

Indicator F.b.

Invasive species trends on forest lands

First update

Strategy F: Protect, maintain, and enhance the health of Oregon's forest ecosystems, watersheds, and airsheds within a context of natural disturbance and active management.

F.b. Invasive species trends on forest lands.

Desired trend:

No invasive species on Oregon's "100 Most Dangerous" list are uncontained in the state's forests, and a stable or decreasing forest acreage affected by invasive species.

Relevance:

Detection & monitoring efforts for invasives can provide vital information to the public & policy makers of new/existing threats

- Invasive species adversely affect natives through predation, competition, altered fire regimes & habitat destruction.*
- Significant economic impacts by direct environmental damage or the loss of markets through quarantine regulation.*

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Data Availability: *Two current statewide measures / data sources.*

Metric	Data Source
<i>Annual exclusion and containment record (report card) for OISC “100 most dangerous” invasive species</i>	Oregon Dept. of Agriculture Oregon Invasive Species Council Oregon Department of Forestry
<i>Estimated area affected (acres) by recently introduced and established invasive insects and diseases (5-year average)</i>	Oregon Department of Forestry USDA-FS Forest Health Protection & Forest Health Monitoring

Oregon Invasive Species Council

OISC Members

USDA Forest Service

OR Department of Agriculture

OR Department of Forestry

OR Department Fish & Wildlife

Oregon Marine Board

Oregon State University

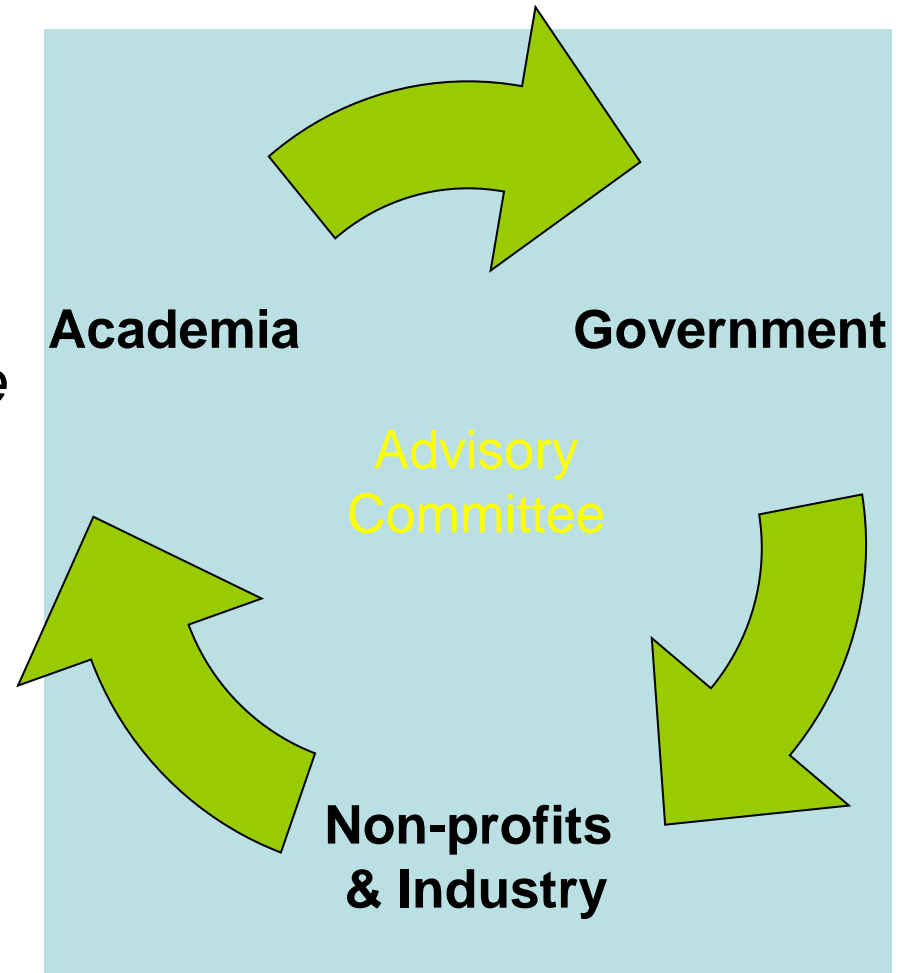
Bureau of Indian Affairs

Portland State University

The Nature Conservancy

OR Association of Nurseries

Port of Portland



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Condition



Mixed or Fair

Trend



Mixed or Uncertain

Information



Partial

Table 1- The Oregon Invasive Species Council (OISC) report card for the “100 most dangerous” invasive species in OR (2002-2006).

