



GreenCAPE~

Cape Alliance for Pesticide Education

Non-Toxic Strategies for a Sustainable Cape Cod

Support Sustainable Rights-of-Way Management *A Factsheet on NSTAR Herbicide Spraying across Cape Cod*

WHAT NSTAR IS DOING

As part of its 2009-13 Vegetative Management Plan, NSTAR will apply a mixture of five different herbicides under approximately 150 miles of power lines across Cape Cod. These herbicides (a class of pesticides that kill unwanted plants) are mixed with additional carrier agents, such as petroleum distillates, and are applied to control tall growing trees and brush in addition to the traditional mechanical cutting methods.¹

PUBLIC HEALTH AND ENVIRONMENTAL CONCERNS

The use of this mixture of herbicides is a concern for public and environmental health for many reasons. Areas of the Cape where NSTAR has or intends to spray herbicides are adjacent or in close proximity to homes with private wells, within a contribution area to public water supplies, and adjacent to bike and walking paths. As referenced below, the chemicals and their breakdown products can persist in the soil and enter surface and ground water from which we obtain our drinking water.

Depending on application rates and methods, nearby residents and properties can be exposed to drift from these chemicals and there are many ecological consequences to non-target organisms. Additionally, pesticides tracked into homes by people and pets can be a continual source of exposure in the home.

There is evidence that the herbicides and breakdown products are associated with the following potential adverse health effects: cancer, tumors, nerve damage, attention deficit disorders, miscarriages, embryo defects, and disruption of hormonal systems.

We have a legacy of chemical contamination, including pesticides, as well as high rates of breast cancer on Cape Cod. Investigations by scientists at Silent Spring Institute (SSI) found 23 pesticides in air and 27 in dust inside Cape homes.² Stating that many pesticides are endocrine disruptors, and that pesticides are known to affect brain development and neurological function, the SSI's recommendations are to reduce or eliminate pesticides on a community-wide basis.³

WHAT IS KNOWN ABOUT THESE CHEMICALS?

Some of the properties of the herbicides used by NSTAR are listed in this table. The soil half-life is the time it takes for half of the applied chemical to break down or move away. The Pesticide Movement Rating relates to the pesticides persistence, ability to bind to soil and move toward groundwater. A low movement rating can mean that it persists in plant matter or soil longer, having more toxic effects. These general indicators are for the active ingredient and do not tell us how the full product or its degradation form acts.

Common Name of Herbicides and “Inerts” used by NSTAR	Pesticide Movement Rating	Soil Half-life (days)	Some Product Names
Fosamine ammonium	Low	8	Krenite S
Glyphosate isopropylamine salt	Extremely Low	47 Average 3 to 130 Range	Roundup-Pro, Razor, Razor-P, Rodeo, Accord SP, Glypro-Plus
Imazapyr isopropylamine salt	High	90 Average	Polaris Herbicide, Polaris RR Herbicide, Arsenal, Arsenal RR
Metsulfuron-methyl	High	30 Average	Escort XP, Riverdale Patriot Herbicide, Oust Extra
Sulfometuron Methyl	Moderate	20 Average	Oust XP, Riverdale or Spyder Herbicide, Oust Extra
Triclopyr ester Breakdown product TCP	Low	46 Average 1 to 90 30 to 90 Range	Garlon 4, Riverdale Tahoe 4E
Petroleum oil	Low	10 Average	Carrier agent

Source: National Pesticide Information Center, Oregon State University.

Water Contamination

Investigations show that the herbicides being used by NSTAR enter ground and surface waters.

