

Revegetating with Sagebrush—Who's Right?

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To plant it, or not to plant it, that is the question.

The controversy over whether it is worth planting sagebrush (on mined lands) or whether it is worth getting rid of it (on deteriorated grazing lands) is almost too much to believe. What is the world coming to?

We asked people in range management, wildlife biology, and reclamation to tell us their views on the subject. This was not a random sampling of opinion, but the people we talked to are people whose professional opinions we respect. A great number of them seem to think those avid proponents of sagebrush planting would be candidates for membership in the Flat Earth Society.

But the issue is not so simple. Those who would plant sagebrush may not have the right answer, but it's not because they don't have some of the right reasons.

The Sagebrush Ecosystem

The sagebrush/grassland vegetation type, although composed of numerous separately recognizable component types, as a whole comprises the single largest natural vegetation type of the western United States.

Differing estimates have been published regarding the extent of the sagebrush/grassland which range from less than 100 million acres to more than 200 million acres. It is debated whether this vegetation type has significantly increased its extent in the last 100 or 150 years since the coming of the first permanent European settlers and the growth of the western range livestock industry.

Our interpretation of the literature on the subject is that the argument seems to be settling out in favor of the view that for the most part the vast acreages we see today were occupied before the white man came by the several native species and subspecies of the genus *Artemisia* we call sagebrush.

If it is true that the overall range and extent of western sagebrush lands are much the same as they used to be, it is just as true that the ecological characteristics of these communities throughout the west have been drastically altered.

Many ecologists say these changes are largely irreparable. We use the words "drastically" and "irreparable" advisedly because most people who have any feeling for how these western ranges have changed understand that it is in nearly all ways changed for the worse.

What are these changes? In very general terms overgrazing, control of fire, abandonment of marginal agricultural lands and other factors have brought about a tremendous

increase in the relative dominance of sagebrush species at the expense primarily of herbaceous perennial understory species, with attendant declines in useful forage productivity and species diversity, and increase in noxious exotic annuals and soil erosion. It is not hard to find stands of big sagebrush which are virtual monocultures.

Since the introduction of crested wheatgrass and the development of suitable machinery and equipment, range managers have endeavored to reverse—or at least forestall—this trend by controlling sagebrush and in some cases reseeding with more desirable species. In the past few decades newer techniques for sagebrush control have been added or refined, including chemical spraying, controlled burning, and planting with newly domesticated or improved cultivars. These efforts have evolved into a tremendous body of knowledge regarding the manipulation, management, and responses of sagebrush ecosystems.

Sagebrush and Politics

It certainly has not been lost on many of us that conflict exists between those forces who would eradicate sagebrush (something of an irrational mindset perhaps a bit analogous to the old sheep man who would eliminate every last coyote on the face of the earth) and those who would make a mining company reclaim its land to sagebrush solely on the basis that it occurred on the site before mining took place. But these are extreme points of view and a gross oversimplification of the problem. They do not accurately or fairly represent the more moderate points of view held by the majority of proponents on both sides of the issue.

Part of the problem is politics itself, as in the case of coal mine reclamation, which is the primary instance of enforced sagebrush planting. Politics tends to polarize issues into extreme points of view. The public seems to demand its controversy to be served up in such easy to understand form. Unfortunately, what this amounts to is a "no-win" definition of the problem. This point is commonly underappreciated. It is important that those with training in range management and other scientific disciplines who deal with political or regulatory controversy use their understanding of the complexity of issues to temper the views of those who would look at things strictly in terms of black and white.

So we have people who say there is too much sagebrush and would get rid of it and those who seem to think there is not enough and would plant it. When we first began thinking about this topic, our basic bias was that if for no other reason, with so many millions of acres of sagebrush around, the few thousands lost to strip mining should just as well be reclaimed to other perhaps more useful species. Besides, the shrubs will eventually re-invade anyway. This view may still

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Tom Colbert (right) and Richard Trenholme study soils and vegetation on BLM land in Montrose County, Colorado where a mining project has been proposed. Nearby sagebrush stands (not shown) are virtual monocultures, having almost totally depleted herbaceous understories. Useful forage production on these areas can be greatly increased with good reclamation by reducing sagebrush densities and increasing perennial grasses, forbs and more desirable shrubs such as four-wing saltbush. (Photo by J.L. Pecka)

be more right than wrong, but it does not tell the complete story.

Sagebrush and Wildlife

Once again to look at the problem in terms of black or white, those whose interests are in the elimination of sagebrush are generally the stockmen who are trying to meet the demand for increased forage production by the rehabilitation of a deteriorated ecosystem. Controlling sagebrush is actually treating the symptom and not the cause of the problem, but for the most part these efforts are beneficial and should no doubt continue. Besides, the causes are well behind us. The proponents of restoring sagebrush lands with sagebrush are not necessarily misinformed environmental zealots, although their concerns as they have been translated into regulatory policy for the reclamation of lands mined for coal seem to be rather misguided. The issue for these people is the destruction of wildlife habitat.

Wildlife managers in the western United States are every day faced with the loss of habitat to agricultural development, urbanization, road construction, certain kinds of recreational use, and mining. Much of this encroachment is permanent and irreversible—civilization does not use up roads or housing developments and then throw them away.

The loss of *good quality* wildlife habitat is a legitimate concern. In its essence it should be the same concern of the stockman who in his brush control efforts is trying to improve the productivity and quality of the habitat. This is the win-win definition of the problem, that what's good for the range should be good for both livestock and wildlife. Having one faction pitted against another is, as we said earlier, a no-win definition of the problem. Indeed, newer practices for brush control projects such as clearing irregularly shaped blocks, spraying in strips alternating with unsprayed areas, leaving islands of shrubs or shrubs in drainages, and planting mixtures of herbaceous species including both natives

and exotics, if appropriate, have gone a long way to alleviate conflict between the rancher and the wildlife manager.