<u>OISC ANNUAL REPORT</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>
Number of OISC “100 most dangerous” invasive species successfully excluded or contained¹	97	98	99	99	99
Number of <u>important</u> invasive species detections & <u>actions</u> taken²	25	30	28	41	37
Invasive species exclusion annual “report card” rating	C+	B	B	A-	A-

¹ Numerical score represents the number of OISC “100 most dangerous” invasive species successfully excluded or contained during that year.

² Does not reflect detections at ports of entry, only those that already penetrated National border protection . “Important invasives” denotes high priority species found by trapping, surveys or notification from the public . “Actions taken” generally refers to eradication efforts or enacting of a quarantine area.

Table 2- The Oregon Invasive Species Council (OISC) overall report card score, evaluations of its five mission areas, and the exclusion and containment record for the “100 most dangerous” invasive species in Oregon (2007-2009).

<u>OISC ANNUAL REPORT</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>
Overall Score¹	B	B+	A-
1) Reporting Invasive Species	B	B+	A-
2) Outreach and Education	B+	A-	B+
3) Statewide Action Plan	C	A-	A
4) Trust Account	D	B	B
5) Success at Excluding Invasive Species²	A (100)	B (99)	A (100)

¹ In 2007, OISC developed new grading criteria that reflect not just the overall state of invasive species, but also the work of the council in its five missions.

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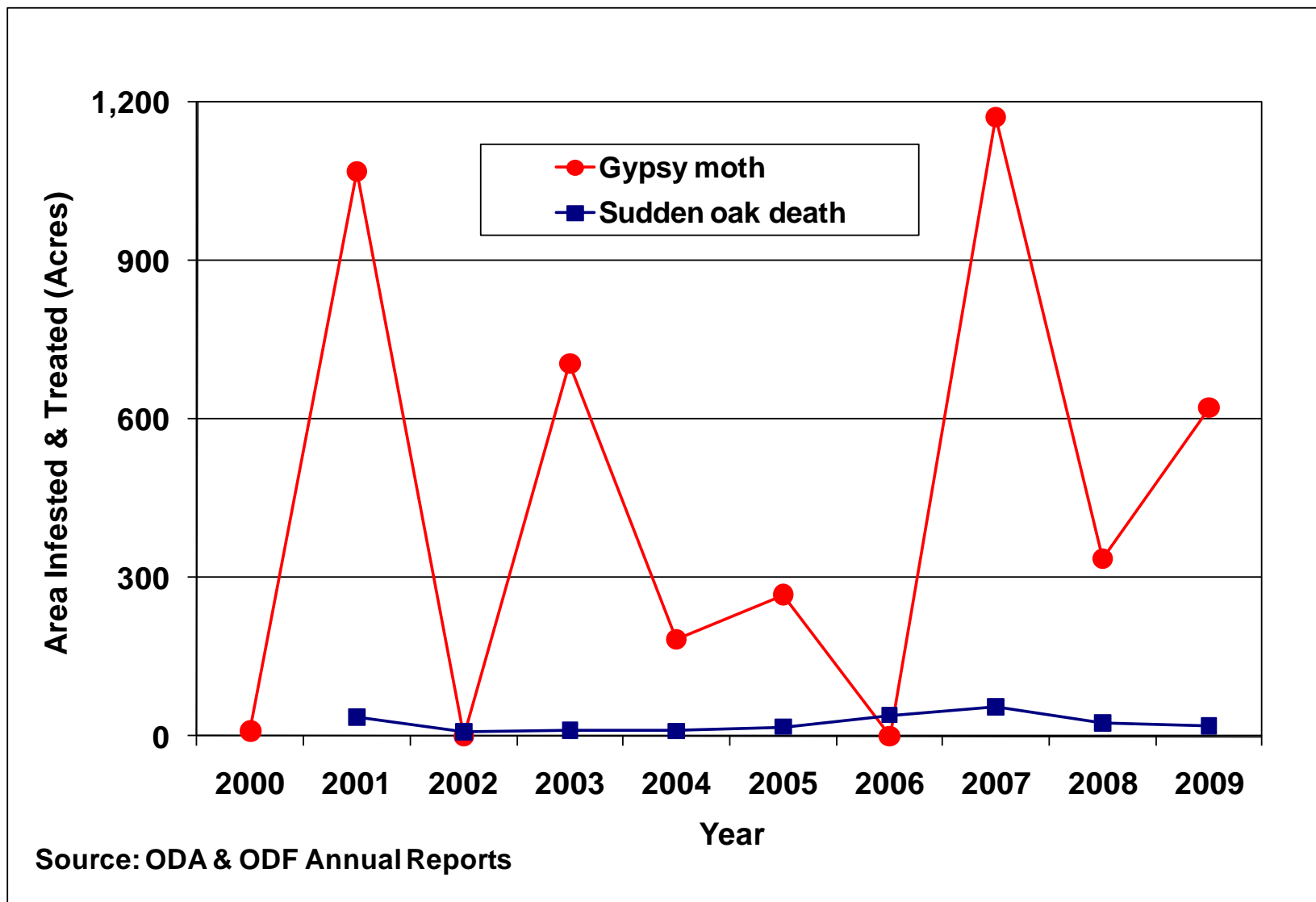
F.b. Invasive species trends on forest lands.

