

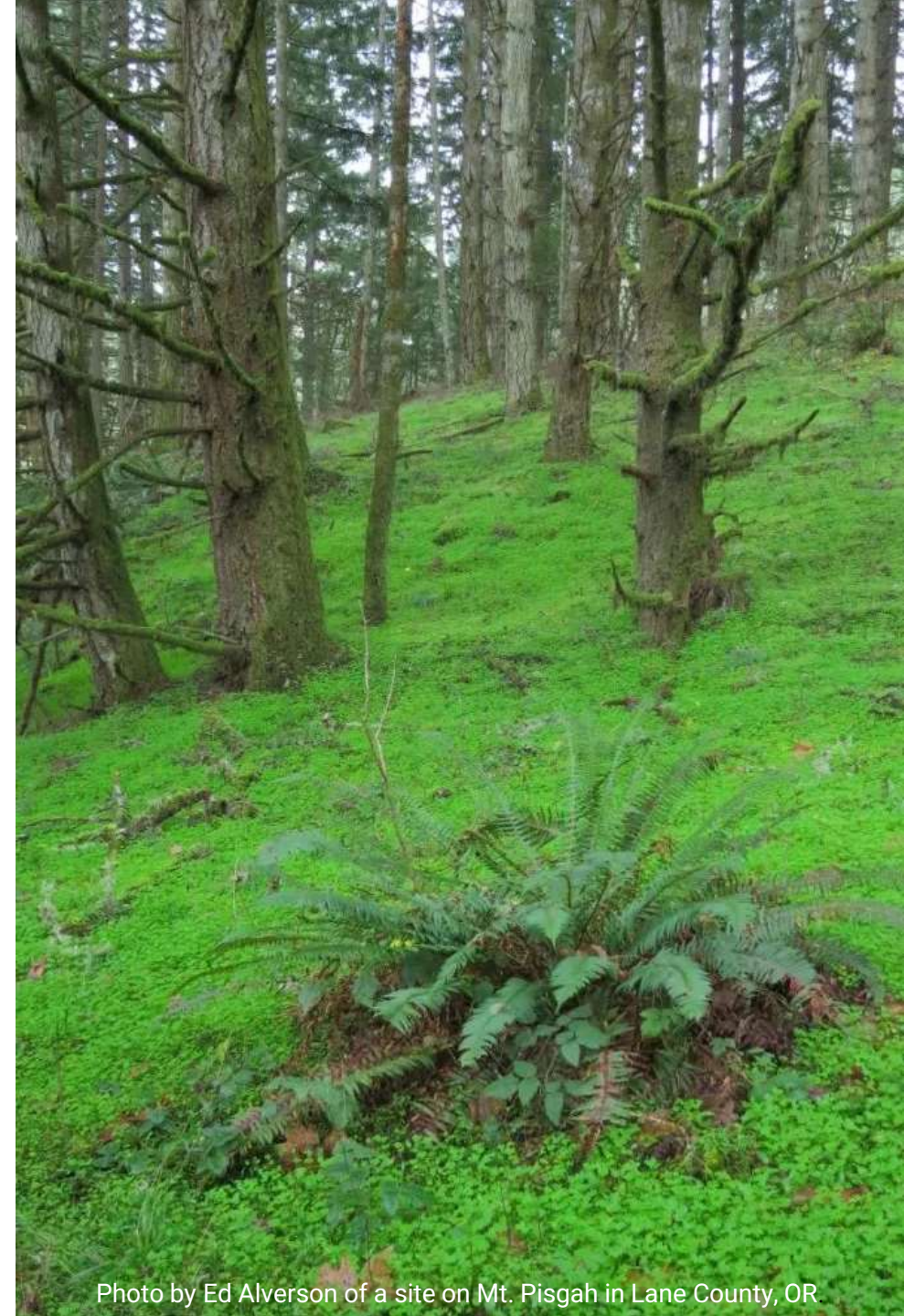
# Shiny Geranium Management in northwestern California

