General Information

What is the Asian gypsy moth? Why is it a problem?

The Asian gypsy moth (*Lymantria dispar asiatica*) has a big appetite for many of the tree species that grow in our natural and urban forests. Each caterpillar can grow up to 2 inches long and consume up to 11 square feet of foliage from May until June. When abundant, caterpillars can completely defoliate trees. Large numbers of caterpillars, and their resulting droppings and silk strands can also be a nuisance. Asian gypsy moth caterpillars have voracious appetites, feeding on over 500 tree and shrub species. This pest threatens Oregon's forests and suburban landscapes.



Asian gypsy moth male (left) and female adults at rest.

How does Asian gypsy moth get to North America?

The Asian gypsy moth is native to Far East Asian countries such as Russia, China, and Japan. Female moths frequently lay their egg masses on cargo ships and shipping containers. These hardy egg clusters often survive to hatch at ports of call around the world, including the United States. Since 1991, there have been 20 introductions of Asian gypsy moth in the U.S., all of which were eradicated successfully.

How many moths were found in Oregon?

In 2015, three Asian gypsy moths were found in the Portland area. Although this doesn't sound like very many, this indicates to experts that a breeding population has been introduced to the St. Johns/Forest Park and Rivergate areas. These moths have not been detected in Portland since 2001, despite intensive trapping each year.

How is AGM different from EGM?

Unlike the closely related European gypsy moth which is established in some parts of the United States, Asian gypsy moth females are active fliers and feed on a wider range of plants. The Asian gypsy moth could quickly spread throughout the United States. The only way to tell Asian gypsy moth apart from European gypsy moth is with DNA tests. All gypsy moths that are detected in Oregon are subjected to molecular testing to discern their identity.

Are there any health risks associated with the Gypsy Moth?

Gypsy moths are mainly a threat to trees and shrubs. When the number of the caterpillars has been very high, some people have reported allergic reactions. The gypsy moth caterpillars have spiny hairs which can cause welts or a rash, lasting up to 4-5 days. Population levels of gypsy moth in isolated infestations, such as those we have in Oregon, do not normally pose any health risks.

BtK and Gyspy Moth Management

What is Bacillus thuringiensis subsp. Kurstaki (Btk)?

Bacillus thuringiensis (Bt) is a widespread bacterium commonly found in nature in soil. *Bacillus thuringiensis subsp. Kurstaki* (BtK) is just one several dozen subspecies of Bt. BtK spores, have protein crystals that contain a very specific insect toxin. When a caterpillar eats BtK on a leaf, the toxin enters in the gut of caterpillars, killing the insect by disrupting water and nutrient absorption.

BtK is used as a biological pest control agent on food crops and it is listed for use in organic food production by Organic Materials Review Institute (OMRI). The formulation that will be used for eradication efforts in 2016 is Foray[®] 48B. BtK is specific for caterpillars in the order Lepidoptera (butterflies and moths) and controls cabbage worms, tent caterpillars, and other leaf-eating caterpillars. BtK is not effective for controlling adult insects.

BtK is effective on very early stages of caterpillar development. Btk does not harm other types of insects,

spiders, birds, or mammals because of the absence of receptors and the different conditions in the mammalian (including human) gastrointestinal tract.

Isn't it "better to be safe than sorry" and completely avoid exposure to BtK?

If you live in North American, you have already been repeatedly exposed to BtK. Because BtK naturally persists in soil and is also sprayed on many crops (including those that are organically grown), it is likely that most of us have had contact with BtK during the course of our daily lives. If a person eats fruits and vegetables purchased at a grocery store, he or she has likely already ingested BtK, probably without any ill effects.

How can I protect myself from the effects of BtK spray?

Despite its record as one of the safest pest control methods available, some people may choose to minimize their exposure to the BtK spray. To do so, remain indoors at least 10 minutes after the helicopters have finished spraying. Wait until spray or dew has dried before letting children play outside. If for some reason you come in contact with BtK spray, wash the affected area with soap and water.

Will BtK sprays kill other butterflies?

Yes, but they will not eliminate them. Btk only kills butterflies and moths that are in the caterpillar stage. Most of Oregon's butterflies, including Monarch butterflies, are not in the caterpillar stage until over a month after the aerial spray. BtK breaks down in sunlight, and has little or no residual effects. Only small parts of the forest are targeted for spray. Butterflies outside the spray area are not affected and will most likely repopulate the spray area.



Asian gypsy moth caterpillar. Photo by Didier Descouens

How is BtK insecticide used to kill gypsy moth?

In Oregon, BtK applications are applied from aircraft to areas where gypsy moths threaten trees and the public. A series of three sprays is applied in early May, when caterpillars are small and most susceptible to Btk. Oregon will be using helicopters instead of fixed wing aircraft for more precise application of the insecticide and will avoid spraying over water.

Is BtK really safe to use for treatment of gypsy moths?

Numerous studies over many years have yielded no evidence of significant problems to humans and mammals from using BtK on crops, in home gardens, or in gypsy moth sprays. BtK's exceptional safety record extends all the way back to the 1960s, when it first came into use in the United States. After a thorough review of the toxicity of BtK products, including both active and inert ingredients, the U.S. Environmental Protection Agency, Health Canada, the World Health Organization, and many other groups have judged it safe and effective for aerial applications when used according to label directions.

Is BtK harmful to honey bees or their colonies?

Toxicity tests on honey bees are required for all pesticides during the registration process. The Reregistration Eligibility Decision (RED) for *Bacillus thuringiensis* in 1998 concludes that this "pesticide is not considered toxic to adult honey bees at the label use rates" and that "the risk to nontarget beneficial insects is expected to be minimal to nonexistent from the label uses of registered *B. thuringiensis* products" (US EPA 1998). A recent study from 2014 suggests that Btk aerial applications do not affect honey bee brood development under natural conditions.



How can I find out more information about the planned eradication activities and or sign up for notifications?

If you have been exposed to Foray[®] 48B and you have concerns about possible health effects, wash the affected area with soap and water and contact the Oregon Poison Center at 1-800-222-1222.

For non-urgent questions on Foray[®] 48B or Btk, contact the EPA-funded National Pesticide Information Center (NPIC), based at Oregon State University, by phone 1-800-858-7378 (M-F, 8AM-12PM) or email npic@ace. orst.edu.

You can learn more about pesticides on NPIC's website http://npic.orst.edu, and review their Btk Fact Sheet http://npic.orst.edu/factsheets/BTgen.pdf, or their YouTube video on *Bacillus thuringiensis* (Bt) https://youtu.be/3aLj1WmzL98.

For general information about applications of Foray[®] 48B, planned for April and May 2016 please contact Oregon Department of Agriculture's (ODA) Plant Protection and Conservation Programs staff at 1-800-525-0137 (Mon. – Fri., 8AM – 5PM) or by email: gypsy moth@oda.state.or.us.

To hear pre-recorded information about the status of the project on the days that sprays are scheduled (or on weekends), please dial 211.

For more information on gypsy moth:

http://www.oregon.gov/ODA/programs/IPPM/ SuppressionEradication/Pages/SuppressionEradication. aspx

To sign up for notifications and information:

http://www.oregoninvasivespeciescouncil.org/agm or by calling ODA Plant Protection and Conservation Programs staff at 1-800-525-0137 (Mon. – Fri., 8AM – 5PM). If after hours, please leave a voicemail with the information needed for the notification method(s) you prefer

> Created March 2016. Photos courtesy of Thomas Shahan, Oregon Dept. of Agriculture unless otherwise noted.

Frequently Asked Questions about

Asian Gyspy Moth **Eradication**

