



## SOLVE Project Plans: *Litter Cleanup*

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### Background:

Litter can cause many problems including:

- Reducing the visual appeal of a city, natural area, or park
- Harming wildlife
- Harms waterways, including water quality
- The presence of litter can cause others to litter an area more frequently
- Litter can cause a fire hazard if it is allowed to accumulate

### Learning Objectives:

- Volunteers will gain an understanding of how litter can impact the health of the environment.
- Volunteers will learn how to properly dispose of litter and recyclables.

### Service Objectives:

- Volunteers will remove all the litter from their project site and dispose of it properly.

### Materials Needed:

- Garbage bags
- Hazardous Material container
- Gloves
- Tally sheet

### Instructions:

1. Introduce volunteers to the damage plastics and other materials found in litter can cause to the environment.
2. Make sure volunteers are aware of the common types of hazardous materials and how to properly handle and dispose of them.
3. Have volunteers spread out and cover the entire site, placing all the trash and recyclables they find along the way into garbage bags. To make sorting easier it may be preferable to have volunteers work in pairs, one volunteer collecting trash and the other collecting recyclables.
4. After all the trash and recyclables have been removed volunteers will tally the number of bags they collected and sort them into recyclables and trash.
5. Volunteers can then share this tally with a local government agency or non-profit who is working to reduce litter. The tally should also be reported to SOLV for use in our reports.

### Reflection Idea:

Ask volunteers to think about the question:

- How much trash do you produce in a day?

Then have volunteers discuss ways they can reduce the amount of trash they produce.

### Additional Resources:

- Metro Recycling Hotline (Portland-Metro area only)
  - 503-234-3000
- Clackamas Dumpstoppers (Clackamas County Only)



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- 503-650-3333
- Washington County Waste Prevention (Washington County Only)
  - <http://www.co.washington.or.us/HHS/SWR/WastePrevention/>
- Oregon Adopt-A-Highway (Statewide)
  - <http://www.oregon.gov/ODOT/HWY/OOM/Adopt/aHwy.shtml>
- Oregon Department of Environmental Quality Illegal Dumping Page
  - <http://www.deq.state.or.us/lq/pubs/factsheets/sw/CombatIllegalDumping.pdf>



## SOLVE Project Plans: *Invasive Plant Removal*

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### Background:

- Invasive plants out-compete native trees and shrubs and create mono-cultures, areas dominated by a single species, reducing the habitat available to local wildlife.
- Invasive plants often have shallow root systems which do little to reduce erosion or remove undesirable pollutants from runoff.
- Removal of invasive plants must be followed by planting of native plants in order to keep the invasive plants from returning.

### Learning Objectives:

- Volunteers will learn the ways in which invasive plants can damage native plants, create mono-cultures, increase erosion, and destroy animal habitat.
- Volunteers will learn how to identify invasive plants.
- Volunteers will learn how to properly remove invasive plants using manual techniques.

### Service Objectives:

- Volunteers will remove any invasive plants present at the site.

### Materials Needed:

- Gloves
- Shovels
- Loppers

### Instructions:

1. Provide an overview and definition of invasive plants.
2. Work with volunteers to identify the invasive plants which are present at the restoration site.
3. Explain ways in which invasive plants damage riparian areas.
4. Explain the benefits of manual invasive removal to volunteers in comparison with other techniques.
5. Demonstrate proper manual removal techniques for appropriate invasive plants. (Ideal dates for invasive plant removal depends on when the plants go to seed, contact a local watershed restoration professional for specific advice)
  - a. English Ivy – If ivy is on the ground pull up by hand when possible, and cut off vines as necessary. For ivy attached to trees cut ivy in a circle around the tree at shoulder height and then at knee height. Once the ivy is disconnected from the ground the plant material higher up will slowly die away. Removing the cut material from the site will reduce chances of the plant re-rooting.
  - b. Morning Glory – Pull out by hand. Removing the cut material from the site will reduce chances of the plant re-rooting.
  - c. Himalayan Blackberry – Cut using loppers until about one foot of stem remains. Using a shovel dig up the root under the stem, make sure you get the large woody part of the root known as a root ball.
  - d. Scotch Broom – Cut down stems as low to the ground as possible. Once the majority of the plant material is removed the plant will die away.
6. Supervise volunteers to ensure proper removal.



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7. If invasive plant removal will not be immediately followed with native planting seed or straw should be spread to reduce the chance of weeds invading as well as decreasing erosion.

### **Reflection Idea:**

Have volunteers survey their site before they begin their work, take a mental “picture” and then look at it again when the work is completed. This activity will give everyone a sense of accomplishment over time. Take time to reflect on the service experience as well as the importance of teamwork in completing the service project.

### **Additional Resources:**

- Center for Invasive Species and Ecosystem Health
  - <http://www.invasive.org/>
- East Multnomah Soil and Water Conservation District
  - <http://www.emswcd.org/weeds>
- Oregon State University Extension Service
  - 503-655-8631
  - <http://extension.oregonstate.edu/>
- The Silent Invasion Invasive Plant Guide
  - <http://www.opb.org/programs/invasives/guide.php>
- Your Local Watershed Council or Soil and Water Conservation District
  - <http://www.oregonwatersheds.org/> or <http://www.oacd.org/>



## SOLVE Project Plans: *Native Tree and Shrub Planting*

### Background:

Native trees and shrubs provide numerous benefits:

- Resistance to pests and diseases
- Easy care, requiring less water
- Provide food, and shelter for native wildlife
- Reduce the amount of polluted runoff to waterways
- Require little long-term maintenance if they are properly planted
- Produce long root systems to hold the soil in place and reduce erosion
- Protect water quality by shading the stream to reduce temperature
- Moderating floods and droughts

### Learning Objectives:

- Volunteers will learn how to properly plant native species.
- Volunteers will learn how planting native plants improves wildlife habitat and water quality, and reduces erosion.

