



Newsletter
Summer 2021

Hemlock Happenings

A Publication of
Save Georgia's Hemlocks

This e-newsletter is for members, Facilitators and other volunteers, donors, and friends of Save Georgia's Hemlocks to share hemlock news, educational information, service opportunities, and announcements. If you'd like to submit an article or calendar item, please send it to the e-mail address below. Readers' feedback is always welcome.

Dear friends,

Having finally said goodbye to 2020, I've been reflecting on what a difficult and stressful year it was, and to be fair, 2021 has gotten off to a rocky start too. The impacts of the *Coronavirus* pandemic and the many other unsettling events across America have affected us all.

To those who have persevered through the inconveniences and frustrations, thank you for your patience and positive outlook. And to those who have suffered serious lifestyle changes and personal losses, I extend my heartfelt wishes to you for comfort and strength, hope and healing.

Yet even in the darkest times, we have so much to be thankful for. It has been heartening to see so many people sharing, encouraging, and supporting one another in an outpouring of active kindness. And as a bit of silver lining, you've probably noticed the communal swell of stubborn creativity in finding ways to get things done while accommodating ever-changing safety guidelines and a burst of individual breakthroughs in conquering unfamiliar technology to keep us in touch. As a result, you accomplished a wonderful amount of good work in 2020. Well done!

Now let's join together in looking forward to better times – hopefully safer and more secure, peaceful, and productive. While we'll still be dealing with the pandemic a bit longer and continuing to prioritize protecting our health, we are eager to resume our normal activities as best we can on behalf of our beloved hemlocks that so desperately need our help.

In the meantime, please take care of yourself and each other, and keep in touch. It is so good to see you again!

Blessings to all.
Donna

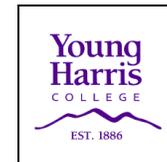
Scholarships & Gifts to Support the Future

Our Board of Directors is proud to announce the establishment of the **Frank Gheesling Save Georgia's Hemlocks Scholarship** at the University of Georgia's Warnell School of Forestry and Natural Resources. Named in honor of our friend and long-time Board member who retired in 2019 after nine years of tireless service, this \$5,000 scholarship is intended to provide financial assistance to college students pursuing specific areas of study and career goals related to forestry or forest health with a particular focus on hemlock preservation.

We have also established a \$5,000 scholarship at North Georgia Technical College to help students with similar educational and career goals. Visit the [Memberships and Donations](#) page of our web site to read descriptions of both scholarships.

In addition, the Board voted to make \$1,000 gifts to the [YHC Hemlock Project](#) at Young Harris College and the [Ecological Protection Lab](#) at the University of North Georgia to use in support of saving the hemlocks through biological controls. These two labs and the one at UGA work closely together for the benefit of all the hemlocks across north Georgia.

All of this has been made possible through the amazing generosity of our members and friends, the selfless dedication of our volunteers, and the careful use of our resources. We believe — and hope you believe too — that this kind of giving is an important way to invest in the future and ensure that our mission to save the hemlocks will continue. So our sincere THANKS TO ALL OF YOU! And if you'd like to make a special donation to help perpetuate this kind of giving, you can so mark your membership donation form.



A busy year in 2021!

There has been, and continues to be, much to do this year, particular since we have a bit of catch-up for projects that had to be postponed from last year — hemlock treatments, sapling rescues, planting projects, and Facilitator visits — and much to share through presentations, neighborhood outreach, training workshops, and hopefully some festivals. So we encourage everyone to be as active as you can be.



Please see the [Schedule of Events](#) page of our web site, and then come our and join us. Your help is needed now more than ever and, as always, is greatly appreciated!

MUCH ACCOMPLISHED in 2020

FY 2020 was a surprisingly productive year, especially considering that the pandemic seriously limited our usual group activities. Thanks to all our members and volunteers for your generous contributions of your time and energy.

* **211 Facilitator visits** made with charitable treatment of 2,198 trees — That's 3 TIMES the number in 2019!



* **13 hemlock treatment projects** with 76 volunteers treating/retreating 1,876 trees



* **3 presentations** to civic / community groups with 88 attendees

* **3 Hemlock Help Clinics** with total of 41 attendees

* **12 Facilitator Training Workshops** with total of 57 new Facilitators trained, bringing our active total to 494

* **1 Hemlock Lesson** for 14 youth & adults

* **2 festivals / public events** with info booth & saplings for adoption, 2 volunteers and 40+ visitors / contacts

* **18 customized training sessions** for 68 volunteers and public land managers

* **10 hemlock rescue / potting projects** with 41 volunteers, 310 saplings rescued and potted for educational / service events or adoption



* **7 hemlock sapling planting projects** with 53 volunteers planting 171 saplings and 54 other trees/shrubs



* **158 hemlock saplings adopted**; 61 large saplings donated to agencies / schools / nonprofits

* **44 Kioritz and EZ-Ject soil injectors** repaired / refurbished; 8 new EZ-Ject Lite soil injectors assembled and prepared for use



* **13 articles / news items** written by, with the assistance of, or about SGH published in newspapers/magazines

* **781 calls handled** on the Hemlock Help Line

* **Total of 3,857 volunteer hours** logged
GREAT WORK, EVERYONE!

