Washington State Department of Agriculture

SPONGY MOTH IN WASHINGTON STATE

50 years of protecting our state from this invasive pest

Spongy moth is one of the most destructive forest pests ever introduced into the United States. It has defoliated millions of acres in the Eastern United States – killing trees and shrubs in its path.

Spongy moths pose a tremendous threat to the health of Washington's forests, parks, and even neighborhood trees. The Washington State Department of Agriculture's Pest Program has prevented spongy moth from gaining a foothold in our state since 1974. With continued support, we can prevent this pest from ever establishing here.

THE PEST

SPONGY MOTH

Spongy moth is an invasive insect that devours over 300 different types of trees and shrubs. It was brought to the United States by an amateur entomologist, Leopold Trouvelot, in the late 1860s in Massachusetts. He hoped to start a silk industry by breeding spongy moth with the silk worm.

But some spongy moths escaped.

No action was taken to eradicate this initial introduction of spongy moths. Spongy moth is now permanently established in more than 20 states, with quarantines established as far west as Minnesota.

FLIGHTED SPONGY MOTH

Although spongy moth is extremely destructive, its cousin - the flighted spongy moth - is even worse. Flighted spongy moths consume even more varieties of trees and shrubs – over 500 – and as the name suggests, the flighted female spongy moth can fly. Because the females can fly, there is an increased risk of them spreading quickly where they are introduced if action isn't taken.

Multiple detections of flighted spongy moth have occurred in the U.S. since 1991, including in Washington State as recently as 2021. Due to early detection and rapid implementation of an eradication program, flighted spongy moth is not known to be established in Washington or anywhere in the United States.

Spongy moths and flighted spongy moths look identical and can cross-breed.

Only genetic testing can determine the type of spongy moth.

IDENTIFYING SPONGY MOTH

SPONGY MOTH EGG MASSES

Females lay distinct, fluffy egg masses that can range in color from brownish orange to off-white. Each egg mass can contain up to 1,000 eggs. Egg masses are laid in late summer and hatch the following spring when trees have leafed out.

SPONGY MOTH CATERPILLARS

Spongy moth caterpillars (larvae) start out extremely tiny but rapidly grow - up to three inches long. As it grows, the caterpillar can easily be identified by its yellow head and distinct markings on its back: five pairs of blue dots followed by six pairs of red dots

PUPAE

After feeding on host shrubs and trees for several weeks as a caterpillar, the spongy moth larva pupates (forms a cocoon) where it transforms from a caterpillar into a moth. This process takes approximately two weeks and then an adult moth emerges. The adult moths mate and then die; they do not feed on vegetation.

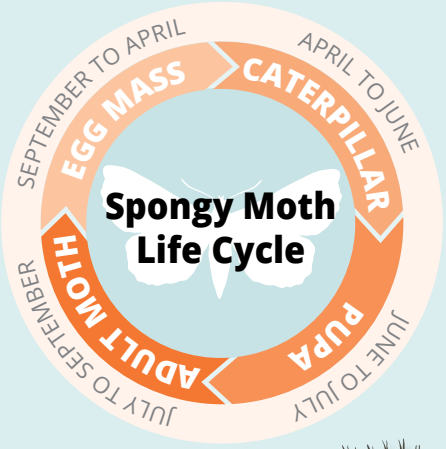
FEMALE ADULT SPONGY MOTHS

Female spongy moths are a light cream color with wide abdomens and thin antennae. Their wings have brown zigzag stripes. Spongy moth females do not fly, while flighted spongy moth females can.

MALE ADULT SPONGY MOTHS

Male spongy moths are darker and smaller than females. They are a tan brown color and have dark zigzag markings on their wings. They also have distinct, feathered antennae which they use to locate females by scent.

Spongy moth looks different at various stages of its life. It can be an egg, caterpillar, pupa, or adult moth.



SPONGY MOTH IMPOSTERS

Each year, WSDA's spongy moth program receives many reports of suspected spongy moth sightings. Most commonly, people see webs in trees and mistake these for spongy moth caterpillar nests. However, spongy moths do not create web nests in trees.

A nest made of webbing in a tree is likely one of two native caterpillars. In the spring, tent caterpillars will make web nests in trees. In the summer and early fall, the fall webworm will also make these nests. Neither of these insects are a major concern. They may defoliate a tree or branch in your yard but seldom defoliate entire areas.

