Project Instructions - Hemlock Sapling Planting

This document is for the project leader of a charitable project approved by the SGH Board to plant a large number of hemlock saplings on nonprofit property or public land at the request of, and with permission from, the property owner / manager. Separate instructions exist for projects to plant a hemlock field insectary or restore hemlocks along a trout stream and for individual property owners wanting to plant trees on their own land.

Site selection

1. It is generally the property owner / manager who suggests the planting site. SGH should advise the property owner / manager about the suitability of the suggested site.
2. Hemlocks can grow almost anywhere in north Georgia where they get adequate moisture. However, there are certain site characteristics that are preferable:
   - Moisture: a moist but well-drained (not soggy) location, riparian area, flat or sloping ground
   - Light: semi-shade or at least protection from harsh afternoon sun
   - Orientation: a north- or east-facing slope that is protected from strong winds
3. Survey the planting site and modify it if necessary to ensure a good growing environment.
   - Look for and remove potential hazards such as leftover construction debris, chemical or oil spills, and bits of mortar or limestone that would create alkaline soil conditions.
   - Note the texture and structure of the soil. Loamy soil or amended clay soil is best for hemlocks.
   - Check for drainage patterns that would cause excessive dryness or soggy conditions and avoid such areas.
4. SGH and the property owner / manager will coordinate any minor site preparation needed.

Project planning

1. The number of trees to be planting is based on the property owner / manager's request, the space at the planting site, and sapling availability.
2. For best survival, saplings should be 1 to 4 feet tall, well branched, and healthy. They may be either bare-root stock for immediately transplanting or container stock that has been in pots for at least a year. Balled-and-burlapped saplings are not preferable.
3. SGH will provide saplings that may be rescued or purchased. SGH will also estimate and acquire the necessary supplies for planting – such as soil amendments / additives, HWA treatment product, and mulch.
4. The cost of the saplings and planting materials may be borne by SGH, the property owner / manager, or shared. See *Checklist*.
5. Based on the number of trees to be planted, SGH will take the lead in engaging an adequate number of volunteers from our own membership, the property owner / manager's organization, Master Gardeners, students seeking service credit hours, and other organizations. Typically a group of 15 volunteers can plant 24 saplings in 2 – 3 hours. When volunteers sign up, SGH will confirm their participation and send a copy of the *Project Details*.

Project preparation

1. Prepare copies of the *Release / Waiver of Liability* sign-in form and volunteer instructions for planting.
2. Choose and mark the planting location for each tree with a small flag. Unless trees are being planted for a hedge, they should be spaced 12 to 15 feet apart to ensure adequate light, water, nutrition, and air circulation.
3. Arrange to get fresh water from a hose or faucet if possible. If water will be taken from a stream, bring one or more clean containers to use for dipping. Chemical jugs must never be dipped into a waterway.
4. One or two days prior to project, assemble / /prepare supplies and materials per team of 2 or 3 people who will be responsible for planting 5 trees: 1 bottle Miracle Gro Quick Start, 1 nalgene bottle of Imidacloprid 2F / 2L, small measuring cup for Imid, 1 jug for mixing initial watering solution, 5 gallons of water, 1 bag Mr. Natural Woodland Soil Mix, 1 bag top soil optional, 1 bag compost optional, 1 bag Mr. Natural Worm Castings optional, 1 small shovel & large container for mix soils, 5 baggies of soil additives (HollyTone, Ironite, Soil Moist), pair of scissors, pair of hand pruners, roll of velcro tape, 5 bamboo stakes, 3 bags mulch, extra gloves, extra face masks, planting instructions. See *Checklist*.

5. One or two days before project water the trees so their root balls will be fairly soft. Be sure tools are in good working condition and marked with owner's name.
6. Plan to stage all materials either the day before the project (if there's a secure place to do so) or early the morning of the project before volunteers are due to arrive.

