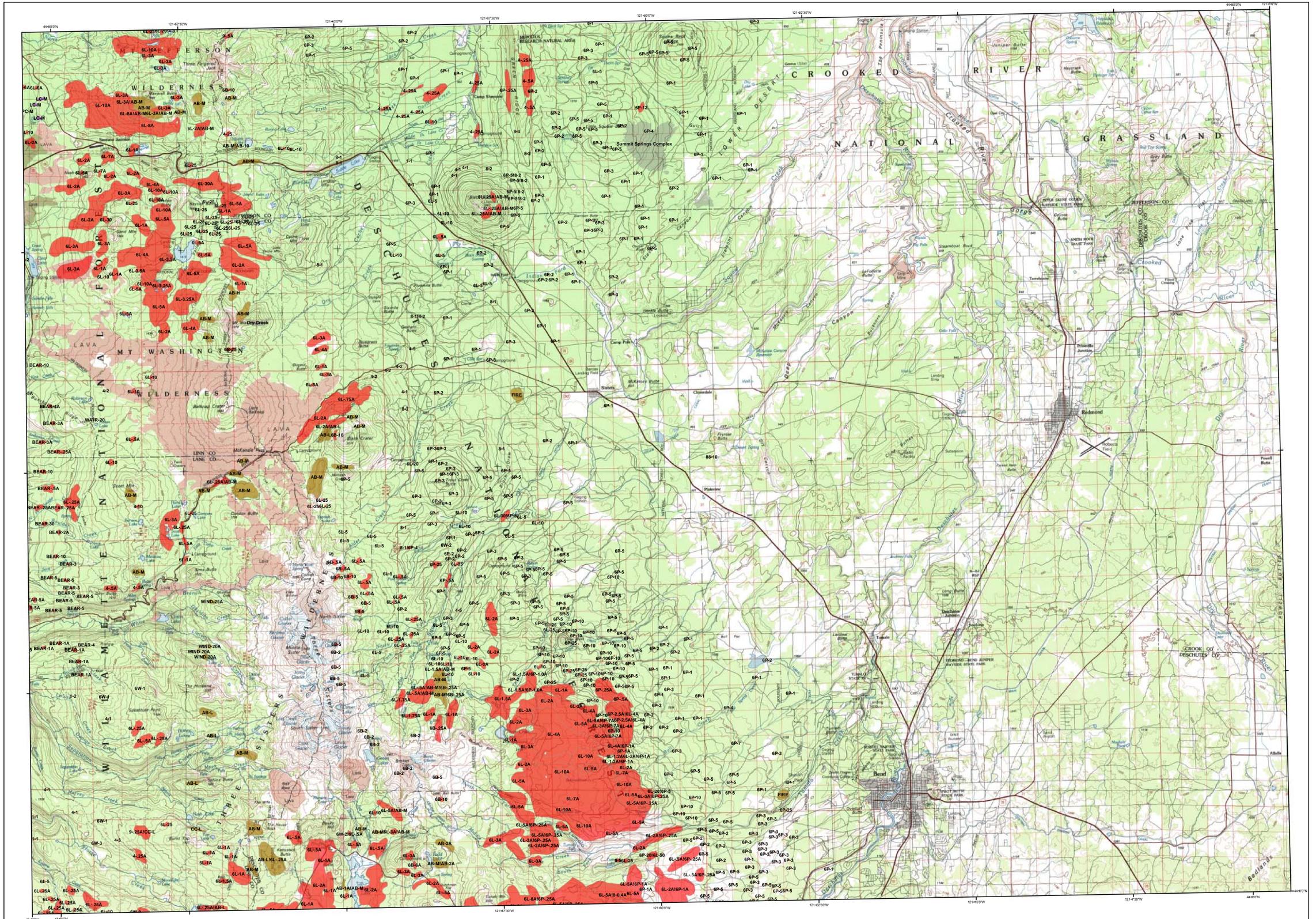


2008 Aerial Insect and Disease Survey

USGS 100K Quad: Bend - A144121; 4J



| Defoliators | | Mortality Agents | |
|-------------|-------------------------------|------------------|----------------------------|
| Code | Damaging Agent | Code | Damaging Agent |
| AS | Spruce aphid | 1 | Douglas fir beetle |
| BS | Western blackheaded budworm | 2 | Douglas fir engraver |
| BM | Major budworm | 3 | Spruce beetle |
| BP | Sugar pine tortrix | 4 | Fire engraver |
| BS | Western spruce budworm | 5 | Western balsam bark beetle |
| BY | Blyth's light's ophiometella | 6 | Mountain pine beetle |
| CH | Larch | 6B | Mountain pine beetle |
| HL | Western hemlock looper | 6C | Mountain pine beetle |
| LG | Green striped forest looper | 6D | Mountain pine beetle |
| LL | Larch looper | 6E | Mountain pine beetle |
| LS | Black pine needle scale | 6F | Mountain pine beetle |
| ML | Larch budmoth | 6G | Mountain pine beetle |
| MS | Douglas fir needle midge | 6H | Mountain pine beetle |
| ND | Needle miner | 6I | Mountain pine beetle |
| NJ | Needle miner | 6J | Mountain pine beetle |
| NK | Needle miner | 6K | Mountain pine beetle |
| NL | Needle miner | 6L | Mountain pine beetle |
| NP | Needle miner | 6M | Mountain pine beetle |
| NS | Needle miner | 6N | Mountain pine beetle |
| NT | Needle miner | 6O | Mountain pine beetle |
| NV | Needle miner | 6P | Mountain pine beetle |
| CL | Western oak looper | 6Q | Mountain pine beetle |
| PC | Pine needle cast | 6R | Mountain pine beetle |
| PH | Phantom hemlock looper | 6S | Mountain pine beetle |
| PN | Pine needle/ash miner | 6T | Mountain pine beetle |
| PS | Pine needle scale | 6U | Mountain pine beetle |
| RC | Needle cast | 6V | Mountain pine beetle |
| SE | Slide scale | 6W | Mountain pine beetle |
| SA | Sawfly | 6X | Mountain pine beetle |
| SB | Sawfly | 6Y | Mountain pine beetle |
| SC | Sawfly | 6Z | Mountain pine beetle |
| SD | Sawfly | 7 | Lip spp. |
| SE | Sawfly | 8 | Western pine beetle |
| SF | Sawfly | 9 | Western pine beetle |
| SG | Sawfly | 10 | Western pine beetle |
| SH | Sawfly | 11 | Western pine beetle |
| SI | Sawfly | 12 | Western pine beetle |
| SJ | Sawfly | 13 | Western pine beetle |
| SK | Sawfly | 14 | Western pine beetle |
| SL | Sawfly | 15 | Western pine beetle |
| SM | Sawfly | 16 | Western pine beetle |
| SN | Sawfly | 17 | Western pine beetle |
| SO | Sawfly | 18 | Western pine beetle |
| SP | Sawfly | 19 | Western pine beetle |
| TA | Tent caterpillar, aspen | 20 | Western pine beetle |
| TC | Tent caterpillar, other | 21 | Western pine beetle |
| TD | Tent caterpillar, Douglas fir | 22 | Western pine beetle |
