

Dryland Pasture Condition Assessment & Guidelines for Colorado Small Acreages

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Figure 1:
Temporary fencing is used to subdivide this pasture. Temporary fencing allows flexibility in layout, and is cheaper than permanent fencing.

INTRODUCTION

Maintaining healthy dryland small acreage pastures can be challenging in Colorado, but it is a realistic goal.

This guide will help pasture managers assess pasture condition and offer suggestions for improvements.

Key strategies, such as determining carrying capacity, implementing rotational grazing, using indicator grasses to monitor when to start and stop grazing, and keeping grazing records, will help improve pasture health and production.

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PASTURE CONDITION ASSESSMENT

Instructions: The following questions will help grazing managers conduct a basic self-assessment of their grazing management and pasture condition. Answer questions below to identify recommendations to improve grazing and pasture management strategies.

Site: _____ Date: _____

1. Are weeds increasing in the pasture?

☐ Yes

→ Weeds should be managed. Identify the weeds and develop a weed management plan. Consult your local Extension or USDA-NRCS for assistance. Visit <https://sam.extension.colostate.edu/recorded-webinars/recorded-webinars-password-page/> to watch these one-hour recorded webinars for guidance:

- *Renovating and Reseeding Your Pasture*
- *Understanding Weeds*
- *Integrated Weed Management*
- *Biological Weed Control for Colorado Landowners*

→ If more than 80% of the pasture is weeds, consider reseeding (see Figure 2).

☐ No

→ You are managing weeds well. Continue routine scouting and managing of weeds.



Figure 2:

More than 80% of this pasture is weeds. Kochia, Russian thistle, and cheat grass have taken over. This pasture will be reseeded with more palatable forage grasses after the weeds are managed.

2. Are livestock allowed to graze on a pasture continuously, or do you rotate them from pasture to pasture?

- ☐ Livestock graze one pasture continuously.
 - You may try subdividing the pasture into smaller units to rotate livestock. Rotational grazing allows grass leaves to grow back prior to being grazed again. Consider keeping livestock in a holding area and only allowing access to the pasture after grasses have fully recovered. Learn what grasses your animals prefer the most by watching them graze. Then refer to Table 1 to determine when to start and stop grazing these key forage species based on grass height. Plant recovery time should be extended if grazed too low.
- ☐ Livestock are rotated among pastures.
 - Be sure to allow grass leaves time to regrow between grazings. Learn what grasses your animals prefer the most by watching them graze. Then refer to Table 1 to determine when to start and stop grazing these key forage species based on grass height. Plant recovery time should be extended if grazed too low.

Rotational grazing
A practice in which two or more pastures are alternately rested and grazed in a planned sequence.

3. How long is a pasture allowed to recover after a grazing?

- ☐ Less than 30 days.
 - Dryland pastures in Colorado typically need more than 30 days to regrow after grazing.
- ☐ Depends on the time of year, grass growth cycle, and precipitation received.
 - 30-45 days is recommended during the fast growth period (typically May and June in Colorado). Drought conditions will extend regrowth time.
 - 60-90 days is recommended during the slow growth period (typically July to October in Colorado). Drought conditions will extend regrowth time.

Dominant Forage Species	Minimum Starting Height in inches (turn animals in)	Minimum Grazing Height in inches (Do not graze below this protective height)
Alfalfa	6	4
Alkali sacaton	6	4
Blue grama	3	2
Little bluestem	6	4
Orchard grass	5	3
Russian wildrye	5	3
Sand bluestem, Big bluestem	8	6
Sideoats grama	6	4
Smooth bromegrass	5	3
Switchgrass	8	6
Wheatgrasses (Pubescent, Intermediate, Crested, or Siberian)	5	3
Wheatgrasses (Western, Bluebunch, Slender, or Thickspike)	6	4
Wheatgrass, tall	8	6
Yellow indianguass	8	6
Tufted hair grass	6	4
Nebraska sedge	6	4
Prairie cordgrass	8	5
Prairie sandreed	8	5
Tall fescue	5	3



Table 1: Protective Grazing Heights for Key Forage Species

- Circle the dominant forage species that are growing in your pasture.
- The grazing heights listed for each species should be maintained.
- Use a ruler to monitor grass growth. Monitor grasses before, during, and after grazing periods.

