



Newsletter  
Year-End 2018

# Hemlock Happenings

A Publication of  
Save Georgia's Hemlocks

*Hemlock Happenings* is an e-newsletter for members, volunteers, and friends of Save Georgia's Hemlocks to share hemlock news, service and educational opportunities, technical updates, and announcements. If you'd like to submit an article or announcement, please send it to the e-mail address below. Your feedback is always appreciated.

### Notes from the forest

**"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

Gratitude is much on our minds during the holiday season as we reflect on our blessings – families, friends, homes, health, work, – and our hearts go out to people who have suffered losses. It's also a time to think about broader kinds of blessings, not just those that we have but also those that surround us – the beautiful part of the country we live in, the bountiful natural resources in our area, our freedom to enjoy them, and yes, our responsibility and privilege to protect these treasures.

This sense of stewardship for the world around us rises from a different spring in each individual. For some, it's a spiritual matter rooted in the belief that we have a care-taking role for our planet and all its creatures. It may come from a more intellectual recognition of the interdependencies and finite capacities of the natural systems that sustain us. Some have a firm grasp on the economic and/or political consequences of managing our resources wisely (or not). And still others are drawn by the awesome beauty of special places and their terrible fragility.

Wherever your sense of stewardship is rooted, we hope you'll take some time to reflect on your activities over the past year, take inventory of your talents and interests, and consider how you might use them in the coming year for service to your community, personal growth in the company of friends, and the reward of knowing that you're making a meaningful difference in the world.

PEACE.

## TEN YEARS OF SAVING HEMLOCKS

Save Georgia's Hemlocks began our efforts in July 2009 with a small group of concerned citizens united by a large goal — to save endangered hemlocks through education and charitable service in all of north Georgia wherever the woolly adelgid is a serious threat. As an organization, we committed ourselves to a proactive approach to caring for the environment, a culture of inquiry and independent thinking, appreciation of diversity, respect and transparency in all our interactions, creativity and results-oriented hands-on engagement, conservative financial practices, and high ethical standards.

By the end of our first year we had received 501(c)(3) status and been joined by more than 700 hemlock friends and partner organizations who went to work spreading the word, taking care of their own trees, helping their neighbors do the same in 7 counties, and providing invaluable support in the forms of money, time, energy, expertise, and encouragement.



Now 10 years later, through the dedication of many volunteers and partners, we have made remarkable progress with our Hemlock Help Program established in all 19 Georgia counties within the native hemlock range, more than 300 trained Facilitators providing hand-on assistance in Georgia and other southeastern states, and our Hemlock Help Line and web site serving the entire U. S.

We are deeply grateful to all who have made this journey possible, but there is still much to do to preserve and protect as many of these valuable trees as possible for the benefit of everything that depends on them and everyone who loves them. So if hemlocks are near and dear to your heart, please be active in whatever way you can as we face the challenges of the next ten years. *See page 3 for more.*

## Hemlock Camp Meeting

On Sunday, June 24, 2018 Save Georgia's Hemlocks held its annual Hemlock Camp Meeting — a gathering of kindred spirits to celebrate and preserve the magnificent hemlock — at beautiful Lake Winfield Scott in Suches. As always, its purposes were raising public awareness of the hemlock crisis and call to action; recognizing and thanking our members, volunteers, partners, and supporters; and learning about progress in the battle, to save the trees, the latest scientific research, and more ways to help.



This year families, volunteers, scientists, educators, recreationists, environmentalists, and public land managers came together to hear a timely and interesting message from research scholar Dr. Ben Smith, visit with old and new friends, and relax to the music of guitarist Ed Dowling, and enjoy delicious Smokin' Gold barbecue as well as everyone's covered dishes to share. *See page 2 for more.*

## CALENDAR CORNER

We have completed our scheduled activities for FY 2018 (see Progress Report on page 3), but here's a bird's eye view of some of our plans for FY 2019.

### Training

In the early part of the year we'll offer combined Hemlock Help Clinics and Facilitator Training Workshops for Murray and Whitfield, Pickens, Gordon, Rabun (including Tate City), Towns, Banks and Stephens. These are counties that didn't have training in 2018 because of lack of sign-ups.

