

War-on-Weeds Project 2009

Introduction

The Environmental Surveillance, Education and Research Program (ESER) conducts, manages and coordinates ecological and environmental research, offsite environmental surveillance, and environmental education for the Idaho National Engineering and Environmental Laboratory (INL). To further ESER's environmental education objective, the ESER Program created the War-on-Weeds Project to involve local high school students in identifying and mapping noxious weeds on the INL and surrounding counties. In 2009, two teams from Butte County were recruited for the War on Weeds projects

Noxious Weeds

A weed is designated noxious when it is considered by a governmental agency to be injurious to public health, agriculture, recreation, wildlife, or property. In Idaho, noxious weed regulations are covered by Title 22, Chapter 24 of the Idaho Code.

Noxious weeds, by definition:

- Have the ability to spread rapidly
- Reproduce in high numbers
- Crowd out native plants
- Tend to be very difficult to control

The Noxious Weed Law requires landowners, including the Department of Energy, to eradicate noxious weeds on their land. Of the 57 Idaho weeds that have been defined as noxious, 14 are found on the INL.

Detection of noxious weed infestation is an early step in their control. Mapping weed locations helps weed control agents develop effective strategies to eliminate these biological invaders.

Project Description

The War-on-Weeds project encourages students to identify and solve local community problems. In order to provide War-on-Weeds interns with real-life problems and real-life solutions, the ESER Program has developed collaborative agreements with government agencies including Bingham County and Lost River Cooperative Weed Management Areas, the Department of Energy, the Idaho National Engineering and Environmental Laboratory (INL), the Forest Service, and the Department of Agriculture.

The War on Weeds Project is a "learn by doing" project that employs students for a six-week period. The students map noxious weeds on the INL and surrounding communities using Global Positioning System (GPS) units to establish weed locations and identities for the Idaho State Department of Agriculture (ISDA) and INL. The GPS locations are then integrated into Geographic Information System (GIS) technology for map production. The maps identify noxious weed species and their specific locations, enabling efficient treatment or control

Selection of student team members is based on academic achievement and commitment to complete the program.

During the War on Weeds Project interns learned:

- Why noxious weeds are of such great concern.
- To identify noxious weeds found on INL and surrounding areas.
- To manipulate Global Positioning System (GPS) units and gather data.
- To use ISDA-established data dictionaries to synchronize data collected by the War-on-Weeds team with other data collection agencies in the State of Idaho.
- To manage data collected for inclusion in Idaho State Department of Agriculture and INL noxious weed maps.
- To produce weed maps using GIS.
- To develop marketable job skills (GPS/GIS technology).
- To work together as a team.
- To gather, analyze and present data.
- To perform basic science research techniques.
- To develop critical thinking and problem solving skills.

War-on-Weeds 2009

Five team members were recruited from Butte County High. Three college students, were recruited from Brigham Young University-Idaho and Idaho State University. The 2009 War on Weeds program began June 8th and ended July 16th. Students mapped locations on the INL, within the Challis National Forest and in Butte County (Figure 1).

