

PALMER AMARANTH & WATERHEMP

Noelle Orloff, MSU



Palmer amaranth and waterhemp

(Amaranthus palmeri and A. tuberculatus)

Noelle Orloff – Schutter Diagnostic Lab
Montana State University Extension
MISC Summit 11/14/24

Palmer Amaranth and Waterhemp

- Amaranthus genus (pigweeds)
 - Nine Amaranthus species in MT
- Summer annuals
- Native to northwestern Mexico and southwestern U.S.
- Began spreading north and east in late 1800s
- Troublesome in last 25 years
- EDRR species in Montana, restricted seed.



The trouble with Palmer amaranth and waterhemp

- Palmer most troublesome and difficult to control weed among broadleaf crops, fruits and vegetables due to evolution of herbicide resistance (WSSA 2016)
- Genetic diversity
- Prolific seed production
- Extended germination period
- Competitive, grows 2-3"/day
- Many cases of multiple herbicide resistance:
 - Populations resistant to up to 6 sites of action (HRAC 2021)



Palmer amaranth and waterhemp ID

- Long, terminal inflorescences
- Only dioecious pigweeds in MT (separate male and female plants)
- Generally smooth stems with no hairs
- Can be very large/tall plants
- ID is tricky sometimes! We confirm with PCR

Pigweed Prevention

Be on the lookout for two new invasive pigweeds.

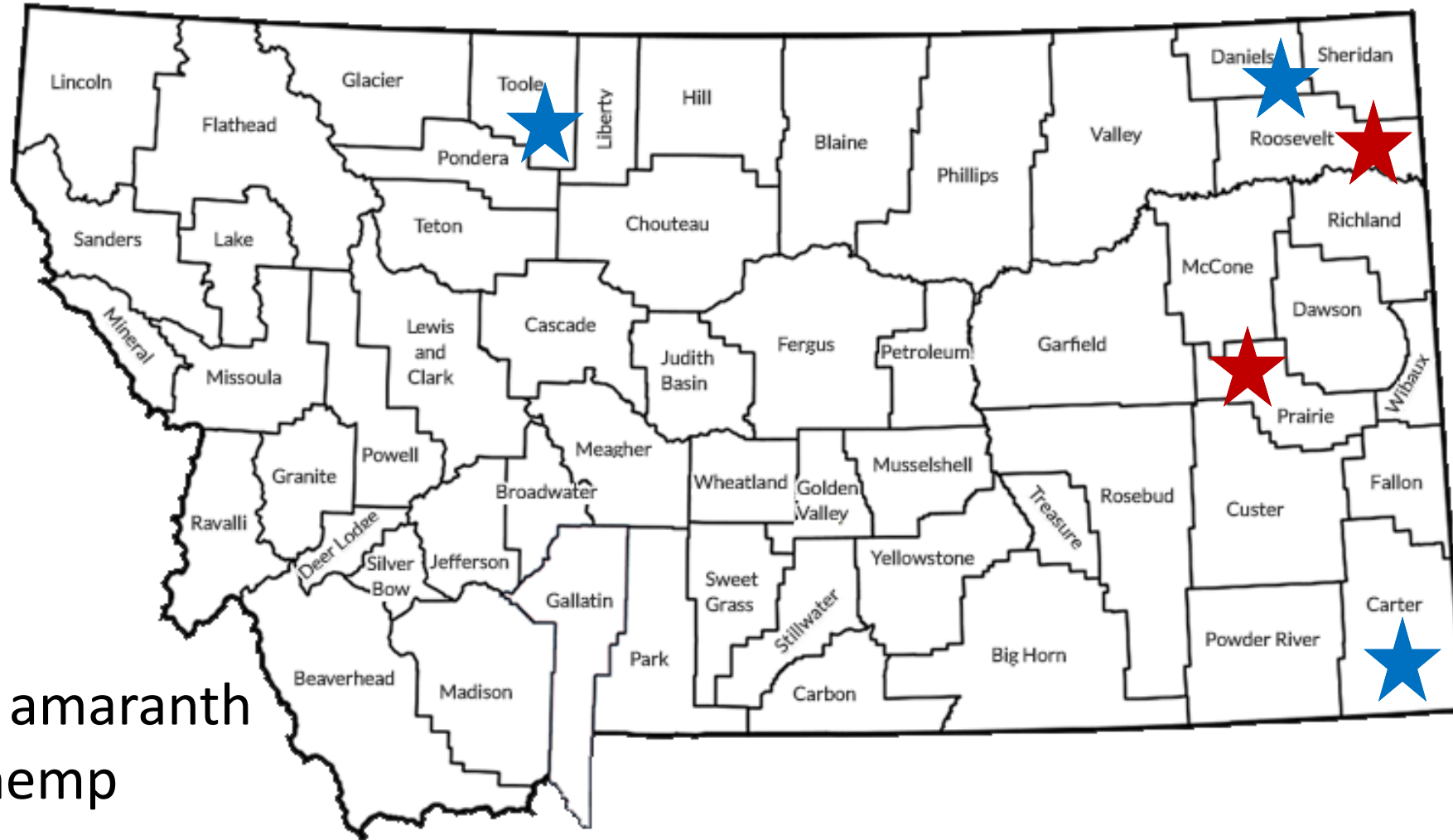
These pigweeds – Palmer amaranth and waterhemp – are very resistant to herbicides and have spread from the Midwest toward Montana. Contamination is seed, especially on farm equipment. Contaminated sunflower seeds also introduced these pigweeds. Restricted Weed Seed administration has a 0% tolerance for Palmer amaranth.