Once those are completed, we'll offer training in White, Cherokee, Fannin, Dade and Walker, Lumpkin and Dawson, Hall, Gilmer, Union, and Habersham.

### Festivals

These events are a great way to share the hemlock message, let people know how we can help, and encourage them to get involved as volunteers. The festivals we plan to participate in this coming year include:

- Bear-on-the-Square, Dahlonega
- Trout Fest, Blue Ridge
- Blue Ridge Arts in the Park
- Hemlock Day at Anna Ruby Falls, Helen
- Trail Fest, Dahlonega
- Foxtire Mountaineer Festival, Clayton
- Marble Festival, Jasper
- Georgia Mountains Brew Fest at Gibbs Gardens, Jasper
- and maybe a few more

### Service Projects

Continuing our partnership with the U.S. Forest Service, we plan to do volunteer treatment projects in the Upper Chattahoochee River Campground, High Shoals, Bob Creek, Swallow Creek, Lordamercy Cove, Falls Branch, Corbin, and Scataway Hemlock Conservation Areas.

In the late winter or early spring, we plan to do a major hemlock restoration project on Mill Creek, a trout stream in Murray County, in partnership with Trout Unlimited, the Nature Conservancy, and the U. S. Forest Service (see page 6). And we'll continue our support for Georgia DNR projects whenever they need our help.

All of these events and more will be posted on our [Schedule of Events](#) page. We hope MANY of you will take advantage of our training classes, help staff our information booth at festivals, and join us for some of our service projects.

*Continued from page 1*

## Hemlock Camp Meeting 2018



This year's keynote speaker, **Dr. Ben Smith**, is a research scholar with the Forest Restoration Alliance at North Carolina State University. He received a BA in biology from Albion College. After working for the National Park Service and private industry, Ben returned to school, receiving an MS in forestry from NCSU in 2007, and a PhD in forestry from NCSU in 2010.

The title of Ben's presentation was "The Quest for Adelgid-Resistant Hemlocks." A copy of his slides is posted on the [Resources](#) page of our web site. Here is an excerpt from an interview with Ben.

### Q: What got you interested in hemlock research?

The plight of hemlock and the hemlock woolly adelgid wasn't really even on my radar until I was nearing completion of grad school at NC State in 2010. I found out that the Forest Restoration Alliance (back then named Alliance for Saving Threatened Forests) was looking for a person to help start a selection and breeding program for host resistance to HWA, and it was a perfect fit for me. I was really excited about getting to be involved with a tree improvement program from the very beginning, and getting to work with species like eastern and Carolina hemlock made it even better.

### Q: What you're hoping to accomplish through your research?

We have several major goals for our research. One is to produce trees resistant to adelgids that are suitable for restoration of impacted hemlock ecosystems—so trees are a very close replacement for what was lost, and whose offspring are also resistant to adelgids. The other major goal is to produce adelgid-resistant trees that will be available to the nursery industry as a suitable replacement for hemlocks in ornamental uses. These trees may not produce offspring that are resistant, and

may differ slightly in appearance from the eastern and Carolina hemlocks they replace, but be able to fill the same unique niche that hemlocks formerly occupied. We are still probably a fairly long way off from the restoration goal, but are much closer to being able to impact the nursery and landscape industries

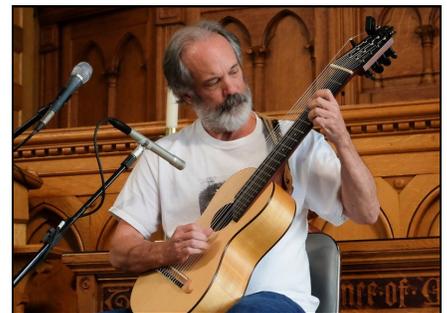
### Q: What is the greatest challenge in your hemlock work?

Probably the greatest challenge for our work, and many tree breeding programs in general, is the relatively long generation times for hemlock. It takes a significant amount of time to propagate a tree for resistance screening, conduct the screening, propagate the trees selected from the screening to reproductive age (producing cones and/or pollen), then propagating the offspring for screening as well. The entire process can easily take over a decade.

