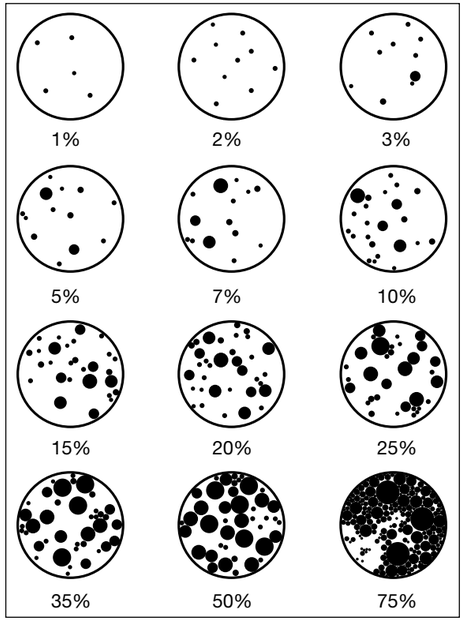
Percent Cover Examples



Density Distribution

Class	Description of abundance in polygon	Distribution	Weeds Score
0	None		5
1	Rare		3
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		Healthy with Problems	Unhealthy
		Average	>65%	65% - 35%	<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

Range Health Assessment

Field Worksheet for Grasslands

What is rangeland health?

Range health refers to the ability of rangelands to perform key ecological (i.e., natural) functions like:

- ❑ produce plant biomass including forage for livestock and wildlife,
- ❑ maintain site potential by protecting soil from erosion and degradation,
- ❑ capture and beneficially release water,
- ❑ cycle nutrients and energy, and
- ❑ maintain biological diversity.

Healthy rangelands optimally perform key functions and provide a broad range of values and benefits for society (e.g., carbon storage, clean water, wildlife habitat, recreation), whereas unhealthy rangelands cannot. Healthy rangelands provide stable grazing opportunities along with watershed and soil protection.

Why should I consider range health?

Health assessments provide an indication of sustainability and resiliency. They are a snapshot in time of management impacts on a particular site. Monitoring range health can highlight the impacts of disturbance, indicate management issues, guide management changes and evaluate outcomes. Assessments provide a means of tracking and communicating successes or arising issues.

What can this tool assess? How do I assess my grassland?

This is an abridged version of the grassland rangeland health assessment from the Rangeland Health Assessment for Grassland, Forest and Tame Pasture (Adams et al., 2016). The assessment focuses on evaluating the level of impact that disturbances are having on range health. Although the wording of the tool has an emphasis on grazing disturbances, any disturbance such as wildlife use and human activities (e.g., off road vehicle use, camping, etc.) could be evaluated.

The grassland range health assessment can be used for native (natural) grasslands throughout the province. If the land has been cultivated, the Tame Pasture Health Assessment should be used.

A health assessment involves comparing indicators of key ecological functions and processes on the assessment site to a standard (i.e., Reference Plant Community) representing the potential plant community type for that ecological site or rangeland site type. The Reference Plant Community (RPC) is an expression of plant composition on similar growing conditions with little or no disturbances (e.g., ungrazed or lightly grazed). The Alberta Rangeland section has developed range plant community guides that provide further information about RPCs and the sites you may be evaluating (available on the Government of Alberta website).

An assessment is completed within, and represents one, ecological site. A pasture unit may contain a variety of sites with different plant communities as a result of successional stages or site potential. If required, map the pasture unit subdividing areas of differing site potential or successional stages and assess each separately.

Health categories

The range health score is a cumulative measure of 5 indicators of key characteristics and ecosystem functions and is classified in one of the following health categories:

Healthy:

- A score of 75% or greater
- All of the key functions are being performed
- Grazing (disturbance) is balanced with site capabilities

Healthy with Problems:

- A score of 50 to 74%
- Performance of one or two of the key functions may be impaired
- This score is an early warning that adjustments to management are needed
- Recovery to a healthy category can normally occur within a few years

Unhealthy:

- A score of less than 50%
- Few of the functions of healthy range are being performed
- Significant management changes are required to address unsustainable grazing pressure or other types of disturbance
- Recovery to a healthy category may take many years

For more detailed information:

For more discussion on this tool, range health concepts and evaluation techniques, please refer to Adams et al., 2016 “Rangeland Health Assessment for Grassland, Forest and Tame Pasture” available at a Government of Alberta Rangelands office or website.

Question #1 How do the plants on the site compare to the reference plant community (RPC)?

Only answer question 1A (NATIVE grassland) or 1B (MODIFIED grassland). Evaluate the impact that disturbance is having on the observed plant community composition compared to the appropriate reference plant community (RPC). Refer to the natural subregion plant community guides developed by the Alberta Rangeland section. As disturbance (e.g., grazing pressure) increases from light or moderate, to heavy or very heavy, there is a change in the species composition from disturbance sensitive species to disturbance tolerant species. Some plant communities may have changed enough, crossing a native to modified threshold, where reversion back to the native plant community, regardless of management, is unlikely. Consider grasslands to be **NATIVE** if more than 30% of the cover is from native plants (i.e., less than 70% is non-native), and ANSWER question **1A**. Consider grasslands as **MODIFIED** if more than 70% of the cover is from non-native species like crested wheat grass, brome grasses, timothy, Kentucky bluegrass or dandelion, and ANSWER question **1B**. Modified plant communities have reduced ecological status but may still contribute to some ecological functions like forage production.

