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Saving the Next Tree: The Georgia Hemlock Project, Community Action and Environmental Literacy

Elizabeth Giddens

A Problem Narrative

My first awareness of eastern hemlocks as a distinct tree species came about in the late 1980s on Alum Cave Trail in the Great Smoky Mountains. I was with two good friends. We were taking the short, steep route up to Mt. Le Conte, one of the best views in the park at 6,600 feet altitude. It's a long day hike, but we were energetic and up for the climb. It must have been late spring because the azalea bushes were blooming when we reached the summit that afternoon.

But long before then, in the cool morning, we set out from the trailhead at 3,800 feet. The worn trail was in shade and followed Walker Camp Prong then Alum Cave Creek, both wide streams full of moss-covered boulders. A couple of times we crossed the streams on wooden bridges. The forest was cove hardwood, a mix of yellow buckeye, American beech, yellow birch, and eastern hemlock. That day I noticed the hemlocks because they were plentiful and huge—over 60 feet high and at least two-people's reach around. They lined the stream, rising between boulders on the banks and up the mountain slopes. The shade they gave was soft and deep but not complete, the result of their high but delicate foliage. It was pleasant going, a dream of a walk for about a mile before the real climbing of the day began. I had surely seen hemlocks before, during other visits to the park, but they had never struck me as being so impressive, possibly because I had never seen such tall ones. I remember asking what they were; once told, I looked up and thought to myself that I would know them now and not forget. And then I said that at least we had hemlocks—if we didn't have American chestnuts.

"Or Fraser firs," said one of my friends. And I agreed because it was sadly true that the Fraser firs were under attack by an insect from Europe, the balsam woolly adelgid. Most of the adult firs were dead then, in stands along the highest peaks of the park. If you went to the Chimneys, a place named for two natural rock spires, you'd see standing dead snags, gray in color, with small, two-to-three foot-high saplings, dark green, growing up from the living roots of the dead trees. The whole look of the Chimneys had changed in 10 years; it was nothing like what it had been before when I had visited with my family. Further, it was hard to comprehend that the mountains that had been around since the last ice age were losing one more tree species within a single century.

The hemlock has now become another Appalachian tree threatened by an exotic species. By 2004 the stands in the Smokies were alarmingly in decline; even on a driving tour you could see dead trees on the slopes that

used to be deep green. After the loss of the American chestnut and Fraser fir, yet another beautiful tree, the tree I now considered my favorite tree of the mountains, might be erased from the landscape. Also in 2004, the hemlock woolly adelgid (HWA), the insect responsible for the devastation, reached the north Georgia mountains, at the southern end of the Appalachian chain. Of course, many Georgians, and I am now one, were alarmed, and not just for sentimental reasons.

This is a story of how people's disparate lives, careers, and interests can intersect, rather serendipitously, to support community action and to lead to personal growth. In the terminology of community literacy scholars, the hemlock project enabled groups to use their own situated knowledge, conveyed through both organizational and personal problem narratives such as the one above to identify wise options for action (Higgins, Long, and Flower 19-26). The project fits Jeffery Grabill's definition of community-based research "as research that involves citizens working with professionally trained researchers [but entomologists and wildlife scientists in this instance, not writing instructors or rhetoricians] in a community-driven process to answer local questions or solve local problems […]" (44). Similarly, the research is "action driven," but the primary goal is environmental, rather than social, though "education, political and social change, and policymaking" goals do exist (Grabill 44). In the long term, all those involved in the hemlock project hope their efforts help to preserve a species, but secondary, unacknowledged goals of better understanding among stakeholders about complex environmental issues and personal and community transformation are also emerging from the process.

Although the high degree of consensus among the active participants in this project may suggest to some an idealized view of social action, the stakeholders' motivations for cooperation go a long way toward explaining why they have set aside differences in their outlooks and primary interests, at least temporarily and at least on this topic, to be positive, accommodating, and collaborative. In addition, though power and expertise differences certainly exist among participants, the mutual need of each group for the others has kept counter-productive conflict at bay. Several lessons exist in this story for rhetoricians, ecocritics, and environmentalists about consensus and cooperation. My approach to uncovering them will be to first narrate the history of the Georgia hemlock project and then analyze it according to community literacy and ecocritical theory about the nature of issue communities, the importance of a shared purpose and of reciprocal benefits, the value of an inclusive contact style, the particular challenges of environmental literacy, and some ways to meet those challenges.

