USDA Natural Resources
Conservation Service

Ecological site EX044B01A038
Droughty Steep (DrStp) LRU 01 Subset A

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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	Kirt Walstad
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** Rills should be non-existent on most sites though may be short and inconspicuous on the steepest, southerly facing slopes.

2. **Presence of water flow patterns:** Flow patterns will be rare though may be present on the steeper, southerly facing slopes when runoff has the potential to exceed infiltration. If present, water flow patterns will be short (less than 10 feet) and very infrequent across the landscape. If present, flow patterns will be inconspicuous and not interconnected.

3. **Number and height of erosional pedestals or terracettes:** Not Present

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground should be less than 10 percent. Bare ground may occur in small patches in canopy gaps between plants.

5. **Number of gullies and erosion associated with gullies:** Not Present

6. **Extent of wind scoured, blowouts and/or depositional areas:** Wind erosion will be extremely rare due to the limited bare ground and natural crusting the soil. Post natural disturbances in reference state, wind erosion may occur as plants

re-establish.

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7. **Amount of litter movement (describe size and distance expected to travel):** Minimal fine herbaceous litter movement is to be expected on steeper slopes. Distance traveled is short (less than 10 inches)

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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):** Soils on this site are stable and should have stability ratings of 3-6 using the Soil Stability Method. A Horizon should be 4-6 inches thick. Areas under dense sagebrush canopy will tend to have lower stability ratings.

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Soil structure at the surface is typically weak fine granular to medium subangular blocky. A Horizon should be 4-6 inches thick with color, when wet, typically ranging in Value of 4 or less and Chroma of 3 or less. Local geology may affect color in which it is important to reference the Official Series Description (OSD) for characteristic range.

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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Site is well drained. The mixed fibrous rooting depth of dominant bunchgrasses combined with the taproots of forbs and shrubs in reference state allows for good infiltration. Plant cover (distribution and amount of canopy) currently adequate for site protection varies however in reference canopy percentage may be from 65-100% with even distribution of mid-statured bunchgrasses.

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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):** Not Present

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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: Cool season mid-statured bunchgrasses (bluebunch wheatgrass, green needlegrass, rough fescue (extent limited))

    Sub-dominant: Cool season increaser bunchgrasses ≥ Cool season increaser Rhizomatous grasses > Forbs = Shrubs

    Other: Native annual forbs and Cactus may be present accounting for trace amounts

    Additional:

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Not Present

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14. **Average percent litter cover (%) and depth (in):** Site tends to express limited amounts herbaceous litter that is typically less than 0.1 inches thick.

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 645 to 1210lbs/acre or 723 to 1356 kg/hectare.

    Average total annual product is approximately 885lbs/acre or 1055kg/hectare

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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:** Non-native invasive species on this ecological site include: dandelion (Taraxicum spp), cheatgrass (Bromus techtorum), field brome (Bromus arvensis), spotted knapweed (*Centaurea stoebe*), yellow toadflax (*Linaria vulgaris*), leafy spurge (*Euphorbia esula*)

    Native species with the ability to indicate degradation however species presence alone does not imply degradation: Sandberg bluegrass (*Poa secunda*), big sagebrush (*Artemisia tridentata*), three-tip sagebrush (Artemisia tripartita), broom snakeweed (*Gutierrezia sarothrae*), rubber rabbitbrush (*Ericameria nauseosa*), yellow rabbitbrush (*Chrysothamnus viscidiflorus*), Rocky Mountain juniper (*Juniperus scopulorum*), Douglas fir (Psuedotsuga menziesii), Ponderosa pine (*Pinus ponderosa*)

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17. **Perennial plant reproductive capability:** Capability very high. Density of plants indicates that plants reproduce at level sufficient to fill available resource. No restriction on seed or vegetative reproductive capacity. Plants are producing seed and/or reproductive tillers.
