

Spring 2012 Updates from the Beetle Labs in Georgia Concerning Biocontrol of Hemlock Woolly Adelgid (HWA)

University of Georgia – Mark Dalusky

2011 was a pretty good year for the biocontrol project. We now have predator release sites that have been on the ground for over four years with confirmed establishment of at least one predator (predominantly *Laricobius nigrinus*). And thanks to the hard work by Cera Jones from NGCSU, Georgia has the best record of recovering the original Chinese lady beetle (*Sasjiscymnus*).

Hemlock mortality in the woods from Blue Ridge eastward is high except for soil injected and beetle release sites! This is indeed encouraging. While the hemlocks at most of our predator release sites may not look that great, the tree mortality is not significant. On some of our predator sites, the trees do actually look good.

As was the case in 2010, we had excellent growing conditions for hemlocks in 2011, so severely affected trees caught a bit of a break, and less severely affected trees saw large amounts of new growth. This will certainly help our biocontrol efforts.

In summer foliage sampling where we look for new growth and HWA density, we again saw evidence that adelgids experience a dramatic surge in population with the advent of the second (progrediens) generation. This can reasonably be attributed to lack of significant predation on this generation of the pest. UGA has seen this trend for the past four years now. We still believe that our new (in 2007) *Scymnus coniferarum* lady beetle from the Pacific Northwest may be one answer to this dilemma. In the PNW where HWA is indigenous and the host-pest-predator cycle has co-evolved, this beetle does seem to play the role of primary predator for the progrediens generation of HWA. This is no guarantee that it will function similarly in the East, but so far none of the exotic lady beetles have shown significant impact on HWA despite massive releases since 2004 in Georgia.

We are working this insect through the agonizingly slow permitting process with great effort on the part of Dr. Mike Montgomery (USFS Research), Bob Tichenor (APHIS), Dr. Tom McAvoy (VPI), and Dr. Richard McDonald (biocontrol and forest pest specialist from the Boone/Banner Elk area of NC). We needed to try this predator two years ago, but we are finally on the verge of success! Please encourage your Congressman to support quick publication of our Environmental Assessment supporting *Scymnus coniferarum* in the Federal Register. This is our final step, and it can be a long wait to get our information published. Support from on high is what we need!!

The 2012 release season is on us two to three weeks early due to our non-winter. There are already large numbers of adelgid crawlers in the woods below about 2700', so be sure and dust off when you have hiked in dense hemlock areas. Thanks to all who have supported our efforts in the past with hopes for future consideration. The biocontrol project would benefit greatly from some independent operational funding. Independent funds open up additional opportunities for states such as Georgia in this effort.

Young Harris College – Paul Arnold

We had to restart our beetles this spring because the colony that we had for the last several years (since we started) developed microsporidian infection. We got new start-up beetles from Cera Jones' lab at NGCSU and are currently building up populations. Needless to say, we will be a bit behind this year in beetle production.

We have purchased, thanks largely to the Lumpkin Coalition's fundraising efforts, a new instrument that may give us insight into hemlock health and the possible impact of beetles and/or chemical treatments on those trees. Our hope is that it will help us objectify tree health (currently most of our assessments are purely subjective). This

instrument combines tomography abilities (it actually takes an ultrasound of the tree trunk), and shigometer abilities (it can measure the conductivity of the tree sapwood). It was hard to get. The only company that manufactures this device (called a PiCus TreeTronic) is in Germany, and the only supplier in North America is in Canada. But it is here as of last week. I will be taking the device for a "test drive" this week.

Two research projects (as yet unpublished) have come out of our lab this past year. One student, Levi Gentle, researched the effects of Adelgid density on adult Sasi beetle production in the field. The second project, researched by Jordan Schroter, looked at possible non-target vegetation impacts of imidicloprid on vegetation surrounding treated hemlocks. We will share these projects more fully when the research is published.

<http://www.yhc.edu/pages/yhc.php?id=165>

North Georgia College & State University – Cera Jones

In addition to the *Sasajiscymnus tsugae* (*St*) beetles we've been rearing since our lab began in 2007 are now also working with *Laricobius nigrinus* (*Ln*) beetles, which have been reared by UGA and Clemson for at least four years). We will be rearing some for release, but the main purpose is to conduct research that would allow us to better understand their dormancy during the summer and when they emerge in the fall.

