

# Poison Hemlock in Closter - Treatment Proposal

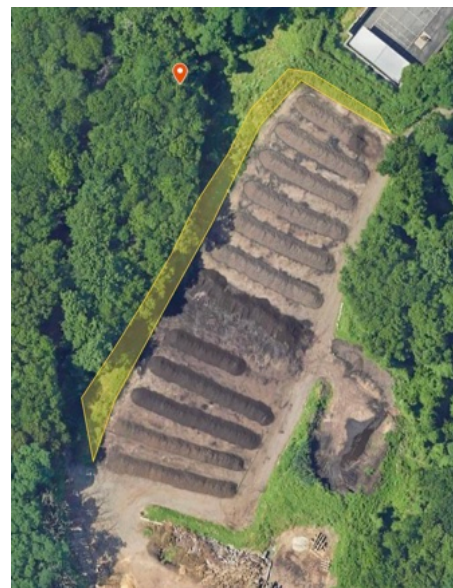
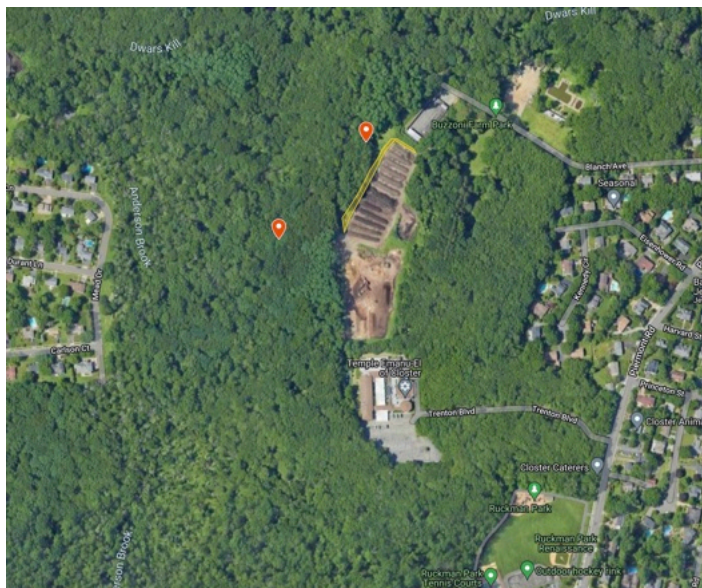
Paul Yarin, Closter Environmental Commission, 5/22/24

## Introduction

Poison Hemlock (*Conium maculatum*) is a highly toxic, invasive plant that has spread to every US state. While new to Closter, it has been found in western Bergen County and in other parts of New Jersey.

Poison hemlock is a health risk due to its extreme toxicity and its propensity to spread rapidly. All parts of the plant are highly toxic if ingested by humans or other vertebrates. However, most animals are not attracted to the taste and do not consume it. Human poisonings are usually the result of mistaking it for wild carrot or other digestible plants. However, simply mowing or trimming the stalks can release aerosolized sap that causes respiratory paralysis. (In Ohio, a homeowner who believed his chain saw was cutting "weeds" required heart surgery and 109 days of hospitalization to recover.) Even dead and desiccated plants can remain toxic for years.

For these reasons, both federal and state agencies recommend aggressive early and ongoing treatment to contain the spread of poison hemlock.



