



The Squaw Creek Soil Conservation District crew releases a biocontrol agent on Rush skeletonweed noxious weeds in the Ola area on private lands in September 2026. (photo courtesy Leanne Buck/Squaw Creek SCD)

IDAHO CONSERVATION DISTRICTS, COUNTIES, SOUTHERN IDAHO “BUG CREW,” DEPLOY BIOCONTROL AGENTS TO COMBAT NOXIOUS WEEDS

By Steve Stuebner

The Squaw Creek and Gem soil and water conservation districts near Emmett have been experimenting with biocontrol agents on rush skeletonweed, poison hemlock and purple loosestrife since 2022 to reduce the spread of noxious weeds on private lands.

Leanne Buck, administrator for both districts, showed me some “galls” forming on rush skeletonweed plants behind the District shop. The galls contain thousands of tiny mites working to retard the growth of the noxious weeds.

Buck is trying to create an “insectary” behind the district shop, where they could collect more mites to be used on other Rush

Target Weeds

Biocontrols have been found to be most effective on the following noxious weeds in Idaho:

1. Dalmatian toadflax
2. Yellow toadflax
3. Purple loosestrife
4. Leavy spurge
5. Leafy spurge
6. Spotted knapweed
7. Diffuse knapweed
8. Rush skeletonweed
9. Mediterranean sage
10. Russian knapweed
11. Saltcedar
12. St. Johnswort

skeletonweed plants elsewhere in the future.

The Nez Perce Biocontrol Center, based in Lapwai, sent an expert to Gem County in 2022 to help Buck and the districts release biocontrol agents to combat the spread of poison hemlock and purple loosestrife as well. That is one of the services provided by the Nez Perce Biocontrol Center, plus they store a variety of biocontrol agents for specific noxious weeds on site. Upon request, the agents can be sent to other conservation districts or county weed control officials in Idaho.

“The Nez Perce Biocontrol Center was really helpful in assisting us in our releases,” Buck said. “They’ve

got a lot of expertise in the biocontrol area.”

There is no cost in acquiring the biocontrol agents from the Nez Perce Biocontrol Center. But they may charge for shipping or request that shipping containers be returned to keep their costs down, officials said.

All of Idaho’s county weed control programs, some conservation districts, and federal land management agencies are using biocontrol agents as part of a multi-pronged strategy to combat noxious weeds in Idaho. Counties and landowners are required by state law to control and prevent the spread of noxious weeds, but some are more active than others.

It’s expensive and sometimes cost-prohibitive to spray herbicides on large acreages of private or public lands to combat noxious weeds. Biocontrols can help slow the spread of some noxious weeds, and some biocontrols have been quite effective in nearly killing off the target weeds.

BIOLOGICAL WEED CONTROL

FACTS:

- Biological control uses natural enemies to work against pests—plant, animal, or insect
- Biological control agents reproduce on their own, increasing their numbers and attacking more weeds without additional work or cost.
- Biological control organisms target specific plants and are carefully tested to ensure they will not harm desirable plants.
- Biological control is not a “quick fix”. It can take several years for agents to increase in numbers to see drastic improvement.

“It is a slow process, but biocontrols can be effective,” Buck said.

The Nez Perce Biocontrol Center is the key place in Idaho for weed managers to obtain biocontrol agents for noxious weeds. The center’s website: <http://www.nezpercebiocontrol.com>, lists 28 biocontrol agents that are available

currently. Experts also recommend collecting biocontrol agents locally to match the elevation and climate.

“It’s always best if you can collect the biocontrols from the local area,” says Joey Milan, National Biological Control Specialist for the BLM, who is based in the Idaho State BLM Office in Boise.

The Idaho State Department of Agriculture lists over 70 invasive, non-native plant species as official noxious weeds under state law,



Bright gold flowering-type features on Rush skeletonweed are known as a “gall,” in which thousands of mites are working to inhibit plant growth.