The HWA Infestation

According to Jim Wentworth, a wildlife biologist of the Blue Ridge Ranger District of the United States Forest Service in Blairsville, Georgia, eastern hemlocks (*tsuga canadensis*) are one of the "primary trees of the Chattahoochee National Forest" and a "key species in riparian areas" (or

along streams). The trees shade streams and keep the water cool enough for native trout and many other native aquatic species to survive hot southern summers. Also, hemlocks provide nesting and foraging habitat both to resident and migratory birds (Atlanta Audubon Society, "Help Save"). Moreover, hemlocks are the notable evergreen of cove hardwood forests and contribute diversity to the forest. In healthy stands, fallen needles contribute to the acidity of the soil and help maintain the richness of the plant life (Atlanta Audubon Society, "Help Save"). Beyond their ecological role, the trees are aesthetically important to people who live in and visit the mountains. Their decline in the forest is dramatically apparent, for instance, in many public campgrounds (Wentworth); now campers are surrounded by dead snags rather than the trees that are familiar and comforting. So a threat to the hemlock has sweeping consequences for the forest, for residents who love them and depend on the aesthetic appeal of the mountains to maintain tourism, and on others who are drawn to the mountains for recreation and relaxation.

Where did the HWA come from and how did the infestation become so devastating? Apparently, the adelgid came from imported nursery stock (Tallamy 70). It appeared on eastern hemlocks in Virginia in the 1950s and has subsequently spread throughout much of the tree's range. According to the Forest Service, the HWA, a small aphid-like bug, consumes the starches in the trees' branches and twigs that are essential to new growth. If untreated, HWA causes a tree to die within three to six years (U.S. Forest Service). The Forest Service predicts that "90 percent of hemlocks in north Georgia could be dead in 5-10 years" (U.S. Forest Service). Although eastern hemlocks have no natural resistance to HWA, hemlock species in Asia and the western U.S. are protected from significant damage by several species of tiny, sesame-seed sized beetles that prey on HWA. Consequently, academic and government scientists have been working to use these predator beetles to control HWA in the east. In addition, hemlocks can be protected by spraying or injecting individual trees with imidacloprid insecticide, which is the same chemical often used in flea control products for house pets. Because beetles are expensive, experimental, and difficult to keep in one place, they are viewed as appropriate for release only on public lands; property owners who want to protect their own trees are encouraged by forest managers to apply insecticides.

Government, University, and Public Response to HWA

The Forest Service began developing a strategy to combat HWA in Georgia in 2002, as soon as it was identified in the northeast corner of the state (Wentworth). At that point it worked primarily in cooperation with academic scientists who reared predator beetles in labs. Wentworth explained that the Forest Service's treatment program has been well funded, but that there have not been funds available to monitor the effects of treatments throughout the extensive and remote areas of the infestation. Though there are a number of academic and government partnerships

working on HWA, in Georgia, cooperative research has been led by Joe Culin, a professor of entomology, soils, and plant sciences at Clemson University in South Carolina. Culin received funding from several sources beginning in 2002 to rear predator beetles, and from 2003-05 most of these beetles were released in North and South Carolina. As HWA moved into Georgia, Culin followed the infestation and began working with Wentworth in the Blue Ridge District. Currently, predator beetle labs are also operating at Young Harris College in Young Harris, Georgia; the University of Georgia in Athens; and at North Georgia College and State University in Dahlonega.

As HWA appeared in Georgia, the academic research was broadened to include citizen science. By 2005, one of Culin's funders, the National Forest Foundation, required that citizens become involved "to assess invasive species impacts," so Culin developed a photo-monitoring protocol, which consists of trained volunteers making monthly visits to infested sites where predator beetles have been released (Culin). These volunteers photograph designated branches on five trees at each site, including the release tree and four additional trees at each compass point about 30-50 meters from the release tree. The photographs are then sent to Culin's lab and analyzed; essentially, a technician looks for evidence of HWA infestation—cottony white splotches at the bases of needles, which are adelgid eggs and their protective covering—and determines whether it has improved or worsened over time (Culin). The data are intended to show the progress of the infestation and whether the beetles are indeed surviving after release and preying effectively on HWA. Beginning in 2006, the Jackson-Macon Conservation Alliance in Highlands, North Carolina, monitored trees where the forest service had released beetles reared in Culin's lab (Culin). But as the infestation moved through, fewer and fewer North and South Carolina hemlocks had low branches that still had needles and could be photographed from the forest floor, so attention turned to the north Georgia mountains (Culin).