Patrick Hoffman, Senior Agricultural Inspector  
Humboldt CAC / Humboldt WMA Co-chair



# Why is shiny geranium a problem?

- CDFA rating: A      Cal-IPC: Watch
- Proven to be highly invasive in Washington and Oregon, where it has invaded forests, grasslands, pasture, roadsides, City Parks, etc. (APHIS WRA 2013). It is considered an especially substantial threat to oak woodlands in Oregon (Dennehy et. al. 2011).
- Spread through explosive dispersal from capsules and likely by animal movement, vehicles, and mowers.
- Seed bank persists for more than a year (APHIS WRA 2013).
- Spread in Washington linked to contaminated nursery stock (Dennehy et. al. 2011).





# California Invasion

- First California detection occurred in Strawberry Canyon behind the UC Berkeley Campus in 1998. Calflora and iNaturalist observations show that it is still present at this location and in surrounding areas.
- North coast appearance: Del Norte County in 2011, Humboldt County in 2013, and Mendocino County by 2022. Seems to be traveling south along the Highway 101 corridor.
- Also present in San Mateo, Santa Clara, Santa Cruz, and San Diego Counties judging from online observations. All are recent observations 2017-2024.
- Likely more widespread than known.

# Identification



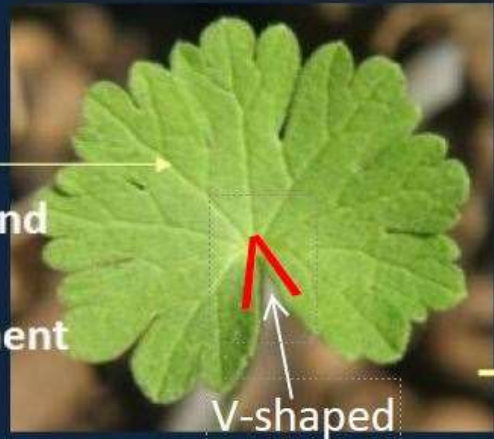
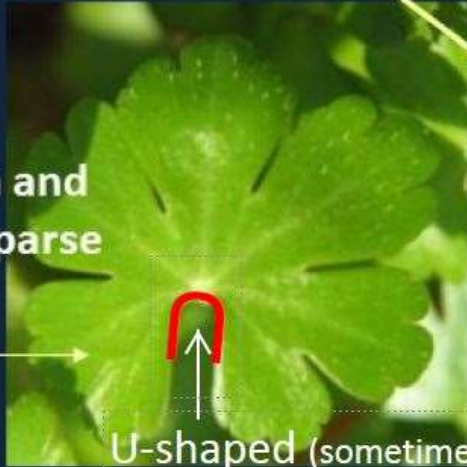
- Pink, 5-petaled flowers in pairs on thin green to red stems.
- Leaves are shiny and roundish to kidney-shaped with 5-7 lobes.
- Seeds form in long capsules with a pointed beak. Typical with geraniums (aka “Crane’s bills”).
- Annual, sometimes biennial.
- At CAC treatment sites it typically sprouts in late fall or winter, flowers in April, begins going to seed in May, and dies back by mid to late summer. This timeline seems to vary depending on weather and locality.
- Often confused with other geraniums, especially *G. molle*.



\*Disclaimer: I stole this slide (and made some edits/additions), but I cannot find the original source.

# Shiny and dovefoot geraniums

## Shiny geranium



## Dovefoot geranium



# Treatment Strategies

## **Humboldt County Ag Commissioner / Ag Dept.**

- Two sites, previously hand pulled by local non-profit RCAA. Multiple times roadsides were mowed before pulling occurred and RCAA crew could not find any geranium. RCAA lost funding and Humboldt CAC took over responsibility for these sites beginning in 2022.
- Hand pulling for three consecutive years by Humboldt CAC. Removal begins in February. After initial hand pulling, sites are visited two to three times to look for missed and late emerging plants.
- Results:
  - Site 1: Shady roadside along damp forest. Approx. 50% reduction in the footprint of the infested area. The density of plants within this area was not measured, but visually the reduction is obvious.
  - Site 2: Partly sunny roadside above pasture. Not a significant reduction in the overall footprint, but plant distribution has become patchier. Separated from pasture by dense Himalayan blackberry brambles along fence line. The leading edge of the infestation appears to stop at the blackberry.
- So, what's going on? Plants are easy to miss when intermixed with other forbs and grasses and can seed when only a few inches tall. Site 2 has much more robust competing vegetation, which I suspect is hindering our ability to find very small plants. Or maybe the plant simply does better with more sun when near the coast?
- Four new sites found in 2024. Sites range from tree wells in an urban area on the coast to roadside along mixed oak-doug fir woodlands adjacent to rangeland at around 2500' elevation. Inland plants appear to stick to shade.

# Treatment Strategies

## Caltrans

- Sites in Del Norte County: Annual application of Garlon. No populations eliminated, but all greatly reduced.
- Sites in Humboldt County: Mulching with wood chips and hand pulling. Mulching significantly reduced plants, but some emerge through mulch. Requires 1-2 visits monthly after to remove plants that have emerged. No populations eliminated.



# Treatment Strategies

## CA State Parks

- Multiple applications a year of Roundup Custom (1.5%) with the surfactant Competitor (0.5%) for areas near water. Milestone (0.2%) with Roundup for areas where maintaining grass cover is a concern.

## RCAA

- Had previously treated sites by hand pulling. Did not find hand pulling to be effective, but had run into problems with roadside mowing schedules. Sites were mowed before removal had occurred and staff had difficulty finding geranium

## National Parks Service

- Originally treating by hand pulling only, but this was very labor intensive and required many revisits throughout the growing season.
- Now using a combination of chemical and manual removal: single application of Milestone (0.03%) in May, followed by revisits throughout the year to remove any remaining plants by hand. All sites reduced, but none eradicated.



# Takeaways

“Once fully established, *Geranium lucidum* is virtually impossible to eliminate from a site due to its rapid rate of increase, high plant density, persistent seed bank, and difficulty of implementing management treatments without causing collateral damage to associated native herbaceous species” (Dennehy et al., 2011)

- In Humboldt County it is typically found on roadsides, but we are still in the early stages of invasion.
- Manual control is very labor intensive and not especially effective
- Chemical use is less labor intensive and seems to be more effective, but even with herbicide use sites have persisted.
- Highlights the importance of EDRR!



Predicted distribution of *Geranium lucidum* in the United States and Canada. (APHIS WRA 2013)

# Sources

Dennehy, C., E. R. Alverson, H. E. Anderson, D. R. Clements, R. Gilbert, and T. N. Kaye. 2011. Management Strategies for Invasive Plants in Pacific Northwest Prairies, Savannas, and Oak Woodlands. *Northwest Science* 85(2):329-351.

ODA 2013. Shiny geranium (*Geranium lucidum*) Oregon Department of Agriculture (ODA), Salem, Oregon.  
<https://www.oregon.gov/ODA/shared/Documents/Publications/Weeds/ShinyGeraniumProfile.pdf> Rehearse your responses

USDA APHIS Risk Assessment: *Geranium Lucidum*  
[https://www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/weeds/downloads/wra/Geranium\\_lucidum\\_WRA.pdf](https://www.aphis.usda.gov/plant_health/plant_pest_info/weeds/downloads/wra/Geranium_lucidum_WRA.pdf)



# THANK YOU

Patrick Hoffman

[phoffman@co.Humboldt.ca.us](mailto:phoffman@co.Humboldt.ca.us)

Humboldt County Ag. Dept. / Humboldt WMA