Measure/Data Source: *Annual OISC report card, 2009.*



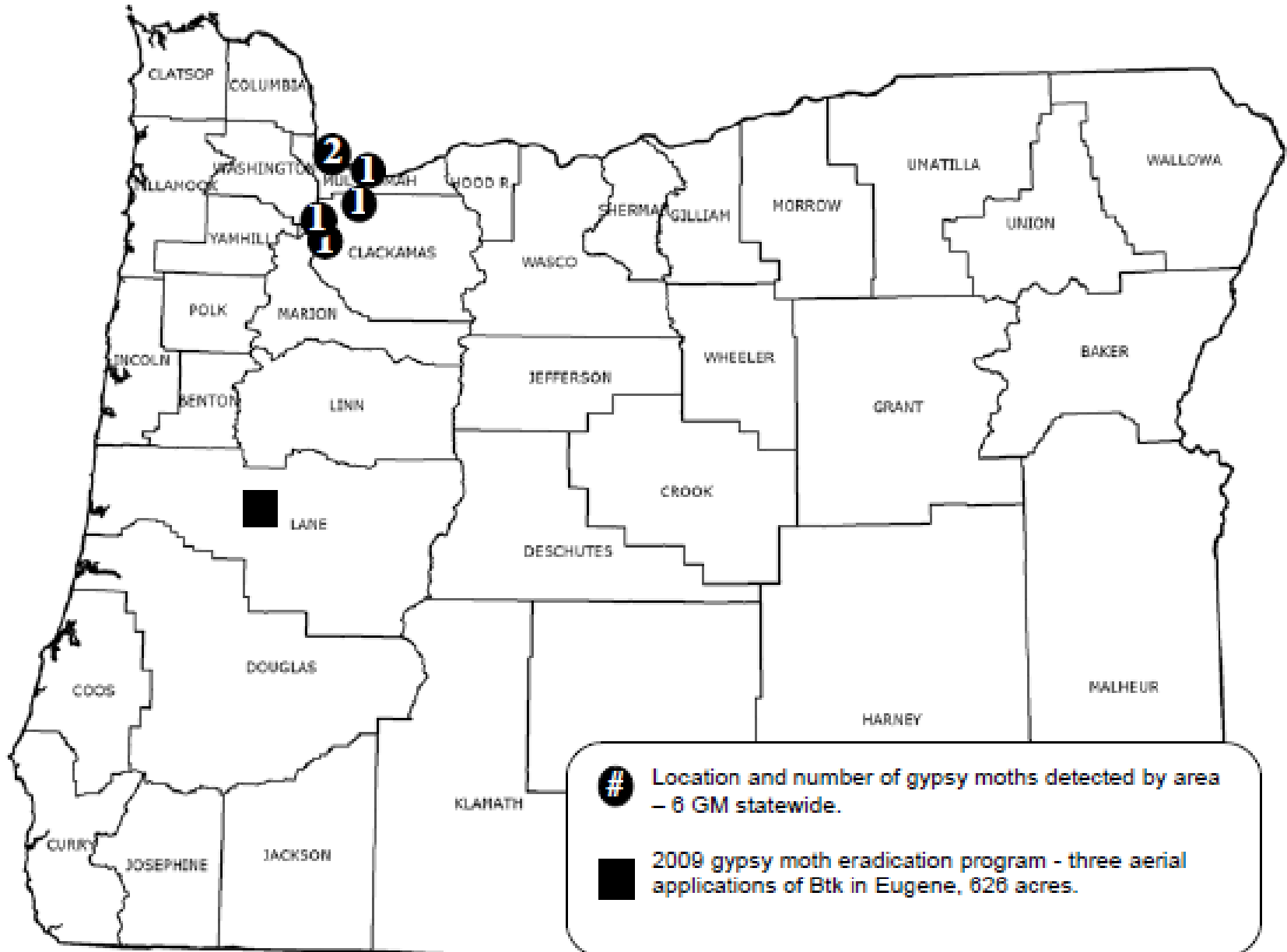
- *In 2009, exclusion efforts for invasive species met the target of zero “uncontained”*
- *Over 8 years, two species from the list became established (New Zealand mudsnail & Portugese broom)*
- *Surveys & eradication for high-priority species ongoing (*P. ramorum* / Sudden oak death, Granulate ambrosia beetle, Gypsy moth, Japanese beetle, feral swine, & several weeds)*
- *Advances in reporting (new database), education (invasives species calendar), statewide action plan (passage of 11 initiatives), & trust account (increased funding)*

