

Rangeland Health Evaluation Summary Worksheet

Part 1. Area of Interest Documentation (Bold items require completion, other information is optional)

State _____ **Office** _____ **Management Unit** _____

Pasture/Watershed _____ ID# _____ Major Land Resource Area _____

Location (description) _____

Legal T _____ ,R _____ ,Sec _____ , _____ 1/4, _____ 1/4 or Lat _____ ,Long _____ or UTM Coord _____

Size of Evaluation Area _____ **Photo(s) Taken** Yes ___ No ___

Observer(s) _____ **Date** _____

Ecological Site _____ Soil Map Unit Name _____

Soil/Site Verification

Rangeland Ecological Site Description and/or Soil Survey	Area of Interest Determination
Surface Texture _____	Surface Texture _____
Depth: Very Shallow <input type="checkbox"/> Shallow <input type="checkbox"/> Moderate <input type="checkbox"/> Deep <input type="checkbox"/>	Depth: Very Shallow <input type="checkbox"/> Shallow <input type="checkbox"/> Moderate <input type="checkbox"/> Deep <input type="checkbox"/>
($<10''$) ($10''-20''$) ($20''-40''$) ($>40''$)	($<10''$) ($10''-20''$) ($20''-40''$) ($>40''$)
List diagnostic horizons in profile and depth	List diagnostic horizons in profile and depth
1 _____ 3 _____	1 _____ 3 _____
2 _____ 4 _____	2 _____ 4 _____

Parent Material _____ **Slope** _____ % Elevation _____ ft Topographic Position _____ **Aspect** _____

Avg Annual Precip _____ **Recent Weather (last 2 years)** Drought _____ Normal _____ Wet _____

Describe wildlife and livestock use and recent disturbances _____

Describe offsite influences on area of interest _____

Part 2. Indicator Rating

		Departure from Ecological Site Description/ Ecological Reference Area(s)				
Attribute	Indicators	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
S,H	1. Rills					
Comments:						
S,H	2. Water Flow Patterns					
Comments:						
S,H	3. Pedestals and/or Terracettes					
Comments:						
S,H	4. Bare Ground					
Comments:						
S,H	5. Gullies					
Comments:						
S	6. Wind-Scoured, Blowouts, and/or Deposition Areas					
Comments:						

Part 2. Indicator Rating (continued)

		Departure from Ecological Site Description/ Ecological Reference Area(s)				
Attribute	Indicators	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
H	7. Litter Movement					
Comments:						
S,H,B	8. Soil Surface Resistance to Erosion					
Comments:						
S,H,B	9. Soil Surface Loss or Degradation					
Comments:						
H	10. Plant Community Composition and Distribution Relative to Infiltration and Runoff					
Comments:						
S,H,B	11. Compaction Layer					
Comments:						
B	12. Functional/Structural Groups					
Comments:						
B	13. Plant Mortality/Decadence					
Comments:						
H,B	14. Litter Amount					
Comments:						
B	15. Annual Production					
Comments:						
B	16. Invasive Plants					
Comments:						
B	17. Reproductive Capability of Perennial Plants					
Comments:						

Part 3. Summary

A. Indicator Summary

Departure from Ecological Site Description/
Ecological Reference Area(s)

Rangeland Health Attributes		Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight	Σ
S	Soil/Site Stability (Indicators 1-6, 8, 9 & 11)						9
H	Hydrologic Function (Indicators 1-5, 7-11 & 14)						11
B	Biotic Integrity (Indicators 8-9 & 11-17)						9

B. Attribute Summary - Check the category that best fits the “preponderance of evidence” for each of the three attributes relative to the distribution of indicator ratings in the preceding Indicator Summary table.

Attribute	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
Soil/Site Stability Rationale:					
Hydrologic Function Rationale:					
Biotic Integrity Rationale:					