Simultaneously, residents of rural north Georgia were becoming aware of HWA through Forest Service publicity and through personal observation. They began to consider what they could do to protect the forests as well as the trees on their own land. Two leaders in local efforts have been Paul Arnold and Forest Hillyer. Arnold is a professor of biology at Young Harris College, a small, private liberal arts college in Young Harris, Georgia, which is located in Towns County on the Georgia-North Carolina border. In 2005, Arnold established a beetle lab on his campus to raise predator beetles with the help of students and community volunteers for release by the Forest Service and Georgia Forestry Commission, but because he is "out of the loop for federal funding" (Arnold), his work has been supported by individuals, foundations, and corporations (Young Harris College).

Forest Hillyer chairs the Lumpkin Coalition, a nonprofit "issue-based organization to facilitate projects that benefit North Georgia, Lumpkin County, and its residents" (Lumpkin Coalition, "About Us"). Lumpkin County lies in the north Georgia mountains; its county seat, Dahlonega,

is about 40 miles from the town of Young Harris. Established in 2005, the Lumpkin Coalition, is "dedicated to preserving quality of life for all those who share it. To this end, [it] support[s] the preservation of a clean and healthy environment, responsible living, and responsible growth" (Lumpkin Coalition). At first, the Coalition focused on protecting roadless areas in the Chattahoochee National Forest and partnered with the Sierra Club, but soon it expanded its interests (Hillyer). Although it continues to work on several local environmental issues, the Coalition is primarily identified as the group that organizes the annual HemlockFest, a three-day November festival offering live music, crafts, hiking, canoeing, and information about how to preserve hemlocks. The 2008 festival included information booths sponsored by the Forest Service and by the Coalition as well as several public presentations on HWA infestation, research, and treatments by Wentworth, Arnold, members of Culin's lab, and Sara Osicka, a biologist from North Georgia College and State University. The 2008 festival and presentations were attended by many locals as well as by researchers from the University of Georgia beetle lab. Each year, proceeds from the festival are donated to support regional beetle labs. Since its first year in 2005, the HemlockFest has enabled the Lumpkin Coalition to contribute more than $100,000 to the beetle labs at the University of Georgia in Athens, Young Harris College, and North Georgia College and State University (Lumpkin Coalition).

One of the annual activities at the HemlockFest has been a morning bird walk led by ornithologist Georgann Schmalz, a three-time past president of the Atlanta Audubon Society (AAS), who remains a very active and influential member. Now retired from her teaching position at Fernbank Science Center in metropolitan Atlanta, Schmalz has moved to Dawson County, also in the mountains. In 2007, she attended the festival and got into a conversation with Wentworth and others about hemlocks and what was being done and could be done to help save them (Schmalz). Though credit for the idea that emerged from this conversation is generously passed around, Schmalz and Wentworth thought volunteers in Georgia, and particularly some from both the Coalition and from the Atlanta Audubon Society, could help save hemlocks by monitoring areas where predator beetles had been released (Schmalz; Wentworth). The plan became that volunteers would follow Culin's photography protocol and send him the photos for analysis.

The first step in putting this plan into action came in January 2008 at an Atlanta Audubon Society meeting at which Wentworth, Arnold, and Mark Shearer from the Lumpkin Coalition gave presentations describing the problem and then suggested that anyone interested in helping with the monitoring sign up. Because the mission of AAS is to "to promote the enjoyment and understanding of birds and to conserve and restore the ecosystems that support them" (Atlanta Audubon Society, *Home page*), Audubon members responded enthusiastically to the monitoring project. After all, Schmalz notes, the mountains are a frequent destination of all the birders in the state, particularly during spring and fall migrations when you

can see many warblers as they pass through. Next, AAS Conservation Chair Kelly Hopkins organized monitoring teams and arranged for a training session led by Culin and Arnold. In March, six AAS teams and about as many Coalition teams began monitoring release sites in the Chattahoochee National Forest; these monthly visits continued through July, the "season" for HWA spread and beetle activity. As a member of the AAS, the author of this article was present for the January presentation and signed up for a monitoring team along with about 20 other people. Along with my team leader, Amy Leventhal, I made the drive up to a site at Cooper's Creek in May and July to photograph ever-more-bare hemlock branches and to stop and "bird" along the way. In addition to the monitoring program, in mid-summer, AAS executive director Catharine Brockman Kuchar received funding from the national Audubon Society to print a brochure about HWA that could educate members and others who attend programs and events. I drafted the brochure, which was reviewed by Culin, Wentworth, and Schmalz, among others. It was printed and available at the 2008 festival and will be distributed at other events in the coming year. At this point, the monitoring teams expect to continue their work for at least two more years and will begin again in February 2009.

