. The site with the highest average was newly added in 2009 (plot #908, Appendix 2), located southeast of Plummer. The average catch per trap at that site was 71.6 moths/trap.

Defoliation

The most recent outbreak in north Idaho occurred in 2000, and resulted in three years of defoliation on state and private land between Plummer and Moscow, and on adjacent Clearwater National Forest lands. Prior to the 2000 outbreak, an outbreak in 1986 caused only 1 year of visible defoliation. Both outbreaks were preceded by increasing numbers of trap captures (Fig. 1). Outbreaks of DFTM have occurred in this general area approximately every 8-10 years since the 1940's (Randall 2002, Tunnock 1973).

This year's aerial detection survey showed no DFTM-caused defoliation. However, in urban settings of Coeur d'Alene, Rathdrum, Hayden, and St. Maries, ornamental "sentinel trees" (Fig. 4) have shown signs of defoliation. Typically landscape blue spruce are affected, but grand fir was found defoliated by DFTM larvae northeast of Rathdrum and south of Coeur d'Alene near Mica Flat (Eckberg and Kittelson 2009). Blue spruce in St. Maries have been partially defoliated each year since 2007, and trees in the Rathdrum city park and the Idaho Panhandle National Forest nursery in Coeur d'Alene have been partially defoliated each year starting in 2007.

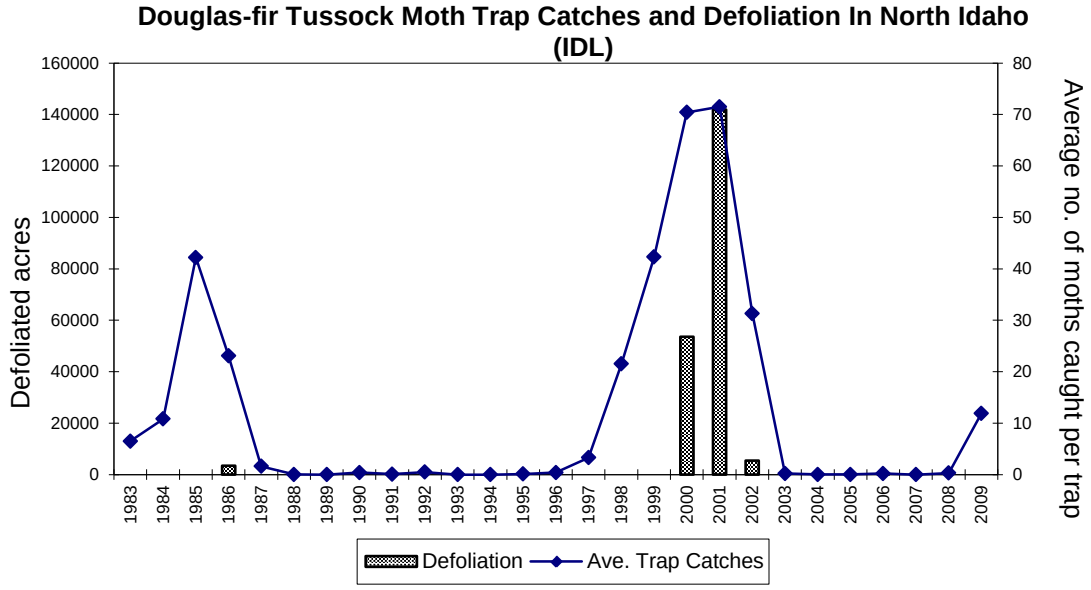


Figure 1. Average trap catches by IDL north of Moscow and aerially detected defoliation for the last two DFTM outbreaks (adapted from Kegley et al., 2004).

Larval sampling

Idaho Department of Lands typically conducts larval sampling in north Idaho using a threshold lower than 25 moths per trap. Trap sites where trap catches have increased or have historically proven to be trouble spots are likely to be sampled the following year. Larval sampling was performed at 44 of the 133 plots trapped by IDL in 2009 (Appendix 2), using the lower crown sequential sampling methods described by Mason (1978). Larvae were observed at 27 of these sites (Fig. 4), and of these, five were classified as having suboutbreak populations, one was classified as intermediate, and the remaining locations had low populations. Additional sampling was performed at five of the sites. Sampling was conducted at the trap site, and additional samples were taken within a one mile radius of the plot center. Mid-crown sampling for later instars was not performed in 2009. In 2008, a total of 38 sites were sampled (lower crown), and larvae were observed at three sites.

Lower crown sampling for larvae will be completed by IDL at more sites in 2010, and mid-crown sampling will occur at the same sites later in the season to gauge larval survival. Additional egg mass surveys in the fall of 2010 at sites with high trap captures should help predict potential problem areas in 2011.

Egg Mass Sampling

Due to the high trap counts observed at IDL sites in 2009, egg mass sampling was performed by IDL personnel at 25 sites (Appendix 2) with the highest trap captures ($\geq$ 20 average /trap). Single egg masses were found at four sites (Fig. 5). The low number of egg masses found indicates that heavy defoliation is unlikely at these sites in 2010, but that the populations are building. Larval sampling in 2010 will be a better predictor of population levels and future defoliation.

Conclusions

The DFTM, EWS is effective at predicting outbreaks, but *it is not designed nor intended* to predict exactly where defoliation will occur (Sheehan and Ragenovich 2003). Land managers, with consultation from local entomologists, will need to identify and prioritize areas where management objectives are most vulnerable to significant defoliation impacts. In areas where treatment applications may be considered to mitigate impacts, cocoon and/or larval sampling should be conducted in advance to estimate current DFTM populations (Brooks et al. 1978).

