
AGENDA:
Third Symposium on HEMLOCK WOOLLY ADELGID
IN THE EASTERN UNITED STATES

IV	Overview of HWA, BWA, and EHS in North America	Fred P. Hain et al.
PRESENTATIONS		
	An adelgid by any other name: The systematic challenges of the adelgids (Hemiptera Adelgidae)	Matthew S. Wallace
Impacts (including economic and ecological)		
	The economic impacts of hemlock woolly adelgid on residential landscape values in northern New Jersey	Tom Holmes, Elizabeth Murphy, and Denise Royle
	Impacts of hemlock decline at Delaware Water Gap National Recreation Area (PA & NJ)	Rich Evans
	Impacts of balsam woolly adelgid in the southern Appalachians	John Frampton, Kevin M. Potter, and Jill R. Sidebottom
	Long-term effects of hemlock forest decline on headwater stream communities	C.D. Snyder, J.A. Young, R.M. Ross, and D.R. Smith
Survey, Impact, and Detection		
	A binomial sequential sampling plan for <i>Adelges tsugae</i> on eastern hemlock	Jeffrey Fidgen, David Legg, and Scott Salom
	Sampling for detection and monitoring of hemlock woolly adelgid within hemlock stands	Scott Costa
	A randomized branch sampling method for hemlock woolly adelgid	Alexander Evans
	Using hyperspectral technologies to map hemlock decline: Pre-visual decline assessment for early infestation detection	Jennifer Pontius, Mary Martin, Lucie Plourde, and Richard Hallett
	Operational use of hyperspectral imagery for forest health mapping	Richard Hallett, Jennifer Pontius, Mary Martin, and Lucie Plourde
	The technology of hyperspectral remote sensing and its applications for vegetation	Sarah Green and Jason Cole
	Mapping hemlocks via tree-based classification of satellite imagery and environmental data	Frank H. Koch, Heather M. Cheshire, and Hugh A. Devine
	Predicting HWA impacts on forest structure using a landscape scale model of forest disturbance and succession	John Waldron, Robert Coulson, Charles Lafon, Fred Hain, Maria Tchakerian, David Cairns, and Kier Klepzig
	A GIS-based pest risk assessment for HWA in Vermont	B.E. Machin, D.R. Bergdahl, H.B. Teillon, and D. Ruddell

Research and Technology Development

Broad overview of control	Rusty Rhea
Assessments of biological control of hemlock woolly adelgid with <i>Sasajiscymnus</i> (<i>Pseudoscymnus</i>) <i>tsugae</i> in Connecticut and New Jersey	C. Cheah, M. Mayer, D. Palmer T. Scudder, and R. Chianese
Overview of HWA biological control activities with <i>Laricobius</i> spp. (Coleoptera: Derodontidae)	S.M. Salom et al.
Experimental releases of <i>Laricobius nigrinus</i> (Coleoptera: Derodontidae) for biological control of hemlock woolly adelgid	D.L. Mausel, S.M. Salom, and L.T. Kok
An overview of lady beetles collected from hemlock in China and Japan in relation to their potential as biological controls for the hemlock woolly adelgid	Guoyue Yu and Michael E. Montgomery
Classical biological control of the elongate hemlock scale, <i>Fiorinia externa</i> : 2004 activities	R.G. Van Driesche, R. Cowles, K. Abell, and S. Lyon
Elongate hemlock scale and its natural enemies in the Southern Appalachians	P.L. Lambdin, C. Lynch, J.F. Grant, R. Reardon, B. Onken, and R. Rhea
Insect-killing fungi as a component of hemlock woolly adelgid IPM	Scott D. Costa et al.
Management of elongate hemlock scale with entomopathogenic fungi	Bruce L. Parker et al.
Chemical control of hemlock woolly adelgid	R.S. Cowles et al.
Potential concerns for tree wound response from stem injection	Kevin T. Smith and Phillip A. Lewis
Resistance of hemlock to <i>Adelges tsugae</i> : Promising new developments	Michael E. Montgomery, Anthony F. Lagalante, and Kathleen S. Shields
Ex situ conservation efforts of Carolina hemlock	M. Tighe and W. Dvorak
Preserving eastern hemlock [<i>Tsuga canadensis</i> (L.) Carr.] gene pools through ex situ plantings	Belinda D. Esham et al.
Host interactions of the balsam woolly adelgid	L.P. Newton and F.P. Hain
Effect of BWA infestation on the chemical composition of wood and bark	M. Balakshin, E. Capanema, J. Frampton, B. Goldfarb, and J. Kadla
Effects of balsam woolly adelgid infestation on Fraser fir: Preliminary results of metabolite profiling and microarray analysis	Cameron Morris, Len van Zyl, John Kadla, John Frampton, Barry Goldfarb, and Ross Whetten
Survival and reproduction of hemlock woolly adelgid on the northern frontier	A. Paradis and J.S. Elkinton
Using mitochondrial DNA to determine the native range of the hemlock woolly adelgid	Nathan Havill

Management

Silvicultural options for managing hemlock forests threatened by hemlock woolly adelgid	David A. Orwig and David B. Kittredge
Guidelines to minimize the impacts of HWA	Jeffery Ward
Guidelines in the state of Maryland: An example	Bob Rabaglia
An overview of hemlock woolly adelgid IPM in Pennsylvania: 1999-2004	E.M. Blumenthal, A.C. Sior, and T.R. Marasco
Guidelines in the national forests of NC	Ruth Berner
Environmental impact of imidacloprid	Richard Heintzelman and Nate Royalty
Management strategies for the hemlock woolly adelgid and the balsam woolly adelgid in the Great Smoky Mountains National Park	Kristine Johnson, Thomas Remaley, and Glenn Taylor
Don't color us in (yet): Will regulations and research keep Vermont adelgid-free?	B. Burns, B. Teillon, S. Pfister, and T. Greaves
Where are we now and where do we need to go?	Brad Onken