The Georgia hemlock project shows that culturally distinct organizations can cooperate when consensus exists about the problem, when everyone has an active role, and when work on the problem is mutually beneficial. In the remainder of this article, I will explore how these community literacy and action concepts have functioned to improve environmental literacy.

An Issue Community

A local public needs an alternative discourse that is not exclusionary and the rhetorical competence of participants to develop and engage in such a discourse in order to participate in community literacy work (Higgins, Long and Flower 16). Although the Georgia hemlock project does not function as a "local" public because its participants span states as well as regions within Georgia, it has operated in ways that include diverse voices and that allow each group to speak and act for itself. The AAS brochure is one example, but others exist such as the Lumpkin Coalition's well developed web site (www.lumpkincoalition.org) and the HemlockFest itself which brings scientists and their discourse together with residents who use less stodgy approaches to raising awareness about HWA. For example, during the 2008 festival, Lumpkin Coalition members paraded 12-foot-tall puppets of an adelgid, a predator beetle, and a hemlock tree around the music stage and central assembly area to emphasize the reason for the event. More traditionally, the group sold specialty t-shirts featuring a hemlock silhouette and slogan ("Hemlock: The Heart of Appalachia") on the front, and, on the back, a list of supporters below a quotation from a local citizen, Mark Warren ("Rise up from the heart of this Land/ Give me a reason to Stand"). This varied and freewheeling approach to publicizing the issue has enabled the groups

involved in the project to claim it as their own, and it shows how the advice of Higgins, Long, and Flower to treat "difference as a resource" (17) can build momentum around an issue. That is, since each group follows its own rhetorical style, a plurality of voices and approaches results, which draws in a diverse group of participants.

Although Americans "have become increasingly disconnected from the people around us and power structures that influence our lives" (Faber 176), the hemlock project serves as a counter-example in which groups concerned about an issue for a range of reasons, some mutually held and some of their own, work together. In the Georgia hemlock project, an interesting twist on partnerships between local publics and formal institutions emerged (Long). The more informal groups are *supporting* the governmental and educational institutions (rather than the other way around) by monitoring release sites that these professional entities do not have the people or time to carry out. Perhaps the hemlock project follows a familiar arc for environmental progress: In his introduction to an anthology of American environmental writing, Bill McKibben notes that "most of what we call environmental progress has been voluntary and often counter to the stronger tides of history" (xxiv), by which he means that environmental volunteers have managed to wield a powerful influence even though they have not held positions of power or always had majority support. In addition, McKibben suggests that the volunteer spirit of Americans serves as an important lever in social and political change. Though the hemlock project has no overt political agenda, it does raise public awareness of an environmental issue, largely through the social action of volunteers doing "boring things" (Grabill 4) such as photographing infested tree limbs, keeping volunteers informed and coordinated, organizing a festival, and, always, talking and writing about the trees.

The Georgia hemlock project shows that culturally distinct organizations can cooperate when consensus exists about the problem, when everyone has an active role, and when work on the problem is mutually beneficial.

A Shared Purpose

A key feature of the hemlock project is that the problem has not been socially controversial; from the start, stakeholders have agreed on the nature of the problem at hand. Furthermore, no local group bears significant responsibility for creating the problem, so discussions about fixes are not derailed with recriminations and blame. While many environmental problems are fraught with questions about the existence of a problem, the nature of the problem, and where responsibility for it lies, in this instance,

the causes of HWA infestation are relatively distant, and while everyone who has bought a non-native plant to place in her yard bears a share of responsibility for infestations of exotic insects (and plants), that blame is broadly distributed. Consequently, unlike many environmental issues stuck at stasis points of claims of fact or definition, in north Georgia, residents, visitors, and professionals can readily see that their hemlocks are dying and are motivated to action. Moreover, the direct causes of the problem are also non-controversial. Consequently, the social construction of knowledge and the scientific construction of reality have meshed and reinforced each other. As Wentworth noted, "Awareness of the problem is really high here, particularly in Young Harris. They live here with the hemlocks and see what is happening. Some people don't become aware until they see it in their yard, but when they do, it hits them." Although the hemlock problem is not "a problem space—a cluster of competing perspectives that circulate in the community demanding attention, further interpretation, and response" (Higgins, Long and Flower, 13) because it does not demand further interpretation in the short run, since the immediate problem is clearly identified, it does need public attention and response.