A Few Highlights from 2020

On a cold January day, 14 hardy young people and adults from Alabama met at **Cloudland Canyon State Park** for a SGH Hemlock Lesson and a sapling rescue / potting project. Organized by Rio de Graffenreid as a service project for his upcoming Bar Mitzvah, the event yielded 17 lovely little trees.



Rio de Graffenreid (R) leading sapling rescue/potting at Cloudland Canyon

SGH helped the **City of Jasper** celebrate Arbor Day in Georgia on February 21 with an education and service program created by Donnie Low and Jim Heilman (3rd and 4th from left respectively in the photo). Following a brief presentation, volunteers and City officials participated in planting three SGH-donated hemlock saplings in Lee Newton Park.



Jim Heilman, Donnie Low, City of Jasper officials, and SGH volunteers plant hemlocks on Arbor Day 2020



Brian Kervin

One of the things we enjoy a great deal is helping Boy Scouts who are working toward their **Eagle Scout** rank. Shown here is Brian Kervin demonstrating the proper technique for digging a hemlock sapling. On a crispy October day, he led his team of 10 Scouts and 4 adults in rescuing and potting 33 trees from a site in Dahlongega

Later in the month **Eagle Scout** candidate Joe Shippen, assisted by SGH Board member Chris Curtin, led a team of seven to rescue and pot 47 saplings from a site in Ellijay.



Joe Shippen

| \$\$\$ Financial Summary for FY 2020 \$\$\$ | | |
|--|--|---|
| Total Income | \$35,978.52 | A sincere THANK-YOU to everyone who gave so generously. SGH is committed to careful and transparent use of our resources. |
| Total Expense | \$24,890.19 | |
| Net Change | \$11,088.33 | |
| Total Receipts in FY 2020: | 18% grants, 82% memberships, sapling adoptions & other gifts | |
| Total Spending in FY 2020: | 93.46% for educational & charitable service programs. 6.54% for administrative, membership & fund raising | |

2020 Highlights, continued

Even in the midst of the pandemic, we found a way to get outdoors in October and do some good work under the leadership of USFS' Ruth Stokes (3rd from right standing).



Hemlock restoration team at Jack's River

Ten volunteers from SGH, Georgia Forest-Watch, the Forest Service, and friends from Chattanooga participated in a project to plant two dozen hemlock saplings in and around a user-created camp site along Jack's River that has become a bad source of sedimentation into the river at a very important area for federally listed fish and mussels.

The Forest Service has been working on re-directing the runoff from the gravel road and has seeded the area, but they asked our help to plant trees in it along with other efforts to discourage inappropriate use.

2020 Highlights, continued

On a bright sunny November weekend the Forest Conservation sub-committee of **Bent Tree's** Lake & Wildlife Committee, in partnership with SGH, successfully completed their 2020 hemlock treatment program. Under the leadership of Dara Sinclair, Jim Heilman, and Ray Lorenzi, teams spent 3 days protecting over 400 Eastern hemlocks from the HWA.



Bent Tree team headed by Dara Sinclair, Jim Heilman, and Ray Lorenzi treated 422 trees in one weekend!

SGH also donated 23 saplings that were planted at the Sally Doss Nature Center in Bent Tree to enhance native habitat and erosion control.



BT's Kenny Sinclair planting a sapling

He who plants a tree plants hope.

BOARD MATTERS — looking back and looking forward

To better align our Leadership Team for SGH's core activities and provide for organizational continuity, the Board has approved the following changes:

Donna Shearer has stepped aside as Board Chairman to become Executive Director. Buz Stone is now serving as Board Chairman while continuing as Saplings Program Manager for eastern counties. Thanks Buz!

Bob Pledger has retired as Vice Chairman and Program Manager for hemlock treatments on the Chattooga River Ranger District but will continue as Board Member *Emeritus*. Dave Teffeteller is now serving as Vice Chairman while continuing as Communications Director. Jon Jones has joined our Board as Program Manager for hemlock treatments on the Chattooga River Ranger District.

Derrick Morris has joined our Board as Education Program Manager for western counties. Chris Curtin will continue as Board Member and Saplings Program Manager for western counties. Darrell Sheffield will continue as Board Member at large.

Dara Sinclair has joined us as Co-Lead Facilitator with Jim Heilman in Pickens County, focusing on the Bent Tree Community. Kat Carey has joined us as Co-Lead Facilitator with Wynn Mott in Union County, focusing on the Lake Winfield Scott Community.