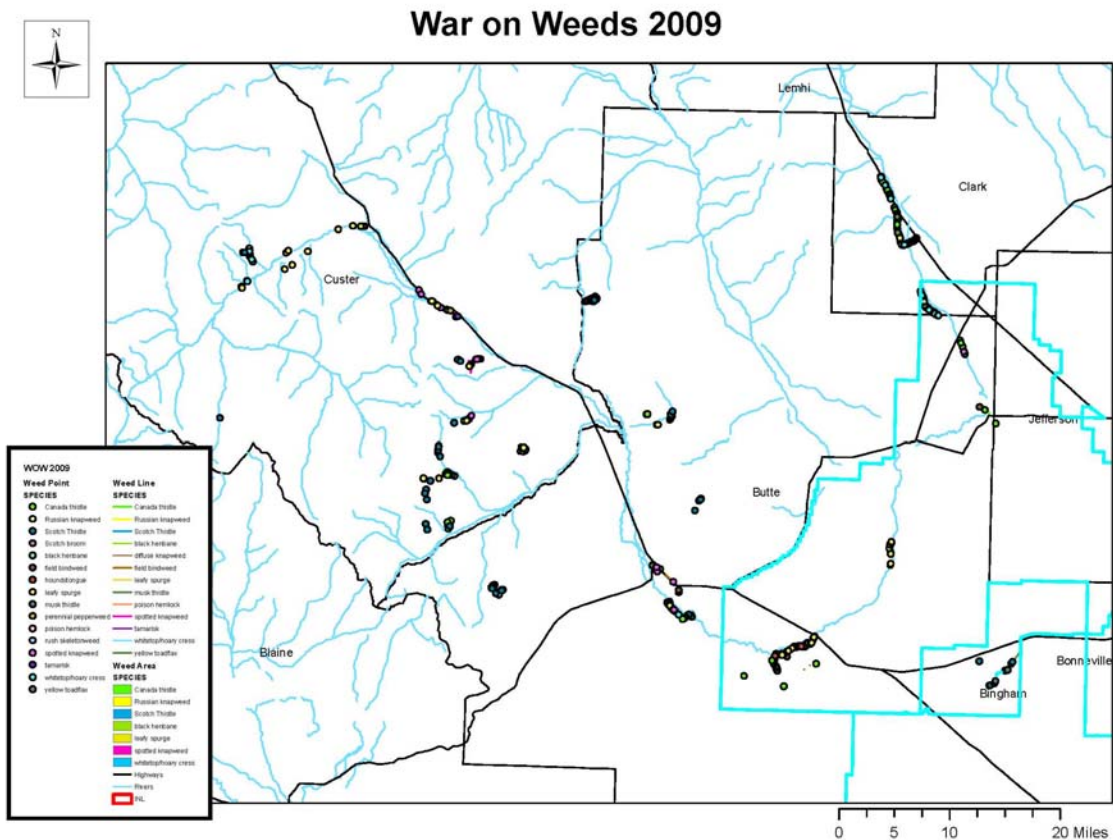


Figure 1. 2009 War on Weeds

During four weeks of the internship, the teams mapped the Big Lost River drainage from the west boundary of the site to US Highway 20/26, the Big Lost River Sinks area and the Birch Creek drainage within the INL and for a distance north of the INL for noxious weeds, as shown in the following map (Figure 2). Alana Jensen, Environmental Surveillance, Education and Research Program, supervised this portion of the program and provided training.

The WOW teams remapped a portion of the Big Lost River drainage and the Sinks area that was mapped in 2006 and 2007 to compare leafy spurge occurrences. This year's data shows a marked decrease in the amount of leafy spurge in the Sinks area (Figure 3), as compared to previous year's data (Figures 4-5).