### Q: How can individuals and organizations support your work?

One way people can help us is by reporting trees that could be potentially resistant or tolerant. Reporting is most easily done through the TreeSnap app, which can be found at [treesnap.org](#). Both individuals and organizations can also participate as volunteers.

We have periodic volunteer days that are scheduled and coordinated by the Hemlock Restoration Initiative ([savehemlocksn.org](#)). Individuals interested in more regular volunteer involvement may also contact us directly. And of course, we always welcome financial support through donations. More information is available at [threatenedforests.com](#).



We were delighted to have **guitarist Ed Dowling** providing the music this year. Ed is a retired school teacher living in Ellijay. Talented on guitar, harp guitar, dobro, Weissenborn, lap steel, charango, and autoharp, he has performed solo as well as with many groups, mainly around Athens and the north Georgia mountains.

## SUMMARY OF 2018 ACTIVITIES

Our **Hemlock Help Program** serves all 19 HWA-infested north Georgia counties in the native hemlock range plus the Atlanta area. We also offer presentations and training to other southeastern states as well as Hemlock Help Line and soil injector repair service for the entire U.S.

### Education:

- 940 calls on the Hemlock Help Line
- 14 Hemlock Help Clinics with 133 attendees
- 12 Facilitator Training Workshops with 71 new Facilitators trained
- 3 customized training classes for 34 volunteers and public land managers
- 14 presentations to civic / community groups with 700 attendees
- 10 Hemlock Lessons for 481 students
- 14 festivals with 73 volunteers and 2,212 visitors / contacts
- 37 articles / news items written by, with the assistance of, or about SGH published in newspapers / newsletters



### Service:

- Total of 388 active SGH Facilitators
  - 90 Facilitator visits made with charitable treatment of 1,054 trees
  - 18 hemlock treatment projects with 249 volunteers treating/retreating 2,645 trees
  - 10 hemlock rescue projects with 31 volunteers rescuing 311 saplings
  - 296 hemlock saplings adopted
  - 107 saplings donated to schools / nonprofits
  - 4 planting projects with 29 trees planted
  - 13 soil injectors repaired / refurbished
  - Total of 6,127 volunteer hours logged
- See the [About Us](#) page for a full report.



## Highlights

(Below) **Bob Pledger**, hemlock treatment manager for the eastern counties, led almost all of our treatment projects this year. Here he is giving instructions at **Camp Rainey Mountain** in March, where 25 Boy Scouts, 17 scouting adults and 5 SGH volunteers treated 223 trees. We are so grateful for Bob's leadership. And no one could ever accuse him of lack of enthusiasm!



(Below left) **Billy Johnson**, Lead Facilitator in White County, initiated a project to treat the hemlocks at **Yonah Preserve** this spring, where a network of biking and hiking trails is being developed for the public's enjoyment. Wearing his signature orange safety vest, Billy led a group of Pickleball Club members and other volunteers to treat 116 trees, with more work planned for next year.



...**Sapling rescues** are another important part of our Hemlock Help Program. Below, **UNG students Lexi Dolby and Justin Soto** earned service credit hours in April by rescuing 30 saplings from a Dahlonega property where the owner was kind enough to let us dig. Then they potted and treated the little trees, which were later offered for adoption.



(Above) **Brady, Roy, and Raven** were among sixty **Fannin Elementary** students who planted hemlock saplings on campus in February. The project was led by SGH saplings coordinator **Chris Curtin**, volunteers Jim and Peggy Reich, Donna Shearer, and teachers Mary Jean Pace and Sally Crawford.



Working with Eagle Scout candidates is one of the most rewarding activities we do. (Above right) **Everett Reynolds** led a project with volunteers from his troop to rescue, pot, and treat 70 lovely little hemlocks for future use in educational or service events. SGH saplings coordinator **Buz Stone** made all the arrangements with the very generous Rabun County property owners and served as Everett's project coach.

(Below right) In preparation for his Eagle Scout project next summer, **Carson Payne**, along with his adult scouting sponsor Michael Walsh and a couple of friends, participated in a hemlock treatment project at West Wildcat Creek Rd. in Rabun County.