Figure 1 – Estimated area (acres) infested by two high-priority invasive species in Oregon forests, gypsy moth and the pathogen (*Phytophthora ramorum*) causing sudden oak death.¹



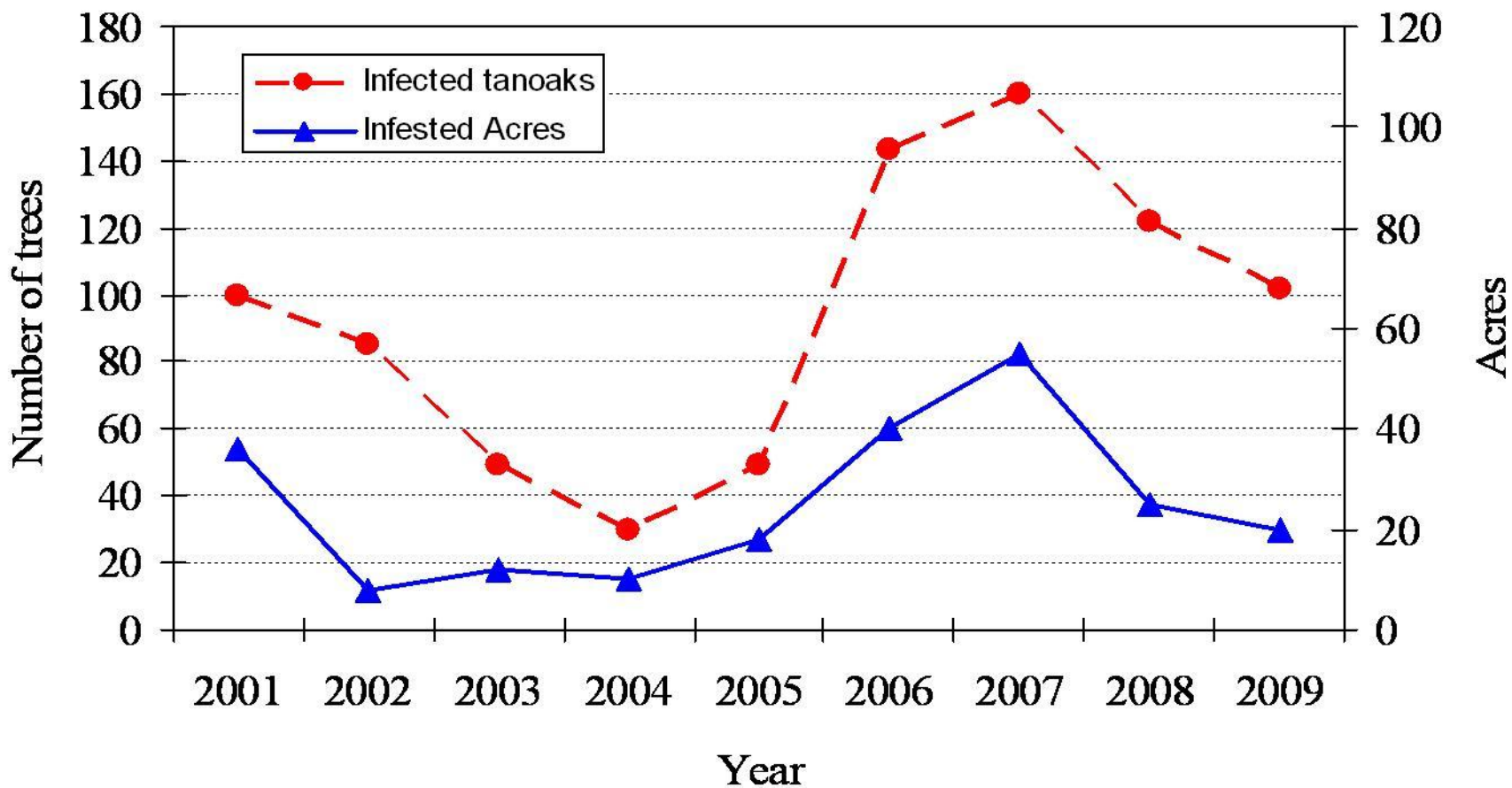
¹ Eradication efforts for gypsy moth and sudden oak death date back to 1977 and 2001, respectively.