War on Weeds 2009 INL

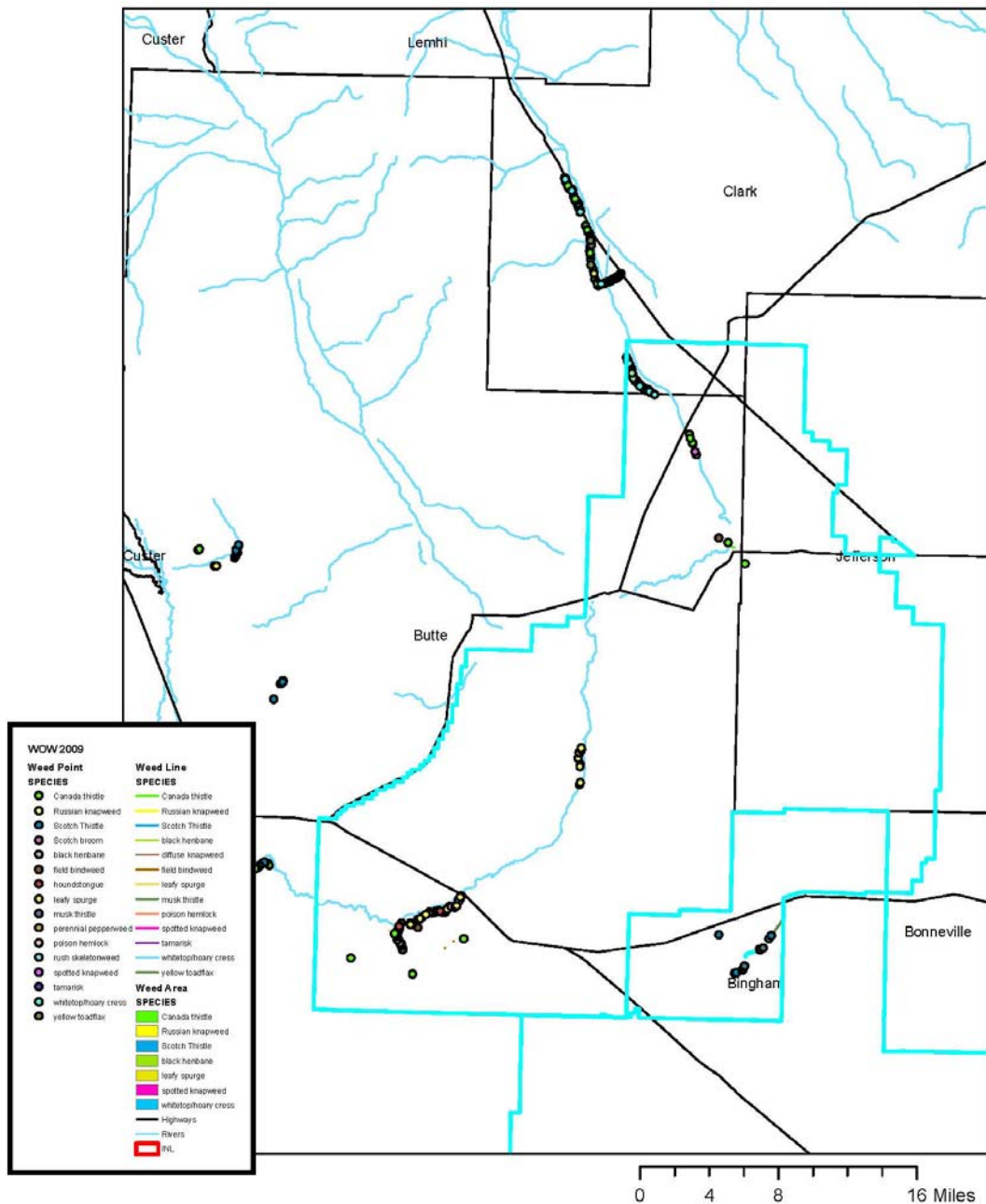
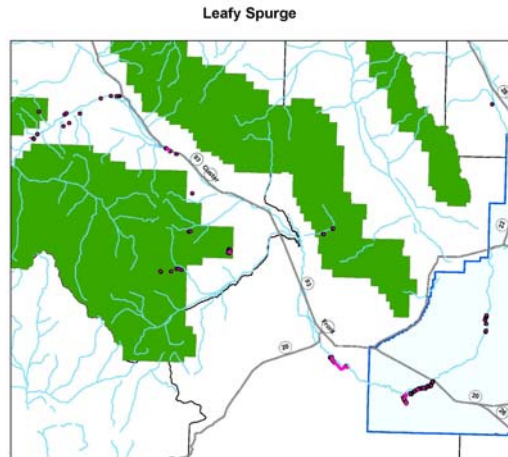
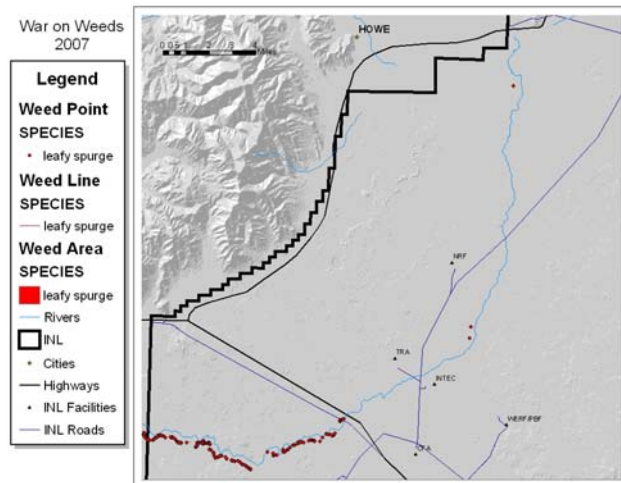