HOW MANY ANIMALS CAN I GRAZE?

Instructions: This section will help you determine the average dryland forage production in a normal growing season and will lead you through calculations to determine number of animals and/or available grazing per year. Productivity of rangeland is limited by climate, soil type, topography, and vegetative species present.

1. Use the map (Figure 3) to determine the area in which your property is located.
2. Use Table 2 to select the estimated dryland forage production (AUM/AC) based on forage condition for your pasture/range.
3. Follow the carrying capacity calculations (Figure 4) to determine number of animals and/or length of allowable grazing per year.

Table 2: Estimated Dryland Forage Production (AUM/AC)*

Area (Figure 3)	Good Forage Condition AUM/AC*	Average Forage Condition AUM/AC*	Poor Forage Condition AUM/AC*
1	0.34	0.23	0.12
2	0.3	0.22	0.13
3	0.36	0.25	0.14
4	0.5	0.34	0.18
5	0.3	0.2	0.1
6	0.33	0.25	0.16
7	0.5	0.38	0.25
8	0.4	0.29	0.17
9	0.37	0.27	0.16
10	0.43	0.33	0.22
11	0.55	0.4	0.25
12	0.29	0.21	0.12
13	0.6	0.45	0.3

***Good Forage Condition:**
67-100% of the vegetation is a mixture of desirable plants (grasses, legumes, forbs, and shrubs).

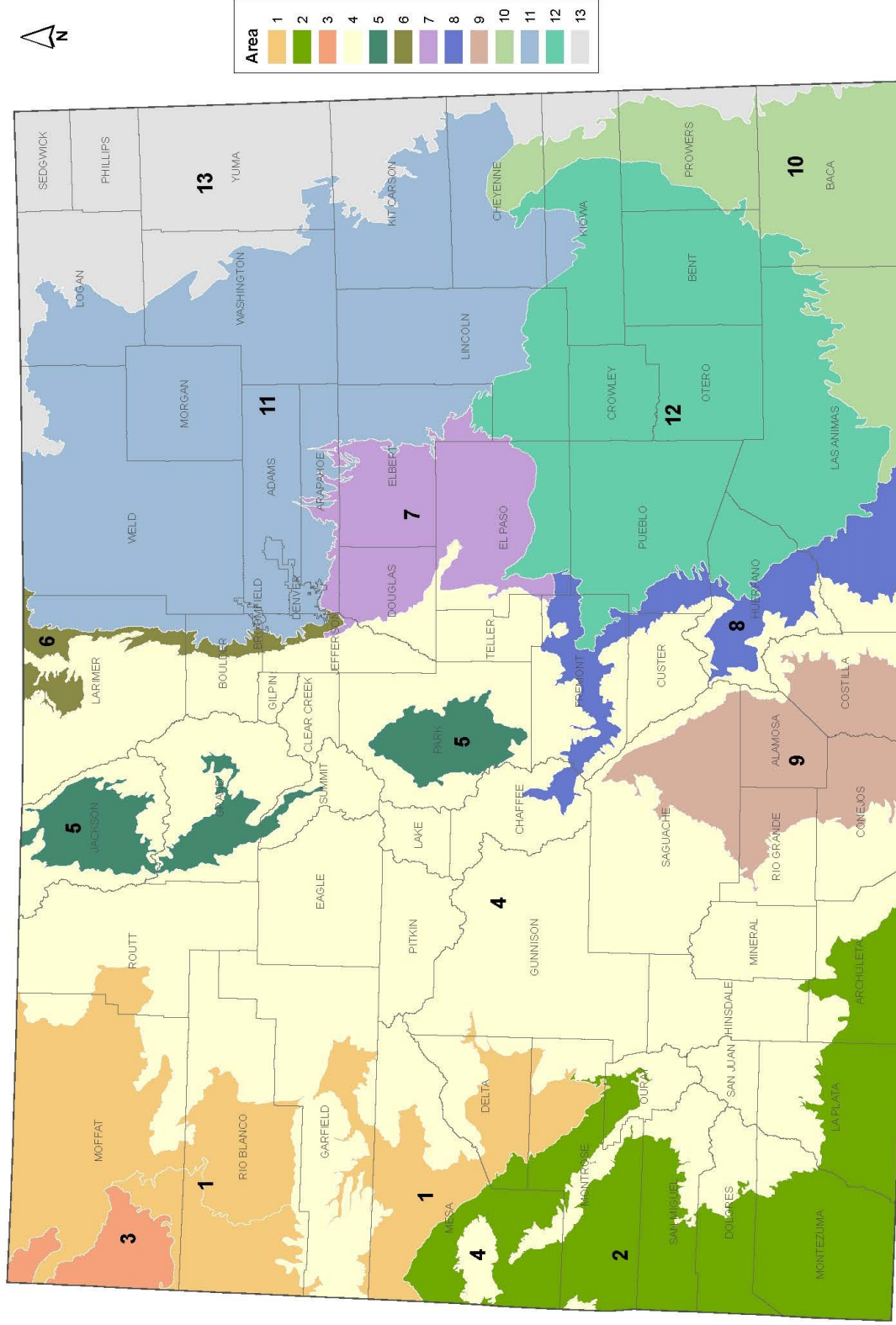
***Average Forage Condition:**
34-66% desirable plants.