Gypsy Moth Detections & Eradication Programs, 2009

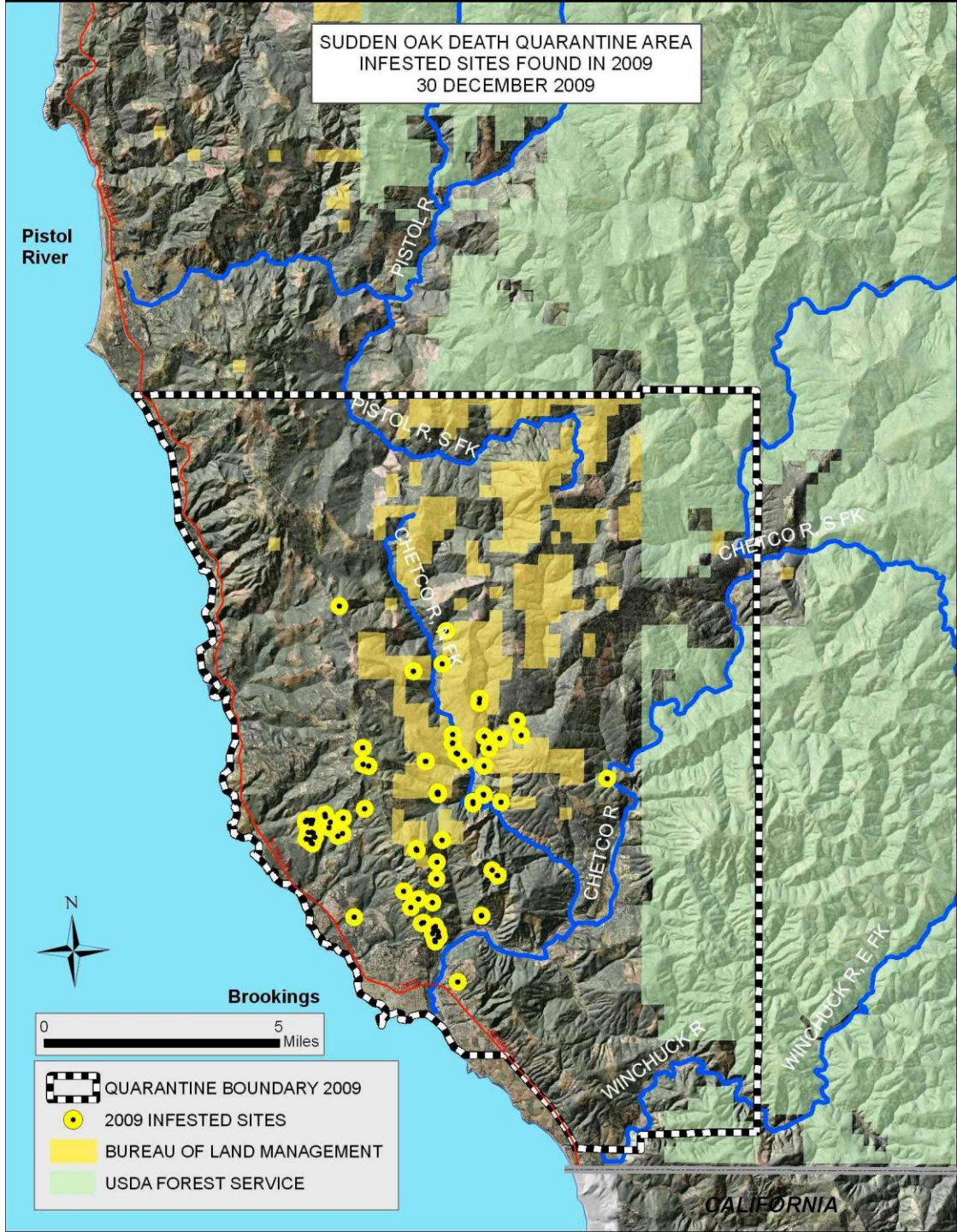


Sudden Oak Death in Oregon Forests

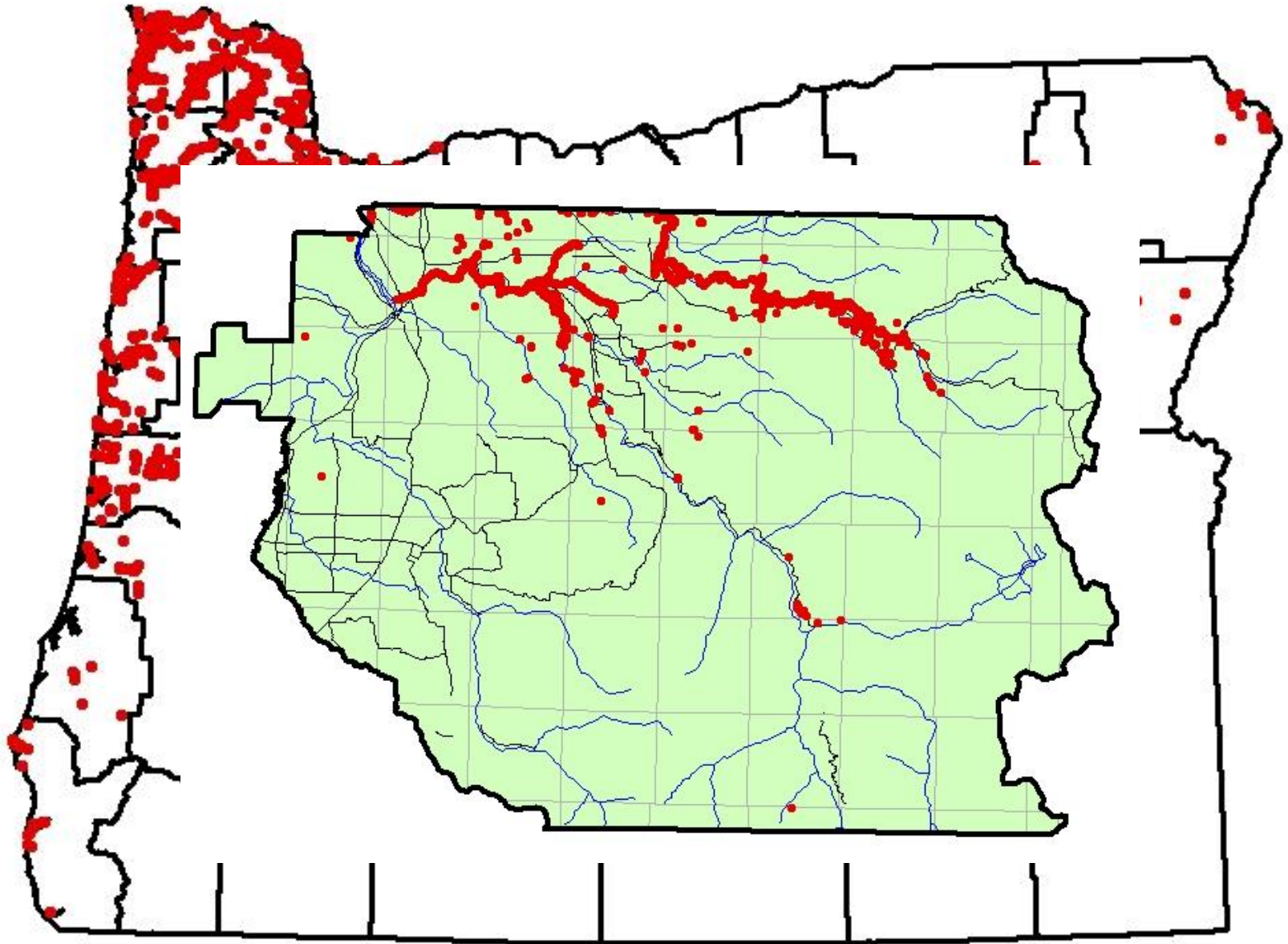
Number of infected trees and area infested, 2001-2009