| TE | Tent caterpillar, aspen | 23 | Western pine beetle |
| TF | Tent caterpillar, aspen | 24 | Western pine beetle |
| TG | Tent caterpillar, aspen | 25 | Western pine beetle |
| TH | Tent caterpillar, aspen | 26 | Western pine beetle |
| TI | Tent caterpillar, aspen | 27 | Western pine beetle |
| TJ | Tent caterpillar, aspen | 28 | Western pine beetle |
| TK | Tent caterpillar, aspen | 29 | Western pine beetle |
| TL | Tent caterpillar, aspen | 30 | Western pine beetle |
| TM | Tent caterpillar, aspen | 31 | Western pine beetle |
| TN | Tent caterpillar, aspen | 32 | Western pine beetle |
| TO | Tent caterpillar, aspen | 33 | Western pine beetle |
| TP | Tent caterpillar, aspen | 34 | Western pine beetle |
| TQ | Tent caterpillar, aspen | 35 | Western pine beetle |
| TR | Tent caterpillar, aspen | 36 | Western pine beetle |
| TS | Tent caterpillar, aspen | 37 | Western pine beetle |
| TT | Tent caterpillar, aspen | 38 | Western pine beetle |
| TU | Tent caterpillar, aspen | 39 | Western pine beetle |
| TV | Tent caterpillar, aspen | 40 | Western pine beetle |
| TW | Tent caterpillar, aspen | 41 | Western pine beetle |
| TX | Tent caterpillar, aspen | 42 | Western pine beetle |
| TY | Tent caterpillar, aspen | 43 | Western pine beetle |
| TZ | Tent caterpillar, aspen | 44 | Western pine beetle |
| UA | Tent caterpillar, aspen | 45 | Western pine beetle |
| UB | Tent caterpillar, aspen | 46 | Western pine beetle |
| UC | Tent caterpillar, aspen | 47 | Western pine beetle |
| UD | Tent caterpillar, aspen | 48 | Western pine beetle |
| UE | Tent caterpillar, aspen | 49 | Western pine beetle |
| UF | Tent caterpillar, aspen | 50 | Western pine beetle |
| UG | Tent caterpillar, aspen | 51 | Western pine beetle |
| UH | Tent caterpillar, aspen | 52 | Western pine beetle |
| UI | Tent caterpillar, aspen | 53 | Western pine beetle |
| UJ | Tent caterpillar, aspen | 54 | Western pine beetle |
| UK | Tent caterpillar, aspen | 55 | Western pine beetle |
| UL | Tent caterpillar, aspen | 56 | Western pine beetle |
| UM | Tent caterpillar, aspen | 57 | Western pine beetle |
| UN | Tent caterpillar, aspen | 58 | Western pine beetle |
| UO | Tent caterpillar, aspen | 59 | Western pine beetle |
| UP | Tent caterpillar, aspen | 60 | Western pine beetle |
| UQ | Tent caterpillar, aspen | 61 | Western pine beetle |
| UR | Tent caterpillar, aspen | 62 | Western pine beetle |
| US | Tent caterpillar, aspen | 63 | Western pine beetle |
| UT | Tent caterpillar, aspen | 64 | Western pine beetle |
| UU | Tent caterpillar, aspen | 65 | Western pine beetle |
| UV | Tent caterpillar, aspen | 66 | Western pine beetle |
| UW | Tent caterpillar, aspen | 67 | Western pine beetle |
| UX | Tent caterpillar, aspen | 68 | Western pine beetle |