Orientation for volunteers

1. **Welcome volunteers** as they arrive. Ask each participant to sign the *Release / Waiver of Liability* form and fill out and wear a name tag so folks can get to know each other.
2. **Make sure each participant is properly attired --** Dressed for the weather and terrain with long pants and long sleeved shirt, sturdy shoes/boots with socks, work gloves. Provide work gloves for anyone who doesn't have them.
3. **Explain project significance** to natural and human communities *(adjust depending on audience)*:
   - **Aesthetically**, hemlocks contribute greatly to the enjoyment of those who live, work, and play among them, as well as the many people who come to north Georgia for tourism and recreation.
   - **Ecologically**, hemlocks help maintain the health and biodiversity of our forests and provide food and habitat for a diverse population of birds and other animals, shade for native plants, and cool temperatures for trout streams.
   - **Environmentally**, hemlocks are vital for protecting the quality of our waterways and watersheds, preventing soil erosion on mountain slopes and around waterways, and maintaining our air quality.
   - **Economically**, healthy mature trees such as hemlocks support jobs and local tax revenues associated with tourism and recreation and supporting the value of private properties and the community as a whole.
   - **And on a personal note**, hemlocks are the favorite tree of so many people who grew up visiting the woods, taking their children and grandchildren to the woods for memorable family outings, and teaching lessons of respect and personal responsibility, wise use of resources, and environmental stewardship.
   - **But they are under attack** by an invasive insect, Hemlock Woolly Adelgid (HWA), and most will die unless action is taken to prevent it. Even with our efforts to chemically treat as many trees as possible and to support the establishment of biological controls, the overall number of hemlocks in the landscape will be greatly reduced over time.
   - **And that's where we come in**. By planting more hemlocks in partnership with property owners / managers who are committed to caring for them long-term, as we are doing today, we are helping to ensure there will be a population of healthy hemlocks for future generations.
4. **Explain layout of planting site** and location of all materials.
5. **Explain composition** of soil mix and initial watering mix.
6. **Divide volunteers into teams** of 2 – 3 and distribute tools and supplies.
7. **Give personal safety briefing:**
   - Look out for holes, snakes, bees, poison ivy, briars / tangling vines, eye-level branches, steep / slippery terrain.
   - Be careful if crossing streams; don't get wet if weather is cold.
   - Be mindful of heat and adequate hydration, cold and hypothermia, changing weather conditions.
   - Keep eyes open for hazards and ears open for falling branches or trees.
   - Stay within sight/speaking distance of other team members.
   - Seek project leaders immediately in case of a problem.

Planting Tasks

Give out volunteer instructions for planting. Explain the process and demonstrate with the first sapling. Ask if there are any questions. Then get started.

1. If planting site is on a hill, instruct volunteers to start at the top to avoid rocks or debris falling onto workers below.
2. **For each planting site**, the team should go to central location and get a tree, bucket of prepared soil mix, baggie of soil additives, half a bag of shredded hardwood mulch, and gallon of initial watering mix.
3. After removing the marker flag, **dig a hole** 3 times the width of the container (i.e., you could place the pot in the hole 3 times in a triangle or square) but only 2" deeper than the dirt in the container. Pile the removed dirt next to the hole. *Note:* If planting site is on a hill, depth of the hole on the down-side edge should be 2" deeper than the dirt in the container; depth of hole on the up-side edge may be considerably more.

4. **Combine the bucket of soil amendment with the native soil** removed from the hole in a ratio of 2/3 native soil to 1/3 soil amendment. Put 2 – 3 inches of this soil mix back into the hole.
5. **If the sapling is in a container, remove it carefully** and set container aside. Tickle the root hairs so they're facing outwards. If the roots are pot-bound, use a sharp tool to make several half-inch-deep scrapes all around the root mass to free them.
6. **Place the tree in the center of the hole** so it's sitting a couple inches above grade. *Note:* If planting site is on a hill, place the tree closer to the down-side edge, being sure it's only slightly above grade.
7. **Fill the hole halfway** with soil mix. Then **sprinkle contents of soil additives baggie** all around the roots of the tree.
8. **Fill the hole the rest of the way** with soil mix so that it just covers the root ball. Firm the dirt with foot to eliminate air pockets. The tree should now be sitting exactly at grade, level with the surrounding ground. *Note:* Don't create a "watering saucer" around the tree.
9. **Place the bamboo stake** close to the trunk on the back side of the tree and push it firmly into the soil until you reach original earth and it's stable.
10. **Use velcro tape** to secure the main stem to the bamboo stake LOOSELY at the half-way point and about 6 inches from the top. This tape should be removed by the end of the first year.
11. **Apply 2-3 inches of shredded hardwood mulch** from the trunk out to the drip line, pulling the mulch back couple of inches so it's not actually touching the trunk. This is to maintain stable soil moisture and temperature.
12. Immediately after planting, **water thoroughly** but slowly right at the base of the tree, using 1 gallon of initial watering mix per gallon of root ball. Two or three hours later, firm the dirt again with foot to eliminate any remaining air pockets and **water again with plain water**, using 1 gallon of plain water per gallon of root ball.

At end of planting project

1. **Collect SGH tools**, other supplies, and empty containers from volunteers and make sure all are accounted for. Clean tools. Make note of anything that needs repair or replacement.
2. **Forward original** signed *Release / Waiver of Liability* forms to Donna, copy retained by project leader.
3. **Thank volunteers for their good work** and wish them safe travel home.

Ongoing maintenance of saplings

1. Provide the property owner / manager a copy of *Caring for Your Hemlock Sapling*.
2. The property owner / manager will be responsible for all ongoing maintenance of the saplings, including watering the trees during the establishment period and times of severe drought, monitoring them for health, and continuing HWA protection.
3. The property owner / manager should contact SGH if any problems are observed.