Poison Hemlock & Perilla Mint: Identification & Control

David Russell, PhD
Assistant Extension Professor
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Poison Hemlock Introduction

- Native to Europe, northern Africa, & Asia
- First introduced in the U.S. in 1800s as an ornamental plant
  - Sometimes marketed as a winter fern
- **Toxicity**
- Highly toxic to humans and animals, containing the alkaloid coniine and gamma-coniceine, which can cause paralysis of respiratory muscles and death
- Most famously linked to the execution of the philosopher Socrates in ancient Greece

Kerry Steedley – Alabama Cooperative Extension

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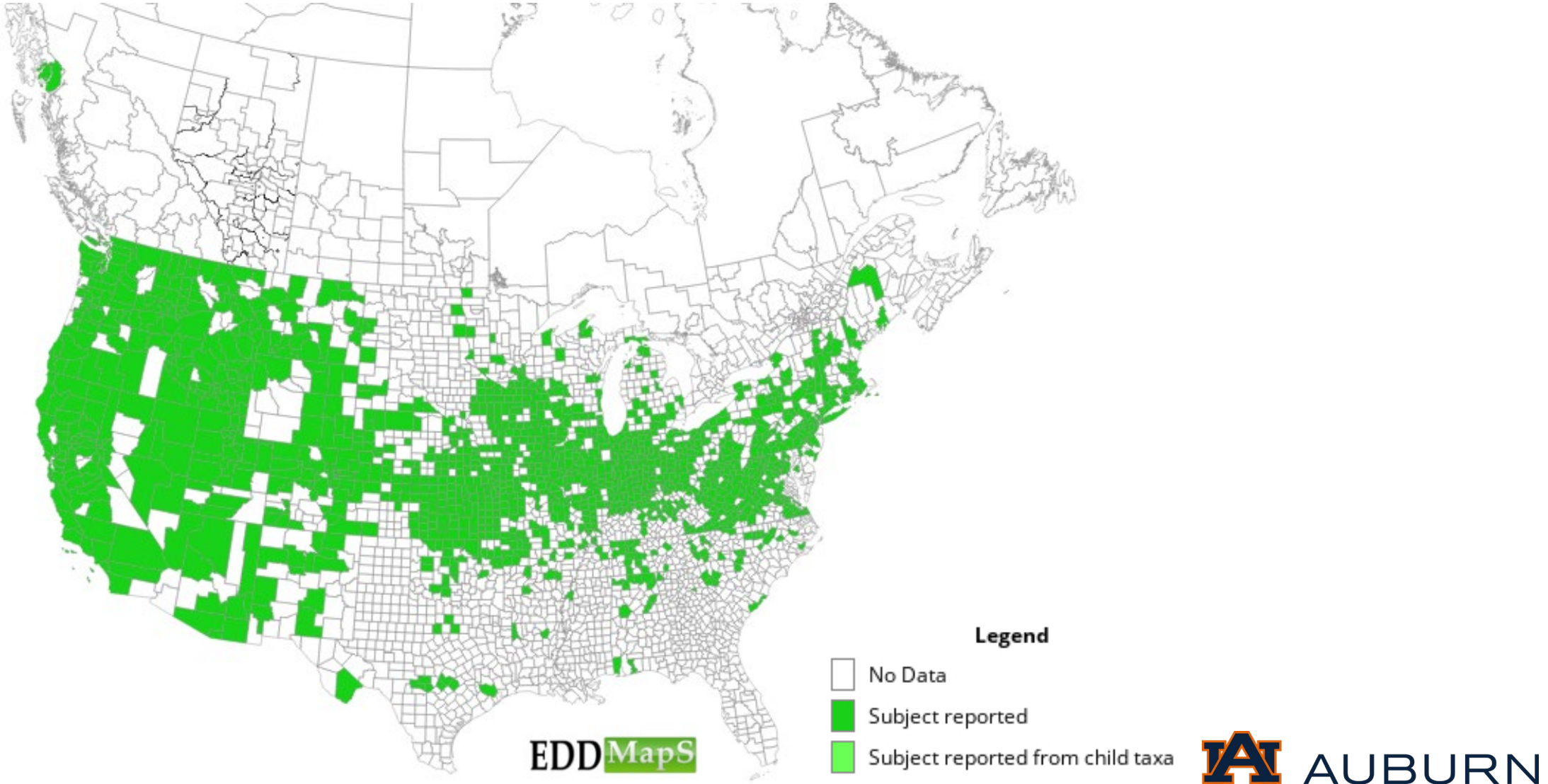
Poison Hemlock Distribution