| UY | Tent caterpillar, aspen | 69 | Western pine beetle |
| UZ | Tent caterpillar, aspen | 70 | Western pine beetle |
| VA | Tent caterpillar, aspen | 71 | Western pine beetle |
| VB | Tent caterpillar, aspen | 72 | Western pine beetle |
| VC | Tent caterpillar, aspen | 73 | Western pine beetle |
| VD | Tent caterpillar, aspen | 74 | Western pine beetle |
| VE | Tent caterpillar, aspen | 75 | Western pine beetle |
| VF | Tent caterpillar, aspen | 76 | Western pine beetle |
| VG | Tent caterpillar, aspen | 77 | Western pine beetle |
| VH | Tent caterpillar, aspen | 78 | Western pine beetle |
| VI | Tent caterpillar, aspen | 79 | Western pine beetle |
| VJ | Tent caterpillar, aspen | 80 | Western pine beetle |
| VK | Tent caterpillar, aspen | 81 | Western pine beetle |
| VL | Tent caterpillar, aspen | 82 | Western pine beetle |
| VM | Tent caterpillar, aspen | 83 | Western pine beetle |
| VN | Tent caterpillar, aspen | 84 | Western pine beetle |
| VO | Tent caterpillar, aspen | 85 | Western pine beetle |
| VP | Tent caterpillar, aspen | 86 | Western pine beetle |
| VQ | Tent caterpillar, aspen | 87 | Western pine beetle |
| VR | Tent caterpillar, aspen | 88 | Western pine beetle |
| VS | Tent caterpillar, aspen | 89 | Western pine beetle |
| VT | Tent caterpillar, aspen | 90 | Western pine beetle |
| VU | Tent caterpillar, aspen | 91 | Western pine beetle |
| VV | Tent caterpillar, aspen | 92 | Western pine beetle |
| VV | Tent caterpillar, aspen | 93 | Western pine beetle |
| VW | Tent caterpillar, aspen | 94 | Western pine beetle |
| VX | Tent caterpillar, aspen | 95 | Western pine beetle |
| VY | Tent caterpillar, aspen | 96 | Western pine beetle |
| VZ | Tent caterpillar, aspen | 97 | Western pine beetle |
| WA | Tent caterpillar, aspen | 98 | Western pine beetle |
| WB | Tent caterpillar, aspen | 99 | Western pine beetle |
| WC | Tent caterpillar, aspen | 100 | Western pine beetle |
| WD | Tent caterpillar, aspen | 101 | Western pine beetle |
| WE | Tent caterpillar, aspen | 102 | Western pine beetle |
| WF | Tent caterpillar, aspen | 103 | Western pine beetle |
| WG | Tent caterpillar, aspen | 104 | Western pine beetle |
| WH | Tent caterpillar, aspen | 105 | Western pine beetle |
| WI | Tent caterpillar, aspen | 106 | Western pine beetle |
| WJ | Tent caterpillar, aspen | 107 | Western pine beetle |
| WK | Tent caterpillar, aspen | 108 | Western pine beetle |
| WL | Tent caterpillar, aspen | 109 | Western pine beetle |
| WM | Tent caterpillar, aspen | 110 | Western pine beetle |
| WN | Tent caterpillar, aspen | 111 | Western pine beetle |
| WO | Tent caterpillar, aspen | 112 | Western pine beetle |