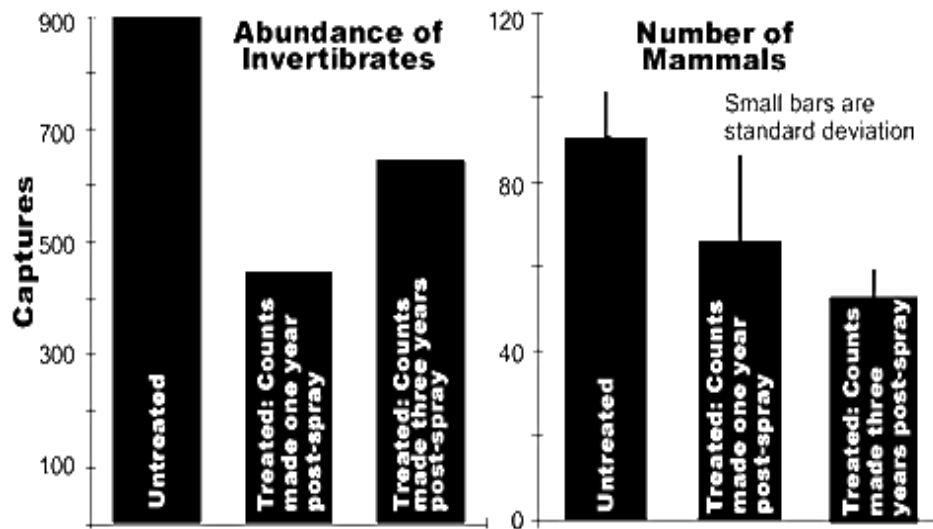
- Glyphosate has been found in both ground and surface water including the contamination of wells under electrical substations treated with Glyphosate.⁴
- USGS measured Glyphosate and its breakdown products in 23 major river basins across the US, and found Glyphosate in 50% of surface water samples taken.⁵
- USGS found Glyphosate’s breakdown product, AMPS, more frequently than Glyphosate.⁶
- Oregon State University’s research on Metasulfuron Methyl’s use for rights-of-ways stated that the chemical is highly mobile in the environment and has the potential to contaminate groundwater.⁷
- Another USGS study of 10 urban watersheds near Seattle found Triclopyr at 90% of the sites sampled.⁸

Ecological Effects

Ecological effects include impacts on non-target plants and animals. The following studies indicate that surrounding plants, fish, and wildlife can be significantly impacted by the herbicides being used.

- The form of Triclopyr being used is highly toxic to fish and inhibits behaviors in frogs that help them avoid predators.⁹ Studies feeding Triclopyr to birds show a decrease in the survival of their nestlings.
- Glyphosate can impact many non-target organisms, sometimes through destruction of food or shelter. This diagram shows reduction in invertebrate and mammal populations over a 3-year period of application in a clear cut area.

Impacts of Glyphosate on Nontarget Animals on Maine Clear-Cuts¹⁰



- Ohio State University found that Glyphosate applied improperly, or in high dosage is causing a phenomenon known as split bark—where the chemical is deteriorating the bark structure and destroying the winter hardiness of the plant.¹¹
- EPA’s reports an incident where a mixed herbicidal spray (containing a Isopropylamine salt of Imazapyr, Diuron and Metsulfuron methyl) applied to a fence row either drifted or ran-off causing a fish kill in a pond 60-feet away and a bird kill 85-feet away.¹²
- Several studies indicate Glyphosate can cause surrounding plants to become more susceptible to disease and infestation. A rare study at a pine plantation in Georgia found Triclopyr-treated trees were approximately twice as likely as untreated trees to be damaged by the tip moth. The tip moth damage subsequently increased the risk for another disease, fusiform rust.¹³ This effect on the Cape could provoke further pesticide usage.

WHAT GREENCAPE IS CALLING FOR

GreenCAPE recognizes the cumulative effect of the low level use of chemicals throughout our watershed and is working to reduce the use of all pesticides. We agree with the Silent Spring Institute’s recommendations to reduce or eliminate pesticides on a community-wide basis. Rights-of-way are just one area in which we need to reduce pesticide use and support policies and practices that protect our residents and ecosystem.

Experts in weed management at Cornell University state that the most effective, economical, and ecologically sound method of managing weeds is to prevent their invasion in the first place.¹⁴ Other areas of the country have employed safer vegetation control strategies that are economical. Safer options that do not have the potential to contaminate our water supplies, include mechanical cutting (with timely pruning of re-growth), hot water weed control, flame weeding, biobaling, or prescribed grazing. The ideal, long-term, preventive approach would employ land management practices that build and maintain native and desirable plants that compete well against weeds naturally.

We want a unified call by Cape citizens and town officials for safer methods to control weeds that do not threaten public or environmental health. At a minimum we want NSTAR to cease using herbicides and return to their previous method of mechanical cutting to clear rights-of-way.