Kim Wood has retired, and Betty Larsen is serving as Secretary for festivals and special events. Holly Cochran is our new Recording Secretary for our quarterly and other special meetings. Todd Jackson has joined us as Treasurer.

Thanks everyone for your wonderful service!

LOOKING FOR MORE LEADERSHIP TEAM MEMBERS

There are so many opportunities to use skills and expertise you already have to help SGH in our mission. Here are some of our current needs:

- * **Instructor** for Facilitator Training Workshops in eastern counties
- * **Manager** for Facilitators Program
- * **Administrator** for SGH web site
- * **Editor** for *Hemlock Happenings* newsletter
- * **Lead Facilitators** for Banks, Gordon, Habersham, Hall, Murray, Stephens, and Towns

Please call 706-429-8010 if you're interested.

Our volunteers have made a significant difference in the past 12 years! These are trees treated by or with the assistance of SGH 2009 -2020.

| | USFS | DNR State Parks | DNR Wildlife Mgt | Private Property | Other | TOTALS |
|---------------|--------------|-----------------|------------------|------------------|--------------|---------------|
| FY 2009 | | | | 8 | | 8 |
| FY 2010 | 0 | 0 | 0 | 1,500 | 0 | 1,500 |
| FY 2011 | 208 | 0 | 88 | 282 | 642 | 1,220 |
| FY 2012 | 604 | 0 | 0 | 315 | 221 | 1,140 |
| FY 2013 | 890 | 872 | 3,307 | 1,017 | 735 | 6,821 |
| FY 2014 | 1,270 | 116 | 0 | 1,371 | 94 | 2,851 |
| FY 2015 | 995 | 299 | 0 | 581 | 562 | 2,437 |
| FY 2016 | 1,382 | 304 | 0 | 3,436 | 1,008 | 6,130 |
| FY 2017 | 1,805 | 909 | 0 | 3,470 | 1,653 | 7,837 |
| FY 2018 | 1,380 | 476 | 0 | 1,826 | 763 | 4,445 |
| FY 2019 | 2,400 | 546 | 0 | 1,444 | 536 | 4,926 |
| FY 2020 | 129 | 0 | 129 | 3,126 | 3 | 3,387 |
| TOTALS | 8,534 | 2,976 | 3,395 | 13,806 | 5,678 | 39,315 |

STRATEGIES & PRIORITIES FOR FY 2021

In order to keep our organization able to respond effectively to the ongoing needs of property owners, public land managers, and other non-profits *and* to be proactive in anticipating emerging needs, SGH has adopted practical strategies that focus on action integrating our education, service, and research initiatives.

Education: Provide educational resources, programs, and activities that reach and benefit members, volunteers, and a wide range of constituencies in support of saving the hemlocks.

Communications: Develop messaging materials and methods that raise awareness, provide accurate and up-to-date information and instructions, and respond to requests for advice and assistance.



Rene Milford & visitors at Anna Ruby Falls

Service: Manage service activities and information to enable property owners to do as much for themselves as possible and to deliver direct volunteer assistance on private and public lands as our resources permit.



Tom Hennigan & volunteers at Low Gap Campground

Saplings: Maintain a stock of healthy hemlock seedlings and saplings for planting, donation to schools and other nonprofits, and adoptions and conduct service activities to promote the planting and care of new hemlocks on public and private lands. Click here to read about our [saplings adoption program](#).

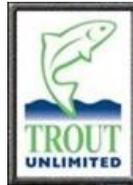


Membership & Partnership: Create and nurture relationships with individuals, other nonprofits, and government agencies to support achievement of our shared goals and objectives, multiply our ability to educate and serve, and provide future leadership.



Georgia
Appalachian
Trail Club
ESTABLISHED 1930

GEORGIA FORESTRY
COMMISSION



New Internship Program: This year our Board voted to implement an internship program that will allow us to provide one or more college students with opportunities to enhance their academic, career, and personal development goals while giving us the benefit of their time, talents, energy, and youthful perspective.

We are pleased to introduce our first intern, **Brianna Ross**, a rising senior at Young Harris College and Honors Program Member taking a double major in biology and environmental science. She has been a tremendous help recruiting volunteers, participating in service projects, writing articles, and shooting three YouTube videos that will be coming out soon. We sincerely appreciate her work and wish her well in the coming school year!



CALENDAR CORNER 2021

See [Schedule of Events](#) page for details.