**SCOUTS INTERESTED IN WORKING WITH SGH SHOULD CONTACT SGH SCOUTING LIAISON ELLIOTT SEGALL VIA THE HEMLOCK HELP LINE 706-429-8010.**

## FOCUS ON FACILITATORS — Rosellinia Needle Blight

We've had MANY calls this year about patches of brown foliage on hemlocks, which usually turns out to be a fungus called Rosellinia Needle Blight. It's important that you know how to recognize it and explain the options for prevention and control.

### Q: What is it?

It's an airborne fungus that has been present in north Georgia since at least 2005 but has gotten steadily worse each year since then. It attacks hemlocks and several other conifers

### Q: Where is it found?

It thrives in warm moist conditions where there is little air circulation and therefore is most likely to be found on part or all of small trees or on the lower limbs of larger trees where the foliage is nearest to the moist ground. It is also particularly common on trees growing along waterways. It has been observed on trees growing in both sunny and shady settings.



### Q: How can it be identified?

It turns swaths of needles or whole branches a uniform light chocolate brown with the needles skewed off at odd angles instead of their normal tidy comb-like arrangement. When examined closely, it is possible to see tiny black dots and grayish soot on the needles as well as very fine hair-like structures among the needles; these signs are usually on the part of the branch just interior to the outermost 2–4 inches of the branch tip.

## The holidays are coming! Here's a great gift idea.



Celebrate the magnificent hemlock with this limited edition hemlock cone pendant.

This beautiful, solid sterling silver pendant is cast from a real eastern hemlock cone. 100% of your purchase will support our efforts to save endangered hemlocks from the invasive hemlock woolly adelgid.

**\$45<sup>00</sup> - Quantities are limited. Order now.**

Call 706-429-8010

or email [Donna@SaveGeorgiasHemlocks.org](mailto:Donna@SaveGeorgiasHemlocks.org).

*Evergreens are a symbol of everlasting love. Show yours this year with a gift that will be treasured for years to come.*

### Q: When does it appear and how long does it last?

It usually appears on hemlocks in late May, although the long cool spring of 2018 delayed its outbreak until late June. Once it has broken out, the infection continues to spread until mid-all when the cool weather stops its progress. The brown needles don't fall off the tree immediately but persist for months, sometimes until the following spring. At that time if the affected branches and needle buds are still alive, the trees may put out new foliage but does not always do so.

### Q: How damaging is it to hemlocks?

It can kill small trees up to 15 or 20 feet tall because they don't have so many needles they can afford to lose. It usually doesn't kill large trees but can defoliate the affected limbs; and if the tree is also infested with adelgids, multiple problems can hasten the tree's demise.

### Q: Will it come back next year?

Probably. Once a tree has contracted Rosellinia, the problem is likely to reappear the following year and can become worse with each passing year, although the severity in any given year depends on the weather conditions. *See page 5 for more.*

## Normal Needle Shed

Another subject of a lot of calls this fall is bright yellow or orange hand-size patches randomly distributed throughout the tree, as shown in the photo below. But not to worry. It's just **normal needle shed**.



While hemlocks are evergreen and the individual needles persist on the tree for a number of years, the tree still needs a way to refresh its foliage over time, so rather than shedding all of its needles at once, each fall it selects patches of old needles to be replaced with new ones the following spring.

## Want to help your hemlocks stay healthy this winter?

**Feed them** with an application of granulated Ironite and a slow-release acid-based fertilizer labeled for azaleas, rhododendrons, etc. Espoma HollyTone is a good one.

Then **mulch them** with a 2-3 inch layer of shredded hardwood mulch from the trunk out to the drip line, but pull it back so it's not touching the trunk.

If deer are a problem, a **deer deterrent** should be applied monthly from November through March--the prime months for deer damage. Additionally, the deterrent should be biodegradable, rain resistant and have a smell that is not offensive to humans.

