

## AI assisted analysis: Key points

### What are the most common insect problems that you saw this year?

(e.g. *Aphids on cottonwoods*)

This summary identifies insect pests most commonly associated with key tree groups using a weighted severity scoring system based on reported observations. Standardizing tree names allows patterns to be compared across hosts, while insect names are kept as reported by contributors. Higher severity scores indicate insect–tree combinations that occur more frequently and may warrant closer monitoring or management attention. Scores represent occurrence patterns and not direct measures of injury severity or tree mortality.

**Computed a weighted “severity” score** to reflect how often a problem was the most common vs. secondary:

- Weights: **Most common = 5, 2nd = 3, 3rd = 2, Other1 = 1, Other2 = 0.5.**
- For each list (insects overall, hosts overall, and insect–host pairs), I scaled the weighted total to **0–100** by dividing by the max in that list. (So 100 = the top issue in that list.)

## Top Overall Most Common Insects (All Trees)

Rank	Insect	Total Severity Score	Interpretation
1	<b>Aphid</b>	<b>38</b>	Widespread, chronic, many hosts
2	<b>Ips beetle</b>	<b>21</b>	High-pressure conifer bark beetle
3	<b>Scale</b>	<b>18</b>	Multiple tree types, recurring
4	<b>Spider mites</b>	<b>14</b>	Can be stress-related, esp. drought years
5	<b>Mountain pine beetle</b>	<b>11</b>	Episodic but severe forest impact
6	<b>Elm leaf beetle</b>	<b>10</b>	Host-specific but consistent
7	<b>Western spruce budworm</b>	<b>10</b>	Regional conifer defoliator

## **Insect–Tree Interactions Ranked by Frequency of Occurrence**

*(Most common → least common within each tree host group)*

Frequency of occurrence reflects how often an insect was reported on a given tree group across all reported rankings (most common through fifth most common). Higher values indicate more frequently observed insect–tree associations.

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### **Ash**

1. **Scale** — Highest frequency of occurrence
2. **Aphid** — High frequency of occurrence
3. **Oystershell scale** — Moderate frequency of occurrence

**Urban forestry interpretation:** Ash trees experience **frequent pressure from multiple insect groups**, increasing cumulative stress even when individual insects are reported infrequently.

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### **Spruce**

1. **Ips beetle** — Most frequently reported
2. **Spider mites**
3. **Western spruce budworm**
4. White pine weevil
5. Aphid

**Urban forestry interpretation:** Spruce hosts a **high frequency of both bark beetles and foliage-related pests**, particularly under drought or heat stress.

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### **Pine**

1. **Mountain pine beetle**
2. **Ips beetle**
3. Pine needle scale

4. Pine tip moth

**Urban forestry interpretation:** Pine insect issues are reported **less frequently overall**, but dominant pests occur often enough to drive significant management concern during outbreak periods.

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## Elm

1. **Elm leaf beetle** — Dominant, highly frequent interaction
2. Elm scale / European elm scale

**Urban forestry interpretation:** Elm leaf beetle remains the **most consistently reported insect problem** on elm in urban environments.

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## Poplar / Aspen / Cottonwood

1. **Aphid**
2. **Spider mites**
3. Leaf miners
4. Gall-forming insects

**Urban forestry interpretation:** Many insects are reported on these trees, but **frequency is spread across several groups**, typically resulting in cosmetic or maintenance issues rather than catastrophic decline.

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## Birch

1. **Bronze birch borer** — Infrequent but notable when reported

**Urban forestry interpretation:** Even with a lower frequency of occurrence, bronze birch borer remains **high-impact** when present.

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## AI assisted analysis: Key points

Which insect problems were the **hardest to control** this year? (e.g. *Ips beetle on spruce*)

This summary results from a survey identifying **tree-feeding insects perceived as hardest to control**, based on respondent rankings.

### What We Did:

- Used an Excel file containing survey results where respondents ranked insect problems from **hardest to control (1st)** through **5th hardest**
- Data were organized by **insect** and **tree host**
- **Tree host names were standardized** (e.g., all spruce types grouped as *Spruce*) to allow meaningful comparison
- **Insect names were left exactly as reported** to preserve respondent intent
- Created a **severity score** that combines **frequency and perceived difficulty**
- **Severity score (used for all tables)**

Ranking in survey	Weight
Hardest to control	5
2nd hardest	4
3rd hardest	3
4th hardest	2
5th hardest	1

- **Severity score** = (Hardest × 5) + (2nd × 4) + (3rd × 3) + (4th × 2) + (5th × 1)
- Higher scores indicate insects that are **frequently mentioned AND perceived as difficult to manage**.

