Appendix 2.

Ecological Reference Worksheet

Author(s) / participant(s): Don Ashby, Jr.; Bob Moorhead; Richard Spencer; Tim Henry, Ty Carter, John Hartung

Contact for lead author : Don Ashby Jr. **Reference site used? Yes/No** No

Date: 1/28/2005 **MLRA:** 70 **Ecological Site:** Swale CP-3 This *must* be verified based on soils and climate (see Ecological Site Description). Current plant community *cannot* be used to identify the ecological site.

Indicators: For each indicator, describe the potential for the site. Where possible, **(1)** use numbers, **(2)** include expected range of values for above and below average years for **each** community within the reference state, when appropriate & **(3)** site data. Continue description on separate sheet.	Indicator Weight
1. Number and extent of rills : None	
2. Presence of water flow patterns: This site occurs in a position to receive and transport surface water from uplands to bottomlands. Water flow patterns may be present but should not dominate the site.	
3. Number and height of erosional pedestals or terracettes: None	
4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground) : Bare ground will be present up to 33%. Bare patches should be less than six inches in diameter.	
5. Number of gullies and erosion associated with gullies: Gullies and erosion associated with gullies may be present depending on the amount of water flow from upland sites and flooding of swales. Gullies from overflow, onto bottomlands, may be severe.	
6. Extent of wind scoured, blowouts and/or depositional areas: Soil blowing hazards can be moderate on this site when overgrazing and re-occurring flooding is present.	
7. Amount of litter movement (describe size and distance expected to travel) : Fine (plant material) litter movement 6-10 feet can be expected with accumulations along the edges of the swale. Extreme flooding occurrences can remove all litter from the site.	
8. Soil surface (top few mm) resistance to erosion (stability) values are averages - most sites will show a range of values for both plant canopy and interspaces, if different): Anticipated to be 4-5 at the surface and subsurface in the interspaces and 5-6 at the surface and subsurfaces under vegetation.	
9. Soil surface structures and SOM content (include type and strength of structure, and A-horizon color and thickness for both plant canopy and interspaces, if different) : Soils are deep loams to clay loams, dark brown in color with the A horizon up to 12 inches in depth. Soils are well drained with slow to moderately slow permeability.	
10. Effect of plant community composition (relative proportion of different functional groups) & spatial distribution on infiltration & runoff: Grass and forbs account for 90% of the annual herbaceous production for this site and make up 30% of the site composition. Infiltration is best with low intensity rainfall events.	
11. Prescence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site): None. Overgrazing on these sites may be mistaken for compaction.	
12. Functional/Structural Groups (list in order of descending dominance by above-ground weight using symbols: indicate much greater than (>>) , greater than (>) , and equal to (=) : Cool Season rhizome grass>>Warm Season stolon grass>Warm Season bunch grass=Warm Season rhizome grasses>Forbs(Globemallow,Sagewort,Desert Holly,Thistle)=Shrubs(Fourwing Saltbush,Apacheplum)	
13. Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence) : Most of the perennial grasses, forbs, and shrubs are long lived. Extended drought periods tend to cause high mortality rates in the grass species, with some mortality with the forbs. Shrub mortality can occur in severe, multiple year droughts.	
14. Average percent litter cover (30 %) and depth (1.2 inches). Percent litter and depth will increase with multiple, above average rainfall years.	
15. Expected annual production (this is TOTAL above-ground production, not just forage production): 900lbs/ac low precip years, 1450 lbs/ac in average precip years, 2000 lbs/ac in above average years. Grass/Grasslikes make up 80% of the total annual production.	
16. Potential invasive (including noxious) species (native and non-native). List species which characterize degraded states and which, after a threshold is crossed, "can, and often do , continue to increase regardless of the management of the site and may eventually dominate the site": Juniper spp can dominate this site, Cholla and broomweed will dominate this site with overgrazing.	
17. Perennial plant reproductive capability : Weather related and natural disease can result in reduced reproductive capabilities. If Juniper, cholla or broomweed species dominate the site it can reduce reproductive capabilities of the native grasses and forbs.	

Photograph (s)

MLRA : 70 **Date :**

Ecological Site : Swale

Photo # 1

Comments :

Photo # 2

Comments :

Appendix 4.

Functional / Structural Groups Worksheet

State NM **Office** Carrizozo **Ecological Site** Swale CP-3

Observers Don Ashby, Jr.; Bob Moorhead; Richard Spencer; Tim Henry, Ty C **Date** 1/28/05

Functional / Structural Groups			Species List for Functional / Structural Groups
Name	**Potential** [1]	**Actual** [2]	**Plant Names**
Cool Season Rhizome	D		Western Wheatgrass, Bottlebrush Squirreltail
Warm Season Stolon	D		Vine Mesquite
Warm Season Bunch	D		Cane & Silver Bluestems, Blue Grama
Warm Season Bunch	S		Alkali Sacoton
Warm Season Rhizome	S		Tobosa/Galleta, Switchgrass
Perennial Forbs-taproot	M		Scarlet Globemallow, Silver leaf Nightshade
Perennial Shrubs	M		Four Wing Saltbush, Winter Fat, Apache Plume
Perennial Shrubs	T		Cholla, Broom Snakeweed
Biological Crust [3]			

Indicate whether each "structural/functional group" is a Dominant (D)(roughly 40-100% composition), a**Sub-dominant (S)** (roughly 10-40%) composition) a**Minor Component (M)** (roughly 2-5% composition), or a**Trace Component (T)** (<2% composition) based on weight or cover composition in the area of interest (e.g., "Actual [2] column) relative to the "Potential [2] column derived from information found in the ecological site/description and/or at the ecological reference area.

Biological Crust [3] dominance is evaluated solely on**cover** not composition by weight