Management tips for tent caterpillars and fall webworm can be obtained through your county Master Gardener program and Washington State University Extension.

WHAT IF I FIND A SPONGY MOTH?

If you believe you have found a spongy moth in any life stage or aren't sure, take a picture and email it to *pestprogram@agr.wa.gov*. We will be happy to identify it for you. Be sure to identify the location where you found the moth. You can also take pictures and upload them to iNaturalist.

If you find spongy moth egg masses, please do not remove or destroy them yourself. Take a photo and contact the Pest Program for proper removal and destruction of the egg masses.

WSDA STAFF REMOVING EGG MASSES

THE PROBLEM

While they can strip hundreds of kinds of trees and shrubs bare, it's not only the plants that suffer. Spongy moth infestations also cause a host of other problems where they are permanently established.

Spongy moths are a high-risk threat to the environment. In 2016, spongy moth damage was so bad in Rhode Island that it could be seen from NASA satelite imagery. That year, one-third of the state of Massachusetts was defoliated by spongy moths.

SPONGY MOTH INFESTATION IMPACTS

Environmental impacts

When trees die from spongy moth caterpillars eating all their leaves, there is a chain reaction of environmental effects. These include:

- increased risk of forest fires
- decreased food and shelter for birds
- decreased food and shelter for deer and other mammals
- lack of shade resulting in poor stream quality for salmon and other fish
- increased forest diseases and erosion

Health impacts

- allergic reactions to caterpillar hairs, including itchy rashes that can last up to two weeks

Economic impacts

- decreased property value
- increased cooling costs from loss of shade
- reduced revenue from recreational uses such as camping
- costly quarantines on Christmas tree exports
- quarantines on other agricultural products

Quality of life impacts

- inability to use yards and neighborhood parks
- difficulty cleaning/removing caterpillar feces

RAPID REPRODUCTION

Besides the devastation that spongy moths cause, another reason spongy moths are such a problem is that they reproduce very rapidly. A single female can lay up to 1,000 eggs. This means that a spongy moth population can permanently established in only a few years.

SPONGY MOTHS ARE HITCHHIKERS

Spongy moths

Spongy moths are permanently established in 20 states. Most of the spongy moth introductions in Washington likely come from people moving here from a state with a permanent infestation. Spongy moths often lay eggs on outdoor items – such as bikes, campers, deck chairs, etc. – and then are unwittingly transported to our state during a move.

By federal law, people moving from a spongy moth quarantine area into a pest-free area are required to check their belongings for spongy moths in order to prevent their spread.

Flighted spongy moths

Flighted spongy moths like to hitch rides as well - but on ships - laying eggs on items that are then transported to our ports. Inspections of ships at both the port of origin and U.S. ports are required to reduce the risk of flighted spongy moth introductions in Washington State, but occassionally some slip through.

SPONGY MOTH CATERPILLAR EATING WHITE PINE NEEDLES

13 REASONS TO UNFRIEND

13 **You aren't made of money**
Infestations cost billions: expensive control programs, reduced tourism, replacing trees in forests and at home, and restrictions on exports.

12 **Not a walk in the park**
Spongy moths destroy large swaths of national and state parklands.

11 **Creepy crawlies**
Millions of caterpillars can cover trees and your car, house, lawn, playground equipment, and can even fall on you.

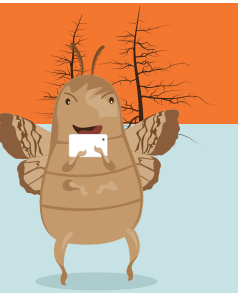
10 **Stowaways**
They hitch rides on ships, motor homes, and even patio furniture to move to a new home.

9 **They don't share**
Caterpillar feeding reduces food and shelter for other native moths and butterflies, birds and other wildlife, including threatened species like the northern spotted owl.

8 **Overstaying their welcome**
Once spongy moth becomes established, as they have in almost half of US states, you can't get them to leave. They stick around FOREVER.

7 **Freeloaders**
Caterpillars feast on your trees and shrubs, without even leaving a thank you note.

THE SPONGY MOTH

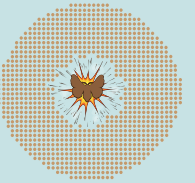


6 **Allergies**

Caterpillar hairs can irritate the skin and leave rashes on susceptible adults and children.

5 **Population explosion**

Spongy moths can lay up to 1000 eggs each year, so their population can rapidly explode.