## FACILITATORS — CALL TO ACTION

At our next Leadership Team meeting on January 13, we'll be finalizing our 2019 schedule for classes, festivals, treatment projects, and other educational / service events. Because we are a 100% volunteer organization, we want — and need — EVERY Facilitator to participate in at least one activity during the year. So as you look over our plans for 2019 (see page 2), please be thinking of what you *can* do and what you would really *enjoy* to be an active part of the efforts to save the hemlocks. We'll be reaching out soon to ask you to choose and sign up. **YOUR HELP IS KEY TO SAVING OUR HEMLOCKS!!!**

Continued from page 4

## Rosellinia Needle Blight

### Q: Can Rosellinia be prevented?

It's worth a try. Here are some recommended cultural practices:

- If new trees are being planted, it is best to space them 15 to 20 feet apart to maximize air circulation and availability of sunlight, minimize competition for water and nutrients, and allow room for root and canopy growth.
- If many small trees are growing close together, thin them by cutting or transplanting so the remaining ones are not touching.
- If a tree has limbs that touch the ground, prune the lower limbs up a few feet.
- Mulching can also help. Apply 2 - 3 inches of shredded hardwood mulch from the trunk out to the drip line, and then pull the mulch back so it's not actually touching the trunk.

### Q. Is there a chemical treatment for trees that already have Rosellinia?

Unfortunately, chemical spraying is not an option for property owners. Here is information provided by Jean Williams-Woodward, University of Georgia Extension Plant Pathologist.

- There is no fungicide specifically labeled for treating Rosellinia.
- Rosellinia is not in the same group of fungi as other more common needle blights (Phomopsis, Cercospora, Passalora, etc.), so fungicides labeled for those diseases may have no efficacy on this pathogen.
- Fungicides can be expensive and are not marketed/packaged for property owner use.
- Because fungus can develop resistance when the same treatment product is used repeatedly, it is necessary to rotate through products with different modes of action. All current fungicide labels have numerical codes (FRAC groups) at the top of the label designating the fungicide mode of action group, which makes it easier to rotate among products by simply choosing a product with a different FRAC number.
- Fungicides are toxic, and their use requires special application equipment, serious personal protective equipment, and extreme caution to prevent drift or contamination of waterways.

### Q: How should infected trees be handled?

There are several options, depending on the tree's condition.

- If only small patches or a few branches are infected, they can be pruned out and disposed of.
- If only the lower limbs are infected, they can be pruned off and disposed of.

- If an infected tree you want to save is mulched (which is a good idea), remove the old mulch each winter and replace it with a new layer (2 - 3 inches deep) of shredded hardwood mulch from the trunk out to the drip line. Be sure to pull the mulch back so it's not actually touching the tree trunk.
- If half to most of the tree is infected, it may be best to cut it down and dispose of it.

### How to prune a hemlock hedge

Hemlocks planted for an evergreen hedge can add beauty to the landscape all year long. Growing formal or informal hemlock hedges only requires that you trim the hedge at the right time of year and use the proper trimming techniques.



**Timing:** The best time to prune hemlocks is in late winter, just before spring growth begins. If the hemlock is growing vigorously, it can be pruned again in late spring or very early summer to keep it from getting too large. Except in the case of emergency pruning, which can be done any time of the year to remove damaged, broken or diseased wood, do not prune a hemlock in the summer or fall.

A **formal hemlock hedge** can be sheared with hedge shears to tidy the overall surface. However, more selective thinning should be done early in the season to "open up" the shrub and let sunlight reach the inner branches. A hedge should be shaped like a wedge, so that the base is wider than the top. This lets sunlight reach the lower branches, which prevents the bottom branches from dying off and giving the entire hedge a scraggly appearance.

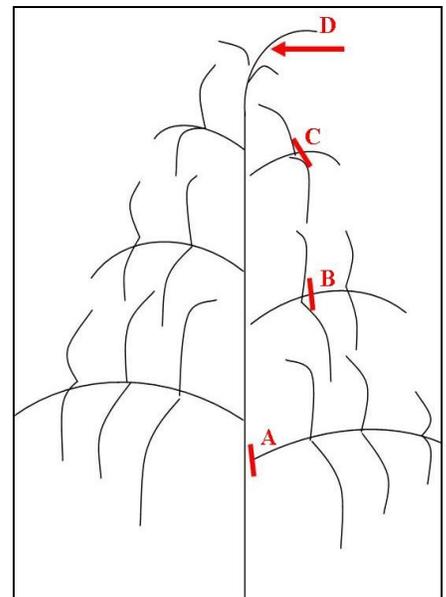
An **informal hemlock hedge** needs very little pruning since the natural form of the hemlock is part of the hedge's beauty. Prune this kind of hedge to improve the health of the shrubs by removing any damaged growth or branches that rub against each other. Thin the hedge by removing a few of the oldest branches in the center of the hedge each year.