***Poor Forage Condition:**
0-33% desirable plants, with mostly undesirable weeds, forbs and shrubs present.

***AUM/AC:**
Animal Unit Months per acre, a measure of forage production.

The Estimated Dryland Forage Production values listed above are weighted average estimates based on USDA-NRCS range condition classes and ecological site descriptions for each area. **For site specific forage production values, contact your local USDA-NRCS, Extension office, or other local experts.** Forage production can vary from year to year based on precipitation and management practices. These values assume normal annual precipitation. Drought years will need to be adjusted accordingly.

Colorado Forage Production Map*



*Map developed based on USDA-NRCS Major Land Resource Area (MLRA) map. Some MLRA's have been combined for the purpose of this publication.

Figure 3: Colorado Dryland Forage Production Map

Calculate Carrying Capacity*

Animal Unit Equivalents (AUEs)*

Cow or Cow/Calf Pair (Assuming a 1000# cow) = 1.0
Bull (1800#) = 1.8
Weaned Calf (500#) = 0.5
Heifer/Steer (13-18 Months or 700-900#) = 0.7 - 0.9
Heifer/Steer (19-24 Months or 900-1100#) = 0.9 - 1.1
Other Animals = 0.1 AU for Each 100# of Body Weight

Ewe = 0.15
Lamb (12 Months) = 0.1
Ram = 0.2
Goat = 0.15
Bison = 1.0
Horse (Average 1250#) = 1.25

Carrying Capacity Calculations*

AUMs/AC (from Table 2) = _____

Acres Grazed = _____

AUMs/AC X Acres Grazed = Total AUMs (Available or Useable Forage) _____

AUEs (see list above) _____ X Number of Animals _____ = Total AUs _____

Total AUMs of Forage _____ / Total AUs _____ = Months of Grazing Available/Year _____

Months of Grazing Available/Year X 30.4 Days/Month = Days of Grazing Available/Year _____

Days of Grazing Available/Year X 24 Hours/Day = Hours of Grazing Available/Year _____

***Carrying capacity** is the number of animals that a parcel of land can support without overgrazing. It is a function of: number and type of livestock, pasture condition and production, and number of acres being grazed.

AU—Animal Unit is equivalent to one 1000-pound cow. An average quarter-horse is 1.25 AU's and a 1400-pound cow is 1.4 AU's.

AUM—Animal Unit Month is the amount of forage necessary to carry one Animal Unit (AU) for one month.

