

CHEATGRASS

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The major problem with formulating a valid management system for cheatgrass is the large number of folk tales that swarm around the species. Perhaps the most common is, *Cows will not eat cheatgrass*. This is often followed with, *Remove the grazing animals and it will go away*. Why it will go away if not grazed when cows supposedly will not eat it is lost in the common assessments of the species.

Since the mid 20th century, cheatgrass has become the most consumed and widely occurring forage species in the Intermountain Area. If it had not been for cheatgrass invasion of ranges where the native perennial grasses were reduced by excessive, continuous, improperly timed grazing in the late 19th and early 20th century, the range livestock industry would have collapsed by the mid 20th century. Studies conducted by Charles Fleming and associates at the University of Nevada in the early 1940s clearly showed that cheatgrass was the primary forage species on Great Basin rangelands in the big sagebrush-bunchgrass zone. Cheatgrass forage has different characteristics in green feed period and herbage production among years compared to the native perennial grasses, yet it is a significant part of the forage base for the range livestock industry.

Cheatgrass is native to the cold deserts of Central Asia. Its native habitat is very similar to the sagebrush-bunchgrass and salt desert ranges of the Intermountain Area of western North America. It was accidentally introduced into the sagebrush ranges about 1900. It probably was a containment in seed grain on farms before it spread to rangelands and at first it was a roadside species along the miles of railroads and unpaved roads that wound through the sagebrush. Given time, it probably would have invaded all sagebrush bunchgrass communities regardless if they were grazed or not. How is this possible? Cheatgrass has the inherent potential to use environmental potential (soil moisture and nutrients) that native grass species cannot use. To be able to invade good native grass stands is the first truism about the ecology of cheatgrass.

This remarkable ability to compete was not necessarily on a large scale because the extensive and excessive grazing at the time reduced the native perennial grasses allowing sagebrush to increase in density and size. This resulted in sagebrush using all the environmental potential and closing the stands to the recruitment of new perennial grass seedlings. Big sagebrush plants can live for a century, and without a grass understory they are virtually immune to wildfires. By the mid 20th century, the vast former bunchgrass ranges were endless landscapes of silver-gray sagebrush. Ranchers and range managers introduced plowing and seeding of crested wheatgrass as a means of restoring grazing potential to these shrub dominated ranges. In contrast to the native perennial grasses, cheatgrass could establish in the understory of the overly dense big sagebrush stands. On dry years it would disappear only to return on wetter years with a good distribution of rainfall in the spring months. Cheatgrass started this process of invasion during the 1920s and 1930s, but stocking rates of cattle, sheep, and horses were so high that grazing animals biologically suppressed the annual grass. After World War II, grazing on public lands was drastically reduced in the belief that lower numbers would allow the native perennial grasses to return to dominance. The reduction in grazing allowed cheatgrass to greatly increase

in abundance and distribution. This brings the second great truism about cheatgrass. Big sagebrush in abundance will close stands to the recruitment of native perennial grass seedlings. Combine this with a cheatgrass understory and the community is absolutely closed to the recruitment of native perennials. The policy of reducing stocking rates to increase native perennials actually had the opposite affect.