**Tools:** Keep the use of hedge shears to a minimum. Although hemlocks tolerate shearing better than most narrow-leaf evergreens, they will suffer from frequent

shearing. Use loppers or a pruning saw for thinning and shaping a hemlock hedge. Make sure all cutting tools have sharp blades so they can make clean cuts without ragged edges. If you are cutting out diseased wood, sterilize the blades with alcohol or bleach after use so that disease is not transmitted to a different tree. Source: [http://www.ehow.com/about\\_5242464\\_trim-hemlock-hedge.html#ixzz0wSKUnwK4](http://www.ehow.com/about_5242464_trim-hemlock-hedge.html#ixzz0wSKUnwK4).

### How to prune individual hemlocks

The information provided in the previous article regarding timing and tools for pruning a hemlock hedge applies to individual hemlocks as well. Here are some special instructions when pruning an individual tree.



**A. To remove a whole branch,** cut straight vertically and leave a 1/4 to 1/2 inch stub next to the trunk so you don't cut into the branch collar. It's not necessary to use pruning tar.

**B. To remove dead / damaged tissue,** cut near the next joint interior to the damaged part. This should be done as soon after the injury as possible.

**C. To stimulate new growth** and make the plant bushier, cut just outside a joint near the end of the branch.

Note: When small containerized or bare root trees are planted in the ground, they usually get fuller and fluffier on their own. However, if you want to do periodic pruning for shapely growth, it's best to start in early winter of the first year after the tree is planted.

**D. Don't prune off the topmost leader** unless it's damaged. This apical meristem is responsible for the tree growing taller.

## READER'S DIGEST

### Meet The Invasive Insect That Is Changing An Entire Forest Bird Community

In an unusual role reversal, one tiny invasive insect is controlling the species composition and architecture of a large community of forest birds along the east coast of the United States.



According to a recent study, the decline of eastern hemlock due to woolly adelgid infestation is driving the disappearance of a variety of birds that are specialized to hemlock-dominated forests. It also found that birds that live in habitats *not* dominated by eastern hemlock are expanding into these dying hemlock forests, and this is diminishing avian biodiversity. To read more, visit <https://www.forbes.com/sites/gniscientist/2018/07/19/meet-the-invasive-insect-that-is-changing-an-entire-forest-bird-community/#81aa39f3bfad>.

### Carolina Hemlock Populations: Isolated and Imperiled

U.S. Forest Service scientists and their partners are working to save the native conifers from the hemlock woolly adelgid, and this article concerns their efforts on behalf of the rare Carolina hemlock.



Carolinans grow in tiny, isolated populations in the southern Appalachian Mountains. [In Georgia their only native range is Tallulah Gorge State Park in Rabun County.]

They are more closely related to Asian hemlocks than the eastern hemlock and are most often found in drier, rockier places than eastern hemlocks. The two species do not typically grow on the same sites and do not hybridize.

Part of the conservation strategy for Carolina hemlock is collecting seeds from the trees for gene banks, conservation planting, and future restoration efforts. The research team conducted the most extensive seed sampling of Carolina hemlock populations to date. Their findings were published in *Tree Genetics & Genomes*. To read more, visit <https://www.srs.fs.usda.gov/compass/2017/11/14/carolina-hemlock-populations-isolated-and-imperiled/>.

### Do Trees Talk to Each Other?

A controversial German forester says yes, and his ideas are shaking up the scientific world. Here's what writer Richard Grant shared on the subject.

"I'm walking in the Eifel Mountains in western Germany, through cathedral-like groves of oak and beech, and there's a strange unmoored feeling of entering a fairy tale. The trees have become vibrantly alive and charged with wonder. They're communicating with one another, for starters. They're involved in tremendous struggles and death-defying dramas. To reach enormoussness, they depend on a complicated web of relationships, alliances and kinship networks.



