INVASIVE SPECIES: Foul-tasting grass expanding across Western rangelands (11/18/2010)

Laura Petersen, E&E reporter (Environment & Energy Publishing, LLC, www.eenews.net)

An inedible invasive grass known as medusahead has some ecologists, ranchers and land managers worried about its potential to wipe out millions of acres of Great Basin rangeland that cattle and wildlife forage for food.

"It's arguably the most serious invader out there for arid grasslands in the United States right now," said Jeremy James, a research scientist with the Agriculture Department's Agricultural Research Service.

While not as widespread as some other invasive grasses, the sharp, spindly-tipped plant has inundated 2.5 million acres, mostly in Oregon, and is expanding its coverage area by 12 percent a year, experts say.

Medusahead has taken over entire valleys -- resulting in thousands of acres of lost rangeland. Medusahead invasions make otherwise valuable grasslands virtually worthless because livestock and wildlife refuse to eat it. The spines poke the animals' eyes and mouths, and it is full of the mineral silica.

An invasive grass called medusahead is one of the most serious threats to Great Basin rangelands because of its ability to grow longer and faster than its competitors and take over entire valleys like this one. Photo courtesy of the Agricultural Research Service.

"It's like chewing on glass," said Jane Mangold, an invasive plant specialist at Montana State University.

Medusahead also poses a serious fire hazard because it breaks down slowly, leaving several inches of dry fuel across the range that can easily ignite.

But rather than trying to kill medusahead with herbicides -- a difficult and costly proposition given the grass's rapid expansion -- ecologists are trying to decode the plant's biological strengths and weaknesses.

A team of researchers from Oregon State University and the USDA Agricultural Research Service compared medusahead's growth rate with that of other invasive and native plants. They planted separate plots of medusahead, cheatgrass, a common invasive species, and native bluebunch wheatgrass. After two years, they found that on average, medusahead grows faster and longer than the

other grasses, giving it a distinct advantage over its competitors.

Interestingly, the native wheatgrass outperformed medusahead during an uncharacteristically dry year. But during a more common wet year, medusahead thrived more than the native grass, and it performed better than cheatgrass in both dry and wet years.

"It looks like medusahead will win year after year," said Seema Mangla, a postdoctoral researcher at Oregon State University and the lead author of the study, which was published in the *Journal of Arid Environments*.

Mangla and others are now investigating what other species have similar growth rates and patterns that could compete with medusahead to keep it from spreading.

"This species is at a stage where if we do something we may be able to control its spread," Mangla said.

Education campaign

Environmental groups and government noxious weed managers are working to educate ranchers and the public about medusahead, how to eradicate it and prevent further spreading. But much more research is required to understand how to prevent the grass from taking root in the first place.

"We as weed scientists and range managers sometimes aren't very science-based, we're very reactionary," said Tom Monaco, an ecologist with the USDA-ARS Forage and Range Research Laboratory at Utah State University. "We say, 'Okay, there's a weed, how do I get rid of it?' as opposed to 'okay, there's a weed, and I need to understand why it's there and understand that system more holistically.'"

Instead of treating the symptom by cutting or killing the weeds, experts say it is better to figure out why the ecosystem is damaged and how to restore it. The approach, known as "ecologically based invasive plant management," was pioneered by ecologist Roger Sheley, a co-author of the medusahead study. Among other things, researchers are analyzing how weeds change the soil and if they make it inhospitable for native plants to grow.

"Even if you find effective ecological strategies to control medusahead, unless you are repairing and managing the systems correctly, you are just going to get something else behind it," James said. "The main goal is not control of a specific species, but to repair ecosystems to minimize invasions in general."