PFAS Chemicals...*continued from previous page*

tampons and some toilet paper. The Environmental Working Group estimates that there "may be more than 40,000 industrial polluters of PFAS in the U.S." [5] With the EPA findings that these chemicals are toxic at the lowest detectable levels, the time has come to stop the production and sale of PFAS.

Assembly Member Ken Zebrowski, who represents large parts of Rockland County, has been working with a statewide coalition of environmental groups, including Sierra Club, on legislation that would ban large categories of products that contain PFAS. His bill, **A.3556**, includes a ban on PFAS in numerous consumer products, including paint, cleaning products, cookware, and textiles. Senator Brad Hoylman-Sigal has introduced the same bill in the Senate, **S.5648**. If you want to stop PFAS contamination, ask your Assembly Member and Senator to support this legislation as well as **S.3529/A.5990**, banning PFAS in menstrual products. Assembly Member Dana Levenberg, representing parts of Westchester and Putnam, has cosponsored these bills, as well.

Just as with lead, mercury, and asbestos, there is no known safe level of PFAS chemicals. By banning lead in gasoline and paint, we were able to dramatically reduce blood levels of lead. We can do the same with PFAS, but it will take action by both the federal and state governments.

WHAT YOU CAN DO:

1. Visit this link before the end of May to send a message to the EPA supporting its proposed limits to PFAS in drinking water: https://act.sierraclub.org/actions/National?actionId=AR0385566
2. Call your State Senators and Assembly Members to ask them to cosponsor the bills listed above.
3. Learn more about PFAS and safe alternatives to products that contain PFAS at https://www.consumerreports.org/toxic-chemicals-substances/how-to-avoid-pfas-a8582109888/ https://www.ewg.org/areas-focus/toxic-chemicals/pfas-chemicals
4. Get involved through Sierra Club. Contact rocklandclimate@gmail.com to help us in our ongoing work to stop this ongoing chemical pollution!

1 https://www.ewg.org/areas-focus/toxic-chemicals/pfas-chemicals
2 https://www.ewg.org/tapwater/reviewed-pfcs.php
3 https://www.epa.gov/sdwa/and-polyfluoroalkyl-substances-pfas
4 https://www.epa.gov/sdwa/drinking-water-health-advisories-pfoa-and-pfos
5 https://www.ewg.org/news-insights/news-release/2023/02/ground-breaking-map-shows-toxic-forever-chemicals-more-330

Hemlock Woolly Adelgid

by Joseph Dunnigan

While hiking the Catskills or any of the number of preserves, parks, and reservations located in New York, you would be hard pressed to find a forest that seems to be lacking in abundance and diversity. Yet, that is exactly what is under attack as we speak.

A Threatened Ecosystem

The Eastern Hemlock (*Tsuga canadensis*) is a coniferous tree that is located throughout the Appalachian range in the Eastern United States. Coniferous trees, or evergreens, differ from deciduous trees in that conifers retain their foliage throughout the year whereas deciduous trees lose their leaves. Besides being a coniferous tree, Eastern Hemlocks are also a foundation species. As a foundation species, the Eastern Hemlock has direct effects on the biodiversity of its habitat. For instance, Eastern Hemlock canopies provide a cooler understory and allow certain species to thrive where they couldn't in a deciduous dominated forest. According to an article published by the United States Geological Survey, Brook Trout (*Salvelinus fontinalis*) were about three times more likely to be located in waters under a Hemlock Forest canopy than a Hardwood Forest canopy. Because of the unique characteristics that Eastern Hemlock stands provide for their ecosystems, it is vital that we protect them from harm. But there is a scourge which has blighted Eastern Hemlocks, and New York's Hemlock stands are not immune.