### Table 1. Insect × Tree host severity matrix

(Tree names standardized; insects unchanged)

Insect	Standardized Tree Host	Severity Score
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Ips beetle	Spruce	<b>Very High</b>
Ips beetle	Pine	<b>High</b>
Western spruce budworm	Spruce	<b>High</b>
Mountain pine beetle	Pine	<b>High</b>
White pine weevil	Pine	Moderate–High
Ash bark beetle	Ash	Moderate
Lilac ash borer	Ash	Moderate
Scale	Ash	Moderate
Aphid	Aspen	Moderate
Spider mite	Cottonwood	Moderate
Scale	Ornamental	Moderate
Elm leaf beetle	Elm	Low–Moderate
Honey locust bug	Honeylocust	Low–Moderate

**Interpretation:**

Conifers—especially **spruce and pine**—concentrate the highest severity insect problems, even when the number of insect species is relatively small.

**Table 2. Severity totals by insect (all hosts combined)**

<b>Insect (verbatim from survey)</b>	<b>Overall Severity</b>
Ips beetle	<b>Very High</b>
Western spruce budworm	High
Mountain pine beetle	High
White pine weevil	Moderate–High

Ash bark beetle	Moderate
Lilac ash borer	Moderate
Scale	Moderate
Aphid	Moderate
Spider mite	Moderate
Elm leaf beetle	Low–Moderate
Honey locust bug	Low–Moderate

**Interpretation:**

Difficulty is driven mostly by **bark beetles and defoliators**, not by sheer insect diversity.

**Table 3. Severity totals by standardized tree host**

Standardized Tree Host	Total Severity
<b>Spruce</b>	<b>Very High</b>
<b>Pine</b>	<b>High</b>
Ash	Moderate–High
Aspen	Moderate
Cottonwood	Moderate
Ornamental	Moderate
Elm	Low–Moderate
Honeylocust	Low–Moderate

**Interpretation:**

- **Spruce** stands out as the most management-challenging host overall
- **Pine** problems are fewer in number but disproportionately severe

- **Ash** accumulates severity through many moderate-difficulty insects rather than one dominant pest

## What new and challenging insect issues are you seeing in your area?

(count of responses)

- 1 Aphid were definitely more of a problem this year than usual.
- 1 beetles becoming more prevalent.
- 1 Boring insects. Could be an aging urban forest
- 1 Boxelder bugs bug
- 1 Budworm over past 3-4 seasons
- 1 Drought bringing in more insects into the area.
- 1 EAB
- 1 Elm seed bug
- 1 Elm seed bugs
- 1 Emerald Ash Borer
- 1 Have not seen anything new on campus
- 1 Ips beetle
- 1 Ips beetle

Lack of awareness of EAB and other potential invasive insects. The increase of the incidence of IPS and Pine Weevil moving into urban forest tree populations. Declining quality of work by professional tree services leading to tree stress and potential for secondary pest population expansion.

- 1 Large Tolyte Moth Caterpillar
- 1 More Aphid at the end of this summer than I've ever seen before
- 1 More Spruce budworm
- 1 Mosquitoes

Moths on huckleberries. I communicated with Scott Schell, UW Extension, about creating a Backyards & Barnyards article on the subject.

2 N/A

No new insects that I have had the chance to be exposed to. Hardest to control would be Mountain pine beetle in our native ponderosa pine stands in the Big Horn Mountains.

3 None

- 1 none. yet.
- 1 Not so much a new insect pest but decrease in tolerance of people to insects.
- 1 Not sure yet, bracing for EAB
- 1 Nothing new
- 1 Nothing new to report. Do mostly utility work trimming trees around power lines.

Oddly enough, Ips (both Pine and Spruce) and Mtn Pine have slowed down the past couple years. We also had juniper twig beetle or juniper borer come through 2-3 years ago and it seems to have subsided.

1 Rapid and widespread reddening of needles or death of conifers due to Spruce budworm and Ips beetle.

- 1 Red Turpentine Beetle
- 1 Same issues have been prevalent
- 1 Spider mites on everything
- 1 Spruce budworm on Douglas-fir
- 1 Testing for the moth issue I have not heard if prevalent here yet. Cannot recall, think the gyps moth.
- 1 The eriophyid mites on ash trees were new this year
- 1 waiting on the ash borer
- 1 We aren't seeing many new insect issues.

We have ongoing issues with the White Pine Weevil and the Pine scale seemed bad this year. The spruces in the area are struggling. We have not seen any white satin moths this year though.

- 1 webworm
- 1 white satin moth and spruce beetle near forest
- 1 whitespotted pine sawyer
- 1 Yellow spotted Jewel Beetle