

## Aerial Survey Observations for Washington in 2000-2001

*** All Washington ***		2000		2001	
Land Ownership	Agent	acres	trees killed	acres	trees killed
<b>Bureau of Land Management</b>					
	Area not flown			928	0
	Balsam woolly adelgid			1	0
	Black pineleaf scale	5	0		
	Douglas-fir beetle	453	1,719	934	3,453
	Douglas-fir tussock moth			7	0
	Fir engraver	4	9	89	87
	Larch casebearer/hypodermella	5	0		
	Mountain pine beetle, lodgepole pine			54	107
	Mountain pine beetle, ponderosa pine	12	24	7	10
	Mountain pine beetle, whitebark pine	7	5		
	Needle rust in Popular	7	0		
	Oregon pine ips			1	14
	Unknown defoliator			2	0
	Western balsam bark beetle			3	17
	Western pine beetle	23	22	4	26
	Western pine beetle, small trees	2	2	8	40
	Western spruce budworm	191	0	147	0
	<b>Bureau of Land Management -- subtotal:</b>	<b>709</b>	<b>1,781</b>	<b>2,185</b>	<b>3,754</b>
<b>Forest Service</b>					
	Area not flown			263,452	0
	Balsam woolly adelgid	597	0	9,585	285
	Bear	5,387	10,904	9,996	17,183
	Blister rust	762	2	1,734	0
	Douglas-fir beetle	38,197	101,545	56,575	202,277
	Douglas-fir beetle engraver	10	15	431	1,211
	Douglas-fir tussock moth	26,768	0	6,917	0
	Dying hemlock			2,953	0
	Fir engraver	791	980	2,628	4,233
	Fire	241	0	57	0
	Hardwood decline	9	0	185	0
	Larch casebearer/hypodermella	838	0		
	Larch needle cast	2,681	0	637	0
	Lodgepole pine needle cast	310	0	1,944	0
	Maple discoloration	3	0		
	Mountain pine beetle, lodgepole pine	32,500	142,271	58,721	637,545
	Mountain pine beetle, ponderosa pine	1,381	2,111	6,347	11,429
	Mountain pine beetle, w. white pine	580	836	13,855	18,825
	Mountain pine beetle, whitebark pine	552	665	6,650	34,410
	Needle rust in Popular	67	0	48	0
	Needleminers on ponderosa pine	431	0		
	Oregon pine ips	234	234	553	1,695
	Phantom hemlock looper			419	0
	Pine needle scale			29	0
	Root disease	107	0	73	0
	Satin moth	14	0	2	0
	Sawflies, true firs			2	0
	Silver fir beetle	82	70	8	20
	Slide			5	30
	Spruce beetle	976	1,581	8,531	36,761

<b>*** All Washington ***</b>		<b>2000</b>		<b>2001</b>	
<b>Land Ownership</b>	<b>Agent</b>	<b>acres</b>	<b>trees killed</b>	<b>acres</b>	<b>trees killed</b>
	Unknown defoliator	2,258	0	2,441	0
	Unknown mortality agent	49	100		
	Water damage	69	30	83	193
	Western balsam bark beetle	1,170	1,703	8,262	19,045
	Western hemlock looper	321	0	10,434	0
	Western pine beetle	412	421	2,564	3,668
	Western pine beetle, small trees	640	1,114	426	321
	Western spruce budworm	72,340	0	63,882	0
	Wind	6	0		
	<b>Forest Service -- subtotal:</b>	<b>190,783</b>	<b>264,582</b>	<b>540,429</b>	<b>989,131</b>

### **Indian Reservation**

	Area not flown	22,845	0	23,790	0
	Balsam woolly adelgid			2,166	0
	Bear	1,435	1,565	4,130	5,092
	Blister rust	34	0	574	0
	Douglas-fir beetle	12,177	20,692	28,888	72,802
	Douglas-fir beetle engraver			72	361
	Douglas-fir tussock moth	157	0		
	Fir engraver	666	744	3,944	14,902
	Fire			32	0
	Hardwood decline			4	0
	Larch casebearer/hypodermella	22	0		
	Larch needle cast			162	0
	Lodgepole pine needle cast			897	0
	Mountain pine beetle, lodgepole pine	566	2,522	697	9,719
	Mountain pine beetle, ponderosa pine	282	711	22	110
	Mountain pine beetle, w. white pine	6	5	12	35
	Mountain pine beetle, whitebark pine			526	548
	Oregon pine ips			6	20
	Pine needle scale			134	0
	Root disease			2	0
	Satin moth			20	0
	Sawfly, ponderosa pine			61	0
	Spruce beetle	8	5	3,099	10,543
	Swiss needlecast			1,392	0
	Unknown defoliator	31	0		
	Water damage			24	20
	Western balsam bark beetle	253	318	3,293	7,101
	Western pine beetle	610	750	1,539	1,795
	Western pine beetle, small trees	348	705	4,263	6,032
	Western spruce budworm	212,203	0	115,648	0
	<b>Indian Reservation -- subtotal:</b>	<b>251,643</b>	<b>28,017</b>	<b>195,397</b>	<b>129,080</b>

### **National Park Service**

	Area not flown			201,615	0
	Balsam woolly adelgid	460	5	5,161	95
	Bear	58	57	186	519
	Blister rust	31	10	192	15
	Douglas-fir beetle	231	496	3,505	8,131
	Douglas-fir tussock moth			15	0
	Dying hemlock			2,384	0
	Fir engraver	136	280	406	449
	Hardwood decline			2	0

<b>*** All Washington ***</b>		<b>2000</b>		<b>2001</b>	
<b>Land Ownership</b>	<b>Agent</b>	<b>acres</b>	<b>trees killed</b>	<b>acres</b>	<b>trees killed</b>
	Larch needle cast			139	0
	Lodgepole pine needle cast			1,475	0
	Mountain pine beetle, lodgepole pine	230	679	2,388	14,095
	Mountain pine beetle, ponderosa pine			7	10
	Mountain pine beetle, w. white pine	244	300	487	246
	Mountain pine beetle, whitebark pine	36	45	260	655
	Root disease	11	0	4	0
	Sawflies, true firs			24	0
	Sawfly, hemlock	55	0		
	Slide	15	0	44	1,030
	Spruce beetle	255	208	1,558	4,055
	Unknown defoliator	577	0	2	0
	Water damage	74	42	15	20
	Western balsam bark beetle	202	235	986	1,422
	Western hemlock looper			1,274	0
	Western spruce budworm	87	0	5,894	0
	<b>National Park Service -- subtotal:</b>	<b>2,702</b>	<b>2,357</b>	<b>228,023</b>	<b>30,742</b>
<b>not listed</b>					
	Area not flown			20,381	0
	Douglas-fir beetle			186	93
	Hardwood decline			17	0
	Pacific Madrone decline			17	0
	Western pine beetle			186	186
	<b>not listed -- subtotal:</b>			<b>20,787</b>	<b>279</b>
<b>Other Federal</b>					
	Area not flown	69,955	0	65,777	0
	Bear	134	306	34	213
	Douglas-fir beetle	983	2,481	2,389	8,005
	Fir engraver	9	17		
	Fire			142	0
	Hardwood decline			30	0
	Mountain pine beetle, lodgepole pine	38	10		
	Mountain pine beetle, ponderosa pine	5	12		
	Pacific Madrone decline	10	0	65	0
	Pine needle scale			40	0
	Root disease			5	0
	Spruce beetle	2	15		
	Water damage			2	4
	Western hemlock looper			22	0
	Western pine beetle	37	65	14	27
	Western pine beetle, small trees	2	5	55	135
	<b>Other Federal -- subtotal:</b>	<b>71,175</b>	<b>2,911</b>	<b>68,575</b>	<b>8,384</b>
<b>Private</b>					
	Area not flown	430,451	0	506,893	0
	Balsam woolly adelgid	423	40	691	0
	Bear	12,148	17,844	16,178	30,618
	Black pineleaf scale	41	0		
	Blister rust	133	9	1,068	0
	Budmoth on Douglas-fir	34	0		
	Douglas-fir beetle	10,684	21,000	13,470	37,812

<b>*** All Washington ***</b>		<b>2000</b>		<b>2001</b>	
<b>Land Ownership</b>	<b>Agent</b>	<b>acres</b>	<b>trees killed</b>	<b>acres</b>	<b>trees killed</b>
	Douglas-fir beetle engraver	12	25	18	50
	Douglas-fir tussock moth	285	0	309	0
	Dying hemlock			114	0
	Fir engraver	684	576	863	1,077
	Fire	3	0	17	0
	Hardwood decline	584	0	1,586	0
	Larch casebearer/hypodermella	353	0		
	Larch looper	26	0	215	0
	Larch needle cast	1,123	0	953	0
	Lodgepole pine needle cast	13	0	213	0
	Maple discoloration	96	0		
	Mountain pine beetle, lodgepole pine	393	907	936	4,008
	Mountain pine beetle, ponderosa pine	242	430	762	1,410
	Mountain pine beetle, w. white pine	54	23	623	257
	Mountain pine beetle, whitebark pine	570	445	1,327	3,913
	Needle rust in Poplar	4	0	14	0
	Needleminers on ponderosa pine	403	0		
	Oregon pine ips			402	990
	Pacific Madrone decline	538	0	1,594	0
	Phantom hemlock looper			1,010	0
	Pine needle scale	72	0	285	0
	Port Orford cedar root disease	6	10	22	5
	Root disease	600	90	920	0
	Satin moth	49	0	168	0
	Sawflies, true firs			73	0
	Sawfly, ponderosa pine			79	0
	Silver fir beetle	33	50	4	10
	Spruce aphid	11	5	2,562	0
	Spruce beetle	58	132	173	517
	Swiss needlecast			778	0
	Tent caterpillar	24	0		
	Unknown defoliator	789	0	700	0
	Unknown mortality agent	30	50	50	20
	Water damage	325	532	264	932
	Western balsam bark beetle	295	398	1,317	1,871
	Western hemlock looper	2	0	2,060	0
	Western oak looper			25	0
	Western pine beetle	950	1,641	1,822	1,801
	Western pine beetle, small trees	1,022	3,427	1,654	3,059
	Western spruce budworm	28,013	0	13,159	0
	Wind	115	155	2	0