AUMs/AC— Animal Unit Months per acre

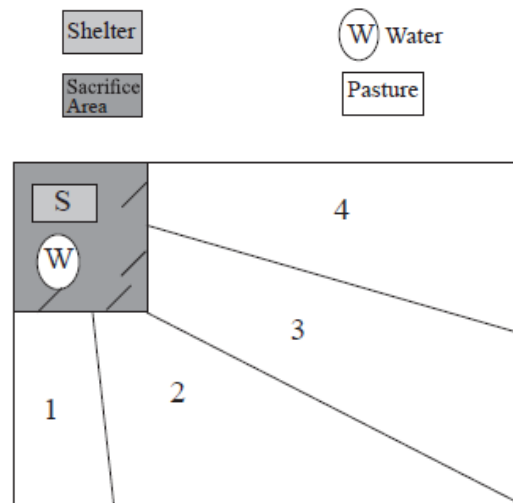
Figure 4: Calculating Carrying Capacity

ROTATIONAL GRAZING

Rotational grazing is a practice in which two or more pastures are alternately rested and grazed in a planned sequence for a period of years. If rotational grazing is not practiced then range condition may not improve, *even with proper carrying capacity*. We want to avoid continuous grazing because it allows animals to selectively graze. Desirable plants will continue to be overused and undesirable plants, like weeds, will continue to flourish.

Figure 5:

Create a sacrifice area and subdivide the pasture to control when and where animals are grazing. Rotate animals as one unit. Use a planned grazing schedule to monitor recovery days and grass height to determine when to move animals.



Guidelines for Rotational Grazing

- ☐ After determining the carrying capacity (Figure 4), then a rotational grazing system should be considered. However, the total number of days/hours grazed in a rotational grazing system per year should not exceed the number of days/hours allowed by the carrying capacity (as calculated) for the grazed area per year.
- ☐ A rotational grazing system should provide for 30-90 days of recovery (no grazing) for each pasture following each grazing period, depending on the time of year and amount of moisture received. No more than two

grazing periods should occur in each pasture during a growing season, depending on climate and precipitation conditions. Figures 1 and 5 are examples of how to subdivide a pasture.

- Use the following formula to determine the grazing period for each pasture: recovery period desired / number of pastures being rested. This assumes pastures of relatively equal production (AUMs). If you have different sized pastures, then the grazing period will need to be adjusted accordingly.
- ☐ Grazing periods should be relatively short (10 days or less), but the recovery periods take priority. This may require cross-fencing existing pastures to increase the number of available pastures. Ten or more pastures are recommended per herd to implement a short-duration, high-intensity grazing system (10 days or less per grazing period and 90+ days of recovery following each grazing event) to improve range condition. Again, this assumes that the total number of days/hours grazed does not exceed carrying capacity.
 - The animals should be rotated as one herd to allow for maximum pasture recovery.
 - Cross-fencing may consist of 1 or 2 strand portable or permanent electric fence.
 - Start grazing in a different pasture each spring.

THE NEXT STEP AND REFERENCES

- ☐ Colorado State University Extension Small Acreage Management website, one-hour recorded webinars. <https://sam.extension.colostate.edu/recorded-webinars/recorded-webinars-password-page/>
 - Pasture Management on Small Acreages
 - Pasture Management During and After Drought
 - Poisonous Plants and Horses
 - Poisonous Plants of Colorado
 - Common Forage Grasses
 - Understanding Weeds
 - Integrated Weed Management
- ☐ [Managing Small Acreage Pastures During and After Drought, Fact sheet 6.112](#), Colorado State University Extension
- ☐ [Grass Growth and Response to Grazing, Fact sheet 6.108](#), Colorado State University Extension.
- ☐ Colorado State University Extension Small Acreage Management website, sam.extension.colostate.edu/
- ☐ [Colorado Forage Guide, Bulletin 563A](#), Colorado State University Extension.
- ☐ [Paddock Paradise Track System for Horses](#), Colorado State University Extension Small Acreage Management

RECORD KEEPING

Keeping records will allow you to keep track of the total grazing days per year. This is very useful if there are multiple managers. Use this example or create your own record keeping system.

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