Volunteer Facilitator Training Workshops

For the rest of this year, educational events will be taught on line. Most will be held from 10 a.m. to 3 p.m. on Saturdays, but some will be held on Fridays to accommodate folks who can't make it on the weekend. Click here for a [course description](#).

| | |
|--------------|---------------|
| * Fri., 8/27 | * Fri., 9/24 |
| * Sat., 9/17 | * Sat., 10/16 |



Hemlock Service Projects

We conduct all our service events following CDC guidelines — outdoors in small groups, wearing masks social distancing as appropriate, and plenty of hand washing.

Here's the schedule for our remaining **USFS treatment projects**.

- * Sat., 8/21 Cooper Creek
- * Sat., 10/23 Wildcat Recreation Area (This will be our annual Hike & Help the Hemlocks event.)

For our joint project with the Georgia Appalachian Trail Club to treat hemlocks on the new **HCA's on the Appalachian Trail**, the GATC will be providing most of the volunteers, but we need some experienced SGH Facilitators to serve as team leaders. See our [Schedule of Events](#) page for dates for the following projects:



- * Blackwell Creek
- * Dockery Lake
- * Plum Orchard Gap
- * Jacks Knob Trail
- * Blue Ridge Swag south to Bull Gap
- * Poplar Stump and Sapling Gap

There are a couple **other service projects** for which we will need volunteers.

- * Sat., 9/12 Sapling planting at YMCA Camp High Harbour
- * Tbd Hemlock treatment at Foxfire Museum & Heritage Center

Festivals — Local festivals are a great way to reach a large number of people who may have property with hemlocks or simply enjoy recreation in our beautiful mountains. We plan to participate in the Foxfire Mountaineer Festival in October and Boy Scout Hornaday Weekend in November.



If you can help, call 706-633-0358.

EARTH DAY EVENTS 2021



Saturday, March 20 — Tree Planting in Atlanta: SGH partnered with Trees Atlanta to plant 20 large hemlock saplings that we donated and a number of other trees and shrubs provided by Trees Atlanta. The event took place at Epiphany Episcopal Church, a lovely and highly visible site at the intersection of Ponce de Leon and East Lake Rd. in Atlanta to protect and expand Atlanta's tree canopy. The project was carried out by volunteers from Trees Atlanta, the church, SGH, and the local community.



Thursday, April 22 — Earth Day is globally coordinated by the Earth Day Network, whose year-round mission is to broaden, diversify, and activate the environmental movement worldwide through a combination of education, public policy, and consumer campaigns. It's a great time to go out and do something good for our planet — plant a tree or a garden, clean up a public space or waterway, start a compost pile, or start recycling.



Click here for [tons of great ideas](#) for Earth Day and everyday!

Thursday, April 22 — Trail Opening: In celebration of Earth Day, Project Chimps in Morganton hosted a grand opening of some new trails on their property and invited SGH to participate and briefly share the hemlock message. A partner organization of ours, they do such good work providing a safe and comfortable home for the retired chimps while also caring for the hemlocks on their campus.



ARBOR DAY EVENTS 2021



Saturday, April 17 — Tree Planting at Peeples Lake: Eagle Scout candidate **Sean Glover** led a team of 14 Scouts in a project to plant 20 hemlock saplings beside the lake and parking area at Peeples Lake, a USFS Recreation Area in Murray County near Chatsworth.



With a little help from SGH, he did a great job of planning, recruiting, teaching, and project management. Congratulations, Sean!



Sean Glover instructing his volunteers

Friday, April 30 — Tree planting in Lee Newton Park: SGH partnered with the City of Jasper to mark National Arbor Day on Friday, April 30th with a short presentation and tree planting in the park.

Jasper resident Donnie Low organized the planting of three hemlocks last year along the small creek in the park to mark Arbor Day. And this year he, along with SGH Lead Facilitator for Pickens County Jim Heilman, arranged for us to add more trees to the park, supported by donations from the public.



Donnie Low, Jim Heilman, and Todd Smith with one of our newly planted hemlocks

Note: Georgia celebrates Arbor Day on the third Friday of February, but our National Arbor Day is April 30.

Saturday, March 27 — Hemlock treatment at Smithgall Woods: Continuing our longstanding relationship with the Georgia DNR and Friends of the Park, SGH volunteers came out to help treat or retreat a whopping 350 trees! It was wonderful being out in the woods again this spring, working in good company, and feeling the satisfaction of helping to preserve a beautiful community treasure.



Smithgall Woods

Tuesday, April 20 — Sapling planting at Hurricane Creek Research Station, Dahlonega: Under the leadership of Robert Fuller and University of North Georgia Ecological Protection Lab Manager Stacie James, SGH worked with 11 members of the Sustainability Club to plant 50 hemlock saplings along the riparian zone of the forest.



UNG Sustainability Club

It is hoped that in addition to stabilizing the stream banks and adding to the forested nature of the property, this hemlock planting may become a field insectary for raising predator beetles in the future.