"Wise old mother trees feed their saplings with liquid sugar and warn the neighbors when danger approaches. Reckless youngsters take foolhardy risks with leaf-shedding, light-chasing and excessive drinking, and usually pay with their lives. Crown princes wait for the old monarchs to fall, so they can take their place in the full glory of sunlight. It's all happening in the ultra-slow motion that is tree time, so that what we see is a freeze-frame of the action.

"My guide here is a kind of tree whisperer. Peter Wohlleben, a German forester and author, has a rare understanding of the inner life of trees, and is able to describe it in accessible, evocative language. He stands very tall and straight, like the trees he most admires, and on this cold, clear morning, the blue of his eyes precisely matches the blue of the sky. Wohlleben has devoted his life to the study and care of trees. He manages this forest as a nature reserve, and lives with his wife, Miriam, in a rustic cabin near the remote village of Hümmel.

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"Now, at the age of 53, he has become an unlikely publishing sensation. His book *The Hidden Life of Trees: What They Feel, How They Communicate*, written at his wife's insistence, sold more than 800,000 copies in Germany, and has now hit the best-seller lists in 11 other countries, including the United States and Canada. Wohlleben has recently turned his attention to other living things as well, in his *Inner Life of Animals*, newly issued in translation." To read more, visit <https://www.smithsonianmag.com/science-nature/the-whispering-trees-180968084/>.

### U. S. National Climate Assessment Released

While many Americans were out hunting for after-Thanksgiving "Black Friday" deals, the 2018 US National Climate Assessment was released, and the news is dire. The work of 300 scientists and 13 federal agencies, it presents findings in 12 areas: Communities, Economy, Interconnected Impacts, Actions to Reduce Risk, Water, Health, Indigenous Peoples, Ecosystems & services, Agriculture, Infrastructure, Oceans & Coasts, Tourism & Recreation.



*Editor's Note: Whatever your personal view on climate change, its causes, and remedies, we hope our friends will review the Summary Findings or read the full report at <https://nca2018.globalchange.gov/> and give careful consideration to ways each of us can help maintain a healthy planet.*

## Other Interesting Web Sites

- Read the Forest Restoration Alliance's news on rebuilding hemlock stands.  
<https://mailchi.mp/da995f641f17/rebuilding-giants?e=abcd26cb71>
- Calculate your environmental footprint.  
[www.FootprintCalculator.org](http://www.FootprintCalculator.org)
- Calculate your water usage footprint.  
[www.GRACELinks.org/1408](http://www.GRACELinks.org/1408)
- Visit this site; then go out and enjoy!  
[www.discovertheforest.org](http://www.discovertheforest.org)

## TLC for Soil Injectors

If you have a soil injector, we encourage you to do 3 things this winter:

- Test the calibration to ensure it's dispensing the correct amount of fluid per pump. Instructions for the Kioritz injector are at the right on this page. For the Nu Arbor 1-Two Root Injector, see [https://www.savegeorgiashemlocks.org/Downloads/Resources\\_page/Treatment\\_Instructions/SGH\\_Testing-Adjusting\\_Nu-Arbor\\_Calibration\\_1-8-17.pdf](https://www.savegeorgiashemlocks.org/Downloads/Resources_page/Treatment_Instructions/SGH_Testing-Adjusting_Nu-Arbor_Calibration_1-8-17.pdf).
- If you have a Kioritz injector that's not working perfectly, you can bring or send it to SGH for repair.
- If you have a Kioritz injector that seems to be working well but hasn't had a thorough cleaning or recalibration in a while, we can do that for you.

The only charge is our out-of-pocket cost for parts that need to be replaced, and we always provide a quote before proceeding.

## Advice for Choosing an EZ-Ject Lite Injector

There are a couple of models and configurations you can choose from. The one we recommend is the EZ-Ject Lite (not the standard 14-pound version) with a fixed output of 1/4 ounce per pump.