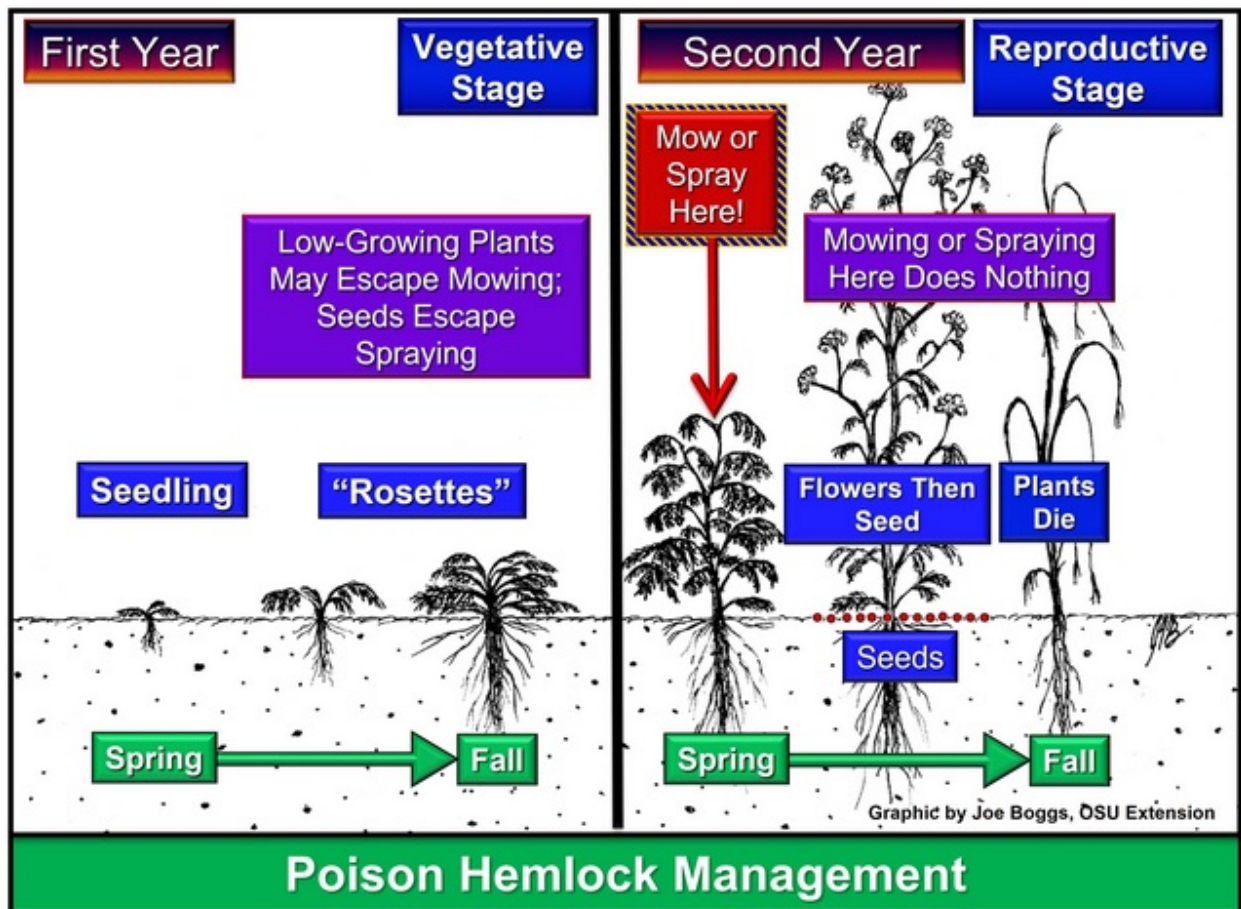
In early May, the Closter Nature Center reported poison hemlock growth near the DPW leaf composting site. The affected area, marked as a yellow outline above, is quite large - over 5000 square feet of plants of height 4-6 feet. Currently, the plants are primarily clustered on a narrow soil berm that surrounds the compost piles. It is possible that the first seeds were conveyed there through leaf collection programs. With little plant competition and limited human oversight due to the secluded location, they spread rapidly across the surrounding berm.

## Contacts and subject research

After documenting this issue and notifying the Mayor and Council, the Closter Environmental Commission reviewed a range of publications and contacted several experts for advice:

- Marc Gussen, Naturalist, Closter Nature Center
- Joel Rudin, President, Closter Nature Center
- Bill Dahle, Director, Closter DPW
- Nick DeNicola, Closter Borough Engineer
- Bill Dahle, Director, Closter DPW
- Jim Fedorko, Mid-Bergen Regional Health Commissioner
- Joseph Zoltowski, Director, Division of Plant Industry, NJ Dept of Agriculture
- Mike Van Clef, Program Director, NJ Invasive Species Strike Team
- Brian O'Neill, President, Weeds Inc. (Aston, PA)
- Joel Flagler, Agent, Rutgers Cooperative Extension of Bergen County
- Karen Riede, Horticultural Assistant, Rutgers Cooperative Extension of Bergen County
- Jean Epiphan, Natural Resources Agent, Rutgers Cooperative Extension of Morris County
- Rakesh Chandran, Weed Science Specialist, West Virginia University Extension

These experts provided valuable insight on plant science, treatment methods, pesticide safety, and relevant articles and organizations.