In north Idaho, the EWS effectively predicted the 1986 and 2001 DFTM outbreaks which were preceded by several years of increasing trap catches. However, both outbreaks varied considerably in duration and acres affected (Kegley et al. 2004). This confirms the need for additional egg mass or larval sampling to better predict population levels (Mason and Torgersen 1983).

Trapping for DFTM will continue annually, and at this point we expect trap catches to likely increase in 2010.

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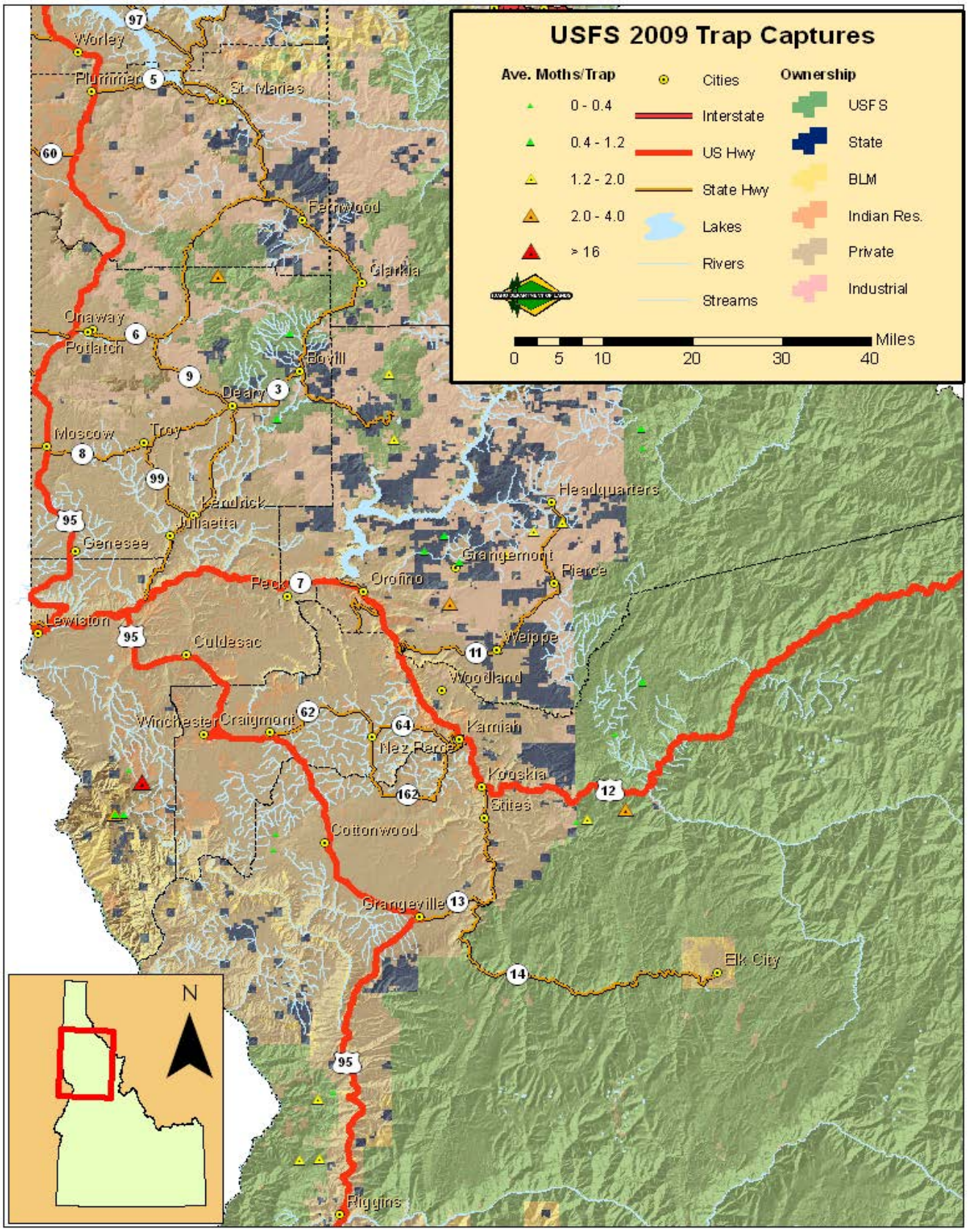

Figure 2. Map of plots trapped by USFS for Douglas-fir tussock moth in 2009.

