

# Poison Hemlock Identification and Control

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Poison hemlock is widely distributed throughout the United States, along with several close relatives including wild carrot (*Daucus carota* L.) and spotted waterhemlock (*Cicuta maculata* L.). These plants have similar characteristics because they are all in the Apiaceae, or parsley family. Seedlings start as a basal rosette, having multi-pinnately compound leaves and developing a large taproot. The inflorescence, or flowers, also look very similar, with many small flowers in an umbel shape, meaning all flower stalks originate in the center of the stem and extend out with clusters of small white, and sometimes pink flowers emerging at the end of each stalk.

Spotted waterhemlock is a perennial while poison hemlock and wild carrot are biennials, meaning they produce vegetative growth in their first year, and reproductive growth (flowers) in the second year. Generally, you will see clusters of these plants growing in the same place every year, likely spreading out from a central cluster over time.

## Toxicity

Poison hemlock, spotted waterhemlock, and wild carrot are all reported to produce neurotoxins, with poison hemlock and spotted waterhemlock being the most acutely



**Figure 1.** Spotted water hemlock leaves. Source: <https://www.friendsofthewildflowergarden.org/pages/plants/waterhemlock.html>

toxic. Poison hemlock produces the toxic alkaloids coniine, N-methyl coniine, conhydrine, lambda-coniceine and pseudoconhydrine, with varying concentrations of each at different growth stages.

Symptoms of poisoning usually appear within a few minutes of exposure and include convulsions, loss of coordination, respiratory distress, slowed heart rate, nausea, vomiting and death. While the greatest risk of poisoning comes from ingesting the plant, there are also reports of skin and respiratory reactions simply from touching or even smelling the plant. There are varying reports on the quantity of poison hemlock ingested resulting in a fatal dose in cattle. Consuming as little as 300 grams (0.7 pounds) of foliage can be poisonous to cattle. If you suspect poison hemlock poisoning in humans, contact the Arkansas Poison Center at 1-800-222-1222.

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## Identification

Spotted waterhemlock can be identified as different from poison hemlock or wild carrot by its leaf structure and shape (Figs 1, 2, 3). However, it can be difficult for the untrained eye to spot the difference between wild carrot and poison hemlock (Fig 4.). Wild carrot stems are hairy at all growth stages, and leaves are deeply divided and described as “feathery” or “lacey”. Young seedlings of this plant will usually be



**Figure 2.** Young poison hemlock plant. *Photo courtesy of Nilda Burgos*



**Figure 3.** Young wild carrot plant. *Photo courtesy of Nilda Burgos*



**Figure 4.** Both wild carrot and poison hemlock are present in this image. They look similar so differentiating them can be difficult. *Photo from Hannah Wright-Smith*



**Figure 5.** Poison hemlock seedling with hairs and purple coloration on stem. If you look closely, you can see the newest leaf at the center is shiny and has no hairs. *Photo from Hannah Wright-Smith.* **Figure 6.** Poison hemlock seedling with hairs and purple coloration on stem. *Photo from Hannah Wright-Smith*

completely green but can also have purple or reddish coloring. Poison hemlock seedlings will usually have purplish stems. Very young plants also have hairs on the stem (Fig 5, 6).

As poison hemlock grows, stems of newer leaves will be waxy with no hairs and will either be purplish or have purple spots (Fig 7). Leaves are also divided and described as “fernlike.” The flowers of wild carrot and poison hemlock look very similar (Fig. 8, 9). It’s often said that you can tell wild carrot, often called Queen Anne’s lace, from poison hemlock flowers



**Figure 7.** Poison hemlock stems with purple coloration and purple spots. Stems are waxy and look shiny. *Photo from Hannah Wright-Smith*



**Figure 8.** Wild carrot flower. Note the lack of a pink dot in the center. **Figure 9.** Poison hemlock flower.





**Figure 10.** A side-by-side view of poison hemlock (left) and wild carrot (right). Note both have purple coloration and very similar leaves at the bottom of each plant. As the plant grows, leaves of each species become more distinct. *Photo from Hannah Wright-Smith*

by a purple or pink dot in the center of the inflorescence — but this dot is not always present and is not a reliable method of identification.

In much the same way you and your siblings come from the same parents but look different from each other, plants have natural genetic variation that results in different appearances

(or phenotypes). Plants also express different phenotypes based on their environment. So, a poison hemlock plant growing in a dry shady spot can look different than one growing in a wet sunny spot, and it can look different than the poison hemlock plant growing beside it. Because of this variation, it is important to use more than one characteristic to positively identify plants. If you aren't 100 percent positive on your identification, it is best to err on the side of caution when differentiating poison hemlock from wild carrot.



**Figure 11.** Another side-by-side comparison of poison hemlock (left) and wild carrot (right). Poison hemlock has no hairs on its stem, while wild carrot has fine hairs covering the stem. *Photo from Hannah Wright-Smith*

## Control

### Pastures

There are several herbicide options to effectively control poison hemlock. The following have reported better than 95 percent control at eight weeks after application:

- PastureGard – triclopyr + fluroxypyr
- GrazonNext – aminopyralid + 2,4-D
- Prescott – triclopyr + clopyralid
- Panoramic – imazapic
- Patriot – metsulfuron
- Telar – chlorsulfuron
- Remedy – triclopyr
- Roundup – glyphosate

With the exception of glyphosate, these herbicides are safe for most forage species. However, they may make the poison hemlock a more desirable forage for livestock, so rotate animals to another pasture for a few weeks until poison hemlock is controlled. You will likely need multiple applications a year, one to control poison hemlock initially and another to control new plants that emerge. This will need to be repeated yearly to deplete the number of seeds in the soil. These herbicides are most effective on small plants. If you need to spray large plants, you will need a repeat application about a month after the initial application. See "[Herbicide Effectiveness on Poisonous Hemlock](#)" by Ryan Neal on the Arkansas Fruit, Vegetable, and Nut blog for more information and pictures of the efficacy of some of these herbicides applied to poison hemlock.

### Home lawns

Poison hemlock can easily be eliminated by pulling up the plant, which is much easier when the plants are small. As long as the whole taproot comes up, that plant won't regrow. I suggest wearing gloves and washing your hands after touching it. The toxins remain in the plant after it's been pulled, so do not compost or feed the plants to livestock after you pull them up. It is best to put the plants in an area where they won't be eaten by livestock or used by humans.

Glyphosate is very effective in controlling poison hemlock; however, it is non-selective so it

will kill whatever is sprayed. Three-way mixes for lawns also provide some control but will likely not completely eliminate poison hemlock. At least two herbicide applications will be necessary and it will take multiple years to fully eliminate poison hemlock.

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