Score: (Answer only 1A or 1B; see the percent cover examples on the back page)

1A Native plant community (> 30% of the cover from native plants)

- 40 = Plant community closely resembles the RPC
- 27 = Plant community shows minor alteration; disturbance is light to moderate
- 20 = In rough fescue grasslands only: plant community shows moderate alteration; disturbance is light to moderate
- 15 = Plant community shows moderate alteration; disturbance is moderate to heavy
- 0 = Plant community shows significant alteration, grazing impact is heavy to very heavy

1B Modified plant community (> 70% of the cover from non-native plants)

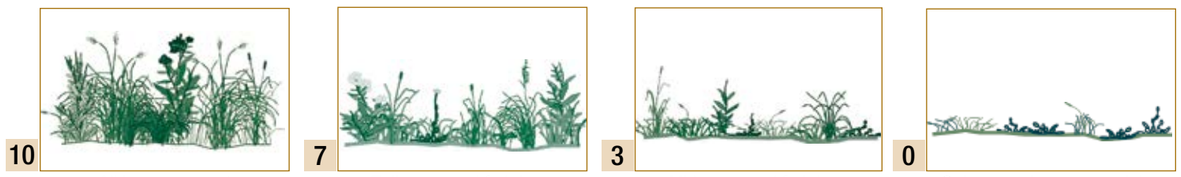
- 15 = Site is dominated by palatable and productive non-native species
- 8 = Site is a mixture of palatable/productive and weedy/disturbance induced non-native species; palatable plants have slightly reduced vigour
- 0 = Site is dominated by weedy and disturbance induced non-native species; remaining palatable plants have substantially reduced vigor

Question #2 Are the expected layers present?

Evaluate structure compared to the RPC. In grasslands, life forms layers may include: 1) shrubs, 2) tall forbs and grasses, 3) medium forbs and grasses, and 4) ground cover (low growing plants, mosses and lichens). Each RPC will have a characteristic number of life form layers. Structural layers contribute to maximizing plant production and habitat qualities. Utilization or mechanical damage by livestock and wildlife, along with other disturbances, can affect the appearance or growth form of plants. Under a continued heavy grazing regime, structural layers will be first reduced, and then eliminated. Do not downgrade the score for insect damage or drought.

Score:

- 10 = All life form layers present
- 7 = One life form layer significantly reduced (> 50%) or absent
- 3 = Two life form layers significantly reduced or absent
- 0 = Three life form layers significantly reduced or absent.



10 All layers present

7 Tall grass and forb layer reduced or missing

3 Mid grass and forb layer reduced or missing

0 Only ground cover remaining

Grassland Range Health Questions

Question #3 Does the site have enough litter?

Evaluate by comparing the amount and distribution of litter present to what is normally expected for the site. Litter is plant residue from previous years' production. Litter protects soil from erosion, retains moisture and stores and cycles nutrients and minerals.

Score: (observe litter distribution and sample (hand rake) several 1/4m^2 frames; compare to the litter thresholds on the back page)

25 = > 65% of normal; uniform distribution 13 = 35 - 65% of normal; somewhat patchy 0 = < 35% of normal; absent or occurs in small rare patches

Question #4 Is the site stable?

Site stability is evaluated in two parts (4.1 and 4.2) by comparing erosion and bare soil to expected (natural) levels for the RPC. Eroding or exposed soils are clear indicators of loss of key ecological functions. Human-caused effects are those over and above what is expected (natural) for the RPC and can result directly from grazing, industrial use, off highway vehicles, recreation, or wildlife use or indirectly from rodent burrowing..

Score: (Answer both 4.1 and 4.2; see the percent cover examples on the back page.)

4.1 Erosion

- 10 = no erosion beyond the natural extent for the site
- 7 = some micro erosion signs (e.g., plant pedestaling, hoof shearing)
- 3 = both macro (e.g., trails, gully or rill channels) and micro evidence present; no off-site movement of soil
- 0 = extreme amounts moving off-site

4.2 Human-caused Bare Soil

5 = < 10% 3 = 10% - 20% 1 = 20% - 50% 0 = > 50%

Question #5 Are noxious weeds present?

The degree of noxious weed infestation is evaluated in two parts (5.1 percent cover and 5.2 density and distribution). Management strives to maintain native plant vigour and dominant cover. The risk of weed invasion is minimized when this is achieved. Low tolerance and early detection of noxious weeds can help limit their spread and reduce control costs. Include weeds listed as prohibited noxious and noxious in the Alberta *Weed Control Act*, or any problem weeds elevated by the local government (e.g., Municipal District).

Score: (This is a two part question. Score both 5.1 and 5.2 using the percent cover and density distribution (DD) classes on the back page.)

5.1 Cover (cumulative cover of all noxious weeds)

5 = no noxious weeds 3 = < 1% cover 1 = 1 - 15% cover 0 = > 15% cover

5.2 Density Distribution (DD) (cumulative DD of all noxious weeds)

5 = no noxious weeds 3 = low level infestation (DD class 1-3) 1 = moderate infestation (DD class 4-7) 0 = heavy infestation (DD class 8-13)

Comments/Observations: