Ecological site R015XF008CA
Shallow Gravelly Foothills

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

Indicators

1. **Number and extent of rills:** A few rills were noted on steep slopes. Some were associated with heavy traffic on cattle trails, and were not extensive otherwise.

2. **Presence of water flow patterns:** Water commonly flows downslope for a length of 200-500 feet. No flow patterns were noted on the reference site.

3. **Number and height of erosional pedestals or terracettes:** No erosion pedestals or terracettes were noted.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground ranges from 20 to 65 percent with an average of 35 percent. Canopy gaps would be less than 8-10 inches in diameter but would increase in areas with disturbances from rodents or feral pig rooting and bedding activity.

5. **Number of gullies and erosion associated with gullies:** Gullies were noted on deeper soils found in conjunction with this site.

6. **Extent of wind scoured, blowouts and/or depositional areas:** No wind scour or blowouts were noted.

7. **Amount of litter movement (describe size and distance expected to travel):** Very little if any litter movement was noted. Oak leaves (2 by 3 inches) and dead grasses (.15 by 12 inches) are held in place by standing residual dead grasses and forbs with very little if any movement under undisturbed conditions.

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):**

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** A1--0 to 0.5 inches; pale brown (10YR 6/3) light clay loam, brown (10YR 4/3) moist; weak medium platy structure; slightly hard, friable, nonsticky and nonplastic; common fine roots; common fine pores; slightly acid; abrupt s A2--0.5 to 6 inches; brown (10YR 5/3) clay loam, brown (10YR 4/3) moist; moderate coarse subangular blocky structure; hard, friable, moderately sticky and nonplastic; common fine roots; common fine pores; few shale fragments; neutral; clear smooth boundary. (4 to 10 inches thick)

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Trees: 4 percent
Shrubs: 18 percent
Forbs: 40 percent
Grass: 36 percent
Trees and shrubs intercept some precipitation and slow water infiltration. High forb and grass cover aids water infiltration and slows runoff.

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** None. Platy soil structure may be confused with effects of compaction.

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: Dominant: Forbs > Grass

    Sub-dominant: Sub-dominant: Shrubs > or = to Trees

    Other:

    Additional:

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Annual grasses and forbs will show mortality and decadence beginning in late April or early May. Perennial grasses and forbs may last another month longer than annuals.

    Trees: Blue oak shows very little sign of mortality, however, California foothill pine is showing some increase mortality as a result of drought and increased bark beetle activity.

14. **Average percent litter cover (%) and depth (in):**

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Expected production is highly variable based on unfavorable normal or favorable year. Total production ranges from a low of 500 to a high of 1,500 pounds per acre over a two year period when data was collected. The first year was considered 80 percent of normal and the 2nd year of data collection was a normal or slightly above normal production year.

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:** Invasives such as medusahead and yellow star-thistle do not have the potential to become dominant on this site.

17. **Perennial plant reproductive capability:** Native perennial grasses that exist on this site including Sandberg bluegrass. Typically the native perennial grasses face strong competition from non-native grasses and forbs.