Sudden Oak Death Pathogen Detections & Quarantine Boundary, 2009

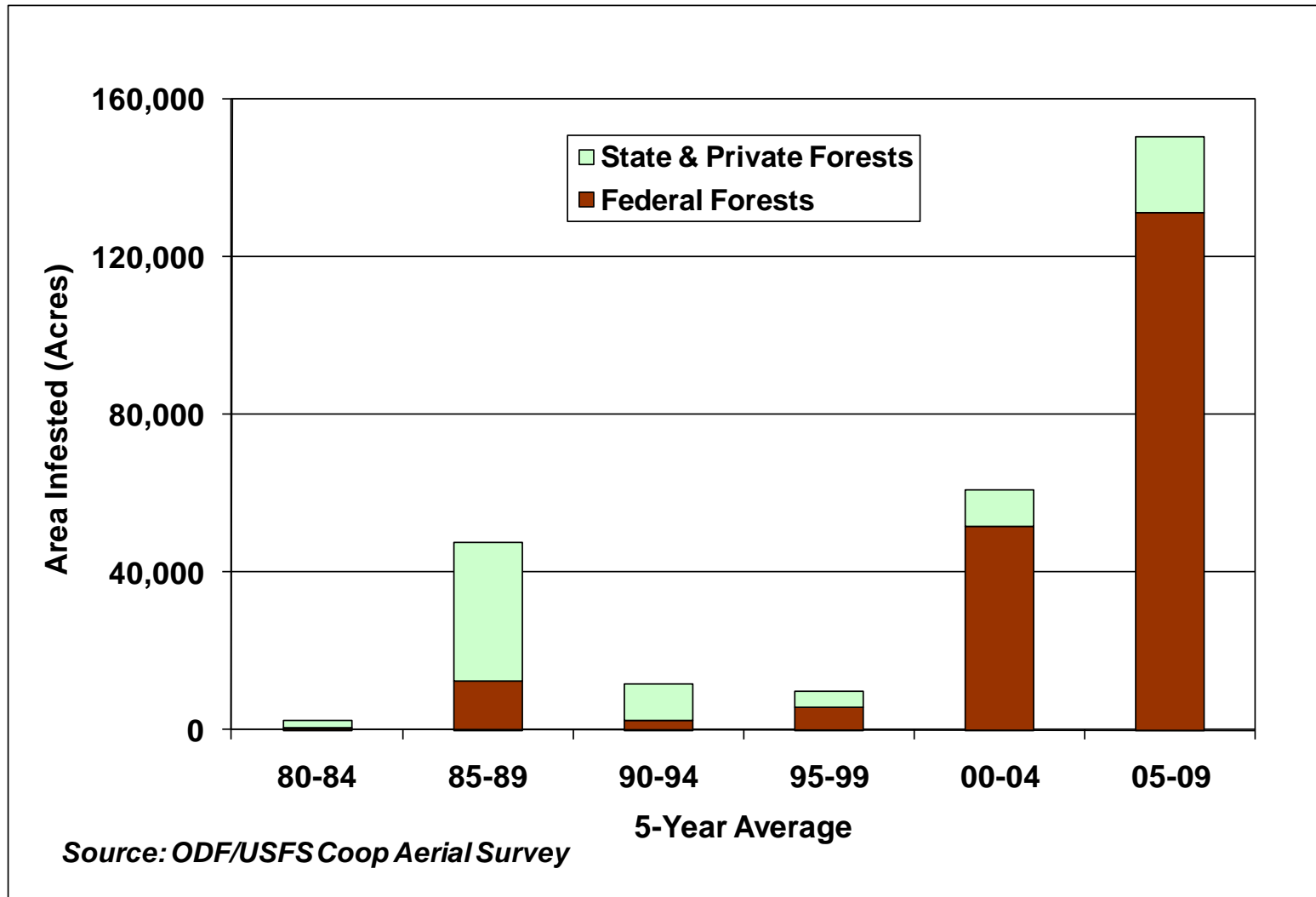


Japanese Knotweed (*Polygonum cuspidatum*) Distribution in OR



Data Source: weedmapper.org

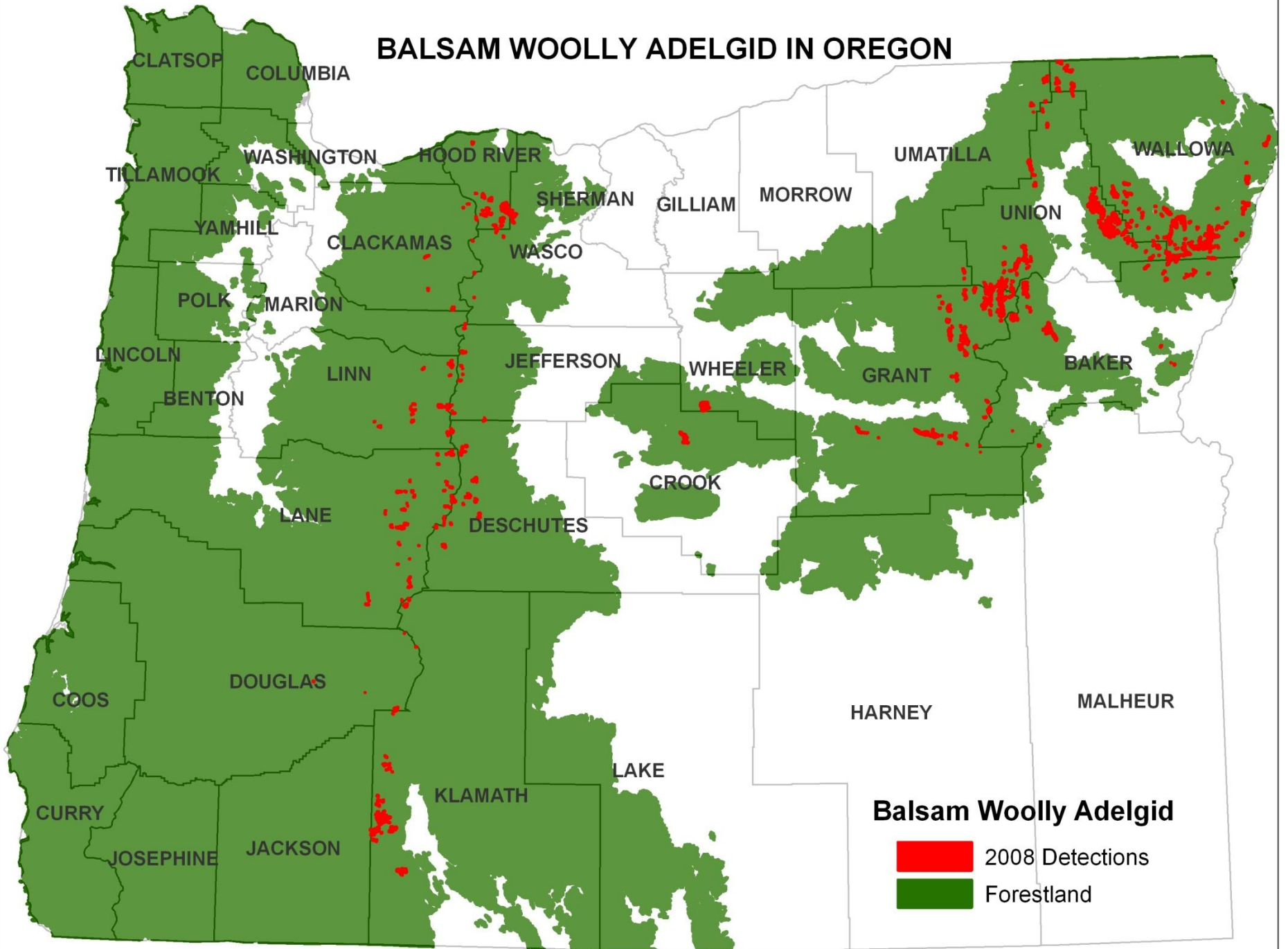
Figure 2 – Five-year averages for the area (acres) estimated to be infested by established invasive insect & disease species in Oregon forests (1980-2009)¹.