Rangeland Health Indicator Evaluation Matrix

State _____ Office _____ Ecological Site _____ Site ID _____

If indicator(s) revised - Observer(s) _____ Date _____

Degree of Departure from Ecological Site Description and/or Ecological Reference Area(s)					
Indicator	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
1. Rills (Default Descriptor)	Rill formation is severe and well defined throughout most of the area.	Rill formation is moderately active and well defined throughout most of the area.	Active rill formation is slight at infrequent intervals, mostly in exposed areas.	No recent formation of rills; old rills have blunted or muted features.	Current or past formation of rills as expected for the site.
1. Rills (Revised Descriptor)					
2. Water Flow Patterns (Default Descriptor)	Extensive and numerous; unstable with active erosion; usually connected.	More numerous than expected; deposition and cut areas common; occasionally connected.	Nearly matches what is expected for the site; erosion is minor with some instability and deposition.	Matches what is expected for the site; some evidence of minor erosion. Flow patterns are stable and short.	Matches what is expected for the site; minimal evidence of past or current soil deposition or erosion.
2. Water Flow Patterns (Revised Descriptor)					
3. Pedestals and/or Terracettes (Default Descriptor)	Abundant active pedestalling and numerous terracettes. Many rocks and plants are pedestalled; exposed plant roots are common.	Moderate active pedestalling; terracettes common. Some rocks and plants are pedestalled with occasional exposed roots.	Slight active pedestalling; most pedestals are in flow paths and interspaces and/or on exposed slopes. Occasional terracettes present.	Active pedestalling or terracette formation is rare; some evidence of past pedestal formation, especially in water flow patterns and/or on exposed slopes.	Current or past evidence of pedestalled plants or rocks as expected for the site. Terracettes absent or uncommon.
3. Pedestals and/or Terracettes (Revised Descriptor)					

Rangeland Health Indicator Evaluation Matrix

(continued)

Degree of Departure from Ecological Site Description and/or Ecological Reference Area(s)					
Indicator	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
4. Bare Ground (Default Descriptor)	Much higher than expected for the site. Bare areas are large and generally connected.	Moderately to much higher than expected for the site. Bare areas are large and occasionally connected.	Moderately higher than expected for the site. Bare areas are of moderate size and sporadically connected.	Slightly to moderately higher than expected for the site. Bare areas are small and rarely connected.	Amount and size of bare areas nearly to totally match that expected for the site.
4. Bare Ground (Revised Descriptor)					
5. Gullies (Default Descriptor)	Common with indications of active erosion and downcutting; vegetation is infrequent on slopes and/or bed. Nickpoints and headcuts are numerous and active.	Moderate to common with indications of active erosion; vegetation is intermittent on slopes and/or bed. Headcuts are active; downcutting is not apparent.	Moderate in number with indications of active erosion; vegetation is intermittent on slopes and/or bed. Occasional headcuts may be present.	Uncommon with vegetation stabilizing the bed and slopes; no signs of active headcuts, nickpoints, or bed erosion.	Drainages are represented as natural stable channels; no signs of erosion with vegetation common.
5. Gullies (Revised Descriptor)					
6. Wind-Scoured, Blowouts, and/or Deposition Areas (Default Descriptor)	Extensive.	Common.	Occasionally present.	Infrequent and few.	Matches what is expected for the site.
6. Wind-Scoured, Blowouts, and/or Deposition Areas (Revised Descriptor)					

Rangeland Health Indicator Evaluation Matrix

(continued)

Degree of Departure from Ecological Site Description and/or Ecological Reference Area(s)					
Indicator	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
7. Litter Movement (wind or water) (Default Descriptor)	Extreme; concentrated around obstructions. Most size classes of litter have been displaced.	Moderate to extreme; loosely concentrated near obstructions. Moderate to small size classes of litter have been displaced.	Moderate movement of smaller size classes in scattered concentrations around obstructions and in depressions.	Slightly to moderately more than expected for the site with only small size classes of litter being displaced.	Matches that expected for the site with a fairly uniform distribution of litter.
7. Litter Movement (wind or water) (Revised Descriptor)					
8. Soil Surface Resistance to Erosion (Default Descriptor)	Extremely reduced throughout the site. Biological stabilization agents including organic matter and biological crusts virtually absent.	Significantly reduced in most plant canopy interspaces and moderately reduced beneath plant canopies. Stabilizing agents present only in isolated patches.	Significantly reduced in at least half of the plant canopy interspaces, or moderately reduced throughout the site.	Some reduction in soil surface stability in plant interspaces or slight reduction throughout the site. Stabilizing agents reduced below expected.	Matches that expected for the site. Surface soil is stabilized by organic matter decomposition products and/or a biological crust.
8. Soil Surface Resistance to Erosion (Revised Descriptor)					

Rangeland Health Indicator Evaluation Matrix

(continued)