**Private -- subtotal: 491,691 47,789 575,373 88,350**

**State of Washington**

	Area not flown	8,689	0	22,479	0
	Balsam woolly adelgid			320	0
	Bear	2,939	4,776	7,288	16,421
	Black pineleaf scale	16	0		
	Blister rust	117	0	787	0
	Douglas-fir beetle	4,646	8,549	7,843	20,862
	Douglas-fir tussock moth	27	0	283	0
	Dying hemlock			930	0
	Fir engraver	422	315	192	286
	Hardwood decline	89	0	465	0

<b>*** All Washington ***</b>		<b>2000</b>		<b>2001</b>	
<b>Land Ownership</b>	<b>Agent</b>	<b>acres</b>	<b>trees killed</b>	<b>acres</b>	<b>trees killed</b>
	Larch casebearer/hypodermella	75	0		
	Larch needle cast	1,478	0	52	0
	Lodgepole pine needle cast	186	0	261	0
	Mountain pine beetle, lodgepole pine	3,079	14,498	2,781	18,406
	Mountain pine beetle, ponderosa pine	140	230	1,121	993
	Mountain pine beetle, w. white pine			142	61
	Mountain pine beetle, whitebark pine	766	406	1,232	3,239
	Needleminers on ponderosa pine	37	0		
	Oregon pine ips			24	107
	Pacific Madrone decline	41	0	606	0
	Phantom hemlock looper			708	0
	Pine needle scale	17	0	307	0
	Root disease	35	0	254	0
	Satin moth	3	0	4	0
	Spruce aphid			2	0
	Spruce beetle	40	61	10	24
	Swiss needlecast			5	0
	Unknown defoliator	55	0	229	0
	Water damage	30	110	22	132
	Western balsam bark beetle	82	110	786	893
	Western hemlock looper			1,453	0
	Western oak looper			4	0
	Western pine beetle	247	178	2,409	2,180
	Western pine beetle, small trees	217	472	337	753
	Western spruce budworm	18,448	0	15,866	0
	Wind	29	55		
	<b>State of Washington -- subtotal:</b>	<b>41,950</b>	<b>29,760</b>	<b>69,202</b>	<b>64,357</b>
<b>Wildernesses, Nat'l Monuments</b>					
	Area not flown			114,701	0
	Balsam woolly adelgid	377	0	16,200	72
	Bear	191	334	309	503
	Blister rust	1,608	0	3,327	30
	Douglas-fir beetle	3,237	5,640	6,288	14,858
	Douglas-fir tussock moth	18,340	0	16,161	0
	Dying hemlock			1,263	0
	Fir engraver	421	399	2,111	1,792
	Fire			151	0
	Larch casebearer/hypodermella	99	0		
	Larch needle cast	609	0	358	0
	Lodgepole pine needle cast			104	0
	Mountain pine beetle, lodgepole pine	20,378	62,098	30,516	138,964
	Mountain pine beetle, ponderosa pine	31	99	17	85
	Mountain pine beetle, w. white pine	105	75	318	420
	Mountain pine beetle, whitebark pine	614	1,116	4,989	12,065
	Phantom hemlock looper			187	0
	Root disease	7	0	2	0
	Silver fir beetle	119	80	6	20
	Slide	22	5		
	Spruce beetle	501	942	10,901	50,483
	Unknown defoliator			560	0
	Unknown mortality agent	88	50		
	Water damage	45	0		
	Western balsam bark beetle	1,298	1,700	9,665	16,342

<b>*** All Washington ***</b>		<b>2000</b>		<b>2001</b>	
<b>Land Ownership</b>	<b>Agent</b>	<b>acres</b>	<b>trees killed</b>	<b>acres</b>	<b>trees killed</b>
	Western hemlock looper	173	0	2,109	0
	Western pine beetle	12	10		
	Western spruce budworm	52,407	0	57,273	0
	Winter damage			2	0
	<b>Wildernesses, Nat'l Monuments -- subtotal:</b>	<b>100,682</b>	<b>72,548</b>	<b>277,518</b>	<b>235,634</b>
<b>Grand Total</b>	<b>*** All Washington ***</b>	<b>1,151,335</b>	<b>449,745</b>	<b>1,977,489</b>	<b>1,549,711</b>