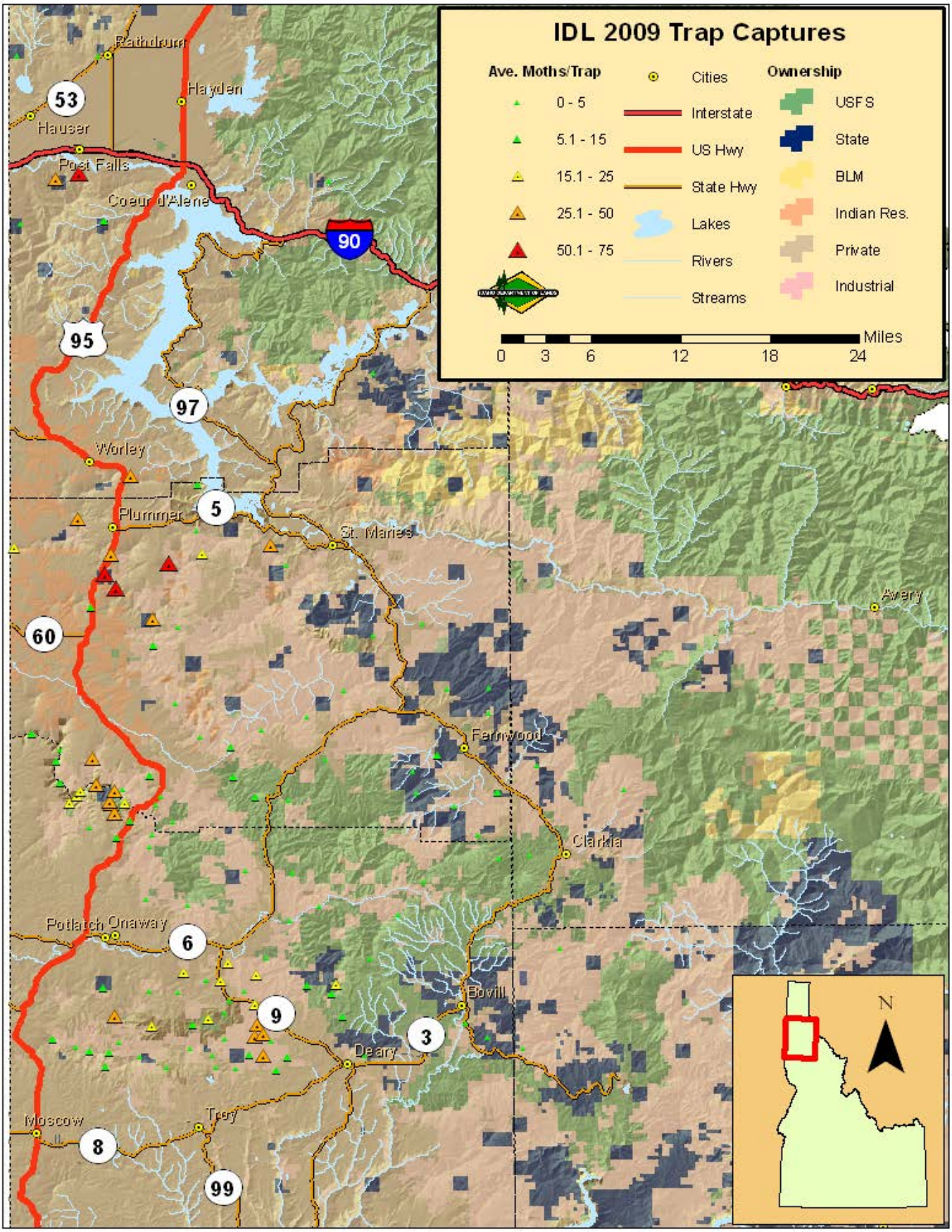

Figure 3. Map of plots trapped by IDL for Douglas-fir tussock moth in 2009.

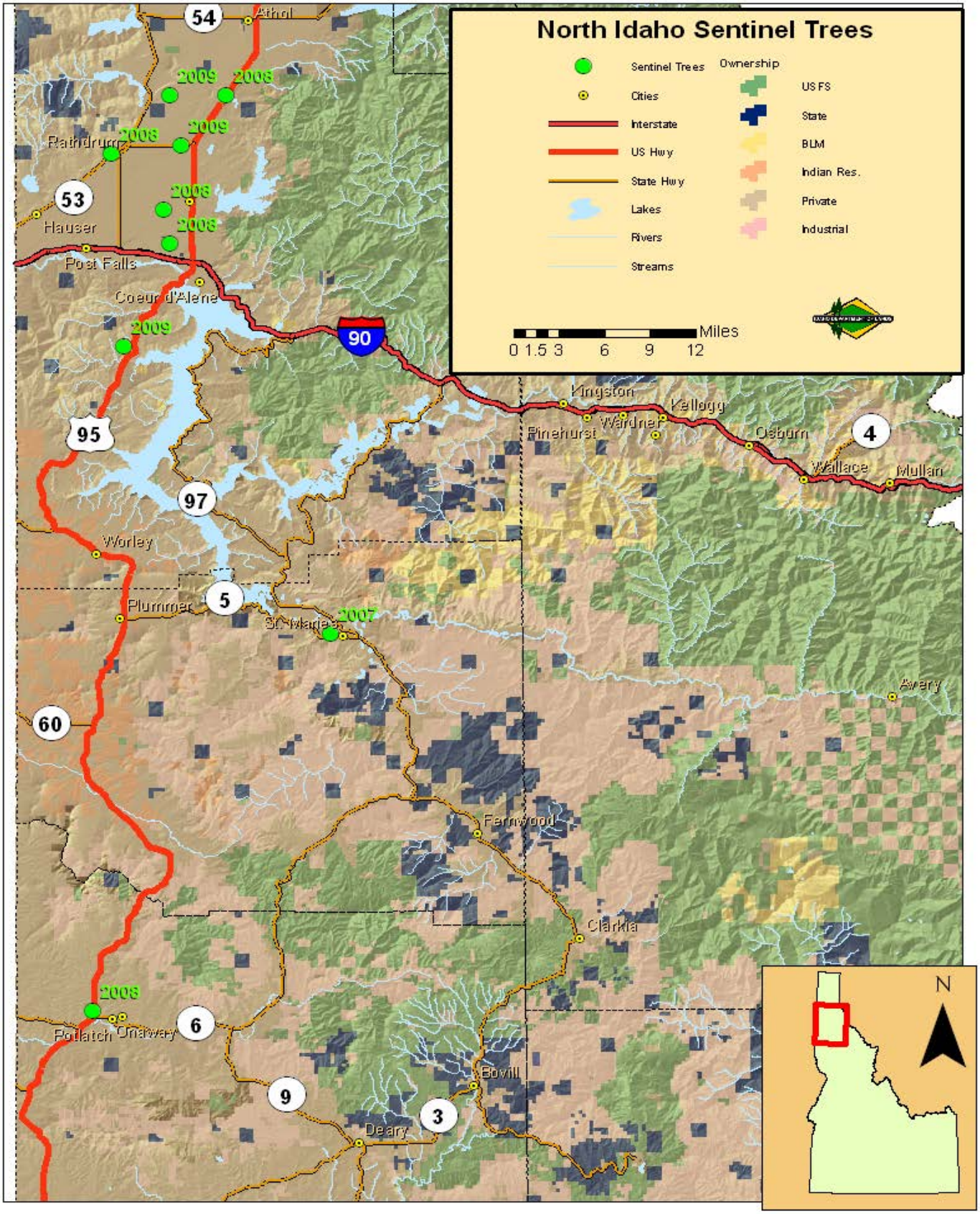

Figure 4. Defoliation of ornamental blue spruce or grand fir (sentinel trees) in north Idaho since 2007.