During the same event **Dr. Fuller presented Stacie** with a grant check for \$1,000 on behalf of Save Georgia's Hemlocks to support the work of the Ecological Protection Lab. We hope to continue this gift again next year.



WE SURELY GET TO WORK IN SOME BEAUTIFUL PLACES

Lake Winfield Scott: On Wednesday, April 21 SGH completed a hemlock treatment project at Lake Winfield Scott Beach that was begun in 2019 but had to be postponed in 2020 because of Covid. Many thanks to Jim Wentworth for his leadership and Kat Carey for recruiting a great group of volunteers from the LWS cabin owners, who treated 84 more large trees.



Timpson Creek: SGH partnered with the U. S. Forest Service on Thursday, April 22 to treat 120 hemlocks near this lovely waterfall on the National Forest. Thanks to Jon Jones and Bob Pledger for their leadership.



Anna Ruby Falls: Each year we look forward to Hemlock Day at Anna Ruby Falls. On June 5 Betty Larsen and her musician husband John Charing hosted the event on the back deck of the Visitors Center. The setting couldn't have been more perfect — overlooking a trout stream, under some large healthy hemlocks, at the beginning of the trail to the waterfall where visitors could browse our displays and learn about saving the hemlocks.



Betty Larsen & visitors

John Charing entertaining

Long Creek Falls & Chester Creek: Nine SGH volunteers under the leadership of Jim Wentworth had a great day on Saturday, June 12 treating 114 hemlocks in the Noontootla area of Fannin County. Any time we can be in such a beautiful place saving hemlocks is a good day!



Cloudland Canyon: Over the period of May through July, Dade County Lead Facilitator Jimmy Stewart, working with DNR project leader Megan Monson, mustered a small army of volunteers who worked tirelessly on multiple days to treat 1,020 hemlocks in Cloudland Canyon!!! The DNR has expressed their sincere thanks for this monumental effort that brought the entire park's hemlocks up to date on their HWA protection.



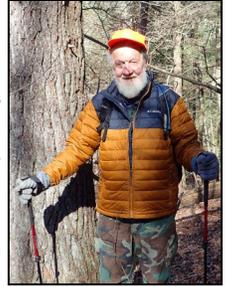
Upper Chattahoochee River Campground: This was another big one! Jon Jones led teams of volunteers on July 8 and August 8 to treat more than 300 hemlocks, some of which were huge. But with so many old-timer trees in such a well loved campground, the work was worth it.



Interestingly, during his scouting visit Jon found that many of the trees were covered in poison ivy, and wrapping a diameter tape around them would be pretty hazardous. So he introduced his teams to a new tool — calipers — shown below.



Justus Creek: For our first joint project with the Georgia Appalachian Trail Club this year, **Pete Buak** led teams of volunteers and USFS staff to treat hemlocks on the newly approved Justus Creek HCA.



Dividing the job into two days, July 21 and August 4, they gave first time treatment to 139 large trees that will now be protected for AT hikers to enjoy at least another five years.



Swallows Creek & Falls Branch Creek: On August 7 six SGH volunteers under the leadership of Jim Wentworth had a nice short day in the woods (for a change!) In all, they treated 91 big trees along the creek and near the waterfall.



Mulky Creek Campground: With gentle terrain and easily accessible sites, this project was especially pleasant for being among groves of large old trees in a beautiful campground with a frisky stream running through it.



Despite the annoying presence of yellow jackets and a few actual stings, 11 volunteers were able to treat 178 hemlocks in Mulky Creek Campground and one adjacent site on Coopers Creek.

READERS DIGEST

This section is devoted to bringing you interesting articles from local, national, and international sources. In most cases, only excerpts are reproduced here, but you can click on the links to read the entire articles.

Trees Have a “Heart Beat”



The world that we live on is home to a wide range of different kinds of life. Whether we are looking at humans, dogs, cats, fish, or even the microscopic bacteria that we cannot see, there is a nearly infinite number of different living species for us to examine and explore.

Trees are a fascinating species on earth. Unlike other creatures, trees are among the oldest living things on the planet and can live for thousands of years. The oldest tree on record lived for over five thousand years! It was already 3,000 years old when Rome was at its greatest.

We know that trees are alive because they use energy to create their own energy. Even though they lack the organs that creatures like mammals have, trees have their own set of unique organs.

The Secret Rhythm of Trees — Have you ever wondered if it's possible for a tree to have a heartbeat? A tree may not have a heart, but the concept of it having its own beat and rhythm is not as far-fetched as you may think! According to a new [study](#), trees have a special type of beat in their bodies similar to that of a heartbeat.

Using “terrestrial laser scanning” to survey the movement of twenty-two different types of trees, the investigation revealed that while trees sleep at night, they routinely have beats pulsate throughout their body. These pulses are the tree distributing water throughout its body, similar to the way a heart pumps blood through the body. The heartbeats occur very slowly, with some of them taking hours to repeat and therefore imperceptible with the naked human eye.

