

# Tree of Heaven Control in Restoration Settings



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# Tree of Heaven

- *Ailanthus altissima* originally from China
- Introduced during Gold Rush
- Clonal tree - forms dense colonies
- Problematic invader of riparian areas
- Allelopathic – inhibits native plant regeneration
- Sap is very toxic – causes heart inflammation
- Host plant for spotted lanternfly



Photo by Neal Kramer

# Tree of Heaven

- Many restoration projects with multi-year tree of heaven control efforts:
  - Alamo Creek (Elmira)
  - Lake Solano County Park
  - Dry Creek (Winters)
  - Putah Creek (Winters)
- Thousands of trees, often on steep slopes
- All sizes from seedlings to monstrously huge



# Tree of Heaven

- Identification tips:
  - Looks somewhat like black walnut, especially when sapling sized
  - Crushed leaves have rancid peanut butter smell
  - Leaflets have lobes/glands near base
  - Unusual leaf scar
  - Trunk bark smooth-ish, often in groves



# Tree of Heaven

- Previously used:
  - Hack and squirt with glyphosate (Roundup Custom)
  - Cut stump with triclopyr (Garlon 4)
- Killed mother tree, but often **created dozens of root sprouts**
- Recipe for creating dense groves
- **DON'T DO THIS!**



# Tree of Heaven

- Now using EZ-Ject lance on trees > 1.5 inches in diameter
- Imazapyr cartridges (Copperhead)
- Cartridges filled with gelled herbicide; 400 cartridges in handle



# Tree of Heaven

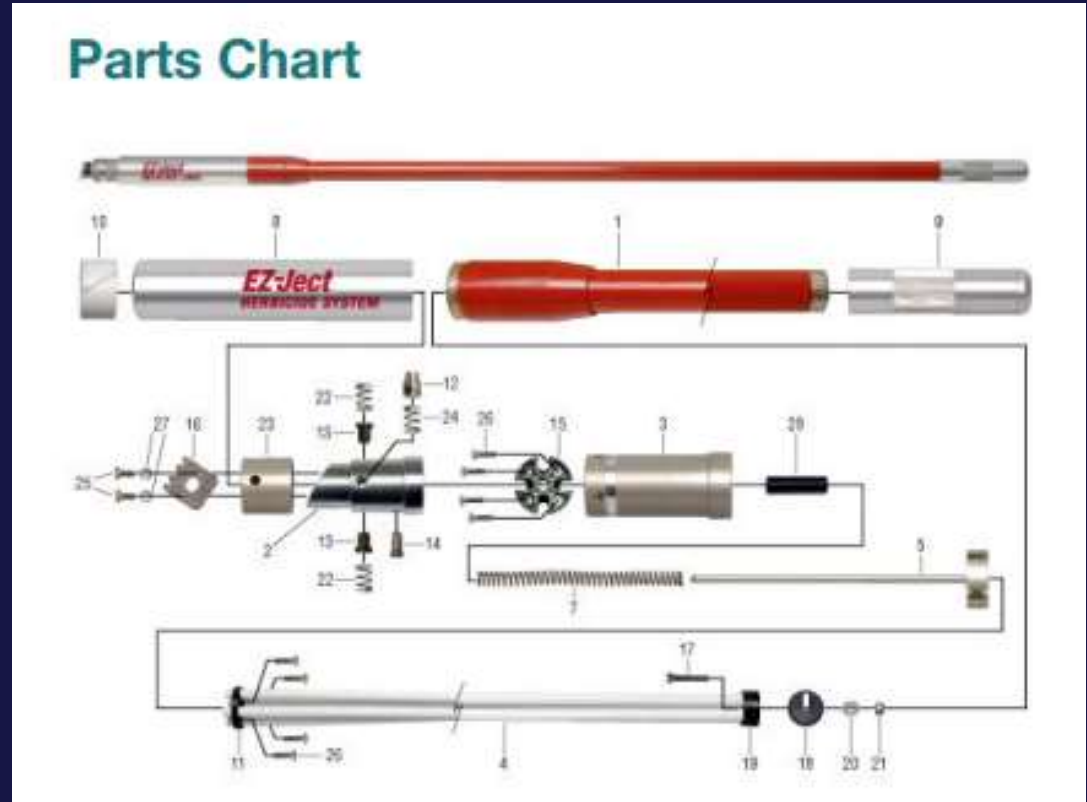
- Cartridges injected every 4” around trunk
- Kills tree without causing root sprouting
- Minimal herbicide exposure to operator or environment
- Does put you at risk of tennis elbow
- Lance ≈\$700, cartridges ≈\$0.30/ea
- *Still available for CA use??*



Photo by [www.invasive.org](http://www.invasive.org)

# Tree of Heaven

- Lance requires regular maintenance
  - *Don't store cartridges in lance!*
- Follow directions (videos available)
- Needs occasional replacement of small, internal parts





# Tree of Heaven

- Treating saplings < 1.5 inches in diameter with cut stump method
  - Low-pressure spray bottle
  - Buckthorn blaster
- Herbicide solution:
  - 10% imazapyr (Habitat)
  - 50% glyphosate (Roundup)
  - 40% water
  - Dye
- Works best with isolated stems
- Minimize cut stump treatment – only use for stems too small for EZ-Ject



# Tree of Heaven

- Don't forget biomass removal!
- Tree of heaven **VERY brittle** within a year after death
- Can pose a very **serious hazard** to Park visitors, drivers
- Don't start control without an exit plan!



# Tree of Heaven

- Even after trees fall (or are felled), biomass is so great, that it prevents natural regeneration
  - 1 acre site = 200 cubic yards biomass removed
- Takes multiple years to completely kill a clonal grove
- Best to have multiple years of funding



# Tree of Heaven

- Lessons learned:
  - Do NOT hack and squirt or cut stump large tree of heaven
  - Invest in an EZ-Ject Lance and learn how to maintain it
  - Imazapyr should always be used with caution, but tree of heaven is a great candidate for imazapyr use!
  - Don't start a tree of heaven control program without multiple years of funding and an **exit strategy!**
- Questions?

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