

Exotic bugs take a bite out of weeds

By Bill Papich For The Grand County Weed Board.

Five years ago when Tim Higgs and Dawn Holzer released some diffused knapweed-eating beetles in a field east of Moab, they hoped to see the bugs again, but had their doubts.

Higgs, who is Grand County weed control supervisor, and Holzer of the Federal Animal and Plant Health Protection Service, wanted the beetles to reproduce and establish a colony.

The beetle release was an experiment to see if spread of noxious diffused knapweed—which is native to the Mediterranean region but has arrived in Grand County— could be controlled here with bugs native to the Mediterranean region.

Diffused knapweed invades dry rangeland, limiting growth of desirable plants.

Last year Higgs and Holzer breathed a sigh of relief when they returned to the field for the first time since the release, finding beetles eating the weed. Their survival over four winters was a milestone for biological weed control in Grand County.

“For the first time we were able to find the root-boring beetles and move a few to a nearby site,” Holzer said. “We did the first recovery and redistribution work.”

She said five types of exotic bugs have been released in knapweed infestations in Grand County, including one insect that attacks Russian knapweed—the most pervasive weed in the county if salt cedar isn’t counted. An Asian insect that eats salt cedar, which is from Asia, still is being tested by the U.S. Department of Agriculture.

The U.S. Fish and Wildlife Service has required the test to determine if the insects appetite could threaten survival of the Southwest willow fly catcher, an endangered bird. The bird often nests in salt cedar, though it usually prefers native willows.

Biological control of noxious weeds received some criticism in the 1970s, when a weevil that attacks noxious musk thistle—a weed that arrived in the United States from Europe and Asia— was released in the Northern Plains states and began eating a native thistle.

“It’s kind of a given bio-control a bad name overall,” Holzer said.

It was released before the permitting process was in place. There is an awful lot of testing now.”

Jack DeLoach, a USDA entomologist, has traveled to Asia to study the feeding habitats of the salt cedar-eating insect, where it eats nothing but salt cedar, DeLoach said he also has studied the insects in USDA laboratories where the bug is given every opportunity to eat plants other than salt cedar, but that’s all it eats.

DeLoach said biological control is not a cure-all for noxious weeds because exotic insects never completely eradicate a plant species. If the salt cedar bug is released in the Southwest, he expects it could reduce infestations of the plant by 75-80 percent.

He said the insect could take 15 years before making a noticeable impact.

“Every time a biological agent has been introduced that was successful, the weed no longer looks aggressive and it’s knocked down substantially, becoming part of the native plant community,” DeLoach said.

“It’s still there in lower numbers and it will always be there, but not enough to cause damage anymore. It’s in balance with everything else.”

Russian knapweed can be killed with herbicides and salt cedar trees destroyed by cutting

them down and applying herbicides to the stumps. The plants are so wide spread in Grand County, however, the only way to control them is with exotic insects, says Grand County weed board member Gary Wilson.

“It’s the only way you can afford it,” Wilson said. “You could not spend enough money on chemicals to kill all the salt cedar in the Colorado River Basin drainage, or the knapweed.”

Holzer says an advantage of biological weed control is insects will attack unseen weeds, as they did scattered diffuse knapweed plants on five acres in Grand County where knapweed bugs were released.

“That one of the beauties with insects, they can find plants mixed in with the sage brush,” Holzer said. “It’s hard for a person to walk through and see it all, but the insect will find it.”

But the knapweed bugs are not a quick fix, she added.

“It’s taken 5-7 years to see some results. People have to be aware of that up front, and be patient and give it some time to take effect.”

Dave Thompson, a professor of entomology at New Mexico State University, says exotic bug testing at USDA laboratories is high-security operation. Thompson said he visited the USDA earthquake-proof laboratory in Temple, Texas, where the salt cedar bug has been confined for almost 10 years since it was brought from Asia.

“You actually go through a double- and triple-doored contamination room that is pitch black,” Thompson said. “The toilets are screened, everything that goes out of the place is screened. They have negative pressure inside so if there’s a crack it sucks air in, instead of pushing air out.”

Thompson said USDA studies and laboratory test of an insect can cost \$1 million before a decision is made to release it into the environment.