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Poison Hemlock Identification

- Often mis-identified as Queen Anne's Lace or wild carrot (*Daucus carota*)
- Same family (*Apiaceae*) as carrots, celery, parsnips, etc.
- Biennial herbaceous broadleaf weed
  - May be perennial in certain climates
- Grows 3-7' tall
- Long taproot
- Hollow stems, faint longitudinal ridges, light green, purple splotches
- Wild carrot stems usually hairy

Chris Evans, University of Illinois, Bugwood.org

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Poison Hemlock Identification

- Leaves: 2-3 times compound, finely divided, prominent veins underneath
- Sharper points, glossy dark green, and without hairs
- Compared to wild carrot: more round compound leaves, feathery, shorter, nearly hairless or bristly-haired

Robert Vidéki, Doronicum Kft., Bugwood.org

Ansel Oommen via Bugwood.org

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Poison Hemlock Identification

- Poison hemlock flowers are generally less dense compared to wild carrot
- Wild carrot may have a purplish center flower
- Not a reliable sole identifier


Poison hemlock


Wild carrot

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Poison Hemlock Control

- **Physical**
- Mowing may have benefit
- Requires multiple mowings per season
- **Chemical**
- Treatment is more effective if conducted on first year rosettes
- Synthetic auxins: 2,4-D, dicamba, triclopyr, aminopyralid, clopyralid, picloram, aminocyclopyrachlor
- ALS inhibitors: metsulfuron

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Poison Hemlock Control

- Be mindful of nearby desirable plants
- Glyphosate is non-selective
- Dicamba, clopyralid, aminopyralid, aminocyclopyrachlor can carryover in soil with residual activity

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Poison Hemlock in Alabama

►As a member of the carrot family (Apiaceae), poison hemlock is in the same family with many familiar edible plants and herbs, including carrots, celery, parsnip, parsley, cilantro, and dill. However, this plant is definitely *not* edible and is one to keep away from the dinner table.

Poison hemlock (*Conium maculatum*) (figure 1) is a poisonous herbaceous plant native to Europe. Famously, this is the "poison hemlock" of antiquity that killed the Greek philosopher Socrates. Introduced to the United States in the 1800s as an ornamental (a plant purposefully grown for its beauty or other valuable characteristic), poison hemlock has since spread across most of the continental United States, particularly in western and northern states and adjacent regions of Canada. While it is less common in southeastern states, it is becoming more frequent in the Alabama landscape.

Threats

Perilla Mint Introduction

- *Perilla frutescens*
- An erect herbaceous annual
- Reaches average height of 2’
- Square stems
- Coarsely serrated leaves
- Leaves often have a purple tinge
- Found primarily in:
  - Semi-shaded waste areas
  - Damp woods
  - Open, wooded streams
  - Seepage areas

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Perilla Mint Introduction

- Escaped cultivation, now widely distributed throughout the SE US
- History of extensive cattle losses in AR, OK, & AL
- All plant parts toxic, especially flowering structures
- Ketones cause acute respiratory distress
- Of primary concern late summer – early fall
- Little known about lethal dosage