Coal Mining—Where the Regulations Are

Reclamation of surface mined lands poses unique challenges and opportunities for the mining industry, the regulators, the surface management agencies, and private land owners. That the regulations for coal require the restoration of pre-mining shrub densities, and that some companies are being forced to seed sagebrush over large areas indicate there is progress yet to be made in achieving a rational and common sense approach to environmental regulation.

Why have the pro-sagebrush people zeroed in on coal mining? It is like the bank robber who, when asked why he robbed banks, said, "That's where the money is." Coal mining is where the regulations are. The coal regulations are a political manifestation of society's environmental consciousness. Coal mining is bad so regulate it. Wildlife is good so make them plant sagebrush.

We do not dispute that coal mining should be regulated. And we certainly aren't against wildlife. No doubt there are instances, as in the case of critical sage grouse habitat, where special efforts to restore that habitat—including the planting of sagebrush—are justified. But looking at a much larger picture, wildlife habitat is still being gobbled up at an alarming rate, too much of the range is in deteriorated condition, and all the sagebrush to be planted by all the coal companies will hardly make any difference.

Most states have in fact become much more liberal in allowing variances from the shrub density requirement. Even in Montana, whose regulatory reputation is one of unrelenting strictness, as little as 5 to 10% of pre-mining shrub densities may constitute successful reclamation if it is determined that area is not "valuable wildlife habitat." The problems the mining companies are having with the Department of State Lands are more in the area of establishing reclamation success criteria or the use of reference areas rather than whether or not to plant sagebrush.

Unlike Montana, the Wyoming Department of Environmental Quality and the Colorado Mined Land Reclamation Division generally make a policy distinction between private



A very dense sagebrush stand on National Forest land in Gunnison County, Colorado. Have such stands been artificially encouraged by fire protection and/or overgrazing? Should mining companies restore such lands to pre-mining shrub densities? (Photo by T.A. Colbert)

and public lands. In general, neither agency will force a private landowner to accept revegetation with sagebrush against his will. Both agencies have required seeding of sagebrush in response to wildlife concerns. In Colorado, this shrub re-establishment is occurring at much lower than pre-mining densities.

We will not try in this paper to solve all of the problems related to this controversy. We do, however, have some suggestions to offer.

First, to the pro-sagebrush forces, whoever they are. Those who are so concerned about making the coal mining companies restore sagebrush would do well to direct some of their energies to concerns other than coal mining which also affect sagebrush habitats. Bringing about meaningful changes in federal land management policies, for instance, would have much greater and more far reaching benefits than anything the coal mines could be made to do. We know, however, that lobbying in behalf of new federal land management policies is not as glamorous as reclamation. That's politics.

To those in the regulatory agencies, we would only ask for a flexible and common sense approach to reclamation. There is no regulatory mandate against common sense. The things some of the mining companies have had to put in their reclamation plans have not been dictated by common sense.

What can mining companies do? We believe there are several things which can help avoid regulatory quandaries:

- 1) Emphasize qualitative aspects in your vegetation baseline inventory; if your range trend or condition is not good, don't commit to restoring it.
- 2) Work with the landowner in developing a reclamation plan, and ask for a letter of endorsement to submit with your application.
- 3) Consider a proposed change in land use, with greater emphasis on forage production for domestic livestock; emphasize *benefits* to wildlife.
- 4) Seek recommendations and guidance of your state wildlife officials if you are fairly certain you are not going to have problems; if you think you may have problems, avoid these officials. Remember, they are in the business to sell hunting licenses, not to mine coal.
- 5) Before things get out of hand, hire your own experts.
- 6) Be innovative in your approach to reclamation planning; try to stay ahead of the agencies by having one or two alternatives in your hip pocket to suggest. Innovative revegetation does not necessarily cost more, especially if it is your idea.
- 7) Such techniques as spot planting, front-end loader transplants, piling slash, hand collecting local seed and so on, can be very effective in building credibility.

Finally, just remember there may be a lot worse things in the world than planting sagebrush.

First Western Wheatgrass Variety

Walsh is the first western wheatgrass variety to be released in Canada. Developed by the Lethbridge Research Station, Walsh will fill an important gap in the forage needs of cattle producers in low rainfall regions. As this variety has just been released, seed will not be available commercially until 1985 or 1986.

Intended primarily for range seeding as hay and pasture, Walsh provides a hardy, drought-tolerant forage that can be grown on heavy soil. It can be used for hay production in low-lying areas subjected to infrequent irrigation or spring flooding. Although Walsh shows adaptability to a wide range of soils, it prefers the heavy moderately alkaline soils of the Black, Dark Brown, and Brown soil zones.

In field trials, Walsh has proven to be a long-lived, sod-forming, cool-season grass that starts growth in early spring.

Selections for Walsh began in 1968 by collecting plants of native western wheatgrass from stands throughout the plains region of Alberta and Saskatchewan. The plants were transplanted at the Lethbridge Research Station and then evaluated for forage and seed yield, plant height, vigor, leafiness, days to maturity, and freedom from disease. The most desirable characteristics were found in 20 of the 468 lines collected. The 20 selections were subjected to further testing.

The final selection, that became the new variety Walsh, was performance tested from 1977 to 1980 at various locations in Alberta and Saskatchewan. In these tests on dryland, Walsh produced about five percent more forage than Rosana, a variety developed in the United States.—**S. Smoliak**, in *Weekly Newsletter*, Lethridge.

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