The study also revealed that trees move a lot more than people initially thought. It turns out that numerous species of trees drooped their leaves up to ten centimeters after the sun goes down. This is because the trees are sleeping and entering their own type of circadian rhythm known as “[circadian leaf movements](#).”

With as much as the study revealed to scientists, there is still much that we do not understand. For example, it is still not fully known how the heartbeat and water pump work. More research is required. Stay tuned.

The Truth About Lichens

UGA Extension Agent Carole Knight gets quite a few calls about lichens from clients who are concerned that a “frilly something” on their tree or shrub is killing their plant. Well, actually, its not.



Lichens are not parasitic. They are made up of symbiotic organisms, a fungi and usually an algae. The alga converts sunlight and carbon dioxide to food for the lichen fungus, and in return the lichen fungus protects the alga from drying out. Together the fungus and the alga make up what is known as the lichen thallus.

The color and growth form of the thallus are used to group and classify the lichens. The most common species of lichens on trees tend to be a gray-green color, but other species may be orange, yellow, slate blue, or black.

Lichens are found on rocks, tortoise shells, window panes, and plants (including hemlocks). As plants are stressed and begin to decline, the reduced canopy allows sunlight to enter and support photosynthesis for the lichen. **The presence of lichens is often an indicator of poor plant health, but it is never the cause.** Lichens are harmless to plants, and if overall plant health is improved, the vibrant canopy should inhibit the sunlight available for lichen photosynthesis.

When Plants Say “Ouch”

Believe it or not, scientists have found that flowers whimper when a leaf is cut, and cucumbers squeal when they get sick. The discovery will benefit farming and agriculture, they say.

The next time you casually pluck a flower or break a leaf from a tree, you might stop to consider the pain you've caused the plant. In fact, if you listen hard enough, you might even hear the poor plant whimpering.

Well, not with the naked ear, but maybe with the device for acoustically measuring the stress level of plants, developed at the Institute for Applied Physics at the University of Bonn. There, scientists have discovered that depending on how plants are “feeling”, they emit gases that can be recorded with a special laser-powered microphone.



How it works — Frank Kühnemann of the Institute for Applied Physics in Bonn explains that when a leaf or a stem is cut off, the plant “cries out” in pain by releasing the gas ethylene over its entire surface. Researchers at the institute then trap the ethylene in a bell jar, which is placed along with the severed part of the plant in a climate-controlled room with constant temperatures and simulated natural light.

Over a number of hours, the ethylene passes through tubes into a complex device. It bombards the ethylene molecules with specially calibrated lasers, making them vibrate. The result is a sound wave, which can be picked up over microphones. Kühnemann says, “The more a plant is subjected to stress, the louder the signal we get.”

Advantages — Researchers believe that the discovery will prove valuable in helping fruit and vegetable producers develop optimal storage and transport procedures. Being able to eavesdrop on the secret voices of plants could also benefit farmers by working as an early-warning sign of agricultural pests and diseases.

Eavesdropping on the social life of plants — Electronic eavesdropping has also enabled scientists to discover that plants have something of a social life. They can warn each other about approaching danger. The “alarm signal” takes the form of a chemical message transmitted between individual plants.

Though scientists using the acoustic-ethylene method have not succeeded in proving that plants have feelings, the chemical voices of flora allow them to distinguish between healthy and sick plants.

Eastern Hemlocks Face Extinction. A Tiny Fly Could Save Them



It's a warm day in early June, and researcher Nicholas Dietschler is standing in front of an eastern hemlock sapling about a quarter of a mile up a steep ridge in New York's Catskill Mountains. The evergreen is not looking good. Its lower branches are brittle and dead. Its upper limbs are balding. Dietschler visually scans the tree's stubby needles. It doesn't take long for him to find what he's looking for. Tiny, woolly white bumps the size of sesame seeds coat the sapling's spindly branches. Dietschler runs his thumb along the bumps. “Blood,” he says, holding up a finger streaked with orange. “They're alive.”

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A blue cooler lies open on the ground, filled to the brim with neatly stacked plastic vials. “I just signed up to spend the next five years of my life working on this,” Dietschler says, looking at the cooler. The hemlock he is standing in front of will probably be dead before those five years are up, as will many more hemlocks throughout the eastern United States.

But just up the hill is a grove of pristine, old-growth hemlocks growing straight and healthy out of the forest floor. Their canopies are thick and bushy, untouched by saws or pests for hundreds of years. Stepping into the healthy grove feels like entering a cathedral — quiet, dark, and cool. And that’s why Dietschler releases the contents of the blue cooler — more than 1,000 live silver flies — nearby.