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POSTERS

Effects of systemic insecticides, a growth regulator, and oil on elongate hemlock scale and associated natural enemies on eastern hemlock	Rob Ahern
Biological control of HWA in the southern Appalachians	C. Asaro, C.W. Berisford, M. Montogomery, J.R. Rhea, and J. Hanula
Investigating genetic resistance to HWA	Susan E. Bentz, A.M. Townsend, Robert J. Griesbach, and Margaret R. Pooler
Streamlining the mass rearing protocols of <i>Laricobius nigrinus</i> (Coleoptera: Derodontidae) and <i>Sasajiscymnus tsugae</i> (Coleoptera: Coccinellidae), predators of hemlock woolly adelgid	Ernest C. Bernard
Predatory insects and spiders from hemlock branches infested with hemlock woolly adelgid	LayLa Burgess, Hugh Conway, and Joseph D. Culin
The Nature Conservancy's response to HWA	F. Campbell
Monitoring hemlock using ground-based digital imaging	Neil Clark and Sang-Mook Lee
Microfeeding sites of hemlock and balsam woolly adelgids: Applications to artificial feeding system development	A. Cohen, C. Cheah, J. Strider, and F. Hain
Update on rearing on <i>Sasajiscymnus</i> and monitoring of first release site	Hugh Conway and Joe Culin

Arborjet approach and use of stem micro-infusion treatments for the management of specific insect pests and physiological diseases in forest, landscape and plantation trees	Joseph J. Doccia, Peter M. Wild, Eric J. Bristol, and Joseph Lojko
Combining ancillary data with remotely sensed imagery to locate hemlock habitat	Jarrod Doucette and William Stiteler
Two biological control agents of hemlock woolly adelgid, <i>Adelges tsugae</i>	Brian Eisenback, Scott Salom, and Loke Kok
Changes in ant community structure and composition associated with hemlock decline in New England	Aaron M. Ellison, Jonathan Chen, David Diaz, Chelsea Kammerer-Burnham, and Matthew Lau
Competitive interactions among three exotic predators of hemlock woolly adelgid, <i>Laricobius nigrinus</i> , <i>Sasajiscymnus</i> (= <i>Pseudoscymnus</i>) <i>tsugae</i> , and <i>Harmonia axyridis</i>	Robbie W. Flowers, Scott M. Salom, and Loke T. Kok
Hemlock ecosystems and spatial patterns of HWA infestation in northwestern North Carolina	James Graham, Gary Walker, Ray Williams, Zack Murrell, and Arthur Rex
Assessment of egg releases for establishment of <i>Sasajiscymnus tsugae</i> on eastern hemlock	Jerome F. Grant, Daniel Palmer, James R. Rhea, Glenn Taylor, Paris L. Lambdin, and Isaac Deal
Preliminary assessment of the cold-tolerance of <i>Laricobius nigrinus</i> , a winter-active predator of the hemlock woolly adelgid from western Canada	Leland M. Humble and Linda Mavin
The effects of HWA outbreaks on ecosystem level changes in southern New England	Sultana Jefts, David Orwig, and Richard Cobb
Low density releases of <i>Sasajiscymnus tsugae</i> for biological control of <i>Adelges tsugae</i> in forested and ornamental environments	R. Jetton and F. Hain
Isolation and characterization of microsatellite markers in Fraser fir (<i>Abies fraseri</i>)	S. Josserand, J.A. Bown, K. Potter, J. Frampton, C.D. Nelson
Hemlock woolly adelgid research at Coweeta Hydrologic Laboratory	Jennifer D. Knoepp, Katherine J. Elliott, James M. Vose, Barton D. Clinton, and Brian D. Kloepel
Guidelines for rearing <i>Laricobius nigrinus</i> (Col: Derodontidae)	Ashley Lamb
HWA risk assessment in deer wintering areas of southern Vermont	Shane Lishawa and Dale R. Bergdahl
Impact of imidacloprid on hemlock woolly adelgid (<i>Adelges tsugae</i>) and water quality at Mt. Lake, Virginia	Tom McAvoy, W.T. Mays, S.M. Salom, and L.T. Kok
F ₁ adults of the HWA predator, <i>Laricobius nigrinus</i> Fender, recovered in October and November 2004 at Hemlock Hill, an old-growth hemlock site at Lees-McRae College, Banner Elk, North Carolina, from a release made in December 2003	Richard McDonald, David Mausel, et al.

Effects of hemlock woolly adelgid infestation on songbird populations in the Delaware Water Gap National Recreation Area	Terry Master
Reproductive success of <i>Cybocephalus nipponicus</i> on EHS	D. Mathada, J. Lashomb, M. Mayer, D. Palmer, and R. Chianese
Mass release and recovery of <i>Cybocephalus</i> sp. nr. <i>nipponicus</i> on EHS	M. Mayer, T. Dorsey, R. Chianese, D. Palmer, and L. Bronhard
New tree injection system	Joe Meating
Monitoring health of hemlock crowns in Delaware Water Gap National Recreation Area: 1993-2004	Michael E. Montgomery, Bradley Onken, and Richard A. Evans
HWA initiative: Highlights of research & technology development in FY04	Brad Onken
Management of HWA and restoration of hemlock health	Richard Pais and David Demko

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