Cheatgrass is an annual species meaning it completes its life cycle in one year. In the Pacific Northwest down to the Modoc Plateau of California, cheatgrass often germinates in the fall, over winters as a rosette, and completes its life cycle the next spring. In the Great Basin of Nevada, cheatgrass usually germinates in late winter and grows during the spring. It is not an abundant forage producer in the very early spring when ranchers desperately need forage to turn cattle out on the range. This is the time when excessive grazing hurts native perennial grasses if done every year. Cheatgrass puts on a burst of growth in April, May and early June. It produces a highly preferred forage for all classes of range livestock during this green feed period. Cheatgrass flowers, produces seeds, and dies in late May to early July depending on elevation. Three things happen at maturity of cheatgrass that have great impact on the range livestock industry. The mature seeds of cheatgrass are viscosly sharp with awns that work in wool or hair. These seeds cause injury to the eyes and mouths of grazing animals. This is often an over stated point by opponents of livestock grazing. Secondly, mature cheatgrass herbage provides a protein deficient diet for grazing animals. The same is true for the native perennial grasses, but they mature a month to six weeks after cheatgrass. Ranchers have to manage for protein after cheatgrass is mature through supplements or changing weaning dates. The third point is the most significant truism about cheatgrass. Mature cheatgrass provides an abundance of fine-textured early maturing herbage that increases the chance of ignition and the rate of spread of wildfires. In sagebrush stands, mature cheatgrass provides the continuity of fuel that allows the spread of fire from shrub to shrub. On years when cheatgrass herbage is especially abundant the resulting wildfires become very dangerous and difficult to suppress. In Nevada the aggregate acreage burned on these big cheatgrass production years has exceed a million acres annually.

Ranchers often have their cheatgrass truism, *Graze it, don't burn it*. There is no question that grazing management systems with absolute rest from grazing or deferment of grazing until after seed ripe favor cheatgrass and increase fuel loads. The alternative is not as simple as it sounds. Cheatgrass herbage production is not uniform among years, and often on very dry years it can be zero over extensive areas. On exceptional years when both the amount and distribution of moisture occurs, cheatgrass herbage production can be more than 10 times the average. If ranchers could predict these years with any precision, it would make it easier to use livestock to reduce fuel loads. Unfortunately, in mid May you suddenly realize the rains are not going to stop and you are going to have a huge amount of forage for the next month to six weeks. Especially, with cow-calf production systems it is difficult to dramatically change stocking rates on such short notice. On Federally managed rangelands the wheels of bureaucracy often have difficulty with changing grazing management systems to fit the exceptional years for cheatgrass production. One thing is certain, continued lowering of grazing pressure favors cheatgrass.

Post wildfire range management has a great interaction with cheatgrass. If degraded big sagebrush ranges with a cheatgrass understory burn, the site can be seeded to perennial grass the first fall after the fire. This is because the woody fuel provided by the sagebrush raises the temperature high enough for a sufficient duration to kill most of the cheatgrass seeds in the litter

and surface soil. You have to establish a competitive perennial grass to suppress the re-establishment of dominance by cheatgrass. This means a modern cultivar of crested wheatgrass. Unfortunately, Federal land range managers are under a pressure from environmental organizations to plant only native perennial grasses. This is a big cheatgrass truism; the native perennial grasses are not going to win with the exotic annual. If cheatgrass burns with no shrubs, the fire will not reduce cheatgrass competition to the point that any grass can be established.

Is the planting of crested wheatgrass only for the benefit of ranchers? Yes, ranchers will benefit from planting crested wheatgrass, but the entire environment also benefits. You have to have a competitive perennial grass to biologically suppress cheatgrass. Crested wheatgrass breaks the wildfire cycle, prevents invasion of exotic weeds, and protects the site from accelerated erosion. Look at the crested wheatgrass seeding established during the mid 20th century. Most are currently dominated by big sagebrush providing browse for sage grouse, pigmy rabbits, and mule deer. Cheatgrass-fueled wildfires are reducing sagebrush for these sagebrush obligate species.

The final cheatgrass truism is, *it is a passing species that will be replaced by something much worse*. This truism is unfortunately all too true. In the mid 20th century cheatgrass, tumble mustard, and Russian thistle constituted virtually the entire exotic invasive weed list for Intermountain rangelands. Today this list has over 40 species and grows each year. Species such as yellow starthistle and medusahead are in the process of replacing cheatgrass. Invasive annual range weeds are an environmentally downward spiral in which our valuable rangelands are trapped. It is time to hear the voices of those active on our rangelands, such as ranchers on these very rangelands, and for these people to be proactive in making sure their experiences and hard gained knowledge is available to all concerned about environmental quality.