| WP | Tent caterpillar, aspen | 113 | Western pine beetle |
| WQ | Tent caterpillar, aspen | 114 | Western pine beetle |
| WR | Tent caterpillar, aspen | 115 | Western pine beetle |
| WS | Tent caterpillar, aspen | 116 | Western pine beetle |
| WT | Tent caterpillar, aspen | 117 | Western pine beetle |
| WU | Tent caterpillar, aspen | 118 | Western pine beetle |
| WV | Tent caterpillar, aspen | 119 | Western pine beetle |
| WW | Tent caterpillar, aspen | 120 | Western pine beetle |
| WX | Tent caterpillar, aspen | 121 | Western pine beetle |
| WY | Tent caterpillar, aspen | 122 | Western pine beetle |
| WZ | Tent caterpillar, aspen | 123 | Western pine beetle |
| XA | Tent caterpillar, aspen | 124 | Western pine beetle |
| XB | Tent caterpillar, aspen | 125 | Western pine beetle |
| XC | Tent caterpillar, aspen | 126 | Western pine beetle |
| XD | Tent caterpillar, aspen | 127 | Western pine beetle |
| XE | Tent caterpillar, aspen | 128 | Western pine beetle |
| XF | Tent caterpillar, aspen | 129 | Western pine beetle |
| XG | Tent caterpillar, aspen | 130 | Western pine beetle |
| XH | Tent caterpillar, aspen | 131 | Western pine beetle |
| XI | Tent caterpillar, aspen | 132 | Western pine beetle |
| XJ | Tent caterpillar, aspen | 133 | Western pine beetle |
| XK | Tent caterpillar, aspen | 134 | Western pine beetle |
| XL | Tent caterpillar, aspen | 135 | Western pine beetle |
| XM | Tent caterpillar, aspen | 136 | Western pine beetle |
| XN | Tent caterpillar, aspen | 137 | Western pine beetle |
| XO | Tent caterpillar, aspen | 138 | Western pine beetle |
| XP | Tent caterpillar, aspen | 139 | Western pine beetle |
| XQ | Tent caterpillar, aspen | 140 | Western pine beetle |
| XR | Tent caterpillar, aspen | 141 | Western pine beetle |
| XS | Tent caterpillar, aspen | 142 | Western pine beetle |
| XT | Tent caterpillar, aspen | 143 | Western pine beetle |
| XU | Tent caterpillar, aspen | 144 | Western pine beetle |
| XV | Tent caterpillar, aspen | 145 | Western pine beetle |
| XW | Tent caterpillar, aspen | 146 | Western pine beetle |
| XX | Tent caterpillar, aspen | 147 | Western pine beetle |
| XY | Tent caterpillar, aspen | 148 | Western pine beetle |
| XZ | Tent caterpillar, aspen | 149 | Western pine beetle |
| YA | Tent caterpillar, aspen | 150 | Western pine beetle |
| YB | Tent caterpillar, aspen | 151 | Western pine beetle |
| YC | Tent caterpillar, aspen | 152 | Western pine beetle |
| YD | Tent caterpillar, aspen | 153 | Western pine beetle |
| YE | Tent caterpillar, aspen | 154 | Western pine beetle |
| YF | Tent caterpillar, aspen | 155 | Western pine beetle |
| YG | Tent caterpillar, aspen | 156 | Western pine beetle |
| YH | Tent caterpillar, aspen | 157 | Western pine beetle |