WHAT YOU CAN DO

1. Call your local officials (Board of Health, Conservation Commission, Selectman) to tell them you object to the application of herbicides on NSTAR rights-of-way. Tell them to act by signing the petition and formally notifying NSTAR in writing and at the number below.

2. Download and sign the petition opposing herbicide use by NSTAR on Cape Cod rights-of-way at www.GreenCAPE.org/actions.html.

3. Call NSTAR and tell their representative that you object to the use of herbicides along Cape rights-of-way and that you would like to see a more long-term, sustainable approach to vegetative management.

Contact: Jeffrey Luce
NSTAR Electric Community Relations
One NSTAR Way
Westwood, MA 02090-9230
Tel 508-957-4502
jeffrey.luce@nstar.com

4. Post a comment on NSTAR's FaceBook page opposing pesticide use on rights-of-way.

¹ Five Year Vegetation Management Plan 2009-2013, National Grid, 3/30/2009.
http://www.nationalgridus.com/non_html/National_Grid_VMP_2009-2013.pdf

² Rudel, R.A., D.E. Camann, J.D. Spengler, L.R. Korn, J.G. Brody. 2003. Phthalates, alkylphenols, pesticides, polybrominated diphenyl ethers, and other endocrine-disrupting compounds in indoor air and dust. *Environmental Science & Technology*, 37(20): 4543-4553. doi:10.1021/es0264596. <http://pubs.acs.org/doi/abs/10.1021/es0264596>.

³ Silent Spring Institute Website: Reducing Your Exposure to Toxins, <http://www.silentspring.org/take-action/action-kits/take-community-action/public-spaces>. Visited 12/11/09.

⁴ Cox, Caroline. Glyphosate Herbicide Factsheet, *Journal of Pesticide Reform* v.108, n.3 Fall98 rev.Oct00.
<http://www.mindfully.org/Pesticide/Roundup-Glyphosate-Factsheet-Cox.htm>

⁵ Scribner, E.A., Battaglin, W.A., Gilliom, R.J., and Meyer, M.T., 2007, Concentrations of glyphosate, its degradation product, aminomethylphosphonic acid, and glufosinate in ground- and surface-water, rainfall, and soil samples collected in the U.S. States, 2001-06: U.S. Geological Survey Scientific Investigations Report 2007-5122. <http://pubs.usgs.gov/sir/2007/5122/>

⁶ Ibid, Abstract

⁷ <http://www.oregon.gov/ODF/privateforests/docs/metsulfuronmethyl.pdf>.

⁸ U.S. Geological Survey. 1999. Pesticides detected in urban streams during rainstorms and relations to retail sales of pesticides in King County, Washington. USGS Fact Sheet 097-99.

⁹ Berrill, M. et al. 1994. Effects of low concentrations of forest-use pesticides on frog embryos and tadpoles. *Environ. Toxicol. Chem.* 13:657-664.

¹⁰ Santillo, D.J., D.M. Leslie, and P.W. Brown. 1989. Responses of small mammals and habitat to glyphosate application on clearcuts. *J. Wildl. Manage.* 53(1):164-172.

¹¹ Ohio State University Extension, Online, Writers: Candace Pollack and Hannah Matthers. <http://www.ag.ohio-state.edu/~news/story.php?id=4685>. Visited 12/12/09.

¹² Environmental Protection Agency Endangered Species Effects Determinations and Consultations (Incident Database). <http://www.epa.gov/espp/litstatus/effects/redleg-frog/imazapyr/appendix-e.pdf>.

¹³ Fitzgerald, J.A., P.M. Dougherty, and M.B. Edwards. 1995. Influence of hardwood control on loblolly pine seedling and herbaceous species development in the Georgia Piedmont. U.S. Forest Service. Southern Research Station. General Technical Report SRS-1. Proc. 8th biennial Southern Silvicultural Research Conference: Auburn, Alabama, Nov.1-3, 1994. Pp.102-107.

¹⁴ Invasive Plant Management: Center for Invasive Plant Management Online Textbook, Chapter 10, Invasive Plant Management. http://www.weedcenter.org/textbook/10_prevention.html, visited 12/11/09.