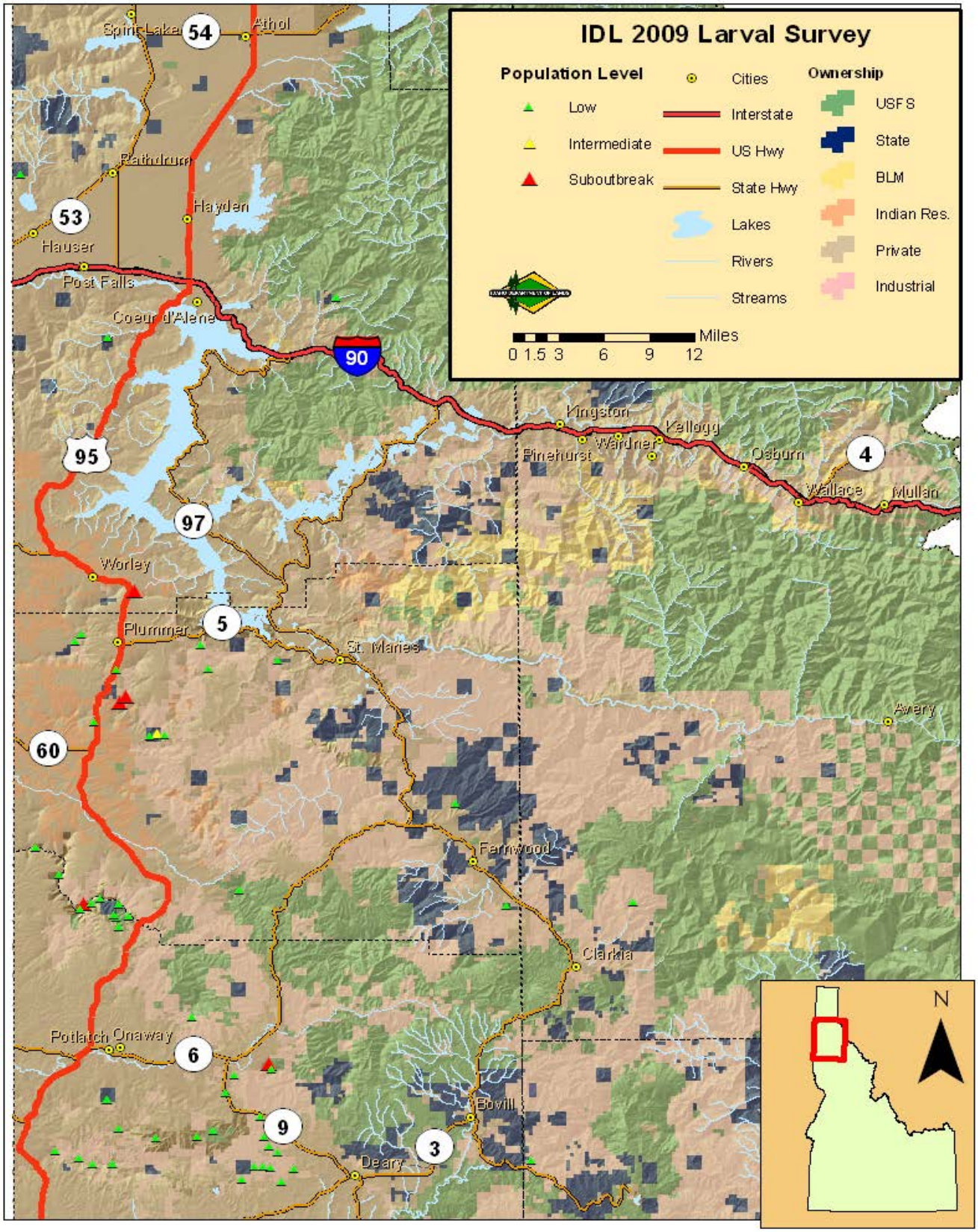

Figure 5. Sites sampled for Douglas-fir tussock moth larvae by IDL in 2009.