In fact, the local consensus on the hemlock problem became an attractive way for the Lumpkin Coalition to brand itself as a positive community group, rather than a bunch of pesky, anti-development radicals. For example, Hillyer acknowledges that the hemlock issue has brought a broad swath of the community—even the Chamber of Commerce commissioner—together, despite different overall perspectives about environmental issues and despite early community resistance to the Lumpkin Coalition, which was initially perceived as a "tree hugger" environmentalist group. "All folks were on board with the hemlock program no matter who they were," Hillyer said. Similarly, the Forest Service can easily work with a group like the Lumpkin Coalition on the hemlock issue, despite separate, long-standing differences on policy issues such as logging and road construction on public land. Labor organizer Saul Alinsky believed that although conflict was inevitable, "his greatest organizing was built on well-tested friendships […] even amidst conflict" (Goldblatt 294). This has been the route of the Georgia hemlock project as well; though the participants have not always been in concert on related issues, they have formed lasting friendships from their shared devotion to the hemlock and because of the level of commitment in addressing HWA infestation that each group has demonstrated over time.

Reciprocal Benefits from Community Action

Consensus on the problem and the apparent and quick advance of the infestation motivated groups to work collaboratively. As noted by Higgins, Long, and Flower, "When diverse stakeholders put their situated knowledge into play, the process helps all stakeholders at the table see their own situated knowledge in terms of the larger landscape […]" (5). Each party recognized what it could do successfully as well as what it did not have the resources

to undertake. Wentworth commented that the partnership has had multiple advantages:

From our stand point it's been real beneficial, not only the monitoring but also surveillance as well; we've got the word out to folks to make us aware of where they see the adelgid and where its spreading. We're not always out in the forest, so we don't always get out. They give us some early warning of how far it's progressing…. Early on that was very helpful. We had gotten the word out through news releases and other things to contact us if they saw something.

Similarly, Culin noted that the dozen sites in Georgia were "doing very well," were well coordinated, and had resulted in e-mails and CDs of photos, of which 90 percent are clear and usable for analysis.

The public organizations have also benefited. The Lumpkin Coalition has established its value to the community by building awareness and by being an organizer of a successful annual fundraiser. Paul Arnold and Young Harris College have given students hands-on experience and strengthened ties to the local community. The AAS has benefited too by expanding its conservation programs and involving more members in activities that do not require high levels of bird identification skill. Hopkins stated, "The Chattahoochee National Forest is important to birds in the state. I thought there was a nice alignment to have a volunteer opportunity that would help preserve habitat within an Important Bird Area." As Grabill recognized, "the value of a research project […] often varies widely. For some the problem solving is most important. For others, the questions we are trying to answer are essential. For still others it is the capacity building, and for many it is some element of the process itself that they find engaging […]" (47). This range of activities and benefits has worked to the advantage of the overall project. The forest service treats the public lands and supports community awareness; the researchers seek funding, raise the beetles, and enhance their students' educational experiences; the Lumpkin Coalition builds community awareness, educates, raises money for beetle labs at colleges and universities, and helps with monitoring; and the AAS takes on monitoring of release sites and builds awareness of the problem throughout the state, especially among birders, which the U.S. Fish and Wildlife Service estimates to be more than one in five Americans over the age of 16 (La Rouche 4).

Contact Style

Certainly a key component of the project's success has been the various groups' contact style. "Contact style" may be defined as the "forms and content of […] language practices" used by groups and individuals, including the combined role of personal and social experiences and of "dialogic and sensory experiences" (Gorzelsky 162). This term has a broader connotation than "discourse style," which is more academic and limited to speech and published documents. The contact style of participants in the Georgia hemlock project varies; each group has its own. The professional and powerful, the government and public university representatives, have

been careful spokespersons for their organizations; they are circumspect and reserved in manner, careful not to make too sweeping a claim or prediction about the likelihood of saving hemlocks. But this professionalism has not undermined their involvement in the issue as a community concern or their responsiveness to others. For example, Wentworth and Culin have responded promptly to many questions and requests for their opinions and views, as has Arnold who, perhaps, had less reason to be so accommodating to requests for his time, especially from the AAS, which has not contributed directly to his beetle lab. All three have been patient, engaged, accommodating, and encouraging. For example, when Hopkins wrote to all the groups about AAS's small grant to fund the brochure, within days, both Wentworth and Culin responded with suggestions and information to share. Wentworth's e-mail captures the support of both professionals:

> Kelly - Great news on the brochure!!
>
> I've attached links to the Georgia Forestry Commission web site. They have a couple of brochures and other information. I've also attached the link to the USFS Pest Alert for HWA. Hope this helps, Jim

Gorzelsky says the reason for her success in the Open Doors Collaborative was that she was "willing to invest time and energy without being in charge" (292). Similarly, in this case, one might say the professionals wore professional faces, but their contact style went well beyond that and was infused with a sincere concern for the loss of the hemlock and a personal helpfulness.