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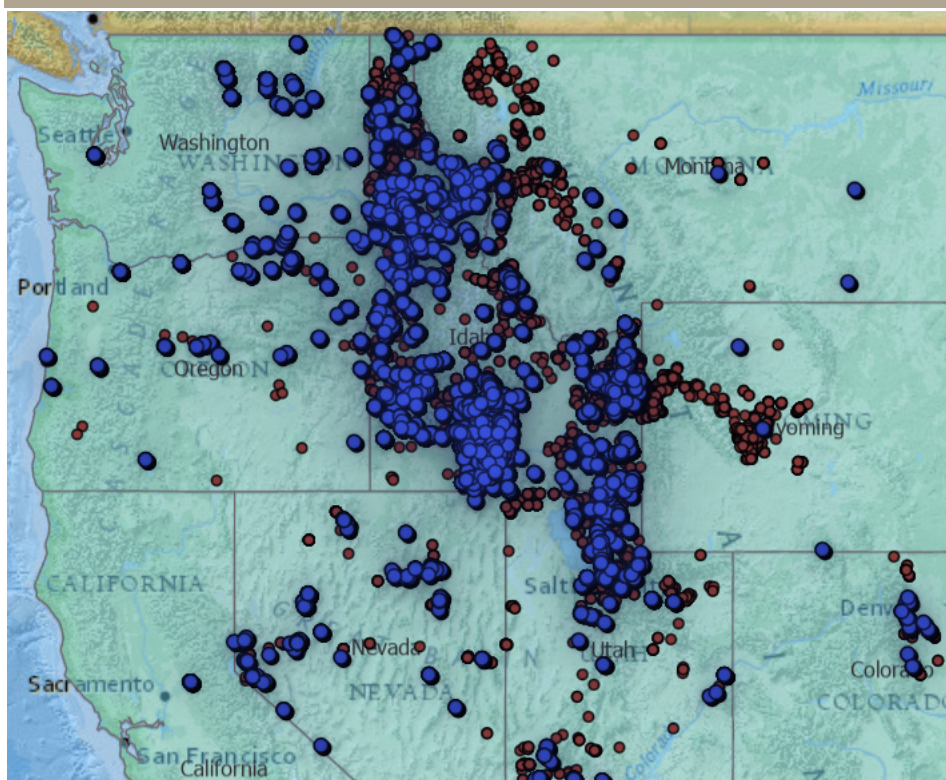


Image from <http://ibiocontrol.org> shows biocontrol release sites (dark red dots) and SIMP monitoring sites (blue dots) in Idaho and the West. The Southern Idaho Biocontrol “Bug Crews” have played a large role in that outreach work.

threatening agriculture, waterways, and native ecosystems.

Rush skeletonweed is a ubiquitous noxious weed in Idaho – it has infested more than 4 million acres of land across all ownerships. The weed may be found on roadsides, gulleys, and disturbed areas, including post-fire burn zones. But it is particularly problematic when it invades native shrub-steppe habitat on Idaho rangelands – important lands for livestock grazing and wildlife – crowding out valuable perennial plants.

Bradyrrhoa gilveolella, a root moth that has been quite effective in attacking rush skeletonweed, was released in the Garden Valley area a number of years ago to reduce the infestation in an area that’s prime winter range for mule deer and elk.

The moth attacks the deep roots of rush skeletonweed and can lead to a complete kill of the plant, officials

said.

Bethany Muffley, Noxious Weed Coordinator for Ada County, said the Garden Valley location has been an active “insectary” of the root moth for a number of years. Because of the density of rush skeletonweed in the area, it’s been a good place for weed officials to collect the biocontrol agents for use in similar settings that have been infested.

The good news, recently, is that the root moths have reduced the population of rush skeletonweed in the Garden Valley area to the point where it’s difficult to collect them.

“That’s quite a success story,” Muffley noted.

