

Herbicide Use in Natural Areas



Oakland County Parks and Recreation's Natural Resources (NR) unit manages park natural areas for biodiversity, ecosystem services and the enjoyment of visitors. These management goals are threatened by the spread of non-native, invasive species that outcompete native species, alter soil and water chemistry, impede wildlife movement and disrupt food chains. NR staff and contractors actively remove invasive species from parks to control their spread, utilizing herbicides as an effective tool out of many. Recent public concern has motivated NR to communicate about its use of herbicides.

What is glyphosate and why are people concerned?

Glyphosate is the active ingredient in non-selective herbicides such as AquaNeat® and RoundUp®. People are concerned that glyphosate or the products containing it may be potentially carcinogenic. They are also concerned that use of these glyphosate-based formulations harm bee and monarch populations when applied as broadcast spray in agricultural operations.

Who has studied glyphosate and what have they concluded?

Herbicides and other pesticides are highly regulated by the U.S. Environmental Protection Agency (U.S. EPA) and undergo rigorous research on the risks to humans and the environment before they can be approved. Glyphosate has been reviewed and re-reviewed by the U.S. EPA, which most recently concluded in 2018 that glyphosate poses no significant risks to human health or the environment if used according to the label. Glyphosate is classified by the U.S. EPA as non-carcinogenic and low toxicity (Category III – CAUTION).

The International Agency for Research on Cancer released a report in 2015 categorizing glyphosate as a probable carcinogen, which has since been disputed by the Food and Agriculture Organizations of the United Nations, the World Health Organization, Health Canada and the U.S. EPA. Meanwhile, litigation related to glyphosate risk has sprung up across the nation, the state of California has banned the chemical, and France has banned RoundUp®. While glyphosate remains a controversial topic, OCPR Natural Resources staff currently consider its use of the product to be low risk. NR will continue to reference the best available science and update its policies as necessary.

Does OCPR Natural Resources use glyphosate?

Yes. We apply glyphosate in low concentration (2-3%) solutions as "spot treatments" of invasive species and refrain from broadcast applications used in conventional agriculture. NR staff takes the health and safety of park visitors, employees/contractors, and the environment seriously.

NR uses the following Best Management Practices for any herbicide application:

- We only use products approved by the U.S. EPA in manners permitted by the product label.
- Pesticides are applied under the supervision of certified applicators that obtain their license every three years through the Michigan Department of Agriculture and Rural Development (MDARD).
- All pesticides are mixed in approved areas, away from water and natural areas, with equipment to contain splashing and spills.
- Pesticides are applied off the trail. Signs are posted at park entrances and areas along the trail alerting patrons to the nearby application of an herbicide.
- Foliar applications are not made during rainy or windy weather (<10 mph). All applicators must follow the Drift Management Plan.
- Herbicide is applied directly to the target species.
- Applicators must wear personal protective equipment as listed by the product label, which usually includes chemical resistant gloves, safety goggles, long sleeves and long pants.
- When working in or adjacent to aquatic habitats, NR obtains a permit from the Michigan Department of the Environment, Great Lakes and Energy (EGLE) and uses only wetland approved products.
- Treatment areas are continually monitored, and control strategies reevaluated to avoid unnecessary use of herbicides/ensure only effective use of herbicides.



What happens to glyphosate after it is applied?

After glyphosate is applied to the plant, it is released from plant roots into the soil, where it binds to the soil particles. Glyphosate is broken down by microbes into aminomethyl phosphonic acid or sacrosine intermediates, neither of which are persistent nor known to contaminate groundwater. This degradation process does release phosphorous. Some glyphosate products contain an inert ingredient that is toxic to fish, but these are not allowed in aquatic areas.

Why do we have to use herbicides when there are physical and biological methods to control invasive species?

No control method is perfect. Herbicides are used when other methods, such as prescribed fire, hand-pulling, mowing, boat washing, and the release of biological agents, are not enough to curb an infestation. For example, prescribed fire and mowing may remove aboveground biomass in the short-term but increase rhizomatic spread in the long-term. Therefore, it is recommended that plants which spread by rhizomes, such as non-native Phragmites, are treated with herbicide to kill the plant before a prescribed burn or cutting. This combination kills the plants, removes the dead stems, and makes it easier to detect re-growth in the spring. Some plants can be effectively removed without herbicide, like garlic mustard, which is often hand-pulled.

Herbicide alternatives to glyphosate pose greater risk to human health, such as 2,4-D and atrazine. Triclopyr can be used to treat broadleaves and woody species and is in the same toxicity category as glyphosate, but it poses environmental concerns because it is toxic to birds and its degradation product is persistent and mobile in the environment.

What are some invasive plants currently targeted by Natural Resources?

Notable invasive species in our prairies and forests include glossy and common buckthorn, garlic mustard, pale and black swallow-wort, Asian bittersweet, and Japanese knotweed. Common aquatic invaders include non-native Phragmites, narrowleaf cattail, reed canary grass, Eurasian watermilfoil, curlyleaf pondweed, starry stonewort and purple loosestrife.

Additional questions or concerns?

Contact the Natural Resources Coordinator at 248-343-1353.

Concerned about invasive species on your property?

Check out the [Oakland County Cooperative Invasive Species Management Area \(CISMA\) website](#), and the [Midwest Invasive Species Information Network site](#)

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