Photo (left): R. Recker, UW-Madison, Bugwood.o



Detections (not known to be established)



★ Palmer amaranth
★ Waterhemp

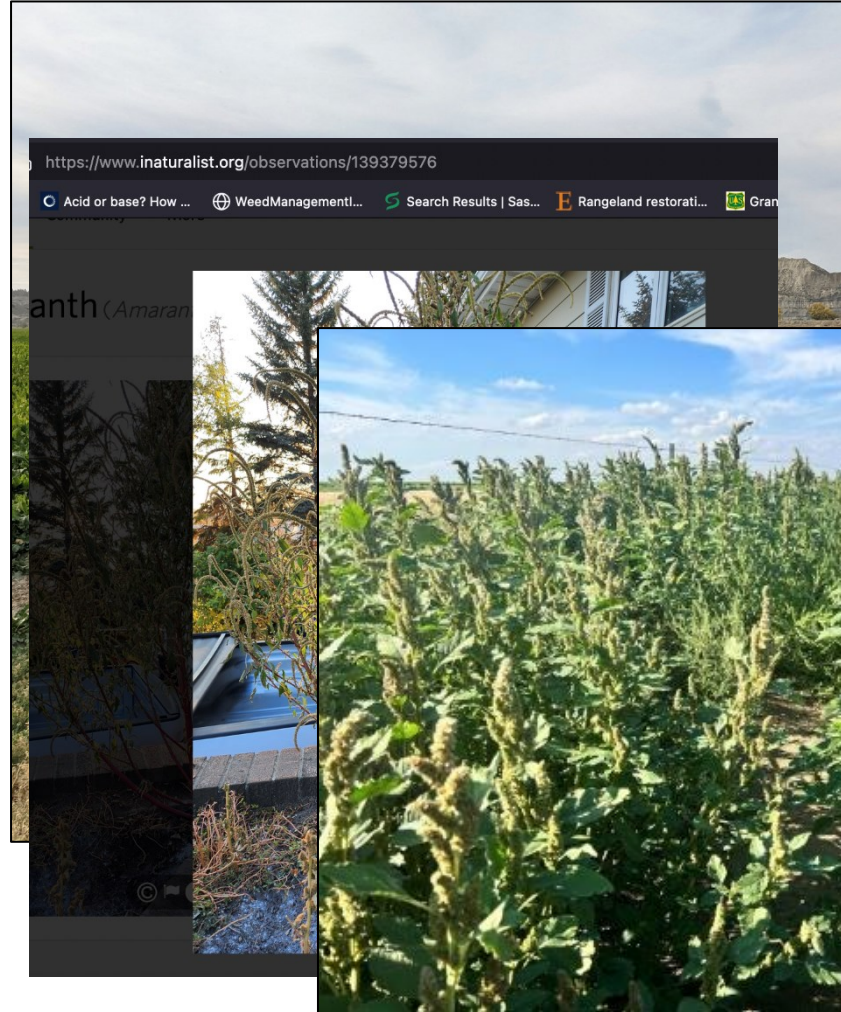
Vectors and Habitats so far

Waterhemp

- Irrigated sugarbeets

Palmer amaranth

- Birdseed
- Millet seed
- Roadside



Regional Partnerships

- Palmer Amaranth Task Force
 - MDA, Extension, etc.
 - Meet periodically to discuss new detections, education needs, other updates
- Learning from neighboring states with established populations



Prevention and Management

- Still in prevention stage
 - Identifying vectors
 - Restricted seed species
 - Outreach
 - Identification training
- Management
 - Mechanical so far (rogueing and mowing)
 - Herbicides? Could be tricky



Suspicious pigweed (from MontGuide)

1. Contact your local Extension agent, or agronomist to help identify the plant.
2. If Palmer amaranth or waterhemp is suspected, a specialist will visit the site and make visual confirmation.
3. Record the location with a GPS.
4. Genetic testing should occur to confirm pigweed identity.
5. Work with agricultural professionals to determine the source.
6. Develop an action plan. It is important that plants be pulled and removed from the site before they go to seed, and the area be searched and monitored for additional plants for three years.

What you can do

- Learn to recognize Palmer amaranth and waterhemp – check out MSU Extension resources
- Stay informed by signing up to receive MSU AgAlerts

Pigweed Prevention
Be on the lookout for two new invasive pigweeds.

These pigweeds – Palmer amaranth and waterhemp – are very resistant to herbicides and have been spreading from the Midwest toward Montana. Main vectors of contamination are seed, especially millet, and farm equipment. Contaminated sunflower screenings have also introduced these pigweeds to nearby states. The Restricted Weed Seed administrative rule lists zero tolerance for Palmer amaranth.



Photo (left): R. Recker, UW-Madison, Bugwood.org; (right): T. Seipel, MSU Extension



Thank you! Questions?



Noelle Orloff
Schutter Diagnostic Lab
noelleorloff@montana.edu