

Sage-grouse, Sagebrush and the Threat Posed by Invasive Annual Grasses/Increased Fire Frequency

The sage-steppe ecosystem found in the Great Basin is an ecosystem in decline; some would say trending towards collapse. Recently, the sage-steppe was recognized as one of the most imperiled ecosystems in America. The primary threat to this rich and diverse ecosystem is the encroachment of invasive annual grasses (primarily cheatgrass) that leads to an increased frequency of wildfire when compared to historical averages.

Not all fire is bad. In fact it is a natural part of the ecosystem, and when sage-steppe burns and comes back as sage-steppe, it continues a cycle thousands of years in the making. The problem is this naturally occurring event is being exaggerated by the fire fuels the invasive annual grasses create. Therefore, fire is much more frequent and intense than under natural conditions. These frequent fires can eliminate or destroy areas of sagebrush and native perennial grasses beyond a point where they can restore themselves. Sagebrush must regenerate from seed and can take several decades to recover. In many areas, especially in areas of low rainfall, invasive annual grasses can outcompete native species after fire and they remain highly susceptible to subsequent fires.

The threat posed by this cycle of invasive annuals and increased wildfire is well recognized and there is much activity directed to address the

problem. We have been aware of this problem for a while. Even in 1949, scientists recognized the threat of invasive annual grasses, and cheatgrass, specifically, when Aldo Leopold, in his seminal book, "A Sand County Almanac," penned a chapter with the title, "Cheat Takes Over." He described the risks to native ecosystems and issued a call for action. Unfortunately, our actions have not yet been successful in stemming the tide. But we've learned a lot in that time.

The threat is still with us and is larger than ever. We currently may be losing hundreds of acres a day to cheatgrass, and scientists estimate that in 30 years

we may have five times more cheatgrass dominated areas in the Great Basin than we have today. Activity and interest in combating these invasive annual grasses has heightened again since it was recognized as a threat to the sage-grouse in the U.S. Fish and Wildlife Service's 2010 listing determination. However, even today we must do more to ensure our efforts are cohesive, coordinated, and integrated if we are to successfully manage this threat to the species and its habitat.

A holistic approach involving efforts across disciplines and across organizational and administrative boundaries is necessary to prevent the



Greater sage-grouse male struts for a female at a lek / Jeannie Stafford, USFWS



Greater sage-grouse lek near Bodie, California / Jeannie Stafford, USFWS

transition or the collapse of the Great Basin ecosystems into a system dominated by invasive annual grasses. Such an outcome will not be good for any of the native wildlife species or the people that depend on these uniquely western sage-steppe habitats. Mule deer, sage sparrows, pygmy rabbits cutthroat trout, spotted frogs, many reptiles, and a host of other native plant and animal species are also at risk.

We likely cannot completely eradicate the problem. It's much like a disease—we can't cure it, so we have to treat, manage, and learn how live with it. Thus, we must bring all the players and necessary resources together to:

- Fill information or technology gaps and commit to sharing information and successes widely
- Manage the spread of cheatgrass
- Utilize and develop new decision support tools to prevent and suppress too-frequent wildfires in

the most important places for sage-grouse

- Become more skilled at restoration of sagebrush communities post-burn while preventing invasives establishment
- Commit to adapt and enhance our approach as we learn more about how to effectively manage and control invasive annuals

We can stop the increasing dominance of cheatgrass. We currently have several land management tools to prevent, suppress and restore areas with cheatgrass. If we learn to deploy these tools strategically, across the landscape and over time, we can hold the line. Tools such as protecting the health of native perennial bunch grasses; using herbicides; strategically suppressing fire; and using locally derived native plants to rehabilitate burned or disturbed areas all can help successfully conserve our native Great Basin ecosystems.



Sagebrush and Mt. Shasta / USFWS