I'm still sampling for recovery of beetles at previous release sites and last year found beetles at 10 of 14 sites sampled. All the sites except two were only one year post release. At two sites I recovered *Sasajiscymnus tsugae* (*St*) beetles from sites that hadn't had them released there in two years. It's still a little too early to say they are definitely established, but it looks good. This year I have 9 sites for *St* and 11 sites for *Ln* that are two years post release that I will be sampling.

http://www.northgeorgia.edu/EnvironmentalLeadership/Default_1col.aspx?id=3381 -- the lab
http://www.northgeorgia.edu/EnvironmentalLeadership/Default_1col.aspx?id=3399 -- predator beetles
http://www.northgeorgia.edu/EnvironmentalLeadership/Default_1col.aspx?id=3404 -- beetle releases

Please help support our beetle labs with your financial contributions.

Research Lab	Mailing Address
Young Harris College	YHC Predator Beetle Lab c/o Dr. Paul Arnold 1 College Street, P.O. Box 68 Young Harris, GA 30582
University of Georgia	UGA Dept. of Entomology c/o Mark Dalusky, Predator Rearing Lab 120 Cedar Street R413 BioScience Bldg. Athens, GA 30602.
North Georgia College & State University	NGCSU Predator Beetle Lab c/o Dr. Robert Fuller Environmental Leadership Center 106 Rogers Hall Dahlonega, GA 30597

Please help get the new beetle approved.

If you would like to help facilitate approval of the new *Scymnus coniferarum* beetle for biocontrol of hemlock woolly adelgids, please write to your Congressman to encourage speedy publication of the Environmental Assessment supporting *Scymnus coniferarum* in the Federal Register. Contact information and some suggested text are provided below.

U. S. Senators for Georgia	U. S. Representatives for North Georgia
Saxby Chambliss (R-GA) 416 Russell Senate Office Building Washington, DC 20510 (202) 224-3521 Web Form: www.chambliss.senate.gov/public/index.cfm?p=Email	Rep. Henry (Hank) Johnson, Jr. [D-GA4] 1427 Longworth HOB Washington, D.C. 20515 Phone: (202) 225-1605 http://hankjohnson.house.gov/contact/
Johnny Isakson (R-GA) 131 Russell Senate Office Building Washing, DC 20510 (202) 224-3643 Web Form: www.isakson.senate.gov/contact.cfm	Rep. John Lewis [D-GA5] 343 Cannon House Office Building Washington, DC 20515 Phone: (202) 225-3801 https://johnlewis.house.gov/contact-me
<p>Suggested text:</p> <p>Dear _____,</p> <p>I'm writing to ask you to take action on an issue that has serious adverse implications for the environmental health, economic vitality, and quality of life in Georgia. The counties of north Georgia are experiencing a rapidly spreading infestation of invasive insects called Hemlock Woolly Adelgids which are killing our native hemlock trees. The loss of this keystone species and the habitat it provides will have a devastating effect on our state, its natural resources, and its citizens.</p> <p>As many states north of us have found, the dangers include increased soil erosion, degradation of water and air quality, greater exposure to drought and risk of forest fires, loss or reduction of certain plants and animals that depend on hemlock habitat, compromised condition of streams that support trout fishing, closure of trails and recreation areas due to fallen or falling trees, decline in the scenic enjoyment of our mountains as well as the value of private property, and a decline in revenue from outdoor enthusiasts and tourism and the associated jobs.</p> <p>To help protect our valuable resources and way of life, I urge you to take action for the speedy publication in the Federal Register of the Environmental Assessment supporting <i>Scymnus coniferarum</i>, a predatory beetle for the biocontrol of adelgids. This beetle, which is native to the pacific northwest and possibly already in the east, is known to prey only on adelgids and plays an important role in controlling adelgid populations, thereby allowing the hemlocks to survive. In the eastern U. S. there is not a comparable natural predator, and the time for effective action is now.</p> <p>Please give priority to facilitating the publication of this important research that will help protect a vital and irreplaceable resource and benefit Georgia and its citizens for years to come.</p> <p>Sincerely, _____</p>	Rep. Tom Price [R-GA6] 403 Cannon House Office Building Washington, DC 20515 Phone: 202-225-4501 http://tomprice.house.gov/contact-information
	Rep. Rob Woodall [R-GA7] 1725 Longworth HOB Washington, DC 20515 Phone: (202) 225-4272 https://woodall.house.gov/contact-me
	Rep. Tom Graves [R-GA9] 1113 Longworth House Office Bldg. Washington, DC 20515 T (202) 225-5211 http://tomgraves.house.gov/Contact/
	Rep. Paul Broun, Jr. [R-GA10] 325 Cannon House Office Building Washington, D.C. 20515 Phone: (202) 225-4101 http://broun.house.gov/Contact/
	Rep. John (Phil) Gingrey [R-GA11] 442 Cannon House Office Building Washington, DC 20515 202-225-2931 (phone) http://gingrey.house.gov/Contact/

For more information on the hemlocks, the pest that is killing them, and how you can help, please call the Hemlock Help Line 706-429-8010 or visit www.savegeorgiashemlocks.org.