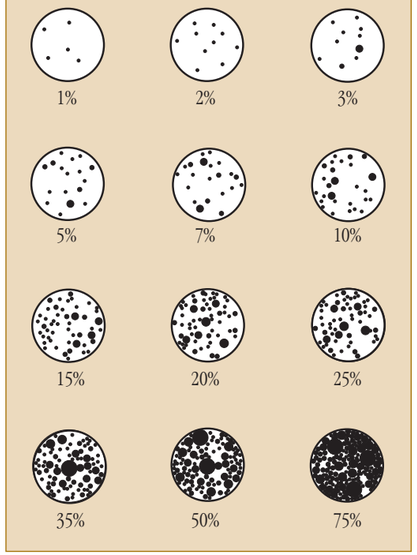
Percent Cover Examples



Density Distribution

Class	Description of abundance in polygon	Distribution	Weeds Score
0	None		3
1	Rare		2
2	A few sporadically occurring individual plants		
3	A single patch		
4	A single patch plus a few sporadically occurring plants		1
5	Several sporadically occurring plants		
6	A single patch plus several sporadically occurring plants		
7	A few patches		
8	A few patches plus several sporadically occurring plants		0
9	Several well spaced patches		
10	Continuous uniform occurrences of well spaced plants		
11	Continuous occurrence of plants with a few gaps in the distribution		
12	Continuous dense occurrence of plants		
13	Continuous occurrence of plants with a distinct linear edge in the polygon		

Rangeland Health Assessment Litter Thresholds (lb/ac)

Natural Subregion (Soil Zone)	Range Sites	Healthy (Base value and >65%) Average	Healthy (Base value and >65%) (65%)	Healthy but with Problems (65%-35%)	Unhealthy (<35)
Aspen Parkland (Black)	Loamy	1500	(>975)	975 - 525	<525
	Sandy	1100	(>715)	715 - 385	<385
	Sands	800	(>520)	520 - 280	<280
	Choppy sandhills	400	(>260)	260 - 140	<140
Foothills Fescue, Foothills Parkland and Montane (Black)	Thick Black Loamy	1400	(>910)	910 - 490	< 490
	Orthic Black Loamy	1200	(>780)	780 - 420	< 420
	Shallow-to Gravel and Limy	1000	(>650)	650 - 350	<350
	Thin Breaks	500	(>325)	325 - 175	<175
Mixed Grass (Dark Brown)	Loamy (>1100m)*	900	(>585)	585 - 315	<315
	Loamy (<1100m) + Limited	600	(>390)	390 - 210	<210
	Thin Breaks Limey and Shallow to Gravel	300	(>195)	195 - 105	<105
Dry Mixed Grass (Brown)	Loamy	400	(>260)	260 - 140	<140
	Blowout	250	(>160)	160 - 85	<85
	Thin Breaks	150	(>95)	95 - 50	<50

* Elevation > mean greater than

May 2011

Range Health Assessment

Field Worksheet for Grasslands

What is Rangeland Health?

Range health refers to the ability of rangelands to perform certain important natural functions like:

- produce plant biomass including forage for livestock and wildlife,
- maintain the soil and protect the site from erosion
- capture and beneficially release water,
- cycle nutrients and energy, and
- maintain biological diversity.

Healthy rangelands will provide a long list of goods and services for society. For livestock producers this means sustainable grazing opportunities along with watershed and soil protection.

Why Should I Consider Range Health?

The range health score is a cumulative measure of the 5 factors that you will rate for the representative area of grassland you have selected to monitor. A range health assessment provides a snapshot in time of management impacts on a particular site. Range health monitoring can alert livestock producers to management issues and problems on their rangelands so that management changes can be made.

A Tool for Ranchers and Other Resource Managers

The range health protocol is very similar to the riparian health assessment system that has been developed by the Alberta Cows and Fish Program. Range health builds on the traditional range concept, but like the riparian health assessment, adds additional indicators of important natural processes and functions – things that producers can observe and that are easier to measure than plant community alone. Ranchers, wildlife managers, researchers, the oil and gas industry and other users, are all able to use this tool to successfully judge the health of rangelands.

How Do I Assess My Rangeland?

Assessing the health of rangelands involves comparing the ecological functions being performed on a grazed site to a corresponding lightly grazed potential natural plant community or reference plant community (RPC). The RPC shows which native plants are expected to be growing on that kind of site for that particular successional stage. Information on RPC can be derived from a lightly grazed site nearby or in range plant community guides available at www.srd.alberta.ca.

