

OPPORTUNITIES FOR LAND USE IMPROVEMENT THROUGH RECLAMATION

by

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Abstract. Present reclamation rules and regulations were enacted to return mined land to as good or better condition as previously existed. A "higher and better use" is encouraged within the reclamation rules and regulations. Present reclamation practices evolved over the past 20 - 25 years from humble beginnings of highway roadside construction know-how, to the present practice of regrading to approximate original contours, soil salvage, and the use of native seed mixes, and native grass drills. Much has been learned over the past two decades, and reclamation has been very successful. The "Office of Surface Mining's Annual Reclamation Awards" testify to the success of reclamation. Mined land is returned to land uses for agriculture and wildlife alike. At many sites land is reclaimed to a higher and better use. Opinions on what constitutes a higher and better use can differ markedly between special interest groups. These different opinions lead to different philosophies of reclamation. Many times restoration rather than reclamation is enforced. Western Energy Company developed a Company philosophy regarding reclamation. It is, "to economically mine and reclaim the land to an environmentally sound condition with the understanding that change may occur". This paper specifically addresses "change", where reclaimed post-mine habitat is different than pre-mine habitat. Examples are given to show that change is not necessarily bad, rather, it can be good, especially with proper planning. Habitat for some wildlife can be enhanced or even created through reclamation. Western Energy Company's reclamation has enhanced mule deer (Odocoileus hemionus) and sharp-tailed grouse (Tympannus phasianellus) habitat and created new habitats for water fowl and raptors.

INTRODUCTION

For environmental reasons surface mining for coal has been an unpopular industry in the USA. Thousands of acres in states like West Virginia, Kentucky, Illinois and even Montana were left in spoils. Corporate commitment to the environment was non-existent in the early days of mining.

When the energy crisis of the 70's occurred, concern for the environment was considered. Individual states such as Montana developed rules and regulations to prevent further land degradation. Later, the Department of Interior formed the Office of Surface Mining (OSM 1979) and also developed rules for states that were without regulations governing surface mining.

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Citizens were concerned about the loss of a valuable land resource. Local ranchers formed environmental action groups such as the Northern Plains Resource Council (NPRC) in Montana because of their concern for the loss of grazing lands and their way of life. The Montana Department of Agriculture was also concerned about

the loss of agricultural land. Legislative action resulted in firm rules and regulations to govern surface mining in Montana. The mined land would be returned to a higher and better use.

ENVIRONMENTAL INVENTORIES

After the laws were enacted, coal company officials found that in order to comply, many environmental surveys had to be conducted before land was permitted to mine. Enterprising natural resource people began forming consulting firms specializing in natural resource data gathering. These data were needed prior to mining for mine and reclamation planning and also for monitoring specific natural resource parameters during mining. Over the past twenty years in Montana many young college graduates first employment were with environmental consulting firms. The survey's primary goals were to gather baseline data on vegetation and wildlife in the southeastern Montana coal fields. These baseline studies were an excellent source of information that described the existing plant communities, habitat and the wildlife species inhabiting the area. Basic inventories described the habitat by plant species and listed wildlife, their numbers and habitat use by season. Special attention was placed on threatened and endangered species.

A typical survey in the Colstrip area denoted that the area was made up of grasslands, shrublands and ponderosa pine ridges. Mammalian species ranged from the common western deer mouse and meadow vole to mule deer and pronghorn antelope. Avian species including migratory species typically ranged from western meadow larks and mountain bluebirds to sharp-tailed grouse and red-tailed hawks. Species of special concern usually consisted of prairie and peregrine falcons, golden and bald eagles. Specific sites that were of special concern were black-tailed prairie dog towns, sharp tailed grouse

It is important to note here, that in seven years of baseline and subsequent monitoring studies at Colstrip, peregrine falcons and ospreys were never observed on the area to be permitted for mining and/or the adjacent areas.

RECLAMATION

Initial Reclamation

Early reclamation had very humble beginnings. Much attention was given to surface manipulation, rather than soil salvage. Seed mixes were very simplistic, as only a few species of introduced grasses were used. Cumbersome range drills with 12" row spacings were common place. Experimentation was the name of the game.

Present Reclamation

After twenty years of research and on-site trial and error, reclamation has progressed to a point where a set of basic procedures can produce a successful program of rangeland and agricultural reclamation. Regrading to the approximate original contour (AOC), soil salvage, native seed mixtures of grasses, forbs and shrubs, and special grass drills are common place at most mines. Reclamation is very successful as OSM's Excellence in Reclamation Awards attest. WECO was one of ten coal companies in the United States to win the award in 1991.

PHILOSOPHIES

Over the years, different philosophies regarding reclamation were developed by those persons involved in the various fields of reclamation. Philosophies differed dependent on experience between landowners, regulators, researchers, and reclamationists. Many regulators interpret the reclamation laws for the land to be restored to its original

condition, no matter what condition it was. Most landowners want a higher and better use; i.e. smoother, flatter terrain. Most reclamationists think of opportunities and change with environmental concerns and economics in mind.

In Montana, the Department of State Lands (MDSL 1980) required that exposed gumbo knobs with soil capability of class 7 and 8 be restored. A rancher may desire that rough, broken topography such as exhibited with gumbo knobs be flattened for ranching purposes. A reclamationist may want to leave an area to catch water for waterfowl habitat rather than grade it to drain. These are examples of different philosophies of reclamation. With proper planning and a meeting of the minds of all three points of view, reclamation can become a great opportunity for possible change and a land use for something better.

