# DECISION MEMO

## Hemlock Woolly Adelgid Control
## Fiscal Years 2004-2006

USDA Forest Service – Chattahoochee–Oconee National Forests - Tallulah Ranger District - Rabun County, Georgia

## 1. DECISION

**I have decided to approve an experimental control program for the hemlock woolly adelgid (HWA) in a limited area that currently has active moderate to heavy infestations (see attached map). The HWA is a non-native forest pest that was first reported in the western United States in the 1920's. It was accidentally introduced near Richmond, Virginia about 50 years ago. Populations of the HWA have recently spread into Rabun and Towns Counties.**

This proposal would allow for the removal of infested hemlock material for production of laboratory-reared coccinellid beetles, *Pseudoscymnus tsugae (P. tsugae)*, and the release of *P. tsugae* beetles, when available, on trees infested with the HWA.

The removal of infested hemlock material will be limited to the lower limbs of any one hemlock tree, and the removal will be scattered across accessible stands to limit the individual site impact to negligible levels (Georgia Forestwatch concern, 4/18/03; Southern Appalachian Biodiversity Project, 4/21/03). In addition, care will be taken to not remove lower limbs in areas where the predator beetles are planned for release. All infested limbs will be transported to the lab in an enclosure (For example, a truck with a camper shell or a plastic bag) to eliminate any chance of spreading the HWA.

Releases of the predatory *P. tsugae* beetle would be made starting in 2004, and would continue for three years. This project will be limited to three years to closely monitor the experimental use of the *P. tsugae* beetle (Chattooga Conservancy concern, 4/21/03).

Releases will involve placing 2,000 – 5,000 *P. tsugae* beetles on one or two trees in a moderate to heavily infested area. With no commercially available *P. tsugae* sources, it is highly likely releases would be limited to two trees. However, releases may be possible on up to ten sites by the third year. Locations for releases will be within the affected area (see attached map) and outside of the Ellicott Rock Wilderness Area. The exact locations of the releases will be where HWA populations are sufficient to provide an adequate food source for the *P. tsugae* beetles (Chattooga Conservancy concern, 4/21/03). Areas recommended by the Georgia Forestry Commission for releasing *P. tsugae* (from April, 2003) include the following areas:

- Burrell's Ford to one mile south along the Chattooga River;
- The area near the intersection of Heddon Creek and Ridley Branch; extending east to the Reed Creek culvert on Burrell's Ford Road; north along Ridley Branch upstream of it's intersection with Heddon Creek; and northwest along Heddon Creek and Old Burrell's Ford Road.
- Along Walkingstick Road in the Pin Mill Creek watershed.

It should be noted that the affected area has spread further west and south over the last year. The HWA is now infesting sites in the Sky Valley area, Darnell Creek drainage, Wildcat Road area, Patterson Gap vicinity, Coleman River area, and the Charlies Creek drainage in Towns County. The map of the affected area covered by this decision has been enlarged somewhat to include areas that may develop moderate to heavy infestations over the next three years (Chattooga Conservancy concern, 4/21/03; Gatins concern, 4/21/03; Georgia Forestwatch, 4/18/03).

Monitoring and evaluation efforts will continue for three years after the releases for the purpose of documenting the establishment and dispersal of the *P. Tsugae* beetle and evaluating its effectiveness in reducing HWA population densities and protecting hemlock health on a stand level basis.

**I have determined that this project falls under categories in the Forest Service Handbook 1909.15 that exclude it from documentation in an environmental impact statement or an environmental assessment.** Specifically, the actions fall under Category 3, section 31.1a, which includes research activities clearly limited in context and intensity.

I have also determined that there are no extraordinary circumstances existing that may cause the project to have significant effects. Specifically:

- Soils and slopes in the areas where the predator beetle are released will not be affected.

- This project will not affect any federally Endangered or Threatened species, nor impact any Forest Sensitive species. It will not result in a trend toward federal listing under the Endangered Species Act, or a loss of viability on the Forest (see project file)(Southern Appalachian Biodiversity Project concern, 4/21/03).

- No municipal watersheds will be affected by this project. The releases will not adversely affect the character of floodplains or wetlands.

- This project will not affect any wilderness or National Recreation Areas. The project is not within a research natural area. Releases will take place in the Ellicott Rock Extension roadless area, which is recommended for wilderness in the 2004 Forest Plan. The releases of the predator beetle in both of these areas will have no affect on the roadless character and will clearly not jeopardize consideration of this area for wilderness designation.

- Releases are planned for the Chattooga Wild and Scenic River corridor. There will be no affect on the character of the corridor due to these releases other than reducing the infestations of the HWA.