Figure 2. War on Weeds 2009



**Figure 3. Leafy Spurge mapped in 2009
(Leafy spurge is highlighted in pink)**



**Figure 4. Leafy Spurge found on the INL - 2009.
(Note: Leafy Spurge is highlighted in red.)**

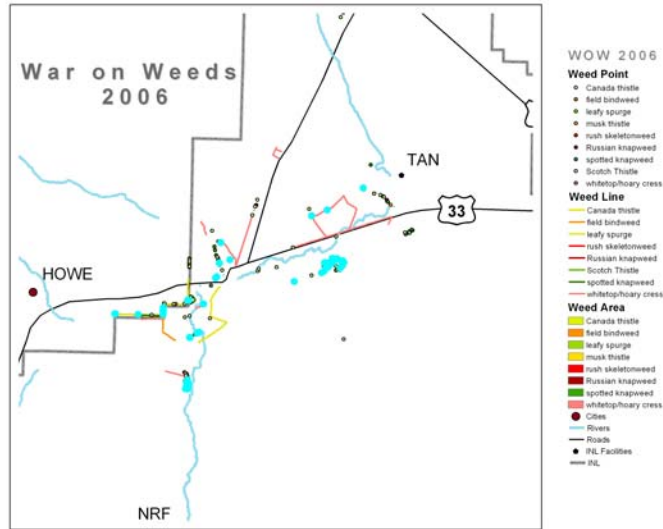


Figure 5. Leafy spurge found on the INL - 2006.
(Note: Leafy spurge is highlighted in turquoise.)

The WOW team did find a large amount of whitetop along the Birch Creek drainage (Figure 6), as well as an occurrences of rush skeletonweed just north of the INL boundary on the Birch Creek drainage (Figures 7) and two findings of tamarisk within the INL boundary (Figure 8).



Figure 6. Whitetop/Hoary Cress on and near the INL.

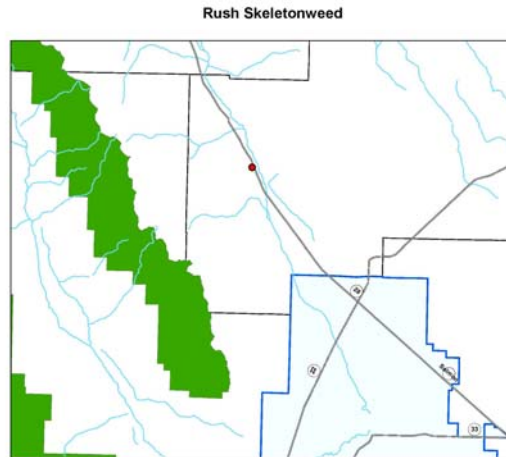


Figure 7. Location of Rush Skeletonweed on Birch Creek drainage north of INL.

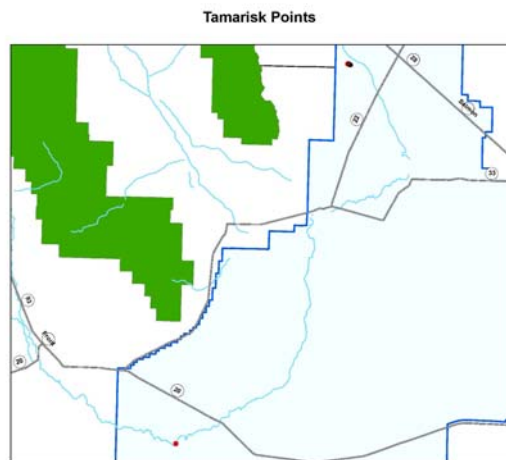


Figure 8. Locations of Mapped Tamarisk on the INL.