There is a new “insectary” site above Arrowrock Reservoir, east of Boise, where people can collect the root moths to attack rush skeletonweed, she noted. Muffley’s weed crews have been releasing root moths in the Boise Foothills

area to target large infestations of rush skeletonweed.

The Southern Idaho Biocontrol Program Crew (SIBC) recently was collecting root moths in the same location for the Nez Perce Biocontrol Center. Junior high and high school students from Camas, Gooding, Jerome, Lincoln, Blaine and Twin Falls counties have been hired to work on the “Bug Crew” – as they’re known – to collect biocontrol agents and monitor the progress of “insectaries” where biocontrol agents are working in the field.

They collected 1,300 moths above Arrowrock with aspirators, a large plastic straw with a filter to avoid sluffing scales from the moths, that allows the collector to suck a moth into the straw to be captured and packaged for future use.

“I watched the kids collecting the moths, and it was the coolest thing ever,” said Abigail Crawford, an entomologist with the Nez Perce Biocontrol Center.

“The root moth can be really effective,” Crawford said. “It’s been crashing a number of rush skeletonweed insectary sites.”

Turns out that Muffley got her start working on biocontrol when she got hired to supervise the Southern Idaho Biocontrol Program Crew – known widely as the “Bug Crew” – in the mid-2000s, right after she finished her degree in forest ecosystem management.

“Basically, the kids taught me what we do,” she said.

According to a USDA article for the Society of Range Management, the Bug Crews:

- 1) Make new biocontrol insect releases.
- 2) Monitor the establishment of initial releases in the target area.



Members of the student-led Southern Idaho Biocontrol Program Crew, known as the “Bug Crew,” lay out a transect to measure the density of noxious weed plants. (Courtesy ibiocontrol.org)

- 3) Determine when insect populations are ready for collection and further distribution
- 4) Collect and distribute insects into other target areas,
- 5) Conduct long-term monitoring of the plant community to see that insects used for biocontrol have successfully reduced populations of the target plant.

The Bug Crew was formed initially in 1998 with leadership from the Camas Soil Conservation District, a Camas County teacher, the U.S. Forest Service and University of Idaho Extension Service. In 2005, the Wood River RC&D obtained grant funding to expand the program to Gooding, Lincoln and Blaine counties.

A big part of their job is to monitor the progress of insectary sites

throughout Southern Idaho, using the “Standard Impact Monitoring Protocol (SIMP),” Milan says. On the web site, ibiocontrol.org, there is a tab for SIMP, which is a nationally recognized and adopted platform for performing monitoring and analysis on biocontrol release sites.

“The data captured is used to document vegetation cover, target weed density, and biocontrol agent abundance. When conducted annually, this monitoring data will document changes that occur over time,” the website says.

A map of the western United States on ibiocontrol.org shows that Idaho has been doing a good job of documenting the progress of biocontrol sites. Much of that work has been done by the Southern Idaho “Bug Crews,” Milan says.

It’s a great educational opportunity for the kids to learn about noxious weeds, noxious weed management and control, and biocontrol agents, Muffley said.

“That crew really opened my horizons for what I might want to do in my career, and it opens the horizons for the students as well,” she said.

A total of about 30 students work on “Bug Crews” in Blaine, Camas, Gooding, Jerome, Lincoln and Twin Falls counties each year. It’s a paid position. Funding is provided by cost-share grants from ISDA, counties, BLM and Forest Service. The program is supervised by Becky Freiberg, a science teacher at Gooding High School. Milan collaborates with them frequently as well.

Milan says the Bug Crew's work in Idaho has been instrumental in staying abreast of how biocontrol efforts are working or not working.

"Biocontrol will never completely eradicate its target," Milan says. "While we still have millions of acres of rush skeletonweed, for example, I can show you sites where we have 99% reduction in populations compared to when biocontrol was initially released. The moving target nature of "control" is problematic when framing what "success" actually looks like," he says.