Get a look at as much of the site as possible to ensure that the answers to the questions represent the entire area being represented. You may need to consider subdividing the site into smaller sample areas to provide improved assessment. Alternatively you may decide to only assess a smaller area to represent the site.

Health Categories

Healthy: A health score of 75 or greater.
All of the key functions of health rangeland are being performed.

Healthy with Problems: A health score of 50 to 74%.
Most but not all of the key functions of healthy range are being performed. This score is an early warning that adjustments to management are needed. Recovery to a healthy category can normally be accomplished within a few years.

Unhealthy: A health score of less than 50%.
Few of the functions of healthy range are being performed. Management changes are essential and many years will be required to regain a healthy status..

Need More Information?

This document is an abridged version of the rangeland health assessment.

For more detailed information, please refer to the *"Rangeland Health Assessment for Grassland, Forest and Tame Pasture Field Workbook"* available at your nearest Sustainable Resource Development Lands office or at www.srd.alberta.ca.

Government of Alberta

Grassland Range Health Questions

Question #1A — *What kind of plants are on the site? What's the plant community?* (Answer 1A or 1B)

The plant species present on a site will influence the site's ability to perform functions and produce forage. The naturally dominant grasses tend to be the best forage producers whereas heavy grazing pressure can cause a shift to less productive species. Very heavy grazing may result in the invasion of non-native species like Kentucky bluegrass, which lacks drought tolerance and has little value for dormant season grazing. If greater than 70% of the canopy cover consists of non-native species like crested wheat grass, brome, timothy, or Kentucky bluegrass the site should be rated as a modified plant community (Question 1B).

Score: 40 = Plant community closely resembles the natural plant community for the site and alteration due to gazing or other disturbances is minimal. 27 = Plant community shows minor alteration, grazing impact is light to moderate. 20 = Rough fescue is co-dominant with Kentucky bluegrass (or other invasive species). Is an intermediate successional stage where grazing impact is light to moderate. 15 = Plant community shows moderate alteration, grazing impact is moderate to heavy. 15 = Plant community shows significant alteration, grazing impact is heavy to very heavy.

Question #1B — *Is the plant community non-native?* (Greater than 70% of the canopy cover is non-native species.)

This question reflects the need to identify grassland communities that have been modified to non-native species due to human and/or natural caused disturbances, to an extent where reversion back to the native plant community, regardless of management change or rest is unlikely. Modified communities are most likely to occur in the Montane, Foothills and Parkland subregions. Management of these modified communities should focus on maintaining the health and productivity of the desirable non-native species and preventing occurrence of undesirable weed forage species, nuisance and noxious weeds.

Score: 15 = Site is dominated by desirable and productive non-native species. 8 = Site is a mixture of desirable/productive and weedy/disturbance induced non-native species. Productivity and vigour slightly reduced. 0 = Site is dominated by weedy and disturbance induced non-native species. Productivity, palatability and vigour substantially reduced.

Question #2 — *Are the expected layers present?*

This question recognizes the various life form layers (tall and medium grasses and forbs; shrubs; mosses and lichens) that occur in a plant community. Each healthy plant community will have a characteristic number of life form layers. If grazing or other disturbances removes or reduces one or more of these layers, the plant community will tend to be less productive and unstable. Examples of things to look for: trampling or excessive shading can reduce moss and lichen; browsing of unpalatable shrubs such as snowberry also indicates a reduced life form layer. Do not downgrade the score for insect damage or drought.

Score: 10 = All life form layers are present; 7 = One life form layer is absent or significantly reduced (reduced by more than 50%). 3 = Two life form layers are absent or significantly reduced. 0 = Three life form layers are absent or significantly reduced.

Question #3 — *Does the site retain moisture?*

Litter (also called mulch), is the old plant residue left over from previous years' production. Litter protects soil against erosion, enhances forage production and buffers against dry conditions by aiding moisture retention and reducing moisture loss. This question is judged by comparing the litter present with what we would expect to find on the site (see litter thresholds on pack page and by sample raking 1/4m^2 area).

Score: 25 = litter amounts are 65% of normal or greater 13 = litter is 35 - 65% of normal 0 = less than 35%

Question #4 — *Is there accelerated soil erosion?*

Soil loss is a serious concern since erosion tends to remove the most valuable fractions from the soil (silts, clays and organic matter). Vegetation protects the soil surface from raindrop impact, it detains overland flow, maintains infiltration and permeability and protects the soil surface from erosion. In this question, we compare soil exposure to expected levels for the site and look for evidence of soil erosion beyond natural levels (see percent cover examples on back page).