If all goes according to plan, the flies will feast on the woolly adelgid in the infested trees, arresting the spread of the invasive insect and protecting the healthy hemlocks at the top of the ridge. The battle between adelgid and fly is a preview of future fights to curtail invasive species.

Non-native pests are difficult to contain in normal climatic conditions. But they’ve become especially tricky to stop as winters have grown warmer and more of the nation has become temperate, allowing these pests to explore previously impenetrable territory.

America’s existing forests absorb 9 percent of its carbon emissions by turning carbon dioxide and water into wood via photosynthesis. When trees die, that process is reversed, and the carbon dioxide stored in the wood is slowly released into the atmosphere. Just 15 nonnative pests, including the woolly adelgid, threaten to destroy upward of 40 percent of those forests.

“If we lose hemlock and there’s a reduction in carbon uptake for, say, 40 years, that’s exactly the time when we need to be doing everything possible to mitigate carbon loss,” says Audrey Barker Plotkin, a senior scientist at the Harvard Forest.



Editor’s Note: For more thoughts on what you and we can be doing to preserve the hemlocks in particular and the forest in general, see page 9.

Hope for the Hemlocks: New Tactics



Over the past seven decades the woolly adelgid has killed millions of hemlocks from Georgia to southern New England, but several recent scientific discoveries give hope that eastern hemlocks will not go the way of chestnut, elm and ash trees and largely disappear from our forests. These include the discovery of adelgid-resistant survivor hemlocks in New Jersey, a successful crossbreeding project to produce more adelgid-resistant trees, and the introduction of two new insects that feast on adelgids.

Forest and park managers have bought time by applying insecticides to protect the most visible, historic and popular hemlock trees along trails, in parks, and along streams where the trees create a unique “microclimate” that dozens of animals, birds, insects and native trout depend on. But because of cost and accessibility, chemical protection in many places is primarily reserved for the trees most seen by the public.



Meanwhile, a cooperative effort among scientists, land managers, and other advocates has been pushing for more solutions. Along with the federal government, they formed the Hemlock Woolly Adelgid Initiative in 2003. The coalition now includes four federal agencies, 20 state agencies, 24 universities, seven institutions in China, and nine private industries in Japan.

The first pushback involved capturing and releasing millions of predatory beetles that feed on adelgids. Unfortunately, adelgids have two distinct life stages per year, one of them producing a generation of adults in late spring. And because the beetles don’t feed in late spring, the wounded adelgid populations have a chance to bounce back.

Enter two species of silver flies that are found on hemlocks in the U.S. West and consume adelgids in the spring. Since 2015, the silver flies have been released in controlled settings throughout the East.

Though still being studied to make sure they don’t negatively impact native insects, there is hope that the flies may be the missing link in the biological control of adelgids — and the long-term strategy for saving hemlocks. “It looks promising because it nails the part of the life cycle [beetles] don’t get to,” said Donald Eggen, forest health supervisor for the Pennsylvania Bureau of Forestry. “The great hope is that the silver flies paired with [the beetles] is the one-two punch,” said David Mausel, a regional entomologist with the U.S. Forest Service.

Optimism also is buoyed by experiments with healthy hemlocks found in New Jersey among an otherwise devastated hemlock grove infested for more than 30 years. In 2015, trees grown from cuttings of those healthy trees, as well as from presumably susceptible hemlocks, were planted in the wild next to infested forests in seven states, including Pennsylvania, Maryland, New York and West Virginia. After four years of observation, scientists reported that 96% of the “bulletproof” trees survived, compared with only 48% of susceptible trees. The resistant trees also grew faster and retained more foliage.



Another recent development is the successful production of a hybrid hemlock by crossing adelgid-resistant hemlocks from China with native Carolina hemlocks (*T. Caroliniana*), which grow in parts of VA, NC, SC, TN, and GA.. Because the hybrids grow slowly and must be reproduced from cuttings, they may not play a major role in restoring hemlock forests; their main use will probably be on residential land.



Attempts to cross Chinese hemlocks with eastern hemlocks were not successful, but stay tuned.

FOCUS ON FACILITATORS

Now that folks are getting back in the woods ... The Hemlock Help Line is receiving a lot of calls from people who have become aware that the hemlocks on their property or those in the forest don't look quite right, and they want to know what can be done to save the trees.

We hope YOU are also sharing the hemlock message with your friends and neighbors, making Facilitator visits, and helping others save their trees. We have rack cards that provide key information about the hemlocks on one side and the woolly adelgid on the other.



If you'd like a supply of these rack cards, please let us know, and we'll send them to you. BTW, per postal regulations, you shouldn't put them *in* anyone's mailbox, but you can attach them to the *outside* of the mailbox, put them at the door of the home, or better yet give them in person so you can have a little chat about saving the hemlocks and how you can help.

Do you have a SGH tee-shirt?