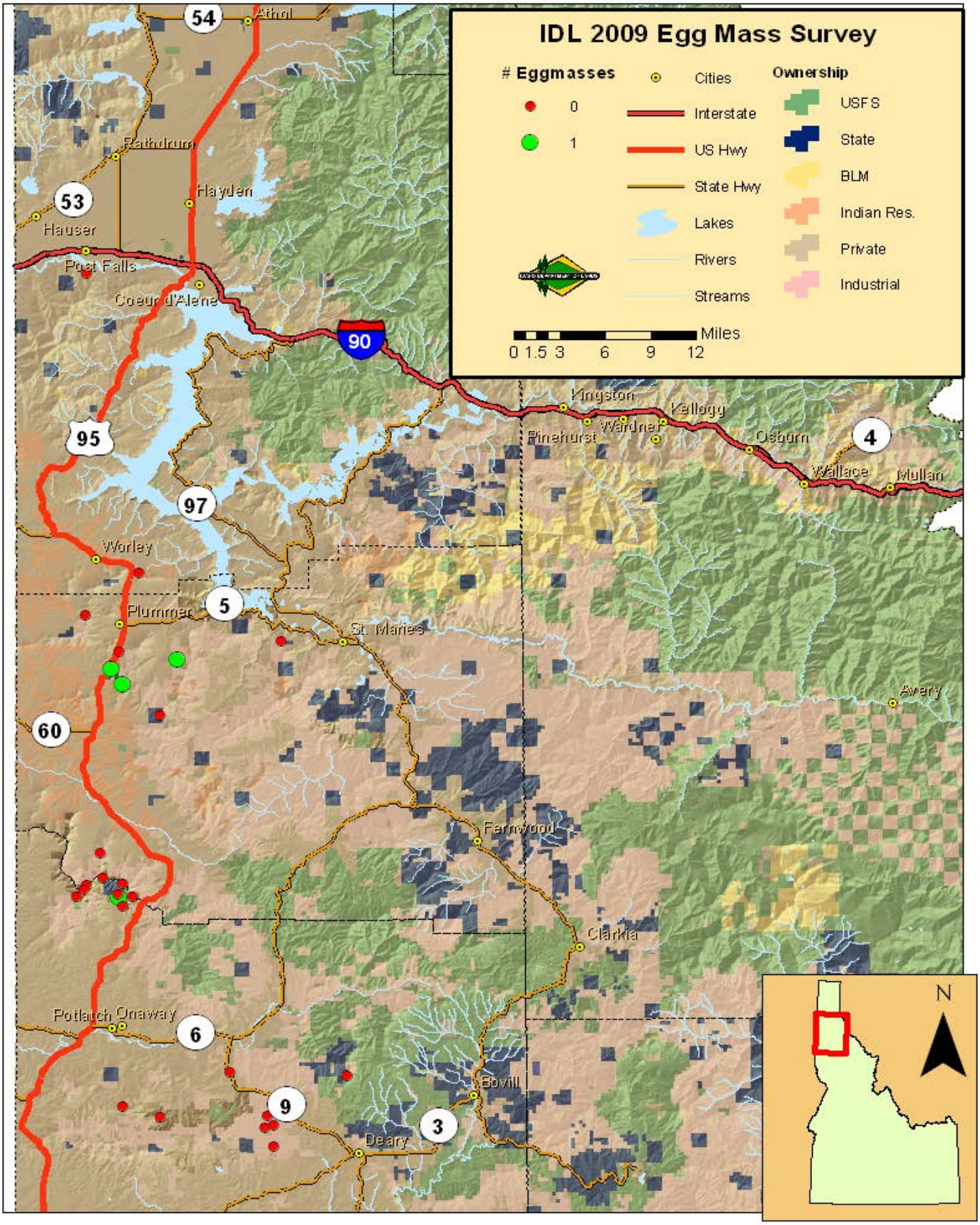

Figure 6. Sites sampled for Douglas-fir tussock moth egg masses by IDL in 2009.

Appendix 1. Mean trap catch for USFS monitored plots from Potlatch to Lucille for the past 9 years.

Plot ID	Site Name	2009	2008	2007	2006	2005	2004	2003	2002	2001
1-1	Lodge Point	3.0	0.0‡	0.0	0.0	0.0	0.0	0.2	1.2	1.6
1-2	Goddard	*	*	*	*	*	0.0	*	*	*
1-3	Pine Knob	16.4	0.0‡	0.2	0.3	0.0	0.0	0.2	0.0	14.6
1-4	Potato Hill	1.4	0.0‡	0.0	0.0	0.0	0.0	0.0	0.2	0.2
1-5	Big Tinker	0.0	0.0‡	0.0	0.2	0.0	0.0	0.0	0.6	1.4
2-1	Rhett Cr.	0.0	0.33§	0.0	0.0	0.0	0.0	0.0	0.0	0.4
2.2	Christie Cr.	1.4	0.67§	0.0	0.0	0.0	0.0	0.0	0.0	8.0
2.3	Cow Cr. Saddle	*	*	*	*	*	0.0	*	0.2	0.2
2.4	Low Saddle	*	*	0.0	0.4	0.0	0.0	0.0	0.0	0.4
2.5	South Cow Cr.	1.4	0.0§	0.0	0.0	0.0	0.0	0.0	0.0	1.8
2.6	Spring Mtns.	1.4	0.0§	0.0	0.0	*	*	*	*	*
3.1	Keuterville	0.4	0.0§	0.0	0.0	0.0	0.0	0.0	0.0	2.2
3.2	Cottonwood Butte	0.4	0.0‡	0.0	0.0	0.0	0.0	0.0	0.0	2.8
4-1	Lake Waha	0.0	0.0§	0.0	0.0	0.0	0.2	0.0	0.0	10.2
4-2	Black Pine	4.0	1.25‡	0.2	0.0	0.0	0.0	*	0.2	18.2
4-3	Junction	0.8	0.0§	0.0	0.0	0.0	0.0	0.0	0.0	*
4-4	Captain John	1.0	0.33§	0.0	0.0	0.0	0.0	0.0	0.2	3.6
4-5	Webb Cr.	*	*	0.0	0.0	0.0	0.0	0.0	0.0	1.4
4-6	Forest	*	*	*	*	*	*	*	*	*
4-7	New Site (BLM)	9.4	0.0§	*	*	*	*	*	*	*
5-1	Johnson	*	*	*	0.0	0.0	0.0	0.0	4.8	4.0
5-2	Angel Butte	0.6	0.0	*	0.0	0.0	0.0	0.4	0.8	5.8
5-3	Grangemont	1.0	0.80	1.40	1.40	0.0	0.0	0.4	2.2	16.2
5-4	Bergamin Cr.	2.0	0.60	4.60	0.0	0.0	0.0	0.0	4.8	35.6
5-5	Bald Mtn.	1.6	0.20	3.4	1.8	0.0	0.0	0.2	9.0	36.0
5-6	Summit Landing	1.8	1.00	3.2	0.6	0.0	0.0	0.2	0.0	14.6
5-7	Shin Pt.	0.2	0.25	0.0	0.0	0.0	0.0	0.0	1.3	13.2
5-8	Swanson Cr.	0.8‡	.40	0.8	0.6	0.0	0.0	1.4	0.0	17.5
5-9	Skull Cr.	*	*	*	*	*	*	*	*	*
5-10	Cooper	*	*	0.0	0.0	0.0	0.0	0.0	0.2	3.8
5-11	Cook Cr. (new site 2009)	3.6	*	*	*	*	*	*	*	*
5-12	Whiskey Cr. (new Site 2009)	1.0	*	*	*	*	*	*	*	*
6-1	Canyon Junction	1.2	0.25‡	0.40	0.0	0.0	0.0	0.0	0.80	11.2
6-2	Fan Saddle	*	*	*	0.0	0.0	0.0	0.0	0.2	0.6
6-3	Mud Cr.	0.0‡	0.0	*	*	*	*	*	*	*
7-1	Laird Park	*	0.0	0.2	0.0	0.0	0.0	0.0	52.2	*
7-2	Little Bald Mtn.	3.6	*	0.0	0.0	0.0	0.0	0.2	22.0	*
7-3	Little Boulder Cr.	1.0	0.20	0.0	1.2	0.0	0.0	4.0	40.4	*
7-4	W. Fork Potlatch Rd.	1.2	0.80	0.0	0.8	0.6	0.0	2.4	40.4	*
7-5	Elk Cr. Falls	2.0	0.80	0.2	0.4	0.4	0.0	4.8	15.8	*
7-6	Morris Cr.	1.4	0.75	0.0	0.2	0.0	0.0	0.2	26.5	*
	Number of Sites Trapped	31	29	31	33	33	33	32	33	26
	Avg. No. of Moths/Site	**2.06**	**0.30**	**0.47**	**0.24**	**0.03**	**0.01**	**0.45**	**6.82**	**8.30**