- Releases are planned to take place in the Big Mountain and Ellicott Rock Extension roadless areas, and could take place in the Sarah's Creek roadless areas. The releases will not change the roadless character of these areas, therefore this project will not jeopardize consideration of these areas for wilderness designation.

- The predator releases will not impact historic or prehistoric resources. No known historic or prehistoric sites which are eligible for the National Register of Historic Places will be affected by this project (project file).

- The cumulative effects of this project combined with others in the foreseeable future will clearly not be significant. The predator beetle releases will slow the impact of the HWA on the hemlock trees, reducing mortality in hemlock stands and possibly slowing the spread of the HWA. Material taken from infected hemlock trees will be limited on each tree to lower branches and material transported to the lab will be kept in an enclosure to eliminate any chance of spreading the HWA further. The accumulated environmental impacts from this activity along with others in the affected watersheds will clearly not lead to significant biological or physical environmental effects.

- The predator beetle *P. Tsugae* does not aggregate in large numbers prior to over-wintering as was the case with another non-native lady beetle that was introduced into the U.S. for biological control of aphids (Cashatt concern, 4/23/03). *P. Tsugae* beetles do not leave the forest to over-winter and

observations suggest that this species hibernates in the leaf litter (Cheah, 1998). *P. Tsugae* is also incapable of transferring to non-adelgid prey and populations are expected to decrease as HWA densities decline. The USDA Animal and Plant Health Inspection Service (APHIS) has issued permits for the release of over 300,000 of these predator beetles across several states from Connecticut to South Carolina.

- *P. Tsugae* appears to be highly specialized in that it feeds almost exclusively on the HWA or other similar adelgid species (Southern Appalachian Biodiversity Project concern, 4/21/03). *P. Tsugae* has been proven to feed on two other non-native adelgid species, including the pine bark adelgid and the balsam woolly adelgid. *P. Tsugae* may also feed on Cooley spruce gall adelgid, which may or may not be native. There is a remote possibility that *P. Tsugae* populations may feed on native woolly alder aphids, reducing the food supply for the harvester butterfly. However, this is unlikely since the preferred HWA is active and available as a food source during the months when the woolly alder aphids are available. *P. Tsugae* was brought to the U.S. from Asia and screened in quarantine for evaluation to determine its suitability as a biological control for the HWA in this country. Extensive laboratory and field tests indicated that *P. Tsugae* was a very effective predator of the HWA, and an excellent candidate for biological control of the HWA. Laboratory observations on the prey choice have confirmed that *P. Tsugae* does not attack other arthropod fauna known to be associated with hemlock trees (from an environmental assessment completed by the Connecticut Agricultural Experiment Station, 1998). Both adult and larval stages of *P. Tsugae* beetles feed on all life stages of the HWA, including eggs, nymphs, and adults.

## 2. PURPOSE AND NEED

We are guided by goals and objectives in the Land and Resource Management Plan for the Chattahoochee – Oconee National Forests in Georgia (1985 and 2004) (Forest Plan, for short) in implementing projects. One of the goals from the 2004 Forest Plan is to "minimize adverse effects of invasive native and nonnative species. Control such species where feasible and necessary to protect national forest resources." Another states "contribute to maintenance or restoration of native tree species whose role in forest ecosystems is threatened by insects and disease." In the 1985 plan, one of the 17 Forestwide goals states that we will "use Integrated Pest Management (IPM) principles to reduce or prevent long term damage or hazards from forest pests." Another goal states that we will "protect and, where appropriate, improve the quality of renewable resources."

The HWA is a non-native insect that feeds on plant fluids at all life stages of hemlock species and can kill a mature hemlock tree in about five to seven years. The HWA is moved by wind, birds and mammals, and has the potential to infest the entire range of eastern and Carolina hemlock within the next 30 years. Existing natural enemies capable of reducing or maintaining low levels of HWA populations are nonexistent in North America. Chemical control of HWA is not a practical option for hemlocks within the general forest environment because of their dispersed locations. Management of HWA populations, therefore, requires the establishment of biological control agents to successfully reduce the impacts of HWA on hemlock associated ecosystems.

Direction within the specific management prescriptions (2004 Forest Plan) where the predator beetle releases are proposed provide further guidance:

- 1.B – Recommended Wilderness Study Area (Ellicott Rock Extension): "Nonnative invasive pests are controlled if expected to cause an unnatural loss to the wilderness resource." Hemlock stands or individual trees constitute an important part of the riparian areas, and untreated infestations of the HWA would cause an unnatural loss of the hemlock component within the riparian areas of this area.
- 2.A.2 and 2.A.1 – Designated Wild, Scenic, and Recreational Rivers, Classified Scenic and Wild River Segments (Chattooga River and the West Fork of the Chattooga River): "for all sections of designated

Wild and Scenic Rivers, insect and disease outbreaks may be controlled when necessary to protect the values for which the area was established… provided that pest management activities shall be as specific as possible against target organisms and induce minimal impact to other components of the ecosystem." As explained earlier, the *P. tsugae* beetle is highly specialized in that it feeds almost exclusively on the HWA and therefore is as specific as possible and will cause negligible impacts to other components of the ecosystem.