## Treatment plan

While some treatment guidelines vary (e.g. selection of herbicides suitable for local regulations and environments), there is sufficient consensus to make a treatment recommendation. The Environmental Commission recommends an aggressive and comprehensive intervention that has a strong chance of interrupting the spread and reducing future management effort.

The plan has three stages:

1. Manual seed removal and disposal
2. Herbicide treatment of stalks and early-stage plants
3. Mechanical containment and solarization

### Step 1: Manual seed removal and disposal

The goal of this step is to remove as many seeds as possible from the contaminated area. This can be done by manually cutting the stalks, especially the flowering buds, using shears. All cut materials will be stored in heavy contractor bags and eventually sent to remote disposal. Motorized tools like string trimmers are not recommended, as they would distribute more toxic sap particles into the air.



As of May 22, only about 5% of the plants are flowering. However, the high prevailing temperature will accelerate the seed stage. Thus this step must be conducted ASAP, ideally within a week, before the seeds appear.

Note that all workers should wear full-body protective gear, including face masks and respirators, for protection from toxins released by the cutting process.

This process will be labor intensive and requires disciplined workers. It could potentially be done by volunteers with sufficient training, but professional landscapers or weed management companies should also be considered. The urgency of this need means a collective decision must be reached quickly.

### Step 2: Herbicide treatment of stalks and early-stage plants

After removing most seeds, the next step will be to treat the remaining cut stalks and low-lying first-year plants ("rosettes") with a safe and effective herbicide. The herbicide will both stop growth and reduce the toxicity of the remaining material.

Several herbicides are known to be effective, even in moderate concentrations. A suitable mixture of glyphosate, triclopyr, surfactants, and dyes suitable for aquatic environments must be prepared. The herbicides can then be applied with backpack sprayers or through contact-based methods like "weed wipers" or saturated fabric that is dragged over the exposed leaves.





This process must be performed by trained and certified pesticide applicators. Though less urgent than the first step, it should be done soon afterwards. Because this process will be repeated in subsequent years, finding a local, long-term contractor may be a good investment.

In keeping with best practices, herbicide consumption should be carefully calibrated to the task at hand and care should be taken to minimize drift, spillage, and human exposure. Professionals receive extensive training in these methods.

### **Step 3: Mechanical containment and solarization**

The final proposed step is to wrap the newly-treated soil areas with well-secured, overlapping, polyethylene sheet material. By covering the entire soil berm with plastic sheet, new plants will have difficulty obtaining the sunlight, water, and oxygen needed for growth. In addition, use of a black or brown plastic will elevate the soil temperature, making it harder for new seeds to take root. The plastic sheet will also provide a physical barrier for seeds that might otherwise be blown away in the wind. Finally, the plastic sheet will limit the risk of human or animal contact with the toxins in the soil and protect nearby workers from accidental exposure.

This step is an innovation based on modern "solarization" methods for weed treatment. It is feasible because there is no need to grow other plants on the berm near the compost piles. It is recommended as further insurance to prevent spread to the compost piles and to reduce the risk of human exposure.



### **Additional steps**

Besides dealing with the primary growth area, several related issues must be managed:

**Potentially contaminated compost piles:** Some experts advised against using the remaining leaf piles as they may be contaminated with poison hemlock seeds. We need more research to determine what can be done to manage this.

**Control of small plants in surrounding areas:** There are a number of smaller, earlier-stage plants around the CNC pond and trails. Manual removal, bagging, and light herbicide application is probably sufficient to manage these.

**Monitoring for additional outbreaks:** Closter should consider paid and volunteer efforts to provide "early detection" of additional poison hemlock colonies.

**Public awareness campaign:** Given the high likelihood that seeds are spreading throughout the community, Closter should mount an awareness campaign directed at homeowners and landscapers. Emphasis should be placed on careful disposal without motorized equipment.

**Physical signage:** Closter should also create visible, durable signage to warn the public in the vicinity of the current growth areas.