* Indicates Sites Not Trapped
‡ Indicates 4 traps/site in 2008
§ Indicates 3 traps/site in 2008

Appendix 2. Mean trap catch for IDL monitored plots from Coeur d'Alene to Moscow for the past 9 years.

	Area	2009	2008	2007	2006	2005	2004	2003	2002	2001
3	Lolo Pass	5.2	0.4	0‡	0	0	0	0	8.2	110.2
4	Charles Butte	5.4	0	0‡	0	0	0	0.2	28.2	84.8
5	Peterson Point	2.2	0	0‡	*	0	0	0.2	15.8	101.0
6	East Dennis	9.0	0.2	0.2‡	0	0	0	1.2	75	101.2
7	East Gold Hill	3.4‡	0.8	0‡	0	0	0	0.2	14.8	53.8
8	Flat Creek	1.0	0.2	0‡	0.4	0	0.2	0	7.6	88.0
9	Long Creek	*20.6*‡	3.4‡	3‡	0.2	0	0.2	0.2	33.6	0.2
10	Paradise Point	2.0‡	1.2	0.2‡	0.2	0	0.2	0	17	91.8
11	Mineral Mountain	*25.0*‡	4.2‡	0.5‡	0	0	0	1.8	75.2	56.4
12	Mission Mountain	*20.8*	0.6	0.2‡	1.2	0	1.2	0.2	25.6	1.6
13	Spring Valley Creek	0.6	0	0‡	*	0	0	0	5.4	58.0
14	Vassar Meadows	12.8	0‡	0.4‡	0	0	0	0	95.8	102.8
15	Fairview Knob	9.2‡	0.8‡	0.4‡	0	0	0	0.2	39	105.8
21	West Twin (10-115)	5.3‡	1.2‡	0.4	*	0	0	0	8.8	75.4
22	Moscow Mtn (115-114)	3.6	0	0	0	0	0	0.2	5.8	78.0
101	Benewah	5.0	0	0.2‡	1.4	0	1.4	2.8	52.2	92.4
102	Windfall Pass	*32.0*‡	12.5‡	0.75‡	0.6	0	0.6	0.6	40.4	99.6
103	Squaw Creek	1.8	0	0	*	0	0	0.2	9.4	89.2
104	Moses Mountain	3.4	0.2	0	0	0	0	0.2	6.4	67.8
105	Little John Creek	2.2	0‡	0.6	0	0	0	1.4	45	78.4
106	Emida Peak	1.6	0‡	0.4	0	0	0.2	2.6	64.2	75.8
107	North-South Ski Area	m	0	0	0	0	0	0.6	83.2	107.2
108	Bald Mountain	*	*	*	*	0	0	0	25.2	53.8
109	Laird Park	2.2	m	0	0	0	0	1	66	86.0
110	North Fork Palouse River	0.4	0	0	0	0	0	1	83.2	75.2
111	Mica Mountain	20.8	0.2	0.2	0	0	0	0.2	67.6	93.6
112	Schwartz Creek	7.0	0.4	0	0	0	0	0.2	80.6	110.6
113	Big Bear Creek	11.6‡	1.8‡	0.6‡	0.6	0	0.6	0.2	47.8	87.0
114	Big Meadow Creek	0.4	0	0‡	0.2	0	0.2	0	11.2	70.2
115	East Twin Mountain	5.4‡	1.2‡	0.4‡	0.2	0	0.2	0	7.6	85.4
116	Crane Point	0	0.2	0	*	0	0	0	51	89.0
117	Sheep Creek	*20.8*‡	2.0	0‡	0.2	0	0.2	0	27.8	83.2
118	West Fork Mission Creek	6.8	1.4	0.2	*	0	0	0	22.2	47.6
119	1 Mi N. of Mineral Mtn (11-216)	2.2	0.2	0	*	0	0	0	25.2	0.2
200	2 mi W of Plummer	*34.2*‡	2.2‡	2.6	*	0	0	0	16.2	80.2
201	Coon Creek	21.8‡	1.8‡	3‡	2	0	0.4	0.2	21.6	93.8
202	3 mi E of Benewah	*	*	*‡	0.2	0	0.2	0.6	21	102.2
203	Benewah Point	3.4	0‡	0.4	*	0	0	0	8.2	92.4
204	John's Point	*	*	*	*	0	0	0	23.8	*
205	3 mi E of Charles Butte	2.0	0‡	0.8‡	0	0.2	0.2	0.4	63.6	72.6
206	Sunset Mountain	*	*	*	*	0	0	0	20.8	*
207	West Fork Emerald Creek	0.4	0.2	0	*	0	0	0	23.2	*
208	Cedar Butte	0.4	0	0	*	0	0	0	22.4	76.2
209	Abes Knob	2.4	0.2	0.2	*	0	0	0	23.8	88.4
210	West Fork Deep Creek	4.6	0	0.2‡	0.2	0	0.2	0.2	77	90.6
211	Cherry Butte	0.6	0	0‡	0	0	0.2	0.4	67.2	88.6
212	Jackson Mountain	1.0‡	1.0	0.2	*	0	0	0	19.6	*