| YI | Tent caterpillar, aspen | 158 | Western pine beetle |
| YJ | Tent caterpillar, aspen | 159 | Western pine beetle |
| YK | Tent caterpillar, aspen | 160 | Western pine beetle |
| YL | Tent caterpillar, aspen | 161 | Western pine beetle |
| YM | Tent caterpillar, aspen | 162 | Western pine beetle |
| YN | Tent caterpillar, aspen | 163 | Western pine beetle |
| YO | Tent caterpillar, aspen | 164 | Western pine beetle |
| YP | Tent caterpillar, aspen | 165 | Western pine beetle |
| YQ | Tent caterpillar, aspen | 166 | Western pine beetle |
| YR | Tent caterpillar, aspen | 167 | Western pine beetle |
| YS | Tent caterpillar, aspen | 168 | Western pine beetle |
| YT | Tent caterpillar, aspen | 169 | Western pine beetle |
| YU | Tent caterpillar, aspen | 170 | Western pine beetle |
| YV | Tent caterpillar, aspen | 171 | Western pine beetle |
| YW | Tent caterpillar, aspen | 172 | Western pine beetle |
| YX | Tent caterpillar, aspen | 173 | Western pine beetle |
| YY | Tent caterpillar, aspen | 174 | Western pine beetle |
| YZ | Tent caterpillar, aspen | 175 | Western pine beetle |
| ZA | Tent caterpillar, aspen | 176 | Western pine beetle |
| ZB | Tent caterpillar, aspen | 177 | Western pine beetle |
| ZC | Tent caterpillar, aspen | 178 | Western pine beetle |
| ZD | Tent caterpillar, aspen | 179 | Western pine beetle |
| ZE | Tent caterpillar, aspen | 180 | Western pine beetle |
| ZF | Tent caterpillar, aspen | 181 | Western pine beetle |
| ZG | Tent caterpillar, aspen | 182 | Western pine beetle |
| ZH | Tent caterpillar, aspen | 183 | Western pine beetle |
| ZI | Tent caterpillar, aspen | 184 | Western pine beetle |
| ZJ | Tent caterpillar, aspen | 185 | Western pine beetle |
| ZK | Tent caterpillar, aspen | 186 | Western pine beetle |
| ZL | Tent caterpillar, aspen | 187 | Western pine beetle |
| ZM | Tent caterpillar, aspen | 188 | Western pine beetle |
| ZN | Tent caterpillar, aspen | 189 | Western pine beetle |
| ZO | Tent caterpillar, aspen | 190 | Western pine beetle |
| ZP | Tent caterpillar, aspen | 191 | Western pine beetle |
| ZQ | Tent caterpillar, aspen | 192 | Western pine beetle |
| ZR | Tent caterpillar, aspen | 193 | Western pine beetle |
| ZS | Tent caterpillar, aspen | 194 | Western pine beetle |
| ZT | Tent caterpillar, aspen | 195 | Western pine beetle |
| ZU | Tent caterpillar, aspen | 196 | Western pine beetle |
| ZV | Tent caterpillar, aspen | 197 | Western pine beetle |
| ZW | Tent caterpillar, aspen | 198 | Western pine beetle |
| ZX | Tent caterpillar, aspen | 199 | Western pine beetle |
| ZY | Tent caterpillar, aspen | 200 | Western pine beetle |
| ZZ | Tent caterpillar, aspen | 201 | Western pine beetle |