### Service Objectives:

- Volunteers will plant native trees and shrubs at a restoration site

### Materials Needed:

- Gloves
- Water
- Shovels
- Native plants
- Flagging tape

### Instructions (These instructions are for potted plants):

1. Identify the native trees and shrubs the volunteers will be planting and explain the role they play in a healthy riparian area. Explain the many environmental benefits gained by planting native trees and shrubs (See *Native Plant* activity for additional information).
2. If requested by the restoration site partner, flag plants with flagging tape for future identification.
3. Demonstrate to volunteers how to properly prepare and plant the native trees and shrubs.
  - a. Using a shovel, scrape all the grass and other vegetation from a radius of two or more feet from where the plant will be placed.
  - b. With the shovel, make a planting hole the depth of the soil in the container and at least two times as wide as pot containing the plant. A wide hole gives trees a better chance at survival.
  - c. Remove roots and large rocks from the soil taken out of the planting hole.
  - d. Carefully remove the plant from the plastic container without yanking the plant by the stem. The plant can be loosened by squeezing the container. You may need to turn it on its side or upside down.
  - e. Unwind the roots if they are wound around the container, so that they dangle down. It is okay if you break some of the roots, it is very important that the roots become straightened out.



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- f. Stand the plant in the hole so that the stem where it emerges from the root mass will be exactly at the surface when the hole is backfilled. The roots should dangle down and not bend. Spread the roots out within the hole. Add loose soil to the bottom of the hole if needed to keep the plant at the proper height.
  - g. Backfill the hole with the soil you removed when digging the hole. Tamp gently with hands or feet after backfilling. When finished, the soil surface should be just above the level where the plant roots begin.
4. Supervise volunteers and ensure that all plants are planted properly.

### Reflection Idea:

In small groups have volunteers discuss the following questions: In 10 years how will the restoration area we have planted changed? In 10 years how will we have changed? After 5 minutes have the small groups report out to the larger group.

As we planted the trees and shrubs why was it important to straighten the roots, keep the root collar even with the ground, and pack the dirt firmly after backfilling the hole?

### Additional Resources:

- Arbor Day Foundation
  - [www.arborday.org](http://www.arborday.org)
- Local Native Plant Nurseries
- Natural Resources Conservation Service
  - <http://www.nrcs.usda.gov/feature/backyard/treepg.html>
- Oregon Association of Nurseries buyers Guide
  - [www.nurseryguide.com](http://www.nurseryguide.com)
- Oregon Flora Project,
  - [www.oregonflora.org](http://www.oregonflora.org) or (541) 737-4338
- Oregon State University Extension Service - Gardening with Native Plants West of the Cascades
  - <http://extension.oregonstate.edu/catalog/html/ec/ec1577/>
- SPROUT, Sustainable Plant Research and Outreach,
  - <http://www.sproutoregon.org> or 503-584-7252
- Your Local Watershed Council or Soil and Water Conservation District
  - <http://www.oregonwatersheds.org/> or <http://www.oacd.org/>



## SOLVE Project Plans: *Coffee Bagging and Caging*

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### Background:

Animals, invasive plants, and weeds can damage newly planted native plants at a restoration site. In order to protect the young plants from animals, restoration professionals install caging. If invasive plants or weeds will be a threat, coffee bags can be installed.

### Learning Objectives:

- Volunteers will learn how animals and invasive plants can damage newly planted trees and shrubs.
- Volunteers will learn how to properly install coffee bags and/or caging around native plants.

### Service Objectives:

- Volunteers will install coffee bags and/or caging around native plants at their restoration site.

### Materials Needed:

- Coffee bags (2 per plant)
- Landscaping staples (6-8 per plant)
- Caging (enough to surround each plant)
- Wire cutters
- Mallets
- Wooden stakes (2 per plant)

### Instructions:

1. Introduce volunteers to the need for maintenance of the restoration site after it has been planted. Show any available examples of damage caused to newly planted trees and shrubs by animals and invasive plants.
2. Demonstrate how to place coffee bags around each plant.
  - a. Place two coffee bags over any invasive plants surrounding the native plant.
  - b. Stand on the coffee bags until they are close to the ground making sure that the coffee bags completely surround the plant with the stem in the center.
  - c. Using the mallet, hammer the staples through the bag and into the ground, 4 staples are usually sufficient.
3. Demonstrate how to install protective caging around each plant.
  - a. Cut enough caging to surround the plant allowing room for the tree or shrub to grow.
  - b. Surround the plant with the caging and enclose the plant by folding over the loose wiring on the cage.
  - c. Place two stakes through the caging and into the ground on opposite sides of the plant.
4. Supervise the volunteers as they repeat the above steps on all the plants requiring maintenance.

### Reflection Idea:

Have volunteers answer the following questions: What are other ways to protect new plants from animals or invasive plants? What is the difference between a native animal and an invasive animal?



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### **Additional Resources:**

- Oregon State University Extension Service
  - 503-655-8631
  - <http://extension.oregonstate.edu/>
- Your Local Watershed Council or Soil and Water Conservation District
  - <http://www.oregonwatersheds.org/> or <http://www.oacd.org/>