4 **Stress management**

Defoliating trees stresses them out, jeopardizing their health.

3 **Environmental wrecking balls**

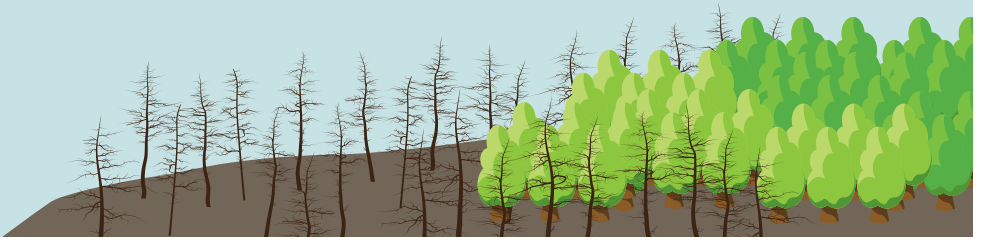
The ecological damage left by spongy moth destruction includes damaged tree canopies, dead trees that fuel forest fires, degraded stream quality, and warmer water temperatures which causes fish decline or death.

2 **Caterpillar poop**

Lots and LOTS of caterpillar poop. In areas with infestations, what sounds like a steady rain outside for several weeks each spring is really thousands of caterpillars dropping pellets of poop - nonstop.

1 **Tree killers**

Evergreen trees can die from one spongy moth infestation. Even deciduous trees can die from multiple years of caterpillar feeding.



OUR PROMISE

We are committed to continuing to look for and, when necessary, eradicate spongy moths to protect our state and environement from this invasive pest.

We've successfully kept spongy moth from establishing in the state since it was first detected here in 1974.

Because of the threat that spongy moths pose to our environment, health, and economy, the Washington State Legislature tasked WSDA with preventing spongy moths from becoming established in the Evergreen State. We are committed to protecting our communities, parks, and environment from this invasive and destructive pest.

MONITORING FOR SPONGY MOTHS

Early each summer, WSDA installs thousands of spongy moth detection traps throughout the state and regularly monitors them for spongy moth. An artificial lure, that mimics the scent of a female spongy moth, is used to attract the male moth to the trap. Once the male lands inside the trap, it sticks to the surface, which is covered in a glue-like substance.

If a trapper finds a moth when checking a trap, the moth is collected and sent to WSDA's molecular diagnostics lab and may also be sent to USDA for confirmation. There the moth undergoes DNA testing to determine whether it is a spongy moth or flighted spongy moth.

Trappers collect all traps at the end of the season – usually in September and October. After the traps are gathered, WSDA may conduct searches for spongy moth egg masses in areas where they have trapped multiple moths.

Results from WSDA's annual spongy moth trapping since 1974 are available at **agr.wa.gov/moths**.

PLANNING TO ERADICATE SPONGY MOTHS

At the end of each trapping season, WSDA reviews the trapping and alternate life stage search results to determine if an eradication project is necessary. Catching a single moth does not necessarily mean that WSDA will conduct an eradication.

Before proposing an eradication, WSDA considers many factors, including:

- type of moth(s) trapped (spongy moth or flighted spongy moth)
- number of moths in a single trap
- number of trapped moths in a geographic area
- evidence of other life stages (egg masses, caterpillars, pupae)
- terrain and host plants present
- environmental impacts

When eradication becomes necessary, WSDA drafts an eradication proposal. The proposal is created using the unique factors of each site and involves consultation with federal spongy moth experts.

Once an initial eradication proposal is completed, it is then evaluated for potential environmental impacts. The public is also informed of the proposal and given the opportunity to comment on the environmental review. Extensive outreach is conducted to those who live in a proposed treatment area so that they are aware of the eradication proposal.

After the environmental review and after public comments have been accepted, WSDA will use this information to finalize the eradication plan.

ERADICATION

Eradication takes place in the late spring, when the spongy moth caterpillars are emerging from eggs and beginning to feed on trees and shrubs, usually between April and June.

WSDA most often uses a biological insecticide, Btk, for its eradication projects, owing to its decades-long safety record for people, pets, bees, birds, fish, etc. The formulation WSDA uses is approved for use in certified organic agriculture. Btk only affects caterpillars present at the time of application or shortly thereafter. Btk also breaks down rapidly in the environment.

Please visit our website at **agr.wa.gov/moths** for more information about Btk.