USGS 100K Quad: Bend - A144121; 4J
 2008 Aerial Insect and Disease Detection Survey
 Mapscale: 1:100,000
 Date: November 19, 2008

Legend

- Defoliating Agents
- Mortality Agents
- Other Damage
- 2008 Large Fires

Source: Northwest Coordination Center

The map base was created with TOPOI (Copyright 2001, National Geographic); available online at: www.ngmapstore.com

A data dictionary, digital copies of this map and ArcGIS insect and disease data are available at: www.fs.fed.us/rn/rfid/data.shtml

How the Aerial Surveys Are Conducted

Data represented on this map are based on trees visibly affected by forest insects and diseases detected and recorded during aerial survey flights conducted by the USDA Forest Service and the Oregon Department of Forestry. Observers have just a few seconds to recognize the color difference between healthy and damaged trees of different species; diagnose causal agents correctly; estimate intensity, delineate the extent of damage; and precisely record this information on a georeferenced, digital map. Air turbulence, cloud shadows, distance from aircraft, haze, smoke and observer experience can all affect the quality of the survey. These data summaries provide an estimate of conditions on the ground and may differ from estimates derived by other methods.

The aerial survey provides information on the current status for many causal agents, and is important when examining insect activity trends by comparing historical and current survey data over large areas.

Overview surveys are a 'snap shot' in time and therefore may not be timed to accurately capture the true extent or severity of a particular disturbance activity. Specially designed surveys with modified flight patterns and timing may be conducted to more accurately delineate the extent and severity of a particular disturbance agent. Special surveys, such as Swiss needle cast surveys, are conducted when resources are available to address situations of sufficient economic, political or environmental importance.

DIRECT ALL INQUIRIES TO:

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 Forest Health Management
 2600 State Street
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-- OR --

 USDA Forest Service, Region 6
 Natural Resources
 Forest Health Protection
 PO Box 3623
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****DISCLAIMER****
 The insect and disease data presented should only be used as an indicator of insect and disease activity, and should be ground-checked for precise location, extent, severity and causal agent.
 Color coded polygons show locations where trees were recently killed or defoliated. Intensity of damage is variable and not all trees within coded polygons are dead or defoliated.
 The cooperators reserve the right to correct, update, modify or replace GIS products without notice. Using this map for purposes other than those for which it was intended may yield inaccurate or misleading results.