- 2.B.1 – Recommended or Eligible Wild River Segment (Overflow Creek): Much the same as the standard for 2.A.2 and 2.A.1 (Standard 2.B.-011).
- 4.I – Natural Area (Overflow and Sarah's Creek areas): "Stands may be actively managed to reduce the risks and hazards of damage from native and nonnative invasive pests, while still meeting a high level of scenic integrity."
- 9.H – Ecosystem Restoration: Standards include direction that "stands may be actively managed to reduce the risk of damage from native and nonnative pests. In addition, biological control methods are used when available and effective. Biological control may be considered for established nonnative pests through the release of natural enemies."
- 12.A – Backcountry Area (Big Mountain inventoried roadless area): The standard is much the same as for wilderness. The Forest Plan states "nonnative forest pests are minimized through use of biological controls…"
- 7.E.2 – Dispersed Recreation Areas with Vegetative Management (Holcomb Creek and Sarah's Creek vicinities): Guidance includes a standard that states "insect and disease outbreaks may be controlled when necessary to protect the values for which the area was allocated … or to protect ecosystem composition, structure, and function."
- 8.E.3 – High-Elevation, Early-Successional Habitat (Darnell Creek): Stands in this area may be managed actively to reduce the risks and hazards of damage from native and nonnative invasive pests.
- 9.A.3 – Watershed Restoration Areas: Several standards within this prescription direct the control and eradication of nonnative invasive pests.
- 11 – Riparian Areas: "Favoring recovery of native vegetation" and controlling insect infestations is allowed in riparian areas to meet the desired future condition described in the 2004 Forest Plan.

Guidance in the 1985 Forest Plan also provides ample direction to use Integrated Pest Management (IPM) as the strategy in managing pest populations to achieve resource management objectives. IPM includes using cultural, mechanical, prescribed fire, biological and chemical means, alone or in combination, to control pests. Management Areas 4, 8, 11, and 16 all are consistent with the IPM strategy.

## 3. PUBLIC INVOLVEMENT

Scoping both internally and externally raised no concerns that were determined to be extraordinary circumstances.

On March 26, 2003 a letter was sent out to 99 individuals and organizations asking for responses to the proposal. Several responses were received from members of the public as well as organizations and agencies. Comment letters are contained in the project file at the Tallulah Ranger District office in Clayton, Georgia.

Most comments were supportive of the releases, while some had concerns. The concerns expressed in the comment letters have been addressed throughout this decision memo, and noted with the name of the concerned individual or group immediately after the text responding to it.

Inventories were conducted in Rabun County by the Georgia Forestry Commission in the spring of 2003 and are underway again in 2004 to track the movement and intensity of the infestations. In addition, U.S Forest Service personnel as well as contract scientists and interested individuals have monitored riparian areas for the presence of infestations. This information will be used to select appropriate sites for the release of predator beetles.

Rusty Rhea (Entomologist, Forest Health Protection, U.S. Forest Service), Terry Price (Associate Chief Forester/Entomologist, Georgia Forestry Commission), and Mike Evans (Director, Plant Protection Division, Georgia Department of Agriculture) have been consulted and are supportive of the actions in this decision.

## 4. FINDINGS REQUIRED BY OTHER LAWS

This project is consistent with both the 1985 and 2004 Forest Plans. The actions in this project fully comply with the Forest-wide standards as well as standards applying to management areas (1985 Forest Plan) and management prescriptions (2004 Forest Plan) where the actions will take place.

This project complies with the seven requirements of 36 CFR 219.27(b):

1. It is best suited to the multiple-use goals established for the area based on the direction in both the 1985 and 2004 Forest Plans. This suitability is based on the potential environmental, biological, cultural resource, aesthetic, engineering, and economic impacts.
2. No regeneration harvesting is proposed.
3. This action has not been chosen primarily due to cost considerations, although this was taken into consideration.
4. This action has been chosen after considering potential effects on residual trees and adjacent stands.
5. The proposed actions will avoid permanent impairment of site productivity and ensure conservation of soil and water resources.
6. The action will provide the desired effects on water quantity and quality, wildlife and fish habitat, woody regeneration, forage production, recreation uses, aesthetic values, and resource yields.
7. The proposal will need no additional road building.

## 5. IMPLEMENTATION DATE

This decision may be implemented immediately. However, releases will be contingent on the available supply of predator beetles from existing growing laboratories. Most likely, releases will begin in February or March of 2004.