Appendix 2. (continued)

Plot #	Area	2009	2008	2007	2006	2005	2004	2003	2002	2001
216	1 mi NW of Mineral Mtn	*32.4*‡	0.8	0‡	0.4	0	0.4	0.2	1	0.2
217	Head of Sheep Creek (216-117-2)	*36.8*‡	7.8	0‡	0.2	0	0.2	0.6	21.2	97.2
300	Mission Mountain (#2)	*22.4*‡	2.2	0	0.4	0	0.4	0.6	6.4	67.0
301	1.5 mi S of Mineral Mtn	37.6‡	2.4	0‡	0.2	0	0.2	0.2	69.4	91.2
302	Middle Fork of Deep Creek 1	*38.0*‡	3.6‡	1	*	0	0	0	63.8	3.6
303	Middle Fork of Deep Creek 2	*33.0*‡	1.6	0.2	0.4	0	0.2	1	58	15.8
400	3 mi S of Mineral Mtn	1.0	0‡	0.6‡	0.2	0	0.2	0.6	75.8	86.6
401	Flynn Butte	0.6	0	0	0	0	0	3.2	95.2	96.4
402	2 mi SE of Browns Mdw	4.8	0	0.2‡	0.2	0	0.2	0	15.2	57.4
500	3 mi SW of Harvard	1.0	0	0‡	0.2	0	0.2	0	18.8	74.6
501	3 mi S of Moon Hill	1.0	0	0	*	0	0	0	16.2	97.6
502	3 mi W of Crane Point	6.2	0	0.2	*	0	0	0.6	67.6	75.0
503	3 mi N of Stanford Point	17.6‡	1.0‡	1	*	0	0	0	10.2	89.4
504	2 mi N of Stanford Point	10.2	0.0	0‡	0.4	0	0.4	0.2	47.8	86.2
505	1 mi SW of Stanford Point	9.2	1.6	0.2‡	*	0	0	0	38.4	47.0
506	1 mi S of Stanford Point	*44.4*‡	4.0‡	1	*	0	0	0	23.4	67.8
507	1 mi NE of Stanford Point	2.0‡	0.8	0	0	0	0	0.8	40.6	87.4
508	1 mi W of Stanford Point	*27.0*	0‡	0.4	0.2	0	0.2	0	20.6	92.4
509	2 mi NW of Stanford Point	*26.6*‡	0.8‡	1.2‡	0.6	0.2	0.4	0.4	43.2	81.6
510	Moon Hill	18.2‡	1.2	0‡	0.2	0	0.2	0.8	35	67.2
511	2 mi SE of Moon Hill	*21.0*‡	2.4	0	*	0	0	0.2	13.2	80.4
512	3 mi S of Mineral Mtn	9.4	0	0	*	0	0	0.2	70.2	*
513	2 mi SW of Moon Hill	1.2	0‡	1.4	*	0	0	0	9.6	9.2
514	1.5 mi NW of Avon	3.0	0	0	*	0	0	0	6.8	61.4
600	3.4 mi NNW of Princeton	4.0	2	0.25‡	*	*	*	*	*	*
601	Macumber Meadows	0.6	0	0‡	*	*	*	*	*	*
602	S of Shay Hill	4.4‡	1.2	0.2	*	*	*	*	*	*
603	3 mi. S of Chatcolet	*29.2*‡	3.6	0	*	*	*	*	*	*
701	Fourmile Creek	12.2‡	2.2‡	0.4	*	0	0	0	9	88.6
702	North of Granite Point	3.4	0.6	0	*	0	0.2	0	5.8	76
703	Bergs Creek	2.4	0	0	*	0	0	0	12.2	96.6
704	ig Bear Creek	9.4‡	0.8	0‡	0.2	0	0.2	0.2	13.2	61
705	2 Mi NW of Stanford PT	*43.0*‡	3.0‡	1.5‡	0.8	0	0.8	0.4	46.4	89.4
706	1 Mi S. of Iron Mtn	2.0	0.2‡	0.8‡	*	0	0	0	27.2	87.8
707	Iron Mtn	*	*	*	*	0	0	0	6.6	97
708	Little Bear Creek	7.3	0‡	0.4‡	*	0	0	0	65.6	108.6
709	Ruby Creek	2.4	4.0	0	*	0	0	0	50.4	96.2
710	Turnbow Creek	15.8‡	0‡	2.4‡	1.4	0	1.4	0.2	43	70.6
711	East Fork Flat Creek	17.6	0‡	2‡	2.6	0	2.6	0.2	55	71.4
712	Turnbow Point	0.2	0.4	0.2	*	0	0	0.2	7.8	38
713	3 Mi S. of Potlatch	8.8‡	5.8	0‡	*	0	0	0	6.6	30
714	Rocky Point	*46.6*	0.0‡	0.8	*	0	0	0	13.2	79.6
715	Hatter Creek	0.2	0	0‡	0.6	0	0.6	0.2	7.4	32
716	Head of Hatter Creek	0	0	0	*	0	0	0	11.8	80.8
717	Nora Creek	0.2	1.4	0	*	0	0	0	21.2	81.4
718	Crummaring Creek	6.4‡	0.4	0.2	*	0	0	0	12.4	70.4
719	Basalt Hill	7.3	1.2	0.2	*	0	0	0	19	11.6
720	Browns Meadow	18.2‡	0‡	0.4	0	0	0	0.2	11.2	2.6
721	Smith Creek	0	0.4	0	*	0	0	0	100.2	70.6

