PATTON TOWNSHIP
CENTRE COUNTY, PENNSYLVANIA

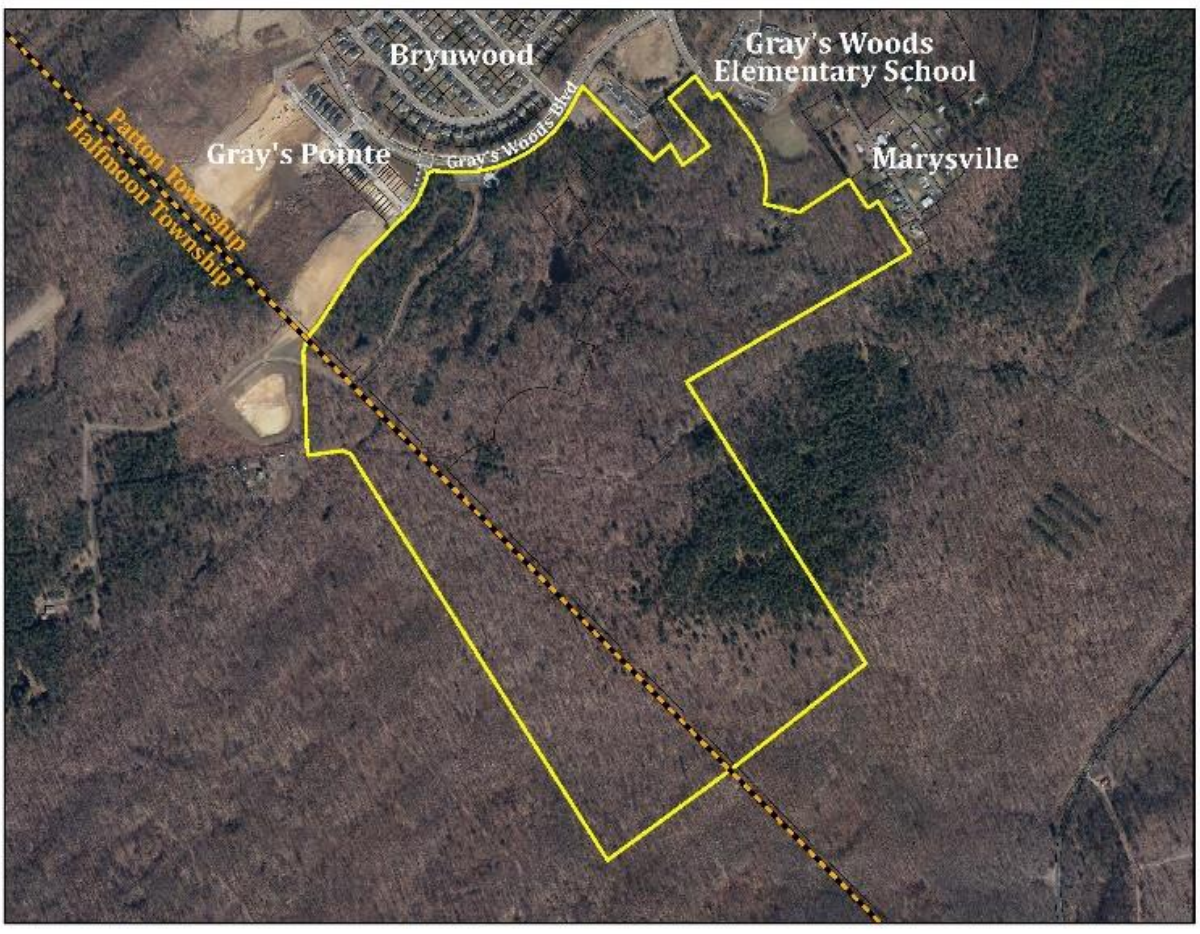
TO: **Residents of Gray's Pointe, Brynwood, Marywood and Marysville**

FROM: Doug Erickson, Patton Township Manager

SUBJECT: **Update on Gypsy Moth Control for 2022**

DATE: May 5, 2022

Patton Township has contracted to spray 190 acres of forest, with Foray 48B, for the control of gypsy moth larvae this spring. This block is located along Grays Woods Blvd as shown on map. The spraying will take place between May 15th and June 15th. The trails will be posted when we have a definite date. Questions -- please call Township Office at 814-234-0271.