The professionals' contact style has attracted others such as Lumpkin Coalition and AAS members to volunteer and contribute to the issue community, even in less formal fashion such as through festival puppets and t-shirts. The professionals' low-key tone and generosity with their time may also have guided the rhetoric of the community groups, whose materials convey urgency but, importantly, not hysteria, which ecocritics have found to be both common and largely counter-productive in raising support for environmental causes (Killingsworth and Palmer, Plevin). The documents about the hemlock infestation have been restrained and mainstream in genre and prose style, often decidedly transactional and rarely apocalyptic in tenor. An excerpt from the Lumpkin Coalition's web page about hemlocks shows its pragmatic tone:

> A three-pronged plan has been adopted at the state and federal levels to combat HWA:
>
> • Evaluating and implementing biological controls (such as beetles)
>
> • Chemical controls for short-term treatment and in locations/situations where these are the best option (such as landscape and some forest settings)
>
> • Preservation of genetic material for both the eastern and Carolina hemlock so that in the event of a catastrophic impact by the HWA, we

may be able to restore the hemlock species in the future

> Thanks to the hard work of all concerned, there are now three labs in Georgia …for rearing predator beetles for release on hemlocks within our forests. With these successes, Georgia has joined a multi-state effort to find an effective biological control for Hemlock Woolly Adelgid. This is a highly scientific yet experimental pursuit, not a silver bullet. But most experts and Georgia citizens alike believe we must do all we can to save our hemlocks. (Lumpkin Coalition, "Hemlocks")

This page, typical of many texts produced by project groups, focuses on what participants need to know and what they can do to help. They easily avoid stereotyping and assigning blame because these strategies do not fit the issue, anyway, and would discourage volunteer participation. As Long comments, "Community-literacy initiatives, however, have introduced a distinctive focus on transactional writing that draws upon learners' local knowledge and supports the rhetorical action of participants" (44). But the contact style, including personal e-mails and conversations, though not sentimental, indicates sincerity and care, both for the hemlock and for others who share a concern for this environmental problem.

In short, the participants' contact style echoes advice from a number of community literacy scholars. The style accepts incremental change (Weisser 123; and Higgins, Long, and Flower 34); it uses and appreciates local knowledge, or *metis* (Grabill 93); and it is non-authoritarian in the sense that it openly invites others to become involved in the issue (Goldblatt 292). For example, although the Forest Service press releases and fact sheets do use declamatory statements about HWA, Wentworth's calm tone in presentations effectively counteracts any negative connotations of official-speak. Faber notes that "the writing and the speech produced within organizations achieve more than a simple communicative function; they evoke the organization's stories, create the organization's culture, and build the organization's identity" (160). This claim seems especially true of the documents and utterances from Georgia hemlock project participants, particularly the Lumpkin Coalition and AAS. Both of these groups communicate regularly in print and via electronic media about the hemlock project to brand themselves as activist organizations, yes, but as well informed and cooperative ones.

Another successful strategy of the project's contact style is that it has provided individual volunteers, particularly those monitoring release sites, with the ability *to act* to positively affect the HWA infestation. Amy Leventhal, for example, a leader of an AAS monitoring team said she got involved because "I wanted to do something interesting and hands on that will have a positive impact down the road." Kelly Hopkins explained the enduring involvement of AAS volunteers by saying "People know that they are doing their part from a research standpoint, and that is powerful." So often, environmental organizations fail to give people positive actions to take to help address problems. Groups routinely ask for money to help save species, or they may explain how everyone needs to change their lives,

typically by denying ourselves something, to minimize problems, but these strategies do little to excite people or draw them in so that they learn how to apply abstract environmental lessons or advice to their daily lives. Both environmental theorists and communication researchers suggest that fear and guilt appeals are not persuasive strategies, unless your audience is already committed to an environmentalist perspective (see Plevin, Killingsworth and Palmer, and Moser 71). Similarly, the wisdom of "[r]espect[ing] people's dignity by creating the conditions for them to be active participants in solving their own problems rather than victims or mere recipients of aid" (Goldblatt 281) has been emphasized by community literacy theory. The Georgia hemlock project shows how effective this strategy can be. Schmalz commented on this feature of the project:

> People don't have to throw their hands up. They don't have to think that they can't pay enough taxes to fix it. They can't contribute money to buy the sprays that the Forest Service needs. We can actually get in there and provide some grassroots help. I guess it's research, maybe not real research, but we can participate in something like this. All is not lost. There's ownership there. We have a little ability to stem the spread. This is a grassroots thing."