¹ Species include: balsam woolly adelgid, larch casebearer, spruce aphid, satin moth, Port Orford cedar root disease & white pine blister rust.

² Five-year averages are due to the high degree of annual variation in detection. Recent increases largely reflect the development of better detection methods. Eradication efforts are only targeted at newly introduced species.

BALSAM WOOLLY ADELGID IN OREGON



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F.b. Invasive species trends on forest lands.

Measure/Data Source: Aerial surveys of established invasives, 2005-2009.

- *Established invasive insects & diseases estimated on an average of >150,000 acres/year from 2005-2009*
- *Primary agents detected were defoliating / sap-feeding insects*
- *Damage was greater in Eastern OR & on federal ownerships*
- *Most affected were true firs, Sitka spruce, five-needle pines, Port Orford cedar & Western larch*
- *Average infested acreage 1.5x higher than the previous 5-yr estimate*
- *Increased detections due in part to better aerial survey timing/techniques & some pest expansion*

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Trend



Mixed or Uncertain

Information



Partial

Invasive Species: Where are we gaining?

- *Spartina*
- *Yellowstar thistle*
- *Kudzu*
- *Gypsy moth*
- *Granulate ambrosia beetle*
- *Atlantic salmon*
- *Mute swan*



Invasive Species: Where are we losing?

- *Himalayan blackberry*
- *Scotch broom*
- *Pavement ant*
- *Balsam woolly adelgid*
- *New Zealand mudsnail*
- *Bullfrogs*
- *Starlings*
- *Nutria*



Invasive Species: Where are we holding on?

- *Sudden Oak Death**
- *Purple loosestrife*
- *Giant hogweed*
- *Japanese beetle**
- *Imported fire ant*
- *Feral swine**

**Risk of becoming established*



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Trend: Currently deemed "Mixed or Uncertain".



- *Priority invaders list is subjective & may change often, making trend analyses difficult*
- *OISC coordinated efforts have improved since 2002, but new invasives continue to arrive each year*
- *Aerial survey detection can be highly variable due to weather & host development*
- *Long-term trends can be deceptive for invasive species as large numbers of hosts can be killed in early stages*
- *Current eradication efforts have prevented gypsy moth from establishing & greatly limited the spread of P. ramorum*

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Information: Currently deemed “Partial”.



- Surveys/data are limited for invasives in Oregon, focused on “high priority” invaders
- OISC’s annual list & ratings/report card has helped to consolidate efforts & reporting
- Aerial surveys provide tracking of some established invasives, but are unable to detect newer arrivals
- Need for consolidation & incorporation of invasive “weeds” information (weedmapper.org)

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How might Condition or Trend "Change" be achieved?

- Will current exclusion/containment efforts succeed?*
- Will established invasives come under "natural" controls?*
- Will funding levels be maintained for current/expanded efforts?*
- Others?*



Good / Improving



Mixed or Fair



Poor / Deteriorating

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How might an Information "Change" be achieved?

- *Will OISC efforts continue to be supported/expanded?*
- *Will statewide annual aerial surveys continue to be supported?*
- *Will information/surveys of invasive weeds be further developed?*
- *Others?*



Adequate



Partial



Inadequate