Degree of Departure from Ecological Site Description and/or Ecological Reference Area(s)					
Indicator	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
9. Soil Surface Loss or Degradation (Default Descriptor)	Soil surface horizon absent. Soil structure near surface is similar to, or more degraded than, that in subsurface horizons. No distinguishable difference in subsurface organic matter content.	Soil loss or degradation severe throughout site. Minimal differences in soil organic matter content and structure of surface and subsurface layers.	Moderate soil loss or degradation in plant interspaces with some degradation beneath plant canopies. Soil structure is degraded and soil organic matter content is significantly reduced.	Some soil loss has occurred and/or soil structure shows signs of degradation, especially in plant interspaces.	Soil surface horizon intact. Soil structure and organic matter content match that expected for the site.
9. Soil Surface Loss or Degradation (Revised Descriptor)					
10. Plant Community Composition and Distribution Relative to Infiltration and Runoff (Default Descriptor)	Infiltration is severely decreased due to adverse changes in plant community composition and/or distribution. Adverse plant cover changes have occurred.	Infiltration is greatly decreased due to adverse changes in plant community composition and/or distribution. Detrimental plant cover changes have occurred.	Infiltration is moderately reduced due to adverse changes in plant community composition and/or distribution. Plant cover changes negatively affect infiltration.	Infiltration is slightly to moderately affected by minor changes in plant community composition and/or distribution. Plant cover changes have only a minor effect on infiltration.	Infiltration and runoff are equal to that expected for the site. Plant cover (distribution and amount) adequate for site protection.
10. Plant Community Composition and Distribution Relative to Infiltration and Runoff (Revised Descriptor)					

Rangeland Health Indicator Evaluation Matrix

(continued)

Degree of Departure from Ecological Site Description and/or Ecological Reference Area(s)					
Indicator	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
11. Compaction Layer (below soil surface) (Default Descriptor)	Extensive; severely restricts water movement and root penetration.	Widespread; greatly restricts water movement and root penetration.	Moderately widespread; moderately restricts water movement and root penetration.	Rarely present or is thin and weakly restrictive to water movement and root penetration.	None to minimal; not restrictive to water movement and root penetration.
11. Compaction Layer (below soil surface) (Revised Descriptor)					
12. Functional/ Structural Groups (F/S Groups) (Default Descriptor) (See Appendix 5 - Functional/ Structural Groups Worksheet)	Number of F/S groups greatly reduced; and/or relative dominance of F/S groups has been dramatically altered; and/or number of species within F/S groups dramatically reduced.	Number of F/S groups reduced; and/or one dominant group and/or one or more subdominant groups replaced by F/S groups not expected for the site; and/or number of species within F/S groups significantly reduced.	Number of F/S groups moderately reduced; and/or one or more subdominant F/S groups replaced by F/S groups not expected for the site; and/or number of species within F/S groups moderately reduced.	Number of F/S groups slightly reduced; and/or relative dominance of F/S groups has been modified from that expected for the site; and/or number of species within F/S groups slightly reduced.	F/S groups and number of species in each group closely match that expected for the site.
12. Functional/ Structural Groups (F/S Groups) (Revised Descriptor) (See Appendix 5 - Functional/ Structural Groups Worksheet)					

Rangeland Health Indicator Evaluation Matrix

(continued)

Degree of Departure from Ecological Site Description and/or Ecological Reference Area(s)					
Indicator	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
13. Plant Mortality/Decadence (Default Descriptor)	Dead and/or decadent plants are common.	Dead and/or decadent plants are somewhat common.	Some dead and/or decadent plants are present.	Slight plant mortality and/or decadence.	Plant mortality and decadence matches that expected for the site.
13. Plant Mortality/Decadence (Revised Descriptor)					
14. Litter Amount (Default Descriptor)	Largely absent or dominant relative to site potential and weather.	Greatly reduced or increased relative to site potential and weather.	Moderately more or less relative to site potential and weather.	Slightly more or less relative to site potential and weather.	Amount is what is expected for the site potential and weather.
14. Litter Amount (Revised Descriptor)					
15. Annual Production (Default Descriptor)	Less than 20% of potential production.	20-40% of potential production.	40-60% of potential production.	60-80% of potential production.	Exceeds 80% of potential production.
15. Annual Production (Revised Descriptor)					
16. Invasive Plants (Default Descriptor)	Dominate the site.	Common throughout the site.	Scattered throughout the site.	Present primarily on disturbed sites.	Rarely present on the site.
16. Invasive Plants (Revised Descriptor)					

Rangeland Health Indicator Evaluation Matrix

(concluded)

Degree of Departure from Ecological Site Description and/or Ecological Reference Area(s)					
Indicator	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
17. Reproductive Capability of Perennial Plants (native or seeded) (Default Descriptor)	Capability to produce seed or vegetative tillers is severely reduced relative to recent climatic conditions.	Capability to produce seed or vegetative tillers is greatly reduced relative to recent climatic conditions.	Capability to produce seed or vegetative tillers is somewhat limited relative to recent climatic conditions.	Capability to produce seed or vegetative tillers is only slightly limited relative to recent climatic conditions.	Capability to produce seed or vegetative tillers is not limited relative to recent climatic conditions.
17. Reproductive Capability of Perennial Plants (native or seeded) (Revised Descriptor)					