Colorado GLCI
Technical Note 1 – Addendum B

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Colorado Grazing Lands Conservation Initiative

Range Stewardship and Fostering Drought Recovery

Recent developments have started to mitigate the drought in Colorado: 1) The last two months have brought rain to many, if not most, areas of Colorado; and 2) Congress, under the tutelage of Representative Scott McInnis, is working on a bill to defer taxes on drought-caused livestock reduction and/or dispersals for four or more years, depending on the on-going drought circumstances.

Eastern Colorado

Many areas have received good rains. This will help plant growth and recovery following several years of extreme drought that stressed perennials extraordinarily hard. In Eastern Colorado, most areas have lost appreciable numbers of the perennial plants. Some regional areas, especially along the Arkansas River drainage of Southeastern Colorado, have lost 80% or more of the perennial plants. Needless to say, rangeland in Eastern Colorado will be recovering for years to reach pre-drought conditions. Management decisions will have profound impacts on recovery rates of perennial grasslands. Most rangeland is quite weedy now. Most of the weeds present are annual weeds like cheatgrass, kochia, Russian thistle, and annual sunflowers. Many of these weeds are quite palatable in the early stages of growth. Limited early grazing use can be quite beneficial in reducing the competitiveness of the weeds, but only if the grazing is done when the weeds are immature and there is still moisture in the soil after the grazing is over to allow the perennial plants to recover. This is commonly described as flash grazing. This is best described as short-time duration (less than two weeks in a given pasture) with relatively high numbers of livestock per relatively small area unit. Employing this strategy would require a rapid rotation of livestock in smaller pasture units using livestock as a tool to control the weedy plants while fostering recovery of the remaining perennial plants.

The rangelands are in an early stage of succession, recovering from a state of broken stands and poor perennial plant vigor. These areas are quite similar to old abandoned cropped fields of times past. Institutional research indicates that the speed of plant succession following a catastrophic event is related to which plants become established during the early recovery stages. When the rangeland is managed to benefit the desirable perennial plants, such as western wheatgrass, blue grama, green needlegrass, and others, the rate of their recovery is quite rapid. When desirable species are grazed too hard in the healing process, the areas become dominated by undesirable, unpalatable species like red threeawn, sand dropseed, and tumblegrass, and others. These areas can take 40-60 years to recover to a desirable grassland community.

The differences in these two routes of range recovery will be largely determined by grazing management choices. Rangeland that is stocked season-long and where the stocking rate is increased too quickly will have too much pressure on the perennial palatable plants. This will cause early weedy grasses and other undesirables to take over.

West Slope

The status of West Slope rangeland communities is more mixed than Eastern Colorado. The foothills and mountains have been dry with little stock water available. This has created concentration areas of heavy use stressing plant communities around existing water sites. Noxious weeds can invade these areas if rapid steps are not taken to foster recovery of the perennial grasses and forbs. The key here is to keep stocking rates of livestock at a realistic level that can be handled by the recovering perennial grass community. Additionally, redistributing grazing use is critical so that the concentration areas can be relieved of pressure.

The sagebrush areas throughout Western Colorado are showing many signs of plant mortality. In most cases, only a portion of the crowns are alive. This means that fostering root growth and tillering is critical to the recovery of desirable perennial plants in the native community. Most areas have been invaded by undesirables, such as cheatgrass, bulbous bluegrass, annual mustards, and others during the drought years. These plants are extremely competitive and long-lived in the perennial community and can quickly displace desirable species. Flash grazing is very applicable on the West Slope also. However, continuing drought conditions limit the re-growth and recovery window to very short timeframes.

The recovery of rangeland vegetation in the sagebrush area is important to most West Slope livestock operations. This is the West Slope's spring and fall rangeland. Recovery is best fostered by light to moderate stocking rates and effective livestock rotations allowing the plants to accumulate leaves so that energy can be invested in new root growth and rebuilding tiller numbers. Increasing stocking rates too early or heavy use now can exacerbate

the drought's impact. This reduces long-term forage availability, increases the foothold that weedy annuals have in a rangeland community, and increases the probability that noxious perennial weeds will increase. Weeds like knapweed, whitetop, leafy spurge, and dalmation toadflax are already present in most regions and have increased during the drought. If the desirable perennial communities are not managed to recover, undesirable weeds are poised to make a major jump when more moisture is received. When these perennial noxious weeds gain a foothold, they are almost impossible to manage.

The semi-desert communities have perhaps been the most damaged by the drought. The salt desert shrub communities have experienced major losses of shrubs including winterfat, saltbushes, bud sage, greasewood, and others. Additionally, the desirable perennial grasses have experienced heavy losses. Halogeton has increased tremendously in many areas creating a large poisoning hazard for grazing animals. Many stands of crested wheatgrass have been lost. The semi-desert is likely to be the type that is most difficult to manage for recovery. The growing season is so short that even light to moderate grazing use during recovery time is quite likely to significantly retard perennial re-establishment. Important browse plants of the salt desert shrub type are in poor vigor and often have been browsed heavily by both livestock and wildlife. These plants are slow to accumulate new plant material especially where older wood has died or been browsed off. The best management techniques to foster recovery are light, dormant season grazing or complete rest. Much of this rangeland is badly deteriorated and will require one or more years of rest. Where extensive areas of seeded grasses have perished, reseeding may be required. Other areas may have been so devastated, they may require spot seeding also.

The pinon and juniper types have also been extraordinarily impacted by drought. These types, because of their woody over-story, are quite droughty in normal circumstances. The drought has worsened these conditions. Plant recovery is extremely slow because of the poor moisture relationships. The only choices appear to be light and short duration use while managing for re-growth recovery of the perennial plants.

General Considerations

Recovery of rangeland communities will require planning and commitment. The plan must account for managing rangeland system processes. Those processes that are critical now are: 1) increasing water availability for plants by increasing plant cover and litter; 2) managing recovery by creating more vigorous, competitive, and desirable perennial plants in our rangeland communities and reducing weedy plants; and 3) managing nutrient availability to desirable plants by increasing root mass and creating the capability for the desirable plants to compete with undesirable plants for nutrients and water. The perennial grasses are water starved because their root systems are small and because the ground cover is generally insufficient to capture the water that falls. Increasing ground cover is therefore, an important part of the drought recovery process. This can only be accomplished by managing the stocking rates at levels that allow for plants to accumulate leaves. As leaves accumulate, they feed the root growth and provide ground cover and, if allowed to remain on the plant, will contribute to litter. This may be the most important part of drought recovery because as the plants accumulate leaves and water is managed better in the system, the other system processes also work better.

The rate of recovery of drought-stressed rangeland communities is our responsibility. If we allow the desirable perennial grasses and forbs to recover and compete, we can move within a few years--3 to 5--to healthy desirable communities. However, if these communities are heavily or season-long grazed, they will move to undesirable plants that will reduce the forage base and will have plants that are difficult to control for years to come (30-60 years).

The capability of the plants to obtain and manage nutrients is totally related to their root mass in the plant community. Investing now in plant and root mass development will guarantee quick, mainly desirable perennial plant growth on the rangeland.

The common link between all of these system processes is maintaining stocking rates at levels that allow for plants to accumulate leaf material and store energy. Increasing stocking rates now is a high risk venture. All rangeland now requires seasonal opportunity to re-grow and recover. This can be accomplished best with a planned livestock rotation.

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