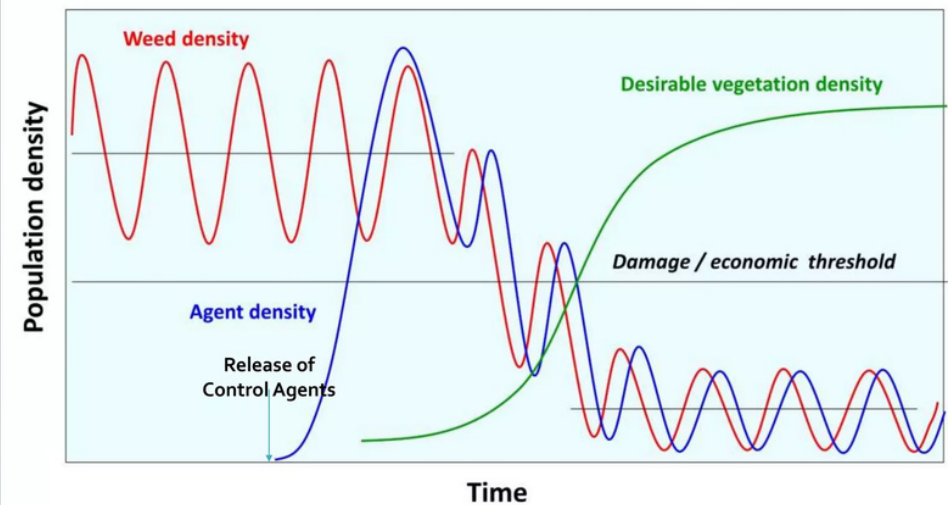
Because of all the entities working on biocontrol in the state, "Idaho is for sure considered a leader in biocontrol," he said. "Between the Nez Perce Biocontrol Center, the Southern Idaho Biocontrol Crew, the USFS Forest Health Protection entomologists, and what the BLM brings to the table, we are exporting biocontrol to surrounding states and leading the way when it comes to long-term monitoring using SIMP. We have provided a blueprint for surrounding states and their respective biocontrol programs."

Idaho needs more funding for research and development and direct weed control, Milan said.

"Biocontrol is the only long-term, sustainable option for many of the landscape-level infestations we deal with across the West, including in Idaho."

Back to Gem County and the Gem and Squaw Creek districts, the

Process of Weed control by Biological Agents



Graphic shows the general response expected with biocontrol agents, indicating it takes time to make an impact, but persistence can pay off.

biocontrol releases to combat poison hemlock and purple loosestrife have not been as effective as the mites on rush skeletonweed so far, officials said.

But Milan says that there are two species of beetles that can provide effective biocontrol on purple loosestrife. The beetles defoliate the plants and can "decimate" purple loosestrife populations, according to the literature. The beetles need to be captured and relocated in the spring to maintain effectiveness, officials said.

For more information:

• **Nez Perce Biocontrol Center**, <http://www.nezpercebiocontrol.com/>;
biocontrol@nezperce.org

• **Abigail Crawford, Nez Perce Biocontrol Center**, abigailc@nezperce.org

org, 208-413-2811

• **National Biocontrol website**: <http://ibiocontrol.org>

• **Idaho Invasive Species Biocontrol website**: <https://invasivespecies.idaho.gov/biological-control>

• **Joey Milan, BLM National Biological Control Specialist**, jmilan@blm.gov,

• **Bethany Muffley, Ada County Noxious Weed Coordinator**, bmuffley@adacounty.id.gov;

• **Southern Idaho Biocontrol Program**: Becky Freiberg, Gooding High School science teacher, becky.freiberg@goodingschools.org

• **University of Idaho Biocontrol information/education video series**, <https://www.youtube.com/@biologicalweedcontrolUI>

Steve Stuebner writes for Conservation the Idaho Way on a regular basis.

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