## 6. ADMINISTRATIVE REVIEW OR APPEAL OPPORTUNITIES

This decision is not subject to appeal pursuant to 36 CFR 215.8(a)(4.)

## 7. CONTACT PERSON

For further information concerning this decision or the appeal process contact Steve Cole by phone, letter, e-mail, or in person. The address of the Tallulah Ranger District office is 809 Highway 441

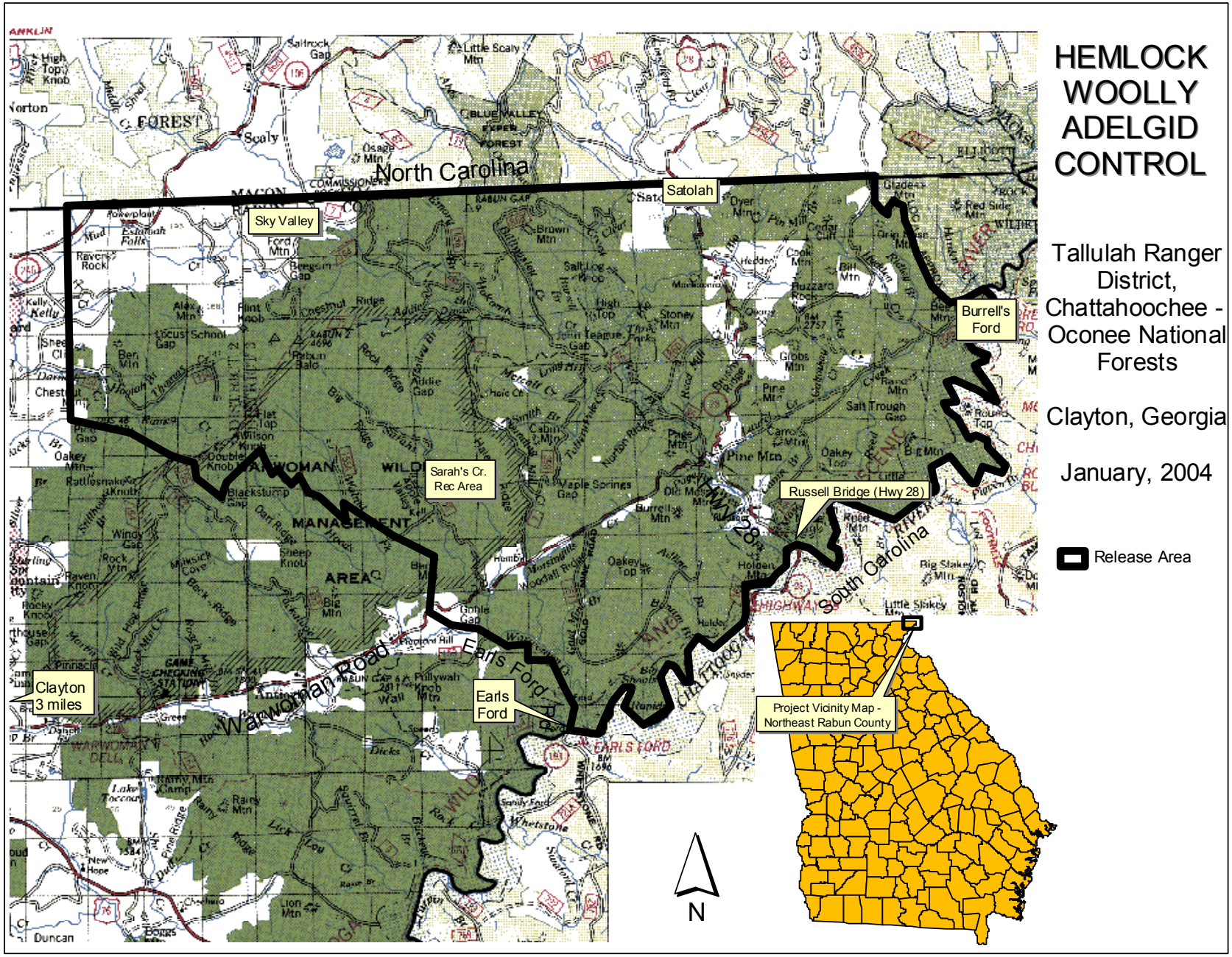
South, Clayton, GA 30525, and the phone number is (706) 782-3320. Contact Steve by e-mail at sncole@fs.fed.us.

## 8. SIGNATURE AND DATE OF RESPONSIBLE OFFICIAL

*David W. Jensen* — *January 30, 2004*

**DAVID W. JENSEN** — **DATE**

District Ranger




Hemlock Woolly Adelgid Control DM – Affected Area Map