SPONGY MOTH TREATMENT IN 2018

KEEPING WASHINGTON EVERGREEN

Since 1974, WSDA has been monitoring for spongy moths and eradicating introductions of the pest when necessary. Thanks to these efforts and legislative and public support, there are no established populations of any kind of spongy moth in our state.

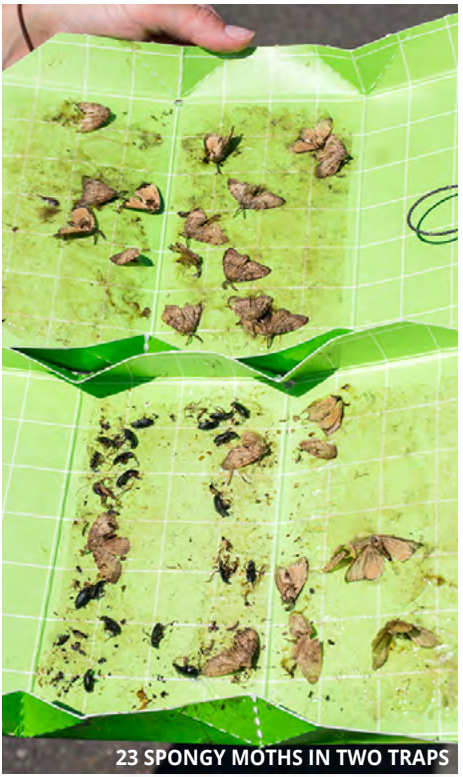
For decades, we have been committed to protecting our environment from this devastating pest. Here's how you can help keep Washington spongy moth-free:

- Allow WSDA trappers to place traps on your property when needed and do not disturb the traps.
- If you just moved from an infested area, inspect your belongings for evidence of spongy moths. If you find any, contact WSDA.
- Educate yourself and your neighbors about spongy moths and the threat they pose to our state.
- When eradication becomes necessary, support WSDA's eradication efforts and help share accurate information.

We invite you to visit our website at **agr.wa.gov/moths** or call our hotline at 1-800-443-6684 for more information about WSDA's spongy moth program.

HISTORIC DISCOVERY

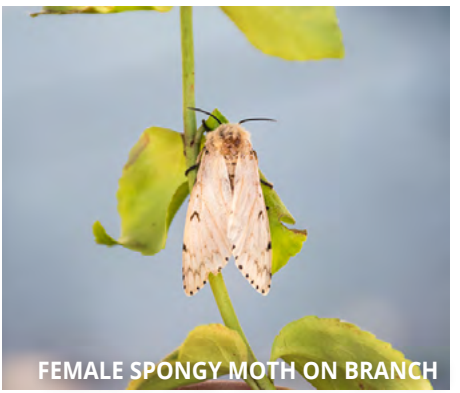
In August of 2017, WSDA discovered a live, actively reproducing infestation of spongy moths. The discovery included live female moths as well as spent and viable pupa casings, caterpillar sheddings, viable egg masses, and caterpillar frass (poop). The area was treated with Btk in the spring of 2018.



23 SPONGY MOTHS IN TWO TRAPS

REMOVING EGG MASSES

EGG MASSES ON TREE WITH CATERPILLAR FRASS

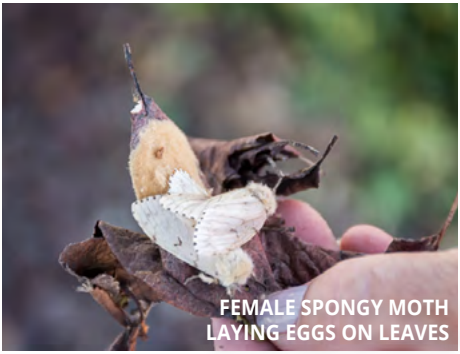


FEMALE SPONGY MOTH ON BRANCH

FEMALE SPONGY MOTH
WITH EGG MASS ON A TWIG

SAMPLE OF AN INFESTED TWIG

FEMALE SPONGY MOTH IN PUPA CASING



FEMALE SPONGY MOTH
LAYING EGGS ON LEAVES

FEMALE SPONGY MOTH ON
EGG MASS WITH PUPA CASINGS

MALE SPONGY MOTH CAUGHT IN MID-AIR

PUPA CASINGS AND
CATERPILLAR SHEDDINGS

REMOVAL OF BUSH AT SITE OF INFESTATION

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