Even though monitoring volunteers were aware of the damage already done to eastern hemlocks as well as the sad tales of other native species lost because of exotic insect infestation, the ability to take action provides a comfort of its own. It also provides personal experiences of a crisis that may cause individuals to begin to connect issues with other routine choices. Susanne Moser summarizes more than twenty empirical studies done in the past 30 years that have found:

> [O]ne, guilt appeals are unreliable as motivators of environmentally benign behavior; and two, people will maintain their sense of self and identity before changing an environmentally damaging behavior, unless the new behavior is consistent with who they want to be in the world […] . (71)

Active participation in positive environmental projects, then, can help individuals re-think the choices and actions they take in their own home and work environments, where they make decisions.

A Slow Approach to Environmental Literacy

If we accept the premise of Gestalt theory—"that humans perceive both material and psychological phenomena in wholes or patterns rather than fragmented units" (Gorzelsky 8), then we can begin to see why an effort such as the Georgia hemlock project may be influential in the long run, even if the immediate effect on eastern hemlocks is modest. First of all, the project has brought groups together who otherwise would not meet or perceive common interests. In that regard, it has taught professionals

about how much mountain residents love their trees and about how much birders want to save habitat. It has also undermined the easy (and negative) stereotypes that government officials, academics, rural residents, and recreational visitors to the mountains have about each other. For example, the professionals are not, as some might guess, detached from the environmental crisis. They too live in the mountains and are saddened by the dying trees. The mountain community residents are not suspicious of the Forest Service's treatment recommendations, as they might be, because they have educated themselves about the problem and the most practical ways to respond to it. Recreational visitors from Atlanta are not only interested in their own pleasure; they have far exceeded an auto-tourist role by participating in ongoing citizen science and education efforts. These patterns of mutual respect and cooperation may prove useful in future debates about issues that are more about human policy making (and therefore less prone to ready consensus) than the HWA issue. For that matter, such a coalition may lead to more awareness of policies about the broader issue of non-native species. (Why couldn't this project lead to legislative discussions or even initiatives—led by those who have seen the devastation up close—about how to control exotics?) The ties formed in the hemlock project could lead to follow-on community action projects to prevent future non-native species introductions that threaten biodiversity.

> Active participation in positive environmental projects, then, can help individuals re-think the choices and actions they take in their own home and work environments, where they make decisions.

Furthermore, work like the hemlock project can begin to make the wholes and patterns of environmental literacy accessible. The National Environmental Education and Training Foundation defines the third and highest level of environmental literacy (beyond level one, a general awareness, and level two, superficial changes in daily life to benefit the environment) as when people have a deep understanding of natural processes, an awareness of the human behaviors that affect these processes, and an affinity for protecting or appreciating nature (Coyle xiii-xiv). This high level of environmental literacy, then, is one where people can see wholes and patterns, understand their import, and take the actions that are available to them as individuals to protect habitats and ecosystems. Clearly, Gestalt theory can provide a strategy for "teaching" environmental literacy. It points to the need to expose people to whole ecosystems and show them how the components function interdependently (climate, topography, plants, and animals), and it recommends that we remind ourselves and others of patterns—that the hemlock is not the only, first, or even most devastating

loss due to exotic infestations (e.g. American chestnuts and Fraser firs).

The difficulty, acknowledged by environmental communication researchers, is helping people become aware of these wholes and patterns in memorable ways. For example, The Biodiversity Project's report *Engaging the Public on Biodiversity* describes biodiversity as a "challenging concept to convey to the public in simple terms" (11). Focus group research has found that the word "biodiversity" "communicates different types of life, but it does not imply other key concepts surrounding biodiversity like interconnectedness and ecological relationships" (Biodiversity Project 74). The report further states that "[m]essages that wrap species protection within larger arguments for habitat protection are likely to reach a larger audience and be more persuasive" (31). Consequently, arguments and social action projects about the value of biodiversity will be more successful if they are wrapped within arguments about its relevance and meaning to humans on physical, economic, intellectual, and emotional levels.