The teams found a large number of dalmation toadflax plants along the Birch Creek drainage north of the INL. Dalmation toadflax has never been identified on the INL, but may prove to be a future issue (Figure 8).

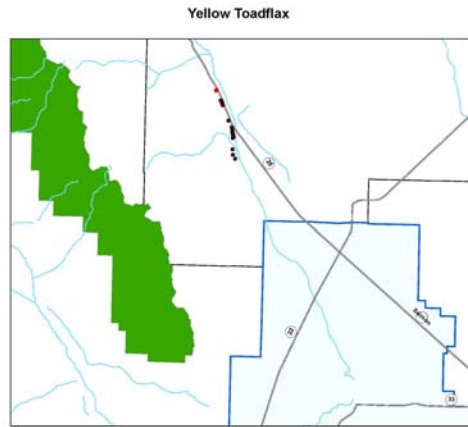


Figure 9. Dalmation Toadflax along the Birch Creek drainage.

The WOW teams spent two weeks of the internship mapping noxious weeds within Butte County and for the U.S. Forest Service, Lost River Ranger District (Figure 10). Brad Gamett, superintendent of Butte County Noxious Weed Department and Carmela Leavitt, U.S. Forest Service, provided supervision during this portion of the project.



War on Weeds 2009 Butte County

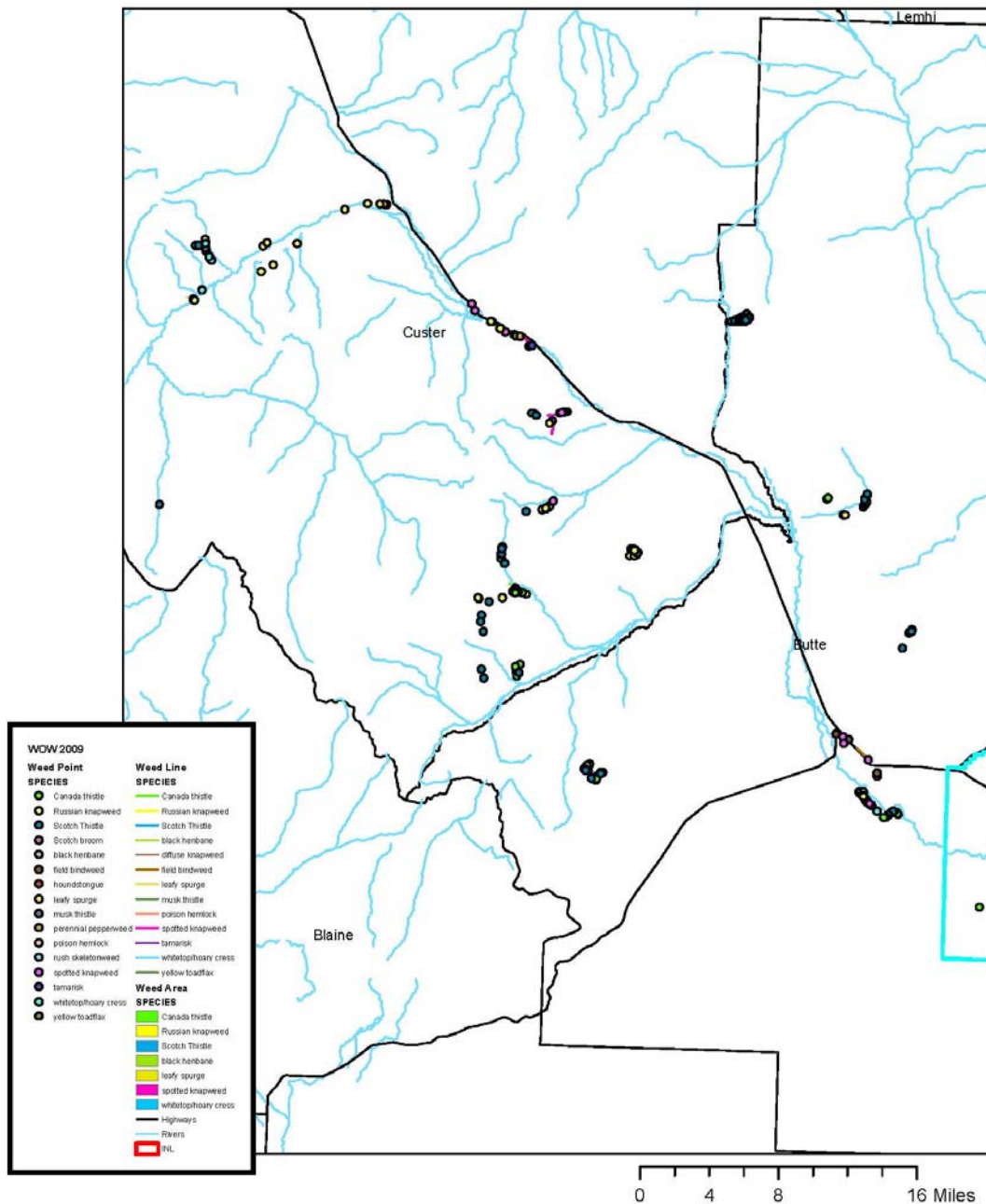


Figure 10. Butte County Weed Map - 2009.

Noxious weed data collected by the War-on-Weeds teams is submitted to the ISDA- and INL-noxious weed databases. INL will follow the student team with chemical and mechanical weed control, using the GPS locations collected by the students.

Students also participated in two Education Days this year--a tour of geological and historical sites on the INL and collecting flea beetles for leafy spurge bio control with the LRCWMA.

Lessons Learned

Teams became proficient at GPS/GIS technology, worked well together, and compiled useful data during this project.

WOW teams receive extensive safety training on the first week of the project:

- Teams were trained in weed identification and GPS/GIS systems.
- Teams were trained on safe dirt road driving, including checking under vehicle for trapped weeds and staying on-road.
- Teams were trained in fire safety, rattlesnake safety and first aid.
- Teams were required to have a safety meeting and to sign and turn in a safety checklist daily.
- A diesel vehicle with higher clearance will be requested for next year's project.

Conclusion