We encourage all our Facilitators and hemlock fans to get a SGH tee-shirt. Available from Café Press, there are lots of colors and styles to choose from, and they're a great way to start a conversation with others about hemlocks. Click on the link above.



AmazonSmile Benefits SGH

If you shop on Amazon, please use SGH's unique link <http://smile.amazon.com/ch/27-0598579>.

Or just go to www.smile.amazon.com and look up Save Georgia's Hemlocks under Charities. When you do so, Amazon will direct a small share of your purchases to SGH.

THANK YOU!!!

More ways YOU can help

Reach out — Look for properties with hemlocks, let the owner know about the hemlock problem (if they don't already), and offer our help. Talk with schools, POAs, and nonprofits to ask if they'd like to have a hemlock presentation. Identify individuals who would be good Facilitators and invite them to take our Facilitator training. Help us recruit volunteers for service projects and educational events by bringing some of your friends and neighbors along.

Read — Take some time for yourself to enjoy a few inspirational and beautifully illustrated books by some of the best environmental authors. **Click here for a suggested reading list**, and if you have others to recommend, please share.

Live consciously — As you go through your daily life, give new thought to how you're doing it. For example, use native plants in your landscape. Shop for fresh in-season produce. Combine your car errands. Mind the thermostat and water usage. Do or say something kind every day. And most important, take good care of you!

Big hemlocks & where to find them

If you plan to travel on the east coast this fall, here are some places you might want to visit.

* **Cook Forest State Park**, Cooksburg, PA. The Forest Cathedral Natural Area has the largest concentration of virgin and old-growth eastern hemlocks in the East.

* **Swallow Falls State Park**, Oakland, MD. The 40-acre grove of hemlocks is Maryland's largest, with some trees more than 360 years old.

* **Prettyboy Reservoir**, Manchester, MD. The Hemlock Gorge Trail loops through ravines and hemlocks.

* **James River State Park**, Gladstone, VA. Hemlocks will be on either side as you approach the Tye River Overlook. Once there, go down the stairs to the equestrian access point for a short hike through a hemlock grove.

* **Biltmore Estate**, Asheville, NC: America's first managed forest, now 125 years old, has miles of trails and thousands of huge healthy trees.

* **South Mountains State Park**, Connelly Springs, NC: Join the [Hemlock Restoration Initiative](#) on Sunday, Sept. 12 for a nature hike and educational discussion of the hemlock problem and current efforts to control the pest.

* **Cradle of Forestry, Asheville, NC**. You can see both eastern and Carolina hemlocks here.



Eastern hemlock with flat comb-like needle arrangement

Carolina hemlock with bottle-brush needle arrangement

Facilitators staying active

Almost everything SGH is able to accomplish is through the hands-on efforts of our Volunteer Facilitators. We so much appreciate all the time, energy, and good work you have contributed this year. And while our 2021 schedule is beginning to wind down, we hope **every one of you** will sign up to help on at least one educational or service event next year. In fact, during this fall we'll be sending a survey to ensure we have accurate contact information for you as well as an update on your interests and availability, as we know they do change over time.

By the way, if your Facilitator training was more than 3 years ago, you're probably a bit rusty and should consider re-taking our Volunteer Facilitator Training Workshop to refresh and update your knowledge and skills. There are still a few classes left this year, and next year's schedule will most likely begin in mid-February.

A few reminders

* If you need **chemical** to use for a charitable hemlock treatment project, call the Hemlock Help Line. We can provide Safari 20 SG or Imidacloprid tablets, 75 WSP packets, or 2F liquid.

* If a client would like to **borrow a soil injector**, they can check the list on our [Contacts](#) page.

* If a client has a Kioritz, EZ-Ject, or Nu-Arbor soil injector **needing repair**, they can contact the Hemlock Help Line.

* If you know someone who has lots of small **hemlock saplings they'd be willing to donate** to SGH, please call the Hemlock Help Line.

A VERY SPECIAL THANK YOU!

 Since 2013, the work of CT&D to repair or recreate critical soil injector components has been invaluable to the many companies, public land managers, property owner associations, and individuals who rely on them to preserve the environmental health of our forests and the beauty and economic vitality of our communities. Because of their dedication and sense of stewardship, tens of thousands of trees are alive that otherwise would have died.



Mr. Natural™ Soil Products in Dahlonega is a great partner to SGH, supporting us on sapling rescue and potting projects and large planting projects with the high quality soil amendments that hemlocks just love. Much appreciated!



Sunrise Christmas 2020

“Everybody needs beauty as well as bread, places to play in and pray in, where nature may heal and give strength to body and soul..” - John Muir

Echoed in photographs by David Wasileski
Thank you, David!



Chincoteague



Waterfall in Rich Mountain Wilderness

Carvin's Cove Natural Reserve