You can also choose whether or not to have a factory-installed piston lock feature. To explain, when you pump the handle on a model without this feature, the whole tank and piston assembly goes up and down as it dispenses liquid, which means you can't use the handle to push the probe into the ground; instead you use the foot pedal. However, if you have the locking feature, you can engage it and use either the handle or the pedal to push the probe into the soil, then you just flip the lever to unlock it and pump to dispense liquid. For use on mountainous terrain, we recommend the locking feature.

For more information, call the Hemlock Help Line 706-429-8010.

## Maintaining a Kioritz Injector

1. Visually inspect injector for any damaged or missing parts.

2. The lower edge of the tall gridded calibration ring should be set so that it bisects the red 5 on the calibration plate underneath. Then screw the thin gridded locking ring up to tighten the calibration ring in place.

3. Be sure the white plastic collar above the tank is tight.

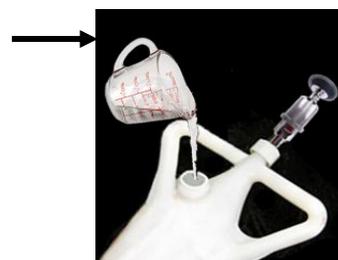
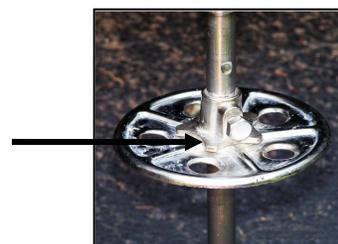
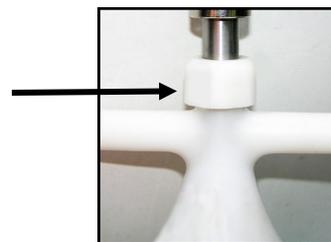
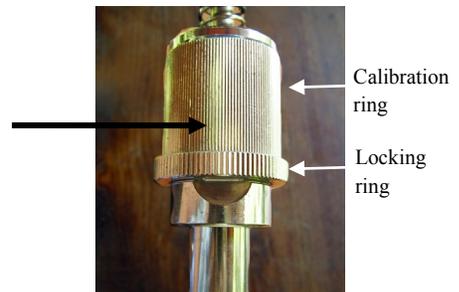
4. The round metal depth gauge should be in the lowest position on the probe.

5. Put a couple cups of plain water into the injector tank.

6. Pump the handle forcefully several times to be sure water squirts out in all 4 directions. It should shoot about 6 feet. If the emitter holes in the nozzle tip are clogged, clean them carefully with a gimlet, ice pick, or metal paperclip. Don't use a toothpick or anything that could break off in the nozzle tip.

7. To test the calibration, place the injector tip into a heavy duty measuring cup and pump the handle forcefully 12 times. It's a good idea to place the tip in a metal bottle cap in the bottom of the measuring cup to prevent puncturing or shattering the cup.

- If you get **exactly 2 ounces** of liquid for 12 pumps, the injector is working properly.
- If it puts out **more than 2 ounces**, move the calibration ring upward and retest.
- If it puts out **less than 2 ounces**, move the calibration ring downward as far as it will go and retest. If you still don't get 2 ounces for 12 pumps, see the "Alternate Mixing Instructions for Kioritz Soil Injector" at [https://www.savegeorgiashemlocks.org/Downloads/Resources\\_page/Treatment\\_Instructions/SGH\\_Testing-Adjusting\\_Kioritz\\_Calibration\\_1-8-17.pdf](https://www.savegeorgiashemlocks.org/Downloads/Resources_page/Treatment_Instructions/SGH_Testing-Adjusting_Kioritz_Calibration_1-8-17.pdf)



## Help Wanted

As SGH continues to grow and serve more people, we need more volunteers in some key positions.

...**Treasurer** to enter monthly income / expenses into Quickbooks and prepare quarterly reports.

**Hemlock Treatment Leader** to plan and lead projects in 7 Hemlock Conservation Areas on the USFS Blue Ridge Ranger District.

**Facilitator Training Instructor** to conduct classes in 6 to 8 of our program counties in north Georgia. Your choice.

**Lead Facilitators** to serve as local contacts in Banks, Gordon, Habersham, Hall, Stephens, Towns, and Walker Counties.

If you'd like to learn more about any of these opportunities to serve, please call the Hemlock Help Line 706-429-8010.