Score:

Erosion 4.1 10 = no erosion 7 = slight amounts 3 = moderate amounts 0 = extreme amounts

Bare Soil 4.2 5 = less than 10% human-caused 3 = 10 to 20% human-caused 1 = greater than 20 to 50% human-caused 0 = greater than 50% human-caused

Question #5 — *Are noxious weeds present?*

Weeds normally provide a strong message about range health. They most often invade range where management practices have created available niche space (bare soil, openings in vegetation canopy). These available micro-habitats, normally occupied by range plants, are available to weeds due to over grazing or some other disturbance. Effective grazing management strives to maintain plant vigour and vegetation cover so that all niches are filled by desirable plants and thereby minimize potential for weed invasion (see density distribution table on back page).

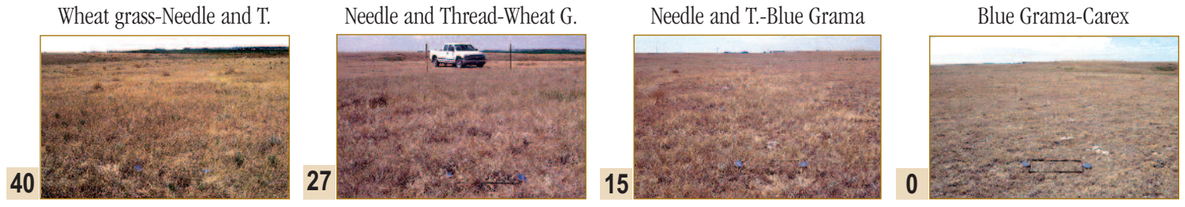
Score:

Canopy Cover 5.1 5 = no weeds 3 = less than 1% cover 1 = 1-15% cover 0 = greater than 15% cover

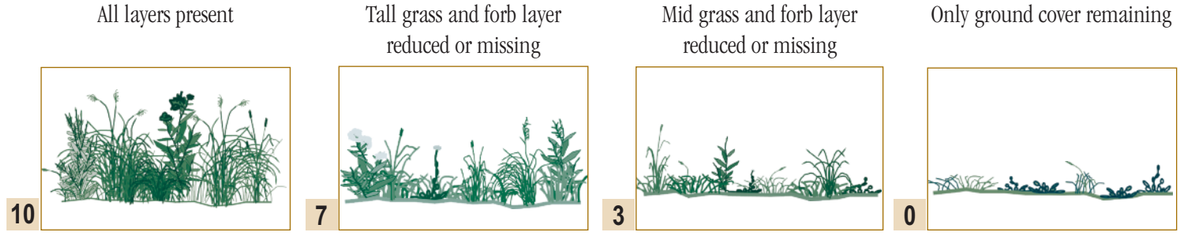
Density Distribution 5.2 5 = no weeds 3 = class 1-3 1 = class 4-7 0 = class 8-12

Grassland Range Health Visual Aids

Question #1 — *What kind of plants are on the site? What's the plant community?* (Example for 1A)



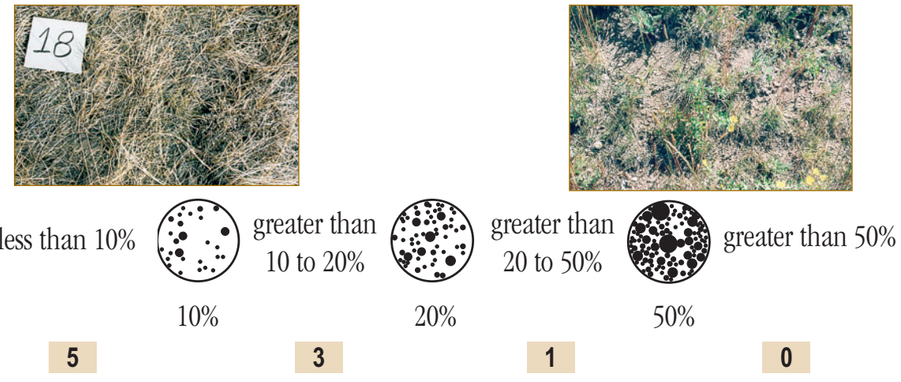
Question #2 — *Are the expected plant layers present?*



Question #3 — *Does the site retain mositure?*

SEE Back Page of Booklet for litter threshold examples

Question #4 — *Is there accelerated soil erosion?* (total exposed soil - natural/expected = human caused bare ground)



Question #5 — *Are noxious weeds present?*