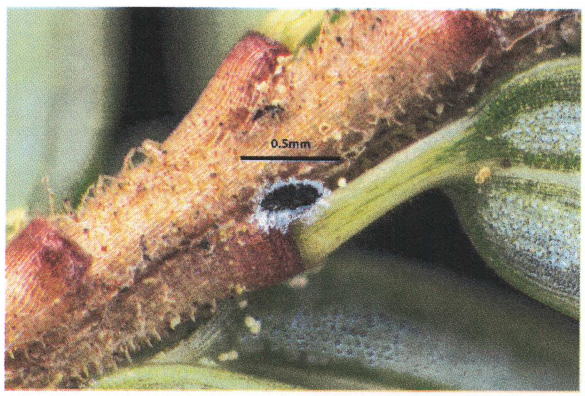
An Invasive Pest

New York's Eastern Hemlocks are infected by a tiny invasive pest which could alter the very composition of its forests. The name of this invasive species is the Hemlock Woolly Adelgid (*Adelges tsugae*). Hemlock Woolly Adelgids (HWA) originated from Japan. It is believed that the pests arrived in New York in the 1980s. Since then, they have wreaked havoc on forest ecosystems by damaging Eastern Hemlock stands.

Close up of Hemlock Woolly Adelgid in their woolly ovisacs
Photo courtesy of New York State Department of Environmental Conservation.

...*continued on next page*

HWA affects Eastern Hemlocks by literally sucking the lifeforce from the tree. According to researchers at the University of Massachusetts, juvenile HWA imbed themselves on the branches of the Eastern Hemlock and insert a straw-like tubular object called a stylet into the tree. Then the HWA feeds on a substance called phloem, which depletes the Eastern Hemlock's ability to effectively utilize photosynthesis. The researchers also found that the HWA may transfer its toxic saliva, which may be the cause for needle loss in Eastern Hemlocks. The loss of needles means a thinner canopy, which could result in the forest floor becoming warmer, and which may alter the species composition of forest understories. But not all is lost.



Hemlock Woolly Adelgid with Measurement for Reference
Photo courtesy of New York State Department of Environmental Conservation.

Combating the Hemlock Woolly Adelgid

Currently, there are control measures being put in place by agencies such as the New York Department of Conservation. The DEC utilizes two types of control measures in combating the HWA: biological and chemical controls. Biological controls were started in the 1990's with the use of *Sasajiscymnus tsugae*, a black lady beetle. In the 2000's, the DEC switched to using another type of beetle, *Laricobius nigrinus*, finding more success with their introduction. More recent is the use of silver flies (*Leucopis argenticollis* and *Leucopis piniperda*) which the DEC is still monitoring for effectiveness. In addition to these biological controls, the DEC utilizes chemical agents. The chemical insecticides in use by the DEC for controlling HWA are Imidacloprid and Dinotefuran. These agents are applied to individual trees, in which Dinotefuran is a fast-acting agent and Imidacloprid is a longer-lasting control. The chemicals work together to protect the tree for about seven years. But to prevent further spread of the HWA, the Department of Conservation needs your help.

Photo courtesy of New York State Department of Environmental Conservation.

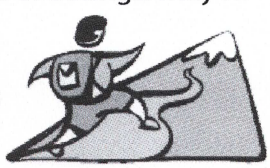
What You Can Do

To help control the spread of HWA, be sure to clean your gear after hiking. It's also important to stay vigilant when you're in nature and learn how to identify HWA that could be on the branches of nearby Eastern Hemlocks you may pass by on the trail, in the park, or maybe your backyard. If you think you have come across an infected site or tree, the DEC asks that you take a photograph with something to scale the specimen, such as a coin, then email the pictures to **foresthealth@dec.ny.gov**, or call **1-866-640-0652**. By reporting infected Eastern Hemlocks, you are ensuring the continuation of the abundance and biodiversity of New York's forests.

The author is a professional firefighter, graduate student in forests and climate change, and new member of Sierra Club Lower Hudson Group.

HIKES AND OTHER OUTINGS

Don't forget to check the Outings page on our group website for all kinds of outings. They're fun and invigorating, and a great way to meet like-minded people of all ages and walks of life.



Visit SierraLowerHudson.org and click Outings.