“Idaho, like many states in the West, has a serious noxious weed problem. Often called a resource issue, it is in reality, like many "issues", mostly a "people" problem. Noxious weeds, like floods and wildfires, respect no ownership or jurisdictional boundaries. The negative impacts of noxious weeds are equally felt on private, state and federal lands. Likewise, the ability to turn the tide on noxious weeds will depend on the ability and willingness of local people of many stripes to work together under the umbrella of common goals, priorities, and genuine commitment. The best known and tested way to do this is through the mechanism of a Cooperative Weed Management Area (CWMA). Following any one of several existing models, the CWMA concept can unleash the creative power and action of local people. Real change rises up. “

Glen Secrist, Idaho State Department of Agriculture

War-on-Weeds 2009, working under the umbrella of the Lost River CWMA, was successful in uniting federal and state agencies to work together for a common goal. The Department of Energy is required by the State of Idaho, as a landowner, to control noxious weeds within the INL's boundaries. The War on Weeds Project helps accomplish this obligation, while providing educational opportunities to area students. Data collected for the Idaho State Department of Agriculture from the INL and Butte County fulfills its obligation to administer the State Noxious Weed Law.

The War-on-Weeds Projects benefits the interns involved in the project, the DOE, ISDA, and the surrounding communities. These benefits include:

1. Public awareness of ecological concerns at INL and surrounding communities, specifically noxious weeds.
2. Student involvement in learn-through-doing science projects.
3. Student participation in solving a real-world, local community problem.
4. Collection of scientific data that is useful to government agencies.

Acknowledgements

- ESER Program – Training, supervision and recruitment
- Butte County Noxious Weed Department, Brad Gamett – Supervision and accounting
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