Beginning in June 2021 the Township received numerous sightings of Gypsy Moth caterpillars from residents across the Township. Staff followed up on many of these sightings and did confirm the presence of the pest, but almost all the caterpillars were found to be deceased. Staff speculates that they died from exposure to a fungus that is present in the soil – see more information at https://www.canr.msu.edu/ipm/Invasive_species/Gypsy-Moth/virus-and-fungus-disease-cause.

A Gypsy Moth caterpillar infestation normally starts when the very, very small caterpillars are blown in on spring winds from other infested areas. Once they land in a new host tree they commence eating and growing. As they eat and grow they defoliate trees and make a terrible mess below the tree. If not treated, or they do not die naturally, the caterpillars will pupate and the moths will lay egg masses in the early fall that will hatch the next April. Each egg mass can contain 100 to 1,500 eggs.

The most effective treatment is to spray the caterpillars with an insecticide such as Bacillus thuringiensis subspecies kurstaki Berliner (Btk) when the caterpillars are still relatively small – normally in May to early June – with an airplane or helicopter.

To proactively plan against a 2022 infestation, the Township conducted egg mass surveys in late September and October in locations where caterpillars were previously reported. Joe Wilson, a consulting ecologist from Julian Pennsylvania, performed the surveys.

Enough egg masses were found in the Gray's Woods Park and Gray's Woods Preserve areas to warrant spraying this spring.

Please find included with this mailing a fact sheet from the Pennsylvania Department of Conservation and Natural Resources on the BTK insecticide to be used.

Questions -- please call Township Office at 814-234-0271.

August 2020

BTK INSECTICIDE

Bacillus thuringiensis subspecies *kurstaki* Berliner (Btk) is a rod-shaped bacterium that causes disease in certain insect larvae. Some varieties and strains of this organism affect the larvae of many moths and butterflies. Strains of the subspecies *kurstaki* are grown under controlled conditions by several manufacturers and are then formulated into biological insecticides for control of many forest and agricultural pests, including the gypsy moth (*Lymantria dispar*).

All formulations of Btk registered for gypsy moth control contain dormant bacterial spores along with crystals of a toxic protein, called delta-endotoxin, that the bacteria produce. Gypsy moth caterpillars (larvae) must eat these spores and crystals for the Btk to work. Once eaten, the crystals dissolve in the alkaline gut of the caterpillar and cause paralysis of the digestive system. Feeding usually ceases at this point. Cells in the gut wall then break down allowing dormant spores to invade the body cavity. If the caterpillar has not died by this time, the spores germinate and multiply in the body cavity causing a lethal infection. In small larvae the action of the crystal alone is usually fatal, but in larger larvae it is the later infection by the spores that causes death.

Successful gypsy moth control with any insecticide depends on proper spray timing, good spray weather, and thorough spray coverage. Because Btk is a living organism subject to mortality-causing factors such as desiccation and ultraviolet light, its residual effect is much shorter than most chemical insecticides. As a result, timing, weather, and coverage are more critical for Btk than for chemical insecticides. Under ideal conditions, Btk remains active on the foliage of treated trees for 7-14 days and will kill the caterpillars that ingest it. Unfortunately, conditions are not always ideal and, as a result, larval control with Btk (single application) usually averages below 90 percent. Therefore, when gypsy moth populations are healthy and building, a single application of Btk cannot be consistently relied upon to give total population reduction or total nuisance abatement. However, if the user is willing to accept limited defoliation and the nuisance of the remaining caterpillars, Btk normally provides foliage protection (70+ percent) adequate to reduce tree stress and related tree mortality.

Many formulations of Btk are currently registered by the U. S. Environmental Protection Agency for gypsy moth control and are sold under various trade names. Some of the more common brands include Foray, DiPel, and Thuricide.

PENNSYLVANIA DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
BUREAU OF FORESTRY
DIVISION OF FOREST HEALTH
400 Market Street, 6th FLR, RCSOB, PO Box 8552
Harrisburg, PA 17105-8552