In Illinois for example, most land is reclaimed back to cropland, i.e. corn and soybeans. Why reclaim all acres back to corn and soybeans when the surrounding areas consist of the same. In most cases that would be the right thing to do. In another case, it may be an opportunity to change the land use. Members of the Illinois Prairie Grouse Technical Council have been trying to preserve natural Illinois prairie and prairie chickens for years. Perhaps in the right location and through a joint effort of the coal industry, Illinois Fish and Game and Illinois coal regulators, reclamation could be changed to native prairie and extend the prairie chicken habitat and their range.

In Montana, why reclaim gumbo knobs, when several 100 acres already exist adjacent to mining areas. A plan to reclaim native short-grass prairie, shrublands, or even small parcels of alfalfa and grain may be a better change for wildlife.

A good example of change happened at Western Energy Company's

Rosebud Mine. Because of mining and regulations a sediment pond had to be constructed. The pond contained a substantial amount of water and was twenty feet deep. Trees and shrubs were planted around the area to benefit wildlife. The pond was stocked with largemouth bass and was used extensively by waterfowl of many species.

Because of the largemouth bass, observations of ospreys were recorded in the Colstrip area for the first time ever. The ospreys were observed feeding on the bass. Also the same year three biologists verified a sighting of a peregrine falcon at this same sediment pond. The falcon was observed diving at the ducks utilizing the pond. Ponder the irony of the situation! What if a peregrine falcon had been observed during the baseline study? At minimum, much mitigation would have been required and possibly mining may not have been allowed to disturb the pond. But now, because of mining and reclamation and the change that came about with the pond, a peregrine falcon was observed for the first time ever in the Colstrip area, and it was utilizing reclaimed land!

Other positive changes and opportunities that continually arise are the ability to create cliff habitat from highwalls. Regulations need not approve leaving standing highwalls left in grassland, prairie type conditions, but in rough broken topography where natural sandstone features exist, a highwall that blends in aesthetically, can be very beneficial. Species such as golden eagles, prairie falcons, great horned owls and kestrels readily use cliff habitat as nesting sites. The proper planning of leaving highwalls where they blend aesthetically with the terrain and also offer a coal company economic relief can be a win-win plan for both wildlife and the coal industry.

Likewise, sediment ponds not only benefit mining by containing sediment

and mine runoff, but hold water for waterfowl; and some, enough for fish populations. Livestock as well as big game species benefit from the extra water available. Grazing patterns can be utilized beneficially because of the extended water source available due to sediment ponds. Plant species around the sediment ponds produce a different type of habitat utilized by various different wildlife species.

Some pits may be located in final highwall zones that would be beneficial to leave as permanent ponds fed by ground water sources. These pits especially benefit fish populations and offer future recreational potential. With proper planning, slopes on the backfill side could be regraded to acceptable gentle slopes so as to esthetically blend the pit ponds to fit the post mine topography.

Standard grassland reclamation should not be thought of as mundane and non-beneficial to wildlife just because it seems less diverse and somewhat "easy" to reclaim. Many times, at least in southeastern Montana, mining does not disrupt large tracts of land. Instead segments or intrusions of mining and reclamation are added among the natural habitat. Good natural grassland reclamation becomes an added beneficial habitat among the undisturbed pine ridges, shrublands, and badlands. Studies have shown that deer using reclamation grassland throughout the spring, summer and fall seasons enter the winter season in extremely good reproductive condition, (Fritzen, 1993).

Even older reclamation areas that are dominated by introduced grasses should be recognized as good wildlife habitat, rather than criticizing it just because of the introduced grass species. These sites should not be held captive at bond release time because of this. Consider the cropland reserve program (CRP). One of the main objectives of the CRP program, was that the extensive

grasslands (introduced grasses) would be beneficial to wildlife as excellent cover.

Remember the concern for sharp-tailed grouse and their dancing ground locations. Standard grassland reclamation continues to provide sharp-tailed grouse with all the components necessary for good grouse habitat including the dancing grounds. WECO's 4,000 acres of reclamation now contains three existing sharp-tailed grouse dancing grounds and two satellite grounds during times of high population (WECO 91). The largest sharp-tailed grouse dancing ground in a 200 square mile area around Colstrip (in terms of number of male sharp-tailed grouse) is now in reclaimed land and averages 22 males/year, (WECO 91).

SUMMARY

When proper planning is used, changes to landscapes can be beneficial. What does it take? It takes a coordinated effort of those involved, especially of those of higher decision making authority. Coal mining has had a history of environmental destruction, but we must cross that old barrier and educate the public. Montana and the federal government have good strong reclamation regulations in place and most coal companies employ dedicated, reclamationists (environmentalists) whose goal is to reclaim the land to a productive use again. By blending the concerns and philosophies of all those involved (landowners, reclamationists, and regulators), good win - win situations can be attained and the mining and subsequent reclamation can be used to bring the land to the best use attainable. If it results in a change, it does not necessarily mean it will be negative. When opportunities are seized and utilized to the best of all involved, change can be positive.

Literature Cited

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