

Can Solarization be Used to Control Himalayan Blackberry and Scotch Broom?

Andrew Fraser
Kern Ewing and Sarah Reichard

Background

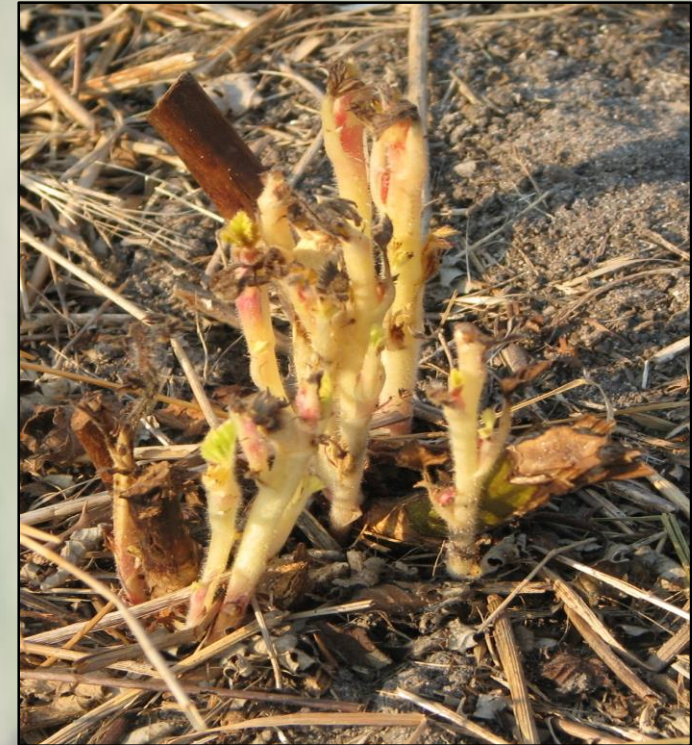
Himalayan Blackberry (*Rubus armeniacus*) and Scotch Broom (*Cytisus scoparius*) are two widespread invasive plants in the Pacific Northwest. Control of these plants often requires constant vigilance and repeated visits to ensure no root fragments (*R. armeniacus*) or seeds (*C. scoparius*) remain to reinfest an area. The goal of this thesis is to see if solarization can be used to kill the root wads and seed banks of these two invasive species.

Goals

1. Can solarization be used to kill the root wads and seed banks of *R. armeniacus* and *C. scoparius*?
2. Does increasing the soil temperature show a corresponding decrease in seed bank viability?
3. Is black or clear plastic better at controlling these weeds?

What is Solarization?

Solarization is the use of thin plastic sheets to cover the ground and capture the sun's energy to heat the soil. Over prolonged periods of time, the soil becomes hot enough to kill root fragments and reduce seed viability.



Methods

Field experiment

- Located in the Union Bay Natural Area during the summer of 2011
- 24 - 10'x10' plots: 12 *R. armeniacus*, 12 *C. scoparius*
- 3 replicates of 4 treatments: control, mowed, clear plastic, and black plastic
- Stems and root wads counted before experiment, initially after experiment, and the following summer
- Seed bank samples taken before and after experiment

Greenhouse experiment

- *R. armeniacus* and *C. scoparius* seeds
- 3 replicates of 3 treatments: no plastic, clear plastic, and black plastic
- Tested at temperatures of 20C, 30C, 40C, and 50C
- Pretreated and untreated seeds
- 125 seeds per plot