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Perilla Mint Introduction

- Perilla is poisonous to horses, cattle and other ruminants (Nice et. al 2010; Petersen 1965)
- 2,4-D, aminopyralid, dicamba, glyphosate, picloram, and triclopyr proven effective (Green et. al 2006; Rhodes et. al 2010)
- 80 – 90% control when applied late spring to early summer (Rhodes et. al 2010)
- Little known about activity and proper timing of PRE and POST herbicides

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Chemical Control Field Study

Postemergence Herbicides

Mechanism of action	Common name	Trade name	Product rate (product/A)
synthetic auxin + ALS Inhibitor	aminocyclopyrachlor + chlorsulfuron	Perspective	4 oz
synthetic auxin + ALS Inhibitor	aminocyclopyrachlor + metsulfuron	Streamline	2.5 oz
synthetic auxins	aminocyclopyrachlor + triclopyr	Invora	12 fl oz
	picloram + 2,4-D	Grazon P+D	16 fl oz
	picloram + 2,4-D	Grazon P+D	32 fl oz
	aminopyralid + 2,4-D	GrazonNext HL	19.2 fl oz
EPSPS Inhibitor	glyphosate	RoundUp Powermax	21.2 fl oz
synthetic auxin	triclopyr	Remedy Ultra	16 fl oz
ALS Inhibitor	metsulfuron	Cimarron	0.1 oz
synthetic auxins	dicamba +2,4-D	Weedmaster	16 fl oz
	dicamba +2,4-D	Weedmaster	32 fl oz
	2,4-D	2,4-D Amine 4	32 fl oz

Preemergence Herbicides

Mechanism of action	Common name	Trade name	Chemical rate (active/ha^{-1})	Product rate (product/A)
synthetic auxin + ALS Inhibitor	aminocyclopyrachlor + chlorsulfuron	Perspective	111 + 44 g ai	4 oz
synthetic auxins	picloram + 2,4-D	Grazon P+D	152 + 562 g ae	32 fl oz
	aminopyralid + 2,4-D	GrazonNext HL	69 + 561 g ae	19.2 fl oz
	dicamba +2,4-D	Weedmaster	209 + 806 g ae	32 fl oz
Microtubule inhibitor	pendimethalin	Prowl H20	4,483 g ai	134.4 fl oz
ALS Inhibitor	imazapic	Plateau	105 g ai	6 fl oz

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Postemergence Study: Results

- Most effective were aminocyclopyrachlor + chlorsulfuron, aminocyclopyrachlor + metsulfuron, at least 76 + 281 g ae ha^{-1} picloram + 2,4-D, aminopyralid + 2,4-D, and glyphosate
- Each = > 90% control by 56 DAT
- No forage label for AMCP blends
- Applied Roundup Powermax at 1.3 pt/A (841 g ae ha^{-1}), complete kill 14-21 DAT

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Preemergence Study: Results

- 1st study: Picloram + 2,4-D & aminocyclopyrachlor + chlorsulfuron were most effective (< 21% coverage) 141 DAT
- 2nd study: Aminocyclopyrachlor + chlorsulfuron, picloram + 2,4-D, aminopyralid + 2,4-D, and pendimethalin had superior control (< 1.3% coverage) compared to untreated 141 DAT
- Timing is important

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Management Considerations

- Multiple postemergence control options are effective, with the exception of metsulfuron at 7.02 g ai ha^{-1}, but sequential applications may be necessary

- 2,4-D alone or in combination with picloram, aminopyralid, or dicamba provide effective postemergence control and are safe on grass species

Perilla Mint Management Considerations

- Aminocyclopyrachlor blends not labelled for forage pasture
- Adequate preemergence control from picloram + 2,4-D, aminocyclopyrachlor + chlorsulfuron, pendimethalin, and aminopyralid + 2,4-D
  - Before soil temperatures reach 10-15°C to 25-30°C (March – June)

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Perilla Mint: A Toxic Threat to Livestock

3 min read

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Thank You

David Russell, PhD

Assistant Extension Professor

Department of Crop, Soils, & Environmental Sciences

Auburn University

dpr0013@auburn.edu