Appendix 2. (continued)

Plot #	Area	2009	2008	2007	2006	2005	2004	2003	2002	2001
722	Prospect Peak	2.8	0.4	0	*	0	0	0	31.2	56.8
723	West Fork Mission Creek	*38.4*	0	0	*	0	0	0	27.8	22.2
724	Huckleberry Mtn	14.8	0.2	0‡	*	0	0	0	16.6	77.2
725	North Fork Pine Creek	13.6‡	1.2‡	0.75	*	0	0	0	21.6	93
726	Mineral Creek	10.4	0	0	*	0	0	0	20.2	78
727	South of Sanders	0.8	0	0	*	0	0	0	77.8	86.8
800	Mason Butte	*38.2*‡	9.0‡	7.25	*	*	*	0	20.8	63
801	1 mi SW of Moctileme Butte	9.8‡	2.8	0.2	*	*	*	0	30.2	91.4
802	1.9 mi S of Plummer	*39.6*‡	1.6	0	*	*	*	0	24.8	75.2
803	Little Plummer Creek	*57.0*‡	17.6‡	5.8	*	*	*	0	18	54.4
804	Syringa Creek	0.4	0	0	*	*	*	0	21.2	66.4
805	John Point	*	*	*	*	*	*	0	20.4	61.6
806	2 mi W of Pettis Point	0.4	0.2	0	*	*	*	0	22.6	71.2
807	Davis Creek	m	1.0	0	*	*	*	0	17.8	55.6
808	Renfro Creek	0.4‡	0	0	*	*	*	0	14.8	44.2
809	Crystal Creek	0.4	0	0.2	*	*	*	0	10.4	29.4
810	Child Creek	0.6	0.2	0	*	*	*	0	17.2	52.8
811	Hobo Pass	m	2.4‡	0.6	*	*	*	0	7.8	25.4
812	Hemlock Butte	0.5	0.2‡	0.4	*	*	*	0	9.2	28.2
813	Carpenter Peak	1.6‡	0	0	*	*	*	0	18.8	57.8
814	Tyson Creek	2.8	0	0	*	*	*	0	30.2	87.6
815	Heinaman Creek	m	0.6	0	*	*	*	0	25.2	85.2
816	Green Mtn	5.2	0.4	0	*	*	*	0	31	86.2
817	Willow Creek	6.2	2.6‡	1.2	*	*	*	0	22.2	73.2
818	Head of Emerald Creek	3.6‡	0	0.6	*	*	*	0	28.2	86
819	East Fork Emerald Creek	0.2	0	0	*	*	*	0	25	75.2
820	Head of Bobs Creek	0.6	0	0	*	*	*	0	25.4	79
821	East Fork of Potlatch River	3.8	0.2	0	*	*	*	0	25.2	67.2
822	Head of Moose Creek	2.2	0	0.2	*	*	*	0	24.8	69.6
823	Beals Butte	2.2	0	0	*	*	*	0	39	106.2
900	Hauser	2.4‡	1.4	*	*	*	*	*	*	*
901	Cougar Bay	5.2‡	1.4	*	*	*	*	*	*	*
902	Marie Creek	1.2‡	0.8	*	*	*	*	*	*	*
903	Canary Creek	2.8	0	*	*	*	*	*	*	*
904	Rathdrum	2.6	*	*	*	*	*	*	*	*
905	State Line (Post Falls)	2.0	*	*	*	*	*	*	*	*
906	Signal Point (Post Falls)	*41.8*	*	*	*	*	*	*	*	*
907	Blake Draw Creek	7.0	*	*	*	*	*	*	*	*
908	Coon Creek	*71.6*	*	*	*	*	*	*	*	*
909	Heyburn Park	9.6	*	*	*	*	*	*	*	*
910	Coyote Lane Post Falls	*67.6*	*	*	*	*	*	*	*	*
911	State Line (Meredith Rd)	23.2	*	*	*	*	*	*	*	*
912	Lovell Valley Direct Sale	*69.6*	*	*	*	*	*	*	*	*
	Number of Sites Trapped:	133	124	120	51	98	98	122	122	117
	Average Number of Moths per Plot:	**11.86**	**1.12**	**0.42**	**0.33**	**0.00**	**0.16**	**0.23**	**31.3**	**71.5**

m Indicates traps missing

* Indicates Sites Not Trapped

‡ Indicates larval survey

Italics Indicates egg mass sample