The Georgia hemlock project constitutes such an argument, especially for active participants, but also for all who see the devastation and learn that it is caused by imported plants, because they can grasp the Gestalt of the problem. During the summer of 2008, as teams went to the mountains and saw the advance of the infestation, new connections were forged between what individuals do in their personal spheres and why that matters. For instance, Leventhal explained how she connected ideas over time:

> I developed a love relationship with the trees and the land; I wanted to nurture it. It upsets me to see the bugs have their way…. It has an impact on how you think about things; it all starts making more sense. I'm not using plastic bags anymore. And my neighborhood tree board got a grant to plant trees in a lot, so we're going to do that this Saturday.

Schmalz also draws connections between the hemlock problem and environmental literacy goals:

> The project has an awareness goal to get people to realize what was happening with the beetles and secondly—I don't think we can overemphasize this— the danger of importing plants.

From seeing connections to wondering about public policy, Schmalz soon notes how these ideas lead to choices that anyone can make, to other events and programs, and to community-level decisions that residents can influence:

> The [long-term] goal of the Georgia hemlock project is to inspire individual people in their own small or large landscapes to do the right thing. It doesn't cost a lot, maybe nothing, to make people aware of planting nonnative things. Just make people aware at your own individual level in your own back yard, you can just make people wise with what you do. […] People don't realize that neatening up everything

> means we'll lose the forest. That's not a better way to go. That's what Atlanta Audubon's wildlife sanctuary [program] has to ask and work for. To make sure you're putting things in that will maintain wildlife. […] And that goes back to landscapers too. Architects, developers too. That would be a good goal as far as Audubon and the wildlife sanctuary and hemlock [projects] are concerned.

Schmalz suggests that the hemlock project, and others like it, are capable of teaching participants environmental literacy via Gestalt. They can help us see, as does Douglas Tallamy, author of *Bringing Nature Home*, that past accidents with non-native species do not have to be repeated; "if we want to create ecosystems with a diversity of animal species, we first have to encourage a healthy diversity of [native] plants" (19). In fact, Tallamy provides a list of "Native Plants with Wildlife Value and Desirable Landscape Attributes" for all the regions of North America (238-50), a good resource for homeowners, landscapers, and others who want to protect native ecosystems by planting native plants rather than exotic ones.

Indeed, as a project participant, like Leventhal, I have come to examine my own behavior as a homeowner. Maybe I should have planted a native hydrangea, hawthorn, dogwood or redbud in my yard a couple of years ago rather than a Japanese maple. What was I thinking? I now know that a native tree fosters many more bugs and birds than an exotic one; native plants are functioning parts of ecosystems, not merely decoration. Looking forward, I am now considering *not* cutting down *all* the loblolly pines in my yard at once. Forest succession will get to them eventually, but until then many species use them as habitat. So perhaps I can remove only the few that actually threaten my house, no matter what the tree service representative says about practicality and cost. This thinking directly results from my trips to see the hemlocks. If I had not learned about this issue over time, gone to Cooper Creek to see for myself how much worse the trees looked in July than in May, and been aware of the HWA infestation as one more on a long list of threats to biodiversity caused by invasive species, then I'd never second-guess my own purchases at the local nursery and my own landscaping decisions. But because I did, I understand how I, as a suburbanite a few hours' drive from the mountains, play a role in their future biodiversity.

Christian Weisser proposes that "By exploring the intersections of different discourse communities in public spaces, we might discover way to build communicative links between different groups and individuals" (129). This claim implies that the Georgia hemlock project may serve as an instructive example of how communities can be linked by discourse and collaborative action. Even though the organizations' interactions in this case may be idealized because they readily set conflict aside, nonetheless, they demonstrate how focusing on shared and apparent problems motivates cooperation as well as how an inviting contact style plays a crucial role in maintaining it. They also suggest that, at least for environmental issues, finding authentic positive actions for groups helps individuals understand

the Gestalt of the problem and offers a better persuasive strategy than guilt and denial. The Georgia hemlock project has been logistically easy to make work, and it has not had to endure toxic distractions of multiple purposes, suspicions, recriminations, and casting blame. In terms of people and rhetoric, however, its success has depended upon an inclusive, big-picture view, a big-heart attitude, and active volunteer participation. These latter components, however, are often available to shape social-action projects advantageously, even in more controversial situations.

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