

Ecological site R025XY410UT Mountain Aspen Thicket

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Rangeland health reference sheet

Interpreting Indicators of Rangeland Health is a qualitative assessment protocol used to determine ecosystem condition based on benchmark characteristics described in the Reference Sheet. A suite of 17 (or more) indicators are typically considered in an assessment. The ecological site(s) representative of an assessment location must be known prior to applying the protocol and must be verified based on soils and climate. Current plant community cannot be used to identify the ecological site.

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Approved by	Shane Green
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** None to very rare. Any rills present should be somewhat short in length (less than 3 feet long) and only occur on areas with increased runoff on the lower parts of steeper slopes and areas below exposed bedrock. An increase in rill formation may be seen after disturbance events such as recent fire or episodic thunderstorms.

2. **Presence of water flow patterns:** None to few. Flow patterns wind around perennial plant bases and should show very slight evidence of erosion. They are expected to be short, stable, sinuous and not connected. There is usually very minor evidence of deposition. Evidence of flow will increase a little with slope.

3. **Number and height of erosional pedestals or terracettes:** Plants should show little or no pedestalling. Terracettes should be absent. These areas are small pockets of trees not large enough to have terracettes form when vegetation is stable.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 3 – 10%. The soil surface may have large rocks throughout with 30 to 60 percent rock fragments. Ground cover is measured as first raindrop impact, bare ground is the inverse of cover. Ground cover + bare ground = 100%.

5. **Number of gullies and erosion associated with gullies:** None to few. If present, gullies may be wide and shallow and armored with rock fragments and dense vegetation.
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6. **Extent of wind scoured, blowouts and/or depositional areas:** None. No evidence of wind generated soil movement is anticipated.
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7. **Amount of litter movement (describe size and distance expected to travel):** Most litter resides in place with little redistribution caused by water movement. Minor litter removal may occur in flow channels with deposition occurring at points of obstruction. The majority of litter accumulates at the base of plants. Some grass leaves and small twigs (grass stems) may accumulate in soil depressions adjacent to plants. Woody stems are not likely to move. However, some litter movement is expected with increases in slope and/or increased runoff resulting from heavy thunderstorms.
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8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** This site should have a soil stability rating of 5 or 6 under the plant canopies, and a rating of 4 to 5 in the interspaces. The average should be a 5. Surface texture is a cobbly loam. Vegetation cover, litter and/or surface rock reduce erosion.
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Soil surface horizon is 8 inches thick. Structure is weak fine granular. Color is very dark grayish brown (10YR3/2). Mollic epipedon is 30 inches thick. Use the specific information for the soil you are assessing found in the published soil survey to supplement this description.
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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Plants occur in sufficient cover and spatial arrangement to intercept raindrops and reduce raindrop splash erosion. Litter on soil surface and condition of soil surface also protect soil from splash erosion and encourage a high rate of infiltration. Plant spatial distribution should slow runoff allowing additional time for infiltration. Bare spaces are expected to be small and irregular in shape and are usually not connected. The vegetative structure is usually adequate to capture snow and ensure snowmelt occurs in a subdued manner allowing maximum time for infiltration and reduce runoff and erosion in all but the most extreme thunder storm events. When perennial grasses, shrubs and/or trees (aspen) decrease, reducing ground cover and increasing bare ground, runoff is expected to increase and any associated infiltration reduced.
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11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** None.
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12. **Functional/Structural Groups (list in order of descending dominance by above-ground annual-production or live foliar cover using symbols: >>, >, = to indicate much greater than, greater than, and equal to):**
- Dominant: Dominants: Aspen, Mountain snowberry, Mountain brome, Slender wheatgrass,
- Sub-dominant: Sub-dominants: Chokecherry, Mountain big sagebrush and other shrubs, perennial grasses and forbs.
- Other: Perennial and annual forbs can be expected to vary widely in their expression in the plant community based upon

departures from average growing conditions.

Additional: Disturbance regime includes fire, drought, and disease. Assumed fire cycle of 30-50 years.

Dominance is based on average annual production, air dry weight: Perennial bunchgrasses > trees (aspen) > sprouting shrubs > native perennial and annual forbs > non-sprouting shrubs.

Functional/structural groups may appropriately contain non-native species if their ecological function is the same as the native species in the reference state (e.g. Smooth brome, intermediate wheatgrass, alfalfa, etc.)

Following a recent disturbance such as fire, drought or disease that remove the woody vegetation, forbs and perennial grasses (herbaceous species) may dominate the community. If a disturbance has not occurred for an extremely extended period of time, woody species may continue to increase crowding out the perennial herbaceous understory species. In either case, these conditions would reflect a functional community phase within the reference state.

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** All age classes of perennial grasses should be present under average to above average growing conditions with age class expression likely subdued in below average growing conditions, or on sites with high (usually greater than 65%) similarity index (late seral to historic climax). Slight decadence in the principle trees and shrubs could occur near the end of the fire cycle or during periods of extended drought, or insect infestations. In general, a mix of age classes may be expected with some dead and decadent plants present. Trees will normally be a more even aged stand.
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14. **Average percent litter cover (%) and depth (in):** Variability may occur due to growing conditions.
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 2150-2250 #/acre on an average year.
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16. **Potential invasive (including noxious) species (native and non-native). List species which BOTH characterize degraded states and have the potential to become a dominant or co-dominant species on the ecological site if their future establishment and growth is not actively controlled by management interventions. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants. Note that unlike other indicators, we are describing what is NOT expected in the reference state for the ecological site:** Rabbitbrush, annual grasses and forbs.
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17. **Perennial plant reproductive capability:** All perennial plants should have the ability to reproduce in all years, except in extreme drought years and snow drift accumulation areas.
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